HARBORVIEW MEDICAL CENTER
MAJOR INSTITUTIONAL MASTER PLAN
MAJOR AMENDMENT

FINAL
ENVIRONMENTAL IMPACT STATEMENT

Prepared For:

King County, Department of Executive Services
Harborview Construction and Infrastructure Division
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Date Submitted: August 19, 2026

The intent and purpose of this FINAL Environmental Impact Statement is to satisfy the procedural requirements of the State Environmental Policy Act (RCW 43.21c). This document is not an authorization for an action, nor does it constitute a decision or a recommendation for an action; in its final form it will accompany the final decision on the proposal.

King County

Anthony O. Wright, Director
Harborview Construction and Infrastructure Division
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August 19, 2026

Dear Affected Agencies, Tribes, Organizations, and Interested Parties,

Following is the Final Environmental Impact Statement (FEIS) for the proposed *Harborview Medical Center Major Institution Master Plan Major Amendment Project.* The Draft EIS (DEIS) was issued on December 11, 2025. This FEIS and the DEIS together analyze the probable adverse environmental impacts associated with two development alternatives and the no action alternative. The analysis and EIS address the following elements of the environment, which were identified during scoping:

- Earth/Topology (ECA steep slope)
- Air Quality/GHG
- Water (Surface Water Runoff and Stormwater)
- Energy and Natural Resources
- Environmental Health (Noise [Helicopter] and Hazardous Materials)
- Land and Shoreline Use (Patterns and Consistency with Plans, Policies, and Regulations)
- Recreation
- Aesthetics (Height, Bulk, and Scale, Views, Shadows, Light and Glare)
- Historic and Cultural Preservation
- Transportation
- Public Services
- Utilities
- Construction Impacts (Short-term Impacts)

The FEIS responds to the comments received on the DEIS. Together, the DEIS and FEIS constitute the EIS for the *Harborview Medical Center Major Institution Master Plan Major Amendment Project.*

A 45-day public comment period was provided on the DEIS. A total of 27 written comment letters/emails/County portal entries were received, and one spoken comment was made by individuals at the DEIS public meeting.

This FEIS, which is published in one volume, includes the following chapters:

- Chapter 1 – a summary of the DEIS and FEIS;
- Chapter 2 – a detailed description of the Proposed Actions and Alternatives, including any changes to the proposal since publication of the DEIS;
- Chapter 3 – updated/revised sections for the elements of the environment listed above; and

- Chapter 4 – all the comments that were received during the DEIS comment period, and responses to the comments.

Copies of this FEIS have been distributed to agencies, organizations, businesses, and individuals noted on the Distribution List of this FEIS (see Appendix G). The FEIS can be reviewed at the Seattle Public Library (1000 Fourth Ave.), Capitol Hill Branch Library (425 Harvard Ave. E.) and online at KingCounty.gov/Harborview. Digital copies of the FEIS are available from the Harborview Bond Program Office.

Sincerely,

Anthony O. Wright, Director
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FACT SHEET

Project Title
Harborview Medical Center
Major Institutional Master Plan Major Amendment

Proponent
King County, with the participation of Harborview Medical Center

Location
The Harborview campus is located in the First Hill neighborhood of Seattle, bounded by James Street on the north, Alder Street on the south, Terry Avenue on the east, and I-5 on the west. The main medical center is located at 325 9th Avenue. Other clinical sites adjacent to the main medical center include the Ninth and Jefferson Building and Norm Maleng Building**.**

Proposed Action
The development contemplated under the proposed MIMP Major Amendment would total 1,629,208 square feet of net new gross floor area, including inpatient (hospital) and outpatient clinic buildings to replace and grow existing health care capacity. Additionally, the Harborview campus would house 540 licensed hospital beds, most of which would now be used as single rooms for patients, representing a significant increase from the current mostly shared spaces on campus. This MIMP Major Amendment focuses on future improvements to meet the growing service demands for the years 2023 to 2035, and potentially beyond.

Lead Agency
King County, Department of Executive Services

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Required Permits and Approvals
Approvals by agencies with jurisdiction that may be required include the following agencies. During project review, additional permits and/or approvals may be identified.

Authors

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EA Engineering, Science, and Technology, Inc. PBC – Project description/alternatives, air quality/greenhouse gases, water, aesthetics, land and shoreline use.
Langan Engineering and Environmental Services, LLC – Lead consultant, earth geology, energy and natural resources, environmental health, recreation and open space, historic and cultural preservation, public services and utilities.
TGB Architects – Aesthetics.
Transpo Group – Transportation.

Date of Draft EIS Issuance: December 11, 2025

Date of Draft EIS Public Meeting: January 13, 2026

Due Date for Draft EIS Comments: January 26, 2026

Date of Final EIS Issuance: August 19, 2026

Document Availability: Project website: https://harborviewbondprogram.com/eis

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APPENDICES

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1.0 SUMMARY

1.1. INTRODUCTION

This chapter provides a summary of the Final Environmental Impact Statement (FEIS) for the proposed Harborview 2020 Bond Program Major Institutional Master Plan Major Amendment. Chapter 1 briefly describes the EIS alternatives: Alternative 1 - Proposed MIMP Major Amendment, Alternative 2 - Maximum Building Height of 240 feet, and the No Action Alternative and contains a comprehensive overview of environmental impacts identified for the EIS alternatives. Please see Chapter 2 of this FEIS for a more detailed description of the EIS alternatives and Chapter 3 for a detailed description of the affected environment, environmental impacts, mitigation measures, and significant unavoidable adverse impacts. Additionally, Chapter 4 contains comments received on the Draft EIS and responses to those comments.

1.2. PROJECT SUMMARY

Proposed Action – Alternative 1 - Proposed MIMP Major Amendment

Harborview is proposing an update to the 1999 MIMP that will allow the medical center to address health care needs associated with regional/local population growth, demographic changes (including aging population), evolving academic needs, upgrading older health care facilities, and increasing operational efficiencies.

The Harborview campus is located in the First Hill neighborhood of Seattle, bounded by James Street on the north, Alder Street on the south, Terry Avenue on the east, and I-5 on the west. The main medical center is located at 325 Ninth Avenue. Other clinical sites adjacent to the main medical center include the Ninth and Jefferson Building and Norm Maleng Building. The Patricia Steel Building, which lies outside of the current Major Institution Overlay (MIO) boundary, is three blocks east of the medical center.

The Harborview campus consists of 12 buildings and three parking garages within the MIO boundary. Harborview is a licensed 540-bed hospital owned by King County (County) and operated by the University of Washington School of Medicine (UW Medicine) through a Hospital Services Agreement between the County and UW Medicine. A 13-member Board of Trustees, appointed by the County, provides oversight of Harborview.

Harborview is a comprehensive regional healthcare facility dedicated to providing specialized care for a broad spectrum of patients, the control of illness, and the promotion and restoration of health. Harborview is one of the nation's leading academic medical centers and is the only Level 1 trauma center serving a four-state region (Alaska, Idaho, Montana, and Washington).

This proposed MIMP Major Amendment includes the following changes to the 1999 MIMP:

- Expand the MIO District boundary to the west by 108,535 square feet (Washington State Department of Transportation [WSDOT] property) to allow for a loop access road.
- Expand the current Floor Area Ratio (FAR) from 3.6 to 6.5.
- Increase the maximum building height west of private roadway known as 8th Avenue from 240 feet to 320 feet.
- Revise open space percentage goals from 20 percent to 12 percent.
- Identify additional Potential Projects beyond those identified in the 1999 MIMP.
- Identify potential future skybridge locations across multiple private roadways and public ROWs.

1.3. GOALS OF THE PROPOSAL

In November 2020, 77.5 percent of King County voters passed a historic $1.74 billion bond measure to facilitate building the next generation of healthcare facilities on the Harborview campus. After an extensive planning process convened by King County in partnership with UW Medicine, Harborview, and labor partners, the Harborview Bond Capital Program (Bond Program) outlined the following goals:

- Construct a new medical tower on the campus that will provide additional single-bed capacity.
- Increase the capacity of Emergency Department services.
- Upgrade and modernize existing patient rooms to meet modern infection control and privacy best practices standards.
- Co-locate outpatient behavioral health services and increase capacity for clinical behavioral health programs.
- Increase respite bed capacity at Harborview Hall (behavioral health and medical).
- Create enhanced space for Involuntary Treatment Act ("ITA") Court and expand Public Health – Seattle and King County (Public Health) spaces at Harborview to meet growing community needs.
- Seismically upgraded Center Tower.
- Seismically upgraded Harborview Hall.
- Demolish East Clinic.
- Remodel Pioneer Square Clinic.

This Bond Program furthers the commitment of King County, Harborview Medical Center, and the University of Washington to provide safe and sufficient facilities for the highest quality of healthcare, teaching, research, and community services.

1.4. EIS ALTERNATIVES

For the purposes of environmental review, the Final EIS analyzes Alternative 1 – Proposed MIMP Major Amendment, Alternative 2 - Maximum Building Height of 240 feet, and the No Action Alternative. Section 1.2 of this EIS describes Alternative 1, the Proposed Action. A full description of these alternatives is provided in Chapter 2.

Alternative 2 – Maximum Building Height of 240 Feet

All features of Alternatives 1 and 2, such as campus boundary, new building space, floor area ratio, open space, vehicular access, and parking, are the same as indicated in the proposed MIMP Major Amendment and do not differ between Alternatives 1 and 2. The only change between alternatives is the proposed MIO Height Limits across campus, which results in bulkier towers that occupy the full width and depth of each lot.

As under Alternative 1, Alternative 2 assumes the 672,065 square feet of net new building space with the Planned Tower I and the Potential Projects total of approximately 1,001,620 net new square feet of building space (1,629,208 square feet combined net new building space with Planned and Potential Projects). The campus boundary expansion to the west and the associated internal loop road assumed under Alternative 1 are also assumed under Alternative 2.

No Action Alternative

The No Action Alternative would leave the current MIMP unchanged. It assumes that the demand for increases in health care services in the region will continue. However, this EIS alternative would not result in changes to the campus boundary, building height overlays and setbacks, or the physical improvements that are included under the proposed MIMP Amendment (as analyzed under Alternative 1 and Alternative 2), including the addition of 1,629,208 square feet of net new floor area, vehicular access improvements, and new parking.

The No Action Alternative anticipates that the remaining campus building capacity under the 1999 Master Plan would be developed, which would make it difficult to meet the anticipated demand for health care.

1.5. IMPACTS, MITIGATION MEASURES, AND SIGNIFICANT UNAVOIDABLE IMPACTS

The following section highlights the impacts, mitigation measures, and significant unavoidable adverse impacts that would potentially result from the EIS alternatives analyzed in this FEIS. Table 1 summarizes the potential impacts that are anticipated under the EIS alternatives. This summary is not intended to be a substitute for the complete discussion of each element that is contained in Chapter 3.

Table 1: IMPACT SUMMARY MATRIX

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.1 – Earth		
Earthwork and Grading There are Environmentally Critical Areas (ECA) that have been designated at the southwest portion of the campus, which includes the location of areas with slopes greater than 40 percent. Site grading/excavation that occurs within certain steep slope areas and associated buffers has the potential for impacts on these areas. The Proposed Action will need to apply for relief from prohibition on development regarding steep slopes.	Development under *Alternative 2* would be generally the same as that discussed for *Alternative 1* because the footprints of the phases are essentially the same and there is minimal increase or change in location of buildings or impervious surface coverage.	Impacts under *the No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there would be minimal increase or change in location of buildings or impervious surface coverage from existing conditions.
Landslide Hazard Previous landslides have occurred in the vicinity of the campus. However, these landslides occurred downslope to the southwest in the footprint of what became the I-5 structure. The mapping does not locate the MIO in the landslide area. The initiation of the former slides are at least 250 feet from the project site.	Development under *Alternative 2* would be generally the same as that discussed for *Alternative 1* because the footprints of the phases are essentially the same and there is minimal increase or change in location of buildings or impervious surface coverage.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there would be minimal increase or change in location of buildings or impervious surface coverage from existing conditions.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.1 – Earth (cont.)		
<u>Seismic Hazard</u> Harborview is in an area of dense, consolidated soils with excellent bearing capacity. The seismic response of underlying glacial soils is likely to be more stable and less severe than in softer soils such as fill or alluvial deposits. Despite this circumstance, Harborview can still expect severe shaking during significant seismic events. Severe shaking damage could close portions of Harborview necessary for emergency response, or damage other areas irreparably.	Development under *Alternative 2* would be generally the same as that discussed for *Alternative 1* because the footprints of the phases are essentially the same and there is minimal increase or change in location of buildings or impervious surface coverage.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there would be minimal increase or change in location of buildings or impervious surface coverage from existing conditions.
Several proposed buildings could face potential seismic risks during construction of the new patient tower, so construction shoring design will be important to reduce the seismic risks.	Same as *Alternative 1*.	The *No Action Alternative* would not address the seismic risks identified in several reports, including the 2023 Preliminary Geotechnical Evaluation and the King County Harborview Facilities Master Plan. Not addressing the seismic risks could result in public hazards as well as interruptions to care.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.1 – Earth (cont.)		
<u>Erosion and Sedimentation</u> Erosion potential will likely be highest during construction, particularly on slopes that exceed 15 percent. The campus has no areas mapped as erosion hazard by the City. Erosion hazards at the site are expected to remain low after development of the various phases. However, the site should be evaluated for erosion after construction because filling materials may contain soil with greater erosion susceptibility.	Development under *Alternative 2* would be generally the same as those discussed for *Alternative 1* because the footprints of the phases are essentially the same and there is minimal increase or change in location of buildings or impervious surface coverage.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there would be minimal increase or change in location of buildings or impervious surface coverage from existing conditions.
3.2 – Energy and Natural Resources.		
Implementation of the *Proposed Action* will require energy resources during demolition, construction, renovation, and operation of the proposed buildings. The *Proposed Action* will require new power (receptacles, equipment power) to meet the new program scope of work requirements.	Same as *Alternative 1*.	Similar to, but substantially less than *Alternative 1* because there would be fewer opportunities (new construction) to implement energy-related improvements.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.2 – Energy and Natural Resources (cont)		
To meet the electrical and efficiency HVAC standards, Harborview should overhaul the system and provide one or two centralized heating and cooling systems on the campus.	Same as *Alternative 1*.	Similar to, but substantially less than *Alternative 1* because there would be fewer opportunities (new construction) to implement energy-related improvements.
Per the Seattle Energy Code, Harborview needs to consider compliance with renewable energy requirements. New airside systems need to meet energy code requirements at the time of construction.	Same as *Alternative 1*.	Similar to, but substantially less than *Alternative 1* because there would be fewer opportunities (new construction) to implement energy-related improvements.
The existing steam system contributes to the generation of greenhouse gases, is energy inefficient, lacks redundancy and resiliency, and falls short on other goals of the facility. The *Proposed Action* will aim to reduce Harborview's dependence on steam in the near future and provide solutions and infrastructure to eliminate the need for steam as primary heating.	Same as *Alternative 1*.	Similar to, but substantially less than *Alternative 1* because there would be fewer opportunities (new construction) to implement energy-related improvements.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.3 – Air Quality and Greenhouse Gas Emissions		
Air Quality *During Construction* During demolition and construction, dust from excavation and grading could cause temporary, localized increases in the ambient concentrations of fugitive dust and suspended PM.	Same as *Alternative 1*.	Similar to, but less than *Alternative 1* because there would be less construction and associated earthwork under the *No Action Alternative*.
Construction activities would likely require the use of diesel-powered heavy trucks and smaller equipment such as generators and compressors. These engines would emit air pollutants that could slightly degrade local air quality in the immediate vicinity of the activity.	Same as *Alternative 1*.	Similar to, but less than *Alternative 1* because there would be less construction and associated earthwork under the *No Action Alternative*.
Some construction activities could cause odors to be detectable to some people in the vicinity of the activity, especially during paving operations using tar and asphalt. Such odors would be short-term and localized.	Same as *Alternative 1*.	Similar to, but less than *Alternative 1* because there would be less construction and associated earthwork under the *No Action Alternative*.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.3 – Air Quality and Greenhouse Gas Emissions (cont)		
Construction equipment and material hauling could temporarily increase traffic flow on streets adjacent to a construction area. If construction delays traffic enough to significantly reduce travel speeds in the area, general traffic-related emissions would increase.	Same as *Alternative 1*.	Similar to, but less than *Alternative 1* because there would be less construction and associated earthwork under the *No Action Alternative*.
During Operation <u>Emissions</u> Development is generally associated with increased vehicle traffic (employees, customers, and diesel delivery truck traffic), mechanical equipment (such as commercial boilers and heating units), and trucks at loading docks.	Same as *Alternative 1*.	Due to the need for medical facilities in the region, if the current location is not able to accommodate the growing need, patients would be required to travel farther for care, resulting in increased VMT and GHG emissions in the region under this alternative.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.3 – Air Quality and Greenhouse Gas Emissions (cont)		
Regional Air Quality Impacts While the effect of the *Proposed Action* may slightly worsen air quality at the local level, the MIMP Major Amendment would likely improve air quality slightly at the regional level. However, the change in tailpipe emissions associated with the *Proposed Action* would be very small relative to the overall regional tailpipe emissions in Washington State.	Same as *Alternative 1*.	Due to the need for medical facilities in the region, if the current location is not able to accommodate the growing need, patients would be required to travel farther for care, resulting in increased VMT and GHG emissions in the region under this alternative.
Mobile Source Air Toxics On a regional basis, the EPA's vehicle and fuel regulations (coupled with ongoing future fleet turnover) will over time cause substantial emission reductions that will cause region-wide mobile source air toxics levels to be significantly lower than 2024 levels in most cases. Therefore, the *Proposed Action* is not expected to be significant generators of mobile air toxics.	Same as *Alternative 1*.	Due to the need for medical facilities in the region, if the current location is not able to accommodate the growing need, patients would be required to travel farther for care, resulting in increased VMT and GHG emissions in the region under this alternative.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.3 – Air Quality and Greenhouse Gas Emissions (cont)		
GHG Emissions The *Proposed Action* would generate approximately 3,814,964 CO_2e per year of lifetime GHG emissions associated with construction activities, production/extraction of materials, energy consumption, and vehicle emissions from associated vehicle trips.	Same as *Alternative 1*.	The *No Action Alternative* would generate approximately 171,348 CO_2e per year of lifetime GHG emissions.
3.4 – Environmental Health (Hazardous Materials and Noise)		
Environmental Health The number of waste-generating locations will increase under the *Proposed Action* in order to provide sufficient capacity. Future waste projections would be made according to the building activity and proposed square feet of floor area. The increase in waste volume generated would be accounted for in the hazardous materials plan.	Same as *Alternative 1*.	The *No Action Alternative* would also increase the number of waste-generating locations, although not to the extent of *Alternative 1*.
The San-I-Pak incinerator will require review of its capacity to address additional medical waste disposal.	Same as *Alternative 1*.	Similar to but much less than under *Alternative 1*.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.4 – Environmental Health (Hazardous Materials and Noise) (cont)		
During Operation Onsite Noise Reconfiguration of the heliport on to the New Planned Tower I would shift noise northward, maintaining most of the noise on Harborview property.	Same as *Alternative 1.*	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2.* It is likely that additional patient and employee activity would create an increase in emergency room patient delivery and related noise. The noise generated from existing Harborview buildings would continue and as equipment ages, noise levels may increase.
Local Roadway Noise The increased heliport elevation would reduce noise west towards the freeway and below the heliports.	Same as *Alternative 1*; although helicopter noise would originate closer to the ground due to the lower heliport elevation compared to the *Proposed Action.*	The noise levels would remain essentially similar to existing conditions under the *No-Action Alternative* since the helicopters would remain in their current location.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.5 – Water Resources		
Surface Water The overall percentage of pervious surface for the entire MIO would increase with redevelopment under the *Proposed Action*, as well as the inclusion of the boundary expansion area. Impervious surfaces would be developed from new buildings, the new loop roadway, pedestrian sidewalks and walkways, and other paved surfaces, which would increase runoff within the HMC campus.	Same as *Alternative 1*.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there are fewer new buildings proposed and there is no boundary expansion associated with this alternative. Amounts of impervious surfaces would remain similar to existing conditions.
All new developments would be subject to the requirements of the 2026 Seattle Stormwater Manual, which became effective July 1, 2026.	Same as *Alternative 1*.	Same as *Alternative 1*.
Stormwater Flow The 2026 City of Seattle Stormwater Manual, which became effective July 1, 2026, requires sites that discharge into a combined sewer system to regulate flow control to the Peak Control Standard, which is the maximum allowable stormwater release rates for the subject area based on two-year, five-year, and 25-year storms.	Same as *Alternative 1*.	Same as *Alternative 1*.
The 2026 City of Seattle Stormwater Manual, which became effective July 1, 2026, also dictates that areas that discharge into a dedicated storm main within designated receiving water basins are not required to control stormwater flow.	Same as *Alternative 1*.	Same as *Alternative 1*.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.5 – Water Resources (cont.)		
Other requirements by the City of Seattle Code and Manual, which became effective July 1, 2026, include on-site stormwater management (OSM) best management practices (BMPs).	Same as *Alternative 1*.	Same as *Alternative 1*.
Water Quality Per the 2026 City of Seattle Stormwater Code and Manual, which became effective July 1, 2026, systems which discharge into a combined sewer system are not required to conduct water treatment. Since the development associated with the *Proposed Action* will drain into a combined sewer system that flows to a city water treatment plant, no water quality system is required on-site and no changes to water quality are anticipated for development.	Same as *Alternative 1*.	Same as *Alternative 1*.
Per the 2026 City of Seattle Stormwater Code and Manual, which became effective July 1, 2026, for those areas that do not discharge into a combined sewer system, on-site water quality treatment is required if more than 5,000 square feet of pollution generating surfaces are created.	Same as *Alternative 1*.	Same as *Alternative 1*.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.6 – Land Use		
Construction Proposed redevelopment would result in the existing parking spaces associated with View Park I Garage being demolished; the displaced parking spaces would be replaced following redevelopment. The existing vegetated slope area associated with the planned expansion of the MIO Boundary to the immediate west of campus, between the campus and I-5, would be cleared and graded to accommodate the planned internal loop roadway.	Same as *Alternative 1*.	These impacts would not occur under this alternative since this construction activity would not occur.
Site preparation and construction could result in periodic, temporary construction impacts to adjacent land uses; impacts could include increases in activity levels; increased dust, emissions, noise levels, and odor from construction equipment and vehicles; vibration associated with construction activities and vehicle movement; and increased traffic associated with construction vehicles and construction workers. With identified mitigation, significant adverse impacts on surrounding land uses are not anticipated.	Same as *Alternative 1*.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there are fewer new buildings proposed for construction under this alternative.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.6 – Land Use (cont.)		
Direct Operation <u>Conversion of Uses</u> Land uses associated with Planned and Potential Projects within the Harborview campus are intended to provide a range of medical service uses similar to those currently on campus, and development assumed under Alternative 1 would not represent a change in the types of land uses or land use pattern on campus.	Same as *Alternative 1*.	Same as *Alternative 1*.
<u>Building Height</u> Although the planned 320-foot tall Planned and Potential Towers would represent two of the taller buildings in the vicinity, the structures would be consistent with the existing high-rise urban character of the area, as well as the zoning capacity of the surrounding high-rise, Yesler Terrace, and Downtown zoning districts, and would not be anticipated to result in significant land use impact.	Under *Alternative 2,* proposed building heights would remain at their current 240' maximum on campus.	Same as *Alternative 2*.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.6 – Land Use (cont.)		
Relationship to Surrounding Land Uses The increase in patient counts and employee headcounts associated with the planned new building space would result in an increase in campus population (both staff and visitors) that would increase the level of activity on campus, including increases in vehicular traffic and pedestrian movement, both on- and off-campus. The overall types and levels of activity would be similar to existing activity at the Harborview campus and would be compatible with the surrounding dense urban environment.	Same as *Alternative 1*.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there are fewer new buildings proposed for construction under this alternative. The amount of pedestrian and vehicular activity and associated noise would remain similar to existing conditions.
The SMC and the MIMP include development standards to ensure the compatibility of development on the campus with adjacent land uses, including setbacks and other performance standards for operation. Development on the HMC campus would be required to conform to these regulations and/or standards established through the MIMP process. As a result, significant land use impacts would not be anticipated.	Same as *Alternative 1*.	Same as *Alternative 1*.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.6 – Land Use (cont.)		
Indirect and Cumulative Impacts Development under the *MIMP Major Amendment* would result in increased population (staff and visitors) on the Harborview campus. Surrounding businesses may see an increase in demand for services as a result of increased campus population. The increase in the number of medical center staff could also increase demand for housing in the general vicinity of the campus.	Same as *Alternative 1*.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there are fewer new buildings proposed for construction under this alternative. The amount of pedestrian and vehicular activity and associated noise would remain similar to existing conditions.
3.7 – Recreation and Open Space		
The *Proposed Action* demolishes the View Park I garage for the development of Planned New Tower I, which results in the removal of Harborview Park.	Same as *Alternative 1*.	The *No Action Alternative* would not change the current open space target of 20 percent. This target would apply to the 1999 and 2014 existing MIMP projects to remain.
The MIMP Major Amendment proposes reducing the required open space from 20 percent to 12 percent.	Same as *Alternative 1*.	

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.7 – Recreation and Open Space (cont.)		
If the expansion of the MIO boundary includes the WSDOT ROW on the western side of the campus, the new MIO area is approximately 632,000 sf. Although the new patient tower will remove Harborview Park, new open space areas are available.	Same as *Alternative 1*. However, this alternative results in a larger footprint for the new patient towers. The larger footprints will reduce the amount of setback area available as open space as compared to *Alternative 1*.	The *No Action Alternative* would not change the current open space target of 20 percent. This target would apply to the 1999 and 2014 existing MIMP projects to remain.
The 40,500 square feet of existing open space left after the removal of View Park I Garage with the 33,500 square feet of new open space areas provides 73,500 square feet of open space. The proposed open space meets the proposed 12 percent MIO open space requirement. In the event the MIO boundary is not expanded to include the WSDOT ROW, the MIO would remain 594,480 sf. With the removal of the pedestrian connection in the WSDOT ROW, the proposed open space area is 65,500 square feet, about 11 percent.	Same as *Alternative 1*. However, this alternative results in a larger footprint for the new patient towers. The larger footprints will reduce the amount of setback area available as open space as compared to *Alternative 1*.	The *No Action Alternative* would not change the current open space target of 20 percent. This target would apply to the 1999 and 2014 existing MIMP projects to remain.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.8 – Aesthetics – Height, Bulk and Scale		
Alternative 1 would include an increase in allowed building height in the west portion of campus, an increase in the campus wide FAR, a decrease in the open space area standard, and additional building development capacity.	Same as *Alternative 1*.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there are fewer new buildings proposed for construction under this alternative. Campus would remain essentially as it currently exists.
Alternative 1 would allow for the intensification of H/B/S on campus, which would be generally consistent with surrounding high-rise development in the area, and the identified land use plan and standards for the First Hill area.	Same as *Alternative 1*.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there are fewer new buildings proposed for construction under this alternative. Campus would remain essentially as it currently exists.
Guidelines and development standards in the MIMP would preclude any significant H/B/S-related impacts.		
3.8 – Aesthetics - Viewshed		
Under *Alternative 1*, most views from designated viewpoints, scenic routes, and of City Landmarks would not experience significant changes.	Same as *Alternative 1*.	Under the *No Action Alternative*, the site would remain similar to its existing condition.
Views from the Harborview Hospital designated viewpoint would be impacted.	Same as *Alternative 1*.	Under the *No Action Alternative*, the site would remain similar to its existing condition.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.8 – Aesthetics - Shadows		
Under *Alternative 1*, shadows from the potential redevelopment of the Boren Garage would increase compared to existing conditions but would not create new impacts to the surrounding area.	Same as *Alternative 1*.	Under the *No Action Alternative,* the site would remain similar to its existing condition.
The new shading under *Alternative 1* would not be considered significant, as it would represent a minor increase in overall shading of the area and would not substantially shade any public or private open spaces that are not already currently shaded by existing buildings.		
3.8 – Aesthetics – Light and Glare		
Under *Alternative 1*, while motorists on I-5 could experience reflected solar glare from the south and west facades of the Planned/ Potential Towers, such glare would primarily be outside the cone-of-influence and would not be expected to cause problems for motorists or cyclists nor differ substantially from periodic glare from stationary and mobile sources that motorists typically experience.	Same as *Alternative 1*.	Under the *No Action Alternative*, the site would remain similar to its existing condition.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.9 – Historic and Cultural Resources		
Several buildings on campus meet the age criteria for National and/or City Landmark consideration. There are two city-designated Landmarks on campus – Firehouse #3 and E Hospital Center Wing.	Same as *Alternative 1*.	Same as *Alternative 1*.
Seismic upgrades would potentially occur to most of the older buildings on campus. The seismic upgrades would not have an adverse impact on historic and cultural resources as they would need to be consistent with the guidelines set forth in the C&I Agreement for the Center Tower by the Landmarks Preservation Board.	Same as *Alternative 1*.	Same as *Alternative 1*.
New development would not significantly impact existing historic resources on campus. There would be minimal short-term construction impacts on campus and in the vicinity of campus during redevelopment.	Same as *Alternative 1*.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there are fewer new buildings proposed for construction under this alternative. Campus would remain essentially as it currently exists.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.10 – Transportation		
Trip Generation *Alternative 1* results in an increase in the trip generation under both future 2035 and future 2045 conditions relative to existing conditions. Under future (2035) conditions Alternative 1 results in an increase of 286 vehicle trips during the weekday AM peak hour and 196 vehicle trips during the weekday PM peak hours. Under future (2045) action conditions the planned and potential projects result in an increase of 726 vehicle trips during the weekday AM peak hours and 496 vehicles during the weekday PM peak hours relative to existing conditions.	Same as *Alternative 1*.	The *No Action Alternative* results in no meaningful change in trip generation relative to existing conditions. Under future (2035) conditions the *No Action Alternative* results in no change in the number of trips generated by the campus compared to existing conditions. Under Future (2045) No Action Alternative the approved 1999 and 2014 MIMP projects result in a slight increase in trips during both the weekday AM and PM peak hours relative to existing conditions.
Transit Under the future (2045) *Alternative 1* conditions, there are estimated to be a total of approximately 1,149 and 785 transit trips in the AM and PM peak hours, respectively	Same as *Alternative 1*.	The *No Action Alternative* is forecast to have a minimal increase in transit trips. The change in travel times for the routes was reviewed under the future (2045) *No Action Alternative* to reflect added growth in the study area. The forecast increase in travel times on the routes reviewed in the project site vicinity is less than 1 minute or a percent increase of less than 20 percent.
The transit utilization for the screen lines reviewed surrounding the campus shows up to 91 percent under the future (2045) *Alternative 1* condition during the AM and PM peak periods.		
The forecast increase in travel times on the routes reviewed in the project site vicinity under *Alternative 1* is approximately 1 minute or less as compared with *No Action Alternative.*		

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.10 – Transportation (cont.)		
Non-Motorized Under the future (2045) *Alternative 1* conditions, there are estimated to be a total of approximately 271 and 186 non-motorized trips (walk, bike, other) in the AM and PM peak hours, respectively.	Same as *Alternative 1*.	The *No Action Alternative* non-motorized trips are anticipated to remain consistent with existing conditions or have a slight increase relative to existing conditions.
Traffic Operations Future (2035) *Alternative 1* conditions show the study intersections are forecast to operate acceptably such that the added traffic forecast to occur with the addition of the planned projects proposed with *Alternative 1* 2035 conditions do not result in any significant impacts.	Same as *Alternative 1*.	Under future (2035 and 2045) *No Action Alternative* conditions, the study intersections are forecast to continue to operate acceptably at LOS D or better.
Under future (2045) *Alternative 1* conditions, the study intersections are forecast to operate acceptably at LOS D or better during the AM and PM peak hours with the exception of the all-way stop-controlled intersections of Jefferson Street at 9th Avenue during the AM peak hour.	Same as *Alternative 1*.	Under future (2035 and 2045) *No Action Alternative* conditions, the study intersections are forecast to continue to operate acceptably at LOS D or better.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.10 – Transportation (cont.)		
Traffic Safety As traffic volumes increase, traffic safety issues could increase proportionally. Based on the existing safety review, there are no intersections within the study area that meet the City of Seattle's High Collision Location criteria within the last three-year review period. The total vehicle trips are forecast to increase with *Alternative 1* relative to the *No Action Alternative* conditions with the additional development; however, with no existing high collision locations and no collisions resulting in fatalities within the study area, no significant impacts from a safety perspective are anticipated at any of the study area intersections with *Alternative 1*.	Same as *Alternative 1*.	With no significant change in the traffic volumes along the roadways surrounding the HMC campus and no significant safety concerns identified within the study area under existing conditions, the *No Action Alternative* is not anticipated to cause any safety concerns.
3.11 – Public Services and Utilities		
Public Services Under *Alternative 1*, improvements associated with MIMP Major Amendment may require additional police, fire, emergency, and security services.	Same as *Alternative 1*.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there are fewer new buildings proposed for construction under this alternative. Campus would remain essentially as it currently exists.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.11 – Public Services and Utilities (cont.)		
Additional staff may be necessary under this Alternative to address safety and security concerns associated with additional development on campus under the MIMP Major Amendment. There needs to be additional coordination with SPD and SFP.	Same as *Alternative 1*.	Under the *No Action Alternative*, it is assumed that calls for police, fire and emergency services would remain similar to existing conditions. No significant impacts to SPD or SFD services would be expected to occur.
<u>Utilities</u> Development associated with the MIMP Major Amendment under *Alternative 1* will require new storm drain connections, sewer service, and water connections for domestic and fire purposes. System capacity will be confirmed with SPU.	Same as *Alternative 1*.	Under the *No Action Alternative*, development of the projects listed in the 1999 and 2014 MIMPs existing and approved projects would not require the new water and sewer reconfigurations since the new patient towers would not be built.
Under *Alternative 1*, the private roadway previously known as 8th Avenue may be removed; installation of a new access Loop Road located to the west of Planned Tower I would occur; and the Planned Tower I would require sewer main reroute across campus. Coordination with SPU would occur regarding the sewer main reroute.	Same as *Alternative 1*.	Under the *No Action Alternative*, development of the projects listed in the 1999 and 2014 MIMPs existing and approved projects would not require the new water and sewer reconfigurations since the new patient towers would not be built.
Under *Alternative 1*, new development would need to conform to the 2026 Seattle Stormwater Code and Manual, which became effective July 1, 2026, requiring stormwater detention. New development would also need to conform with fire flow requirements.		

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.12– Construction Impacts		
Construction activities under *Alternative 1* would consist of the following: demolition, retrofits, site preparation, site access roadway construction, and excavation. Short-term impacts include increased vehicle and equipment, additional vehicle/truck trips from construction workers and debris/materials hauling and delivery, temporary road/lane closures, increased CO levels and particulate matter (dust) from trucks/construction equipment, and reduced availability of parking in campus area.	Same as *Alternative 1*.	Impacts under the *No Action Alternative* would be substantially less than those discussed for *Alternatives 1 and 2* because there are fewer new buildings proposed for construction under this alternative. Campus would remain similar to as it currently exists.

SUMMARY OF MITIGATION MEASURES and SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Earth

Mitigation Measures

Mechanical and electrical systems throughout the campus pass through areas designed for varying degrees of seismic resiliency. Utilities passing through areas of lesser seismic resiliency that serve areas targeting higher seismic performance will require hardening to keep critical support systems operational during seismic events.

Additionally, utilities crossing between seismically isolated structures require flexible connections to prevent failures due to differential movement. New and existing utilities crossing these joints will require flexible connections.

The southwest section of the project site is designated as an Environmentally Critical Area due to steep slopes. The Proposed Action will require relief from the city regarding the prohibition of development on steep slopes. While previous landslides have occurred in the vicinity of the campus, these landslides occurred downslope to the southwest in the footprint of what became the Interstate 5 structure.

The Preliminary Geotechnical Report offers recommendations for the design of grading, surface water flow, and foundations in the vicinity of this slope. Provided the final design implements these elements, the risk of landsliding and significant seismic slope displacements are low.

These recommendations include offsetting the weight of new structures, which could impose new loading on the existing retaining walls and transferring building loads to sufficient depth below any potential slip surfaces to mitigate the potential effects of landsliding. Given the height of the new patient tower, the project will require site specific response analysis and ground motion studies to support the performance-based seismic design for the project, which will require a peer review through the City of Seattle. The final geotechnical design report should include the results of this design process.

The Planned and Potential Projects also propose the following mitigation:

Demolition of buildings with significant seismic deficiencies, such as East Clinic.

A stiff shoring system such as a secant wall or slurry wall during New Tower construction to protect the existing West Hospital building in the event of an earthquake during construction.

Significant Unavoidable Adverse Impacts

Excavation and earth movement in sensitive areas, including creating large cuts or fills, could result in unavoidable adverse impacts. Land used for parts of the project may permanently alter the geological characteristics of the section of site affected by disturbance. Such unavoidable adverse impacts may require mitigation, some of which the mitigation section indicates.

Energy and Natural Resources

Mitigation Measures

Per Seattle Energy Code C412, provide a minimum size solar photovoltaic (PV) system, including solar panels and support system, microinverters, power distribution and metering/monitoring. A reduction in the amount of roof solar PV is available, in exchange for adding building integrated solar PV (BIPV) (e.g., solar PV window shading panels and building wall solar panels), solar PV to adjacent West Hospital and West Clinic roofs and buying RECs (Renewable Energy Credits) from SCL. Solar PV renewable energy will provide clean carbon-free energy, help offset building load demand and reduce utility service costs.

The design of the Planned and Potential Projects would meet or exceed the standards of the Seattle Energy Code, which intends to reduce overall energy consumption. Energy conservation measures in new and renovated buildings would increase energy savings. In new construction, mechanical systems would comply with standards for critical facilities in active seismic zones. In renovated buildings, seismic improvements would be part of renovation. Harborview would continue to plan for multiple backup systems and alternative system service routing to continue facility operation during and after earthquakes.

Significant Unavoidable Adverse Impacts

Unavoidable impacts include energy consumption during demolition, construction, and renovation on-site. Among the energy sources consumed would include petroleum and electricity, as well as embodied energy in materials.

Air Quality and GHG Emissions

Mitigation Measures

The following measures have been identified to address the potential air quality impacts from construction and operation of the MIMP Major Amendment.

- All development in Washington State is required to comply with the following regulations:
  - National Ambient Air Quality Standards: As described above, the EPA establishes NAAQS and specifies future dates for states to develop and implement plans to achieve these standards.
  - State Ambient Air Quality Standards: Ecology establishes state ambient air quality standards for the same six key criteria air pollutants as the NAAQS that are at least as stringent as the national standards; in the case of sulfur dioxide, state standards are more stringent.
  - Puget Sound Clean Air Agency Regulations: All construction sites in the Puget Sound region are required to implement rigorous emission controls to minimize fugitive dust and odors during construction, as required by PSCAA Regulation 1, Section 9.15: Fugitive Dust Control Measures. All industrial and commercial air pollutant sources in the Puget Sound region are required to register with the PSCAA. Facilities with significant emissions are required to obtain an NOC air quality permit before construction can begin.
  - State of Washington GHG Laws: As described above, Washington State enacted a new law establishing GHG reduction limits.
- Construction contractors should be required to implement air quality control plans for construction activities at the HMC campus. Contractors should be required to prepare a dust control plan as part of the Construction Management Plan that commits the construction crews to implement all reasonable control measures described in the Guide to Handling Fugitive Dust from Construction Projects (AGCW 2009). The air quality control plans should include best management practices (BMPs) to control fugitive dust and odors emitted by diesel construction equipment. The following BMPs should be used to control fugitive dust:
  - Use water sprays or other non-toxic dust control methods on unpaved roadways.
  - Minimize vehicle speed while traveling on unpaved surfaces.
  - Prevent track-out of mud onto public streets.
  - Cover soil piles when practicable.
  - Minimize work during periods of high winds when practicable.
  - The following mitigation measures should be used to minimize air quality and odor issues caused by tailpipe emissions:
  - Maintain the engines of construction equipment according to manufacturers' specifications.
  - Minimize idling of equipment while equipment is not in use.

- If there is heavy traffic during some periods of the day, scheduling haul traffic during off-peak times (e.g., between 9:00 a.m. and 4:00 p.m.) would reduce effects on traffic congestion and would minimize indirect increases in traffic-related emissions.

- The environmental analysis described above does not quantify or take into consideration any potential efforts to reduce climate-change-related impacts by incorporating sustainable features into the development. Sustainable features would be incorporated into individual projects as they are built to reduce the impacts quantified in this chapter through compliance with requirements of Building and Energy Codes. Green building technologies could be considered in the approach to the design of buildings, and in ongoing site programming and management.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse air impacts have been identified, and none are anticipated under any of the alternatives.

Environmental Health (Hazardous Materials and Noise)

Mitigation Measures

- Waste
  - Implement, monitor, and update Hazardous Materials and Waste Management Plan, with specific programs to minimize hazard risks.
  - Comply with all applicable federal, state, and local laws as well as UW policies and Joint Commission policies related to hazardous materials.
  - Maintain an environmentally responsible waste management stream that protects the public interest throughout collection, transportation, processing, and disposal of hazardous/medical wastes.
  - Evaluate annually for effectiveness and modify waste management plans as appropriate with the findings.

- Noise
  - Comply with the requirements of the Seattle Noise Ordinances (SMC 25.08)
  - Confirm that the design of equipment such as HVAC and emergency generators operates within the allowable noise levels permitted by SMC 25.08.
  - Consider noise concerns in new development design and orientation.
  - Install sound control on HVAC equipment and fans where applicable.
  - Implement noise-sensitive policies for emergency vehicles.

Significant Unavoidable Adverse Impacts

An increase in the quantity and number of locations producing hazardous waste would occur. Harborview's waste management policies would undergo review to accommodate increased waste generation.

Water Resources

Mitigation Measures

The following measures have been identified to address the potential water resource impacts from construction and operation of the proposed MIMP Major Amendment.

- Design permanent stormwater and drainage systems in compliance with the current applicable city standards.
- Conduct appropriate Construction Best Management Practices as required by the 2026 City of Seattle Stormwater Code and Manual, which became effective July 1, 2026.
- Create and implement a Construction Stormwater Control and Soil Management Plan. Ensure compliance with city codes by reviewing and revising the plan as needed.
- Implement feasible On-Site Management Best Management Practices into project designs.
- Include and regularly maintain oil/water separators in drainage systems.
- Provide on-site wheel washing of any vehicle leaving construction projects to avoid tracking materials on local streets.
- Utilize berming/straw bales where practical to provide temporary on-site detention during construction.
- Cover exposed material soils to prevent erosion and sediment-loaded runoff.
- Consider using fertilizer and pesticides with reduced downstream impacts in landscaped areas.

Significant Unavoidable Adverse Impacts

With compliance with stormwater regulations, construction of detention and treatment systems, and implementation of Construction and OSM BMPs, no adverse effects to water quality or resources are anticipated.

Land Use

Mitigation Measures

Implementation of the proposed design guidance and development standards in the proposed MIMP Major Amendment would minimize potential land use impacts. These standards include, but are not limited to building setbacks at campus edges, visual screening with landscaping at campus edges, the provision of open spaces on campus etc.

Significant Unavoidable Adverse Impacts

Under Alternatives 1 and 2, intensification in land uses on the Harborview campus would occur as a result of increased density and increased building heights (under Alternative 1). Given the existing urban land use character of the area and with proposed mitigation measures, significant unavoidable land use impacts are not anticipated.

Recreation and Open Space

Mitigation Measures

The proposed additional open space address open space areas eliminated with the development of the new patient tower.

Significant Unavoidable Adverse Impacts

Development of the Proposed Action would result in the loss of Harborview Park, an unavoidable adverse impact, for which the project proposes new open space.

Aesthetics – Height, Bulk, and Scale

Mitigation Measures

The following mitigation measures have been identified to lessen impacts related to height, bulk, and scale resulting from the MIMP Major Amendment to the surrounding area:

- Implementation of proposed design guidance and development standards in the MIMP Major Amendment would help to minimize aesthetic impacts, including:
  - Provisions for building setbacks at campus edges.
  - Landscaped visual screening at campus edges.
  - Provision of open spaces areas on the campus.
- Consider building designs that use architectural detailing, materials, and techniques to soften appearance and reduce the perceived density of new buildings.
- Consider building layouts with smaller footprints which exceed minimum setback requirements to increase separation between uses.
- Include landscaping, trees, and pedestrian enhancements in setbacks when it is feasible to soften building scale and to create amenities.
- Proposed landscaping could provide screening to lessen height, bulk, and scale impacts on neighboring properties.

- Continue to include street-level pedestrian-focused improvements to soften transitions to residential properties and enhance the campus appearance and surrounding community.
- Implement artwork, lighting, signage, and graphics in pedestrian areas to reduce perceived building bulk, height, and scale.
- Maintain and improve pedestrian connections between the campus and surrounding neighborhood to disjoint building groupings and collective massing.
- Include landscaping and open space improvements within the project setbacks or near the site vicinity to be included as a component of the individual project development.

Significant Unavoidable Adverse Impacts

The overall effect from Alternative 1 with revisions to the FAR, height, and open space standards would result in a substantial increase of height, bulk, and scale of the Harborview campus. Alternative 2 would result in less impacts in height, but greater impacts to bulk and scale from Alternative 1. Considering the existing surrounding developments and high-rise urban character of the area which are similar to the planned and potential developments, as well as the implementation of mitigation measures, no significant unavoidable impacts to height, bulk, and scale are anticipated from Alternative 1 or 2.

Aesthetics - Viewshed

Mitigation Measures

The following mitigation measures have been identified to lessen impacts related to protected views resulting from the MIMP Major Amendment:

In response to potential impacts to the protected Harborview Hospital Viewpoint located at 8th and Jefferson, the protected viewpoint could be relocated to a different location on campus that is also publicly accessible. For example, there is a raised platform that is currently located between the two View Park garages that could accommodate the viewpoint. This could also replace the informal public viewpoint that is currently located on the View Park I/Garage.

Significant Unavoidable Adverse Impacts

The project results in impacts to views from one of the protected viewpoints on the Harborview Campus; however, the SEPA lead agency (King County) does not consider these impacts to reach the level of significance. Additionally, with implementation of the mitigation measure listed above, no significant unavoidable adverse aesthetic (viewshed-related) impacts are not anticipated.

Aesthetics – Shadows

Mitigation Measures

No significant adverse shadow impacts are anticipated under Alternatives 1 and 2; therefore, no mitigation measures are required.

Significant Unavoidable Adverse Impacts

Shadow impacts associated with development of Alternative 1, Alternative 2, and the No Action Alternative would not be expected to result in significant impacts on- or off-campus.

Aesthetics – Solar Glare

Mitigation Measures

In summary, no significant long-term, reflected solar glare-related impacts are anticipated for motorists on I-5 as a result of the towers and no mitigation measures are necessary. However, the following measures would help to reduce overall light and glare from the projects as it relates to the neighborhood surrounding the site.

Decisions on building façade materials are still substantially in the future. Principal exterior building materials could include glass, brick, and metal panels. Reflectivity of the glazing will be dictated by the nature of glass that is employed and the requirements set forth by the City's Energy Code. It is anticipated, however, that no excessively reflective surfaces (i.e., mirrored glass, or polished metals) that go beyond what is required to meet energy-related code provisions are proposed anywhere on the exterior of the project building.

Retaining the trees lining the top of the retaining wall on WSDOT ROW adjacent to the east side of I-5 or the replacement or addition of any other street trees along the I-5 ROW, as well as the use of building materials with relatively low-reflectivity at street level would minimize reflective glare-related impacts to pedestrians and motorists.

Pedestrian-scale lighting would be provided consistent with code, function, and safety requirements. Exterior lighting would include fixtures to direct the light downward and/or upward and away from off-site land uses.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts are anticipated.

Historic and Cultural Resources

Mitigation Measures

The 1999 MIMP proposed and required seismic mitigation for both Harborview Hall and East Hospital Center Wing Tower. Per 1999 SEPA Condition #33, the "buttress expansion structures may be designed to have similar vertical emphasis and cladding, as a measure to seismically upgrade either building and to retain the exterior appearances." Continuing this condition as part of the seismic upgrades to Harborview Hall and the Center Tower would mitigate concerns regarding effects on the exterior appearance. Harborview could implement the following measures to mitigate potential impacts on historic resources:

- Prepare a historical analysis for any structure 50 years of age or older that is proposed for demolition. The analysis would be required at the time of submission of a Master Use Permit for the replacement project and referred to the Department of Neighborhoods for review.
- New buildings constructed adjacent to or across the street from a designated historic Landmark would need to be referred to the Department of Neighborhoods for review.
- A Certificate of Approval would be required before changes could be made to a designated City Landmark.

The State of Washington Department of Archaeology & Historic Preservation (DAHP) submitted comments opining that the project area has the potential to contain archaeological resources. DAHP recommended professional archaeological monitoring of ground disturbance. In addition, DAHP recommended consultation with any tribes having a special interest in the area. King County sent letters to all tribes in the area, and the responses are in the Appendix H.

Based on the limited potential for the implementation of the project to encounter and adversely impact intact archaeological deposits or human remains, Langan requested reduction of the DAHP recommended measures. The measures would include proactive measures for the proper identification, treatment, and, if necessary, preservation of any inadvertently discovered resources and human remains. If required, the project would retain a qualified archaeologist to prepare and implement workers environmental awareness training, an inadvertent discovery treatment plan, and on-call response to any inadvertent discovery or suspected discovery of archaeological resources or human remains.

DAHP concurred and recommends the project proceed as planned with an inadvertent discovery plan and training.

Significant Unavoidable Adverse Impacts

Under Potential Projects, the construction of a buttress building would impact the east face of the Harborview Hall main façade and the lobby of the East Hospital. While Harborview Hall is not a city landmark, the East Hospital Center Wing Tower is. The mitigation outlined per 1999 SEPA Condition #33 would balance the concern about seismic upgrading with retaining the exterior appearances of the building.

Transportation

Mitigation Measures

Mitigation measures for the project include intersection improvements at the Jefferson Street/9th Avenue intersection, non-motorized, and a construction management plan (CMP), each of which are described below.

Intersection improvements: Only the intersection of Jefferson Street/9th Avenue was identified to degrade operating below the City's operational target during the future (2045) Action Alternatives during the AM peak hour. The intersection is currently an all-way stop-controlled intersection. The analysis showed that a traffic signal would be warranted and would mitigate the identified impacts, resulting in the intersection operating at LOS B during the weekday AM and PM peak hours. The specific timing and warranting of the traffic signal would be confirmed through subsequent studies conducted for the potential development projects identified in the MIMP. If the subsequent studies conducted for the potential projects confirm the 9th Ave and Jefferson St intersection is forecast to degrade to LOS F conditions, and the signal is still warranted, then it would be constructed by HMC as mitigation.

Alternatively, if the Yesler Terrace development triggers the signal based on defined trip thresholds for that development, it will be constructed by others and HMC would not have any obligation associated with that intersection improvement. Non-motorized considerations: The installation of a signal at the 9th Avenue/Jefferson Street intersection will include non-motorized improvements at the intersection. The traffic signal design will include pedestrian improvements per the Right-of-Way Improvement Manual, such as ADA compliant curb ramps and updated crosswalk striping. Additionally, the midblock crossing along 9th Avenue south of Jefferson Street showed one collision involving a bicyclist striking a moving vehicle resulting in an injury. With installation of a traffic signal at 9th Ave/Jefferson Street by HMC or others, HMC would construct improvements at the midblock crossing which could include the following:

- Rectangular Rapid Flashing Beacon (RRFB) to improve visibility of the midblock crossing.
- Replacing the existing curb ramps at this crossing with ADA compliant curb ramps as applicable.

CMP: As part of any future development to occur under this MIMP, the contractor would develop a CMP through coordination with City staff. This would include a number of elements, including confirmation of haul routing.

Significant Unavoidable Adverse Impacts

No significant and unavoidable adverse impacts have been identified through this analysis.

Public Services and Utilities

Mitigation Measures

- Police/Safety and Security
  - Provide adequate updated lighting with clear sightlines that balances safety and security with aesthetic concerns.
  - Scale street lighting to pedestrian use to ensure sidewalks are well lit.
  - Maintain landscaping to improve visibility for pedestrian spaces.
  - Continue existing Harborview security services and work with UWPD and SPD to coordinate security concerns.

- Fire Department and Emergency Services
  - New construction to comply with applicable Seattle Fire Code in addition to Uniform Building Code.
  - Notify SFD of extended street closures or blockages during construction.
  - Minimize storage and accumulation of construction materials and waste.

Utilities. Sewer Main Relocation – New Patient Tower: The approximate location of the existing combined sewer main runs through the proposed patient tower footprint. The following options are available for mitigation:

- Reroute sewer line to the north of the new tower.
- Reduce building footprint to provide a minimum 10-foot clearance from sewer line.

Harborview will coordinate utility mitigation with the following responsible agencies:

- Seattle Public Utilities – Drainage and Wastewater Division Storm Drain Connections and Abandonments, Sanitary Sewer Connections and Abandonments
- Seattle Public Utilities – Water Division Domestic and Fire Water Service Connections and Abandonments
- Seattle Fire Department - Fire Water Connections

- Seattle Transportation Department, Street Use Division - Sidewalk Demolition and Improvements
- Seattle Transportation Department – Resource Management Division Street Vacations
- King County Department of Metropolitan Services - Construction METRO Trolley Service

Significant Unavoidable Adverse Impacts

The Proposed Action will result in increased demand for public services and utilities. As noted in this chapter, the Proponent can work to mitigate potential impacts and reduce their significance.

Construction Impacts

Mitigation Measures

Earth. The Proposed Action would implement the following mitigation features related to earth disturbance activities.

- Further geotechnical investigations as project design progresses to identify effective excavation, shoring, and foundations.
- Construction consistent with best management practices as identified by the Seattle Department of Construction and Inspections (SDCI),
- Contractors shall meet all applicable codes for grading, drainage, construction hours and noise regulations.
- Coordinate route planning and traffic control measures with SPD, SFD, S DOT, and Sound Transit for construction vehicle activity, particularly for soil and debris removal, and rerouting other traffic.
- Protect waterways from sediment with silt fences and other catch facilities.
- When possible, require construction vehicle wheel washing to minimize tracking soil onto roadways.
- Provide regular street cleaning on affected streets.
- When possible, cover truck payloads to minimize spills.
- When possible, schedule construction during drier months to reduce wet weather exposure to disturbed soils.
- Protect exposed soil from erosion and wind.

Air Quality

- Encourage mass transit use, carpooling, and bicycle trips through the Transportation Management Program.

- Properly use vehicle mufflers and other equipment to manage short-term construction emissions.
- Follow PSCAA regulations regarding dust and particulate reduction, with measures like wetting exposed soils, covering transported materials, and more.
- Prioritize electric equipment to reduce CO emissions from contractors, check that internal combustion engine equipment is in good repair to reduce CO emissions.
- When possible, consider weather and conditions when scheduling major construction efforts to reduce particulate exposure.

Water

- Design drainage facilities to applicable state and local standards.
- Construction consistent with best management practices as identified by the Seattle Department of Construction and Inspections (SDCI).
- Protect waterways from sediment with silt fences, berming, hay bales and similar at relevant locations.
- When possible, require covering truck payloads to minimize spills.
- When possible, schedule construction during drier months to reduce wet weather exposure to disturbed soils.
- Include and regularly maintain oil/water separators in drainage systems.
- When possible, provide wheel washing to construction vehicles to avoid tracking sediment onto local streets.
- Coordinate utility service disruptions with affected parties to minimize impacts.

Environmental Health/Noise

- Compliance with the Seattle Noise Ordinance (SMC 25.08).
- Consider increased mitigation beyond the requirements of the ordinance by further limiting construction hours.
- Consider reducing the presence of noisy equipment onsite with actions such as prefabricated building components or concrete mixed offsite.
- Effective and compliant mufflers required on construction equipment, as well as compliance with state and local anti-idling laws.
- Preference electric equipment.
- Locate noisy equipment away from sensitive receivers.
- Design construction vehicle routes to minimize impact on residential and commercial areas.
- Consider temporary solutions such as acoustical barriers around equipment.

Transportation and Parking

- Develop and implement construction traffic management plans in coordination with SDOT, with the goal of moving workers, equipment, and materials to and from the site quickly and safely, minimizing interruptions to traffic and pedestrians.
- Minimize, to the extent possible, lane closures on busiest streets.
- Designate construction worker-specific parking to minimize crowding at existing parking facilities.
- Minimize temporary decreases in parking supply by phasing development.

Significant Unavoidable Adverse Impacts

Earth. No significant unavoidable adverse impacts on earth resources are expected with implementation of the mitigation measures listed above.

Air Quality. Construction may result in a short-term CO increase due to construction equipment use. Vehicles, site preparation, demolition, and construction also generate particulates. The mitigation measures outlined above would address the noted adverse impacts.

Water. Water service may have temporary shutdowns during utility maintenance and road work. Harborview will provide notice as required to parties that may experience temporary suspension of water service.

Environmental Health/Noise. Temporary, short-term noise impacts would result from construction activity. Impact significance can be reduced via mitigation measures. No significant adverse impacts are expected.

Transportation and Parking

- Occasional, short-term street and sidewalk closures may restrict flow of pedestrian and vehicle traffic.
- Site preparation, excavation, demolition, and construction will generate truck trips with incoming materials and outgoing debris and soils.

2.0 INTRODUCTION AND DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This chapter of the Final Environmental Impact Statement (EIS) provides a discussion of the Harborview Medical Center (Harborview) system, information on the Harborview Medical Center campus and surrounding area, planning activities conducted in support of the proposed *Harborview Bond Program Major Amendment to the 1999 Major Institution Master Plan* (*MIMP Major Amendment*), and a description of the Environmental Impact Statement (EIS) Alternatives. **Chapter 3** of this Final EIS provides a detailed description of the affected environment, environmental impacts, mitigation measures, and significant unavoidable adverse impacts.

2.1. PROPONENT AND PROJECT LOCATION

PROPONENT

King County, with the participation of Harborview, is sponsoring the proposed *MIMP Major Amendment*.

PROJECT LOCATION

The Harborview campus is located in the First Hill neighborhood of Seattle, bounded by James Street on the north, Alder Street on the south, Terry Avenue on the east, and I-5 on the west. The main medical center is located at 325 Ninth Avenue. Other clinical sites adjacent to the main medical center include the Ninth and Jefferson Building and Norm Maleng Building. The Patricia Steel Building, which lies outside of the current Major Institution Overlay (MIO) boundary, is three blocks east of the medical center.

Figure 1 presents a regional map, and **Figure 2** presents a campus vicinity map.



Photograph 1: Harborview Medical Center

Figure 1: Regional Map

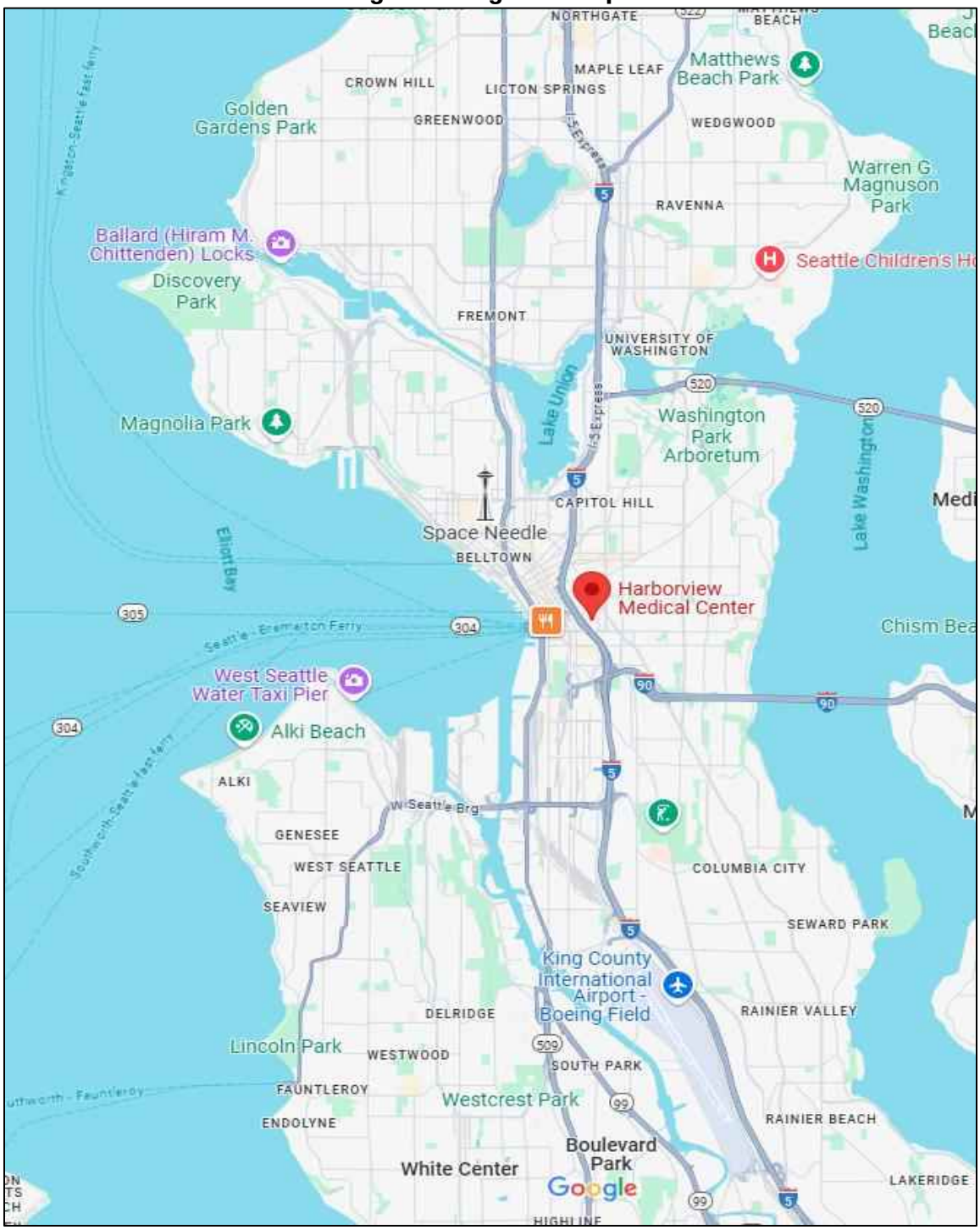


Figure 2: Vicinity Map



– – – – – – **Current MIO Boundary**

2.2. OVERVIEW AND PROPOSED ACTION NEED SUMMARY

OVERVIEW

The Harborview campus consists of 12 buildings and three parking garages within the MIO boundary. Harborview is a licensed 540-bed hospital owned by King County (County) and operated by the University of Washington School of Medicine (UW Medicine) through a Hospital Services Agreement between the County and UW Medicine. A 13-member Board of Trustees, appointed by the County, provides oversight of Harborview.

Summary - The proposed *MIMP Major Amendment* includes the following changes to the 1999 MIMP:

Expand the MIO District boundary to the west by 108,535 square feet (Washington State Department of Transportation [WSDOT] property) to allow for a loop access road.

Expand the current Floor Area Ratio (FAR) from 3.6 to 6.5.

Increase the maximum building height west of private roadway known as 8th Avenue from 240 feet to 320 feet.

Revise open space percentage goals from 20 percent to 12 percent.

Identify additional potential projects

Harborview is a comprehensive regional healthcare facility dedicated to providing specialized care for a broad spectrum of patients, the control of illness, and the promotion and restoration of health. Harborview is one of the nation's leading academic medical centers and is the only Level 1 trauma center serving a four-state region (Alaska, Idaho, Montana, and Washington).

Harborview is home to a wide range of critical medical and behavioral-health services, including state-of-the-art emergency medical services (EMS); general medicine and specialty clinics; and centers of excellence in burn, neurosciences, ophthalmology, infectious disease, and rehabilitation therapy. Harborview plans and coordinates with Public Health – Seattle & King County (PHSKC), other County agencies, community providers, and area hospitals to provide these programs and services.

Harborview's mission ensures that the following patients and programs are given priority care:

- Persons who are non-English speaking, poor, and experiencing poverty.
- Persons who are uninsured or underinsured.
- Persons who experience domestic violence.
- Persons who experience sexual assault.
- Persons incarcerated in King County's jails.

- Persons with mental illness, particularly those treated involuntarily.
- Persons with substance abuse.
- Persons with sexually transmitted diseases (STDs).
- Persons who require specialized emergency care.
- Persons who require trauma care.
- Persons who require burn care.

Services Offered at Harborview

Over time Harborview's medical facilities have expanded and changed to meet the demands of a growing and diverse population, as well as incorporating advancements in the fields of patient care, research, medicine, and technology. The County has provided for such facility improvements and expansions through voter-approved financing, occurring every 15 to 20 years. Currently, the Harborview campus includes the following services provided by UW Medicine and the County.

Trauma Response: As the only Level I adult and pediatric trauma center in Washington, Harborview provides specialized comprehensive emergency services to patients throughout the region, including Idaho, Montana, and Alaska, and serves as the disaster preparedness and disaster control hospital for Seattle and King County.

Behavioral Health: A variety of inpatient and outpatient behavioral health services, including psychiatric emergency services (PESs), outpatient clinics, and medication-assisted treatment are provided at the Harborview campus. In addition, King County Superior Court operates the Involuntary Treatment Act (ITA) Court at Harborview.

International Medicine: Harborview is unique in its offering of an International Medicine Clinic, providing primary care and mental health care services to adult refugees and immigrants. Staff speak several languages in addition to English, including Spanish, Amharic, Cantonese, Chao Jo, Mandarin, Hmong, Khmer, Laotian, Mien, Oromo, Somali, Tigrinya, and Vietnamese; interpreter services are also available.

Emergency Management/Disaster Relief: Harborview is the regional emergency management command center during a natural disaster or major crisis event. The hospital is required to have flexible inpatient beds and operating capacity, and rapid response systems as needed for a crisis response.

Infection and Infectious Disease Control: Harborview is at the forefront of containing and combating infectious diseases. Harborview is required to have clinical facilities and isolation room capacity to respond to emergency infectious disease outbreaks.

King County Clinics and Services: Several of King County's core public health services are located at Harborview, including the tuberculosis (TB) clinic, STD/ human immunodeficiency virus (HIV) clinic, the County's Public Health Lab, the Vital Statistics Office, and the King County Medical Examiner's Office (KCMEO). The County, in partnership with the Salvation Army, operates a 24/7 homeless shelter at Harborview Hall.

PROPOSED ACTION NEED SUMMARY

The Harborview Medical Center campus is within the City of Seattle Major Institution Overlay (MIO). The MIO's purpose is to permit appropriate institutional growth within boundaries while minimizing the adverse impacts associated with development, balance a major institution's ability to change with need, to protect adjacent neighborhoods, encourage the concentration of institutions on existing campuses, and provide for coordinated growth through MIMPs (SMC 23.69).

In November 1999, the Seattle City Council adopted the most recent MIMP for Harborview (Ordinance 120073). The 1999 Final Adopted Compiled Master Plan included provisions for: Development Program; Development Standards; and a Transportation Management Program (TMP). The development program identified six Planned Projects for implementation from 2000 to 2010, and four Potential Projects for 2010 to 2020 (see Table 1).

Actions Taken Since 1999 MIMP Adoption

Since the 1999 MIMP adoption, Harborview has applied for three minor amendments to meet increasing demand and changing needs. The three MIMP amendments addressed housing, capital projects, reuse of the existing facility, and open-space issues.

- *2004 Minor Amendment* - To satisfy housing replacement requirements.
- *2007 Minor Amendment* - Allowed completion of Clinical Services Building Phase 1 (Planned Project A1) and Phase 2 (Potential Project A2) at the same time. The Clinical Services Building[1] was constructed in 2009.
- *2013 Minor Amendment* - Allowed adaptive reuse of Harborview Hall and the development of open space.

[1] The reference to the Clinical Services Building refers to the Ninth & Jefferson Building.

Table 2: List of 1999 MIMP Planned and Potential Projects and Status

PLANNED PROJECTS (2000–2010)	STATUS
A1. Clinical Services Building[1] (Phase 1), 11 levels, total area of 215,000 SF with 500 below-grade parking spaces	Completed
B. Multi-use building, 6 levels, total area of 62,000 SF with 50 below-grade parking spaces	TBD
C. Demolition of Harborview Hall and Mental Health Service Building	Adjusted with minor previous amendment
D. Central Plaza with 4 levels of below-grade parking with a total of 450 spaces	Adjusted with minor previous amendment
E. Demolition of East Clinic	Planned
F. Inpatient Expansion Building, 6 levels above grade and patient transport system between Helipad and ED	Completed
POTENTIAL PROJECTS (2010–2020)	**STATUS**
A2. Clinical Services Building[1] (Phase 2)	Completed
G. East Hospital Expansion, 8 levels, total area of 111,800 SF building	TBD
H. Research Building, 7 levels, total area of 100,000 SF building	TBD
I. Clinical Services/Research Building	TBD

Source: King County Health and Housing Master Plan, 2020.

Table 3 lists the level of building space (gross square feet) and building height (in feet) under the 1999 MIMP and level of current development on the campus. The total building space on the Harborview campus is 2,080,908 square feet, compared to the 2,140,128 square feet capacity allowed under the 1999 MIMP. The campus has almost reached the capacity established under the 1999 MIMP, with 59,220 square feet of additional building space remaining. Existing campus building heights comply with the limits established by the 1999 MIMP and subsequent minor amendments.

Table 3: 1999 Master Plan and Current Campus Development

	1999 Master Plan	Current Campus Conditions
Total Campus Acreage	594,480 sq. ft. (13.6 acres)	594,480 sq. ft. (13.6 acres)
Total Campus Building Space Capacity	2,140,128 sq. ft.	2,080,908 sq. ft.
Maximum Building Height	105, 240 feet	105, 240 feet
Setbacks from Campus Boundary	0, 5, 10 feet	0, 5, 10 feet

Source: King County Health and Housing Master Plan, 2020.

Purpose of the Harborview 2020 Bond Program

Harborview is proposing an update to the 1999 MIMP that will allow the medical center to address health care needs associated with regional/local population growth, demographic changes (including aging population), evolving academic needs, upgrading older health care facilities, and increasing operational efficiencies (see Chapter 2.4 for details).

In November 2020, 77.5 percent of King County voters passed a historic $1.74 billion bond measure to facilitate building the next generation of healthcare facilities on the Harborview campus. After an extensive planning process convened by King County in partnership with UW Medicine, Harborview, and labor partners, the Harborview Bond Capital Program (Bond Program) outlined the following goals:

- Construct a new medical tower on campus to provide additional single-bed capacity.
- Increase the capacity of Emergency Department services.
- Upgrade and modernize existing patient rooms to meet modern infection control and privacy best practices standards.
- Co-locate outpatient behavioral health services and increase capacity for clinical behavioral health programs.
- Increase respite bed capacity at Harborview Hall (behavioral health and medical).
- Create enhanced space for Involuntary Treatment Act ("ITA") Court and expand Public Health – Seattle and King County (Public Health) spaces at Harborview to meet growing community needs.
- Seismically upgraded Center Tower.
- Seismically upgraded Harborview Hall.
- Demolish East Clinic.
- Remodel Pioneer Square Clinic.

This Bond Program furthers the commitment of King County, Harborview Medical Center, and the University of Washington to provide safe and sufficient facilities for the highest quality of healthcare, teaching, research, and community services.

This proposed *MIMP Major Amendment* includes the following changes to the 1999 MIMP:

- Expand the MIO District boundary to the west by 108,535 square feet (Washington State Department of Transportation [WSDOT] property) to permit a loop access road.
- Expand the current Floor Area Ratio (FAR) from 3.6 to 6.5.
- Increase the maximum building height west of private roadway known as 8th Avenue from 240 feet to 320 feet.
- Revise open space percentage goals from 20 percent to 12 percent.
- Identify additional Potential Projects beyond those identified in the 1999 MIMP.

- Identify potential future skybridge locations across multiple private roadways and public ROWs.

2.3. CURRENT CAMPUS AND SURROUNDING AREA CONDITIONS

EXISTING CAMPUS

The Harborview campus is located within the City of Seattle's First Hill-Capitol Hill Urban Center in the Seattle Comprehensive Plan, and within a Major Institution Overlay (MIO) identified in the Seattle Land Use Code (Title 23). The existing underlying zone is HR (M) Highrise multifamily with an MHA[2] suffix and MR (M) Midrise multifamily with an MHA suffix, with maximum building height limits, as defined by the 1999 MIMP of 105 feet for the eastern portion of campus, and 240 feet for the western portion of campus, as noted on **Figure 3**.

Figure 3: Existing Harborview Campus



[2] Mandatory Housing Affordability (MHA) is a developer contribution. The City of Seattle requires MHA developer contributions to mitigate the impacts of new development. To achieve the goal of providing affordable housing in Seattle, development subject to the MHA requirements must contribute to affordable housing as part of most commercial, residential, or live-work projects. This contribution can be provided by including affordable housing units within new development (performance option) or paying into a fund that will support the development of affordable housing (payment option).

Existing building setbacks along the perimeter of the campus, as defined by the 1999 MIMP, include a 10-foot setback along the northern, southern and portions of the eastern campus boundaries, 5-foot setbacks along the majority of the remaining eastern and northern campus boundaries, and 0-foot setbacks along the interior of campus along private roadway known as 8th Avenue and 9th Avenue as well as the western campus boundary.

The 13.6-acre Harborview campus includes twelve (12) buildings within the MIO boundary connected by city streets, vehicular driveways and sidewalks, and on-street and structured parking. Existing building heights range from 4 to 14 stories in height, with the campus buildings comprising 2,080,908 square feet of floor area within the MIO boundary, including the Center Tower, East Hospital, East Clinic, West Hospital, West Clinic, the Ninth & Jefferson Building, Maleng Building, Harborview Hall, and the Research & Training Building[3].

View Park I and View Park II Parking Garages/helipads and the Boren Garage are also included within the MIO boundary, but the square footage of these structures does not apply towards campus-wide FAR calculations (see **Table** 4). Public streets, paved sidewalks, and walkways, as well as interior and perimeter landscaping comprise the rest of the campus.

Table 4: Existing Campus Building Characteristics

Existing Building	Building Area (Sq.Ft.)*	Building Levels	Building Height (ft.)
Hospital			
Center Tower	**255,442**	15 floors	176 ft
East Hospital	197,525	11 floors	144 ft
East Clinic	119,718	8 floors	135 ft
West Hospital	**306,794**	6 floors	84 ft
West Clinic	**184,191**	5 floors	78 ft
Ninth & Jefferson Building	764,347	14 floors	195 ft
Maleng Building	262,139	9 floors	150 ft
Harborview Hall	**90,799**	12 floors	132 ft
Research & Training Building	**181,930**	9 floors	135 ft
Firehouse	8,542	3 floors	35 ft
Security Building	8,093	2 floors	25 ft
Terrace Street Building (TSB)	5,616	1 floor	15 ft
TOTAL BUILDING SPACE WITHIN MIO* **	**2,385,135**		
Pat Steele Building**	287,824	5 floors	60 ft
Childcare Center**	5,706	1 floor	15 ft
TOTAL BUILDING SPACE OUTSIDE MIO* **	**293,530**		
View Park I Garage	106,890	2 floors	25 ft
View Park II Parking Garage/helipad	147,078	5 floors	60 ft

[3] The Facilities Building has been demolished, as of June 2025.

Existing Building	Building Area (Sq.Ft.)*	Building Levels	Building Height (ft.)
Boren Garage	**133,683**	5 floors	60 ft
TOTAL BUILDING SPACE IN PARKING STRUCTURES	**387,651**		

Source: Harborview Medical Center, 2025. * Calculated as gsf, not as FAR
****Not within the MIO boundary. ***Excluding Parking-Only Structures**

The existing campus buildings are all separate structures, including the multiple wings of the hospital complex (Center Tower, East Hospital, East Clinic, West Hospital, West Clinic). This portion of the medical center contains most of Harborview's 540 licensed hospital beds (the Norm Maleng Building also contains hospital beds). A 7-story sky-bridge connects the Maleng Building to the East Hospital. Harborview also owns the Pat Steele Building and the Childcare Center, both located outside of the MIO.

The Harborview campus currently contains 1,846 parking stalls distributed throughout the campus in five parking structures. The main public vehicular entrance to the Harborview campus is from 9th Avenue, providing access for patients, visitors, emergency/service vehicles, and transit. A second major access from the private roadway known as 8th Avenue provides access for emergency patients, visitors, and emergency/service vehicles.



Photograph 2: Existing Campus Buildings

Table 5 summarizes existing characteristics of the Harborview Medical Center campus, including building space, hospital beds, impervious (buildings, paved drives, and sidewalks, etc.) and previous (landscaping and natural) area, campus population, and parking.

Some campus buildings currently operate separate infrastructure systems (including emergency generators, heat pumps, electrical switchgear, cooling towers, and boilers), and other buildings' systems are intertwined. Harborview considers the current operation of separate building systems to be inefficient, costly, and does not provide the appropriate level of backup. As part of the Bond Program, King County is looking to upgrade many of its systems across campus (**Figure 3**).

Table 5: Existing Campus Characteristics

Characteristic	Amount
Campus Acreage	13.6 acres
Building Space*	**2,678,666** sq. ft.
Building Height Maximums	240 feet
Setback from Campus Boundary Required	0, 5, and 10 feet
Hospital Beds	540 licensed beds
Impervious Area	513,869 sq. ft.
Pervious Area	61,250 sq. ft.
Campus Staff Population	5,383 employees
Parking	1,846 stalls

Source: Harborview Medical Center, 2025.

*Including buildings located within and outside the MIO boundary, but excluding parking

FACILITIES/OPERATIONS LOCATED OUTSIDE THE MIO DISTRICT BOUNDARY

The Institution operates four (4) facilities outside of the MIO District boundary.

- Childcare Center
- Pat Steele Office Building
- Pioneer Square Clinic
- Hobson Clinic

Harborview has recently acquired a site at Ninth & Alder and plans to construct a medical office building in the near future – this project will also be located outside of the MIO District Boundary. This project does not require MIO expansion and will comply with all requirements of SMC 23.69.022, including meeting all applicable zoning development standards of the Yesler Terrace Master Planned Community.

Additionally, hospital physicians and some staff may circulate between University of Washington Medical Center and Northwest Hospital. Since 2020, some administrative and non-patient care support staff have migrated to remote working environments.

SURROUNDING AREA

The area surrounding the Harborview campus is a moderate-density urban neighborhood. Although medical and institutional uses are predominant in the area, the neighborhood also includes residential and commercial uses. Harborview is located between Seattle's First Hill neighborhood and Yesler Terrace. First Hill, in the vicinity of Harborview, consists of multifamily apartments, retail, commercial, places of worship, and the Frye Art Museum.

2.4. MAJOR INSTITUTION MASTER PLANNING PROCESS

Much of the building capacity established under the 1999 MIMP is used with approximately 59,220 square feet of capacity remaining. Harborview is proposing a new MIMP Major Amendment to guide future development on the campus to help address the health care needs of the region.

The proposed MIMP Major Amendment represents an update to the 1999 MIMP and subsequent minor amendments prepared by Harborview Medical Center in compliance with Seattle Municipal Code (SMC) Chapter 23.69 for Major Institution Overlay Districts, as well as to fulfill the need for a comprehensive campus development plan. The most recent MIMP for Harborview Medical Center was adopted by the Seattle City Council in November 1999 (Ordinance 120073) with three subsequent amendments between 1999- 2014. According to SMC 23.69.035E, a proposed change to an adopted master plan can be considered a major amendment when it includes an increase in a height designation or the expansion of the boundary of the MIO District, both of which are included in the MIMP Major Amendment.

Harborview Medical Center began the process of updating the 1999 MIMP in 1998 with the submission of a Notice of Intent to the City of Seattle Department of Construction and Inspections (SDCI). During the Major Amendment's preparation, King County, and the Harborview Bond Team, with the help of the Seattle Department of Neighborhoods (SDON) [this work is now managed by staff in the Office of Planning and Community Development (OPCD) since January 1, 2026], established an Advisory Committee. From September 2022 to June 2023, the Harborview Bond Team met with the Advisory Committee to present, review, and solicit input on issues related to proposed amendments to MIO boundary expansion, FAR, building height, open space percentage, parking and traffic circulation, as well as Planned and Potential Projects, and anticipated schedule of development.

The result of these meetings was a unanimous Advisory Committee vote, followed by a letter of support for the Major Amendment. Since then, meetings have been held on an as needed basis. The planning process associated with the Harborview Medical Center MIMP Amendment has involved numerous meetings to encourage broad involvement by numerous entities.

2.5. ENVIRONMENTAL REVIEW AND PURPOSE

Consistent with the provisions of the State Environmental Policy Act (SEPA) (RCW 43.21C and WAC 197-11-050), King County is serving as the lead agency under SEPA (WAC 478-324-010 through -230).

In April 2025, King County began the formal environmental review process for the proposed MIMP Major Amendment. As the SEPA lead agency, King County is responsible for ensuring SEPA compliance. King County determined that the proposed MIMP Major Amendment could result in significant environmental impacts and that an EIS should be prepared. The County initiated the environmental review process by gathering public and agency input regarding specific topics and issues that should be analyzed as part of this EIS.

On April 10, 2025, King County issued a Determination of Significance and initiated the scoping process for this EIS. From April 10 through May 1, the County conducted the scoping comment period during which the public, public agencies, and tribes had the opportunity to provide input regarding the EIS scope. The County also held a public scoping meeting on April 24th. The County received three (3) comment letters during the scoping comment period.

Based in part on the input received during the scoping period, King County defined the scope of the EIS. The EIS includes the following environmental elements for analysis:

- Earth/Topology (ECA steep slope)
- Air Quality/GHG
- Water (Surface Water Runoff and Stormwater)
- Energy and Natural Resources
- Environmental Health (Noise [Helicopter] and Hazardous Materials)
- Land and Shoreline Use (Patterns and Consistency with Plans, Policies, and Regulations)
- Recreation
- Aesthetics (Height, Bulk, and Scale, Views, Shadows, Light and Glare)
- Historic and Cultural Preservation
- Transportation
- Public Services and Utilities
- Construction Impacts (Short-term Impacts)

The purpose of this EIS is to address the probable significant adverse impacts that could occur as a result of approval of the proposed *MIMP Major Amendment* by the King County Council and the City of Seattle. Alternatives analyzed in this EIS are intended, in part, to **1)** encompass a range of focuses for campus development that can accommodate the projected building space needs; and **2)** meet the identified MIMP goals and objectives. Although the timing of campus development under the proposed *MIMP Major Amendment* cannot be specifically defined, Alternatives 1 and 2 are intended to meet the level of building square footages but with different building heights.

The approval of the proposed *MIMP Major Amendment* is classified under SEPA as a non-project (also referred to as programmatic) action. SEPA defines a non-project action as an action that is broader than a single site-specific project, and involves decisions on policies, plans, or programs. An EIS for a non-project proposal does not require site-specific analysis. Instead, the EIS addresses conditions at a more general level (see WAC 197-11-442 for detail). However, this EIS also includes detailed project-level information and analysis associated with the Planned Tower project on the View Park I site (e.g., through the use of transportation modeling, greenhouse gas emission calculations, building mass simulations, etc.).

2.6. MAJOR INSTITUTION MASTER PLAN GOALS (OBJECTIVES)

The proposed MIMP Amendment provides a long-term phased development plan that is intended to achieve the following development goals:

- Increase Harborview surge capacity during a mass-casualty event or disaster.
- Increase the size and capacity of the Emergency Department.
- Upgrade Harborview patient rooms for modern infection control and privacy best-practices standards.
- Increase capacity for clinical, behavioral health, housing, and Involuntary Treatment Act (ITA) Court services.
- Seismically stabilize existing facilities.

2.7. PROPOSED ACTION

The Proposed Action is approval of a MIMP Major Amendment, a non-project action under WAC 197-11-704(2)(b), to meet the following Harborview Bond Program objectives:

- Expand the MIO District boundary to the west by 108,535 square feet (Washington State Department of Transportation [WSDOT] property) to allow for a loop access road.

- Expand the current Floor Area Ratio (FAR) from 3.6 to 6.5 and increase the allowable floor area to approximately 4.5 million square feet.
- Increase the maximum building height west of private roadway known as 8th Avenue from 240 feet to 320 feet.
- Revise open space percentage goals from 20 percent to 12 percent.
- Identify additional Potential Projects beyond those identified in the 1999 MIMP.
- Identify potential future skybridge locations across multiple private roadways and public ROWs.

This will allow HMC to meet King County's existing and future medical needs at modern care standards by expanding the number of licensed beds, increasing the proportion of single-occupancy rooms from 30 percent to 70 percent, increasing the size of the Emergency Department, and providing additional clinical space. Harborview Medical Center is currently licensed for 540 beds and operates at or above capacity on a daily basis.

The anticipated development supported by the proposed MIMP Major Amendment would include up to 1,629,208 square feet of new gross floor area, including inpatient (hospital) and outpatient clinic buildings to replace and grow existing health care capacity. The MIMP Major Amendment and the facility improvements will allow the hospital to operate more efficiently and be better positioned to care for the residents of King County in the event of another pandemic or regional disaster.

2.8. EIS ALTERNATIVES

SUMMARY

To conduct a comprehensive environmental review, the EIS includes two development alternatives (Alternatives 1 and 2) and a No Action Alternative for analysis. The two development alternatives include the amount of Planned and Potential Development identified for the proposed MIMP Major Amendment but reflect different MIO height limits. All other features of Alternatives 1 and 2 (such as campus boundary, new building space, floor area ratio, open space, vehicular access, and parking) are as outlined in the proposed major amendment and do not differ between Alternatives 1 and 2.

ALTERNATIVE 1 – PROPOSED MIMP MAJOR AMENDMENT

Campus Boundary

The current 13.6-acre campus area and boundary would increase under the proposed MIMP Major Amendment. To allow for the provision of a new internal loop ring road, the MIMP Major Amendment increases the MIO boundary to include property acquired from WSDOT lying between the west edge of the current MIO District boundary and I-5. WSDOT has agreed to convey the property to King County. The affected property includes 108,535 square feet. The acquisition will increase the land area within the MIO district boundary to a gross 703,015 square feet or roughly 16.1 acres. **Figure 4** outlines the campus boundary under the proposed MIMP Major Amendment.

Planned Projects

To help meet the health care needs of the region, the proposed MIMP Major Amendment includes a new patient tower that will provide approximately 360 new state-of-the-art private inpatient rooms, offering privacy of care and greater infection control (**Table 6)**. The Planned Tower will provide an expanded Emergency Department and expanded surgical services, along with sub-grade parking, delivery bays, and patient care support services. The Planned Tower will connect to the existing Emergency Department and to the lower levels of the existing West Hospital, enabling the expansion of the Seattle City Light service vault and surgical services.

The planned tower will be in the footprint of the existing View Park I garage, west of private roadway known as 8th Avenue[4]. The new Planned Tower has two design options: Design

[4] The original 8th Avenue was located under what are currently the West Clinic and West Hospital buildings - the original 8th Avenue ROW was vacated prior to construction of these two buildings. The existing "8th Avenue" is a private road on Harborview property that connects Jefferson Street and Alder Street.

Option 1 would remove the private roadway known as 8th Avenue and develop the Tower I site to approximately fifteen stories with a Planned skybridge connecting back to the west hospital across the private roadway known as 8th Avenue to the east. The tower connection to the existing West Hospital would be built in this roadway with a southern limit that will preserve a roundabout drop-off at the existing Main Hospital west entry. The Planned Tower will be bound to the north by Jefferson Street right of way, and to the west by the edge of the existing View Park I garage.

Figure 4: Proposed MIMP Amendment MIO Boundary



For Design Option 2, the private roadway known as 8th Avenue would be preserved, and the new Planned Tower I site footprint would encompass the existing View Park I garage footprint.

The existing View Park I garage will be demolished to make way for the new Planned Tower I building. The two existing helipads will be relocated to the rooftop of the new Planned Tower I. The existing helipad will remain on top of View Park II garage for the near future.

Table 6: Summary of Planned and Potential Projects – MIMP Major Amendment

Project	**Alternative 1 - MIMP Amendment:** Maximum building height of 320 feet
2024 MAJOR AMENDMENT PLANNED PROJECTS	
New Patient Tower	671,220 sf
New Skybridge between New Tower and existing West Hospital	845 sf
	672,065 sf
2024 MAJOR AMENDMENT POTENTIAL PROJECTS	
Future Tower	671,220 sf
Future Skybridges	10,400 sf
Boren Garage (parking only)	0 [1] sf
New East Clinic in footprint of Existing East Clinic	280,000 sf
Expand WSB Site for Multi-Use Building (+ 4 stories)	40,000 sf
Subtotal	+ 1,001,620 sf
1999 & 2014 EXISTING MIMP PROJECTS TO REMAIN[2]	
Demolition of East Clinic	- 119,718 sf
Seismic Upgrade to center tower	- 38,300 sf
Seismic upgrade to Harborview Hall w/buttress building to east	65,250 sf
Demolition of Facilities Building[3]	- 5,616 sf
Community plaza east of Harborview Hall	-
Multiuse Building (WSB), 6 stories	62,000 sf
Demolition of Securities (site of future WSB)	- 8,093 sf
Subtotal	*-44,477 sf*
Existing Total	*2,080,908 sf*
Net New Total (Planned)	*+ 672,065 sf*
2035 Future Total *(Planned only)*	**2,752,973 sf**
Net New Total (Planned and Potential[1])	+ 1,629,208 sf
2045 Future Total *(Planned and Potential[1])*	**3,710,116 sf**

[1] **The Boren Garage redevelopment would include a 14-story parking garage consisting of approximately 284,620 sq. ft. and 823 parking stalls. The new square footage for this structure in the table is reported as '0' because square footage associated with parking is not included in the calculation of campus-wide FAR.**

[2] **Potential includes the 1999 & 2014 MIMP projects.**
[3] **The Facilities Building was demolished in June 2025.**

The planned project will also include relocation of infrastructure systems, loop drive lane and below-grade parking and dock access. A new internal ring road and parking structures will include the lease or purchase of 108,535 square feet of additional property from WSDOT. The WSDOT acquisition will also include sufficient additional land to relocate critical building systems infrastructure, and supplement the 12 percent open space target. The ring road will provide internal access from Jefferson and Alder Streets.

After the completion and occupancy of the new Planned Tower I, Harborview will renovate the vacant spaces within the existing West Hospital and Center tower for adaptive reuse in patient care and health support services.

The Proponent estimates that the Planned Project will commence design in 2026, with construction to commence immediately after issuance of permits. No phasing or sequencing has yet been defined for Potential Projects beyond the planning of implementation within the next 20 years. (see **Figure 5** for details on retained buildings).

Potential Projects

The existing condition of the Harborview campus includes Planned and Potential Projects approved under the 1999 MIMP and the 2014 Addendum, and those facilities existing prior to the adoption of the 1999 MIMP and those constructed after 1999. The following Potential Projects identified in the 1999 MIMP will remain as Potential Projects in this Major Amendment (**Table 6**):

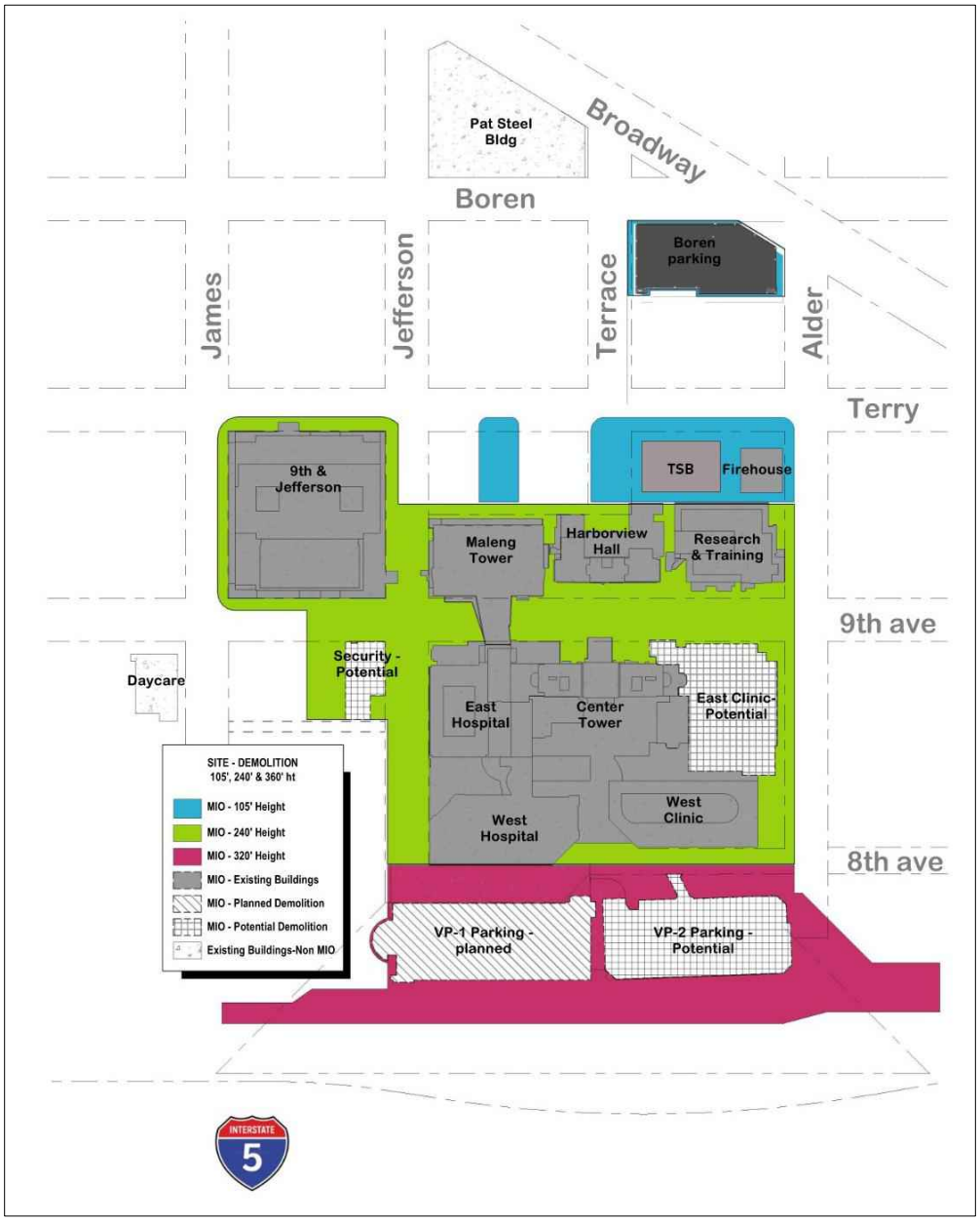
- Seismic upgrade of Center Tower.
- Demolition of East Clinic Building.
- Construction of a multi-use building on the Walter Scott Brown Building site.
- Seismic upgrade and expansion of Harborview Hall.
- A patient transport system to accommodate vehicles large enough to hold two gurneys and four staff for transporting from View Park II Garage to Emergency Department.
- Construction of Community Plaza east of Harborview Hall bound by Terry Avenue and Terrace Street.

In addition to Potential Projects carried over from the 1999 MIMP and 2014 Addendum, HMC has identified additional Potential Projects:

- Construction of a multi-use outpatient facility in the location of the demolished East Clinic. The purpose of this project is to support patient care services.

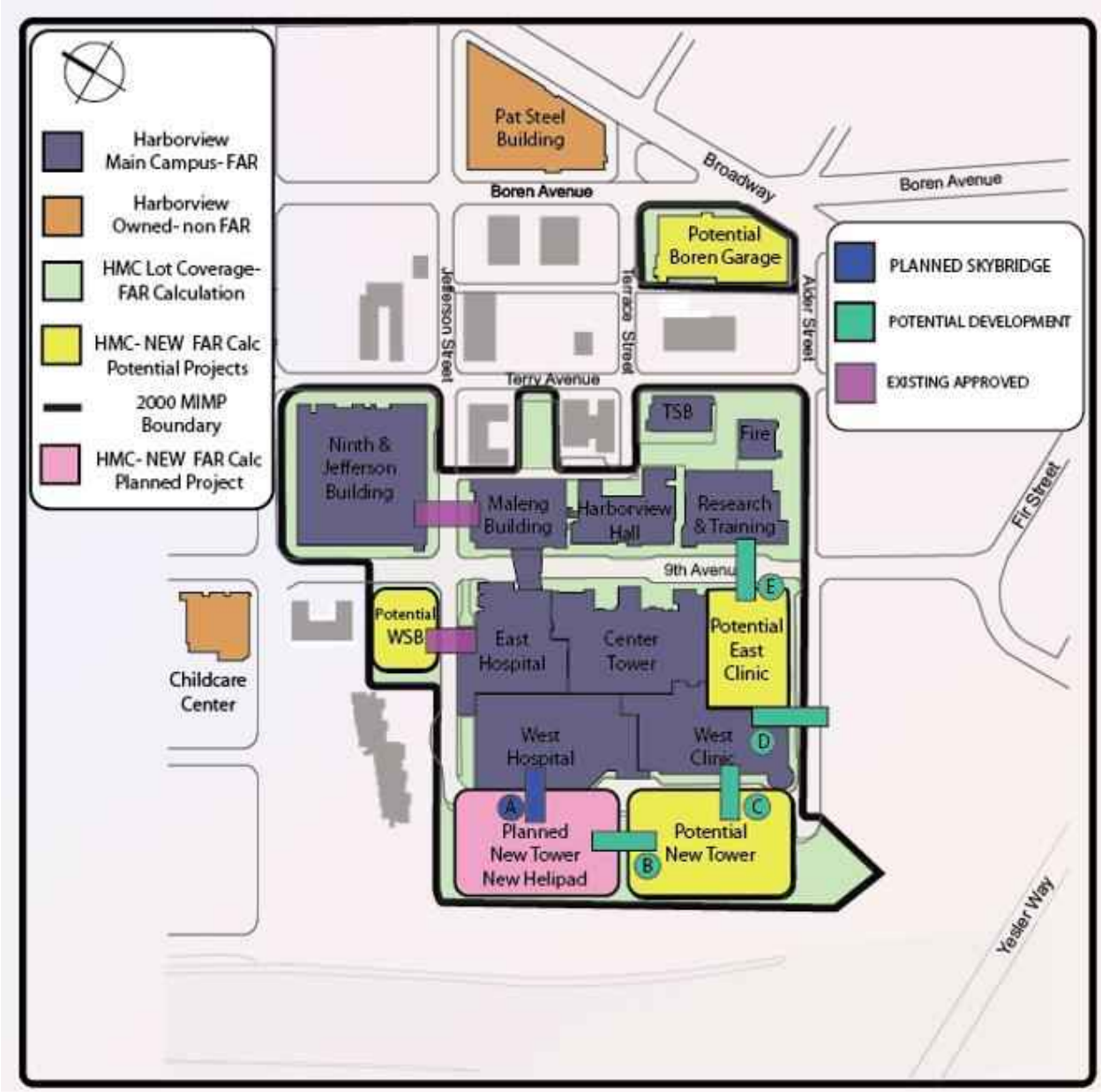
- Construction of a second patient tower up to 320 feet to be located in the footprint of the existing View Park II Garage.
- Demolition and redevelopment of the Boren Garage parking garage with a new height of 105' at the current location.
- Future skybridges across multiple private roadways and public ROWs (see **Figure 5A** below for potential skybridge locations).

Figure 5: Retained Buildings and Potential Building Demolitions



The Potential Projects represent full development of available parcels within the Harborview MIO district boundary. Over the next 20 years, Harborview anticipates requiring additional patient beds, hospital services, clinical services, and health care support services on campus to serve the community and region due to population growth, demographic changes, and an aging population.

Figure 5A - Locations of Future Skybridges



Proposed and Potential Building Demolition

The proposed *MIMP Major Amendment* anticipates many buildings would remain in their current configuration, with ongoing maintenance. **Figure 5** illustrates these buildings, including the two buildings outside of the MIO boundary, and it illustrates older structures that may be demolished during implementation of the proposed *MIMP Amendment*. As listed on **Table 7**, one or more existing buildings may be demolished:

- View Park I garage will be demolished for the Planned New Patient Tower I.
- View Park II garage will be demolished for the future Potential New Tower II.
- East Clinic demolition, which was approved during the 1999 MIMP, remains anticipated for demolition.
- Security Bldg. (Walter Scott Bldg.) demolition was approved during the 1999 MIMP and may be completed during this Bond program cycle.
- Facility Engineering Building (temp Vaccination Clinic) demolition was approved during 2014 MIMP Addendum as part of Harborview Hall retention and community Plaza open space plan.
- Boren Garage parking structure will be demolished in order to be redeveloped with the new approximately 14-story Boren Garage.

Demolition of these buildings could remove up to 387,395 gross square feet of the campus.

Table 7: **Potential Building Demolition**

Existing Building	Number of Stories	Approx. Bldg Area (Sq.Ft.)
Planned Demolition		
View Park I Garage	2 floors	106,890
Potential Demolition		
View Park II Garage	5 floors	147,078
East Clinic	8 floors	119,718
Securities Building	2 floors	8,093
Boren Garage (parking only)	3 floors	133,683*
Total Potential Building Demolition		**515,462**

*** The sq. ft. associated with parking is not included in the calculation of campus-wide FAR.**
Source: Harborview Medical Center, 2025.

MIO Building Heights

The Harborview campus MIO district has two approved zoning heights within the MIO boundary (**Figure 6**):

- MIO 105: East of mid-block between 9th and Terry Avenue, along Terry Avenue frontage and the parking garage block defined by Boren Avenue between Terrace and Alder streets.
- MIO 240: The balance of campus is MIO 240 along 9th Avenue, between Jefferson and Alder Streets, and includes the site at the northwest corner of the intersection of 9th Avenue and Jefferson Street, site of the existing Walter Scott Brown campus security building. The existing View Park I (VPI) and View Park II (VPII) parking garages are in the MIO 240 zone.

Figure 6: Existing MIO Heights



The underlying zoning has two designations: Highrise Multi-Family Residential (HR) in the western portion, and Midrise Multi-Family Residential (MR) in the eastern portion, currently with a Multifamily Housing Affordability (M) suffix. At the time of the 1999 MIMP adoption, the underlying zoning maximum heights were 160 feet in the HR zone, with up to 240 feet possible as a director's special exception, and 60 feet in the MR zone.

In the years since the 1999 MIMP adoption the City Council has significantly upzoned both the underlying zoning within the MIO and the zoning in the area surrounding the MIO. The height limit for HR(M) is now 440 feet, and MR(M) is now 80 feet. Jefferson Terrace residential tower, just to the north of the MIO District, has a 440-foot height limit. The DOC 1 zone no longer has a zoning height limit; building heights are functionally limited only by Federal Aviation Administration (FAA) regulations relating to the flight path for Harborview helicopters and Boeing Field.

The DOC 2 zone is limited to 550 feet, with up to 650 feet in certain circumstances. Yesler Terrace, across Alder Street from Harborview, underwent a master planning effort and is now zoned Master Planned Community-Yesler Terrace (MPC-YT). Whereas Yesler Terrace in 1999 was improved with 1-2 story structures, it is now much taller and denser. Height limits and allowable uses in the MPC-YT NW Sector Block 7 and 8, which are adjacent to the Harborview MIO District on the south, have the tallest height allowed within Yesler Terrace at 300 feet.

In alignment with maximum building height limits in the surrounding neighborhoods, the MIMP Major Amendment includes a height increase in the MIO-240 zone west of private roadway known as 8th Avenue to a maximum of 320 feet **(**Error! Not a valid bookmark self-reference.).

Floor Area Ratio (FAR)

The existing allowable FAR established in the 1999 MIMP is 3.6. Using the existing campus MIO boundary of 594,480 square feet, the maximum allowable floor area is 2,140,128 square feet, of which Harborview has built 2,080,908 square feet. Harborview has calculated the square footage that is necessary for the hospital to accommodate and provide for future healthcare needs in King County. As a result, the MIMP Major Amendment proposes to increase the campus wide FAR from 3.6 to 6.5 in order to accommodate this increased need. An FAR of 6.5 would result in a total chargeable floor area of 4,569,598 square feet within the Harborview MIO boundary.

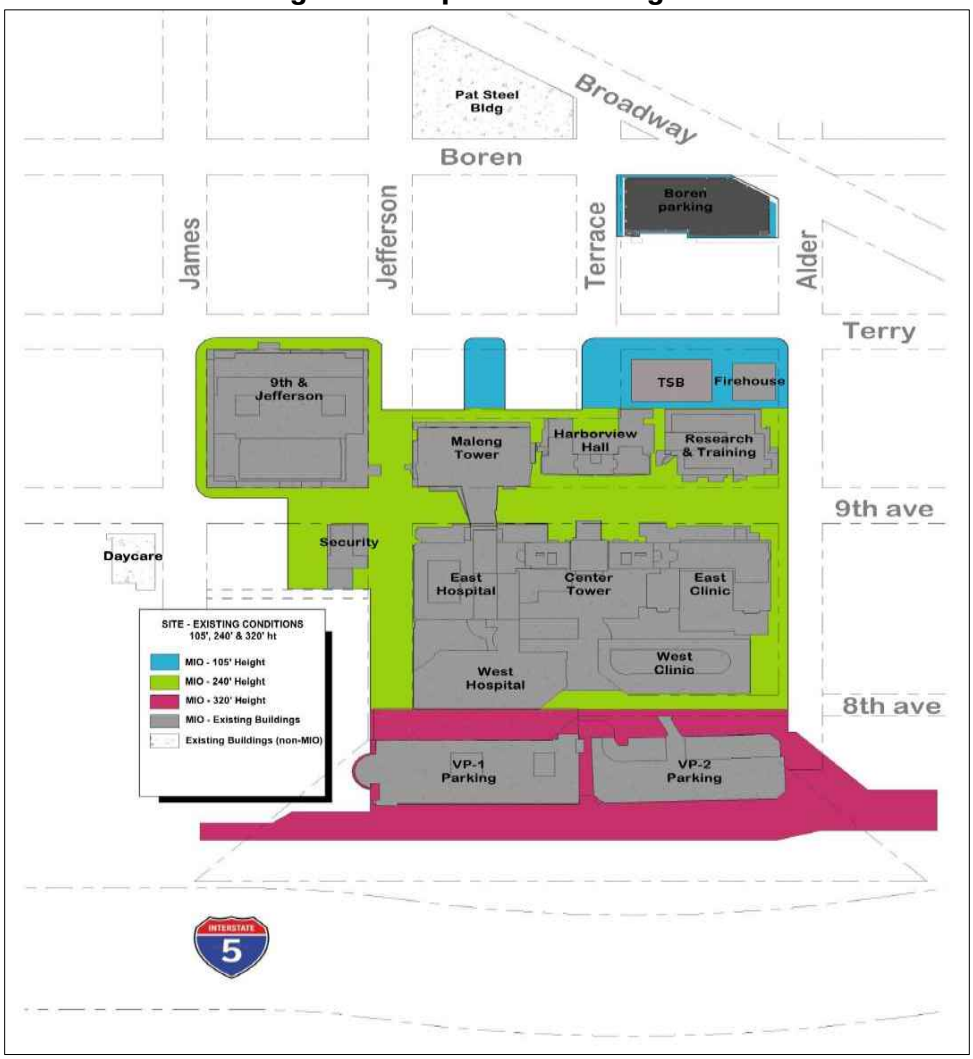
Because the MIO expansion to incorporate the WSDOT land will accommodate only an access road and not occupied space, the environmental impacts of this 4.5 million sf of chargeable floor area will remain the same whether or not the City Council approves the horizontal MIO expansion.

Should the City Council reject the horizontal MIO expansion, the proposed FAR of 6.5 would still be adequate to accommodate HMC's increased need for space to address future healthcare needs.

Open Space

Under the MIMP Major Amendment, Harborview would lower the current open space requirement of 20 percent and establish a 12 percent open space for the Harborview campus. The 12 percent open space requirement would meet or exceed open space requirements at similar Major Institution Medical Centers in the First Hill neighborhood. The Proponent will develop open space and landscaping as part of individual Planned and Potential Projects and will contribute to the broader integration of the campus into the adjacent neighborhoods.

Figure 7: Proposed MIO Heights



Because the WSDOT land acquisition will accommodate only an access road and not occupied space under the *MIMP Major Amendment*, some portion of this area that is adjacent to the campus boundary would still be counted towards the calculation for campus-wide open space even if the acquisition of this area does not occur.

Open space on the Harborview Medical Center campus will no longer include the west side landscaped open space on the top of the existing View Park I garage that consists of both landscape and hardscape. The 2014 Addendum replaced the View Park I garage open space area with other open space in the form of a community plaza located east of Harborview Hall and bordered by Terry Avenue and Terrace Street.

Open space on the Harborview campus will include plazas, landscaped areas, pedestrian walkways, and building setbacks. These areas may be modified over time to better serve and complement campus buildings. Future Planned and Potential Projects will provide street trees within the public right-of-way along Harborview project frontages. With the exception of Terrace Avenue, which is proposed as an Urban Curbless Street, the open space total does not include rights-of-way.

Parking and Access

As the campus develops, prioritizing hospital connectivity while increasing parking is necessary to support the Planned and Potential Projects. The loop road that will be constructed to the west of the New Tower and the View Park II Garage will provide important new access points. Other than the current access provided via private roadway known as 8th Avenue, existing access to the hospital will not change. Subsequent to development of the planned projects, the Proponent does not anticipate any change in circulation as part of development associated with the Potential Projects.

To support further development, the Harborview campus will require additional parking stalls, up to a maximum parking supply of 3,301 stalls, an increase of up to 1,891 stalls with the Planned and Potential Projects. The Boren Garage has been identified as a potential project to support increased parking capacity needs. The existing 3-story parking garage would be replaced with a new roughly 14-story parking structure constructed up to 105 feet at the current location. This redevelopment would effectively double existing parking stalls from 358 up to at least 823.

Parking will continue to be concentrated in structured parking, and the Proponent anticipates locating parking stalls in a few concentrated locations within the MIO boundary to accommodate future demand. Harborview will construct additional parking in phases as development occurs on campus. In some cases, parking stall construction may precede development to improve the cost or efficiency of the construction.

Transportation Management Program

The proposed Transportation Management Program (TMP)would include programs and strategies applicable to medical personnel, faculty, and staff that are designed to reduce parking and traffic demands associated with projected growth at Harborview. The MIMP proposes a 32 to 33 percent Single Occupancy Vehicle (SOV) goal for the daytime campus population, inclusive of medical personnel, faculty, and staff/employees.

The TMP defines programs included in the Transportation and Parking Element of the Master Plan per SMC 23.69.030.F. Chapter V of the *MIMP Major Amendment* contains the Harborview TMP and includes programs and strategies that Harborview is committing to that address bicycle and pedestrian amenities, parking management, transit programs and incentives, carpool/vanpool programs and incentives, shared mobility amenities, and telecommuting benefits. The TMP also identifies a list of potential measures that Harborview could implement if the SOV target is not met.

ALTERNATIVE 2 – MAXIMUM BUILDING HEIGHT OF 240 FEET

As described above, all features of Alternatives 1 and 2, such as campus boundary, new building space, floor area ratio, open space, vehicular access, and parking, are the same as indicated in the proposed *MIMP Major Amendment* and do not differ between Alternatives 1 and 2. The only change between alternatives is the proposed MIO Height Limits across campus, which results in bulkier towers that occupy the full width and depth of each lot.

As under Alternative 1, Alternative 2 assumes the 671,220 square feet of net new building space and 845 square feet for the connecting skybridge with the Planned Tower I and the Potential Projects total of approximately 1,001,620 net new square feet of building space (1,629,208 square feet combined net new building space with Planned and Potential Projects). The campus boundary expansion to the west and the associated internal loop road assumed under Alternative 1 are also assumed under Alternative 2.

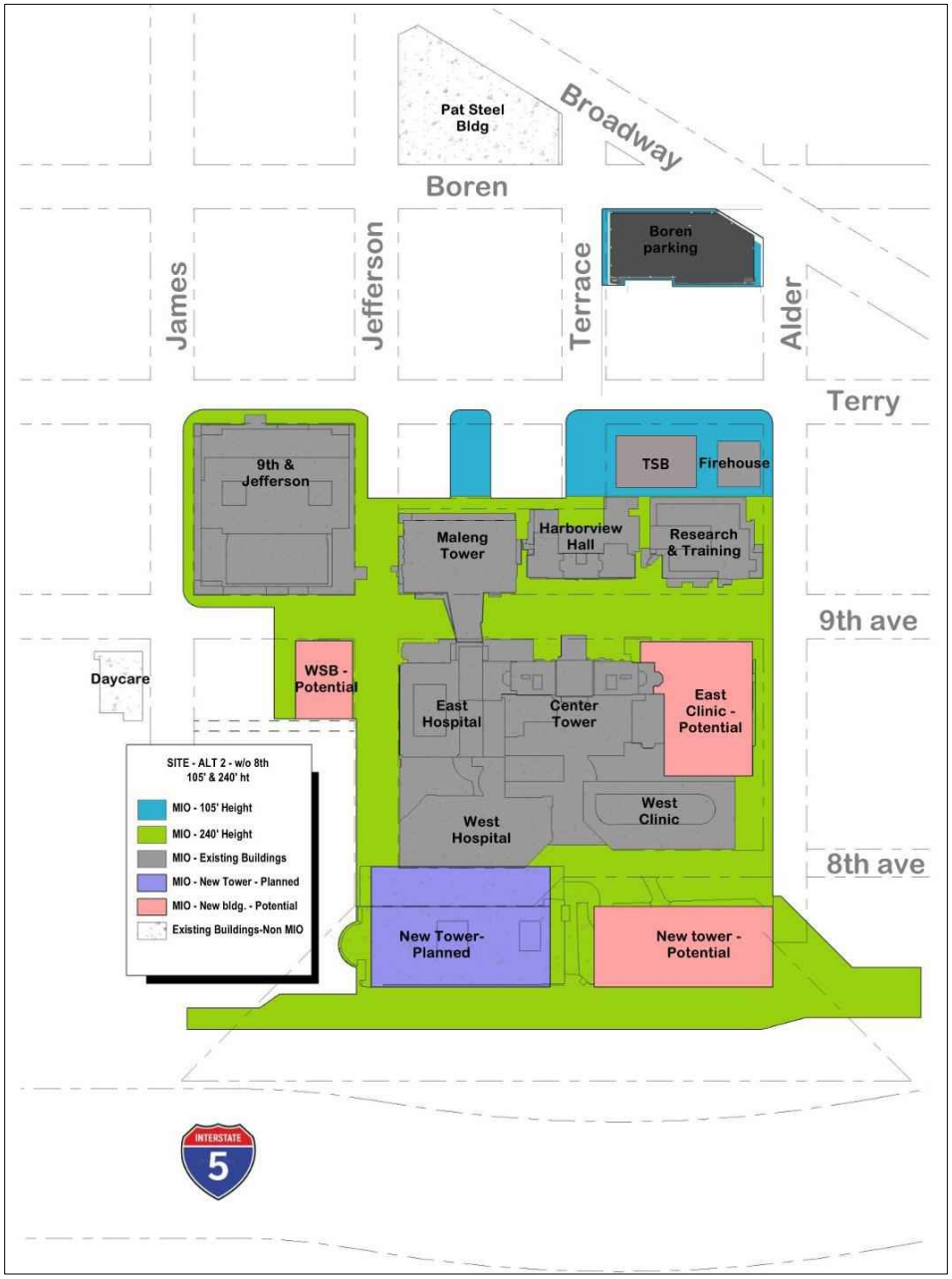
MIO Building Heights

Alternative 2 would consist of all components of Alternative 1 except for the proposed height limit increase west of private roadway known as 8th Avenue within the MIO. The retained MIO-240 zone would alter the New Tower and Future Tower designs, and the buildings would be constructed to the current maximum height limit of 240 feet (see **Figure 8**).

The retention of the existing height limits would not modify any other Planned or Potential Projects of the MIMP Major Amendment.

To accommodate the 672,065 square feet of new net building space for the Planned Tower I and the 671,220 square feet for the Potential Tower II, the towers under Alternative 2 with the retained 240-foot height limit would require a larger building footprint and larger floor plates than under Alternative 1.

Figure 8: Alternative 2 Height Limit Overlays



Floor Area Ratio

The FAR standard increase would remain consistent under Alternative 2 and Alternative 1 to allow the development of needed building space to meet MIMP Major Amendment goals and objectives. The resulting proposed square footage for each individual Planned and Potential Project would be the same as Alternative 2 and Alternative 1 (**Table 8**).

Table 8: Summary of Planned and Potential Projects – Alternative 2

Project	**Alternative 2:** Maximum building height of 240'
2024 MAJOR AMENDMENT PLANNED PROJECTS	
New Patient Tower	671,220 sf
New Skybridge between New Tower and the existing West Hospital	845 sf
	672,065 sf
2024 MAJOR AMENDMENT POTENTIAL PROJECTS	
Future Tower	671,220 sf
Future Skybridges	10,400 sf
Boren Garage (parking only)	0 [1] sf
New East Clinic in footprint of Existing East Clinic	280,000 sf
Expand WSB Site for Multi-Use Building (+ 4 stories)	40,000 sf
Subtotal	+ 1,001,620 sf
1999 & 2014 EXISTING MIMP PROJECTS TO REMAIN[2]	
Demolition of East Clinic	- 119,718 sf
Seismic Upgrade to center tower	- 38,300 sf
Seismic upgrade to Harborview Hall with buttress building to east	65,250 sf
Demolition of Facilities Building[3]	- 5,616 sf
Community plaza east of Harborview Hall	-
Multiuse Building (WSB), 6 stories	62,000 sf
Demolition of Securities (site of future WSB)	- 8,093 sf
Subtotal	*-44,477 sf*
Existing Total	*2,080,908 sf*
Net New Total (Planned)	*+ 672,065 sf*
2035 Future Total *(Planned only)*	**2,752,973 sf**
Net New Total (Planned and Potential[1])	+1,629,208 sf
2045 Future Total *(Planned and Potential[1])*	**3,710,116 sf**

[1] **The Boren Garage redevelopment would include a 14-story parking garage consisting of approximately 284,620 sq. ft. and 823 parking stalls. The new square footage for this structure in the table is reported as '0' because square footage associated with parking is not included in the calculation of campus-wide FAR.**

[2] **Potential includes the 1999 & 2014 MIMP projects.**

[3] **The Facilities Building was demolished in June 2025.**

Since the New Tower and Future Tower height will be limited to the current 240-MIO standard, larger building floorplates will be required to achieve the needed building square footage within fewer floors than Alternative 1. The broader building footprints would envelope the entire lot up to the minimum setback requirements, leading to reduced or completely removed setback areas. The diminished setbacks would result in less landscaping and open space opportunities with each project.

NO ACTION ALTERNATIVE

The *No Action Alternative* would leave the current MIMP unchanged. It assumes that the demand for increases in health care services in the region will continue. However, this EIS alternative would not result in changes to the campus boundary, building height overlays and setbacks, or the physical improvements that are included under the proposed *MIMP Amendment* (as analyzed under *Alternative 1* and *Alternative 2*), including the addition of 1,629,208 square feet of net new floor area, vehicular access improvements, and new parking.

The *No Action Alternative* anticipates that the remaining campus building capacity under the 1999 Master Plan would be developed as indicated in **Table 9**, which would make it difficult to meet the anticipated demand for health care.

Table 9: Summary of Planned and Potential Projects – No Action Alternative

Project	No Action Alternative:
2024 MAJOR AMENDMENT PLANNED PROJECTS	
New Patient Tower	-
2024 MAJOR AMENDMENT POTENTIAL PROJECTS	
Future Tower	-
Boren Garage (parking only)	
New East Clinic in footprint of Existing East Clinic	-
Expand WSB Site for Multi-Use Building (+ 4 stories)	-
Subtotal	-
1999 & 2014 EXISTING MIMP PROJECTS TO REMAIN[1]	
Demolition of East Clinic	- 119,718 sf
Seismic Upgrade to center tower	- 38,300 sf
Seismic upgrade to Harborview Hall with buttress building to east	65,250 sf
Demolition of Facilities Building[2]	- 5,616 sf

Project	No Action Alternative:
Community plaza east of Harborview Hall	-
Multiuse Building (WSB), 6 stories	62,000 sf
Demolition of Securities (site of future WSB)	- 8,093 sf
Subtotal	*-44,417 sf*
Existing Total	*2,080,908 sf*
Net New Total (Planned)	-
2035 Future Total *(planned only)*	**2,080,908 sf**
Net New Total (Planned and Potential[1])	*-44,417 sf*
2045 Future Total *(Planned and Potential[1])*	**2,036,431 sf**

1. **Potential includes the 1999 & 2014 MIMP projects.**
2. **The Facilities Building was demolished in June 2025.**

The *No Action Alternative* would not meet the demand for health care in the region or Harborview Medical Center's mission of improving the health of the public but is included per WAC 197-11-440(5)(b)(ii) to help illustrate the environmental impacts of the action alternatives.

Parking and Vehicular Access

Parking and vehicular access under the *No Action Alternative* would remain as it currently exists.

EIS ALTERNATIVES SUMMARY

The *MIMP Major Amendment* and *Alternative 2* reflect the implementation of improvements to meet anticipated increased demands for health care services in the region. The *No Action Alternative* assumes conditions with no update to the 1999 MIMP.

Tables 10 and 11 summarize the overall development assumptions of the EIS Alternatives, including a summary of development for each alternative; consideration of **1)** campus acreage; **2)** new building space; **3)** total building space; **4)** building height limits; **5)** perimeter setbacks; **6)** number of hospital beds; **7**) amount of impervious surface; **8)** amount of previous surface/open space.

Table 10: Summary of Development for EIS Alternatives**

Project	Size (GSF)		
	No Action Alt:	**Alternative 2:** Maximum building height of 240 feet	**Alternative 1 - MIMP Amendment:** Max building height of 320 feet
2024 MAJOR AMENDMENT PLANNED PROJECTS			
New Patient Tower	-	671,220 sf	671,220 sf
New Skybridge between New Tower and existing West Hosp		845 sf	845 sf
		672,065 sf	672,065 sf
2024 MAJOR AMENDMENT POTENTIAL PROJECTS			
Future Tower	-	671,220 sf	671,220 sf
Future Skybridges		10,400 sf	10,400 sf
Boren Garage (parking only)[1]		0 sf	0 sf
New East Clinic in footprint of Existing East Clinic	-	280,000 sf	280,000 sf
Expand WSB Site for Multi-Use Building (+ 4 stories)	-	40,000 sf	40,000 sf
Subtotal	-	+ 1,001,620 sf	+ 1,001,620 sf
1999 & 2014 EXISTING MIMP PROJECTS TO REMAIN[2]			
Demolition of East Clinic	- 119,718 sf	- 119,718 sf	- 119,718 sf
Seismic Upgrade to center tower	- 38,300 sf	- 38,300 sf	- 38,300 sf
Seismic upgrade to Harborview Hall with buttress building to east	65,250 sf	65,250 sf	65,250 sf
Demolition of Facilities Building[3]	- 5,616 sf	- 5,616 sf	- 5,616 sf
Community plaza east of Harborview Hall	-	-	-
Multiuse Building (WSB), 6 stories	62,000 sf	62,000 sf	62,000 sf
Demolition of Securities (site of future WSB)	- 8,093 sf	- 8,093 sf	- 8,093 sf
Subtotal	*-44,477 sf*	*-44,477 sf*	*-44,477 sf*
Existing Total	*2,080,908 sf*	*2,080,908 sf*	*2,080,908 sf*
Net New Total (Planned)	-	*+ 672,065 sf*	*+ 672,065 sf*
2035 Future Total *(Planned only)*	**2,080,908 sf**	**2,752,973 sf**	**2,752,973 sf**
Net New Total (Planned and Potential[1])	*-44,477 sf*	+ 1,629,208 sf	+ 1,629,208 sf
2045 Future Total *(Planned and Potential[1])*	**2,036,431 sf**	**3,710,116 sf**	**3,710,116 sf**

[1] The Boren Garage redevelopment would include a 14-story parking garage consisting of approximately 284,620 sq. ft. and 823 parking stalls. The new square footage for this structure in the table is reported as '0' because square footage associated with parking is not included in the calculation of campus-wide FAR.

[2] Potential includes the 1999 & 2014 MIMP projects.

[3] The Facilities Building was demolished in June 2025.

Table 11: Comparison of EIS Alternatives

	Alternative 1 - MIMP Major Amendment	Alternative 2	No Action Alternative
Campus Acreage	15.7 ac.	15.7 ac.	13.6 ac
New Building Space[1]	1,629,208 sf	1,629,208 sf	-44,477 sf
Total Building Space	3,710,116 sf	3,710,116 sf	2,036,431 sf
Building Height Limits	105', 240', 320'	105', 240'	105', 240'
Setback from Campus Boundary	0', 5', 10'	0', 5', 10'	0', 5', 10'
New Hospital Beds	360	360	0
Total Hospital Beds	900	900	540
Impervious Area[2]	456,978 sf	456,978 sf	513,869 sf
Pervious Area[3]	123,255 sf	123,255 sf	61,250 sf

[1]Includes Planned and Potential projects.
[2]Includes area in building footprint, roadways, parking, and hardscape.
[3]Includes area in landscaping and other natural open space.

The *MIMP Major Amendment* and *Alternative 2* meet the objectives of the Harborview Medical Center.

The *No Action Alternative* is indicative of conditions on the Harborview Campus if the City did not approve the *MIMP Major Amendment*, and if Harborview did not implement improvements to address increased health care needs. The *No Action Alternative* does not meet the objectives of Harborview.

EIS ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

The Washington State Environmental Policy Act (SEPA), as codified in Washington Administrative Code (WAC) 197-11, indicates that an "EIS shall provide impartial discussion of significant environmental impacts and shall inform decision makers and the public of reasonable alternatives…".

SEPA defines reasonable alternatives as "actions that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation" (WAC 197-11-435(5)(b)). The intention of the word "reasonable" is to limit the number and range of alternatives, as well as the amount of detailed analysis for each alternative" (WAC 197-11-435(5)(b)(i)).

As the EIS identifies potential alternatives, they should be measured against the following criteria:

- *Do they feasibly attain or approximate the proposal's objectives?*

- *Do they provide a lower environmental cost/level of degradation than the proposal?*

The SEPA Handbook Guidelines (Washington State Department of Ecology, 2018) indicates that it may not be evident at the beginning of the process whether an alternative meets all of these criteria, and that the lead SEPA agency should continue to analyze each alternative until information becomes available that indicates an alternative fails to meet the criteria. The alternative can then be eliminated from further consideration.

During the process of identifying reasonable alternatives to be analyzed in the *Harborview Medical Center MIMP EIS*, King County (the SEPA lead agency for this plan) considered several different alternatives that were measured against the following Harborview objectives of providing safe and sufficient facilities for the highest quality of healthcare, teaching, research, and community services:

- Constructing new medical towers on the campus that will provide additional single-bed capacity.
- Increasing the capacity of Emergency Department services.
- Upgrading and modernizing existing patient rooms to meet modern infection control and privacy best practices standards.
- Co-locating outpatient behavioral health services and increasing capacity for clinical behavioral health programs.
- Increasing respite bed capacity at Harborview Hall (behavioral health and medical).
- Creating enhanced space for Involuntary Treatment Act ("ITA") Court and expanding Public Health – Seattle and King County (Public Health) spaces at Harborview to meet growing community needs.
- Seismically upgrading several older buildings.

Alternatives to maintain the private roadway known as 8th Avenue through-access for vehicles by way of upper-level bridge connections from the new Tower I building back to the existing West Hospital building were considered during the process. During evaluation of early program stacking diagrams), an alternative containing a sky-bridge connection over private roadway known as 8th Avenue was the least desirable in feasibility as it would not connect the West Hospital and new tower at ideal operational levels for the Emergency Department. But it would create a connection with the upper-level nursing units of both the new Tower I and the West Hospital building, which was not desirable or needed.

Transporting patients from the West Hospital to the new Tower I would potentially result in patients being required to take two (2) elevator rides to the upper floors of the existing West Hospital building, then traverse across an elevated sky-bridge connection, and then take another elevator ride down to the new Tower I Emergency Room or diagnostic imaging levels, which are located at ground-level.

Additionally, an elevated connection from the existing West Hospital to the new Tower I building would need to be high enough to allow passage of emergency vehicles underneath along the private roadway known as 8th Avenue roadway, which would require between at least 15 to 18 feet of height to clear all emergency vehicles.

An alternative considering development of the planned/potential MIMP improvements at a different site from the Harborview Medical Center Campus (off-site alternative) was also considered. In considering a potential EIS alternative reflecting development of the planned/potential MIMP improvements at a different site (off-site) from the Harborview Campus relative to SEPA criteria for EIS alternatives, King County determined that any potential site that is not adjacent to the existing Harborview Medical Center facilities, including Emergency Department and helipad facilities, would not "reasonably attain or approximate" the identified objectives for providing the "highest quality of healthcare, teaching, research, and community services, would not be anticipated to result in a lower level of environmental impacts, and is not considered a suitable alternative from a medical service, efficiency, programming, and policy perspective.

Consistent with SEPA criteria for EIS alternatives, King County determined that these EIS alternatives would not meet certain project objectives, and they are not carried forward for analysis in this EIS.

2.9. BENEFITS AND DISADVANTAGES OF DEFERRING IMPLEMENTATION OF THE PROPOSAL

The benefits of deferring approval of the Proposed Action and implementation of development of the proposed MIMP Major Amendment are limited to the following project aspects:

- Temporary construction-related impacts associated with vibration, noise, air pollution, and traffic.
- Expenditure of funds to create new health care facilities.

Deferring the approval of the Proposed Action and development under the proposed MIMP Major Amendment includes the following disadvantages:

- Inability to develop new healthcare facilities to meet the growing demand for healthcare services in the region and Harborview Medical Center service area.
- Continued cost associated with maintaining ageing facilities.
- Increased cost of building facilities at a later date.
- Continued decline of campus from over-use of existing facilities.

Deferral of the Proposed Action would not meet Harborview's objectives.

3.0 AFFECTED ENVIRONMENT, POTENTIAL ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Each element of the environment discussed in this chapter includes an assessment of the affected environment, Proposed Action impacts and the alternatives, mitigation measures, and unavoidable adverse impacts.

3.1. EARTH/TOPOLOGY (ECA STEEP SLOPE)

AFFECTED ENVIRONMENT

The earth/topology chapter reviews how the Proposed Action will affect the physical characteristics of the land, considering factors such as slopes and the potential for erosion. The Harborview bond program scope includes seismically retrofitting the existing Harborview Hall and Center Tower structures.

In addition to the description of the area earth/topology issues, this chapter addresses how the earth/topology issues could affect the Proposed Action and actions required to address the earth/topology issues and concerns. This chapter refers to several sources, including the *Preliminary Geotechnical Evaluation, Harborview Medical Center Campus Expansion*, prepared by Langan Engineering and Environmental Services, Inc., and dated January 10, 2023 (Appendix A– Preliminary Geotechnical Evaluation).

Geology/Topography as Related to Seismic Conditions

Harborview lies in the Puget Sound Lowland, located between the Cascade Range to the east and the Olympic Mountains to the west. The area has been impacted by repeated glaciation in the past 2.4 million years. The site geology includes a complex and incomplete succession of glacial and nonglacial deposits that extend below sea level. The glaciation process consists of repeated cycles of scouring and deposition and tectonic folding, then modified by stream erosion, and stream deposition. The last glacier to override the area, the Vashon-age glacier of the Fraser glacier, receded from the region about 13,500 years ago.

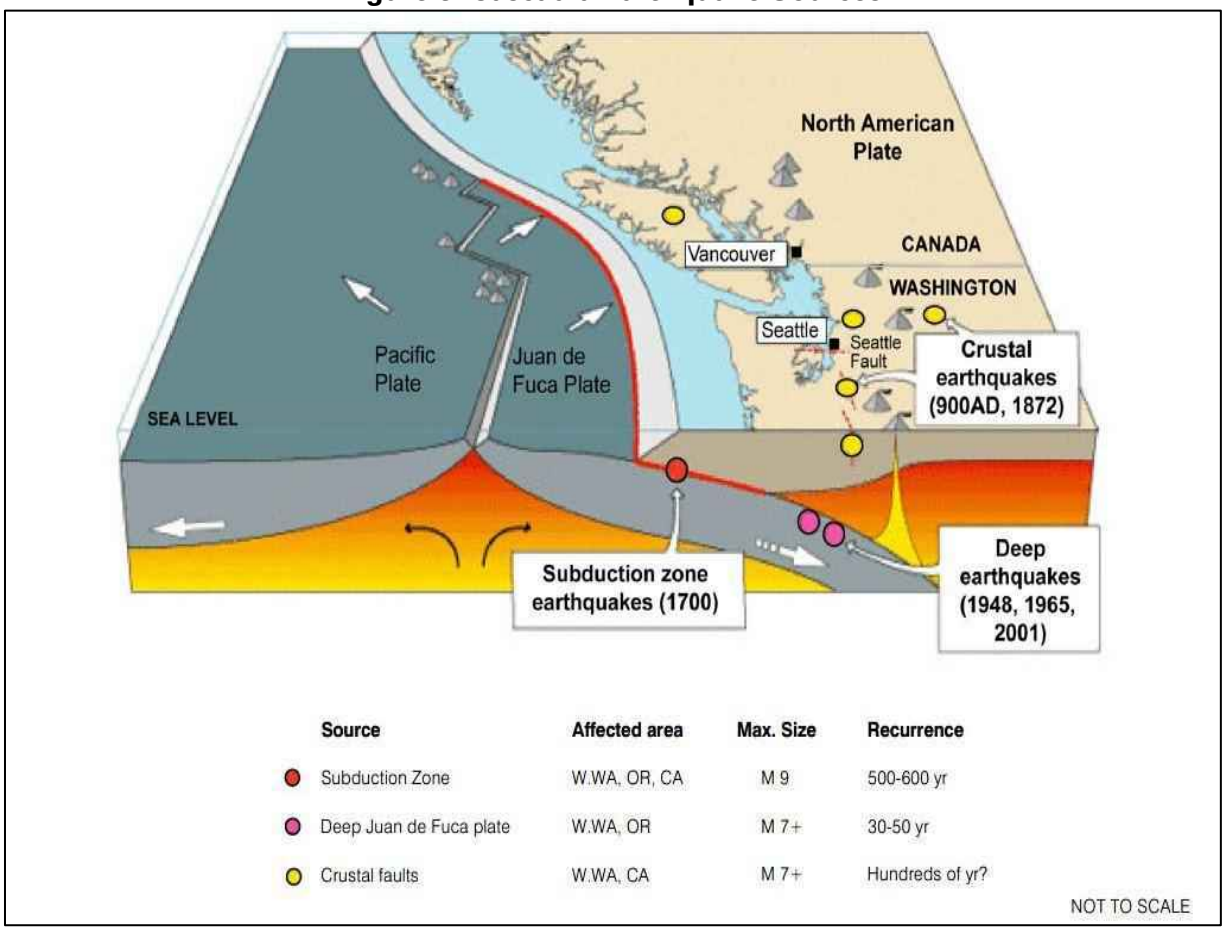
Seattle and the western Pacific Northwest are considered seismically active. The larger region has had many large earthquakes over the past 200 years. Earthquakes and seismic events may have a serious effect on Harborview's functionality depending on location, magnitude, and local geology. There are three earthquake source mechanisms in the region[5]:

[5,] Preliminary Geotechnical Evaluation, Harborview Medical Center Campus Expansion, Langan Engineering and Environmental Services, Inc., January 10, 2023.

- Crustal/shallow earthquakes (occurring within 10 kilometers of the earth's surface).
- Intraplate earthquakes (40 to 60 kilometers below the earth's surface).
- Subduction earthquakes (between the coast and the Olympic Mountain Range).

Seismic records in the Puget Sound area indicate a shallow zone of crustal seismicity referred to as the Seattle Fault. Harborview is located approximately four kilometers north of the Seattle Fault[6], as identified on **Figure 9** showing the Cascadia subduction zone earthquake fault sources.

Figure 9: Cascadia Earthquake Sources



(Source: Image by USGS titled "Cascadia earthquake sources.")

[6] Preliminary Geotechnical Evaluation, Harborview Medical Center Campus Expansion, Langan Engineering and Environmental Services, Inc., January 10, 2023.

Harborview is in an area of dense, consolidated soils with excellent bearing capacity. The seismic response of underlying glacial soils is likely to be more stable and less severe than in softer soils such as fill or alluvial deposits.

Despite this circumstance, Harborview can still expect severe shaking during significant seismic events. Severe shaking damage could close portions of Harborview necessary for emergency response, or damage other areas irreparably.[7]

Facilities Assessment (Structural)

Multiple buildings on the Harborview campus were assessed for earthquake resistance in 1996, using the "Life Safe" standard. The 2023 Preliminary Geotechnical Evaluation provides an overview of the campus buildings assessed for earthquake resistance analysis.

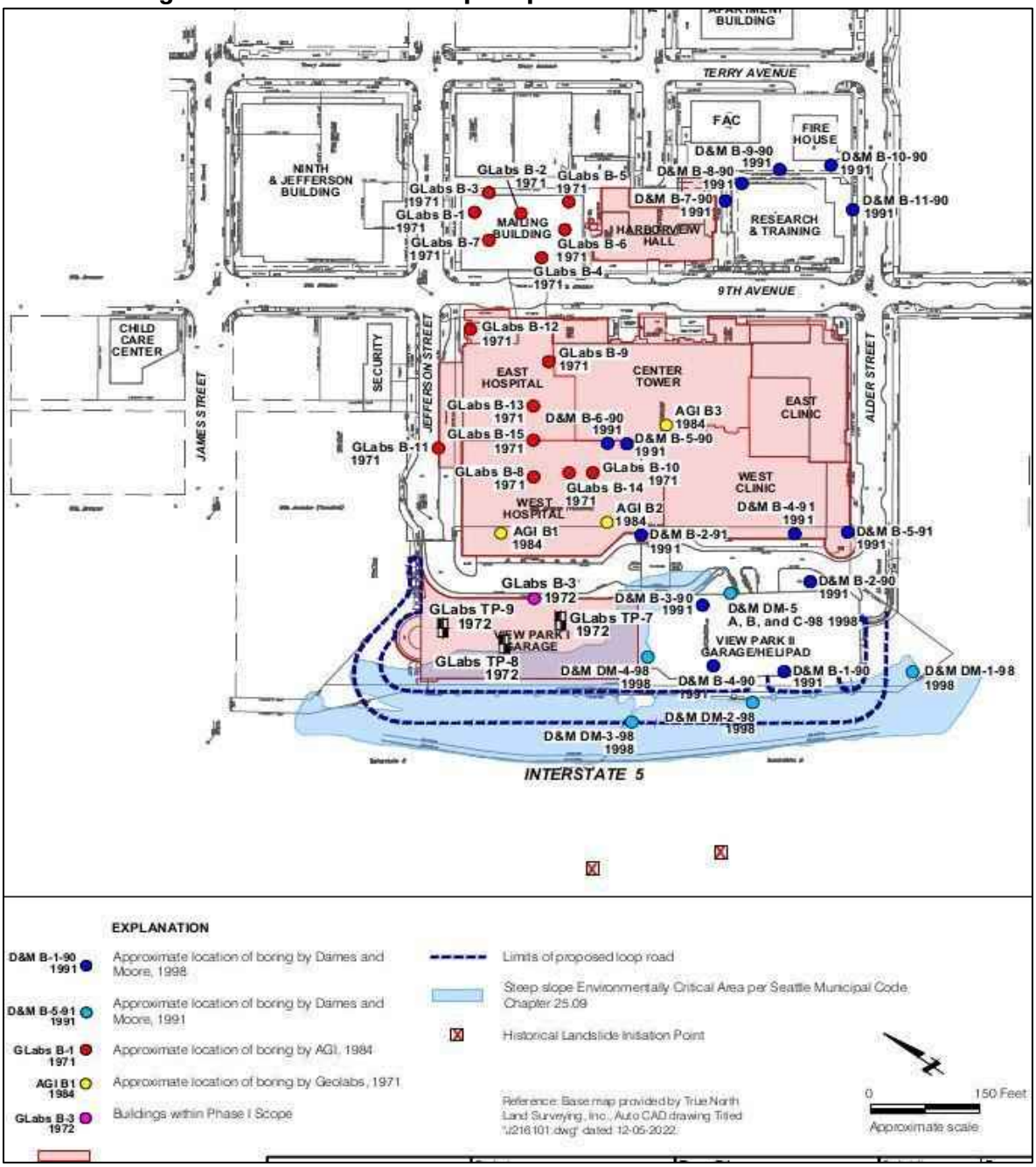
Figure 10 identifies an Environmentally Critical Area (ECA) designated at the southwest portion of the campus, which includes the location of areas with slopes greater than 40 percent. SMC chapter 25.09.012 describes geologic hazard areas, including landslide prone areas, liquefaction-prone areas, peat-settlement-prone areas, seismic hazard areas, steep slope erosion areas, and volcanic hazard areas.

- Harborview Hall: The 2023 Preliminary Geotechnical Evaluation notes that spread footings bearing on glacially consolidated soils support Harborview Hall. Furthermore, the evaluation indicates that Harborview Hall requires seismic upgrades. The King County Harborview Facilities Master Plan notes even though Harborview Hall does not house any critical care programming, it will still not perform well in a seismic event.[8]

- Center Tower: Spread footings bearing on glacially consolidated soils support the Center Tower. The Preliminary Geotechnical Evaluation indicates that the Center Tower requires seismic upgrades. Center Tower has MEP systems that pass through it to other parts of the campus. This building was built in 1929 with half of the floor plate extending high above the surrounding buildings, while having a narrow profile. The building would not perform well in a seismic event, and an upgrade is slated to improve seismic performance and life-safety.[9]

[7] Harborview Medical Center Final Environmental Impact Statement, November 12, 1999.
[8] King County Harborview Medical Center Facilities Plan, Seattle, WA, February 9, 2023, page 32.
[9] Ibid.

Figure 10: Location of Steep Slope Environmental Critical Area



Source: Preliminary Geotechnical Evaluation, Harborview Medical Center Campus Expansion, Langan Engineering and Environmental Services, Inc., January 10, 2023, Figure 2.

East and West Hospital buildings: The East Hospital was constructed in two phases, with the first phase in 1972, and the second phase in 1978. The West Hospital was built in 1993. While designed for a

higher risk level, these two buildings would not perform as well under current code level forces. Much of the emergency care programming will shift to the new patient tower to help address this issue.

- East Clinic: The East Clinic was constructed in 1952. While not designed as an essential facility, it would not perform well in a seismic event. The building's outdated layout and programming limitations create a scenario where it is better for the campus to have the building demolished to create space for future projects. Since the building is up against Center Tower and West Clinic, all existing systems will need to be capped off, and penetrations will need to be infilled along the cutlines of the existing buildings.

- Washington State Department of Transportation (WSDOT) Retaining Walls: The 2023 preliminary geotechnical evaluation notes that the existing hillside within the WSDOT right of way was cut to 50 and 60 percent slopes. To strengthen and reinforce this cut slope, WSDOT uses a series of retaining walls. The lowest wall (W-9) supports a vertical face adjacent to I-5 that is up to 45 feet tall. The other two walls, W-10 and W-11, reinforce the cut slope to reduce pressure on W-9. Since their construction in the 1960s, no evidence of landsliding or slope movement is apparent. The 2023 preliminary evaluation indicates that the site is not in a landslide area and potential for landslides in the current condition is low[10].

Previous landslides have occurred in the vicinity of the campus. However, these landslides occurred downslope to the southwest in the footprint of what became the I-5 structure. The mapping does not locate the MIO in the landslide area. The initiation of the former slides are at least 250 feet from the project site, the locations of which are shown on Figure 2. The Proposed Action will need to apply for relief from prohibition on development regarding steep slopes.

[10] Preliminary Geotechnical Evaluation, Harborview Medical Center Campus Expansion, prepared by Langan Engineering and Environmental Services, Inc., dated January 10, 2023, Section 6.3, Page 6.

IMPACTS

Proposed Action

The intention of seismic design is to reduce negative impacts from seismic activity, particularly for essential facilities like Harborview. Site design will comply with American Society of Civil Engineers (ASCE) 7-16, in addition to the 2018 International Building Code (IBC) Class C Seismic Design Criteria. Langan Engineering and Environmental Services, Inc. ("Langan") prepared a preliminary geotechnical evaluation for Harborview Medical Center. For seismic design compliant with 2018 or 2021 IBC, the Preliminary Geotechnical Evaluation recommends the following parameters:

- Risk-Targeted Maximum Considered Earthquake (MCE_R) S_s and S_1 of 1.402g and 0.489g, respectively.
- Site Class C
- Site Coefficients F_a and F_v of 1.2 and 1.5, respectively
- MCE_R spectral response acceleration parameters at short periods, S_{MS}, and at one-second period, S_{M1}, of 1.682g and 0.733g, respectively
- Design Earthquake (DE) spectral response acceleration parameters at brief period, S_{DS}, and at one-second period, S_{D1}, of 1.121g and 0.489g, respectively.

For development of the new patient tower, the project will use performance-based procedures in accordance with the Pacific Earthquake Engineering Research center (PEER) Tall Building Initiative (TBI) Version 2.03 (2017).

The new patient tower is an essential facility. The IBC categorizes such buildings as Risk Category IV, which includes buildings considered essential in that their continuous use is necessary, particularly during disaster responses. As an essential facility, the new patient tower design is for Life Safety at Maximum Considered Earthquake (MCE). This category is an enhanced performance level which goes beyond the performance level – Collapse Prevention at MCE – of the design of most buildings.

The Behavioral Health Center design will be upgraded to Risk Category II depending on the future programming, which means it will be designed for collapse prevention at MCE. The Center Tower and Harborview Hall will also receive an upgrade to Risk Category II.

Implementation of the Proposed Action would include substantial seismic retrofits to existing buildings. It would also include the demolition of View Park I and the seismically deficient East Clinic for development of the PEER TBI compliant new patient tower and associated Loop Road.

West Hospital could face potential seismic risks during construction of the new patient tower, so construction shoring design will be important to reduce the seismic risks[11].

- Harborview Hall: Proposed retrofits may include widening existing spread footings, addition of new shear walls or seismic force resisting frames. The possible addition of uplift resistance.
- Center Tower: Proposed retrofits may include widening existing spread footings, addition of new shear walls or seismic force resisting frames.
- East Clinic: Demolish for new patient tower development.
- View Park I: Demolish for new patient tower development.
- New Patient Tower: Build to PEER TBI performance-based standards. Stiff shoring systems such as a secant wall or slurry wall during construction to protect existing West Hospital building in the event of an earthquake during construction.
- Loop Road: Design with consideration of I-5 ROW and existing and proposed retaining walls.

ALTERNATIVES

240 Foot Height Limit

This alternative would still contain the Planned and Potential Projects including seismic upgrades to existing buildings, except the height limit would remain at 240 feet. The seismic upgrades indicated for the Proposed Action would need to occur if the height limit is 240 feet, for the same reasons noted for the Proposed Action.

No Action Alternative

If Planned and Potential Projects are not undertaken, buildings such as Harborview Hall and Center Tower could suffer considerable damage during a major seismic event. A seismic event could interfere with patient care through building damage. The no action alternative would not address the seismic risks identified in several reports, including the 2023 Preliminary Geotechnical Evaluation and the King County Harborview Facilities Master Plan.

Not addressing the seismic risks could result in public hazards as well as interruptions to care. The No Action Alternative would have a negative impact on earth topology onsite.

[11] Preliminary Geotechnical Evaluation, Harborview Medical Center Campus Expansion, Langan Engineering and Environmental Services, Inc., January 10, 2023.

MITIGATION MEASURES

Mechanical and electrical systems throughout the campus pass through areas designed for varying degrees of seismic resiliency. Utilities passing through areas of lesser seismic resiliency that serve areas targeting higher seismic performance will require hardening to keep critical support systems operational during seismic events.[12]

Additionally, utilities crossing between seismically isolated structures require flexible connections to prevent failures due to differential movement. New and existing utilities crossing these joints will require flexible connections.

The southwest section of the project site is designated as an Environmentally Critical Area due to steep slopes. The Proposed Action will require relief from the city regarding the prohibition of development on steep slopes. While previous landslides have occurred in the vicinity of the campus, these landslides occurred downslope to the southwest in the footprint of what became the Interstate 5 structure.

The Preliminary Geotechnical Report offers recommendations for the design of grading, surface water flow, and foundations in the vicinity of this slope. Provided the final design implements these elements, the risk of landsliding and significant seismic slope displacements are low.

These recommendations include offsetting the weight of new structures, which could impose new loading on the existing retaining walls and transferring building loads to sufficient depth below any potential slip surfaces to mitigate the potential effects of landsliding.[13]Given the height of the new patient tower, the project will require site-specific response analysis and ground motion studies to support the performance-based seismic design for the project, which will require a peer review through the City of Seattle. The final geotechnical design report should include the results of this design process.

The Planned and Potential Projects also propose the following mitigation:

- Demolition of buildings with significant seismic deficiencies, such as East Clinic.

[12] King County Harborview Medical Center Facilities Plan, Seattle, WA, February 9, 2023, page 32.
[13] Preliminary Geotechnical Evaluation, Harborview Medical Center Campus Expansion, Langan Engineering and Environmental Services, Inc., January 10, 2023.

- A stiff shoring system such as a secant wall or slurry wall during New Tower construction to protect the existing West Hospital building in the event of an earthquake during construction.[14]

UNAVOIDABLE ADVERSE IMPACTS

Excavation and earth movement in sensitive areas, including creating large cuts or fills, could result in unavoidable adverse impacts. Land used for parts of the project may permanently alter the geological characteristics of the section of site affected by disturbance. Such unavoidable adverse impacts may require mitigation, some of which the mitigation section indicates.

[14] Ibid.

3.2. ENERGY AND NATURAL RESOURCES

This chapter provides an analysis of the energy usage for the proposed new facilities, and the associated impacts to the affected environment. Implementation of the Planned and Proposed would increase energy consumption during all project phases. Energy estimates are based upon energy load usage of similar building types and functions at Harborview.

AFFECTED ENVIRONMENT

Energy sources used by Harborview include electricity provided by Seattle City Light, steam provided by CenTrio Energy, and natural gas provided by Puget Sound Energy. **Table 12** and **Table 13** outline the annual campus energy consumption per year, from 1999, the date of the last EIS, to 2024. Note that the 1999 data include Harborview Mental Health Services (demolished) and Harborview Hall (limited use now, no 2024 data available).

Table 12: Harborview Medical Center Annual Energy Consumption by Building (BTUs*) - 1999

Building	Gross Floor Area (SF)	Electric	Steam	Gas	Total
Harborview Mental Health Services	42,170	3.0057E+09	3.4400E+09	0.0000E+00	6.4457E+09
Harborview Hall	95,915	6.4550E+09	6.9400E+09	1.0400E+07	1.3405E+10
East Clinic (EC), East Hospital (EH)	563,985	4.3140E+10	5.3420E+10	3.1400E+08	9.6874E+10
West Hospital	285,960	4.7890E+10	3.3540E+10	0.0000E+00	8.1430E+10
West Clinic	142,980				
TOTAL	1,130,740	1.0049E+11	9.7340E+10	3.2440E+08	1.9816E+11

Source: Harborview Medical Center, 2025.
*** A British Thermal Unit (BTU) is the amount of heat required to raise the temperature of one pound of water one degree. One BTU is equal to 0.0002928 kilowatt-hours.**

Table 13: Harborview Medical Center Annual Energy Consumption by Building (BTUs*) - 2024

Building	Gross Floor Area (SF)	Electric	Steam	Gas	Total
East Clinic (EC), East Hospital (EH)	317,243	9.7521E+10	1.1774E+11	1.4557E+08	2.1541E+11
West Hospital	306,974	Included in EC/EH	Included in EC/EH	Included in EC/EH	Included in EC/EH
West Clinic	184,191				
Maleng	285,216				

Building	Gross Floor Area (SF)	Electric	Steam	Gas	Total
Ninth & Jefferson Building (formerly Clinical Services Building)	764,347	4.44E+10	2.7777E+10	3.3992E+05	7.2216E+10
Pat Steele Building (Not within MIO boundary)	287,824	1.06E+10	--	--	1.0644E+10
TOTAL	2,145,615	9.7521E+10	1.1774E+11	1.4557E+08	2.1541E+11

Source: Harborview Medical Center, 2025.
*** A British Thermal Unit (BTU) is the amount of heat required to raise the temperature of one pound of water one degree. One BTU is equal to 0.0002928 kilowatt-hours.**

The percentage breakdown of 2024 Harborview energy consumption is 45.3 percent electricity, 54.6 percent steam, and 0.1 percent natural gas. Compared to 1999, electric use declined, steam went up slightly, natural gas use reduced significantly, and the overall energy use total is the same. The following observations represent the systems that distribute energy sources to the Harborview campus:[15]

- Airside Systems. Airside systems provide ventilation, conditioning for heating and cooling spaces, air quality improvements, and pathogen control. Much of the HVAC infrastructure is aged and isolated equipment. Many systems, though efficient and effective, at the time of install, do not hold up to the electrification and efficiency standards of today.
- Steam and Hot Water Heating Systems. Off-campus steam generates most heating at Harborview. Because the steam services are all interconnected to the same system, this provides a level of redundancy to the steam system. However, since the same steam plant provides all services, a single catastrophic event or utility issues puts Harborview at risk of losing heat for all or some of the facility.
- Cooling and Chilled Water Systems. Water-cooled chillers, air-cooled chillers, cooling towers, and condensing units generate cooling at Harborview. Cooling uses include general space conditioning, medical equipment, and auxiliary systems, including information technology (IT) and security equipment. The system includes undersized cross connections that may not be able to address cooling needs without upgrading.

[15] King County Harborview Medical Center Facilities Master Plan, Seattle, WA, February 9, 2023, Section 2, High-Level Overview of Each System and Facility.

The existing electrical infrastructure throughout the campus is rated from moderate to poor.[16] Among the concerns include obsolete equipment, code issues, and reliability issues. Although some of the equipment is operating in a satisfactory manner, the overall concern is the ability to generate ongoing power demands and address emergency power demands.

Harborview implements several energy conservation measures, including energy efficient equipment and lighting. In 2025, Harborview won the Greenhealth Emerald Award from Practice Greenhealth, which recognizes the top 20 percent of applicants from throughout the nation with advanced sustainability programs and exemplary scores across a variety of sustainability categories. In addition, Practice Greenhealth designated Harborview as a Circles of Transportation Excellence Honoree and Sustainable Procurement Honoree.

Among the Harborview goals regarding sustainable healthcare operations, include implementing environmentally responsible practices by taking steps to reduce carbon emissions, optimizing energy efficiency, and promoting sustainable procurement procedures[17]. Essential systems have backup components to continue operations if major equipment goes offline.

IMPACTS

Implementation of the Proposed Action will require energy resources during demolition, construction, renovation, and operation of the proposed buildings. The Proposed Action will require new power (receptacles, equipment power) to meet the new program scope of work requirements.

To meet the electrical and efficiency HVAC standards, Harborview should overhaul the system and provide one or two centralized heating and cooling systems on the campus. A practical solution is to design the new central systems for new construction projects on the campus that can also serve existing Harborview buildings. Designing these systems for expansion includes integrating larger pipes, adding additional electrical capacity, future connection points, and sufficient structural capacity. Such improvements would allow for more efficient energy use and permit Harborview to decommission equipment in existing buildings when they have reached the end of their useful life.

[16] King County Harborview Medical Center Facilities Master Plan, Seattle, WA, February 9, 2023, Section 2, High-Level Overview of Each System and Facility, Table 2.3, page 29.
[17] Environmental Sustainability at University of Washington School of Medicine: www.uwmedicine.org/about/sustainability

The ability of Harborview to create new central equipment locations adds the following energy benefits and efficiencies.

- Greater redundancy.
- Easier maintenance.
- Consistent/typical equipment types.
- Energy efficiency (with more opportunities for energy recovery).
- Reduced carbon footprint.
- Easier ability to expand/scale.
- Replacing/removing outdated, non-redundant, high-priority existing systems.
- Providing an alternative solution to problematic equipment replacements.

Harborview needs to consider compliance with renewable energy requirements. Per Seattle Energy Code C412, provide a minimum size solar photovoltaic (PV) system, including solar panels and support system, microinverters, power distribution and metering/monitoring. The location, amount and configuration of roof solar PV will be limited to only (1) SE array area for Tier 2.

A reduction in the amount of roof solar PV is available, in exchange for adding building integrated solar PV (BIPV) (e.g., solar PV window shading panels and building wall solar panels), solar PV to adjacent West Hospital and West Clinic roofs and buying RECs (Renewable Energy Credits) from SCL. Solar PV renewable energy will provide clean carbon-free energy, help offset building load demand and reduce utility service costs. The location of solar PV is yet to be determined.

New airside systems need to meet energy code requirements at the time of construction. The Proposed Action would limit airside upgrades to situations where central system alterations require an upgrade of specific airside systems to continue functioning.

The existing steam system contributes to the generation of greenhouse gases, is energy inefficient, lacks redundancy and resiliency, and falls short on other goals of the facility. The Proposed Action will aim to reduce Harborview's dependence on steam in the near future and provide solutions and infrastructure to eliminate the need for steam as primary heating. Steam could continue to be used to backup heating systems in new and existing buildings since it is a cost-effective source with very limited equipment requirements. The high-level long-term plan will be to provide new consolidated central systems for heating and cooling to serve the campus with new low temperature hot water systems. A short-term solution is to convert and connect specific existing systems and equipment to new low temperature heat pump powered central systems.

ALTERNATIVES TO PROPOSED ACTION

240 Foot Height Limit

This alternative would have energy impacts similar to the proposed action.

No Action Alternative

If the Planned and Potential Projects do not occur, the 1999 and 2014 MIMP permit the development of existing and approved projects. Only if the 1999 and 2014 MIMP approved projects involve demolition could Harborview implement some of the energy-related improvements. However, this would only occur on a small scale, much smaller than the proposed action.

MITIGATION MEASURES

Per Seattle Energy Code C412, provide a minimum size solar photovoltaic (PV) system, including solar panels and support system, microinverters, power distribution and metering/monitoring. A reduction in the amount of roof solar PV is available, in exchange for adding building integrated solar PV (BIPV) (e.g., solar PV window shading panels and building wall solar panels), solar PV to adjacent West Hospital and West Clinic roofs and buying RECs (Renewable Energy Credits) from SCL. Solar PV renewable energy will provide clean carbon-free energy, help offset building load demand and reduce utility service costs.

The design of the Planned and Potential Projects would meet or exceed the standards of the Seattle Energy Code, which intends to reduce overall energy consumption. Energy conservation measures in new and renovated buildings would increase energy savings. In new construction, mechanical systems would comply with standards for critical facilities in active seismic zones. In renovated buildings, seismic improvements would be part of renovation. Harborview would continue to plan for multiple backup systems and alternative system service routing to continue facility operation during and after earthquakes.

UNAVOIDABLE ADVERSE IMPACTS

Unavoidable impacts include energy consumption during demolition, construction, and renovation onsite. Among the energy sources consumed would include petroleum and electricity, as well as embodied energy in materials.

3.3. AIR QUALITY AND GREENHOUSE GAS EMISSIONS

This chapter describes air quality conditions and air pollutants, in addition to greenhouse gases (GHG) and climate change. Also outlined in this chapter is the existing regulatory background and guidance framework for greenhouse gas emissions. Appendix B provides GHG emissions worksheets.

AFFECTED ENVIRONMENT

Air Quality Background

Air quality assessment determines whether air pollutant concentrations comply with national ambient air quality standards (NAAQS), which address "criteria" pollutants (e.g., carbon monoxide - CO, particulate matter, nitrogen dioxide - NO_2, and sulfur dioxide - SO_2). (**Table 14**). Three agencies have jurisdiction over the ambient air quality in the project area: the US Environmental Protection Agency (EPA), the Washington State Department of Ecology (Ecology), and the Puget Sound Clean Air Agency (PSCAA). Although their regulations are similar in stringency, each agency has established its own ambient air quality standards. Unless the state or local jurisdiction has adopted more stringent standards, EPA standards apply. The air quality standards have been set at levels that EPA and Ecology have determined are protective of human health with a margin of safety, including the health of sensitive individuals, such as the elderly, the chronically ill, and the very young.

Table 14: EPA National Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead (Pb)	primary and secondary	Rolling 3-month average	0.15 μg/m^3 (1)	Not to exceed
Nitrogen Dioxide (NO_2)	Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	1 year	53 ppb (2)	Annual mean
Ozone (O_3)	primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Particle Pollution (PM)	$PM_{2.5}$	Primary	1 year	12.0 $\mu g/m^3$	Annual mean, averaged over 3 years
		secondary	1 year	15.0 $\mu g/m^3$	Annual mean, averaged over 3 years
		primary and secondary	24 hours	35 $\mu g/m^3$	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		Primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: https://www.epa.gov/criteria-air-pollutants/naaqs-table

Notes:

(1) **In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 $\mu g/m^3$ as a calendar quarter average) also remain in effect.**

(2) **The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.**

(3) **Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O3 standards.**

(4) **The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) would additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a State Implementation Plan (SIP) call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.**

Key Criteria Air Pollutants[18]

The following subchapter describes the sources and environmental effects of the six key criteria air pollutants.

- *Carbon Monoxide (CO)* - CO is a product of incomplete combustion generated by mobile sources, residential wood combustion, and industrial fuel-burning sources. CO is a concern related to on-road mobile sources because it is the pollutant emitted in the greatest quantity for which short-term health standards exist. CO is a pollutant whose impact is usually localized, and CO concentrations typically diminish within a short distance of roads. The highest ambient concentrations of CO usually occur near congested roadways and intersections during wintertime periods of air stagnation.

- *Ozone* - Ozone is a highly reactive form of oxygen created by an atmospheric chemical reaction of nitrogen oxides and volatile organic compounds (VOCs), both of which are emitted directly from industrial and mobile sources. Ozone problems tend to be regional in nature because the atmospheric chemical reactions that produce ozone occur over a period of time, and because, during the delay between emission and ozone formation, ozone precursors can be transported far from their sources. Transportation sources such as automobiles and trucks are some of the sources that produce ozone precursors.

- *Particulate Matter (PM)* - PM is generated by industrial emissions, residential wood combustion, motor vehicle tailpipes, and fugitive dust from roadways, haul roads, and unpaved surfaces. The highest ambient concentrations of PM occur near the emission sources, which in the study area (project area and immediate surroundings) would be from motor vehicle tailpipes on major roads. $PM_{2.5}$ has a greater impact than PM_{10} at locations far from the emitting source because it remains suspended in the atmosphere longer and travels farther. The emergency generators and cooling towers serving HMC could also be sources of PM within the study area.

- *Lead* - The main source of lead pollution has historically been the transportation sector, but tailpipe lead emissions have declined significantly since the EPA implemented regulatory efforts to remove lead from on-road motor vehicle gasoline in 1995. The major emission sources of lead currently include lead smelters and metals processing plants and combustion of aviation gasoline. No known major sources of lead pollution are found near the project location.

[18] https://ecology.wa.gov/air-climate/air-quality/air-quality-targets/air-quality-standards

- *Nitrogen Oxides (NO_x) and Sulfur Oxides (SO_x)* - NO_X and SO_X are emitted by mobile sources and fuel-burning stationary sources. NO_X and SO_X pollution from tailpipe emissions form regional haze and deposit acid in the Olympic and Cascade Mountains surrounding Seattle, and NO_X is one of the ozone precursors that contribute to ongoing ozone issues in the Puget Sound region.
- *Greenhouse Gases (GHGs)* - GHGs are a group of gases that, when present in the atmosphere, absorb, or reflect heat that normally would radiate away from the earth, and thereby increase global temperature. Several GHG constituents are commonly evaluated: Carbon dioxide (CO_2), methane, nitrous oxide, water vapor, ozone, and halocarbons. CO_2 is the individual constituent that is normally emitted in the greatest amount and contributes the most to climate change. Each individual constituent has its own global-warming potential. To express the average emission rate and global-warming potential of the combined constituents, GHG emission rates are commonly expressed as the equivalent amount of carbon dioxide (CO_2e). The effects of GHG emissions are global rather than local, meaning the amount of GHG emitted is important, but not the specific location of the emissions.

To track air quality conditions over time, Ecology and PSCAA maintain a network of monitoring stations. These stations are usually located where sources of air pollutants may influence ambient concentrations and so are usually in or near urban areas or close to specific large air pollution sources. Stations are also located in remote areas to provide indications of regional or background air pollution levels.

Based on criteria pollutant monitoring information collected over a period of years, Ecology and EPA designate regions as being in "attainment" or "nonattainment" of particular air pollutant standards. Attainment status is, therefore, a benchmark of whether air quality in an area complies with the NAAQS for one or more "criteria" air pollutants. A region once designated as a nonattainment area (NAA) for a particular pollutant that has since attained the relevant standard, is considered an air quality "maintenance" area.

If the area is able to maintain the standard through two 10-year cycles of review, the area returns to "attainment" status. The project study area is in the former Puget Sound Ozone and CO maintenance areas but is now considered attainment for all monitored air pollutants.

Greenhouse Gases Related to Climate Change

Background

The phenomena of natural and human-caused effects on the atmosphere that cause changes in long-term meteorological patterns is known as climate change. The gases that affect such warming are referred to as greenhouse gases or GHGs because they affect the global climate by trapping heat from the sun that is reflected by the earth, similar to how a greenhouse functions in a garden. The GHGs of primary importance are carbon dioxide (CO_2), methane, and nitrous oxide.

Because CO_2 is the most abundant of these gases, GHGs are usually quantified in terms of CO_2e (carbon dioxide equivalent), based on their relative longevity in the atmosphere and the related "global warming potential" of these constituents. Because CO_2 is not considered an air "pollutant" that causes direct health-related effects, air quality standards have not been developed to gauge whether ambient CO_2 concentrations are acceptable at a given location.

The global climate changes continuously, as evidenced by repeated episodes of warming and cooling documented in the geologic record. But the rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe.

However, scientists have observed an unprecedented increase in the rate of warming over the past 150 years. This recent warming has coincided with the Industrial Revolution that resulted in a sharp increase in fossil fuel consumption through industrial development (factories, internal combustion vehicles, etc.) and large-scale deforestation through growth in agriculture. The result has been the release of substantial amounts of GHGs into the atmosphere, far beyond the level of naturally occurring GHGs, and a reduction in the earth's ability to absorb GHGs leading to global GHG levels that are unprecedented in the modern geologic record.

The Intergovernmental Panel on Climate Change (IPCC), an international group of scientists from 130 governments, has concluded that it is "extremely likely - a probability listed at more than 95 per percent - that human activities and fossil fuels explain most of the warming over the past 50 years."

The IPCC predicts that under current human GHG emission trends, the following results could be realized within the next 100 years: [19]

- Global temperature increases between 0.3 – 4.8 degrees Celsius;
- Potential sea level rise between 26 to 82 centimeters or 10 to 32 inches;
- Reduction in snow cover and sea ice;
- Potential for more intense and frequent heat waves, tropical cycles, and heavy precipitation, and;
- Impacts on biodiversity, drinking water and food supplies.

The Climate Impacts Group (CIG), a Washington-state based interdisciplinary research group that collaborates with federal, state, local, tribal, and private agencies, organizations, and businesses, studies the impacts of natural climate variability and global climate change on the Pacific Northwest. CIG research and modeling indicate the following possible impacts of human-based climate change in the Pacific Northwest:[20]

- Changes in water resources, such as decreased snowpack; earlier snowmelt; decreased water for irrigation, fish, and summertime hydropower production; increased conflict over water; increased urban demand for water;
- Changes expected for many federally listed endangered and threatened species, including salmon, trout, and steelhead;
- Changes in forest growth and species diversity and increases in forest fires; and
- Changes along shorelines, such as increased coastal erosion and beach loss due to rising sea levels, increased landslides due to increased winter rainfall, permanent inundation in some areas, and increased coastal flooding due to sea level rise and increased winter streamflow.

Regulatory/Guidance Framework

There are no specific emission reduction requirements or targets applicable to the project or the project area, nor are there any broadly accepted emission level "impact" thresholds with which to assess the potential significance of localized or global impacts related to GHG emissions. Instead, there are State and Local policies and programs intended to consider and reduce GHG emissions over time, as described below.

[19] Intergovernmental Panel on Climate Change (IPCC). *Summary for Policymakers.* (2014).

[20] Climate Impacts Group. Accessed 01/7/2022. *Climate Impacts in Brief.* https://cig.uw.edu/learn/climate-impacts-in-brief/.

In 2004, the PSCAA published *Roadmap for Climate Protection: Reducing GHG Emissions in Puget Sound*, a strategy document for climate change. In this strategy document, the PSCAA recommended a broad range of GHG reduction measures including regional vehicle trip reduction, building energy-efficient improvements, solid waste reduction, forestry and agriculture practice improvements, and community education. This document also encouraged local municipalities to implement their own GHG reduction measures.

Executive Order No. 07-02, issued by Governor Christine Gregoire in 2007, established goals for Washington regarding reductions in climate pollution, increases in jobs, and reductions in expenditures on imported fuel.[21] The Executive Order established Washington's goals for reducing greenhouse gas emissions as follows:

- To reach 1990 levels of GHG emissions by 2020;
- To reach 25% below 1990 emission levels by 2035; and
- To reach 50% below 1990 emission levels by 2050.

The intention of the Executive Order was to address climate change, grow the clean energy economy, and move Washington toward energy independence. In 2007, the Washington Legislature passed SB 6001, which, among other things, adopted the language of Executive Order No. 07-02 into statute.

In 2008, the Washington Legislature built on SB 6001 by passing the Greenhouse Gas Emissions Bill (E2SHB 2815). While SB 6001 set targets to reduce emissions, the E2SHB 2815 made those targets state-wide requirements (RCW 70.235.020) and directed the State to submit a comprehensive greenhouse gas reduction plan to the Legislature by December 1, 2008.

As part of the plan, Ecology was mandated to develop a system for reporting and monitoring greenhouse gas emissions within the State and a design for a regional multi-sector, market-based system to reduce statewide greenhouse gas emissions, consistent with the requirements in RCW 70.235.020. In 2008, Ecology issued a memorandum stating all State Environmental Policy Act (SEPA) analyses should address climate change and GHG. Furthermore, Ecology committed to providing further clarification and analysis tools.[22]

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21 Washington, State of; Office of the Governor. 2007. Executive Order No. 07-02. https://www.governor.wa.gov/sites/default/files/exe_order/eo_07-02.pdf

22 Manning, Jay. 2008. *Climate Change – SEPA Environmental Review of Proposals.* (April 30, 2008).

Based on current State SEPA policy, projects that are subject to a SEPA-level review are required to report an estimate of lifecycle GHG emissions. However, these projects are not subject to specific GHG emission limitations or mitigation requirements.

Executive Order 09-05, issued by Governor Gregoire in 2009, ordered Washington State agencies to reduce climate-changing GHG emissions, to increase transportation and fuel-conservation options for Washington residents, and to protect the State's water supplies and coastal areas.

This Executive Order directed State agencies to develop a regional emissions reduction program; develop emission reduction strategies and industry emissions benchmarks to ensure 2020 reduction targets are met; work on low-carbon fuel standards or alternative requirements to reduce carbon emissions from the transportation sector; address rising sea levels and the risks to water supplies; and increase transit options (e.g., buses, light rail, and ride-share programs) and give Washington residents more choices for reducing the effect of transportation emissions.

On December 1, 2010, Ecology adopted Chapter 173-441 of the Washington Administrative Code (WAC) – Reporting of Emission of Greenhouse Gases. This rule aligned the State's GHG reporting requirements with EPA regulations and required facilities that directly emit 10,000 metric tons carbon dioxide equivalents ($MTCO_2e$) or more per year, as well as fuel suppliers that supply fuels in the state that would result in 10,000 $MTCO_2e$ when combusted, to report their GHG emissions to Ecology. Requirements for reporting began on January 1, 2012.

In 2011, Ecology issued internal guidance to assist its staff to determine which projects should have GHG emissions evaluated under SEPA and how to perform those evaluations. In April 2016, Ecology removed the internal guidance from its website to allow revisions and updates to incorporate new scientific information, as well as to be consistent with federal greenhouse gas emissions guidance and Ecology policies.

Governor Jay Inslee issued Executive Order 14-04 in 2014 that established steps to be taken to address the effects of climate change and how to reduce carbon pollution in Washington. This Executive Order superseded Executive Orders 07-02 and 09-05. Some of the key areas addressed by the Order include carbon pollution, clean transportation, and clean technology.

Washington State's Climate Commitment Act (CCA) was signed into law in 2021 and went into effect on January 1, 2023. The CCA caps and reduces GHG emissions from Washington's largest emitting sources and industries, to help Washington achieve a goal to reduce GHG emissions by 95 percent of 1995 emissions by 2050.

Washington businesses and operations that emit more than 25,000 annual metric tons of CO2e are required to comply with the cap-and-invest program established by the CCA, which sets an annual cap on GHG emissions and auctions a controlled number of allowances; entities with emissions less than 25,000 annual metric tons of CO_2e may opt in to the program.

The Clean Fuel Standard, passed by the Washington Legislature in 2021 and in effect as of January 1, 2023, created rules for the Clean Fuels Program to meet the goals of the standard. Under the program, a market approach is intended to incentivize fuel producers to reduce the GHG impact of their products by 20 percent by 2034 (Ecology 2022).

On April 30, 2020, Ecology announced the beginning of the rulemaking process as per the Directive of the Governor #19-18. This initiative would create a new rule, WAC Chapter 173-445, Greenhouse Gas Assessment for Projects (GAP Rule) and would help address analysis and mitigation of greenhouse gas emissions for environmental assessments of industrial and fossil fuel projects. Rulemaking is currently paused while public comments for the CCA and Clean Fuel Standard are being considered, along with any potential intersections with the new rules.

Currently, the PSCAA is leading the EPA's Climate Pollution Reduction Grant program for the Puget Sound region, a component of the federal Inflation Reduction Act along with the Washington State Department of Commerce. Priority climate action plans and implementation proposals covering all source categories including transportation, the built environment, and more, were due to the EPA in spring 2024.

An in-depth public and stakeholder engagement process was implemented to ensure that the Comprehensive Climate Action Plan incorporates community concerns. The Agency hosted in-person community meetings in Spring 2025 and will be hosting an online Open House in Fall 2025. Funding awards for implementation projects were announced in July 2024. The EPA funded a regional application led by King County, awarding $49,999,975 to reduce building emissions in King, Pierce, Kitsap, and Snohomish Counties.

Locally, the City of Seattle just released its comprehensive Municipal Buildings Decarbonization Plan (May 2025). The plan charts a course to eliminate climate pollution from fossil fuels in 176 city-owned buildings by 2042, reducing carbon emissions by 87 percent and energy use by 48 percent. According to the City's website, "*The plan identifies a strategic, cost-effective approach that focuses on replacing fossil fuel systems with clean electric alternatives when equipment reaches the end of its useful life. Implementing the plan will do more than cut emissions — it will also bolster community resiliency and address asset management needs.*"

The plan builds on considerable progress already made by the city. Since 2018, the progress includes 27 percent and 26 percent reductions in energy use and climate pollution (respectively, compared to a 2008 baseline) and full decarbonization of 20 municipal buildings, including the Seattle Municipal Tower where more than 4,000 City employees work. The plan covers Seattle's diverse building portfolio — libraries, community centers, fire stations, police precincts, and office buildings — with about 4.7 million square feet that still use fossil fuels.

Also, the King County 2025 Strategic Climate Action Plan (SCAP) was sent to the County Council on June 11, 2025. According to the County's website:

"The 2025 SCAP strengthens a commitment to climate action that yields tangible results for people and places in the region, through a comprehensive approach among county departments and in collaboration with our partners.

King County has made considerable progress on climate, including a 16% decrease in per-capita emissions since 2007, and the creation of a climate equity framework to ensure its approach benefits the people who are most impacted by climate change. Additional partnerships have been made to scale up the work, including the King County-Cities Climate Collaboration (K4C), the Puget Sound Climate Preparedness Collaborative, and the Coalition for Climate Careers. Updated state policies and regulations have also paved the way for local action by King County to deliver benefits for communities."

Additionally, King County has developed a GHG Worksheet that is used to estimate all GHG-related emissions created over the life span of project under SEPA review. Included in the worksheet are considerations for construction materials, fuel used during construction, energy consumed during building operation, and transportation by building occupants, and is based on the type (i.e., intended use) and size of the proposed development. Calculation of GHG emissions using the King County spreadsheet is discussed further in this assessment.

Existing Air Quality

Local traffic sources are the primary existing sources of air pollution in the project study area. With typical vehicular traffic, the air pollutant of concern is CO. Other pollutants include ozone precursors (hydrocarbons and nitrogen oxides – NO_x), coarse and fine particulate matter (PM_{10} and $PM_{2.5}$), and SO_2. The amounts of particulate matter generated by well-maintained individual vehicles are minimal compared with other sources (e.g., a wood-burning stove). Concentrations of SO_2 and NO_x are usually not high except near large industrial facilities. Existing air quality in the project area is considered good. The project study area is in the former Puget Sound Ozone and CO maintenance areas but now maintains an "attainment" status for all monitored air pollutants.

IMPACTS

Overall, implementation of the level of development contemplated in the proposed *MIMP Major Amendment* would result in increased vehicle traffic (employees, visitors and patients, and diesel delivery truck traffic), mechanical equipment (such as emergency generators and cooling towers), and trucks at loading docks, which could potentially result in a decrease in air quality and an increase in greenhouse gas emissions. No significant unavoidable adverse impacts on regional or local air quality are anticipated; however, temporary, localized dust and odor impacts could occur during construction activities.

This chapter identifies and analyzes potential impacts on existing air quality on the Harborview campus and in the surrounding vicinity that could occur with proposed development under the EIS Alternatives. Air quality impacts relate to temporary impacts during construction, tailpipe emissions from an increased number of vehicles traveling on public roads in the vicinity of HMC, and contributions to GHG emissions.

Air quality conditions associated with both *Planned Projects* and *Potential Projects* are analyzed in this chapter.

Proposed Action

Construction Impacts

During demolition and construction, dust from excavation and grading could cause temporary, localized increases in the ambient concentrations of fugitive dust and suspended PM.

Construction activity must comply with City regulations, which require a Construction Management Plan (CMP) plan for dust control during grading, excavation, or filling. Regardless, construction activity could cause localized fugitive dust impacts at homes and businesses near the construction site.

Construction activities could require the use of diesel-powered heavy trucks and smaller equipment such as generators and compressors. These engines would emit air pollutants that could slightly degrade local air quality in the immediate vicinity of the activity. However, these emissions would be temporary and localized.

Some construction activities could cause odors to be detectable to some people in the vicinity of the activity, especially during paving operations using tar and asphalt. Such odors would be short-term and localized. Stationary equipment used for construction activities must comply with Ecology regulations requiring the best available measures to control the emissions of odor-bearing air contaminants.

Construction equipment and material hauling could temporarily increase traffic flow on streets adjacent to a construction area. If construction delays traffic enough to significantly reduce travel speeds in the area, general traffic-related emissions would increase.

Operational Impacts

Emissions Associated with Commercial and Light Industrial Development

For the purpose of evaluating air quality impacts, healthcare services are most closely related to commercial or light industrial development. Commercial development is usually associated with increased vehicle traffic (employees, visitors, patients, and diesel delivery truck traffic), mechanical equipment (such as emergency generators and cooling towers), and trucks at loading docks.

The PSCAA requires all commercial facilities to use equipment meeting minimum air emission standards, to obtain air permits before installing a new source of air pollution or modifying an existing source of air pollution, and to use best available control technology on permitted stationary equipment to minimize emissions. Emissions from stationary combustion (heating furnace), electricity, transportation, as well as for any planned additional generators and boilers associated with the *MIMP Major Amendment* are evaluated below.

Regional Air Quality Impacts

The primary cause of photochemical smog (the regional haze produced by ozone and fine airborne particulate) is regional tailpipe emissions of cars and trucks traveling on public streets throughout the region, rather than localized emissions from any individual neighborhood. Tailpipe emissions caused by the *MIMP Major Amendment* would be proportional to the regional increase in vehicles mile travelled (VMT) caused by this alternative. The traffic study accompanying this EIS did not calculate an exact VMT increase. Because the *MIMP Major Amendment* would fulfill a need for medical services that, if not fulfilled locally, would require that the local population to seek the services farther away, the project may slightly improve regional VMT impacts.

The increased distance would contribute to increased tailpipe emissions throughout Washington State. Therefore, while the effect of the project may slightly worsen air quality at the local level, the project could improve air quality slightly at the regional level. Regardless of whether the effect improves or worsens air quality, the change in tailpipe emissions for HMC would be very small relative to the overall regional tailpipe emissions in Washington State.

Photochemical smog was a concern in the Puget Sound region before the late 1980s, but federal tailpipe emission regulations have reduced vehicular emissions to the point that the region is currently a designated attainment area for ozone.

The Puget Sound Regional Council (PSRC) sets regional transportation emission budgets for three pollutants: CO, NO_X, and $PM_{2.5}$. The corresponding PSRC air quality conformity analyses concluded that its forecast of regional emissions for the 2040 planning year will be far below the allowable budgets. Because the change in tailpipe emissions associated with the *MIMP Major Amendment* is expected to be minor compared to the overall tailpipe emissions in the Puget Sound region, the MIMP Major Amendment would not result in a significant impact on regional air quality.

Mobile Source Air Toxics

On a regional basis, the EPA's vehicle and fuel regulations (coupled with ongoing future fleet turnover) will cause substantial emission reductions that will cause region-wide mobile source air toxics levels to be significantly lower than 2025 levels in most cases. Therefore, the *MIMP Major Amendment* is not expected to be significant generators of mobile air toxics.

Point Source Emissions

The *MIMP Major Amendment* would include new cooling towers, boilers, and diesel-powered backup generators, which are sources of localized emissions of criteria pollutants and toxic air pollutants. Consistent with any applicable permitting requirements, estimated air contaminant emission rates for the *MIMP Major Amendment* will be calculated and submitted to the PSCAA as part of the Notice of Construction (NOC) air quality permit application.

Air contaminant emissions from the proposed project are anticipated to be below "major source" emission thresholds, and all ambient air quality impacts that result from facility operations would be below Ecology's human health impact acceptability criteria; therefore, project impacts to air quality are not expected to be significant.

Emissions from Vehicle Travel

Tailpipe emissions from vehicles traveling on public roads would be the largest source of air pollutant emissions associated with development at the HMC site. Potential air quality impacts caused by increased tailpipe emissions are divided into two categories: Hotspots caused by localized emissions at heavily congested intersections and regional photochemical smog caused by combined emissions throughout the state.

Development under the *MIMP Major Amendment* may increase vehicle travel on existing local public roads due to visitors and staff using the increased capacity of the HMC campus. However, it is unlikely that the increased traffic and congestion would cause localized air pollutant concentrations at a local intersection to form a hotspot (i.e., a localized area where air pollutant concentrations exceed NAAQS). The PSCAA operates ambient air pollution monitors at some of the most heavily congested intersections in the Puget Sound region, and the NAAQS are met for all pollutants at all sites.

Furthermore, EPA motor vehicle regulations have steadily decreased tailpipe emissions from individual vehicles. Continuing decreases from individual vehicle emissions are expected to more than offset the increase in vehicle traffic, leading to a decrease in total GHG emissions from transportation sources, even as populations increase. For these reasons, it is unlikely that air quality impacts at local intersections would be significant.

Greenhouse Gas Emissions

Climate change is a major global issue. However, it is not possible to discern the impact that GHG emissions from a single development project may have on global climate change. Neither the EPA, the State of Washington, nor the City of Seattle currently have regulations in place to provide guidance on analysis of the impacts of climate change and associated GHG emissions.

For the purposes of analysis of the climate change impacts of the *MIMP Major Amendment,* the *SEPA Greenhouse Gas Emissions Worksheet* formulated by King County was used to estimate the emissions footprint of the alternatives for the lifecycle of the development, specifically:

- the extraction, processing, transportation, construction and disposal of materials and landscape disturbance (embodied emissions);

- energy demands created by the development after it is completed (energy emissions); and

- transportation demands created by the development after it is completed (transportation emissions) (Appendix B – Greenhouse Gas Emissions Worksheets).

The *MIMP Major Amendment* development would generate GHG emissions associated with construction activities (e.g., excavation and grading), production/extraction of construction materials, energy consumption from construction and operation, and vehicle emissions from associated vehicle trips.

Table 15 lists the life cycle GHG emissions estimate, averaged over a 62.5-year period, comparing increases caused by the combined future development at the HMC project. Total GHG emissions associated with the *MIMP Major Amendment* are estimated at 3,814,964 CO_2e per year. Washington State GHG legislation requires that total gross GHG emissions for 2040 fall to 70 percent below 1990 emissions, or 93,500,000 metric tons CO_2e per year (Ecology; accessed November 16, 2023). By 2040, the GHG emissions of the *MIMP Major Amendment* would be 4.08 percent of total statewide annual GHG emissions.

It is important to note that the scale of global climate change is so large that the impacts from one project, no matter the size, would have no discernible effect on increasing or decreasing global climate change. Any such effects can only be considered on a "cumulative" basis.

It is appropriate to conclude that the GHG emissions associated with the MIMP Major Amendment would combine with emissions across the City, County, State, nation, and planet to cumulatively contribute to increases or decreases in the rate and effects of global climate change.

Table 15: Estimated MIMP Major Amendment Greenhouse Gas Emissions ($MTCO_2E$)

Components	Area (sq. ft.)	Lifespan Emissions[1]	Annual Emissions[2]
Healthcare - Inpatient[3]	1,146,992	2,934,459	46,951
Healthcare - Outpatient[4]	653,943	880,505	14,088

Source: EA, based on using the King County's GHG worksheet

[1] Estimated lifecycle emissions are based on an assumed average useful life of about 62.5 years for all types of structures that are not considered residential. These emissions are reported in $MTCO_2e$ representing metric tons (tonnes) of carbon dioxide equivalent, or 2,204.62 pounds of CO_2. This metric is a standard measure of CO2 equivalent emissions that include CO_2 and other GHGs.

[2] Annual emissions estimates are based on dividing total emissions by assumed facility useful lifespan as indicated in note (1) above.

[3] Defined as buildings used as diagnostic and treatment facilities for inpatient care.

[4] Defined as buildings used as diagnostic and treatment facilities for outpatient care. Doctor's or dentist's offices are included here if they use any type of diagnostic medical equipment (if they do not, they are categorized as office buildings).

The estimates of project GHG emissions do not consider any potential efforts to reduce GHG emissions and/or resource consumption by incorporating sustainable features into the development, although such sustainable features would be incorporated into the project by virtue of the City and State Building and Energy Code requirements. The project could consider green building technologies in the approach to the design of buildings to reduce GHG emissions.

240 Foot Height Limit

Planned and Potential Project Conditions

Construction Impacts

Impacts associated with construction activities under *Alternative 2* would be similar to those described for the *MIMP Major Amendment*.

Operational Impacts

Impacts associated with development under *Alternative 2* would be similar to those described for the *MIMP Major Amendment*.

Greenhouse Gas Emissions

Impacts associated with development under *Alternative 2* would be similar to those described for the *MIMP Major Amendment*.

No Action Alternative

Construction Impacts

Impacts associated with the *No Action Alternative* would be less than those described for the *MIMP Major Amendment*.

Operational Impacts

Impacts associated with the *No Action Alternative* would be less than those described for the *MIMP Major Amendment*.

Greenhouse Gas Emissions

Table 16 shows the *No Action Alternative* is expected to produce about 171,348 metric tons (tonnes) of CO2 equivalent ($MTCO_2e$) over a 62.5-year lifespan and corresponds to about 2,741 tonnes annually. When compared to the annual state-wide and worldwide GHG emissions as stated above, the *No Action Alternative* represents a much smaller percentage overall.

Table 16: Estimated No Action Alternative Greenhouse Gas Emissions (MTCO2E)

Components	Area (sq. ft.)	Lifespan Emissions [1]	Annual Emissions [2]
Healthcare - Inpatient[3]	0.0	0	0
Healthcare - Outpatient[4]	127,250	171,348	2,741

Source: EA, based on using the King County's GHG worksheet

[1] Estimated lifecycle emissions are based on an assumed average useful life of about 62.5 years for all types of structures that are not considered residential. These emissions are reported in $MTCO_2e$ representing metric tons (tonnes) of carbon dioxide equivalent, or 2,204.62 pounds of CO_2. This metric is a standard measure of CO2 equivalent emissions that include CO_2 and other GHGs.

[2] Annual emissions estimates are based on dividing total emissions by assumed facility useful lifespan as indicated in note (1) above.

[3] Defined as buildings used as diagnostic and treatment facilities for inpatient care.

[4] Defined as buildings used as diagnostic and treatment facilities for outpatient care. Doctor's or dentist's offices are included here if they use any type of diagnostic medical equipment (if they do not, they are categorized as office buildings).

MITIGATION MEASURES

The following measures have been identified to address the potential air quality impacts from construction and operation of the *MIMP Major Amendment*.

- All development in Washington State is required to comply with the following regulations:
  - National Ambient Air Quality Standards: As described above, the EPA establishes NAAQS and specifies future dates for states to develop and implement plans to achieve these standards.
  - State Ambient Air Quality Standards: Ecology establishes state ambient air quality standards for the same six key criteria air pollutants as the NAAQS that are at least as stringent as the national standards; in the case of sulfur dioxide, state standards are more stringent.
  - Puget Sound Clean Air Agency Regulations: All construction sites in the Puget Sound region are required to implement rigorous emission controls to minimize fugitive dust and odors during construction, as required by PSCAA Regulation 1, Section 9.15: Fugitive Dust Control Measures. All industrial and commercial air pollutant sources in the Puget Sound region are required to register with the PSCAA. Facilities with significant emissions are required to obtain an NOC air quality permit before construction can begin.

  - State of Washington GHG Laws: As described above, Washington State enacted a new law establishing GHG reduction limits.

- Construction contractors should be required to implement air quality control plans for construction activities at the HMC campus. Contractors should be required to prepare a dust control plan as part of the Construction Management Plan that commits the construction crews to implement all reasonable control measures described in the Guide to Handling Fugitive Dust from Construction Projects (AGCW 2009). The air quality control plans should include best management practices (BMPs) to control fugitive dust and odors emitted by diesel construction equipment. The following BMPs should be used to control fugitive dust:
  - Use water sprays or other non-toxic dust control methods on unpaved roadways.
  - Minimize vehicle speed while traveling on unpaved surfaces.
  - Prevent track-out of mud onto public streets.
  - Cover soil piles when practicable.
  - Minimize work during periods of high winds when practicable.

- The following mitigation measures should be used to minimize air quality and odor issues caused by tailpipe emissions:
  - Maintain the engines of construction equipment according to manufacturers' specifications.
  - Minimize idling of equipment while equipment is not in use.

- If there is heavy traffic during some periods of the day, scheduling haul traffic during off-peak times (e.g., between 9:00 a.m. and 4:00 p.m.) would reduce effects on traffic congestion and would minimize indirect increases in traffic-related emissions.

- The environmental analysis described above does not quantify or take into consideration any potential efforts to reduce climate- change-related impacts by incorporating sustainable features into the development. Sustainable features would be incorporated into individual projects as they are built to reduce the impacts quantified in this chapter through compliance with requirements of Building and Energy Codes. Green building technologies could be considered in the approach to the design of buildings, and in ongoing site programming and management.

UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse air impacts have been identified, and none are anticipated under any of the alternatives.

3.4. ENVIRONMENTAL HEALTH (HAZARDOUS MATERIALS AND NOISE)

This chapter addresses hazardous materials and infectious-biohazardous waste management at Harborview. In addition, it also addresses long-term noise conditions such as those associated with emergency vehicles and building systems. The chapter does not address construction noise, since that is a short-term construction-related impact discussed in Chapter 2.12.

AFFECTED ENVIRONMENT

Hazardous Materials/Wastes

The Harborview Department of Environmental Services (EVS) adopted a waste management plan in June 1985, and most recently revised the plan in August 2023 (Appendix C – Harborview Waste Management Plans). Harborview's hazardous waste streams consist of the following components:

- Biohazardous Waste**:** Also referred to as infectious or biomedical waste. This category includes liquid or semi-liquid blood or other potentially infectious materials (OPIM).
- Human Pathological Waste**:** Human tissues and anatomical parts that emanate from surgery, obstetrical procedures, autopsy, teaching, and research laboratories.
- Sharps Waste**:** The term "sharps" is a regulatory waste classification associated with those instruments used to puncture, cut, or scrape body parts and that, in a waste container, can cause punctures or cuts to solid waste handlers or the public.
- Hazardous Waste**:** Waste that is dangerous or potentially harmful to human health or the environment. Hazardous waste can be liquids, solids, contained gases, or sludges with one or more of the following hazardous traits: ignitability, reactivity, corrosivity and toxicity.
- Pharmaceutical Waste**:** Any form of medication from the Pharmacy that is no longer needed for a patient, has been partially used or contaminated and therefore cannot be returned to the pharmacy.
- Narcotic or Controlled Substances Waste**:** Any form of narcotics or controlled substances from the pharmacy that is no longer needed for a patient, has been partially used or contaminated and therefore cannot be returned to the pharmacy.
- Battery Waste**:** Universal waste which is a special category of hazardous waste and is subject to less stringent regulatory requirements.
- Recycling Waste**:** Materials collected and converted into new materials and products.

- Compostable Waste**:** Organic matter that has been decomposed in a process called composting. Compost is used in gardens, landscaping, horticulture, urban agriculture, and organic farming to enrich the soil, retain moisture, suppress plant diseases and pests, and reduce the need for chemical fertilizers.
- Confidential Waste: UW Medicine security policy defines confidential waste as including, but is not limited to, personally identifiable information, protected health information, workforce records, student records, social security numbers, legally protected university records, research data, passwords, and intellectual property.
- Construction Debris Waste**:** Construction and demolition (C&D) materials are generated during the construction, renovation and demolition of new and existing buildings, roads, and bridges.
- Print Cartridges Waste**:** Used in printers, copiers, fax machines, and multi-functional devices and are recyclable.
- Solid Waste**:** Also known as landfill waste and commonly known as trash or garbage. Solid waste includes anything with no recyclable value or regulated disposal requirements and is permitted for disposal at municipal solid waste landfill.

Harborview processes its own regulated medical waste by using a San-I-Pak incinerator on the Ninth & Jefferson Building loading dock. The San-I-Pak waste management operation is part of UW Medicine Waste Management Plan (Appendix C – Harborview Waste Management Plans). Table 17 outlines the Harborview hazardous waste streams and their disposal process.

Table 17: Harborview Hazardous Waste Streams

Waste Stream	Description	Disposal Process	2024 waste totals (Tons)	Waste Disposal Contract Holder Waste Transport Contractor Waste Receiver Contractor
Pathological Waste (Regulated Medical Waste)	Surgical specimens, human & animal tissue & organs, limbs, Prions waste	Shipped via contracted carrier. Treated via incineration	1.58 tons	Stericycle

Waste Stream	Description	Disposal Process	2024 waste totals (Tons)	Waste Disposal Contract Holder Waste Transport Contractor Waste Receiver Contractor
Sharps (Regulated Medical Waste)	Needles, syringes, lancets, scalpel blades, and other sharps.	Shipped via contracted carrier. Treated via autoclave and disposed of in a landfill.	28.28 tons	Stericycle
Biohazardous Medical Waste – Off-site Treatment (Regulated Medical Waste)	Blood products and other potentially infectious waste; waste saturated, dripping, or caked with blood/body fluids; waste containing blood/bodily fluids; sharps in disposable sharps containers.	Shipped via contracted carrier. Treated via autoclave and then disposed of in landfill .	1.1 tons	Stericycle
Biohazardous Medical Waste – On-site Treatment (Regulated Medical Waste)	Blood products and other potentially infectious waste; waste saturated, dripping, or caked with blood/body fluids; waste containing blood/bodily fluids	Processed on-site in Sanipak autoclave. After waste is autoclaved, it goes into the trash waste stream and goes to landfill.	103 tons* *total was estimated due to a calibration issue on one of the Sanipak champers in 2024	Recology – Trash Vendor Waste Management – Landfill Owner
Pharmaceutical Waste (RCRA Regulated Waste)	Partial Containers of pharmaceuticals, chemotherapy drugs and administration debris, P-listed drugs, and administration debris.	Shipped via contracted carrier. Treated via incineration.	65.89 tons	Clean Harbors (contracted to UW Environmental Health and Safety)

Waste Stream	Description	Disposal Process	2024 waste totals (Tons)	Waste Disposal Contract Holder Waste Transport Contractor Waste Receiver Contractor
DEA Controlled Medication Waste (RCRA Regulated Waste)	DEA Controlled medication	Collected in RX Destroyers and shipped via a contracted carrier with the Pharmaceutical Waste. Treated via incineration.	Included in Pharmaceutical Waste total	Clean Harbors (contracted to UW Environmental Health and Safety)
Other Chemical Waste (RCRA Regulated Waste and WA Dangerous Waste)	Flammable, toxic, reactive, and/or corrosive waste.	Departments submit chemical pickup requests with UW Environmental Health & Safety. UW EH&S treats some waste on-site and ships other waste out with Clean Harbors.	8.85 tons	Clean Harbors (contracted to UW Environmental Health and Safety)

Source: Harborview Medical Center Department of Environmental Services.

Harborview's policy is to manage hazardous waste and materials in accordance with UW plans. In addition, Harborview's waste management policy complies with applicable city, county, state, and federal law, and with the Joint Commission Accreditation Hospital Organization rules.

Noise

Affected noise environment falls into two categories:

- Ambient noise levels that already exist in the area
- Permissible noise levels generated by a land use that impacts surrounding land uses.

Current Ambient Noise Levels

Harborview is located in First Hill, a noisy urban area with ambient sound levels of 65 - 70 dBA. Ambient noise sources include traffic, emergency vehicles, air traffic, building mechanical/electrical systems, and the concentration of human activity. The noise and air quality memorandum stated that results of the noise analysis should be considered a "worst case scenario" for receivers surrounding the existing and proposed heliports, The results found that the proposed project scenarios (A and B) have the same DNL contours as the existing conditions (Appendix D – Noise and Air Quality Memorandum)[23].

Seattle Noise Ordinance

The City of Seattle Noise Ordinance (Seattle Municipal Code 25.08) establishes acceptable noise levels by land use type, as well as regulating construction noise. As noted in 25.08.010, Declaration of Policy, the intent of the regulations is to "*minimize the exposure of citizens to the physiological and psychological dangers of excessive noise and to protect, promote, and preserve the public health, safety and welfare*." Institutional projects (which fall under the broader category of "commercial" in the Ordinance) must meet the requirements of the Noise Ordinance. Projects are screened for noise issues, especially when located near residential zones, and the Seattle Department of Construction and Inspections (SDCI) enforces a noise abatement program. Under the code, Harborview does not fall into the category of "major noise generator."

The noise ordinance sets maximum permitted noise levels (in dBA) for ongoing operations like the building HVAC, as noted on **Table 18**. The noise ordinance also sets permitted levels and conditions for construction noise. For discussion purposes in this EIS, short-term construction noise is addressed in Chapter 3.12, Construction Impacts. The noise ordinance categorizes Harborview as a "commercial land use" under the Ordinance, which permits the noise levels noted on Table 18.

Table 18: Seattle Noise Ordinance Permissible Sound Levels

Noise Source Land Use	Receiving Property District		
	Residential (dB(A)(Leq)	Commercial (dB(A)(Leq)	Industrial (dB(A)(Leq)
Residential	55	57	60
Commercial	57	60	65
Industrial	60	65	70

Source: Seattle Municipal Code Chapter 25.08.410

[23] ESA Technical Memo, Harborview Medical Center Heliport Noise and Air Quality Modeling Approach, Input Assumptions and Results for Proposed Project, May 7, 2024.

During a measurement interval, Lmax may exceed the exterior sound level limits shown in Table 1 by no more than 15 dB(A). In 2023, Harborview managed over 50,400 visits to its emergency department. In combination with other noise sources, emergency vehicles and sirens may affect noise-sensitive receivers such as residential uses in the area for a brief period. Therefore, the emergency vehicle policy is to cut off sirens within two blocks of the hospital. The noise ordinance exempts siren noise and aircraft noise from regulation.

Harborview Proposed Action

Hazardous Materials/Wastes

If Harborview and associated medical facilities develop according to the proposal, the number of waste-generating locations will increase in order to provide sufficient capacity. Future waste projections would be made according to the building activity and proposed square feet of floor area. The increase in waste volume generated would be accounted for in the hazardous materials plan.

The San-I-Pak incinerator will require review of its capacity to address additional medical waste disposal. While Harborview incinerates a large amount of its hazardous waste, some of the waste is treated by outside contractors such as Clean Harbors (contracted to UW Environmental Health and Safety) or shipped offsite via another contracted carrier for incineration. While the likelihood of a spill is minimal, the waste management plan outlines how and where to consolidate the collected waste, and the pickup points and transfer off-site for proper disposal.

Noise

Reconfiguration of the heliport onto the New Tower would shift noise northward, maintaining most of the noise on Harborview property.

The increased heliport elevation would reduce noise west of the freeway and below the heliports.[24]

[24] ESA Technical Memo, Harborview Medical Center Heliport Noise and Air Quality Modeling Approach, Input Assumptions and Results for Proposed Project, May 7, 2024.

ALTERNATIVES TO PROPOSED ACTION

240 Foot Height Limit

This alternative would have waste and noise impacts similar to the Proposed Action, although helicopter noise would originate closer to the ground due to the lower heliport elevation compared to the Proposed Action.

No Action Alternative

If the Planned and Potential Projects do not occur, the 1999 and 2014 MIMP permit the development of existing and approved projects. Projects under the 1999 and 2014 MIMP would also increase the number of waste-generating locations, although not to the extent of the Proposed Action. As for noise, it is likely that additional patient and employee activity would create an increase in emergency room patient deliveries and related noise. The noise generated from existing Harborview buildings would continue, and as equipment ages, noise levels may increase.

MITIGATION MEASURES

Waste:

- Implement, monitor, and update Hazardous Materials and Waste Management Plan, with specific programs to minimize hazard risks.
- Comply with all applicable federal, state, and local laws as well as UW policies and Joint Commission policies related to hazardous materials.
- Maintain an environmentally responsible waste management stream that protects the public interest throughout collection, transportation, processing, and disposal of hazardous/medical wastes.
- Evaluate annually for effectiveness and modify waste management plans as appropriate with the findings.

Noise:

- Comply with the requirements of the Seattle Noise Ordinances (SMC 25.08)
- Confirm that the design of equipment, such as HVAC and emergency generators, operates within the allowable noise levels permitted by SMC 25.08.
- Consider noise concerns in new development design and orientation.
- Install sound control on HVAC equipment and fans where applicable.
- Implement noise-sensitive policies for emergency vehicles.

UNAVOIDABLE ADVERSE IMPACTS

An increase in the quantity and number of locations producing hazardous waste would occur. Harborview's waste management policies would undergo review to accommodate increased waste generation.

3.5. WATER RESOURCES

This section of the Final EIS describes existing water resources, including stormwater and water quality, and evaluates potential water resource impacts that could occur as a result of the DEIS Alternatives (Alternatives 1 and 2). This section also analyzes the water resource conditions under the No Action Alternative.

AFFECTED ENVIRONMENT

Existing Harborview Campus

The Project requires stormwater management to reduce impacts to water quality from runoff, and to control drainage rates to avoid overloading water system capacities. If changes to the stormwater code occur, any new developments must follow the most current regulations. Pervious and impervious surfaces impact runoff rates. Current impervious surfaces on campus include buildings, paved surfaces, and roadways. Previous surfaces on campus are primarily landscaped setbacks and undeveloped areas along the MIO boundary (see **Figure 11**). These pervious surfaces allow for rainfall or any other water to be directly absorbed back into the ground. Existing pervious area on campus is approximately 10.65% of the MIO boundary or 61,228 square feet. The remainder of the MIO boundary is impervious surface, which is 89.35% of the MIO area or 513,891 square feet. The proposed 108,535 square-foot MIO boundary expansion under the *MIMP Major Amendment* is currently 100% pervious surface.

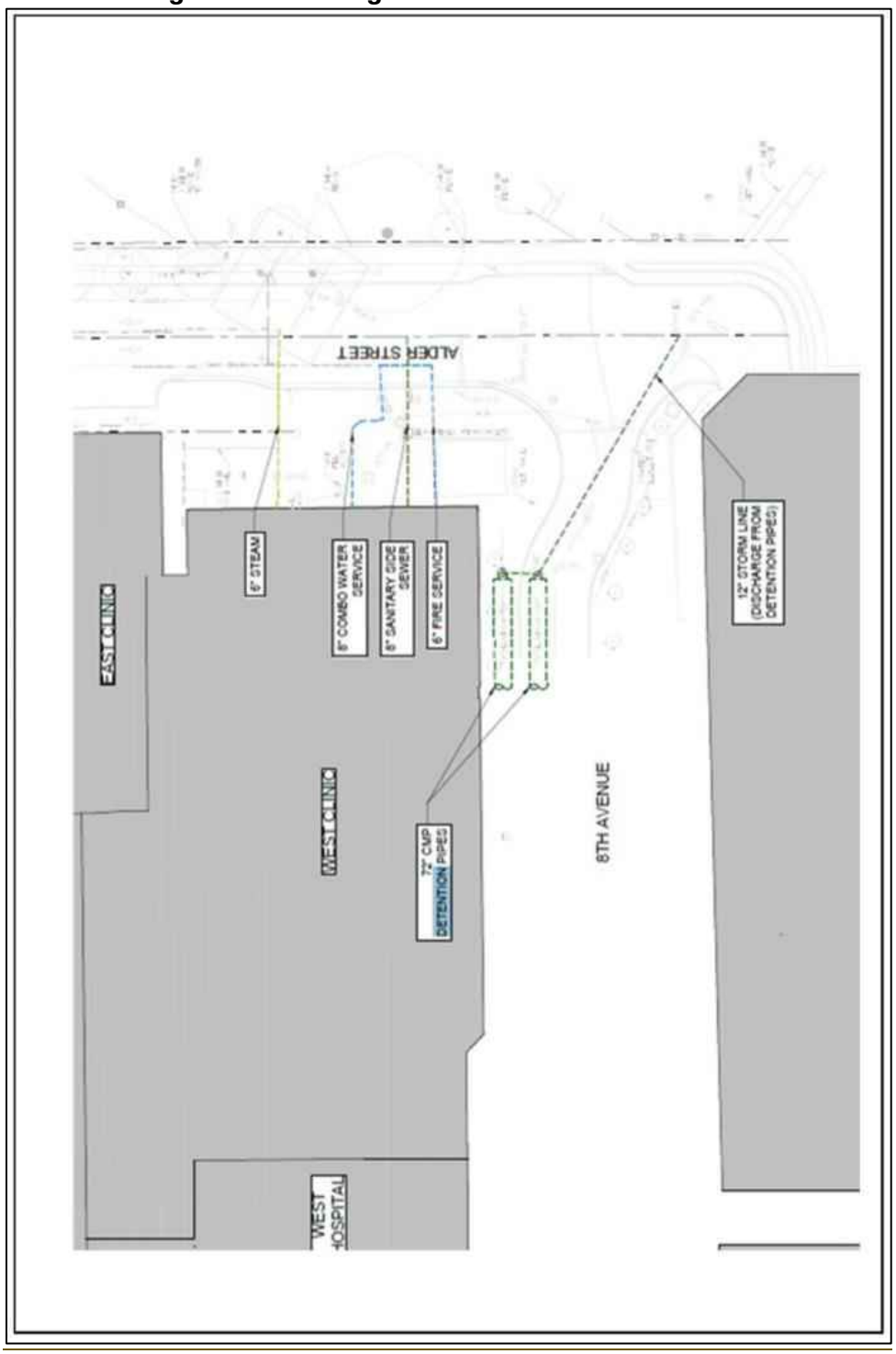
Stormwater runoff can impact water quality by traveling across surfaces and transporting pollution. Examples of pollutant-generating surfaces include paved surfaces for vehicles or industrial uses, paved surfaces that store hazardous materials, wastes, or chemicals which receive rainfall, metal roofs or roofs with venting for pollutants, and planted/landscaped areas subject to vehicle or industrial use or storage of hazardous materials, wastes, chemicals, pesticides, or fertilizers that receive rainfall.

A combined sewer system (CSO) at the main hospital buildings, including the Planned Tower I site, in the center of campus manages stormwater. A CSO combines sewer and stormwater into the same mainlines. The combined mainlines at Harborview campus are routed to a treatment plant before draining into the Puget Sound. The East Clinic Building and Potential Tower II sites would also discharge into the combined mainlines. The Boren Garage site contains a water detention facility before discharging into combined mainlines on Terrace and Alder Streets. Along the northern section of 9th Avenue is a storm main, and a stormwater detention system adjacent to the West Clinic within private roadway known as 8th Avenue.

Figure 11: Existing Pervious Surfaces



Figure 12: Existing 8th Avenue Detention Vaults



The Planned Tower I site area comprises approximately 67,082 square feet (1.54 acres) as shown in **Figure 13** below. This area is denoted as "infiltration investigation not required" per the Seattle Department of Construction and Inspections GIS map, which indicates that stormwater infiltration is not feasible at the site. When infiltration cannot be utilized, water detention vaults can be installed to control water runoff rates.

The Walter Scott Brown Building site discharges stormwater into the dedicated storm drain on 9th Avenue, which flows into the City of Seattle sewer system. The site is also mapped as "Infiltration Investigation Not Required," and infiltration systems would not be compatible with the property. The site is also recorded as a designated receiving water basin. The project site is estimated at approximately 17,424 square feet (0.4 acres), see **Figure 13**.

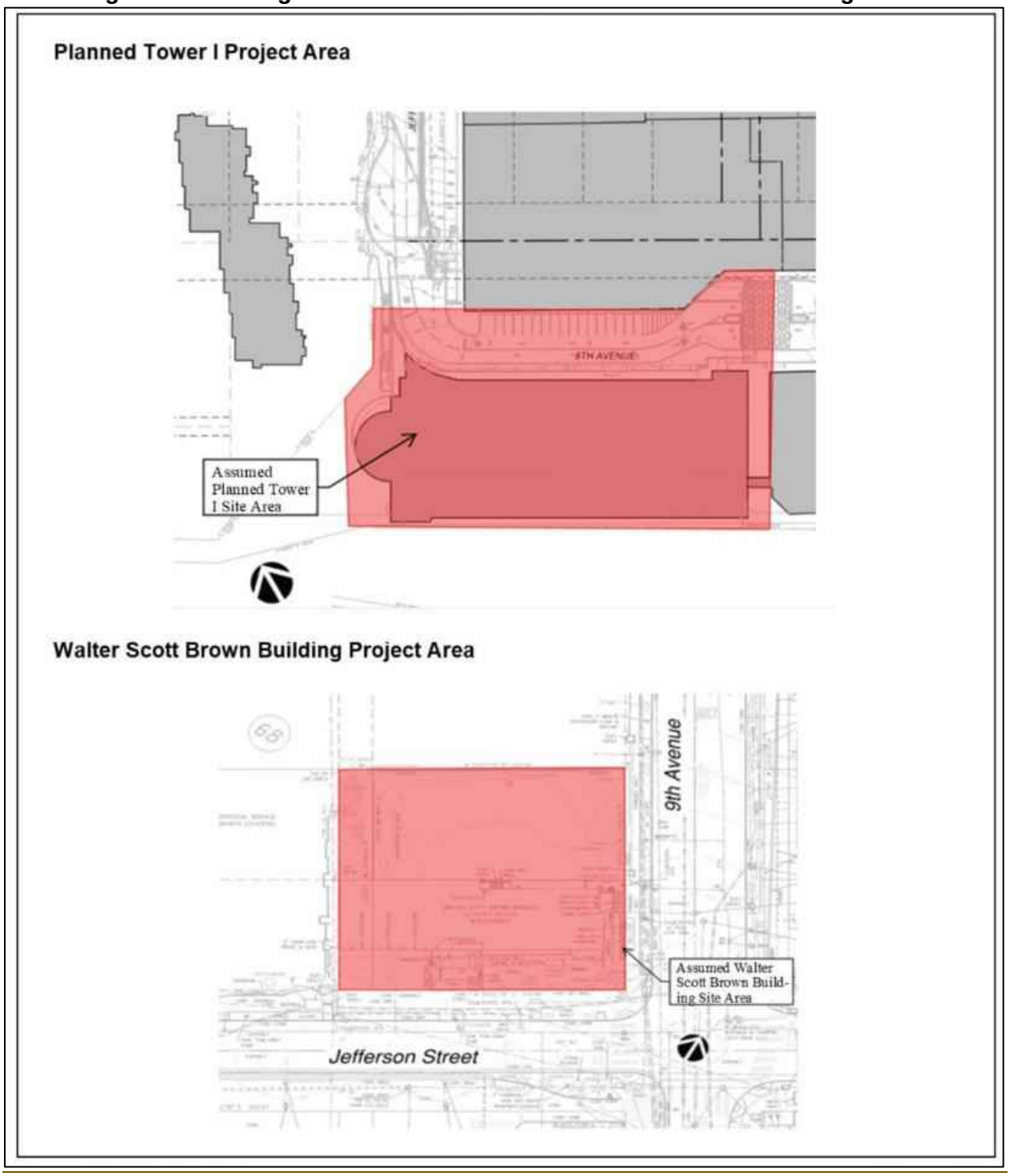
Existing Regulations

The 2026 City of Seattle Stormwater Code and Manual, which became effective July 1, 2026, regulates stormwater runoff in the City of Seattle. The 2026 Seattle Stormwater Code and Manual requires that new development projects that include over 2,000 square feet of new and replaced hard surface will need to meet the wetland protection standard, pre-developed pasture standard, and peak control standard flow control requirements.

Specific development projects with greater than 5,000 square feet of new or replaced pollution-generating hard surfaces would also be required to provide enhanced water quality treatment for those areas. Specific development projects with more than 1,500 square feet of new and replaced hard surface or 7,000 square feet of land disturbing activity would be required to meet on-site stormwater management (OSM) requirements for the entire project area.

The 2026 Seattle Stormwater Code and Manual requires sites that discharge into a combined sewer system to regulate flow control to the Peak Control Standard. The Peak Control Standard has the maximum allowable stormwater release rates for the subject area based on two-year, five-year, and 25-year storms. Areas which discharge into a dedicated storm main within designated receiving water basins are not required to control stormwater flow. Other requirements include OSM best management practices (BMP). OSM BMPs are obligatory for any project which will develop more than 750 square feet of impervious surfaces.

Figure 13: Existing Planned Tower I and Walter Scott Brown Building Sites



IMPACTS

Introduction

Alternative 1 consists of an expansion to the MIO boundary, an increase in the building floor area ratio (FAR) from 3.6 to 6.5, a reduction in open space requirements from 20% to 12% within the MIO, and a building height standard increase up to 320 feet to the west of private roadway known as 8th Avenue in the MIO. With the increase in the FAR standard, all building square footage from the Planned and Potential projects outlined in the *MIMP Major Amendment* would be allowed to be developed.

Planned Projects include the *New Patient Tower* and MIO boundary expansion improvements. Potential Projects consist of the Walter Scott Brown Building, East Clinic Building, Boren Garage, Potential Tower II, and open space enhancements. The *MIMP Major Amendment* would not result in any wastewater to be discharged into the ground or groundwater.

Short-term water impacts may occur during construction activities for the Planned or Potential Projects due to the development of a temporary roadway from James Street to Yesler Terrace along the west side of the MIO boundary, as well as increase potential to release runoff, material, or sediments into the stormwater systems. To mitigate this, approved construction Best Management Practices (BMPs) would be implemented during all construction phases to reduce discharges to surrounding stormwater systems.

Construction BMPs are a requirement of the City of Seattle municipal stormwater National Pollutant Discharge Elimination System (NPDES) permit. The proposed BMPs would be reviewed and approved during the permit application process to facilitate compliance with stormwater management and drainage requirements.

Planned Project Conditions

Surface Impacts

Harborview Park at the Planned Tower I site footprint is developed with no pervious surface due to the View Park I parking structure located underneath. Under Alternative 1, the Planned Tower I footprint would not develop any new pervious surface. Therefore, no changes to impervious or pervious surfaces would occur at the site, and water runoff conditions would remain relatively consistent.

However, the project would replace existing impervious surface with the new Planned Tower I and would be subject to the requirements of the 2026 Seattle Stormwater Manual. Runoff from the Planned Tower I would tend to flow downgradient towards the new MIO boundary expansion to the southwest. The Planned Tower I has two design options: Design Option 1 removes the private roadway known as 8th Avenue and connects the patient tower to the West Hospital, and Design Option 2 would retain private roadway known as 8th Avenue. The evaluated area for the project includes the private roadway known as 8th Avenue; therefore, runoff is anticipated to remain consistent between the Planned Tower I Design Option 1 and Design Option 2.

The most notable addition of pervious surface would result from the land addition to the MIO boundary. The roadway development within this expansion would be included as a part of the Planned Tower I construction. Impervious surfaces would be developed from the new roadway, pedestrian sidewalks and walkways, and other paved surfaces, which would increase runoff within the boundary expansion itself. The overall percentage of pervious surface for the entire MIO would increase, with the inclusion of the approximately 108,535 square feet of area associated with the boundary expansion.

Stormwater Flow Impacts

The 2026 City of Seattle Stormwater Code and Manual, which became effective July 1, 2026, requires sites that discharge into a combined sewer system to regulate flow control to the Peak Control Standard. The Peak Control Standard has the maximum allowable stormwater release rates for the subject area based on two-year, five-year, and 25-year storms. As mentioned, a water infiltration system cannot be used at the Planned Tower I site; therefore, a water detention system will be installed.

While the detention design is not finalized, the system will be required to store approximately 13,850 cubic feet of water to meet flow control requirements based on the site acreage. This detention vault can be installed within the lowest level of the Planned Tower I on the private roadway known as 8th Avenue, or along the new access road, depending on the chosen tower design, construction needs, or cost. After collection, the water will eventually be discharged to the combined mainlines which flow to a treatment plant.

Other requirements by the City of Seattle code include on-site stormwater management (OSM) best management practices (BMP). OSM BMPs are obligatory for any project which will develop more than 750 square feet of impervious surfaces. Types of OSM BMPs which may be utilized for the Planned Tower I development may include rainwater harvesting, installing permeable pavement surfaces, using non-infiltrating bioretention, vegetating the rooftop, and planting trees.

The OSM BMPs for the Planned Tower I project will be chosen and approved based on project conditions and other requirements. With the implementation of OSM BMPs and the construction of the detention vault, no changes to water runoff are anticipated with the Planned Tower I project.

Water Quality Impacts

Per the 2026 Seattle Stormwater Code and Manual, which became effective July 1, 2026, systems which discharge into a combined sewer system are not required to conduct water treatment. Since the runoff from the Planned Tower I will drain into a combined sewer system which flows to a city water treatment plant, no water quality system is required on-site and no changes to water quality are anticipated with the Planned Tower I development.

Potential Project Conditions

Surface Impacts

Changes to impervious and pervious surfaces would result from the construction of the Walter Scott Brown Building. The Walter Scott Brown Building footprint is anticipated to result in approximately 10,000 square feet of impervious surfaces. With the removal of the existing approximately 7,900 square-foot Securities Building floorplate, this will result in a net increase of impervious surface at the site. Changes to impervious and pervious surfaces would also occur with the development of the Terry and Terrace Plaza open space at the southwest corner of Terry Avenue and Terrace Street. The new plaza would add approximately 5,487 square feet of pervious surface to the Harborview campus. The replacement of existing impervious surfaces with new development would also subject the project to the applicable requirements of the 2026 Seattle Stormwater Manual.

Other Potential Projects are not anticipated to modify pervious or impervious areas within the Harborview campus. However, they would replace existing impervious surface with new potential development which would be subject to the requirements of the 2026 Seattle Stormwater Manual. The site footprint of the new East Clinic Building would match the existing East Clinic largest floorplate at ground level. Pervious landscaping within the 10-foot setback would be retained during the building development and no changes to impervious surfaces are anticipated at this building site. Existing impervious surfaces at the Boren Garage and Potential Tower II sites cover 100 percent of the project areas. Since these projects would not add any pervious surfaces to the site, no changes to impervious or pervious surfaces are expected.

With the revision of the FAR standard and implementation of the *MIMP Major Amendment,* an overall net increase of approximately 62,027 square feet in pervious surfaces would be added to the Harborview campus. The new pervious surfaces total would amount to approximately 123,255 square feet, or approximately 13 percent of the MIO.

Figure 14: Proposed Pervious Surfaces



Stormwater Flow Impacts

The 2026 City of Seattle Stormwater Code and Manual, which became effective July 1, 2026, indicates that areas which discharge into a dedicated storm main within designated receiving water basins are not required to control stormwater flow. Since the Walter Scott Brown Building site discharges to the dedicated storm drain on 9th Avenue and is in a designated receiving water basin, a detention system is not required. However, if there is perched groundwater at the site that would be permanently dewatered for the building development, flow control would be needed. Based on guidelines and the approximately 0.4-acre project site, if more than 0.0028 cubic feet per second of groundwater would be discharged, a 5,000 cubic-foot water detention facility would be required. If needed, the detention system would be installed within the basement or directly below the building. Additionally, since the Walter Scott Brown Building development will result in more than 750 square feet of impervious surface, OSM BMPs will be required for the project. OSM BMPs recommended for the Walter Scott Brown Building include installing permeable pavement surfaces, using non-infiltrating bioretention, vegetating the rooftop, and planting trees.

Short-term impacts to stormwater runoff may occur after the demolition of the existing East Clinic, as the site may be utilized as a temporary open space. The temporary open space would increase water runoff until a detention facility was constructed with the new East Clinic Building. These impacts are temporary and not considered to be significant. Stormwater detention or rainwater harvesting systems would be installed within the basement of the new East Clinic Building that meets 2026 City of Seattle Stormwater Code and Manual requirements. Required OSM BMPs, if feasible, would also be implemented.

For the Boren Garage development, stormwater flow control would need to satisfy the City of Seattle Stormwater requirements to achieve flow rates of natural conditions at the site. This would include improvements such as upsizing the existing stormwater detention facility, implementing OSM BMPs, and providing soil amendments for replaced landscaped areas. Potential BMPs to be utilized include installing a vegetated roof or non-infiltrating bioretention facilities. With these conditions met, no impacts to stormwater runoff are anticipated.

Stormwater detention system requirements for the Potential Tower II would be comparable to the facilities discussed for the Planned Tower I project. A large detention vault would be installed, but no treatment would be needed since water will be discharged into a combined sewer system. Similar OSM BMPs to the Planned Tower I are also assumed to be implemented for this project development. With the receiving water designation and development of water detention vaults, there would be no adverse effects to water runoff.

Water Quality Impacts

Per the 2026 City of Seattle Stormwater Code Manual, which became effective July 1, 2026, on-site water quality treatment is required if more than 5,000 square feet of pollution-generating surfaces are created. Considering the Walter Scott Brown Building project would develop approximately 100,000 square feet at 10 stories, it is assumed more than 5,000 square feet of rooftop surface will be constructed. The city stormwater code provides several options for stormwater treatment facilities and chosen treatment systems for the projects would be dependent on construction needs, site designs, and costs. The East Clinic Building, Boren Garage, and Potential Tower II projects would drain into the combined sewer system to a treatment plant. Since stormwater will either be treated on-site or through the combined sewer system to city water plants, no impacts on water quality are anticipated.

Alternative 2

Alternative 2 includes all Planned or Potential Projects as previously described under the *MIMP Major Amendment* without a proposed height increase to the west of private roadway known as 8th Avenue. The retained height would result in a modification to the height and design for the Planned Tower I and Potential Tower II. The altered tower designs, including both Design Option 1 and Design Option 2 for the Planned Tower I, would not cause a change to impervious or pervious surfaces as discussed under Alternative 1 and stormwater would still discharge into the combined sewer system. The different tower designs may impact the chosen detention vault types or locations but would not modify the flow requirements or functionality. Due to the similar amount of impervious surface under Alternative 2, impacts to Water Resources would remain relatively consistent as discussed under Alternative 1.

No Action Alternative

With the No Action Alternative, the *MIMP Major Amendment* would not occur and therefore, the Planned and Potential Project discussed would not be permitted to be developed and no new detention vaults or stormwater treatment facilities would be installed. Actions previously evaluated under the *1999 MIMP* could still occur, including the construction of the Walter Scott Brown Building up to six stories, the demolition of the East Clinic, and other building renovations, as well as the installation of the Terry and Terrace Plaza and open space improvements. New pervious surface could be created under the No Action Alternative with the development of the Terry and Terrace Plaza. With the demolition of the existing East Clinic, previously mentioned temporary increased runoff at the site would remain but would not be anticipated to be significant. The No Action Alternative would not substantially alter or impact water runoff or quality.

MITIGATION MEASURES

The following measures have been identified to address the potential water resource impacts from construction and operation of the proposed *MIMP Major Amendment*.

- Design permanent stormwater and drainage systems in compliance with the current applicable city standards.
- Conduct appropriate Construction Best Management Practices as required by the 2026 City of Seattle Stormwater Code and Manual, which became effective July 1, 2026.
- Create and implement a Construction Stormwater Control and Soil Management Plan. Ensure compliance with city codes by reviewing and revising the plan as needed.
- Implement feasible On-Site Management Best Management Practices into project designs.
- Include and regularly maintain oil/water separators in drainage systems.
- Provide on-site wheel washing of any vehicle leaving construction projects to avoid tracking materials on local streets.
- Utilize berming/straw bales where practical to provide temporary on-site detention during construction.
- Cover exposed material soils to prevent erosion and sediment-loaded runoff.
- Consider using fertilizer and pesticides with reduced downstream impacts in landscaped areas.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

With the compliance with stormwater regulations, construction of detention and treatment systems, and implementation of Construction and OSM BMPs, no adverse effects to water quality or resources are anticipated.

3.6. LAND USE PATTERNS

This chapter of the Final EIS describes the existing land use conditions on the Harborview campus and vicinity and evaluates the potential land use impacts that could occur as a result of the FEIS Alternatives (Alternative 1 and Alternative 2) representing different maximum building heights and resulting development pattern under the proposed Harborview Major Institution Master Plan Major Amendment (MIMP Major Amendment). Land use conditions under the No Action Alternative are also evaluated.

AFFECTED ENVIRONMENT

Existing Harborview Campus

The Harborview campus encompasses approximately 13.6 acres and extends approximately 1,100 feet in a general east-west direction and approximately 900 feet in a general north-south direction. The overall campus topography is level, with a modest east to west slope. The area to the immediate west of the Harborview campus slopes more steeply downward to I-5. King County owns the entire campus.

The Harborview Medical Center campus is a prominent land use in the First Hill neighborhood and reflects an urban medical center land use character, with a mix of buildings with associated public streets, driveways, sidewalks, surface and structured parking, and landscaping. Currently, approximately 89 percent of the campus is in impervious surfaces such as buildings, surface parking, and roadways, with approximately 11 percent of the campus in pervious area such as landscaped areas. The campus currently contains 12 buildings ranging from three to 15 stories in height, with a combined total of approximately 2,080,908 sq. ft. in building space; characteristics of the existing buildings on the campus are summarized on **Table 19**.

The existing buildings on the Harborview campus are separate structures, including the multiple wings of the hospital complex (Center Tower, East Hospital, East Clinic, West Hospital, and West Clinic). This portion of the medical center contains most of Harborview's 540 licensed hospital beds (the Norm Maleng Building also contains hospital beds). A seven-story skybridge connects the Maleng Building to East Hospital. The Boren Garage, a five-level parking structure, is located within the MIO boundary on Boren Avenue between Terrance Street and Alder Street. Two buildings (the Pat Steel Building and the Childcare Center) are located outside the boundary of the campus.

Table 19: Existing Campus Building Characteristics

Existing Building	Building Area (Sq.Ft.)*	Building Levels	Building Height (ft.)
Hospital			
Center Tower	**255,442**	15 floors	176 ft
East Hospital	197,525	11 floors	144 ft
East Clinic	119,718	8 floors	135 ft
West Hospital	**306,794**	6 floors	84 ft
West Clinic	**184,191**	5 floors	78 ft
Ninth & Jefferson Building	764,347	14 floors	195 ft
Maleng Building	262,139	9 floors	150 ft
Harborview Hall	**90,799**	12 floors	132 ft
Research & Training Building	**181,930**	9 floors	135 ft
Firehouse	8,542	3 floors	35 ft
Security Building	8,093	2 floors	25 ft
Terrace Street Building (TSB)	5,616	1 floor	15 ft
Pat Steele Building**	287,824	5 floors	60 ft
Childcare Center**	5,706	1 floor	15 ft
View Park I Garage	106,890	2 floors	25 ft
View Park II Parking Garage/helipad	147,078	5 floors	60 ft
Boren Garage	**133,683**	5 floors	60 ft

Source: Harborview Medical Center, 2026.
*** Calculated as gsf, not as FAR **Not within the MIO boundary.**

The main public vehicular entrance to the Harborview campus is from 9th Avenue, which provides access for patients, visitors, emergency/service vehicles, and transit. A second major access from private roadway known as 8th Avenue provides access for emergency department patients, visitors, and emergency vehicles.

Surrounding Area

The Harborview campus is located within the City-designated First Hill/Capitol Hill Regional Center; regional centers are places of regional importance with substantial housing, office, retail, institutional, and/or cultural and entertainment uses along with access to regional transit. The immediate surrounding area is also within the First Hill/Capitol Hill Regional Center. The area surrounding the Harborview campus is a medium-to-high-density urban neighborhood.

Harborview is a prominent land use in the area; Virginia Mason Medical Center, Swedish Hospital Medical Center, and Seattle University are other prominent major institutions in the Harborview campus vicinity. Although medical and institutional uses are prominent in the area, the neighborhood also includes residential and commercial uses (see **Figure 15** for the map of the area land uses).

The general land use pattern of the area surrounding the Harborview campus is a largely built environment reflecting a mid- to high-rise urban character, with limited natural area. Prominent built features that influence the land use character of the area consist primarily of transportation routes, including Interstate 5 (I-5). I-5, the major north/south interstate vehicular travel corridor, is located approximately 300 feet west of the campus. Interstate 5 physically and visually separates the Harborview campus from downtown.

Broadway, a principal arterial in Seattle, is another major north/south vehicular travel corridor with associated commercial land uses, is located immediately east of the campus. Other built land uses in the vicinity include the Yesler Terrace neighborhood, a 30-acre housing and commercial master plan community with associated open space (including Yesler Terrace Park) to the south of Harborview.

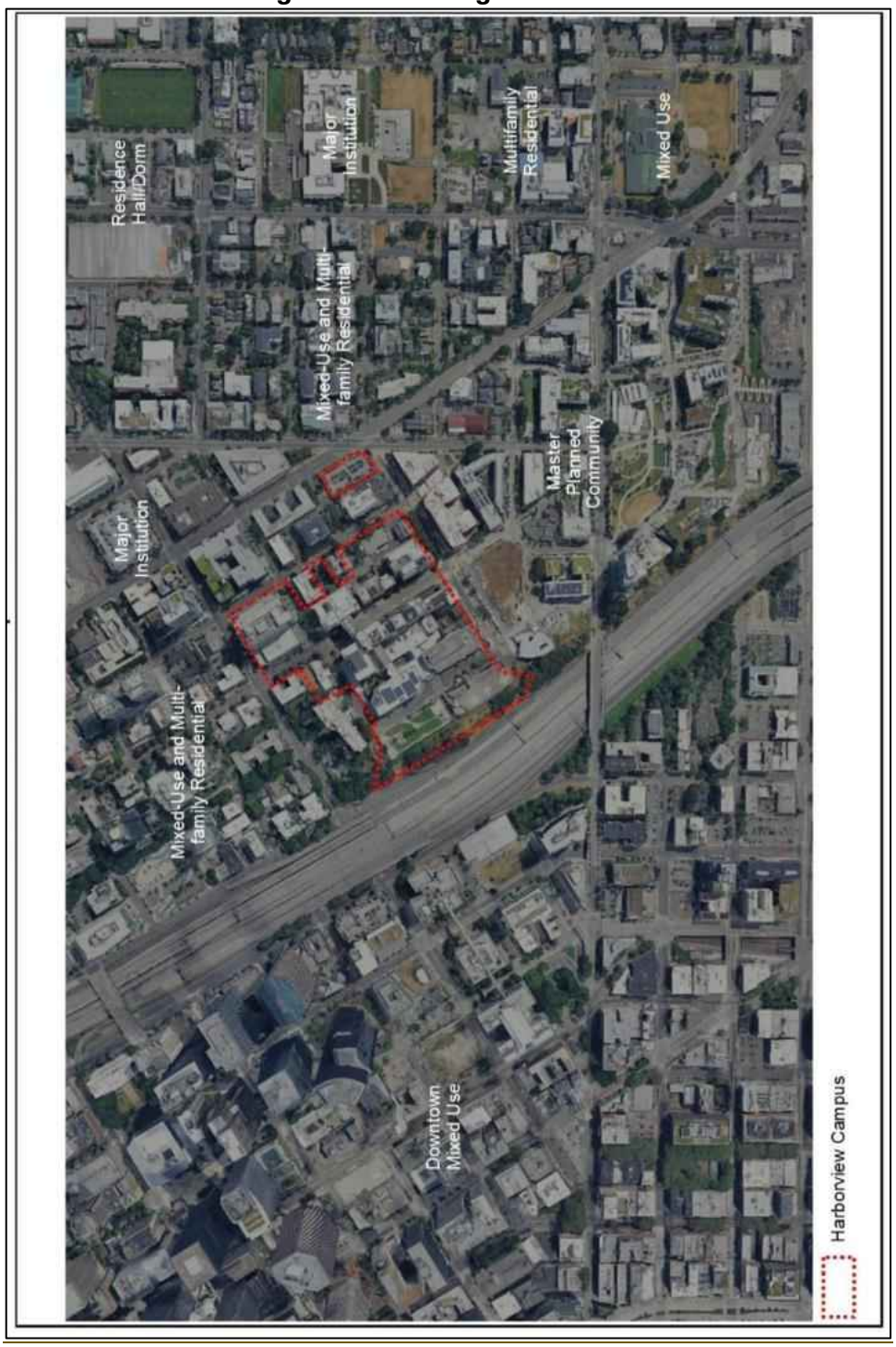
Land uses adjacent to the Harborview campus include[25]:

- **North:** Across Jefferson Street, is the 15-story Jefferson Terrace building (a multifamily residential structure operated by the Seattle Housing Authority) and several one- and two-story commercial buildings. Residential buildings, major institutional campuses (including Swedish Hospital, Virginia Mason, and Seattle University), and institutions such as museums (including the Frye Art Museum) and churches (Trinity Episcopal and St. James Cathedral) are further north. Prominent structures in this area include the approximately 24-story Murano residential building and the approximately 31-story Museum House residential building.

- **East:** East of Terry Avenue is primarily multifamily residential in character, with primarily three- to 11-story residential buildings. The area farther to the east, across Boren Avenue and Broadway contains a mix of office and residential uses, primarily in four- to six-story buildings.

[25] Note that because the Harborview campus orients in a southwest to northwest angle, the references to directions from campus are generalized as north, south, east and west to increase readability.

Figure 15: Existing Land Uses



- **South**: Across Alder Street, adjacent land uses are characterized by multifamily residential use primarily in six- to nine-story buildings; a four-story Kidney Center is also located to the immediate south. However, the relatively new Yesler Terrace zoning at Ch. 23.75 SMC allows significantly taller buildings than currently exist to house a variety of commercial and other nonresidential uses. Further to the south are residential and open space uses associated with the Yesler Terrace neighborhood. Prominent structures in this area include two approximately 24-story residential buildings located immediately south of Yesler Way.

- **West:** An undeveloped vegetated slope area owned by the Washington State Department of Transportation, with I-5 beyond. Further to the west, across I-5, is the downtown Seattle urban core with a mix of urban commercial and residential uses.

Existing Land Use Designations

Harborview Campus

The City of Seattle Comprehensive Plan (One Seattle Plan) identifies the Harborview campus as part of a Regional Center (First Hill/Capitol Hill Regional Center); the area to the north, east and south of the Harborview campus is also within this Urban Center (see **Figure 16**.). The Seattle growth strategy (including Regional Centers) indicates that all areas in the city have a role in accommodating future housing growth, employment growth, or both. The growth strategy also includes planning for transportation, utilities, parks and recreation, libraries and other public services to meet the anticipated growth and increased density throughout Seattle. The campus itself is designated "Major Institution."

The Harborview campus is located within the City's Major Institution Overlay (MIO) zone (see **Figure 17**). The purpose of the MIO is to: permit appropriate major institutional growth within boundaries while minimizing adverse impacts to the surrounding community; balance a major institution's ability to change and the associated public benefit with need to protect livability/vitality of adjacent neighborhoods; encourage concentration of major institution development on existing campuses; and, provide for the coordinated growth of major institutions through master plans (refer to the Relationships to Plans and Policies portion of this section for additional detail). The majority of the campus is zoned MIO-240 which includes a building height limit of 240 feet, with the campus area east of the alley between 9th Avenue and Terry Avenue zoned MIO-105 with a height limit of 105 feet. The campus's underlying zone is a mix of Highrise and Midrise, both high-density multifamily zones.

Figure 16: Comprehensive Land Use Map

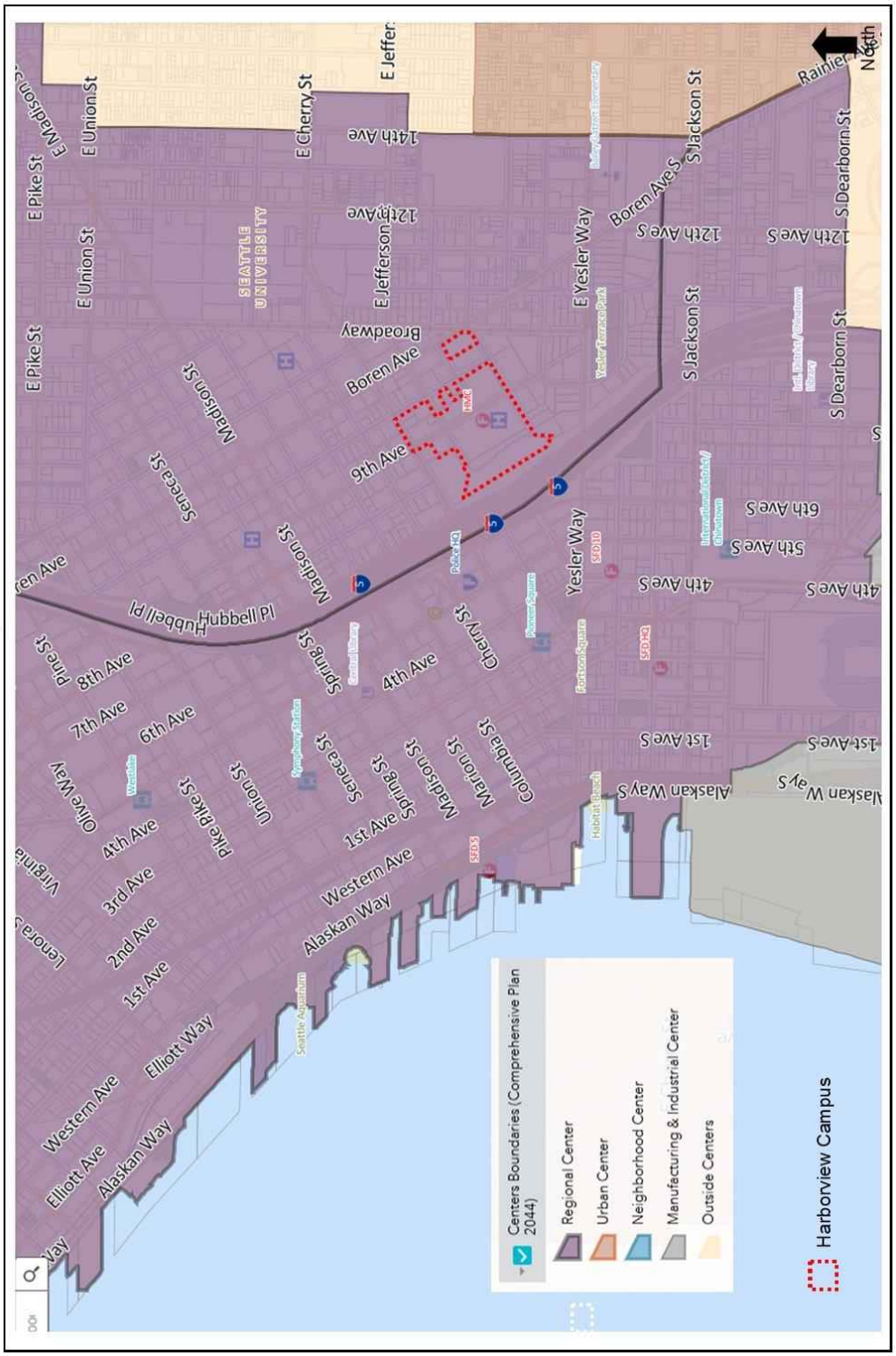
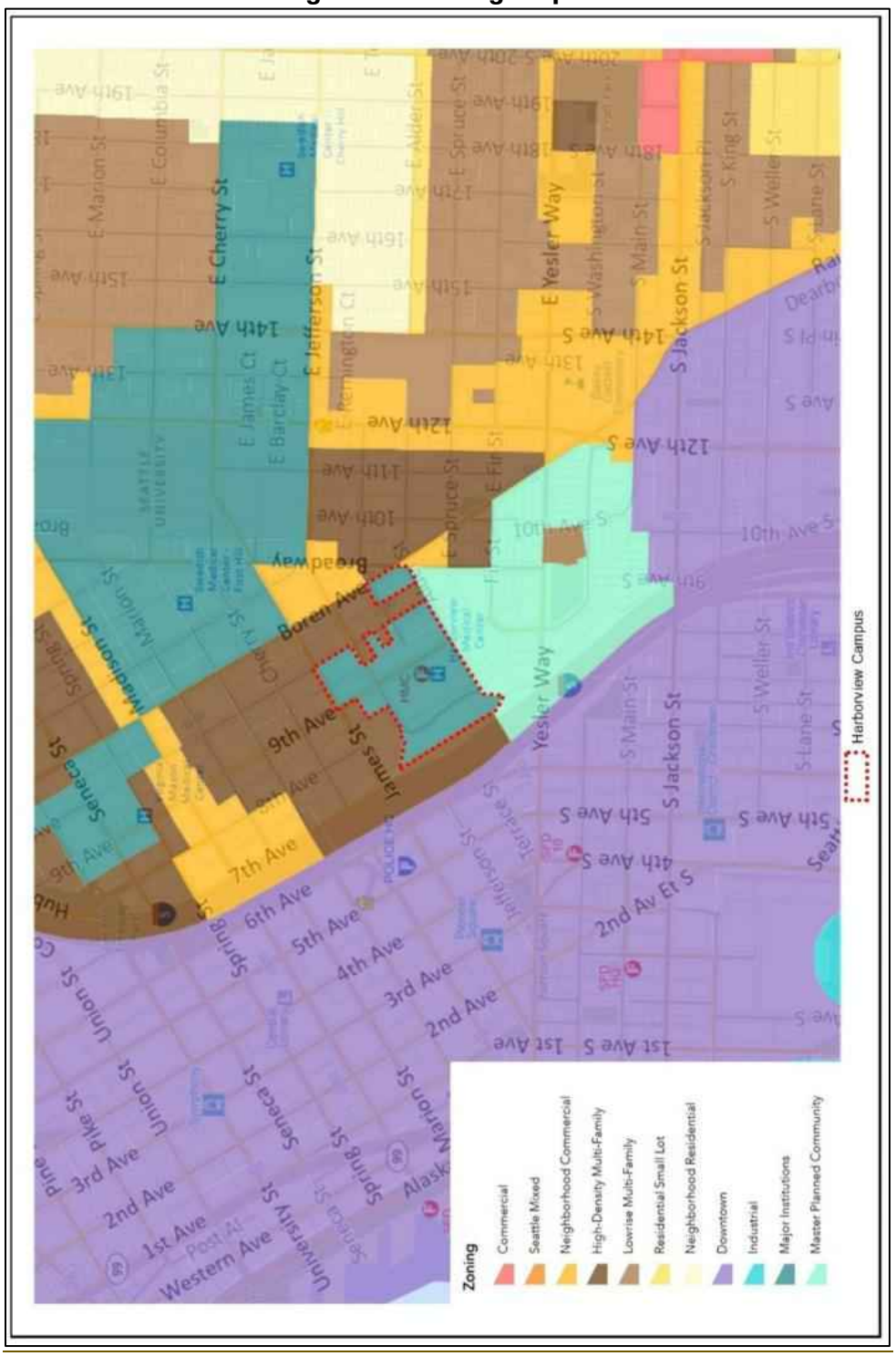


Figure 17: Zoning Map



Surrounding Area

The Comprehensive Plan identifies the area to the north, east and south of the Harborview campus as First Hill/Capitol Hill Regional Center (see **Figure 16**). The area surrounding the Harborview campus is zoned as follows: *to the north*- HR (Highrise – 440-foot height limit); *to the east* - HR, MR (Midrise – 80-foot height limit), and NC3 (Neighborhood Commercial – 75-foot height limit); *to the south* - MPC-YT (Master Planned Community; NW Sector – 300-foot height limit); *to the west* - HR-M; *farther to the west* – across I-5 – the downtown Seattle zoning consists primarily of DOC1 (Downtown Office Core - no height limit with allowable building height functionally limited by Federal Aviation Administration (FAA) regulations relating to flight paths for Harborview helicopters and Boeing Field aircraft) in the area of downtown generally north of Jefferson Street, and DMC-340/290-440 (Downtown Mixed Commercial – height limit up to 440) in the area of downtown generally south of Jefferson Street (see **Figure 17**).

IMPACTS

Summary - Overall, implementation of the level of development contemplated in the proposed *MIMP Major Amendment* would result in an intensification of uses on campus, replacement of some existing buildings, increase in building height, and increases in activity levels based on the increase in campus population (staff and visitors). The overall mix and types of land uses on the Harborview campus would not change under the *MIMP Major Amendment.*

This section identifies and analyzes potential impacts on existing land uses on the Harborview campus and in the surrounding area that could occur with proposed development under the EIS Alternatives. Land use impacts relate to temporary impacts during construction, displacement of existing uses, changes in the type, character or pattern of land use, relationship of Building Height to surrounding uses, and activity levels/relationship to surrounding uses. The potential for indirect impacts associated with increased pressure for off-site development and/or changes in the character of existing land uses in the area is also discussed.

Land use conditions associated with both *Planned Projects* and *Potential Projects* are analyzed in this section. Assumptions for *Planned Projects* and *Potential Projects* include:

Planned Projects:

- Planned Tower I.
- Demolition of View Park I Garage.

- Expansion of MIO District boundary.
- Provision of a new internal loop road.
- Height increase of MIO-240 zone west of 8th Ave. to 320-foot maximum.
- Increase in MIO FAR standards.
- Decrease in Open Space acreage standard

Potential Projects

- Seismic upgrade of Central Tower and Harborview Hall.
- Demolition of East Clinic.
- Demolition of View Park II Garage.
- New East Clinic.
- New Potential Tower II.
- New Multi-Use Building.
- Demolition and redevelopment of the Boren Garage.
- Potential future skybridge locations across multiple private roadways and public ROWs.

Alternative 1 – Proposed MIMP Amendment

Introduction

Alternative 1 would implement the proposed *MIMP Major Amendment,* including expanding the campus boundary, updating the MIO building height limit in a portion of the campus, adjustments to FAR and Open Space Development Standards, and adding up to approximately 1,629,208 sq. ft. of net new building space with both Planned and Potential Projects (in combination with existing buildings, the total building space on campus would be approximately 3,710,116 sq. ft. of building space on campus), and up to 540 licensed hospital beds (an increase from the current 540 licensed hospital beds) over the 20-year planning horizon. Up to approximately 515,462 sq. ft. of existing building space could be demolished under both Planned and Potential Projects.

The approximately 672,065 square feet of new net development with the Planned Projects would represent an approximately 32 percent increase in the amount of building space on campus, with the Planned new building focused on the western edge of campus.

In combination with the Planned Projects, development of the additional 1,001,620 square feet of new net space with the Potential Projects would result in a total of 1,629,208 net new space which would represent an approximately 78 percent increase in the amount of building space on campus.

It is anticipated that under Alternative 1 (including both Proposed and Planned development) approximately 81 percent of the campus would be in impervious surface (building footprint, paved driveway, sidewalks, paved plaza, etc.), with approximately 19 percent of the campus in pervious area (landscaped and open space area), compared to approximately 90 percent of the campus in impervious surface and 10 percent of the campus in pervious surface under current campus conditions.

Overall land use conditions would be the same under new Planned Tower I Design Options 1 and 2.

Planned Project Conditions

Construction Impacts

Planned Projects under the *MIMP Major Amendment* would result in the potential for temporary construction-related impacts to surrounding land uses. Site preparation, demolition of the View Park I Garage, construction of infrastructure (including the internal loop road), and construction of the Planned Tower I would primarily occur at the western edge of the Harborview campus and would result in periodic impacts to surrounding land uses (including dust, noise, and vibration) over the approximately 5-year development period for the Planned Projects.

Construction activities would occur incrementally over this time period and could result in temporary impacts to adjacent land uses, including the existing medical uses at Harborview to the immediate east, the adjacent Jefferson Terrace residential use to the immediate north, and uses associated with Yesler Terrace to the south. These construction-related land use impacts, however, would be temporary in nature and would cease once construction is complete, and would be conducted according to applicable regulations, including limits on construction hours. See Chapter 3.12 **Construction Impacts**, for more detailed information.

Displacement of Existing Uses

To accommodate the Planned Tower I, the existing parking spaces associated with the View Park I Garage would be demolished. During redevelopment associated with the Planned Projects, the displaced parking spaces would be replaced.

Existing vegetated slope area associated with the planned expansion of the MIO Boundary to the immediate west of campus, between the campus and I-5, would be cleared and graded to accommodate the planned internal loop roadway.

Land Uses

Land uses associated with Planned Projects within the Harborview campus are intended to provide a range of medical service uses similar to those currently on campus, and development of the Planned Projects assumed under Alternative 1 would not represent a change in the types of land uses or land use pattern on campus.

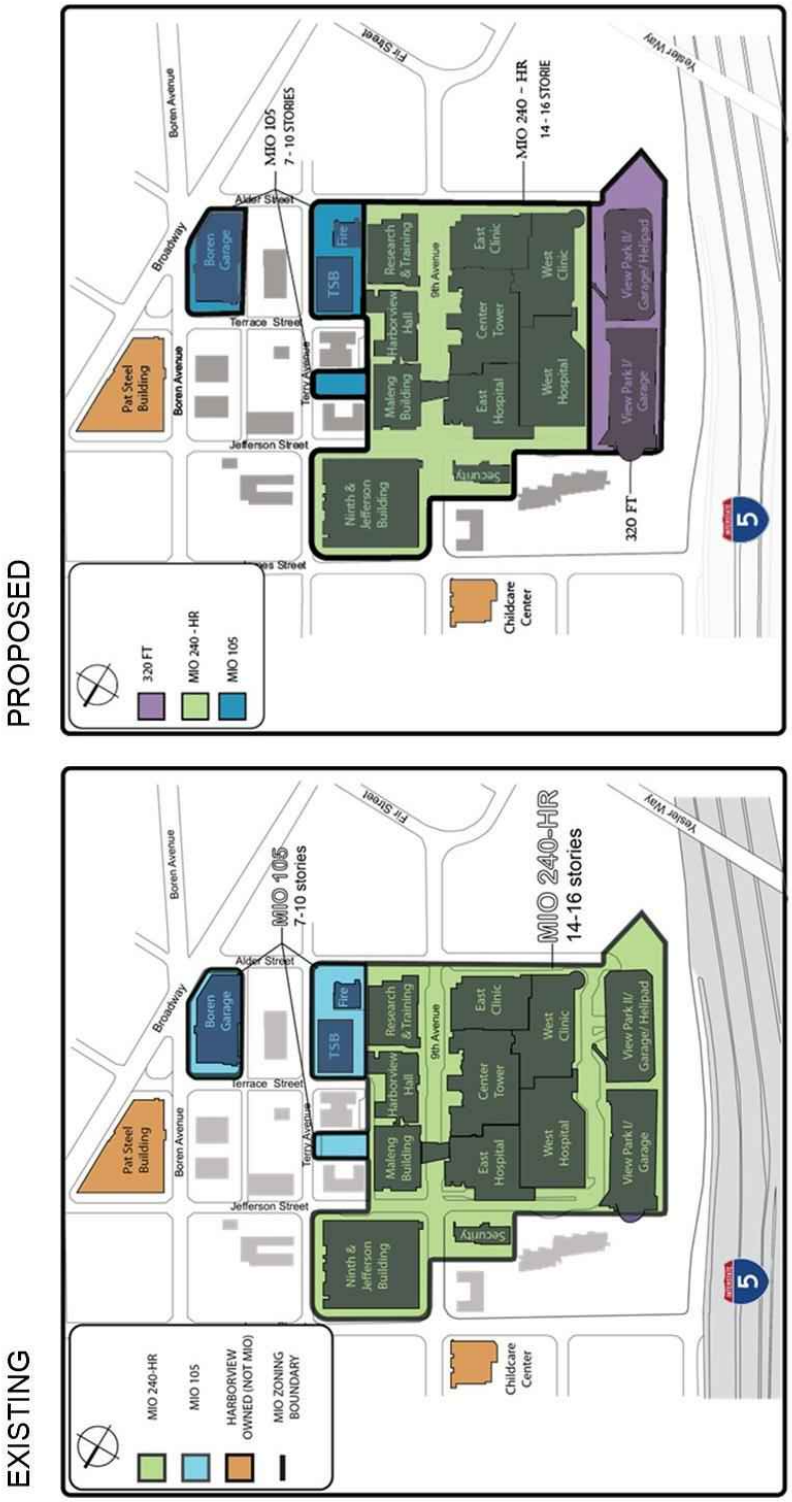
Building Height

Reflecting the proposed *MIMP Major Amendment*, Alternative 1 assumes the planned height increase for the MIO-240 zone west of private roadway known as 8th Avenue to a maximum of 320 feet. The proposed 320-foot height limit at the western portion of the campus would be consistent with the 440-foot height limit of the HR zone to the immediate north, and consistent with the 300-foot height limit of the MPC-YT to the immediate south. The proposed 320-foot height limit at the western portion of the campus would also be consistent with the 440-foot height limit associated with downtown Seattle to the west across I-5.

Figure 18 illustrates the planned building height overlay, along with the existing zoning building height limits for comparison.

Under Alternative 1, the Planned Tower I would be located in the area of the planned MIO-320 height district and is assumed to be developed to a height of 320 feet. Development of the Planned Tower I to the maximum height of 320 feet would result in a multistory building similar in character, but greater in height, than the existing multistory East Hospital, Central Tower, East Clinic, and Harborview Hall buildings on the Harborview campus to the immediate east.

Figure 18: MIO Height Increase



The planned 320-foot Planned Tower I would also be similar in nature, although taller than the approximately 15-story (approximately 180-foot tall) Jefferson Terrace Building across Jefferson Street to the immediate north. The Planned Tower I would be similar in height to several prominent structures farther to the north, across James Street, including the approximately 24-story (approximately 290 feet tall) Murano residential building and the approximately 31-story (370-foot tall) Museum House residential building.

The planned 320-foot Planned Tower I would be similar in height to the two approximately 24-story (approximately 285-foot tall) building towers associated with Yesler Terrace to the south.

The planned 320-foot Planned Tower I at the west edge of the Harborview campus would be separated from off-campus uses to the east (intervening existing Harborview buildings) and would not likely be perceived from land uses to the east of the Harborview campus. The Planned Tower I would be prominently visible from I-5 to the west and would generally appear as a continuation of the Seattle urban core. Refer to **Chapter 3.8** (Aesthetics, Light & Glare, and Shadows) for detail regarding views to campus development under the *MIMP Major Amendment*.

Although the planned 320-foot tall Planned Tower I would represent one of the taller buildings in the vicinity, the structure would be consistent with the existing high-rise urban character of the area, as well as the zoning capacity of the surrounding high rise, Yesler Terrace, and Downtown zoning districts, and would not be anticipated to result in significant land use impact.

Activity Levels/Relationship to Surrounding Uses

To provide upgraded healthcare services to the region, the Planned Projects identified in the MIMP Major Amendment would add approximately 672,065 square feet of net new building space to the campus (comprised of the approximately 671,220 square foot Planned Tower I and the approximately 845 square foot connecting skybridge), including 360 additional licensed hospital beds. Planned parking, access, and open space improvements would also be provided.

The increase in patient counts and employee headcounts associated with the planned new building space would result in an increase in campus population (both staff and visitors) that would increase the level of activity on campus, including increases in vehicular traffic and pedestrian movement, both on and off campus. The overall types and levels of activity would be similar to existing activity at the Harborview campus and would be compatible with the surrounding dense urban environment.

Indirect Land Use Conditions

Development of Planned Projects under the *MIMP Major Amendment* would result in increased population (staff and visitors) on the Harborview campus. Surrounding businesses may see an increase in demand for services as a result of increased campus population. The types of commercial uses that could experience increased demand include retail, restaurants, and personal services. The increase in the number of medical center staff could also increase demand for housing in the general vicinity of the campus. Any development in the surrounding area influenced by the increased Harborview campus population would be consistent with the Seattle Comprehensive Plan, zoning regulations and development standards and would not be anticipated to result in significant impacts.

Potential Project Conditions

Construction Impacts

Potential Projects under the *MIMP Major Amendment* would result in the potential for temporary construction-related impacts to surrounding land uses. Construction activities for the Potential Projects would include demolition of the existing East Clinic, Boren Garage, and View Park II Garage, seismic upgrades to the Center Tower and Harborview Hall buildings, development of two new buildings (Potential Tower II and New East Clinic), development of a new Boren Garage, development of future skybridges, and expansion of the WSB building.

Construction activities associated with Potential Projects would be distributed throughout the campus and could result in periodic impacts to surrounding uses, including: to the Kidney Center and Yesler Terrace residential uses to the south during demolition of the View Park II Garage and construction of the Potential Tower II; to residential uses associated with Yesler Terrace to the south during demolition and construction associated with the East Clinic; to office and residential uses to the east during demolition and construction associated with the Boren Garage; and, to residential uses to the north (including Jefferson Terrace) during construction associated with WSB expansion. These construction-related land use impacts, however, would be temporary in nature and would cease once construction is complete, and would be conducted according to applicable regulations, including limits on construction hours. See Chapter 3.12 **Construction Impacts**, for more detailed information.

Displacement of Existing Uses

In order to accommodate Potential New East Clinic, Potential Boren Garage, and Potential Tower II, the existing 119,718 square foot East Clinic, Boren Garage, and View Park II Garage would be demolished. In addition, the approximately 8,093 square foot Securities Building would be demolished to accommodate an approximately 62,000 square foot Multi-Use Building.

Land Uses

Land uses associated with Potential Projects within the Harborview campus are intended to provide a range of medical service uses similar to those currently on campus, and development of the Potential Projects assumed under Alternative 1 would not represent a change in the types of land uses or land use pattern on campus.

Building Height

The Potential Tower II would be located in the area of the planned MIO-320 height district and would be developed to a height of 320 feet. The Potential Tower II would be similar in character, but greater in height, than the existing West Clinic building on the Harborview campus to the immediate east and the off-campus Kidney Center building to the immediate south. The Potential Tower II would be of and similar in height to the residential building towers associated with Yesler Terrace to the south.

The relationship of the MIO 320-foot height limit in the western portion of campus with zoning height limits in the vicinity would be as described for Planned Projects. All other Potential Projects would be developed under the existing MIO-240 height district and would be consistent with the surrounding mid-rise/high-rise urban character.

The Potential Boren Garage Project would be developed consistent with the existing MIO-105 height limit and would be consistent with the surrounding mid-rise urban character.

Activity Levels/Relationship to Surrounding Uses

The increase in population associated with the Potential Projects in combination with the Planned Projects would be as described for the Planned Projects and would similarly result in an increase in campus population (both staff and visitors) that would increase the level of activity on campus, including increases in vehicular traffic and pedestrian movement, both on and off campus. The overall types and levels of activity associated with Potential Projects in combination with Planned Projects would be similar to existing activity at the Harborview campus and would be compatible with the surrounding dense urban environment.

Alternative 2 – Maximum Building Height of 240 Feet

Introduction

The majority of the *MIMP Major Amendment* assumptions under Alternative 2 are the same as Alternative 1, including campus boundary expansion, net new building space, floor area ratio, open space, vehicular access, and parking. The primary difference between Alternative 2 and Alternative 1 is that Alternative 2 assumes retention of the existing MIO height limits. Alternative 2 does not assume the MIO height limit increase from 240 feet to 320 feet in the western portion of campus assumed under Alternative 1.

As under Alternative 1, Alternative 2 assumes the 672,065 square feet of net new building space with the Planned Tower I (and connecting skybridge) and the Potential Projects total of approximately 1,001,620 net new square feet of building space (1,629,208 square feet combined net new building space with Planned and Potential Projects), and up to 360 new licensed hospital beds. The campus boundary expansion to the west and the associated internal loop road assumed under Alternative 1 are also assumed under Alternative 2.

Under Alternative 2 the amount of surface area on the campus associated with building footprint would be more than under Alternative 1 due to the lower 240-foot building height for the planned New Patient Building and the Potential Tower II which would require a larger building footprint and floor plate to accommodate the 671,220 square feet of building space associated with each tower under the *MIMP Major Amendment*.

Construction Impacts

As under Alternative 1, construction of the Planned and Potential Projects under the MIMP Major Amendment would result in the potential for temporary construction related impacts to surrounding uses. The locations of construction activities would be as described for Alternative 1, and the level of potential impact to surrounding land uses would be similar.

Displacement of Existing Uses

The location and amount of displacement of existing uses under Alternative 2 would be as described for Alternative 1 and would entail the demolition of approximately 515,462 square feet of existing building space with both Planned and Potential Projects under the *MIMP Major Amendment*.

Land Use

As under Alternative 1, land uses within the Harborview campus are intended to provide a range of medical service uses similar to those currently on campus, and development assumed under Alternative 2 would not represent a change in the types of land uses or land use pattern on campus.

Building Heights

Under Alternative 2, the planned MIO height increases from the existing 240-foot MIO height limit to a 320-foot MIO height limit for the portion of the campus west of private roadway known as 8th Avenue assumed under Alternative 1 would not occur. To accommodate the 671,220 square feet of net new building space for the Planned Tower I and the 671,220 square feet for the Potential Tower II, the towers under Alternative 2 with the retained 240-foot height limit would require a larger building footprints and larger floor plates than the Planned Tower I/New Tower under Alternative 1 with the 320-foot height limit.

The 240-foot tall Planned Tower I and Potential Tower II under Alternative 2 would be more similar in height to the Jefferson Terrace building to the immediate north and the existing Harborview buildings to the east than the 320-foot tall Planned Tower I under Alternative 1. As under Alternative 1, the 240-foot Planned Tower I/Potential Tower II would be consistent with the existing high-rise urban character of the area and would not be anticipated to result in significant land use impact.

The potential building development associated with the New East Clinic, Boren Garage, and New Multi-Use Building would be as described for Alternative 1 and would be consistent with the urban character of the surrounding area.

Activity Levels/Relationship to Surrounding Uses

Alternative 2 would generate similar activity levels as described for urban land use Alternative 1 and would similarly result in an increase in campus population (both staff and visitors) that would increase the level of activity on campus, including increases in vehicular traffic and pedestrian movement, both on and off campus. The overall types and levels of activity associated with Alternative 2 would be similar to existing activity at the Harborview campus and would be compatible with the surrounding dense urban environment.

Indirect Land Use Conditions

Development of the Planned/Potential Projects under Alternative 2 would result in increased population (staff and visitors) on the Harborview campus with the potential to increase pressure for development in the vicinity, similar to that under Alternative 1. Any development in the surrounding area influenced by the increased Harborview campus population would be consistent with Seattle zoning and development standards and would not be anticipated to result in significant impacts.

No Action Alternative

The No Action Alternative assumes that the demand for health care services in the region will continue. However, Planned Projects and certain Potential Projects would not occur, including changes to campus boundary, building height overlay, net new building space (including 1,629,208 square feet of net new building space), and vehicular access improvements, and land use impacts associated with these improvements would not occur. The No Action Alternative anticipates that the remaining campus building capacity under the 1999 Master Plan would be developed, including demolition of the East Clinic, demolition of the WSB, and construction of the Multi-Use Building which could result is some impacts to adjacent uses.

MITIGATION MEASURES

Implementation of the proposed design guidance and development standards in the proposed *MIMP Major Amendment* would minimize potential land use impacts. These standards include, but are not limited to building setbacks at campus edges, visual screening with landscaping at campus edges, the provision of open spaces on campus etc.

UNAVOIDABLE ADVERSE IMPACTS

Under Alternatives 1 and 2, intensification in land uses on the Harborview campus would occur as a result of increased density and increased building heights (under Alternative 1). Given the existing urban land use character of the area and with proposed mitigation measures, significant unavoidable land use impacts are not anticipated.

CONSISTENCY WITH PLANS, POLICIES, AND REGULATIONS

This section provides a discussion on the relationship of the proposed *Harborview Bond Program Major Amendment to the 1999 Major Institution Master Plan* (*MIMP Major Amendment*) with existing, relevant plans, policies, and regulations. The following plans, policies and regulations are discussed in this section:

- Washington State Growth Management Act
- Puget Sound Regional Council Vision 2050
- City of Seattle SEPA Policies
- City of Seattle Comprehensive Plan (One Seattle Plan)
- First Hill Neighborhood Plan
- City of Seattle Land Use Code

Washington State Growth Management Act

Summary: The Growth Management Act (GMA) (RCW 36.70A), adopted in 1990 and subsequently amended, provides a comprehensive framework for managing growth and coordinating land use planning with the provision of infrastructure. The general goals of the GMA include, in part: directing growth to urban areas; reducing sprawl; encouraging economic development consistent with adopted comprehensive plans; protecting private property rights; providing efficient multi-modal transportation systems; encouraging a variety of housing types and densities affordable to all economic segments of the population; protecting the environment; and ensuring that public facilities and services necessary to support development meet locally established minimum standards at the time development is in place (RCW 36.70A.020).

Jurisdictions subject to GMA must prepare and adopt countywide planning policies; comprehensive plans containing policies with specific elements for land use, transportation, housing, capital facilities, utilities, rural lands, and economic development; and development regulations implementing those plans. The GMA requires that each city and county in Washington comprehensively review and revise its comprehensive plan and development regulations as necessary every seven years to ensure that they comply with the GMA.

Discussion*:* Consistent with the GMA, the City of Seattle has adopted a Comprehensive Plan and implemented regulations to guide future development and fulfill the City's responsibilities under the GMA (the Comprehensive Plan was most recently substantially updated in December 2025 with the adoption of the City's One Seattle Plan). EIS Alternative 1 (Proposed *MIMP Major Amendment*) and Alternative 2 (Maximum Building Height of 240'), as described in Chapter 2 of this Draft EIS, would satisfy several of the GMA goals, including: directing growth to urban areas (Harborview is located in Seattle, an urban area) and ensuring that public facilities and services necessary to support development meet locally established minimum standards at the time development is in place. The relationship of the EIS alternatives to the One Seattle Plan is discussed in greater detail later in this sub-section.

Puget Sound Regional Council Vision 2050

Summary: VISION 2050 (updated in 2020) is the long-range growth management, and economic and transportation strategy for the central Puget Sound region encompassing King, Kitsap, Pierce, and Snohomish counties. VISION 2050 provides a regional framework for achieving the goals of the GMA and meets the multi-county planning requirements of the GMA for these counties. The vision is for diverse, economically, and environmentally healthy communities framed by open space and connected by a high-quality, multimodal transportation system that provides effective mobility for people and goods. VISION 2050 calls for locating development in urban growth areas--focused on Metropolitan, Core and Larger Cities and their Urban Centers--so services can be provided efficiently, and farmlands, forests and other natural resources are conserved.

Discussion: Alternative 1 and 2 would be consistent with VISION 2050 because it would continue to provide denser development within a Metropolitan City (Seattle) and Urban Center (First Hill/Capitol Hill Urban Center). The proposed *MIMP Major Amendment* would also provide Harborview with additional capacity to provide medical services to meet the needs of the region in the future.

City of Seattle SEPA Policies

Summary: The City of Seattle's environmental policies and procedures that adopt the State of Washington environmental requirements are established in Seattle Municipal Code (SMC) Chapter 25.05. The City's SEPA Rules provide the legislation and requirements to identify and mitigate potential environmental impacts for certain projects. The City's review under SEPA is intended to identify impacts that would occur as a result of construction and operation of a project, and when existing codes are not sufficient or there are no codes to mitigate impacts, SEPA is utilized to minimize and mitigate those impacts. The SEPA Rules identify procedures and policies specific to each environmental element, including Air Quality, Construction Impacts, Drainage, Earth, Energy, Environmental Health, Height/Bulk/Scale, Historic Preservation, Housing, Land Use, Light and Glare, Noise, Plants and Animals, Public Services and Facilities, Public View Protection, Shadows, Transportation, and Water Quality (SMC 25.05.675).

Discussion: In accordance with City of Seattle SEPA Rules, the Lead Agency for the proposed MIMP Major Amendment is King County (SMC 25.05.924 and 25.05.926) which has determined that an EIS is required to evaluate the proposed action (SMC 25.05.330). A public scoping process was completed for the EIS in accordance with SMC 25.05.408 which included a public comment period from April 10, 2025, through May 1, 2025; a public scoping meeting was also held on April 24, 2025.

This Draft EIS addresses the probable significant adverse impacts that could occur as a result of the proposed MIMP Major Amendment and has been prepared in accordance with the City's policies and procedures for an EIS (SMC 25.05.420-455).

Approval of the proposed MIMP Major Amendment is classified as a non-project action under SEPA (also referred to as a programmatic action), which is an action that is broader than a single site-specific project, and involves decisions on policies, plans, or programs. An EIS for a non-project action does not require site-specific analysis but instead addresses conditions at a more general level (SMC 25.05.443 and WAC 197-11-442). However, this Draft EIS also includes detailed project-level information and analysis associated with the Planned Tower I project on the View Park I site.

City of Seattle Comprehensive Plan

Summary: The City of Seattle Comprehensive Plan provides the overall goals and identifies land use patterns for the city. The relationship of the EIS alternatives to relevant goals and policies of the Comprehensive Plan is provided below.

The City of Seattle's Comprehensive Plan, Toward a Sustainable Seattle, was first adopted in 1994 to meet the requirements of GMA; the Comprehensive Plan has been amended every year since its adoption and was most recently substantially updated in December 2025 with the adoption of the City's One Seattle Plan.

The One Seattle Plan consists of 14 major elements: growth strategy, land use, transportation, housing, capital facilities, utilities, economic development, climate and environment, parks and open space, arts and culture, community involvement, container port, shoreline areas, and public safety.

Each element contains goals and policies that are intended to guide development of the City in the context of regional growth management for the next 20 years. While each element affects development within the City, the following elements are the most relevant to the MIMP Major Amendment and EIS alternatives: Growth Strategy Element, Land Use Element, and Capital Facilities Element.

Growth Strategy Element

GS 1.9 – Coordinate planning for transportation, utilities, parks and recreation, libraries and other public services to meet the anticipated growth and increased density throughout Seattle.

GS 1.10 – Focus public investments to meet current and future needs, which includes supporting areas experiencing or planned for residential and employment growth, particularly in designated centers, and addressing current inequalities and areas of historical under-investment.

GS 3.2 – Recognize and plan for the unique role and character of different neighborhoods within large regional centers, particularly Downtown.

GS 3.4 – Allow a wide range of non-residential uses in Regional Centers, including office, retail, institutional, and entertainment uses. Regional Centers should contain most of Seattle's office development.

Discussion: The Harborview campus is located within the First Hill/Capitol Hill Regional Center as designated in the One Seattle Plan. Regional Centers are described as places with an important regional role with substantial housing, office, retail, institutional, and/or entertainment uses and access to regional transit. As the only Level 1 trauma center in a four-state region (Washington, Alaska, Idaho and Montana),

Harborview serves a regional, comprehensive healthcare facility that provides a wide range of critical medical and behavioral health services for the City of Seattle and surrounding region. Development under Alternatives 1 and 2 would coordinate planning for Harborview through amendments to the existing MIMP and allow Harborview Medical Center to continue to operate and grow to serve the growing population of the City of Seattle and surrounding regions.

GS 8.1 – Designate as Major Institutions the campuses of regionally important hospitals, colleges, and universities that develop Major Institution Master Plans.

GS 8.2 – Allow Major Institution Master Plans to guide development in these areas, rather than the underlying zoning.

GS 8.4 – Prioritize growth within existing Major Institutions boundaries over the expansion of established boundaries.

Discussion: Consistent with the One Seattle Plan, the proposed *MIMP Major Amendment* provides a long-term, phased development plan that is intended to allow Harborview Medical Center to continue to serve a growing population in the region and meet anticipated medical facility needs in the future.

It increases Harborview's surge capacity during a mass casualty event, increases the number of emergency rooms, upgrades patient rooms, increases capacity for clinical and behavioral health services, and seismically stabilizes existing buildings. Through the *MIMP Major Amendment*, Harborview proposes several modifications to existing underlying zoning requirements in order to accommodate planned and potential development under MIMP, including increases in maximum building heights (increase in the MIO-240 zone west of private roadway known as 8th Avenue to a maximum of 320 feet) and increases in floor area ratio (FAR) from the existing allowable FAR of 3.6 to a FAR of up to 6.5. The allowance of an increase in maximum building height and FAR would prioritize building development on the campus within the existing, established MIMP boundary.

However, it should be noted that Harborview currently operates four facilities outside of the MIO District boundary (Childcare Center, Pat Steele Office Building, Pioneer Square Clinic, and Hobson Clinic) and has recently acquired a site at Ninth & Alder to construct a medical office building in the near future. This project will be located outside of the MIO District Boundary but will not require MIO expansion and will comply with all requirements of SMC 23.69.022 and the Yesler Terrace Master Planned Community.

The proposed *MIMP Major Amendment* does also include an expansion of the campus boundary between the west edge of the current campus and I-5. WSDOT has agreed to convey this property to King County for inclusion into the MIO boundary to allow for the provision of a new internal loop ring road on the campus. The acquisition and expansion of the boundary would increase the land area within the MIO district by 108,535 square feet.

Alternative 2 would propose the same features as Alternative 1 (campus boundary, floor area ratio, new building space, vehicular access, etc.) with the primary change being that the maximum campus building heights would remain at 240 feet. This would result in bulkier tower building development that would generally occupy more land area on the campus.

Land Use Element

LU 1.2 – Support a wide variety of businesses and institutions in neighborhoods throughout Seattle, especially those that meet the everyday needs of residents.

LU 2.2 – Design public facilities to emphasize physical and visual connections to Seattle's natural surroundings with special attention to public vistas of shorelines, Mount Rainier, the Olympic Mountains, and the Cascade Range.

LU 2.9 – Encourage the preservation of characteristics and features that contribute to communities' multiple identities, including areas of historic, architectural, cultural, or social significance.

LU 2.17 – Consider taller building heights in key locations to define activity centers such as near light rail stations in Regional and Urban Centers.

Discussion: Under the proposed *MIMP Major Amendment*, development of the Planned Tower I in the footprint of the View Park I garage would result in an impact on views from the existing designated viewpoint that is located on the campus. Existing views from this location include Mount Rainier, Puget Sound, and portions of the Olympic Mountains. See the Aesthetics - Views section of the EIS for more detailed information.

The City has designated the East Hospital Center Wing Tower as a City of Seattle Landmark and a Controls and Incentives Agreement has been approved by the Landmarks Preservation Board. This building would be retained on campus under the proposed *MIMP Major Amendment*. While seismic upgrades are proposed for this building, these upgrades would be consistent with the guidelines set forth by the Landmarks Preservation Board.

Under Alternative 1, the proposed *MIMP Major Amendment* includes increases in maximum building heights (increase in the MIO-240 zone west of private roadway known as 8th Avenue to a maximum of 320 feet). With its location in a designated Regional Center, the increase in building height would be consistent with the policy of considering taller buildings in Regional Centers. Alternative 2 would maintain the maximum building height for the campus at 240 feet.

LU G15 – Major Institution Overlays (MIOs) support the functions and benefits that major institutions provide the city and the region, including health care, educational services, and significant employment opportunities, while mitigating the adverse impacts associated with their development and geographic expansion.

LU 15.1 – Support the coordinated growth of major institutions through the creation of MIO districts and development of conceptual master plans to guide development in these areas. Use a master plan process to identify development standards for the overlay district that are specifically tailored to the major institution and surrounding area.

LU 15.2 – Allow MIOs to modify underlying zoning provisions and development standards, including use restrictions and parking requirements, in order to accommodate the changing needs of major institutions, provide development flexibility, and encourage a high-quality environment.

LU 15.3 – Balance the need for major institutions to grow and change with the need to maintain the livability and viability of neighboring areas.

LU 15.4 – Prioritize growth within existing boundaries over the expansion of established boundaries.

Discussion: Harborview Medical Center provides benefit to the City and region as one of the nation's leading academic medical centers and the only Level 1 trauma center in a four-state region (Washington, Alaska, Idaho, and Montana). The proposed *MIMP Major Amendment* provides a long-term, phased development plan for the Harborview Medical Center campus to meet the future needs of the medical center and the future demand of a growing population in the region.

Harborview proposes several modifications to existing underlying zoning requirements as part of the *MIMP Major Amendment* to accommodate planned and potential development under the MIMP, including increases in maximum building heights (increase in the MIO-240 zone west of private roadway known as 8th Avenue to a maximum of 320 feet) and increases in floor area ratio (FAR) from the existing allowable FAR of 3.6 to and FAR of up to 6.5. Alternative 2 would maintain the maximum building height of 240 feet.

The allowance of an increase in maximum building height and FAR would prioritize building development on the campus within the existing, established MIMP boundary. However, it should be noted that the proposed *MIMP Major Amendment* does include an expansion of the campus boundary between the west edge of the current campus and I-5. WSDOT has agreed to convey this property to King County through a lease or purchase for inclusion into the MIO boundary to allow for the provision of a new internal loop ring road on the campus.

As the campus develops, prioritizing hospital connectivity is an important consideration, and the proposed loop road would be constructed to the west of the Planned Tower I and View Park II Garage to provide new access through the campus. The acquisition and expansion of the boundary would increase the land area within the MIO district by 108,535 square feet. In addition, to enhance hospital connectivity, the proposed *MIMP Major Amendment* identifies potential future skybridge locations across multiple private roadways and public rights-of-way.

LU 15.5 – Encourage community involvement in the development, monitoring, implementation, and amendment of major institution master plans, including the establishment of advisory committees that include community and major institution representatives.

Discussion: The planning process associated with the proposed *MIMP Major Amendment* has involved a considerable amount of public involvement to encourage broad participation. Consistent with the City's Land Use Code, King County and the Harborview Bond Team, with the help of Seattle Department of Neighborhoods (SDON) [This work is now managed by the staff in the Office of Planning and Community Development (OPCD) since January 1, 2026.], established an Advisory Committee during the preparation of the *MIMP Major Amendment.*

From September 2022 to June 2023, the Harborview Bond Team met with the Advisory Committee to present, review, and solicit input on issues related to proposed amendments to MIO boundary expansion, FAR, building height, open space percentage, parking and traffic circulation, as well as Planned and Potential Projects, and the anticipated schedule of development.

The result of these meetings was a unanimous Advisory Committee vote, followed by a letter of support for the *MIMP Major Amendment*. Since then, meetings have been held on an as needed basis. A public scoping meeting was also conducted on April 24, 2025, as part of the EIS Scoping process associated with this Draft EIS, and additional meetings are planned throughout the remainder of the MIMP and EIS process.

LU 15.8 – Establish parking requirements in each MIO district to address the needs of the major institution, reduce parking demand in nearby areas, minimize unnecessary traffic in surrounding areas, and limit the use of single-occupant vehicles.

LU 15.9 – Use a transportation-management program to reduce the number of vehicle trips to the major institution and to limit the adverse impacts of traffic and of institution-related parking on surrounding streets, especially residential streets. Strive to reduce the number of single-occupant vehicles used for trips to and from major institutions, especially at peak times. Allow short- or long-term parking space requirements to be modified as part of a transportation management program.

Discussion: To support further development of the Harborview campus, the proposed *MIMP Major Amendment* identifies additional parking needs that would be provided on campus. Up to a maximum of 3,301 parking stalls would be provided on the campus as part of Planned and Potential Projects (an increase of up to 1,891 stalls). Parking would continue to be concentrated in structured parking stalls, including within the Planned Tower I. Additional parking would be constructed in phases as development occurs on the campus.

A Transportation Management Plan (TMP) will be part of the *MIMP Major Amendment* and would include programs and strategies applicable to medical personnel, faculty, and staff that are designed to reduce parking and traffic demands associated with projected growth at Harborview. The *MIMP Major Amendment* proposes a 32 to 33 percent single occupancy vehicle (SOV) goal for the daytime campus population. The TMP defines programs included in the Transportation and Parking Element of the Master Plan per SMC 23.69.030.F and also identifies a list of potential measures that Harborview could implement if the SOV target is not met.

LU 15.10 – Encourage housing production and preservation within MIO districts and limit impacts on housing in surrounding areas. Discourage conversion or demolition of housing within a major institution's campus, allowing it only when the institution needs to expand or when the institution replaces the lost housing with new housing. Prohibit the demolition of non-institutional housing for replacement by principal-use parking that is not necessary to meet the parking requirement. Prohibit development by a major institution outside the MIO district boundaries when it would result in the demolition or conversion of residential buildings into nonresidential uses, unless authorized by an adopted master plan.

Discussion: Planned and potential development under the proposed *MIMP Major Amendment* will not result in the conversion or demolition of existing housing.

Capital Facilities Element

CF 1.1 – Identify new or improved capital facilities needed to support the location and intensity of housing and employment growth anticipated in the growth strategy.

CF 3.5 – Adapt existing capital facilities to better meet the needs of an increasingly diverse population.

CF 4.5 – Manage existing capital facilities to maintain healthy and safe conditions for occupants, users, neighboring businesses, and residents.

CF 5.1 – Collaborate with other public and nonprofit organizations to construct or expand community-based facilities or public amenities.

CF 5.3 – Join with other jurisdictions in King, Snohomish, Pierce and Kitsap counties to explore regional funding strategies for capital facilities, especially those that serve or benefit residents regionwide.

Discussion: The proposed *MIMP Major Amendment* would allow Harborview Medical Center to continue to address health care needs associated with regional/local population growth, demographic changes of an aging population, evolving academic needs, upgrading older health care facilities and increasing operational efficiencies.

The proposed *MIMP Major Amendment* furthers the commitment of Harborview Medical Center, King County, and the University of Washington to provide safe and sufficient facilities for the highest quality of health care, teaching, research, and community services. Development of Planned and Potential Projects under the *MIMP Major Amendment* would allow Harborview Medical Center to continue to meet the needs of a growing, diverse population throughout its service region.

City of Seattle First Hill/Capitol Hill Regional Center Plan and First Hill Neighborhood Plan

Summary: The Harborview campus is located within the current boundaries of the First Hill Neighborhood area and the First Hill/Capitol Hill Regional Center. The existing First Hill Neighborhood Plan was adopted in 1998. The City is currently working on a draft plan for the First Hill/Capitol Hill Regional Center. The following goals/policies and vision/recommendations from the First Hill Neighborhood Plan are the most applicable for the proposed MIMP Major Amendment.

FH-G1 – A community with a culturally and economically diverse residential population, that is also a major employment center, home to many of the region's state-of-the-art medical centers and related facilities.

FH-P5 – Encourage major institutions and public projects to work to preserve, maintain, and enhance important qualities of the neighborhood plan i.e., open space, housing, and pedestrian environment.

FH-P20 – Seek to resolve transportation and parking problems associated with being both a major medical employment center and a residential urban center village and improve the environment for pedestrians.

First Hill Vision 2 – A regional center for state-of-the-art health services.

First Hill Vision 4 – A premier city neighborhood with opportunities to grow.

First Hill Vision 5 – A premier business and employment center with opportunities to grow.

First Hill Economic Development Goal 1 – Continue to promote First Hill as a regional center for state-of-the-art health services.

As noted above, the City of Seattle's One Seattle Comprehensive Plan designates Regional Centers which are home to a significant share of Seattle residents and workers. The Harborview campus is located within the First Hill/Capitol Hill Regional Center and the City is currently in the process of developing a plan for this regional center which will include place-specific policies for a 20-year vision for the area to accommodate future growth and become more equitable, vibrant, and resilient.

Discussion: Harborview Medical Center is a comprehensive regional healthcare facility that provides a wide range of critical medical and behavioral health services, while also serving as one of the nation's leading academic medical centers. Its location within the First Hill/Capitol Hill Regional Center continues to fulfill the vision and goal for the regional center to serve as a center for state-of-the-art health services. Planned and potential development under the proposed *MIMP Major Amendment* would allow Harborview Medical Center to continue to address the healthcare needs of a growing local and regional population while also providing necessary upgrades for older healthcare facilities and increasing operational efficiencies.

Under Alternative 1, the proposed *MIMP Major Amendment*, Harborview would lower the current open space requirement from 20 percent to 12 percent. However, the 12 percent open space requirement would meet or exceed open space requirements at similar Major Institution Medical Centers in the First Hill Neighborhood. Open space and landscaping would be developed as part of individual Planned and Potential Projects and would contribute to the broader integration of the campus into adjacent neighborhoods.

The proposed *MIMP Major Amendment* identifies additional parking needs that would be provided on campus. Under Alternatives 1 and 2, up to a maximum of 3,301 parking stalls would be provided on the campus as part of Planned and Potential Projects (an increase of up to 1,891 stalls). Parking would continue to be concentrated on structured parking stalls, including within the Planned Tower I.

Additional parking would be constructed in phases as development occurs on the campus. A TMP would also be provided as part of the proposed *MIMP Major Amendment* and would include programs and strategies applicable to medical personnel, faculty, and staff that are designed to reduce parking and traffic demands associated with projected growth at Harborview.

City of Seattle Land Use Code

Summary: The City of Seattle Department of Construction and Inspections (SDCI) administers the Land Use Code that regulates the type and scale of development within the City. The following is an overview of the zoning and development code requirements for the proposed MIMP Major Amendment, together with discussion of project consistency with these regulations.

The Land Use Code establishes the Major Institution Overlay District for the purpose of balancing the "Major Institution's ability to change and the public benefit derived from change with the need to protect the livability and vitality of adjacent neighborhoods."

Another key consideration of the MIO is to "accommodate the changing needs of major institutions and provide flexibility for development…." Seattle's Land Use Code states that "development standards for Major Institution uses within the Major Institution Overlay District may be modified through adoption of a Major Institution Master Plan."

Because Harborview Medical Center is one of the 13 recognized major institutions within the City of Seattle, the campus has basic zoning designations, as well as overlay designations. In general, the underlying zoning designation for the majority of the Harborview campus is Highrise multifamily (HR[M]) with an MHA suffix and Midrise multifamily (MR[M]) with an MHA suffix. Under the existing MIMP, the Harborview campus contains two overlay zoning designations. MIO-105 allows a maximum height of 105 feet for the eastern portion of the campus and MIO-240 allows a maximum height of 240 feet along the western portion of the campus.

Existing building setbacks along the perimeter of campus, as defined by the 1999 MIMP, include a 10-foot setback along the northern, southern, and portions of the east campus boundaries, 5-foot setbacks along the majority of the remaining eastern and northern campus boundaries, and no setbacks along the interior of the campus along private roadway known as 8th Avenue and 9th Avenue, as well as the western campus boundary. Land within the MIO district is subject to the regulations and requirements of the underlying zoning, unless specifically modified by an adopted MIMP.

Seattle's Land Use Code states that "development standards for Major Institution uses within the Major Institution Overlay District may be modified through adoption of a Major Institution Master Plan." The following is a brief comparison between the key provisions of the development standards associated with the underlying zones and changes in development standards that are proposed as part of the MIMP Major Amendment.

Zoning – As noted previously, the underlying zoning for the majority of the Harborview campus is Highrise multifamily (HR[M]) with an MHA suffix and Midrise multifamily (MR[M]) with an MHA suffix. Currently, the maximum height limit in the HR(M) zone is 440 feet and the MR(M) is 80 feet. The existing MIMP for the Harborview campus contains two overlay zoning designations: MIO-105 allows a maximum height of 105 feet for the eastern portion of the campus and MIO-240 allows a maximum height of 240 feet along the western portion of the campus.

Discussion: The proposed MIMP Major Amendment would include a revision to the existing MIO zones to include increases in maximum building heights under Alternative 1 which would increase the MIO-240 zone west of private roadway known as 8th Avenue to a maximum of 320 feet; under Alternative 2, maximum building heights would remain at 240 feet.

Increases in building height to 320 feet would be consistent with the underlying zone in the surrounding area. Development of Planned and Potential Projects located in areas identified for increased building heights, including Planned Tower I and Potential Tower II, would be designed to be up to 320 feet in height. These planned and potential buildings would be similar in height to several prominent buildings in the vicinity, including the approximately 290-foot-tall Murano residential buildings and the approximately 370-foot-tall Museum House residential building.

Increases in floor area ratio (FAR) from the existing allowable FAR of 3.6 to a FAR of up to 6.5 are also proposed. The allowance of an increase in maximum building height and FAR would prioritize building development on the campus within the existing, established MIMP boundary and allow Harborview to develop sufficient new building space in the future as part of Planned and Potential Projects to accommodate future healthcare needs for residents of King County and the region.

Density – Per the Seattle Land Use Code, density is limited to the maximum developable gross floor area and an overall maximum floor area ratio (FAR) for the MIO district. FAR is a measure of the amount of gross floor area to lot area and the density for Harborview Medical Center is measured on a campus-wide basis based on the overall FAR of the buildings. The existing allowable FAR that is established in the 1999 MIMP is 3.6.

Discussion: As noted above, the 1999 MIMP establishes an existing allowable FAR of 3.6 for the Harborview Medical Center campus. However, it should be noted that MIMPs for neighboring medical major institutions on First Hill provide a much greater FAR than 3.6. For example, Virginia Mason Medical Center has an existing FAR of 8.1 while the Swedish First Hill Campus has a FAR or 5.5. Under the current MIMP and FAR requirements, the Harborview campus has almost reached its capacity for building space with only approximately 63,170 square feet of additional building space remaining.

As part of the planning process, Harborview has calculated the square footage that is necessary for the hospital complex to accommodate and provide for future healthcare needs in King County. Therefore, in order to accommodate planned and potential development of the campus, the proposed *MIMP Major Amendment* would increase the allowable FAR to 6.5 which would be consistent with other major institution medical centers in the First Hill area.

Structure Height – Since the adoption of the 1999 MIMP, the City of Seattle has significantly increased maximum height limits for the underlying zoning within the MIMP and the zoning in areas surrounding the MIO. At the time of the 1999 MIMP up to adoption, the maximum height limit in the HR zone was 160 feet (with up to 240 feet possible as a special exception) and 60 feet in the MR zone.

Currently, the maximum height limit in the HR(M) zone is 440 feet and the MR(M) is 80 feet. The existing Harborview MIO district has maximum building heights of 105 feet (MIO 105) and 240 feet (MIO 240).

Discussion: Reflecting the proposed *MIMP Major Amendment*, Alternative 1 assumes the planned height increase for the MIO-240 zone in the western portion of the campus to a maximum of 320 feet. The proposed 320-foot height limit at the western portion of the campus would be consistent with the 440-foot height limit of the HR zone over the underlying zoning and to the immediate north, as well as with the 300-foot height limit of the MPC-YT to the immediate south of the campus. Alternative 2 would retain the maximum building height of 240 feet.

Development of Planned and Potential Projects located in areas identified for increased building heights (e.g., Planned Tower I and Potential Tower II) would be developed to be up to 320 feet in height. These planned and potential buildings would be similar in height to several prominent buildings in the vicinity, including the approximately 290-foot-tall Murano residential buildings, approximately 370-foot-tall Museum House residential building, and the approximately 285-foot tall Yesler Terrace building towers.

Building Setbacks – The transition between major institutions and adjacent uses is a primary consideration in the definition of setbacks. The 1999 MIMP identifies existing building setbacks along the perimeter of campus, including a 10-foot setback along the northern, southern, and portions of the east campus boundaries, 5-foot setbacks along the majority of the remaining eastern and northern campus boundaries, and no setbacks along the interior of the campus along private roadway known as 8th Avenue and 9th Avenue, as well as the western campus boundary.

Discussion: The proposed *MIMP Major Amendment* identifies setback standards as part of the development standards for the campus that supersede the underlying zoning and replace those identified in the 1999 MIMP. The setbacks identified in the *MIMP Major Amendment* are no less than those of the underlying zoning of abutting lots or directly across a street or alley from the campus. However, the setback standards in the *MIMP Major Amendment* are a fixed dimension in that they are the same at ground level and at greater building heights.

Building setbacks for the campus range from zero feet to ten feet, depending on the location and adjacent development. Locations with no setback are internal to the campus or reflect existing conditions where no changes are proposed. Ten-foot setbacks are located on campus edges (James Street and Alder Street) and near multifamily residences to improve separation and transitions to adjacent uses. Upper-level building setbacks are not provided as building envelope modulation is not conducive to medical facilities which rely on exterior façade and window placements to provide natural lighting for patients and staff.

Lot Coverage – Under the Land Use Code, lot coverage is generally controlled by setbacks, open space, density, and other requirements. The underlying HR and MR zones of the MIO do not contain any coverage standards. In addition, the existing 1999 MIMP does not include any coverage standards and coverage is controlled by the combination of other development standards in the MIO.

Discussion: As under the existing *1999 MIMP*, the proposed *MIMP Major Amendment* does not include any maximum lot coverage standards. Campus building placement for Planned and Potential Projects under the proposed *MIMP Major Amendment* would continue to be controlled by FAR, landscape/open space and setback standards.

Landscaping and Open Space – The landscape standards for the underlying zoning are identified as part of Land Use Code (SMC 23.45.524). The adoption of the 1999 MIMP established landscape standards for the campus that superseded the underlying zone. The 1999 MIMP also identified an open space requirement of 20 percent of the Harborview campus which included three elements: the West end landscape open space, the Eastside campus heart, and campus edges and internal streets.

This open space requirement calculation was based on the amount of open space provided by the landscaped open space atop the west garage and required setback areas that would be landscaped or hardscaped and include pedestrian amenities.

Discussion: As indicated above, the *1999 MIMP* includes an open space requirement of 20 percent for the Harborview Medical Center campus. In contrast, many of the major institution medical centers on First Hill contain open space goals that are well below the 20 percent for the Harborview campus. For example, the Virginia Mason Medical Center and Swedish First Hill Medical Center contain open space goals that range from 4 percent to 12.75 percent.

Consistent with other medical centers in the First Hill area, as well as the densely developed, urbanized nature of the First Hill Regional Center, the proposed *MIMP Major Amendment* would revise the open space requirement for the Harborview campus to 12 percent. This would meet or exceed other similar medical institutions on First Hill and would comprise open space located east of Harborview Hall; plazas, landscape setbacks, walkways, and landscape street rights-of-way; and open space/landscaping that would be included as part of Planned and Potential Projects. Landscape requirements of the underlying zoning would continue to be maintained.

3.7. RECREATION AND OPEN SPACE

AFFECTED ENVIRONMENT

The existing and planned landscaped open space for the Harborview campus includes the following elements:[26]

- Westside: the landscaped open space on top of the View Park 1 parking garage. Identified as Harborview Park, this area consists of landscape and hardscape that is accessible to the public. The only time the park has restricted access is for safety restrictions for the heliport and patient transport system on top of the garage. Harborview Park offers west facing views of the city and surrounding areas. Photograph 3 shows a north facing view of Harborview Park.

Photograph 3: Harborview Park North Facing View



Source: UW Medicine web site, Harborview Medical Center and View Park, photo taken January 30, 2024, https://newsroom.uw.edu/photo-library/harborview-medical-center-and-view-park

[26] Harborview Medical Center Implementation Advisory Committee (IAC) Open Space Discussion, April 20, 2023, slide no. 5.

- Eastside 'Campus Heart': the existing and planned landscaped open space establishes the focus for the overall campus at the location of the existing Harborview Hall site. The 2000 MIMP assumed the demolition of the building for the creation of this open space.
- The campus edges and internal streets include street trees and pedestrian amenities.

The 2000 MIMP includes City Council Condition #16, which requires the MIO district to have at least 20 percent open space, based on the amount of existing Westside landscaped open space and the required setback areas, and the planned Eastside Campus Heart (existing Harborview Hall site.) The open space area includes landscape, hardscape, or pedestrian amenities.

The 2014 MIMP Minor Amendment preserved Harborview Hall and designated the parcel at the corner of Terry Avenue and Terrace Street as an active open space plaza, which buffers campus density, connects to Terrace Street and transportation options, and connects to Terry Avenue green street opportunities. shows a rendered map of the 2014 Harborview MIMP Minor Amendment open space plan.

The existing open space area is 76,500 square feet, 13 percent of the campus area. Setbacks comprise 40,500 square feet while View Park is 36,000 square feet.

Nearby Parks and Recreation

Several public parks are within 800 feet of Harborview on the same side of Interstate 5. Boren Place, Horiuchi Park, and Yesler Terrace Park, and Yesler Pocket Parks 1, 2, and 3. All within 800 feet of campus and accessible from Harborview to bicyclists and pedestrians. In addition, Harborview is located along the Park-to-Park Walking Loop, a 1.75-mile pedestrian-friendly loop that connects Yesler Terrace Park to Freeway Park to the north[27].

Boren Place is a landscaped triangle park on Broadway with shade and public seating for passive recreation. Horiuchi Park is located on the hillside above Boren Avenue with landscaping, seating, views of Mount Rainier, and a community garden. Yesler Terrace Park is on 10th Avenue between Yesler Way and South Washington Street. Designed for active and passive recreation, it includes a spray park, a playground, a soccer field, a basketball court, and is home to the Yesler Community Center. The Yesler pocket parks are smaller in size and complement the larger Yesler Terrace Park. The pocket parks include distinct types of active and passive recreation and various pedestrian amenities.

[27] IAC Open Space Discussion, 4/20/2023.

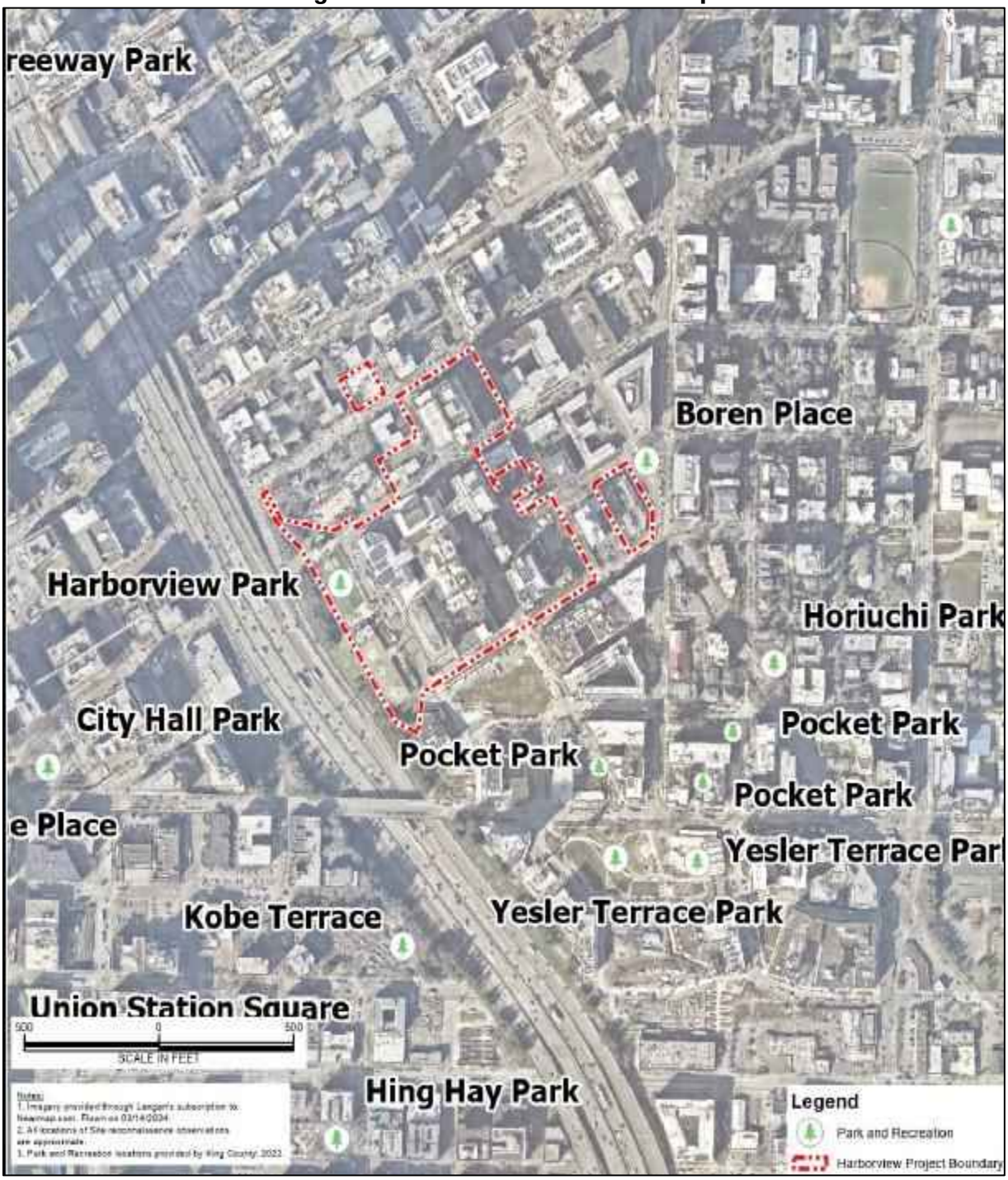
Figure 19: 2014 MIMP Minor Amendment Open Space Plan



Source: Harborview Medical Center Implementation Advisory Committee (IAC) Open Space Discussion, 4/20/2023, slide no. 7.

Figure 20 identifies the location of the public parks and recreation areas near the Harborview campus.

Figure 20: Parks and Recreation Map



According to the City of Seattle Parks website, Yesler Terrace Park has an address at 917 East Yesler Way. Yesler Terrace Park is on the south side of Yesler Way nearest the intersection with South Washington Street and private roadway known as 8th Avenue. Located next to the Yesler Community Center, the approximately two-acre park offers passive and active recreation. The plaza can accommodate community events and several spaces for gathering and playing. Sculptural installations by artist Christine Bourdette celebrate the community's cultural heritage, and her centerpiece at the central plaza becomes a spray park during the summer months. Taking advantage of the site's topography, the playground below the plaza includes play structures that straddle the grade change, along with a slope for climbing up and sliding down. Active sports amenities include a basketball court, and a soccer spot.

The Yesler pocket parks are smaller in size and compliment the larger Yesler Terrace Park. The pocket parks include distinct types of active and passive recreation and various pedestrian amenities. Among the pocket parks include Green Street Loop, a half-mile parklike neighborhood walkway, Yesler Hillclimb, and a pocket park off private roadway known as 8th Avenue north of Yesler Terrace.[28] Several challenges related to nearby parks include ongoing safety, maintenance, and accessibility, including unsafe Boren crossings.

Under the Seattle Department of Transportation (SDOT), the city allows organizations and businesses to convert on-street parking spots into a parklet to create public open space. As of November 19, 2025, SDOT mapping does not identify parklets in the surrounding Harborview area. Any consideration of adding parklets needs to consider the loss of parking spaces, as a parklet usually takes up one to two parking spaces. Furthermore, 24-hour public access may lead to concerns regarding homelessness and illegal activities.

IMPACTS

Proposed Action

The Proposed Action demolishes the View Park I garage for the development of New Tower, which results in the removal of Harborview Park. The MIMP Major Amendment proposes reducing the required open space from 20 percent to 12 percent.

[28] Map – Development of Yesler Terrace 7-18.25

If the extension of the MIO boundary includes the Washington State Department of Transportation (WSDOT) parcel on the western side of the campus, the new MIO area is approximately 632,000 square feet. Although the new patient tower will remove Harborview Park, the following areas provide potential new open space indicated in Figure 21:

- Terry & Terrace Plaza (#1): 18,000 square feet.
- Terrace Curbless Street (#2): 9,000 square feet.
- Pedestrian Connection (#3): 6,000 square feet.

The 40,500 square feet of existing open space left after the removal of the View Park I Garage with the 33,500 square feet of new open space provides 73,500 square feet of open space. The proposed open space meets the proposed 12 percent MIO open space requirement.

In the event the MIO boundary is not expanded to include the WSDOT ROW, the MIO would remain 594,480 square feet. With the removal of the pedestrian connection in the WSDOT ROW, the proposed open space area is 65,500 square feet, about 11 percent. The new patient tower will have a setback area around its footprint that can serve as an open space area and can replace the open space no longer available from the WSDOT ROW. Some open space may exist along the private roadway known as 8th Avenue and its woonerf street design. The overall open space goals can be furthered with the Proposed Action.

Alternatives to Proposed Action:

240 Foot Height Limit

This alternative results in the same open space proposal as noted in the Preferred Action. However, this option results in a larger footprint for the new patient tower. The larger footprint will reduce the amount of setback area available as open space. The Proposed Action footprint offers the benefit of more setback area as open space, which is more likely to achieve the 12 percent open space goal.

No Action Alternative

While the no action alternative results in no changes, the no action alternative would keep the open space target at 12 percent.

MITIGATION MEASURES

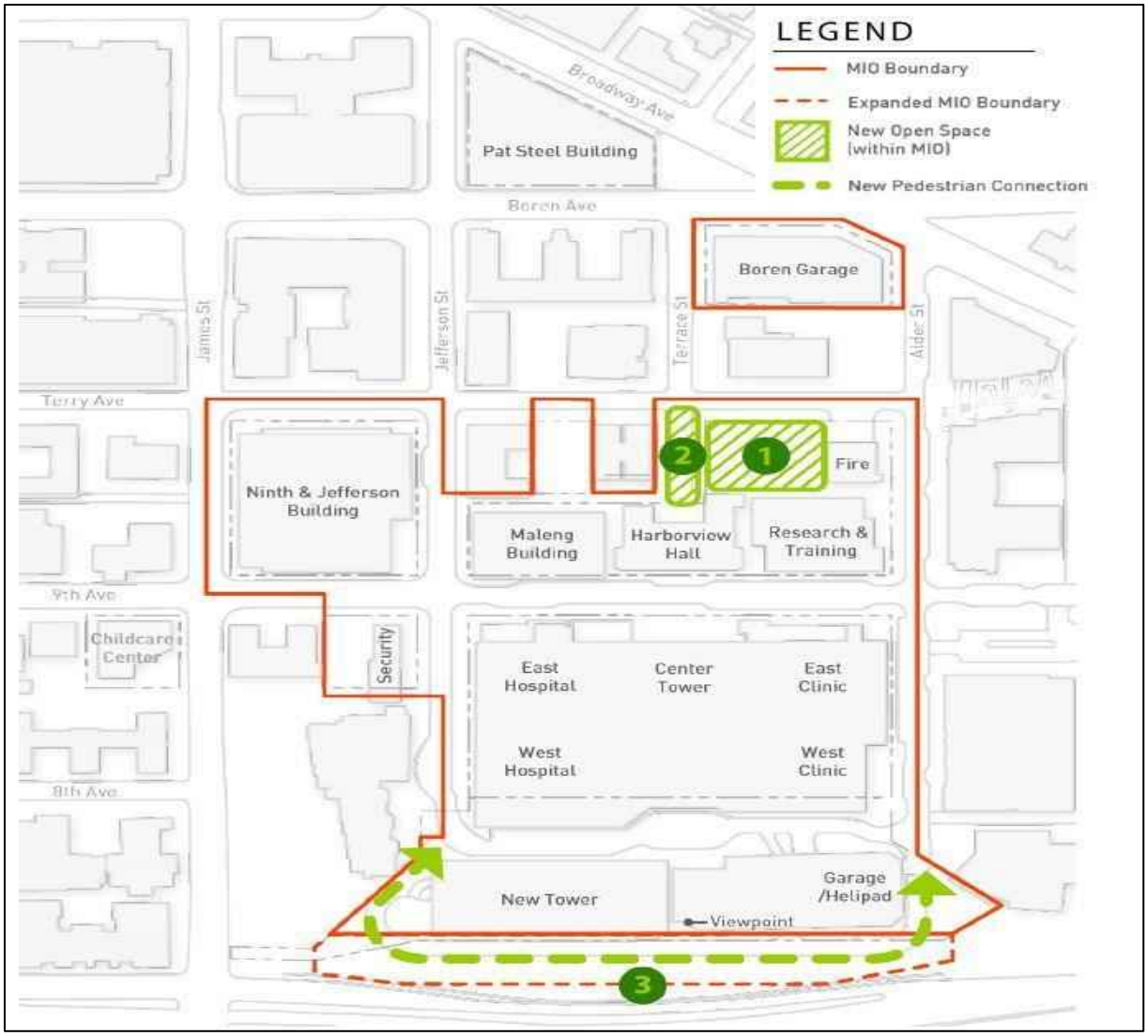
The proposed open space addition addresses open space areas eliminated with the development of the new patient tower.

UNAVOIDABLE ADVERSE IMPACTS

Harborview Proposed Action:

Development of the Proposed Action would result in the loss of Harborview Park, an unavoidable adverse impact, for which the project proposes new open space as noted in **Figure 21**.

Figure 21: Potential New Open Space



Source: Harborview Medical Center Implementation Advisory Committee (IAC) Open Space Discussion, 4/20/2023, slide no. 7.

3.8. AESTHETICS

HEIGHT, BULK, AND SCALE

This section of the Final EIS describes the existing height, bulk, and scale characteristics of Harborview Medical Center (Harborview) campus and the surrounding area to evaluate the potential impacts that could occur as a result of the *Harborview Medical Center Major Institution Master Plan Amendment (MIMP Major Amendment)* and of the Alternatives. This subject has been identified for review under SEPA to analyze relevant zoning policies under the Seattle Municipal Code to compare zoning regulations outlined in the *MIMP Major Amendment*.

AFFECTED ENVIRONMENT

Existing Campus

Harborview campus is a visually prominent medical facility located within the First Hill neighborhood in Seattle. The general character of the Harborview campus is comprised by an assortment of building types/designs of varying heights, subsurface and aboveground parking structures, public rights-of-ways, access roads, and landscaped open spaces. The campus is clearly distinguishable from the surrounding area by building architecture, layout, and massing, even though it is heavily integrated within the city.

The architecture strongly reflects the original Art Deco style from 1931 when the Center Tower and Harborview Hall were first constructed on campus, both of which persist today. Subsequent developments on the campus mirrored Art Deco style, with newer buildings implementing more modern design components. The visual character of the surrounding Harborview campus is reflective of a high density, urban development.

Surrounding structures such as skyscrapers, multi-family residential buildings, commercial and office spaces further extend into the downtown Seattle skyline. The Land Use chapter presents a comprehensive overview of the pattern of land uses in the vicinity of the Harborview campus. In summary, the site is bordered by Interstate-5 to the southwest, and generally mid-to-high-rise multi-family and commercial uses to the north, east, and south.

Developments in the campus vicinity vary in density and height considerably with lower density, three to four-story buildings, up to buildings with a high volume and numerous floors. Across from Interstate 5 to the west is the downtown Seattle core with numerous high-rise buildings.

The primary roadway through campus is 9th Avenue; however, the main vehicular access point to the facilities is via the entrance off private roadway known as 8th Avenue. Another notable feature of the campus is the seven-story sky bridge across 9th Avenue connecting the west side of the campus to the east side. Other main roadways connecting the campus are Jefferson Street and James Street, which further connect to surrounding roadway systems, as well as provide access to Interstate 5.

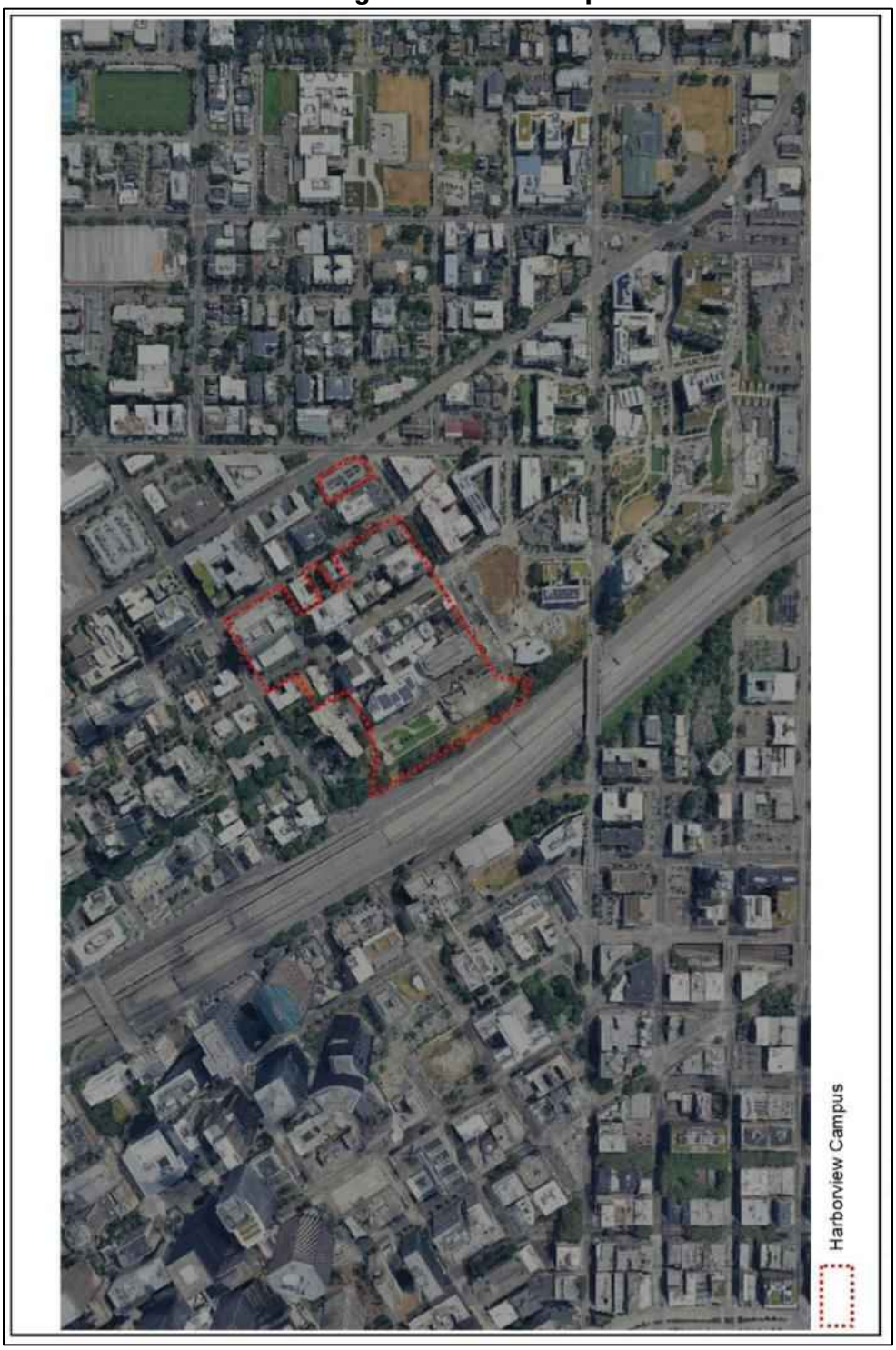
Within the campus boundaries, subsurface parking garages are available to the west of private roadway known as 8th Avenue and an aboveground parking structure (Boren Garage) is located at the corner of Boren Avenue and Alder Street. Landscaping throughout the campus primarily consists of small pockets of manicured landscaping throughout, along with Harborview Park contributing more square footage of green space located at the northwest corner.

The existing Major Institution Overlay (MIO) boundaries are roughly defined by Jefferson Street and James to the north, Terry Avenue to the east, Alder Street to the south, and Interstate-5 to the west, as well as the Boren Garage which is a standalone parcel in the MIO. The total surface area of the MIO is approximately 594,480 square feet (13.6 acres). The overall campus topography is moderately sloped downward from Terry Avenue towards Interstate-5. See **Figure 22** for an area view of the existing character of campus. Note that because the campus orients in a southwest to northeast angle, references to directions from campus are generalized as north, south, east, and west to enhance readability. Visual characteristics of the Harborview campus edges are as follows[29]:

- North campus edge: this border runs along Jefferson Street and James Street and consists of several multi-story medical, associated medical office, and housing buildings with roadways and sidewalks, driveway entrances, signage, and trees and landscaping.
- East campus edge: this boundary is generally defined by Terry Avenue, with the exceptions of the properties at 423 Terry Avenue and 403 Terry Avenue, which are privately owned and excluded from the MIO, and the Boren Garage is included in the MIO. This campus edge appears more residential due to several multi-story apartment buildings along Terry Avenue.
- South campus edge: the south campus edge is defined by Alder Street, which contains additional multi-story medical and medical office buildings with minimal landscaping along sidewalks and roadways with some trees.

[29] Note that because the campus orients in a southwest to northeast angle, references to directions from campus are generalized as north, south, east, and west to enhance readability.

Figure 22: Aerial Map



- West campus edge: the western edge of the campus continues to provide multi-story medical buildings, as well as subsurface parking structures with helipads atop and the Harborview Park open space. This border runs along Interstate 5, with an undeveloped steeply sloping area in between, which contains tall trees, grasses, and shrubs.

Major institutions must comply with existing underlying zoning codes unless those standards are superseded by development regulations of an adopted MIMP. The height, bulk, and scale pertain to the size of buildings relative to surrounding developments. Certain zoning designations regulate building size in order to achieve appropriate transitions between zoning intensities.

The *MIMP Major Amendment* proposes an expansion to the MIO boundary, increasing permitted building square-footage to accommodate planned and potential building construction, and reduction to open space requirements. These proposals would result in changes to the height, bulk, and scale at the Harborview campus. Existing height, bulk, and scale conditions are discussed in further detail below.

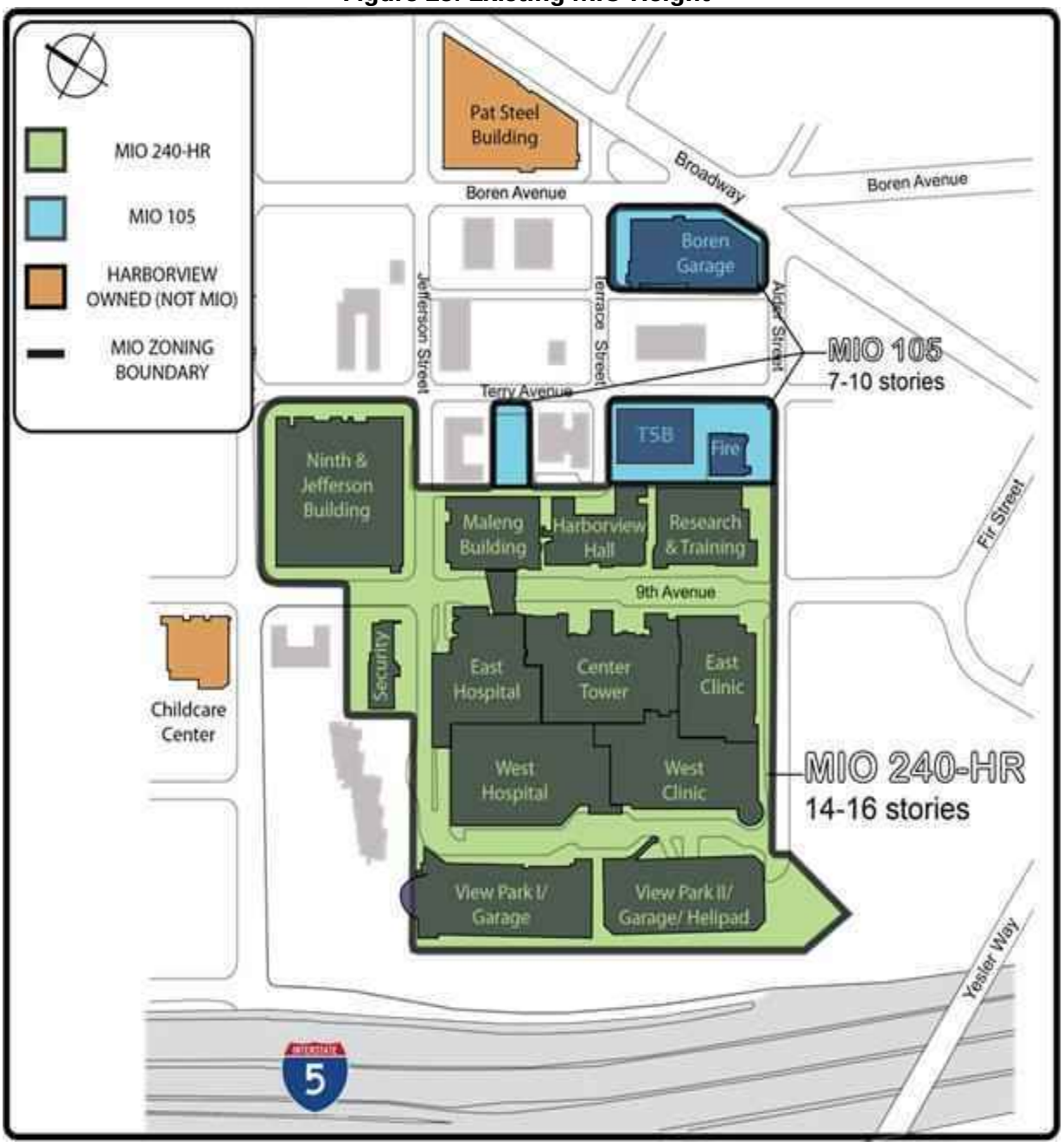
Existing Building Heights

The majority of the campus is currently zoned at MIO-240, which designates a height limit of 240 feet. The other zoning code within the MIO is MIO-105, which applies to the properties within the boundary of Terry Avenue, Alder Street, Jefferson Street, and the alleyway east of 9th Avenue, as well as to the Boren Garage. The MIO-105 zone stipulates a building height limit of 105 feet **(**see **Figure 23).** The City of Seattle underlying zoning of the MIO is high-rise and mid-rise residential, which have height limits of 440 feet and 80 feet, respectively.

Existing campus buildings have a considerable variation in heights, from subsurface parking garages, one and two-story buildings, mid-to-high-rise buildings with three to 10 stories, up to the 14-story Center Tower near the middle of campus. The Center Tower is the highest structure within the campus at a height of approximately 212 feet.

The center of campus consists of the main Harborview Medical Center buildings, including the Center Tower, East Hospital (approximately 130 feet tall), West Hospital, East Clinic (approximately 143 feet tall), and West Clinic, with a range of building heights from three stories up to approximately 14 stories.

Figure 23: Existing MIO Height



Buildings on the north side of campus include the Norm Maleng Building, Harborview Hall, Harborview Research and Training Building (approximately 128 feet tall), the Old Fire Station #3, and the Boren Garage, with heights ranging from two stories up to 10 stories. The west side of the campus is developed with the Ninth and Jefferson Building and the Security Building, which are 14 stories and two stories tall, respectively. The View Park I and II Garages located along the southwestern edge of campus are essentially sub-surface and therefore level with the private roadway known as 8th Avenue.

Existing Building Sizes and Density

The adopted *1999 MIMP* established the permitted amount of allowable building space and Floor Area Ratio (FAR) standards, which currently designates a maximum allowed FAR of 3.6. FAR is a measurement which represents building density, i.e., the larger the FAR is, the higher the building density will be. FAR is calculated by dividing the total floor area of a building by the total surface area within a lot. For the purposes of a MIMP, FAR calculation includes the floor area for all permitted buildings divided by the total surface area within the MIO boundaries. The *1999 MIMP* with a 3.6 FAR allows for approximately 2,140,128 square feet of building space throughout the entire campus.

The existing buildings within the campus MIO Boundary total approximately 2,080,908 square feet of floor space, which amounts to a FAR of approximately 3.5. The largest buildings on campus include the Harborview Medical Center buildings (approximately 1,065,392 square feet), the Ninth and Jefferson Building (approximately 764,347 square feet), and the Norm Maleng Building (approximately 285,216 square feet). See **Figure 24** for a visual of the existing building massing on Harborview campus.

Existing Building Setbacks and Open Space

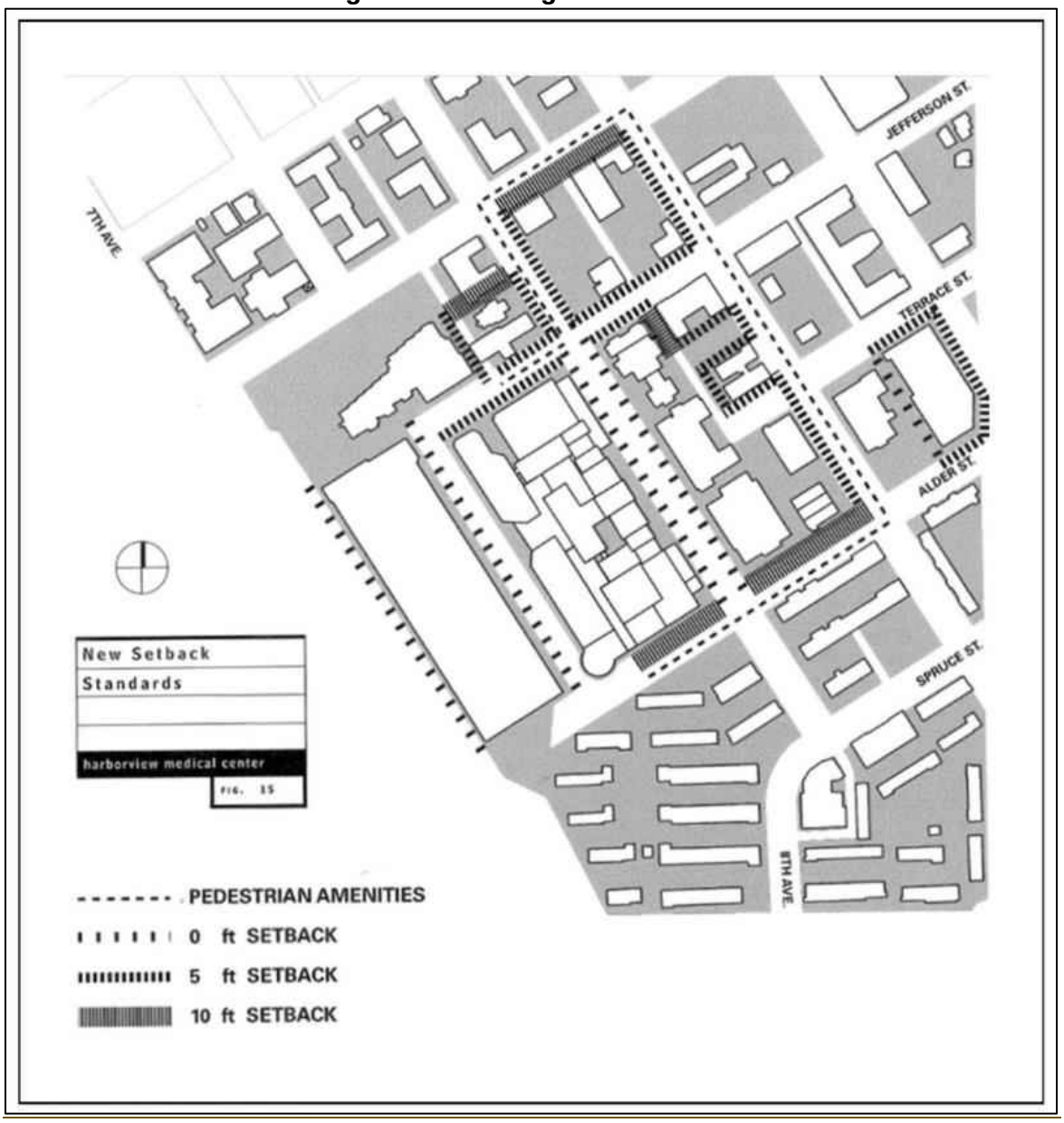
The building setbacks established by the *1999 MIMP* range from zero to 10 feet as shown in **Figure 25** below.

While there are no underlying or MIMP lot coverage requirements throughout the Harborview, building scale is influenced by FAR and percentage of open space on campus. The *1999 MIMP* establishes an open space standard of 20% (equating to approximately 118,896 square feet). Existing open space on the Harborview campus totals approximately 76,500 square feet and primarily comprises the Harborview Park (approximately 36,000 square feet), as well as other landscaped areas, pedestrian walkways, and plazas, building setbacks, etc. located throughout campus (totaling approximately 40,500 square feet).

Figure 24: Existing Harborview Building Massing

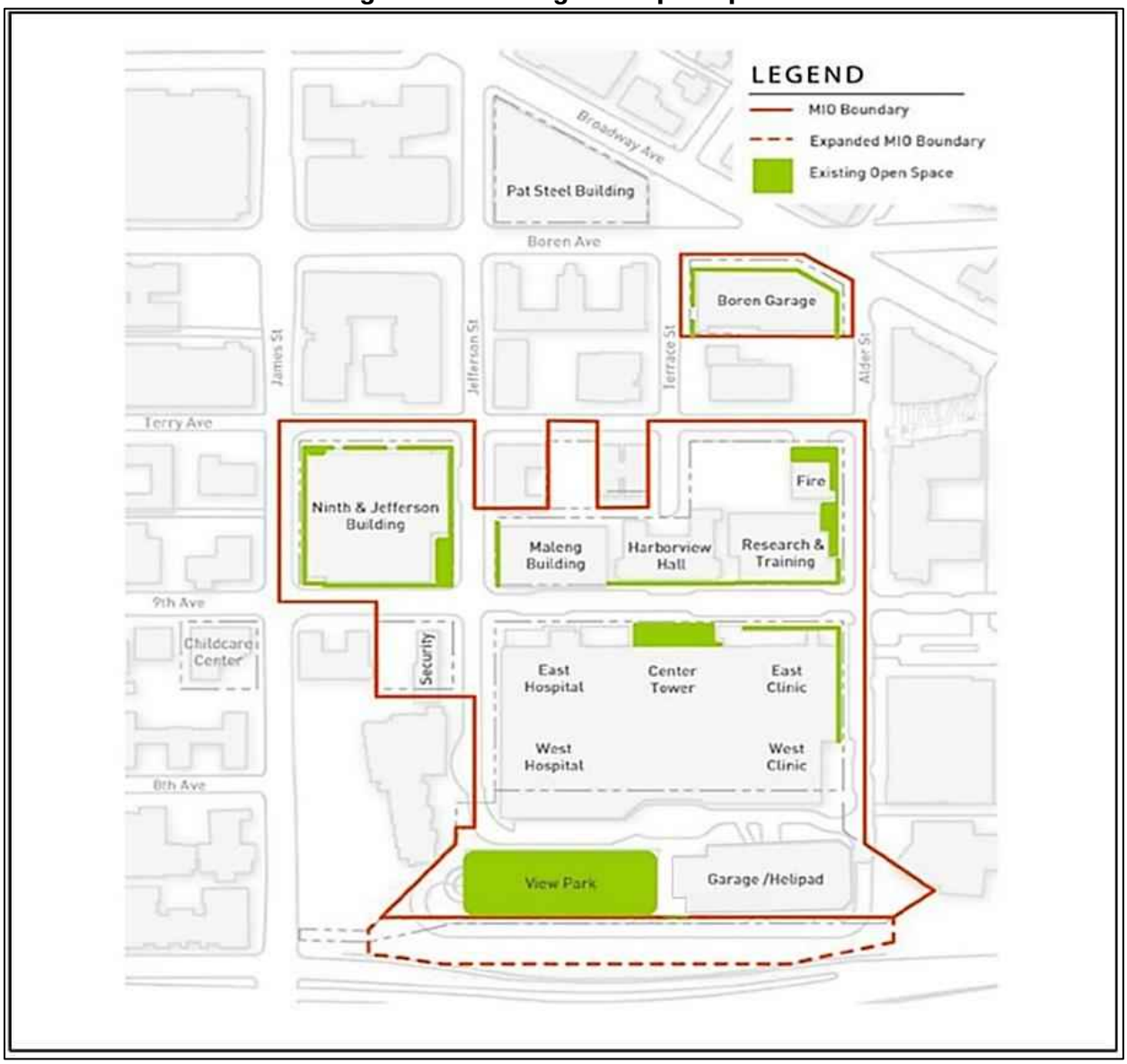


Figure 25: Existing MIO Setbacks



The total existing open space at Harborview campus is approximately 13 percent. Most of the remaining 87 percent consists of building coverage and a smaller portion contains roadways or other areas which do not qualify as open space. **Figure 26** below shows the locations of existing open space on the Harborview campus.

Figure 26: Existing MIO Open Space



IMPACTS

Summary – to allow Harborview Medical Center to address health care needs of the region, implementation of the proposed MIMP Major Amendment would include an increase in allowed building height in the western portion of campus, an increase in the Floor Area Ratio (FAR) standard, a decrease in the open space area standard, and additional building development capacity. These MIMP amendments would allow for the intensification of building height, bulk and scale on campus which would be generally consistent with surrounding high-rise development in the area and the identified land use plan and standards for the First Hill area.

Alternative 1

Introduction

Alternative 1 assumed implementation of the proposed *MIMP Major Amendment* with a building height limit increase up to 320 feet to the west of private roadway known as 8th Avenue within Harborview campus including an expansion to the MIO boundary and changes to the FAR, open space, and height development standards.

MIO Boundary Expansion

The land acquired for the boundary addition would extend along the southwest side of the campus towards Interstate-5 **(see Figure 27).** The addition would add approximately 108,535 square feet (2.49 acres) to the MIO (an approximate 18 percent increase) for a total of approximately 683,654 square feet (15.7 acres) on the Harborview campus. A new loop access road and pedestrian improvements would be developed within the expanded MIO.

MIO Floor Area Ratio Standard Increase 3.6 to 6.0

The FAR of 6.5 would allow for a total of approximately 4.4 million square feet of building space within the campus. All main Planned and Potential Projects would add approximately 1.63 million square feet of building space resulting in a campus-wide total of roughly 3.7 million square feet. Overall, an extensive increase in campus density could result from the revision in allowed building space. **Table 20** below shows existing and new square footage at the individual major project sites for the *MIMP Major Amendment.*

Figure 27: MIO Boundary Expansion

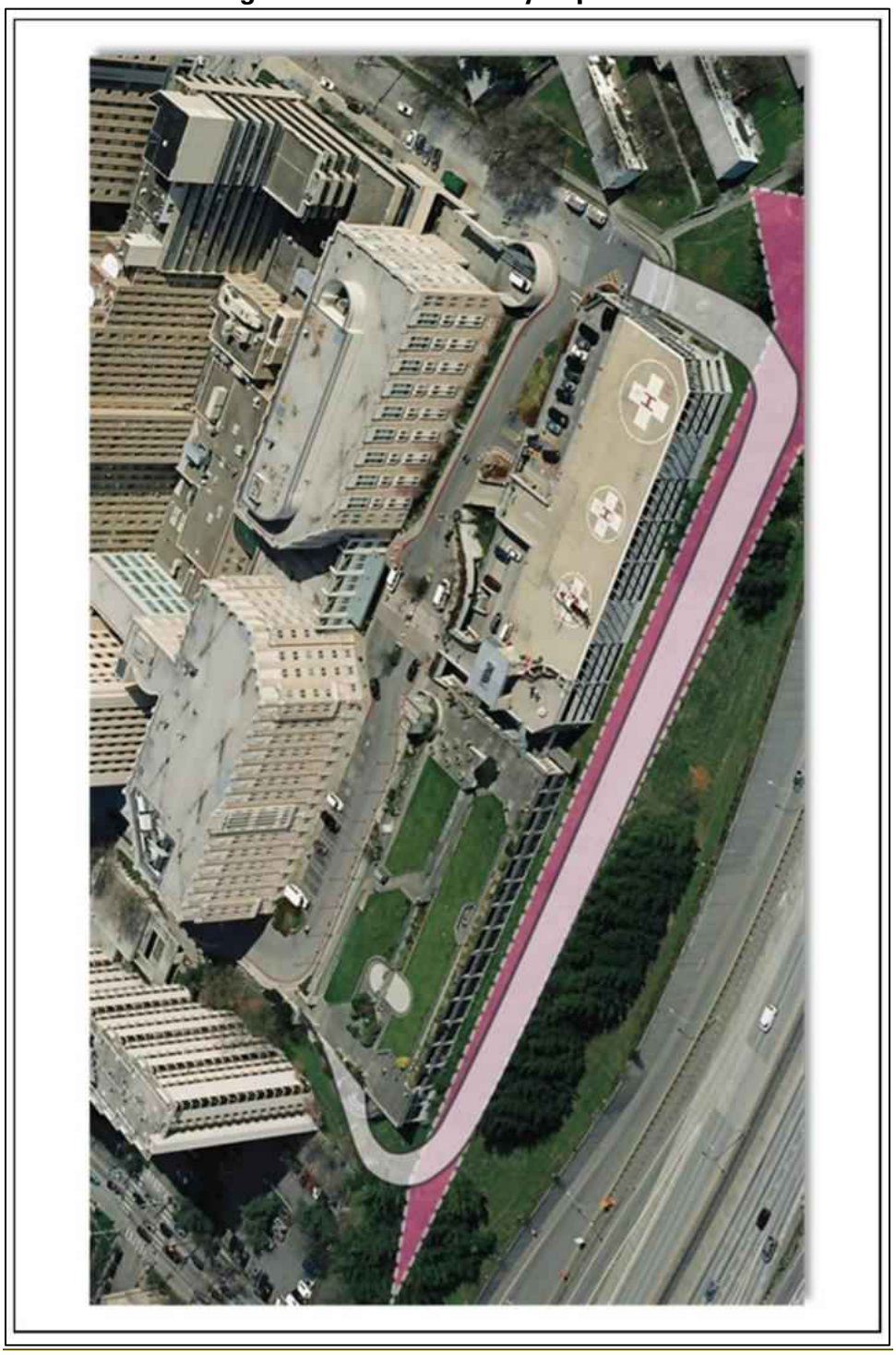


Table 20: Existing and New Square Footage for MIMP Major Amendment

Project	Planned or Potential	Existing Gross Square Footage to be Removed	Proposed Square Footage
Planned Tower I	Planned	N/A	672,065*
Walter Scott Brown Building	Potential	8,093	100,000
East Clinic Building	Potential	119,718	280,000
Potential Tower II	Potential	N/A	671,220
Boren Garage	Potential	133,683	285,000[30]

* *Includes 845 square feet associated with the connecting skybridge*.

MIO Open Space Standard Decrease

The reduction in required open space to 12 percent would further align with similar medical Major Institutions in the neighborhood, such as the Virginia Mason Franciscan Health campus with a MIMP open space of 4 percent, Swedish First Hill campus with a MIMP open space of 9.5 percent, and Swedish Cherry Hill campus with a MIMP open space of 12.75 percent (see **Figure 28** below).

MIO Height Standard Increase

Under Alternative 1, the underlying building height limit zoning would be revised from 240 feet to 320 feet (MIO-320) west of private roadway known as 8th Avenue within campus (see **Figure 29** below**).** The height limit increase would not change the zoning designation at the potential Walter-Scott Brown Building or East Clinic Building project locations. **Table 21** lists the current allowable maximum height and the proposed new height limit.

Table 21: Current and Proposed Building Heights

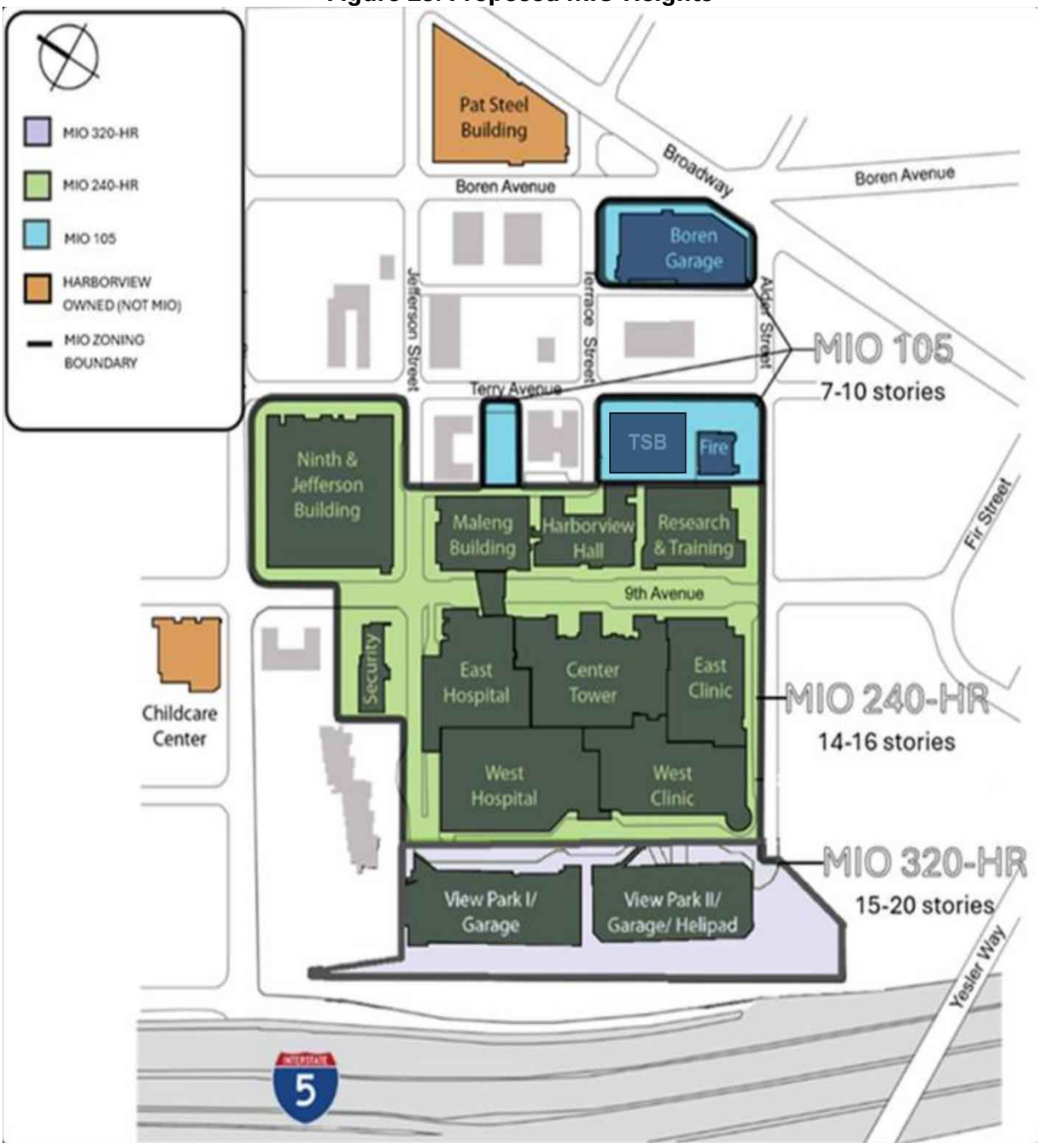
Project	Planned or Potential	Proposed Approx. Height	Existing MIO Height Limit	Proposed MIO Height Limit
Planned Tower I	Planned	320 feet/21 stories	240 feet	320 feet
Walter Scott Brown Building	Potential	160 feet/10 stories	240 feet	240 feet
East Clinic Building	Potential	224 feet/14 stories	240 feet	240 feet
Potential Tower II	Potential	320 feet/21 stories	240 feet	320 feet
Boren Garage	Potential	105 feet/14 stories	105 feet	105 feet

[30] Square footage in parking areas/garages is not included in calculations of campus-wide FAR.

Figure 28: Open Space at Other Medical Institutions



Figure 29: Proposed MIO Heights



Planned Project Conditions

Building Height Impacts

An increase in the MIO height standard would permit the development of the Planned Tower I up to 320 feet or approximately 21 stories. The new patient tower would be constructed at the corner of private roadway known as 8th Avenue and Jefferson Street, where the Harborview Park and the View Park I parking structure are currently located. This development would result in an increase in height at this location, as it would be replacing the subsurface View Park I parking structure. The height increase would exceed the height of all existing buildings on campus and adjacent properties and would generally reduce their prominence. The height contrast would be most apparent looking to the east towards the western side of campus where other structures would not be obstructing the view.

Residential zones surrounding the campus are limited to the north and east sides of the MIO boundary, where the Planned Tower I development would be less prominent due to the distance and existing high-rise buildings in the viewshed. Existing nearby structures include the 290-foot Murano building (620 Terry Avenue), the 370-foot Museum House (707 Terry Avenue), and high-rise buildings associated with downtown Seattle across Interstate-5 to the west. The proposed 320-foot Planned Tower I will be similar in character to these surrounding high-rise developments, so aesthetic impacts associated with the Planned Tower I are not expected to be significant.

Planned Tower I has two design options. Design Option 1 would remove private roadway known as 8th Avenue and develop approximately eight stories connecting the Planned Tower I to the West Hospital building across the street. In Design Option 2, the private roadway known as 8th Avenue would be preserved, and the Planned Tower I building footprint would be limited to the existing View Park I lot. Regardless of Design Option 1 or Design Option 2, the building height would reach up to the new 320-foot maximum height limit. See **Figure 30** for a photo simulation of the Planned Tower I up to 320 feet for Design Option 2.

Building Density Impacts

The increased FAR standard would allow for the development of the 672,065 square-foot Planned Tower I and skybridge. The Planned Tower I would substantially increase the building massing at the west side of the Harborview campus due to the lack of above ground structures at the building site. This shift in density would be most notable when looking east at the existing campus due to the drop in topography down towards Interstate 5 and the lack of nearby developments to the west of the site.

Figure 30: Planned Tower I Photo Simulations



Looking North



Looking Northeast

With the new patient tower constructed at a taller height, the needed floor space could be achieved by adding additional floors upwards; resulting in building mass shifted upwards with less density at the pedestrian level. The Planned Tower I density would be comparable to the building massing of the Ninth and Jefferson Building (not including parking space) within campus. Additionally, the new patient tower would have a much greater bulk with approximately twice as much floor space as the adjacent building at 800 Jefferson Street (outside of the MIO). Previously mentioned high-rise buildings within the vicinity of Planned Tower I have comparable or larger massing than the planned development and would be consistent with the size and density of surrounding structures.

The Planned Tower I would include the same square footage under Design Option 1 and Design Option 2. Design Option 1 would spread the building density out wider with the extension of floor space across the private roadway known as 8th Avenue, which would reduce density within the main tower area. With Design Option 2, all the floor space would be consolidated within the primary building footprint. The shift in density between the designs is considered to be insignificant. Figure 29 below shows the proposed Planned Tower I building massing compared to existing buildings on Harborview campus.

Building Scale Impacts

A reduction in open space requirements would provide flexibility for open space modifications throughout the MIO campus. The most notable transformation of open space would result from the removal of Harborview Park during the site preparation for the *Planned Tower I* construction. However, with the permitted MIO height increase, the new patient tower would be constructed at a taller height. This would allow the square footage needed to be achieved by constructing additional floors upwards as opposed to filling the footprint to the lot edge. This distribution of building mass would result in a taller building with a smaller floorplate which could exceed minimum setback requirements. The wider setbacks would allow for additional open space opportunities, as well as increasing the buffer and improving transition from the building and lot edge to surrounding properties.

Design Option 1 would extend the building floorplate across the private roadway known as 8th Avenue and directly connect with the West Hospital building. With this connection, the main building footprint would vary from 180 feet by 210 feet at the lower levels to 120 feet by 210 feet. With the entire floorplate contained within the View Park I lot under Design Option 2, the floorplate would be slightly larger and measure approximately 180 feet by 222 at the lower levels up to 120 by 222 feet at the higher floors. The slight increase in setback areas and open space opportunity with Design Option 1 and the difference in impacts to transition is not considered to be significant.

Although the proposed reduced open space standard is consistent with existing conditions, an increase in perceived transition would occur at the Planned Tower I site due to the fragmentation of open space from the redevelopment of Harborview Park. This transition would be softened by the new access road within the proposed MIO boundary expansion along the southwest edge of campus. This expansion would include a pedestrian connection from Alder Street to James Street, which would add approximately 6,000 square feet of open space. With the addition to the MIO, the acquired land would provide additional space along the west side of the planned new patient tower to the surrounding area. To ensure this improved transition is achieved, the MIO boundary expansion loop access road and pedestrian enhancements would be included as a part of the Planned Tower I project.

Potential Project Conditions

Building Height Impacts

The second new patient tower would also utilize the increase in MIO height on the site of the View Park II subsurface parking structure and would be similar to the Planned Tower I footprint to be constructed with approximately 21 stories at the new zoning height limit of 320 feet. The potential new patient tower would be considerably taller than the existing parking structure at the site, surrounding five to six-story buildings, and the adjacent Interstate-5, which would result in height impacts when compared to existing conditions.

However, the Potential Tower II would be consistent with existing medium and high-rise buildings with comparable heights in the surrounding area, as well as the overall existing high-rise urban character of the First Hill neighborhood, so the aesthetic impacts of the additional height are not expected to be significant.

The Walter-Scott Brown Building was originally evaluated under the *1999 MIMP* as a 6-story building. Under the *MIMP Major Amendment,* the building would be constructed to a height of 10 stories. A 10-story development would be consistent with the adjacent Harborview Medical Center buildings across from James Street, which is approximately 10 stories. The existing Securities Building at this location is two stories tall; therefore, the Walter-Scott Brown Building development at ten floors would result in a more significant height increase at the site itself. All surrounding buildings are constructed at a height of 10 stories or higher, except for the 4-story residential apartment complex north of the site, where the Walter-Scott Brown Building height would have the most impact. Nevertheless, due to the consistency with the area context, the impacts associated with the additional four stories at the Walter-Scott Brown Building are not anticipated to be significant.

The East Clinic Building replacement would be constructed to a height of 14 stories, which would be a 4-story increase from the existing East Clinic. Within the MIO, buildings directly adjacent to the site range from two stories up to 10 stories, and buildings across from 9th Avenue are approximately 10 stories. Outside the MIO, one adjacent property is undeveloped and the other contains a 9-story apartment building.

The zoning at the adjacent undeveloped property to the south is mixed-use institutional (Yesler Terrace Master Planned Community), which has a building height limit of 300 feet, indicating the future possibility for more intensive developments similar to the potential height increase at Harborview. The increase in height would be the most prominent compared to this undeveloped parcel. However, the transition to the 14-story height for the East Clinic Building would be tempered by the taller surrounding buildings within campus, as well as by potential future development with a similar height at the undeveloped institutional parcel to the south.

The Boren Garage was identified as a potential project to be redeveloped up to the existing zone height limit of 105 feet to provide additional parking stalls. The new structure would be constructed with a height increase from three stories up to 14 stories. While this potential project would result in an increase in height at the parcel, the redevelopment would be similar to surrounding building heights which vary from three to 11 stories.

Building Density Impacts

The increase in the FAR would allow for the building floor space of other Potential Projects identified for Harborview campus needs. The addition of four stories to the Walter-Scott Brown Building from the *1999 MIMP* would add approximately 40,000 square feet to the building for a total of approximately 100,000 square feet of new building space. The Securities Building at this location is approximately 8,093 square feet. Removal of the existing building and development of the Walter-Scott Brown Building would result in a substantial increase in building density at the site.

The adjacent approximately 32,688 square-foot residential building outside of the MIO to the north would be most proximate to the new building massing. However, other than this residential lot, the proposed density would be either similar to or smaller than all other building masses in the immediate vicinity.

The new 280,000 square-foot East Clinic Building would replace the existing approximately 119,718 square-foot East Clinic. The new building would be integrated into the existing Harborview Medical Center building grouping to the adjacent north of the site, which would result in a considerable addition to density. Compared to the Harborview campus developments directly surrounding the site, the new East Clinic Building would have a noticeably larger mass.

From outside of the MIO, this increase would be most apparent along Alder Street adjacent to the site, emphasized by the undeveloped parcel to the south. Although the new development would add significant bulk to this portion of the campus, considering the high building masses in the site vicinity within and off campus, as well as the potential for a large development to be constructed at the adjacent undeveloped parcel across from Alder Street, the impact from the perceived increase in bulk would be minimal.

The Potential Tower II would be developed at the current View Park II parking structure location. This second potential patient tower would continue the increase of building density along the west side of campus previously discussed under the Planned Tower I with approximately 671,220 square feet of floor space. The increase in permitted FAR would complement the continued high-density urban developments in the surrounding First Hill and Yesler Terrace neighborhoods.

Recent construction includes the Yesler Terrace neighborhood redevelopment by the City of Seattle Housing Authority to the south of the Potential Tower II and East Clinic Building. **Figure 31 and 32** below portray the massing of the Planned Tower I with Design Option 1 and 2 compared to the massing of the potential Walter-Scott Brown Building, East Clinic Building, and Potential Tower II on Harborview campus.

The potential Boren Garage redevelopment square footage would not impact the campus FAR because parking areas are not included in the FAR calculation. Regardless, the new parking structure would increase building density at the site with the development of additional floors. Surrounding high-density buildings outside of the MIO, such as the 11-story building to the west at 1005 Terrace Street and the nine-story residential building to the south at 225 Broadway, provide similar building square-footage and would ease the perceived transition from the new parking garage to structures outside of the MIO.

Building Scale Impacts

The increase in permitted floor space would allow for additional height and larger building mass for the following Potential Projects: Walter-Scott Brown Building, East Clinic Building, and Potential Tower II. These increases would continue to be adjacent to surrounding properties; however, existing setbacks from the *1999 MIMP* would be retained in the *MIMP Major Amendment* (see **Figure 33** below**).** For the Walter-Scott Brown Building, the maximum setback throughout campus (10 feet) would be maintained along the north edge of the lot which borders residential zoning. The existing five-foot setback minimum would be kept for the other lot borders adjacent to non-residential zoning. These preserved setbacks would continue to buffer transition impacts from the increased height and building mass of the Walter-Scott Brown Building to adjacent properties, as well as providing landscaping opportunities.

The demolition of the existing East Clinic may provide temporary open space until the potential East Clinic Building project is planned. Since this would be a temporary development, it would not be included in the open space percentage. The East Clinic Building would have a similar floorplate size at the pedestrian level, but the larger height and building mass would increase the overall building scale. The maximum 10-foot setback borders the adjacent mixed-use institutional zoning to the south. The project site is bordered by Harborview campus on all other sides. New landscaping within the setback area to the south of the East Clinic Building site on Alder Street would be included in the project construction. This portion of Alder Street is included as part of potential street improvements along the perimeter of Alder Street, 9th Avenue, Jefferson Street, and Terry Avenue, as well as new pedestrian connections from Terrace Street through the alleyway towards transportation options. The revision of the open space standard would allow for relocation and integration of open spaces, which would lessen the perceived transition from the East Clinic Building development and provide overall connectivity from the campus to the surrounding neighborhood.

Figure 31: Alternative 1 Planned and Potential Building Massing – Option 1

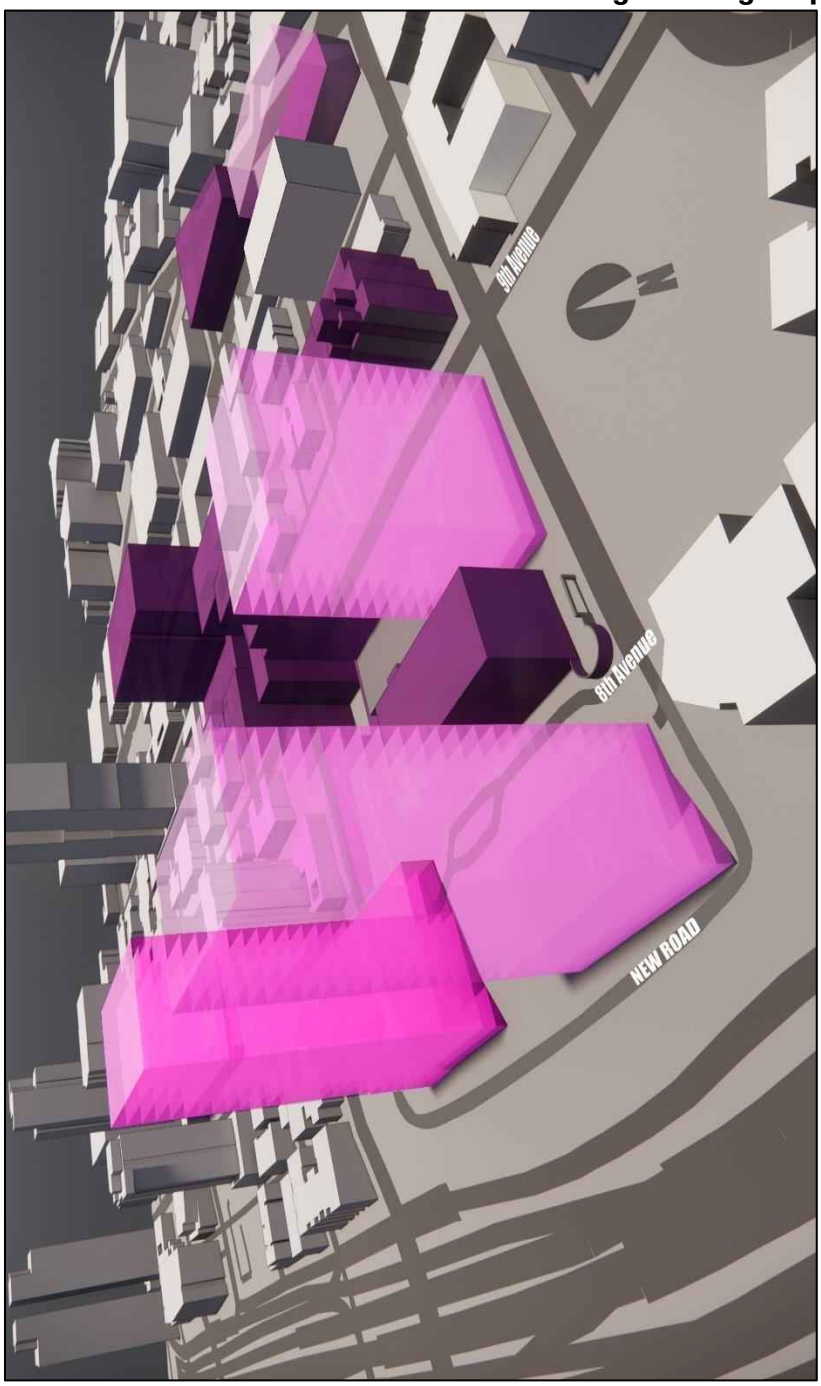


Figure 32: Alternative 1 Planned and Potential Building Massing – Option 2

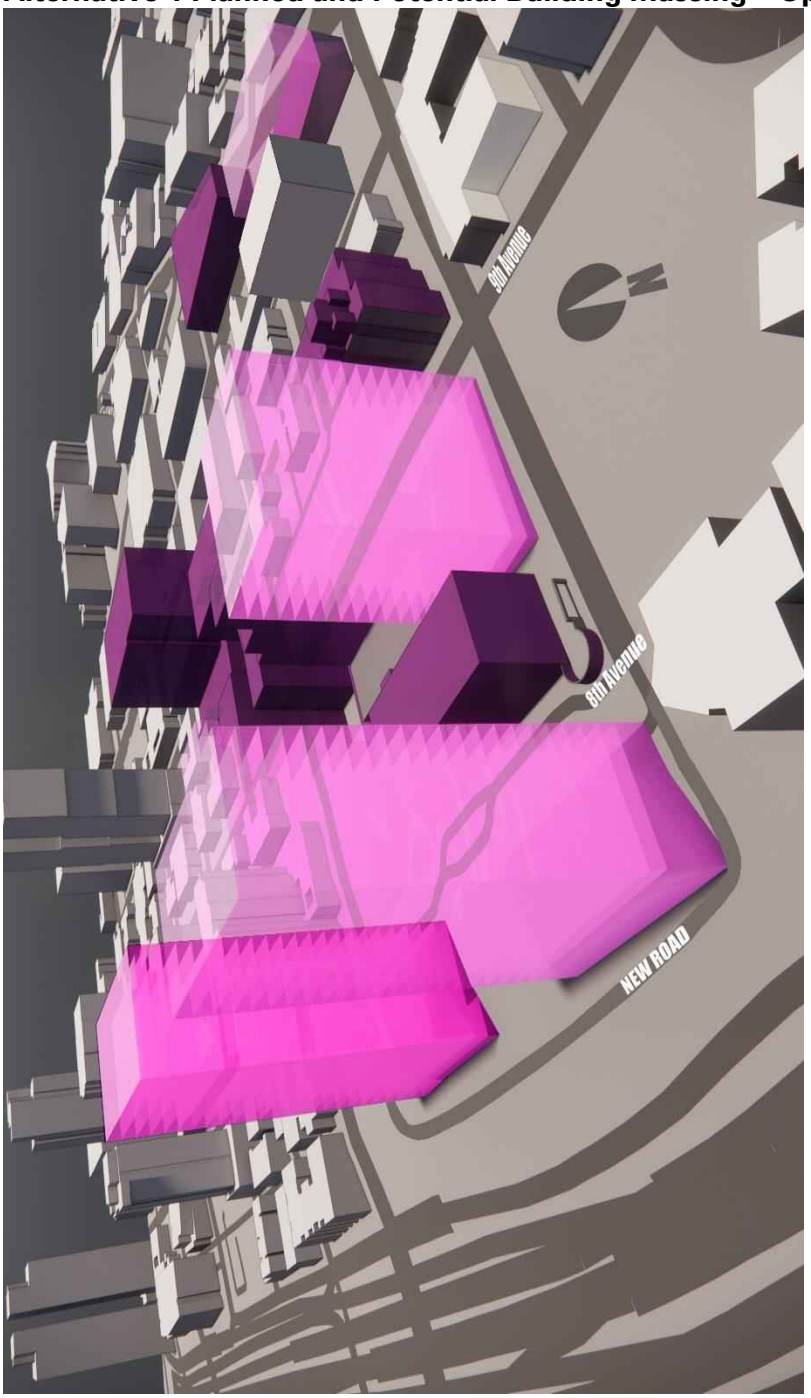


Figure 33: Retained MIO Setbacks



As with the other developments, the increased FAR and height limit increase would greatly increase the perceived scale at the Potential Tower II site. With the setbacks, significant increase in building mass, and extended building height, the impacts to transition would be similar to those described for the Planned Tower I. This change would be mitigated with the taller height allowing for a smaller building floorplate to exceed minimum setbacks, as well as by the MIO boundary expansion buffer from the Potential Tower II site to the edge of campus. More open space at the building site would lessen the perceived massing at the ground level and create additional transition space between the buildings.

Although the proposed FAR and MIO height limit increases would not alter the Boren Garage redevelopment design, the taller building height and larger density with the new structure would increase the perceived scale. The five-foot setback surrounding the majority of the site would be maintained to provide relief to the transition to adjacent parcels. Additionally, the scale along the zero-foot setback to the west would be softened by the existing alleyway between the new Boren Garage and the adjacent property.

Although the plan proposes a reduction in open space standard, with the increase of FAR allowing for the development of the Planned Tower I, additional open space would be provided to offset the removed Harborview Park open space areas (**Figure 34**). Additional potential open space opportunities include the following:

- New Terry and Terrace Plaza – this would be installed at the southwest corner of Terrace Street and Terry Avenue where the recently removed Facilities Building was located. The new plaza would add approximately 18,000 square feet of open space to the campus.

- Terrace Curbless Street – these right-of-way improvements would develop an "Urban Curbless Street." An Urban Curbless Street design integrates landscaping with pedestrian, bicycle, and vehicle usage, while prioritizing pedestrian activity. Terrace Curbless Street would add approximately 9,000 square feet to the campus open space.

- Off-Site Improvements – outside of the MIO boundary, Terry Avenue between Alder Street and Jefferson Street would be improved with widened sidewalks and landscaped areas with new vegetation and trees, as well as new benches, seating, and walkways for pedestrian use. This portion of Terry Avenue would also connect to green street opportunities outside of the campus. These improvements would not be included in the open space percentage because they are outside the MIO boundary.

Figure 34: Revised MIO Open Space



The Terry and Terrace Plaza and Curbless Street would improve transition between the east side of campus, which borders residential zoning. The addition of the above-described open space with the existing open space to be retained would result in a total of approximately 73,500 square feet or 11.3 percent of the MIO.

Other opportunities for new open space include the increased setback areas of the Planned Tower I and Potential Tower II with the height standard increase, as well as additional pedestrian improvements along the proposed loop access road within the MIO boundary expansion. Although the reduction in open space standard would occur, new or redeveloped open space would improve campus transitions by enhancing pedestrian or landscaped spaces bordering alternate zoning, increase connectivity from the campus to the surrounding area, and provide resources for off-site open space developments.

Alternative 2

Introduction

Alternative 2 (*MIMP Major Amendment with No Height Increase)* would keep the existing zoning heights throughout the campus with a maximum limit of 240 and 105 feet across the MIO district. Alternative 2 impacts to height, bulk, and scale previously discussed under Alternative 1 are expected to be the same except for the Planned Tower I and Potential Tower II projects discussed below.

Planned Project Conditions

Building Height, Density, and Scale Impacts

The Planned Tower I would be developed to the maximum height of 240 feet or 15 stories. This would result in reduced height impacts of the Planned Tower I which would more closely align with existing building heights in campus and the vicinity. The planned tower and skybridge square footage would remain at 672,065. However, since less square footage would be developed upwards, the building footprint would be much larger to achieve the needed building space within less floors. The larger floorplate would result in a downwards density shift towards the pedestrian level, as well as remove setback and landscaping opportunities at the site. The reduced setbacks and shifted density would increase impacts to perceived building bulk and scale. The MIO boundary expansion with pedestrian and roadway improvements would still occur which would soften transition along the southwest side of the site. The impacts to height, bulk, and scale under both of the Planned Tower I design options are anticipated to be similar under Alternative 2.

Potential Project Conditions

Building Height, Density, and Scale Impacts

The Potential Tower II would be constructed up to the existing 240-foot height limit, which is more consistent with existing campus developments. Similar to the Planned Tower I development, the tower density would remain at 671,220 square feet, the building floorplate would be larger, and setback opportunities at the site would be reduced or removed completely. The resulting density shift towards the ground level would result in increased impacts to bulk and scale, while height impacts would be reduced. Transition to the southwest would also be buffered by the MIO boundary expansion as previously described. See **Figure 35** below for the building massing under Alternative 2.

No Action Alternative

Under the No Action Alternative, the MIO boundary would not be expanded, no increase to the FAR standard would occur, and no building height limit increase would be permitted west of private roadway known as 8th Avenue. Since additional floor space and newly proposed projects would not be approved, there would be no new planned or potential building development outlined in the *MIMP Major Amendment*. Projects approved under the *1999 MIMP* could still occur, such as the renovation of the Harborview Hall, the demolition of the East Clinic, the demolition of the Securities Building, and the construction of the Walter-Scott Brown Building up to 6 stories.

Previously discussed on and off campus open space improvements which were approved by the *2014 MIMP Minor Amendment* could also still be accomplished with the No Action Alternative. This includes the development of the Terry and Terrace Plaza, street improvements along the perimeter of Alder Street, Terry Avenue, Jefferson Street, and 9th Avenue, developing pedestrian connections from Terrace Street to transportation, and connecting Terry Avenue to surrounding green space opportunities.

The height, bulk, and scale conditions on the Harborview campus would generally remain as described under existing conditions, considering the remaining *1999 MIMP* projects would renovate or replace existing buildings, and other major developments would not be permitted.

MITIGATION MEASURES

The following mitigation measures have been identified to lessen impacts related to height, bulk, and scale resulting from the *MIMP Major Amendment* to the surrounding area:

- Implementation of proposed design guidance and development standards in the *MIMP Major Amendment* would help to minimize aesthetic impacts, including:
  - Provisions for building setbacks at campus edges.
  - Landscaped visual screening at campus edges.
  - Provision of open spaces areas on the campus.

- Consider building designs that use architectural detailing, materials, and techniques to soften appearance and reduce the perceived density of new buildings.

- Consider building layouts with smaller footprints which exceed minimum setback requirements to increase separation between uses.

- Include landscaping, trees, and pedestrian enhancements in setbacks when it is feasible to soften building scale and to create amenities.

- Proposed landscaping could provide screening to lessen height, bulk, and scale impacts on neighboring properties.

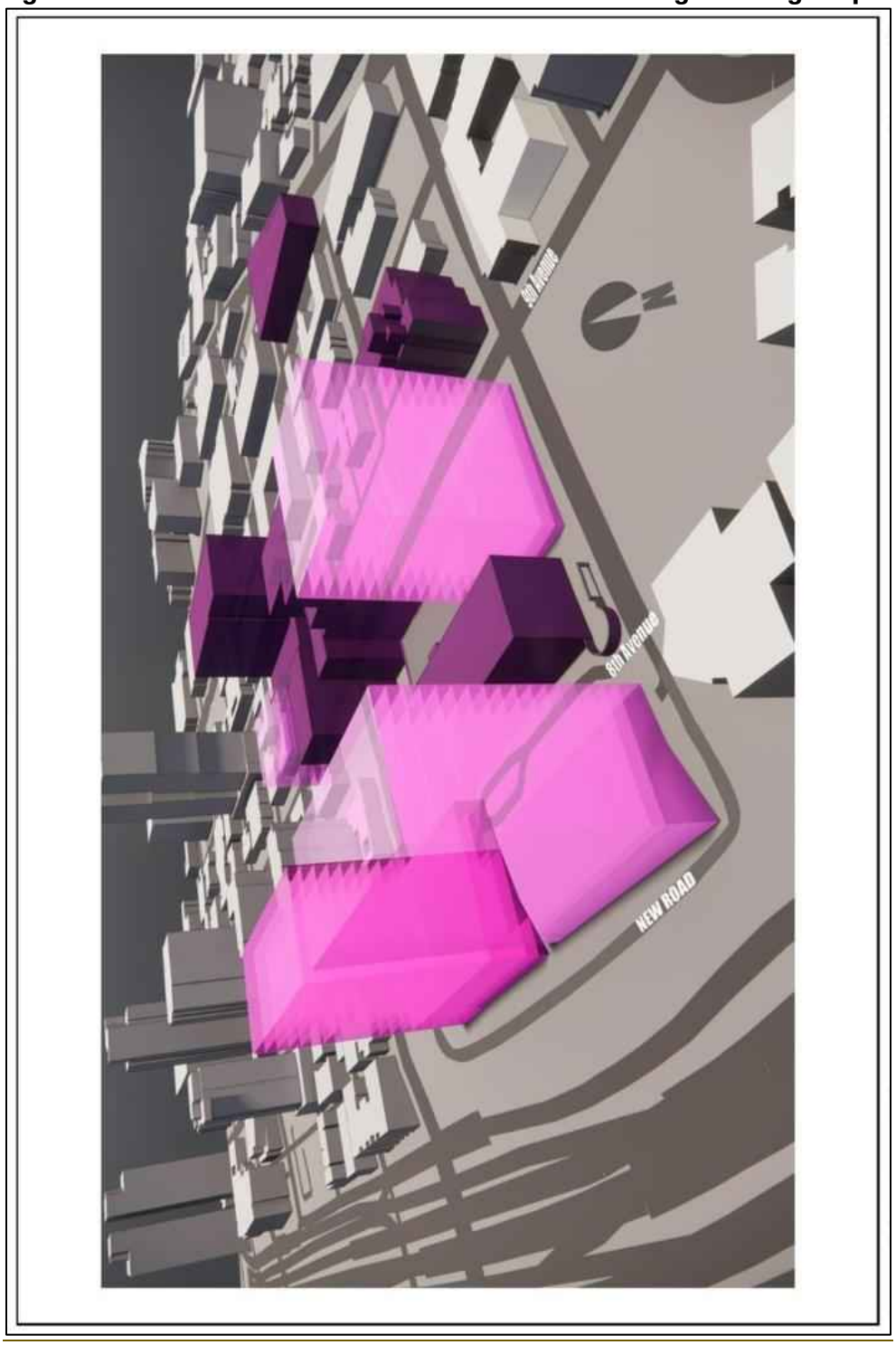
- Continue to include street level pedestrian focused improvements to soften transitions to residential properties and enhance the campus appearance and surrounding community.

- Implement artwork, lighting, signage, and graphics in pedestrian areas to reduce perceived building bulk, height, and scale.

- Maintain and improve pedestrian connections between the campus and surrounding neighborhood to disjoint building groupings and collective massing.

- Include landscaping and open space improvements within the project setbacks or near the site vicinity to be included as a component of the individual project development.

Figure 35: Alternative 2 Planned and Potential Building Massing – Option 1



UNAVOIDABLE ADVERSE IMPACTS

The overall effect from Alternative 1 with revisions to the FAR, height, and open space standards would result in a substantial increase of height, bulk, and scale of the Harborview campus. Alternative 2 would result in less impacts in height, but greater impacts to bulk and scale from Alternative 1. Considering the existing surrounding developments and high-rise urban character of the area which are similar to the planned and potential developments, as well as the implementation of mitigation measures, no significant unavoidable impacts to height, bulk, and scale are anticipated from Alternative 1 or 2.

VIEWS

This section of the Final EIS describes the existing aesthetic and view conditions on the Harborview campus and in the site vicinity and evaluates the potential impacts to aesthetics and views that could occur as a result of Alternatives 1 and 2.

AFFECTED ENVIRONMENT

The Seattle Municipal Code (SMC) contains specific provisions that describe the scope of the SEPA analysis for the viewshed analysis. The purpose of this *Viewshed Analysis* is to evaluate view-related impacts—specifically to City-designated public viewpoints and parks, Space Needle viewpoints, views of historic landmarks, and scenic routes resulting from the proposed development contained in the *MIMP Major Amendment.*

City Designated Public Viewpoints and Parks

The City's public view protection policies are intended to "protect public views of significant natural and human-made features: Mount Rainier, the Olympic and Cascade Mountains, the downtown skyline, and major bodies of water including Puget Sound, Lake Washington, Lake Union and the Ship Canal, from public places consisting of specified viewpoints, parks, scenic routes, and view corridors identified in Attachment 1" to the SEPA code.[31] Of the City's 89 officially-designated public viewpoints, two were identified as having the potential to be affected by the proposed project – Jose Rizal Park and Harborview Hospital Viewpoint. These viewpoints are described below, refer to **Figure 36 and 37** for Viewpoint Location Maps:

[31] Seattle Municipal Code Chap. 25.05.675 P.2.a.i.

- **Rizal (Dr. Jose) Park** is located in the Beacon Hill Neighborhood at the intersection of S. Judkins St. and 12th Ave. S., approximately one-half mile southeast of the project site. The 9.6-acre park has a dog off-leash area at its north-end, and picnic tables, restrooms, and a small play area for children to the south. The view from Dr. Jose Rizal Park includes a panoramic view of south Downtown, the Downtown skyline, Elliott Bay, and views of the Olympic Mountains.

- **Harborview Hospital Viewpoint** is located in the First Hill Neighborhood adjacent to Harborview Medical Center at the intersection of Jefferson and private roadway known as 8th Avenue.

Space Needle Viewpoints

The most visible Landmark from many parts of the City is the Space Needle, which is located approximately one and three-quarter miles northwest of the Harborview Campus. The City has identified ten viewpoints from which views of the Space Needle are to be protected.[32.] None of the protected Space Needle viewpoints would be affected by development included within the proposed *MIMP Major Amendment*.

Scenic Routes

City ordinances[33] identify specific scenic routes throughout the City from which views of the significant natural and human-made features listed in the City's public view protection policies are to be protected. In the vicinity of the project site, there are three designated Scenic Routes – I-5, Yesler Way and Boren Avenue. Existing and proposed views from these roadways are described below. See **Figure 36** for a viewpoint location map.

[32] Seattle Municipal Code Chap. 25.05.675 P. and Seattle DCLU, 2001,

[33] Ord. #97025 (Scenic Routes Identified by the Seattle Engineering Department's Traffic Division) and Ord. #114057 (Seattle Mayor's Recommended Open Space Policies). The SEPA Scenic Routes Map incorrectly references Ord. # 97027, whereas the reference should be to Ord. # 97025.

Figure 36: Viewpoint Location Map – Views 1 through 8

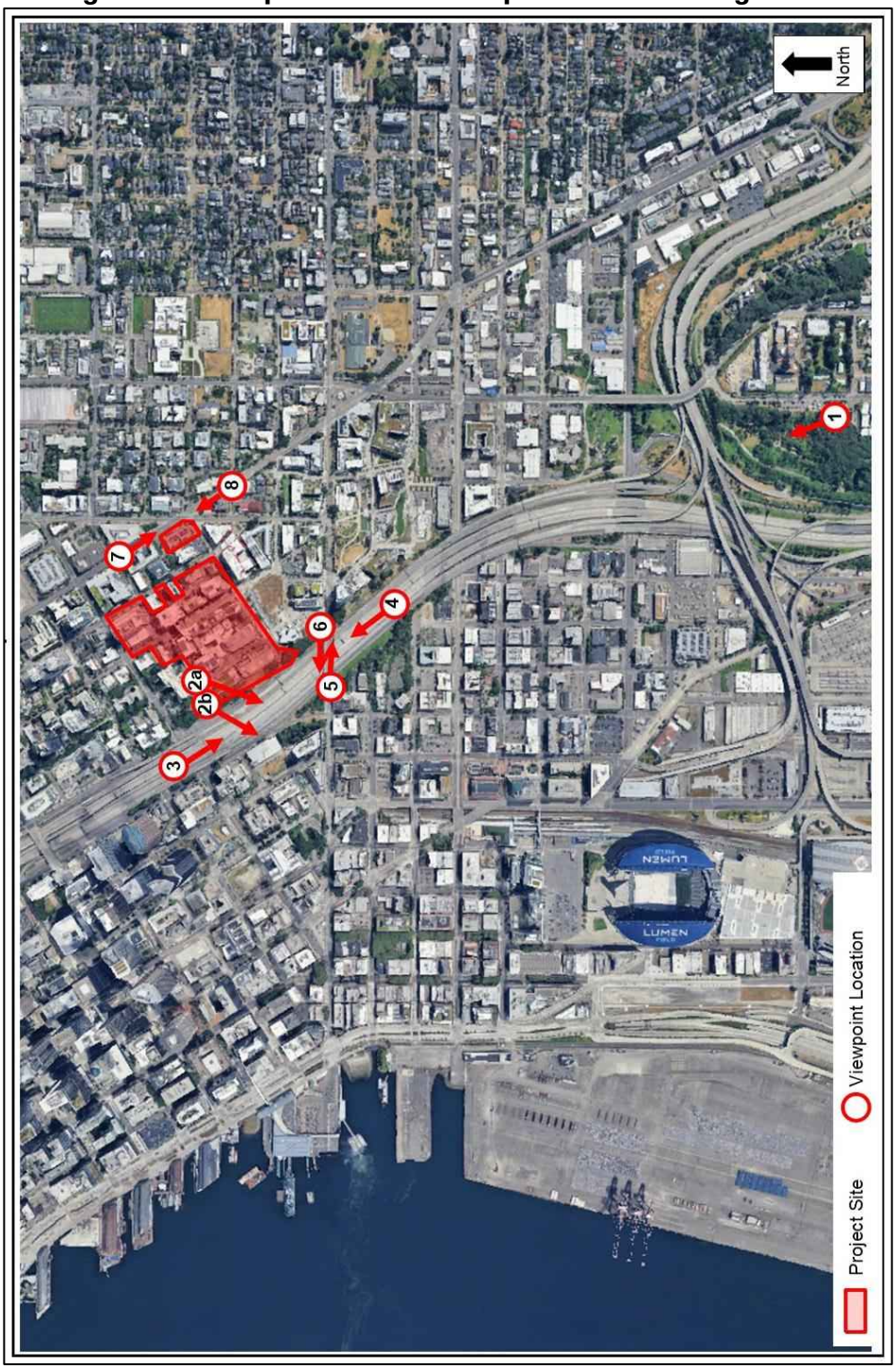
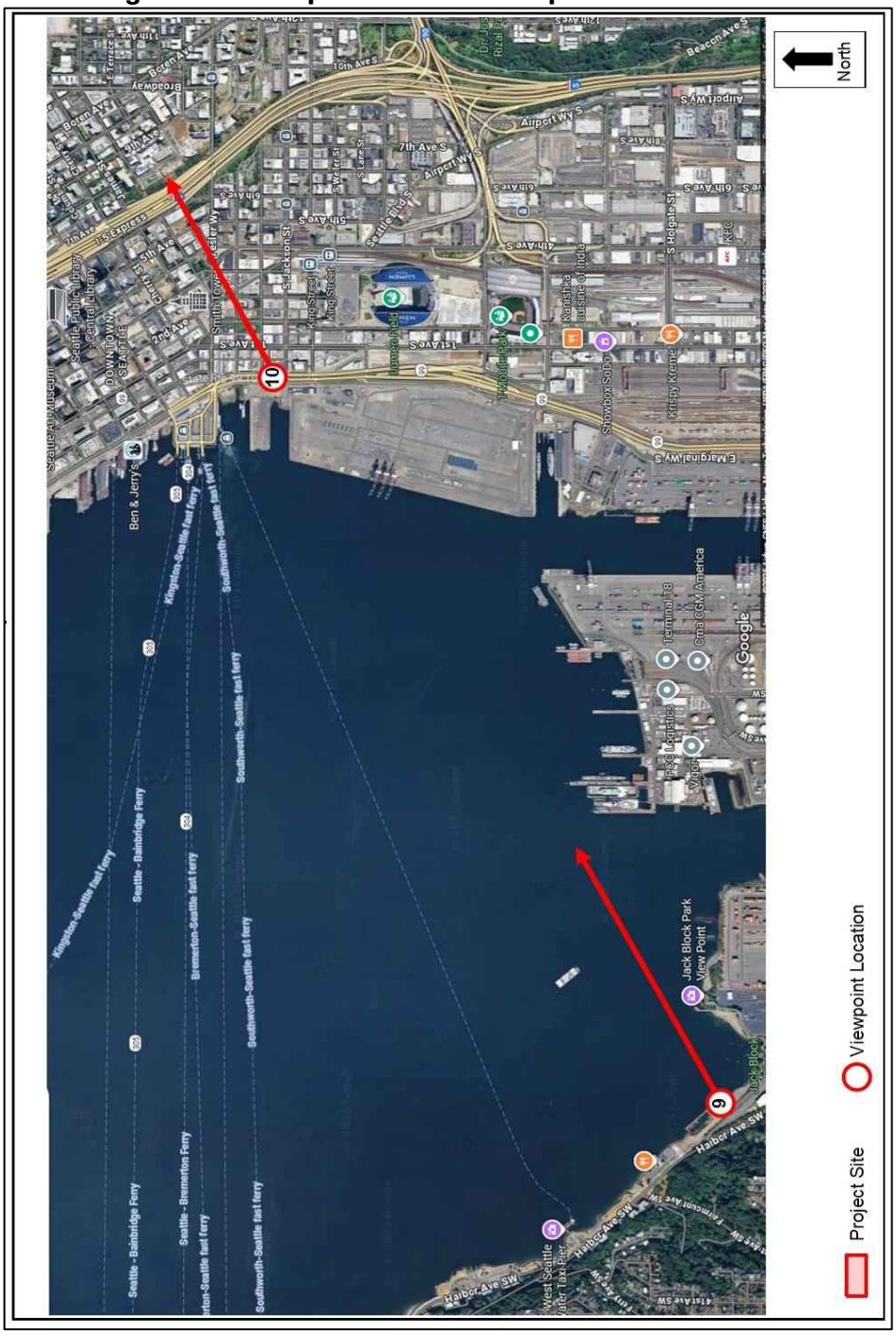


Figure 37: Viewpoint Location Map – Views 9 and 10



Views of Historic Landmarks

It is City policy to: "protect public views of historic landmarks designated by the City's Landmarks Preservation Board which, because of their prominence of location or contrasts of siting, age, or scale are easily identifiable visual features of their neighborhood or the City." There is one designated Landmark structure in proximity to the proposed Planned and Potential Towers, the Center Tower building, located on 9th Avenue between the East Clinic and East Hospital buildings.

Views of the Center Tower are analyzed in this EIS from the west looking to the east, from points within the vicinity where the tower is actually visible within the public ROW. Due to the steep topography between the location of the Center Tower on down to the Waterfront/Elliott Bay, and the high-rise buildings located in between within the Downtown Core directly adjacent to Harborview, views of the Center Tower are very limited in almost all locations close within Downtown (see as an example from the Waterfront - **Figure 38**).

The Center Tower is most visible from a distance, such as across the Sound from various points in and near West Seattle and Alki, as well as along certain roadways such as travelling north along SR-99 near the Duwamish River, and the West Seattle Bridge, all distinctly further away from Harborview. The result of the analysis is that views of the Center Tower up close are very limited, if they exist at all; views are only available from far away.

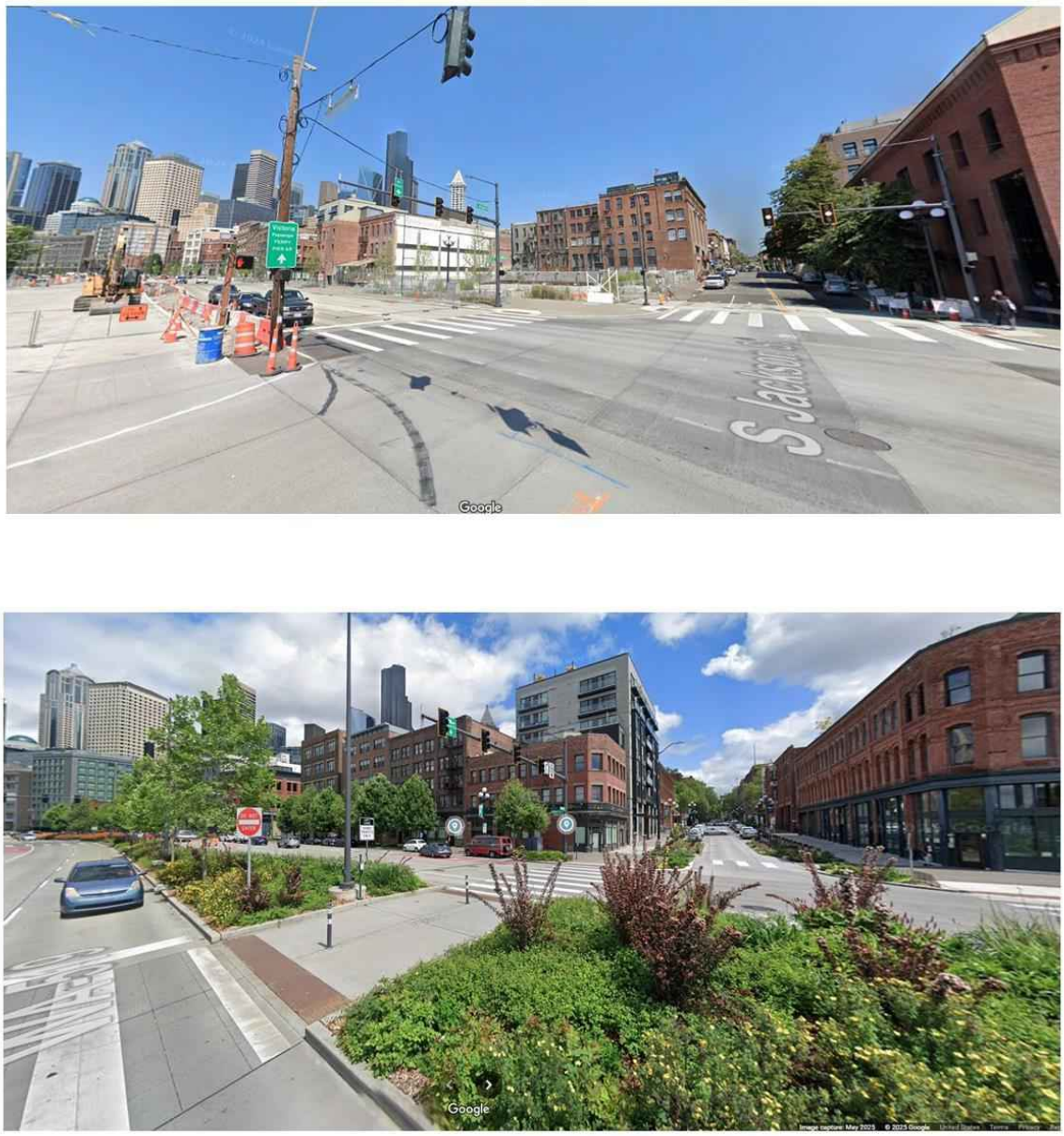
Visual Character of Existing Campus

The visual character of the existing Harborview campus is characterized by a variety of building types and paved and landscaped open spaces. Views generally consist of the immediate surrounding streetscape, with some distant downtown City-scape views available from public rights-of-way.

Buildings on the campus are primarily mid- to high-rise, ranging in height from 4 to 15 stories with the campus buildings comprising 2,076,959 square feet of floor area within the Major Institution Overlay (MIO) boundary, including the Center Tower, East Hospital, East Clinic, West Hospital, West Clinic, the Ninth & Jefferson Building, Maleng Building, Harborview Hall, and the Research & Training Building.[34]

[34] The Facilities building has been demolished as of June 2025.

Figure 38 :Looking East from Seattle Waterfront



The tallest building on the Harborview campus (within the MIO boundary) is the Center Tower, at 176 feet in height, and the shortest building is the Firehouse at 35 feet tall. Many of the buildings on the Harborview campus are taller than buildings to the south of the campus, but there are also several buildings in the vicinity of similar heights or taller located north of the campus. The Yesler Terrace zoning allows much taller buildings than currently exist; some are in the pipeline and at least one is under construction.

Existing views on campus include 9th Avenue, where Mount Rainier is visible when looking south, as well as the View Park I/Garage, where Puget Sound, the Olympic Mountains, Downtown Seattle, and Mount Rainier are visible when looking west and south. The proposed Alternatives will not impact views on 9th Avenue.

Proposed MIO Height Limit Amendment

The proposed MIMP Major Amendment includes a height increase in the MIO-240 zone west of private roadway known as 8th Avenue from a maximum of 240 feet to a maximum of 320 feet. Further descriptions of the visual character of the boundary revision areas follows.

Existing Campus Vicinity

Harborview Medical Center is also visually affected by the pattern of land uses that border the campus. Harborview is located within the center of the First Hill-Capitol Hill Urban Center as designated in the City of Seattle Comprehensive Plan, which is an urban neighborhood consisting of multi-family residential areas, major institutions, and commercial streets. Other major institutions in the area include Virginia Mason Medical Center, Seattle University, and Swedish Hospitals First Hill Campus.

ALTERNATIVES

The viewshed from each of these viewpoints/scenic routes was analyzed for development proposed as part of the *MIMP Major Amendment.* While the Planned Tower I and Potential Tower II would be most visible from each of these locations, in most cases the proposed buildings blend into the existing Downtown and First Hill building massing that occurs adjacent to the Harborview Campus. Photo simulations of both Alternative 1 and Alternative 2 provide a comparison between development associated with the proposed height increase within the western MIO boundary under Alternative 1 (showing the towers at a height of 320 feet), with development associated with the existing height limit under Alternative 2 (showing the towers at a height of 240 feet).

With the amount of development that is planned as part of Alternatives 1 and 2, changes in views and the aesthetic character of portions of the Harborview campus would occur. In light of this, public views from four locations surrounding the campus have been identified and architectural depictions of possible subsequent campus development have been prepared for each. The eight locations include:

- Viewpoint 1 – Jose Rizal Park, Looking North)
- Viewpoint 2a – Harborview Hospital Viewpoint, Looking West/South
- Viewpoint 2b –View Park I/Garage Viewpoint, Looking West
- Viewpoint 3 – I-5, Looking South
- Viewpoint 4 – I-5, Looking North
- Viewpoint 5 – Yesler Way, Looking East
- Viewpoint 6 – Yesler Way, Looking West
- Viewpoint 7 - Boren Avenue Looking South
- Viewpoint 8 - Boren Avenue Looking North
- Viewpoint 9 – From Jack Block Point Park, Looking East

The graphics show the view as it presently exists, together with a rendering of how future development may appear. The rendering shows planned and potential development as an opaque, white building massing.

City Designated Public Viewpoints and Parks

- Viewpoint 1 – Figure 35 depicts the existing and proposed view looking north from the protected viewpoint at Dr. Jose Rizal Park (refer to **Figure 39** for the viewpoint location). Under existing conditions, the Harborview campus is distantly visible to the north of the viewpoint, on the east (right) side of I-5. Other structures visible from the viewpoint such as the Columbia Tower and the Seattle Municipal Tower are taller and more prominent. Under the No Action Alternative, these conditions would remain the same.

  Under the proposed Alternative 1 development, Planned Tower I would be developed in the footprint of the existing View Park I/Garage and would reach the amended maximum height limit of 320 feet in the MIO boundary west of private roadway known as 8th Avenue. The location and height of the planned tower would be the same regardless of Design Option 1 or 2. The proposed view under Alternative 1 also depicts Potential Tower II that could be developed on the project site in the footprint of the existing View Park II/Garage.

This tower would also reach the new MIO maximum height limit of 320 feet. These towers, both planned and potential, would be distantly visible from Viewpoint 1, but the impacts to the view are not anticipated to be significant as the towers blend into the existing Downtown and First Hill building massing that occurs in this area of the city adjacent to the Harborview Campus.

Under Alternative 2, both Planned Tower I and Potential Tower II would be consistent with the existing MIO boundary height limit of 240 feet. The footprints of the towers would be slightly larger than under Alternative 1, but they would be located in the footprints of the existing View Park I/Garage and View Park II Garage, respectively. These towers would be distantly visible from Viewpoint 1, and the impacts would be similar to those under Alternative 1, though slightly reduced due to the difference in maximum building height.

Figure 39: View from Jose Rizal Park, Looking North

NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



- Viewpoint 2a – **Figure 40** depicts the existing and proposed view looking west from the protected viewpoint at Harborview, which is located at the intersection of private roadway known as 8th Avenue & Jefferson.

  Under existing conditions, Mount Rainier is faintly visible to the south (left) and partial views of Puget Sound and West Seattle are visible looking west beyond the Downtown Core. There are several taller trees visible in the foreground. Other structures visible from the viewpoint, such as the King County Jail are prominent. Under the No Action Alternative, these conditions would remain the same.

  Under both Alternatives 1 and 2, the Planned Tower I would be developed in the footprint of the existing View Park I/Garage and would reach the amended maximum height limit of 320 feet in the MIO boundary west of private roadway known as 8th Avenue. The location and height of the planned tower would be the same regardless of Design Option 1 or 2.

  Development of the Planned and Potential Towers under the MIMP Major Amendment would represent a significant impact to views from the Harborview Hospital Viewpoint to the west towards West Seattle, the Downtown Core and Puget Sound, as these views would be obscured by the new towers; views of Mt. Rainier to the south, would also be obscured.

- Viewpoint 2b –**Figure 41** depicts the existing view looking west from the informal public viewpoint on top of the View Park I/Garage at the edge of the Harborview Campus.

  Under existing conditions, the Puget Sound and the Olympic Mountains are visible looking west beyond the Downtown corridor, where other structures such as Lumen Field are visible. Other structures visible from the viewpoint such as the Columbia Tower and the Seattle Municipal Tower are taller and more prominent. Under the No Action Alternative, these conditions would remain the same.

  Under both Alternatives 1 and 2, the Planned Tower I would be developed in the footprint of the existing View Park I/Garage and would reach the amended maximum height limit of 320 feet in the MIO boundary west of private roadway known as 8th Avenue. The location and height of the planned tower would be the same regardless of Design Option 1 or 2. Views from this informal viewpoint would not be available following construction of the Planned Tower I building, as this viewpoint would no longer exist.

Figure 40: View from Harborview Viewpoint, Looking West

ALTERNATIVES 1 and 2



NO ACTION ALTERNATIVE



Figure 41: View from Informal Public Viewpoint on View Park I/Garage

NO ACTION ALTERNATIVE



Under Alternatives 1 and 2, this view would be removed entirely due to the addition of Planned New Patient Tower I and Potential New Patient Tower II.

Scenic Routes

- Viewpoint 3 – **Figure 42** depicts the existing and proposed view looking south from the I-5. Under existing conditions, the Harborview campus is visible to the east (left), and Mount Rainier is distantly visible to the south. Under the No Action Alternative, these conditions would remain the same.

  Under the proposed Alternative 1 development, Planned Tower I would be developed in the footprint of the existing View Park I/Garage and would reach the amended maximum height limit of 320 feet in the MIO boundary west of private roadway known as 8th Avenue. The location and height of the planned tower would be the same regardless of Design Option 1 or 2. The proposed view under Alternative 1 also depicts Potential Tower II that could be developed on the project site in the footprint of the existing View Park II/Garage. This tower would also reach the new MIO maximum height limit of 320 feet. These towers, both planned and potential, would be visible from Viewpoint 3, but the impacts to the view are not anticipated to be significant as it does not disrupt the scenic view of Mount Rainier. Views of the proposed development would blend into the existing Downtown and First Hill building massing that occurs in this area of the city adjacent to the Harborview Campus.

  Under Alternative 2, both Planned Tower I and Potential Tower II would be consistent with the existing MIO boundary height limit of 240 feet. The footprints of the towers would be slightly larger than under Alternative 1, but they would be located in the footprints of the existing View Park I/Garage and View Park II Garage, respectively. These towers would be visible from Viewpoint 3, and the impacts would be similar to those under Alternative 1, though slightly reduced due to the difference in maximum building height. The scenic view of Mount Rainier would not be disrupted.

- Viewpoint 4 – **Figure 43** depicts the existing and proposed view looking north along I-5. Under existing conditions, the Harborview campus is not visible from the viewpoint, on the east (right) side of I-5 due to the topography in this area, as well as the I-5 retaining walls that run adjacent to the highway in this area. Under the No Action Alternative, these conditions would remain the same.

  Under the proposed Alternative 1 development, Planned Tower I would be developed in the footprint of the existing View Park I/Garage and would reach the amended maximum height limit of 320 feet in the MIO boundary west of private roadway known as 8th Avenue. The location and height of the planned tower would be the same regardless of Design Option 1 or 2. The proposed view under Alternative 1 also depicts Potential Tower II that could be developed on the project site in the footprint of the existing View Park II/Garage. This tower would also reach the new MIO maximum height limit of 320 feet.

Figure 42: View from I-5, Looking South

NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



Figure 43: View from I-5, Looking North

NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



The very tops of these towers, both planned and potential, would be visible just above the tree line from Viewpoint 4 but the impacts to the view are not anticipated to be significant as it does not disrupt the scenic view of the Downtown skyline or the brief glimpses of Puget Sound beyond along the route. Views of the proposed development would blend into the existing Downtown and First Hill building massing that occurs in this area of the city adjacent to the Harborview Campus.

Under Alternative 2, both Planned Tower I and Potential Tower II would be consistent with the existing MIO boundary height limit of 240 feet. The footprints of the towers would be slightly larger than under Alternative 1, but they would be located in the footprints of the existing View Park I/Garage and View Park II Garage, respectively. Under this Alternative, the very upper floors of the towers would also be visible from Viewpoint 4, and the impacts would be the same as those under Alternative 1.

- Viewpoint 5 – **Figure 44** depicts the existing and proposed view looking northeast from Yesler Way. Under existing conditions, the Harborview campus is visible to the northeast of the viewpoint, on the east side of I-5. Other structures visible from the viewpoint include the Center Tower, which is a protected Seattle Landmark. Under the No Action Alternative, these conditions would remain the same.

  Under the proposed Alternative 1 development, Planned Tower I would be developed in the footprint of the existing View Park I/Garage and would reach the amended maximum height limit of 320 feet in the MIO boundary west of private roadway known as 8th Avenue. The location and height of the planned tower would be the same regardless of Design Option 1 or 2. The proposed view under Alternative 1 also depicts Potential Tower II that could be developed on the project site in the footprint of the existing View Park II/Garage.

  This tower would also reach the new MIO maximum height limit of 320 feet. These towers, both planned and potential, would be visible from Viewpoint 5, but the impacts to the view are not anticipated to be significant as it does not disrupt the potential scenic view of South Downtown or the brief glimpses of Mt Rainier along the route. Views of the proposed development would blend into the existing First Hill building massing that occurs in this area of the city adjacent to the Harborview Campus. The view of the Center Tower is the same as the No Action Alternative.

Figure 44: View from Yesler Way, Looking Northeast

NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



Under Alternative 2, both Planned Tower I and Potential Tower II would be consistent with the existing MIO boundary height limit of 240 feet. The footprints of the towers would be slightly larger than under Alternative 1, but they would be located in the footprints of the existing View Park I/Garage and View Park II Garage, respectively. These towers would be distantly visible from Viewpoint 5, and the impacts would be similar to those under Alternative 1, though slightly reduced due to the difference in maximum building height. The view of the Center Tower is not impacted.

- **Viewpoint 6 – Figure 45** depicts the existing and proposed view looking west from Yesler Way. Under existing conditions, the Harborview campus is not visible from the viewpoint, on the east (right) side of I-5. Under the No Action Alternative, these conditions would remain the same. The scenic view of the Puget Sound is not impacted.

  Under the proposed Alternative 1 development, Planned Tower I would be developed in the footprint of the existing View Park I/Garage and would reach the amended maximum height limit of 320 feet in the MIO boundary west of private roadway known as 8th Avenue. The location and height of the planned tower would be the same regardless of Design Option 1 or 2. The proposed view under Alternative 1 also depicts Potential Tower II that could be developed on the project site in the footprint of the existing View Park II/Garage. This tower would also reach the new MIO maximum height limit of 320 feet. These towers, both planned and potential, would not be visible from Viewpoint 6.

  Under Alternative 2, both Planned Tower I and Potential Tower II would be consistent with the existing MIO boundary height limit of 240 feet. The footprints of the towers would be slightly larger than under Alternative 1, but they would be located in the footprints of the existing View Park I/Garage and View Park II Garage, respectively. These towers would not be visible from Viewpoint 6, and the impacts would be the same as those under Alternative 1.

- **Viewpoint 7 – Figure 46** depicts the existing and proposed view looking south along Boren Avenue in the vicinity of the existing Boren Garage. Under existing conditions, the Harborview campus, which is located to the west of Boren Avenue in this view, is not readily visible from this part of the scenic route. The existing Boren Garage is in the background on the right (west), covered with vegetation. Under the No Action Alternative, these conditions would remain the same. The scenic view to the south towards Mt. Rainier would not be impacted. Under both Alternatives 1 and 2, redevelopment of the existing Boren Garage, which is a Potential Project under the MIMP Major Amendment, would happen in the footprint of the existing Boren Garage and would reach the maximum MIO height limit of 105 feet.

Figure 45: View from Yesler Way, Looking West

NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



Figure 46: Looking South along Boren Avenue

NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



As shown in **Figure 46**, a small portion of the new Boren Garage would be visible along the west side of Boren Avenue. This does not have a significant impact, as the garage would blend into the existing development and not impact on the view along Boren Avenue.

- **Viewpoint 8 – Figure** 47 depicts the existing and proposed view looking north along Boren Avenue in the vicinity of the existing Boren Garage. Under existing conditions, the Harborview campus, which is located to the east of Boren Avenue in this view, is not readily visible from this part of the scenic route. The existing Boren Garage is mostly blocked from view in the background on the left (west) and is covered with vegetation. Under the No Action Alternative, these conditions would remain the same. The scenic view to the north would not be impacted.

  Under both Alternatives 1 and 2, redevelopment of the existing Boren Garage, which is a Potential Project under the MIMP Major Amendment, would happen in the footprint of the existing Boren Garage and would reach the maximum MIO height limit of 105 feet. As shown in **Figure** 47 a small portion of the new Boren Garage would be visible along the west side of Boren Avenue. This does not have a significant impact, as the garage would blend into the existing development and not impact on the view along Boren Avenue.

Views of Historic Landmarks

- **Viewpoint 9 – Figure 48** depicts the existing and proposed view looking east from Jack Block Park in West Seattle. Under existing conditions, a view of the entire City of Seattle skyline is available, including the top of the Center Tower on the Harborview campus, which is visible to the south of the Columbia Tower. Under the No Action Alternative, these conditions would remain the same.

  Under the proposed Alternative 1 development, Planned Tower I would be developed in the footprint of the existing View Park I/Garage and would reach the amended maximum height limit of 320 feet in the MIO boundary west of private roadway known as 8th Avenue. The location and height of the planned tower would be the same regardless of Design Option 1 or 2. The proposed view under Alternative 1 also depicts Potential Tower II that could be developed on the project site in the footprint of the existing View Park II/Garage.

Figure 47: Looking North along Boren Avenue

NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



Figure 48: Looking East from Jack Block Park



This tower would also reach the new MIO maximum height limit of 320 feet. These towers, both planned and potential, would be visible from Jack Block Park. The Center Tower would also still be visible from this location given the spacing between the two towers under this alternative. The impacts to this view are not anticipated to be significant as it does not disrupt a clear view of the Center Tower. Views of the proposed development would blend into the existing Downtown and First Hill building massing that occurs in this area of the city adjacent to the Harborview Campus.

Under Alternative 2, both Planned Tower I and Potential Tower II would be consistent with the existing MIO boundary height limit of 240 feet. The footprints of the towers would be slightly larger than under Alternative 1, but they would still be located in the footprints of the existing View Park I/Garage and View Park II Garage, respectively. These towers, both planned and potential, would be visible from Jack Block Park under this alternative. A smaller portion of the Center Tower would also still be visible from this location under Alternative 2, but less so than under Alternative 1 given the more limited spacing between the two towers under this alternative. The impacts to this view are anticipated to be more significant than those under Alternative 1, as the Planned and Potential Towers would not provide as clear a view of the Center Tower as the development under Alternative 1. Views of the proposed development would blend into the existing Downtown and First Hill building massing that occurs in this area of the city adjacent to the Harborview Campus.

MITIGATION MEASURES

The following mitigation measures have been identified to lessen impacts related to protected views resulting from the *MIMP Major Amendment*:

- In response to potential impacts to the protected Harborview Hospital Viewpoint located at 8th and Jefferson, the protected viewpoint could be relocated to a different location on campus that is also publicly accessible. For example, there is a raised platform that is currently located between the two View Park garages that could accommodate the viewpoint. This could also replace the informal public viewpoint that is currently located on the View Park I/Garage.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

There are impacts to views from one of the protected viewpoints on the Harborview Campus, however, the SEPA lead agency (King County) does not consider these impacts to reach the level of significance. Additionally, with implementation of the mitigation measure listed above, no significant unavoidable adverse aesthetic (viewshed-related) impacts are anticipated.

SHADOWS

This section of the Final EIS describes existing shadow conditions on public open spaces in the campus vicinity, as well as key on-campus open spaces and evaluates the potential shading impacts that could occur to these spaces as a result of the implementation of the *MIMP Major Amendment* or the other EIS Alternatives.

EXISTING CONDITIONS

Existing Campus

Existing buildings on the Harborview Medical Center campus are the primary sources of shadows. Existing campus buildings are primarily mid- to high-rise, ranging in height from four to 15 stories, as well as a six-story skybridge located between the East Hospital and the Maleng Building that spans 9th Avenue. The hospital's campus is comprised of 12 buildings in Seattle's First Hill neighborhood.[35] Buildings in the campus include the View Park I/Garage; View Park II/Garage; the Walter Scott building (security building); main hospital block comprised of East and West Hospital, Center Tower, and East Clinic; Harborview Hall; Norm Maleng Inpatient Building; Research & Training Building; Ninth & Jefferson Building; and Firehouse Building. The main hospital block is surrounded by 9th Avenue to the east, private roadway known as 8th Avenue to the west, Jefferson Street to the north, and Alder Street to the south.

Open Spaces on the Harborview Campus

Existing Open/Green Spaces on campus include the green grass park/space at the top of View Park I/Garage, which would be eliminated with construction of the Planned Tower I.

Existing Campus Vicinity

Open Spaces in Site Vicinity

There are no protected open spaces in the direct vicinity of the campus; the closest protected open space is Yesler Terrace Park, about a quarter mile to the southeast of the Harborview campus. However, none of the proposed alternatives will create shadows that will reach or directly impact the park.

[35] The Facilities building has been demolished as of June 2025.

IMPACTS

Alternatives 1 and 2

Planned and potential future development on the Harborview Medical Center campus and in the MIO expansion areas would generate shadows over adjacent portions of the campus and surrounding streets. In general, the time of greatest shading would occur during periods when the sun is at a low angle, including mid- to late afternoon in the winter and late afternoon to early evening in the summer.

Factors that influence the extent of shading include weather (e.g., cloud cover); building height, width, and facade orientation; and the proximity of other intervening structures, topographic variations, and significant landscaping (e.g., tall trees). Generally, greater building heights extend the length of the shadow cast, and increased mass (or cross-sectional width) widens the shadow cast by a building. Shadows from tall buildings extend farther from a building, but their effects on more distant locations are of shorter duration, because the sun's motion translates into faster movement of the shadow over the ground. Buildings with greater mass create wider shadows and an increased number of shaded areas within the immediate area (e.g., adjacent streets, public spaces, etc.), but the reach of the shadow would be limited by the building's height.

This section of the Draft EIS contains shadow diagrams that depict shading under existing conditions/No Action Alternative[36], from Alternative 1, and Alternative 2 for vernal equinox (approx. March 20th), summer solstice (approx. June 20th), autumnal equinox (approx. Sept. 22nd), and winter solstice (approx. December 21st).

The figures and accompanying text below describe possible shadow impacts to the surrounding area that could result from full buildout of planned and potential development associated with Alternatives 1 and 2, with consideration of shading that already occurs from existing buildings. Alternatives 1 and 2 would be built in the footprint of the existing View Park I/Garage, removing that open space from the Harborview campus.

The following analysis summarizes shadow impacts for three times of the day on each of the key days of the solar year. These key days of the solar year and times of the day depict worst-case impacts, as well as times when the open spaces might experience the greatest amount of use. Shadow-related impacts, however, can also occur at other times of the day throughout the year.

[36] Shadow conditions under the No Action Alternative would be similar to existing conditions because the projects that could be developed under this alternative consist mostly of renovations to existing buildings.

Because of the earth's rotation, the duration of shadow-related impacts varies for a stationary observer[37] based on season and depending upon the width of the shadow. The shadow graphics that are included have been adjusted to compensate for topography and, in the case of vernal equinox, summer solstice, and autumnal equinox, daylight savings time.[38]

Vernal (Spring) Equinox

Sunrise on vernal equinox (approx. March 20th) occurs at about 6:11 AM and sunset at 6:21 PM.

The extent of possible shading from the proposed full buildout of Alternatives 1 and 2 must also be considered within the context of climatic data for the month (e.g., on average the number of clear, partly cloudy, and cloudy days). Data[39] indicate that on average March has 4 clear days, 8 partly cloudy days and 19 cloudy days.[40]

As indicated in **Figure 49**, for the Vernal Equinox, potential impacts depicting shadows from new development under Alternatives 1 and 2, together with shadows from other nearby existing buildings that would remain, were evaluated at 9 AM, 12 PM and 4 PM. Pacific Daylight Savings Time is in effect on this day. The existing conditions/No Action Alternative shadows are also provided for comparison purposes.

- At **9 AM**, shadows from planned and potential development associated with Alternative 1 and Alternative 2 would extend to the northwest and mostly shade northbound and southbound lanes of I-5. Shadow impacts under Alternative 2 would be slightly reduced compared to Alternative 1 due to the reduction in maximum building height. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not substantially shade any public or private open space areas.

[37] The rate of change of the sun's angle relative to the earth varies widely by season – from about 5 degrees horizontally and 2 degrees vertically every 15 minutes in June to 3 degrees horizontally and 1 degree vertically every 15 minutes in December.

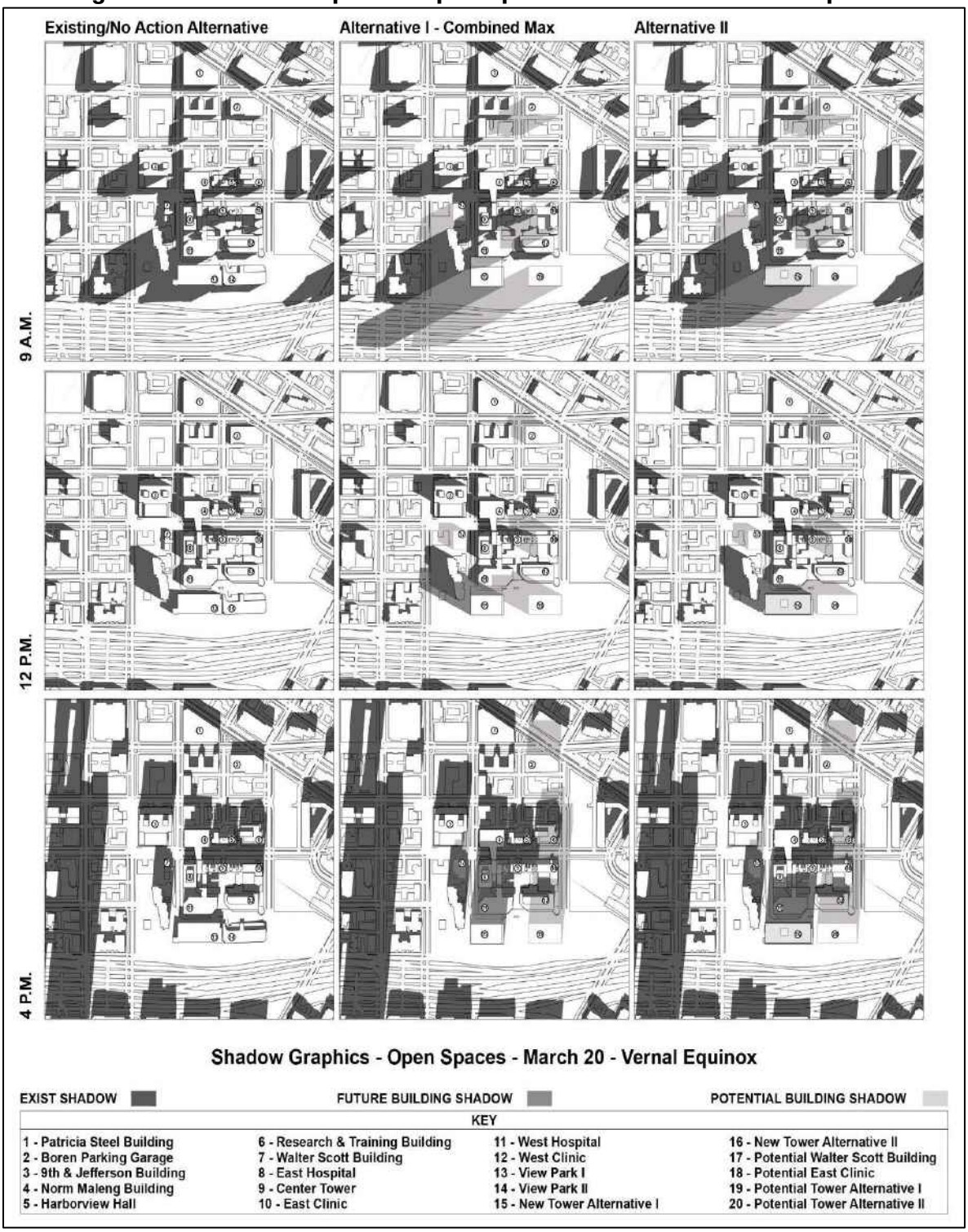
[38] Pacific Daylight Savings Time (PDST) applies to shadow impacts associated with spring equinox, summer solstice and autumnal equinox.

[39] NOAA, 2005.

[40] NOAA defines a clear day as one with zero to 3/10 average sky cover, a partly cloudy is one with 4/10 to 7/10 tenths average sky cover and a cloudy day is one with 8/10 to 10/10 tenths average sky cover.

- At **12 PM**, shadows from planned and potential development associated with Alternative 1 and Alternative 2 would extend to the northeast and could affect the Jefferson Terrace complex and the main entrance of the West Clinic. Shadow impacts under Alternative 2 would be slightly reduced compared to Alternative 1 due to the reduction in maximum building height. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not substantially shade any public or private open space areas.

Figure 49: Shadow Graphics – Open Spaces – March 20 – Vernal Equinox



- At **4 PM**, shadows from planned and potential development associated with Alternative 1 and Alternative 2 would extend to the east. The shadows cast from the development in these alternatives would shade the East Hospital as well as the main entrance to the West Hospital and West Clinic. Shadow impacts under Alternative 2 would be slightly reduced compared to Alternative 1 due to the reduction in maximum building height. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not substantially shade any public or private open space areas that are not already currently shaded by existing buildings.

Summer Solstice

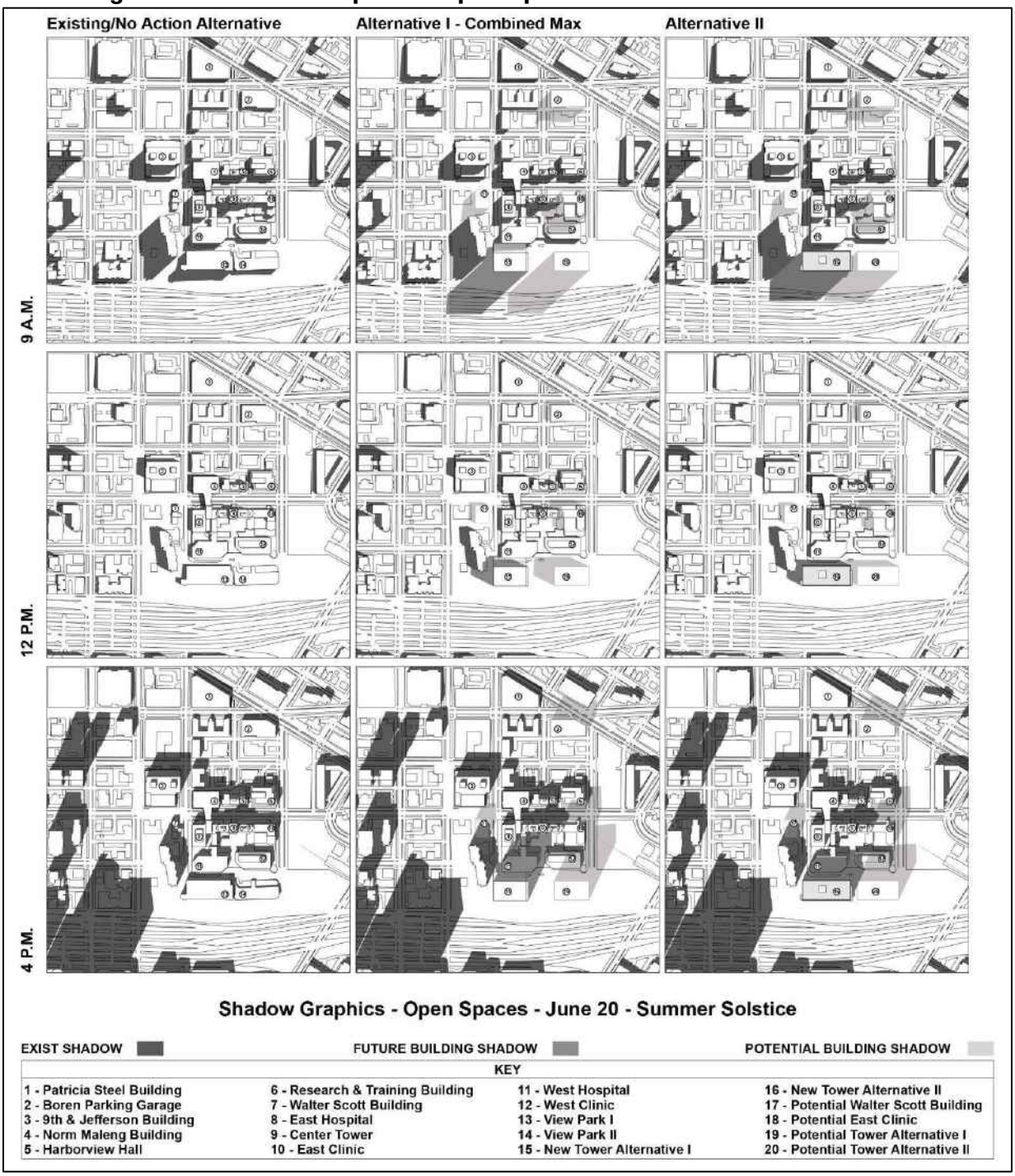
Sunrise on summer solstice (approx. June 20th) occurs at about 5:11 AM and sunset at 9:10 PM. Pacific Daylight Savings Time remains in-effect on this day. Climatic data[41] for June indicates that on average June has 7 clear days, 8 partly cloudy days and 15 cloudy days.[42] As indicated by **Figure 50** for summer solstice, potential impacts depicting shadows from both planned and potential development under Alternatives 1 and 2, together with shadows from other nearby existing buildings that would remain, were evaluated at 9 AM, 12 PM and 4 PM. The existing conditions/No Action Alternative shadows are also provided.

- At **9 AM**, shadows from planned and potential development associated with Alternatives 1 and 2 would extend to the northwest and mostly shade the northbound lanes of I-5. Shadow impacts under Alternative 2 would be reduced compared to Alternative 1 due to the reduction in maximum building height. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not substantially shade any public or private open space areas.

41 NOAA, 2005.

42 NOAA defines a clear day as one with zero to 3/10 average sky cover, a partly cloudy day is one with 4/10 to 7/10 tenths average sky cover and a cloudy day is one with 8/10 to 10/10 tenths average sky cover.

Figure 50: Shadow Graphics – Open Spaces – June 20 – Summer Solstice



- At **12 PM**, shadows from planned and potential development associated with Alternatives 1 and 2 would extend towards the northeast and would shade the front façade of the Jefferson Terrace apartment complex. Shadow impacts under Alternative 2 would be reduced compared to Alternative 1 due to the reduction in maximum building height. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not substantially shade any public or private open space areas.

- At **4 PM**, shadows from development associated with Alternatives 1 and 2 would extend to the southeast and would shade the West Hospital and part of the entrance of the West Clinic and West Hospital. Shadow impacts under Alternative 2 would be slightly reduced compared to Alternative 1 due to the reduction in maximum building height. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not shade any public or private open space areas.

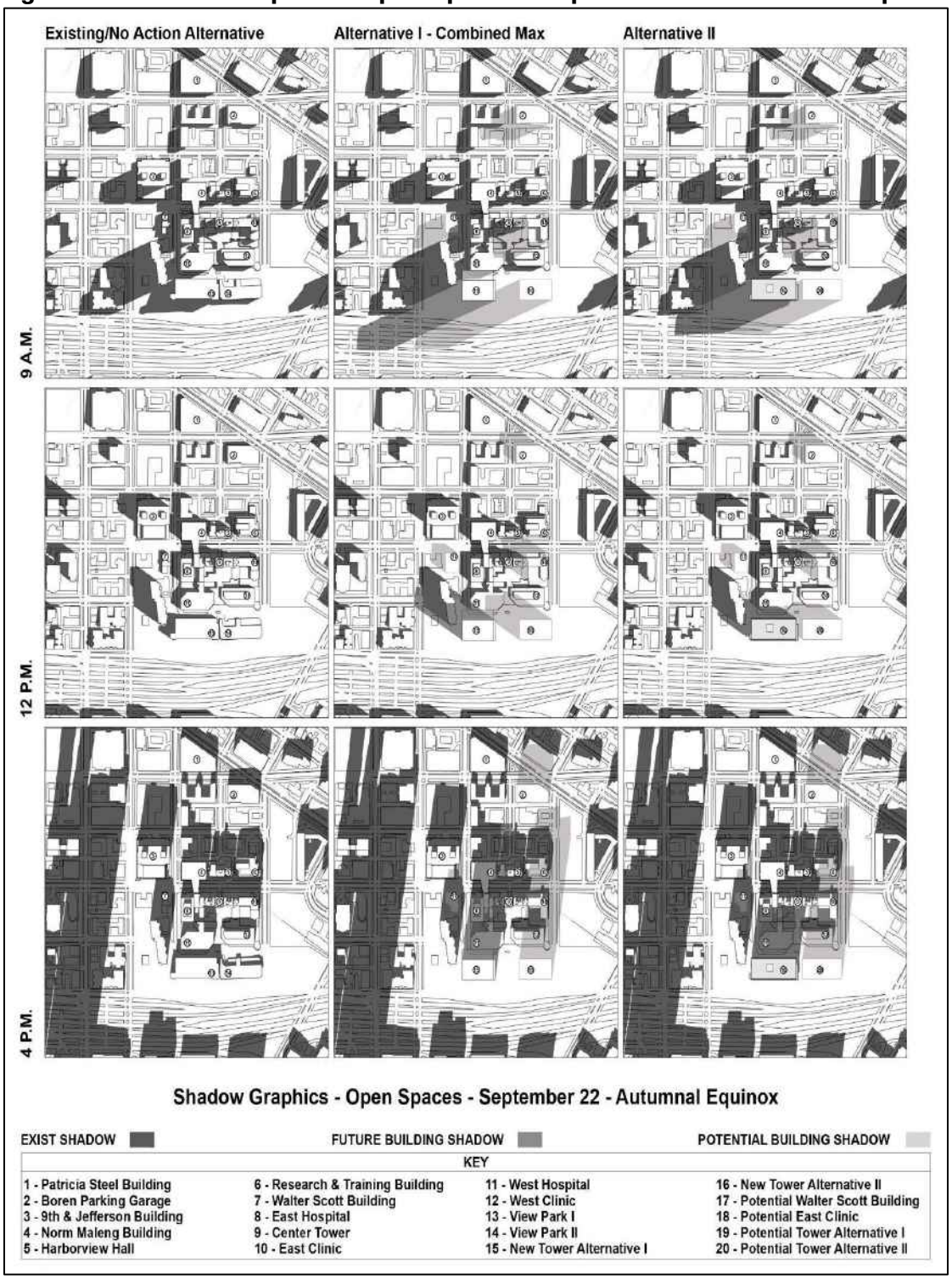
Autumnal Equinox

Sunrise on autumnal equinox (approx. September 22nd) occurs at about 6:13 AM and sunset at 8:11 PM. Pacific Daylight Savings Time remains in effect on this day.

Climatic data[8] for the month of September indicates that on average September has 3 clear days, 6 partly cloudy days and 22 cloudy days. [9]

As indicated by **Figure 51** for autumnal equinox, potential impacts depicting shadows from both planned and potential development under Alternatives 1 and 2, together with shadows from other nearby existing buildings that would remain, were evaluated at 9 AM, 12 PM and 4 PM. The existing conditions/No Action Alternative shadows are also provided for comparison purposes.

Figure 51: Shadow Graphics – Open Spaces – September 22 – Autumnal Equinox



- At **9 AM**, shadows from planned and potential development associated with Alternatives 1 and 2 would extend to the northwest and would partially shade the northbound lanes of I-5. Shadow impacts under Alternative 2 would be slightly reduced compared to Alternative 1 due to the reduction in maximum building height. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not shade any public or private open space areas.

- At **12 PM**, shadows from planned and potential development associated with Alternatives 1 and 2 would extend to the northeast and cast shadows over the Jefferson Terrace complex and part of the West Hospital. Shadow impacts under Alternative 2 would be slightly reduced compared to Alternative 1 due to the reduction in maximum building height. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not shade any public or private open space areas.

- At **4 PM**, shadows from planned and potential development associated with Alternatives 1 and 2 would extend to the east and would shade the West Hospital, East Hospital, Norm Maleng Building, and the main entrance to the West Clinic. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not substantially shade any public or private open space areas that are not already currently shaded by existing buildings.

Winter Solstice

Sunrise on winter solstice (approx. December 21st) occurs at about 7:54 AM and sunset at 4:19 PM. Climatic data[43] for the month of December indicate that on average December has 3 clear days, 4 partly cloudy days and 23 cloudy days.[44]

As indicated in **Figure 52**, for winter solstice, potential impacts depicting shadows from planned and potential development under Alternatives 1 and 2 together with shadows from other nearby existing buildings that would remain, were evaluated at 9 AM, 12 PM and 4 PM. The existing conditions/No Action Alternative shadows are also provided for comparison purposes.

- At **9 AM**, shadows from planned and potential development associated with Alternatives 1 and 2 would extend in a northwest direction and would shade the Jefferson Terrace apartment complex and part of the West Clinic. Shadow impacts under Alternative 2 would be slightly reduced compared to Alternative 1 due to the reduction in maximum building height. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage.

  Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not substantially shade any public or private open space areas that are not already currently shaded by existing buildings.

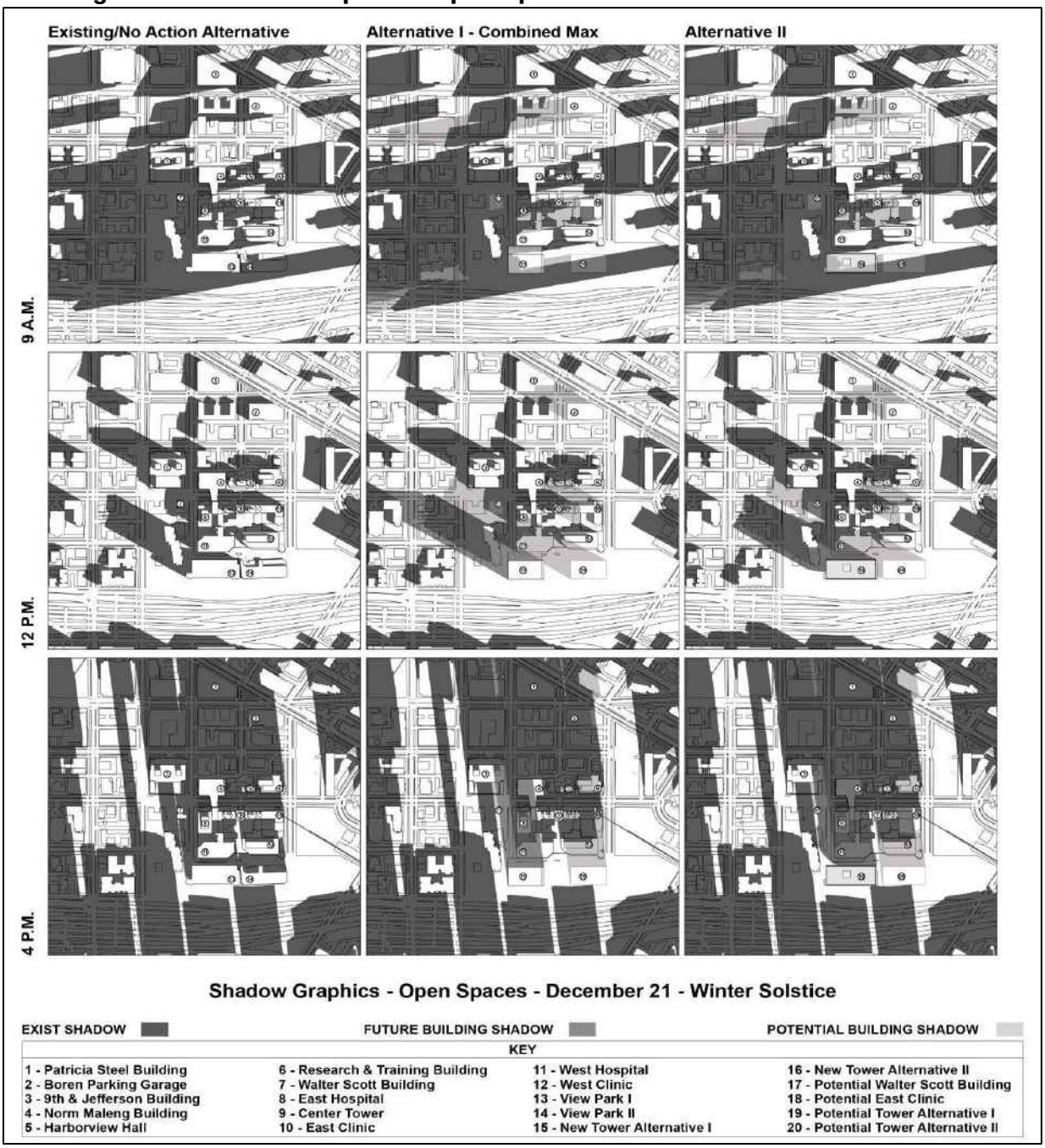
- At **12 PM**, shadows from planned and potential development associated with Alternatives 1 and 2 would extend in a northerly direction and could affect the Jefferson Terrace Complex and the West Hospital. Shadow impacts under Alternative 2 would be slightly reduced compared to Alternative 1 due to the reduction in maximum building height. There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area.

[43] NOAA, 2005.

[44] NOAA defines a clear day as one with zero to 3/10 average sky cover, a partly cloudy day is one with 4/10 to 7/10 tenths average sky cover and a cloudy day is one with 8/10 to 10/10 tenths average sky cover.

The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not substantially shade any public or private open space areas that are not currently shaded by existing buildings.

Figure 52: Shadow Graphics – Open Spaces – December 21 – Winter Solstice



- At **4 PM**, shadows from planned and potential development associated with Alternatives 1 and 2 would extend in an easterly direction and would combine with shadows from existing buildings to cover most of the Harborview campus in shadow and partially shading the 9th and Jefferson building. Shadow impacts under Alternative 2 would be slightly reduced compared to Alternative 1 due to the reduction in maximum building height.

There would be an overall open space reduction on campus with the development of Planned Tower I under both Alternative 1 and 2, which would remove the open space at the top of View Park I/Garage. Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall shading of the area and would not substantially shade any public or private open space areas that are not already currently shaded by existing buildings.

MITIGATION MEASURES

No significant adverse shadow impacts are anticipated under Alternatives 1 and 2; therefore, no mitigation measures are required.

SIGNIFICANT UNAVOIDABLE IMPACTS

Shadow impacts associated with development of Alternative 1, Alternative 2, and the No Action Alternative would not be expected to result in significant impacts on- or off-campus.

LIGHT AND GLARE

This section of the Draft EIS describes the existing light and glare conditions on the Harborview campus and vicinity and evaluates the potential impacts that could occur related to reflected glare associated with the DEIS Alternatives (Alternative 1 and Alternative 2) under the proposed *Harborview Major Institution Master Plan Major Amendment (MIMP Major Amendment)*.

PURPOSE

The purpose of the solar glare analysis is to evaluate light and glare-related impacts -- specifically reflected solar glare -- resulting from glazing associated with the Planned Tower I and Potential Tower II that are proposed for the *MIMP Major Amendment*. The focus of the analysis is the potential for impact on motorists on northbound and southbound I-5 during the AM and PM peak traffic hours.

The stretch of I-5 through Downtown Seattle is the busiest highway in Washington state, with a daily average of over 274,000 vehicles in the mainline and express lanes.[45]

PROJECT OVERVIEW

Although the specific building materials for the towers/buildings have not been defined, building materials could potentially consist of glazing, glass, and/or metal panels. It is understood that any glazing and/or glass or metal panels on the façades of the building would be consistent with the City's Energy Code requirements. Reflectivity would be dictated by the nature of glass that is employed and the requirements set forth by the City's Energy Code. However, it is anticipated that no excessively reflective surfaces (i.e., mirrored glass, or polished metals) that go beyond what is required to meet energy-related code provisions would be proposed anywhere on the exterior of the towers. Street lighting will extend along the length of the buildings as required.

Each building entry will be illuminated to ensure safety and visibility. Path lights will be installed along any courtyards/pathways to mark their edges with gentle downward illumination. Additionally, open space areas will include strategically placed lighting to enhance both the aesthetic and functionality of the exterior spaces.

BACKGROUND

Sources of Light and Glare

While the light from vehicle headlights and reflective solar glare from glazing and other specular surfaces on vehicles can cause temporary glare impacts associated with a development project, the principal source of glare associated with most development projects is sunlight reflected from specular surfaces on building facades. Factors influencing the amount of reflective solar glare that may occur include: weather (e.g., cloud cover); building height, width and orientation of the façade; percent of the façade that is glazed or composed of specular material; reflectivity of the glass or specular surfaces; design relationship between the glazed and non-glazed portions of the façade (e.g., glass inset from the sash, horizontal and vertical modulation); the color and texture of building materials that comprise the façade; and the proximity of other intervening structures or landscaping.

[45] https://wsdot.wa.gov/about/transportation-data/travel-data/traffic-count-data.

Principal sources of light that presently occur proximate to the project site include streetlights along adjacent roadways; light from headlights of vehicles operating on adjacent streets and vicinity; and building lighting (interior and in some instances low-level exterior) in the immediate area of the site. Existing streetlight fixtures are approximately 30 feet tall, and the lamps are cobra-style (cobra lamps function by lighting a broad area).

Factors that Affect Solar Glare

Intervening structures and, to an extent, vegetation can mitigate the environmental impacts of reflected solar glare from glazing. Such can occur if these mitigating factors are located between the sun and the glass or specular surface or between the reflective surface of the façade and the area potentially affected by reflected solar glare. While coniferous and/or evergreen vegetation typically affords the greatest amount of mitigation, at times deciduous vegetation can also restrict the amount of solar glare that is reflected from glazing -- from approximately late April to late October when leaves are present. Between late October and late April, while the amount of glare restriction afforded by deciduous trees is substantially less (influenced by the density of the branches), even during this time of the year they can partially restrict the amount of reflected solar glare emanating from glazed surfaces below a height of 20-30 ft.

While figures have been adjusted to compensate for existing buildings and the surrounding topography, they depict a worst-case scenario in that they cannot accurately depict the following factors that would further limit the extent of possible reflected solar glare:

- The mitigating effect of existing and/or proposed on-site trees and street trees; and
- The extent of façade modulation and the actual reflectivity of building materials that are proposed.

Approach

The solar glare analysis has been prepared consistent with provisions of Seattle's Land Use Code and acceptable methodology for projects within the City. The methodology that has been used involves a trigonometric/planimetric approach for determining reflected solar glare impacts. This analysis primarily evaluates reflected solar glare impacts resulting from glazing on the façade of the proposed building during four key periods of the year – vernal equinox (approx. March 20th), summer solstice (approx. June 20th), autumnal equinox (approx. September 22nd), and winter solstice (approx. December 21st).

The glare diagrams that are contained in this analysis include adjustments for:

- The gradients of I-5 based on street profile information;

- Adjacent buildings;
- Depictions of only reflected glare that has potential to impact I-5; and,
- Daylight savings time, which affects vernal equinox, summer solstice, and autumnal equinox.

AFFECTED ENVIRONMENT

Glare Conditions of the Proposed Project

Harborview's campus is located in Seattle's First Hill neighborhood - the main hospital block is surrounded by 9th Avenue to the east, private roadway known as 8th Avenue to the west, Jefferson Street to the north, and Alder Street to the south. Two of the buildings included in the *MIMP Major Amendment* (Planned Tower I and Potential Tower II) would consist of two new 19-story medical towers with varying levels of below-grade parking.

Stationary sources of light (e.g., interior lighting, pedestrian-level lighting, illuminated signage) from the Planned Tower I and the Potential Tower II in the *MIMP Major Amendment* would be visible from locations proximate to the project site. Specific information relating to stationary building light fixtures, signage, façade materials (in terms of specular or reflective characteristics) and glazing would be provided as part of the construction-level plans associated with the City's Building Permit process.

Light fixtures would be shielded and directed away from adjacent properties. It is anticipated that the building facade would not include highly reflective glazing or materials. At times during the construction period, however, required area lighting of the job site (safety requirements) would be provided, which would be noticeable within the immediate vicinity of the project site.

ALTERNATIVES

Alternatives 1 and 2

Planned and Potential Project Conditions

Figure 53 through Figure 60 depict reflected solar glare from the facades of Planned Tower I and Potential Tower II at two times each day during each of the four key days of the solar year – vernal equinox (approx. March 20th), summer solstice (approx. June 20th), autumnal equinox (approx. September 22nd), and winter solstice (approx. December 21st).[46]

[46] The glare diagrams illustrate the potential impacts from reflected solar glare for both Towers, even though development of only the Planned Tower I is definite in the near-term. Potential impacts associated with the south

The two times of the day (8 AM and 5 PM[47]) reflect the two peak hour traffic periods for I-5. It should be noted, however, that solar glare-related impacts may also occur at other times of the day and days of the year. Also, because of the earth's rotation, the duration of reflected solar glare impacts will vary – from several minutes[48] for a stationary observer to substantially less for a mobile observer.

Vernal Equinox – Approximately March 20th (refer to **Figure 53 and Figure 54**). Climatic data indicate that March typically has 3 clear days, 6 partly cloudy days and 22 cloudy days.[49]

façade of the Planned Tower I have been shown with a dotted line to indicate what the potential impact would be until the Potential Tower II is constructed.

47 8:30 AM and 4 PM for winter solstice because sunrise occurs slightly before 8:30 AM and sunset occurs slightly after 4 PM.

48 The rate of change of the sun's angle relative to the earth varies widely by season – from about 5 degrees horizontally and 2 degrees vertically every 15 minutes in June to 3 degrees horizontally and 1 degree vertically every 15 minutes in December.

49 U.S. Dept. of Commerce, NOAA, 1992.

Figure 53: Alternative 1 – Vernal Equinox – March 20

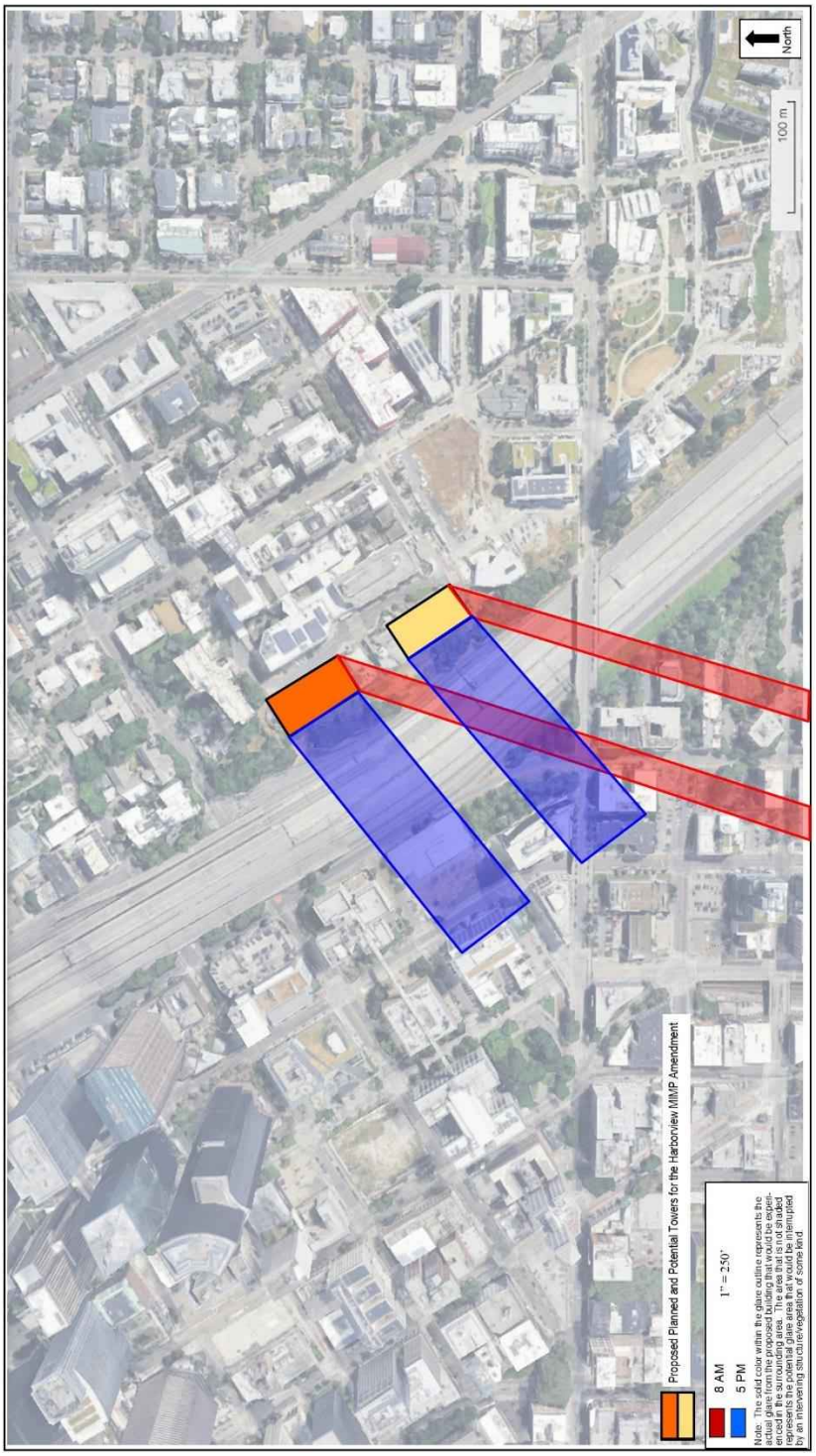
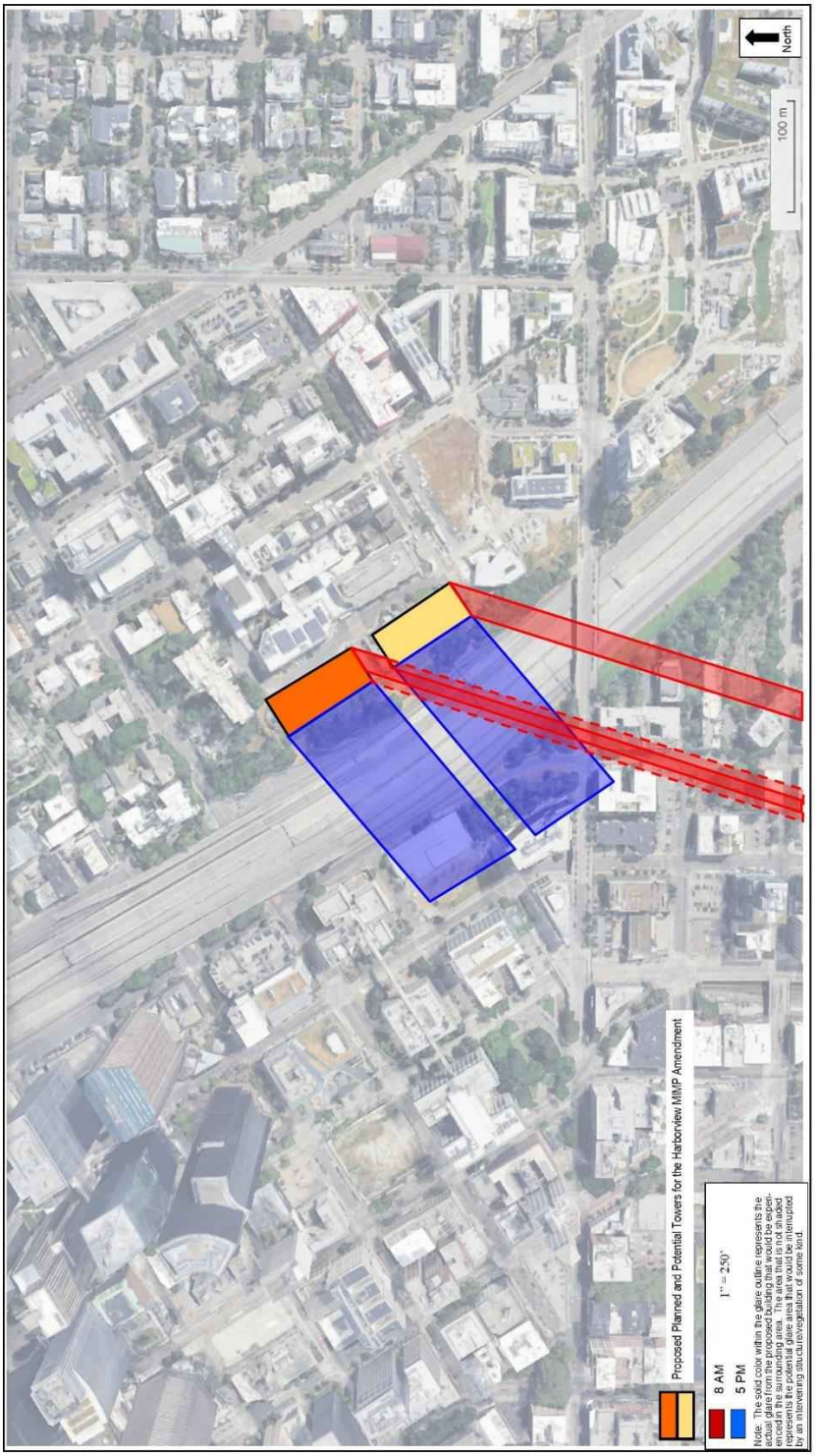


Figure 54: Alternative 2 – Vernal Equinox – March 20



- At **8 AM**, reflected solar glare could extend from the south façades of the towers towards the southwest, and could potentially be visible to northbound motorists on I-5 for approximately 1-2 seconds assuming normal travel speeds[50] adherent to the posted speed limit. While noticeable, the reflected solar glare would mostly be outside of drivers' cone-of-influence and would not be expected to cause problems for motorists nor would they differ substantially from periodic glare from stationary and mobile sources that motorists typically experience.

  Also, due to the fact that I-5 is substantially below the at-grade level of the towers, the reflected glare from the towers would not impact motorists at the street-level of I-5. Additionally, existing street trees along the top of the retaining wall that spans the I-5 ROW in this area would also partially block reflected glare at the I-5 street-level if retained or replaced.

- At **5 PM**, reflected solar glare could extend from the west façades of the towers towards the west and could potentially be visible to north- and south-bound motorists for approximately 5-6 seconds total, approximately 3 seconds for each of the two towers in the proposed development at this time of day assuming normal travel speeds adherent to the posted speed limit. The glare from the two towers would be adjacent to each other and could cause glare to be visible to motorists for a slightly extended period of time.

While noticeable, the reflected solar glare on I-5 would be outside of drivers' cone-of-influence and would not be expected to cause problems for motorists nor would they differ substantially from periodic glare from stationary and mobile sources that motorists typically experience.

Also, due to the fact that I-5 is substantially below the at-grade level of the towers, the reflected glare from the towers would not impact motorists at the street-level of I-5. Additionally, existing street trees along the top of the retaining wall that spans the I-5 ROW in this area would also partially block reflected glare at the I-5 street-level if retained or replaced.

Summer Solstice – Approximately June 20th (refer to **Figure 55** and **Figure 56**). Climatic data indicate that June typically has 5 clear days, 8 partly cloudy days and 17 cloudy days.[51]

[50] The speed limit on I-5 through Downtown Seattle is normally 60 mph. https://geo.wa.gov/datasets/WSDOT::wsdot-roadway-data-speed-limits/

[51] U.S. Dept. of Commerce, NOAA, 1992.

- At **8 AM**, reflected solar glare could extend from the south façades of the towers towards the southwest, and could potentially be visible to northbound motorists on I-5 for approximately 1-2 seconds assuming normal travel speeds adherent to the posted speed limit. While noticeable, the reflected solar glare would mostly be outside of drivers' cone-of-influence and would not be expected to cause problems for motorists nor would they differ substantially from periodic glare from stationary and mobile sources that motorists typically experience.

  Also, due to the fact that I-5 is substantially below the at-grade level of the towers, the reflected glare from the towers would not impact motorists at the street-level of I-5. Additionally, existing street trees along the top of the retaining wall that spans the I-5 ROW in this area would also partially block reflected glare at the I-5 street-level if retained or replaced.

Figure 55: Alternative 1 – Summer Solstice – June 21



Figure 56: Alternative 2 – Summer Solstice – June 21



- At **5 PM**, reflected solar glare could extend from the west façades of the towers towards the west and could potentially be visible to northbound motorists for approximately 5-6 seconds total, approximately 3 seconds for each of the two towers in the proposed development at this time of day assuming normal travel speeds adherent to the posted speed limit. The glare from the two towers would be adjacent to each other and could cause glare to be visible to motorists for a slightly extended period of time. While noticeable, the reflected solar glare on I-5 would be outside of drivers' cone-of-influence and would not be expected to cause problems for motorists nor would they differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. Also, due to the fact that I-5 is substantially below the at-grade level of the towers, the reflected glare from the towers would not impact motorists at the street-level of I-5. Additionally, existing street trees along the top of the retaining wall that spans the I-5 ROW in this area would also partially block reflected glare at the I-5 street-level if retained or replaced.

Autumnal Equinox – Approximately September 22nd (refer to **Figure 57** and **Figure 58**. Climatic data indicate that September typically has 8 clear days, 9 partly cloudy days and 13 cloudy days.[52]

- At **8 AM**, reflected solar glare could extend from the south façades of the towers towards the southwest, and could potentially be visible to northbound motorists on I-5 for approximately 1-2 seconds assuming normal travel speeds adherent to the posted speed limit.

  While noticeable, the reflected solar glare would mostly be outside of drivers' cone-of-influence and would not be expected to cause problems for motorists nor would they differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. Also, due to the fact that I-5 is substantially below the at-grade level of the towers, the reflected glare from the towers would not impact motorists at the street-level of I-5. Additionally, existing street trees along the top of the retaining wall that spans the I-5 ROW in this area would also partially block reflected glare at the I-5 street-level if retained or replaced.

- At **5 PM**, reflected solar glare could extend from the west façades of the towers towards the west and could potentially be visible to north- and south-bound motorists for approximately 5-6 seconds total, approximately 3 seconds for each of the two towers in the proposed development at this time of day assuming normal travel speeds adherent to the posted speed limit. The glare from the two towers would be adjacent to each other and could cause glare to be visible to motorists for a slightly extended period of time.

[52] U.S. Dept. of Commerce, NOAA, 1992.

Figure 57: Alternative 1 – Autumnal Equinox – September 20

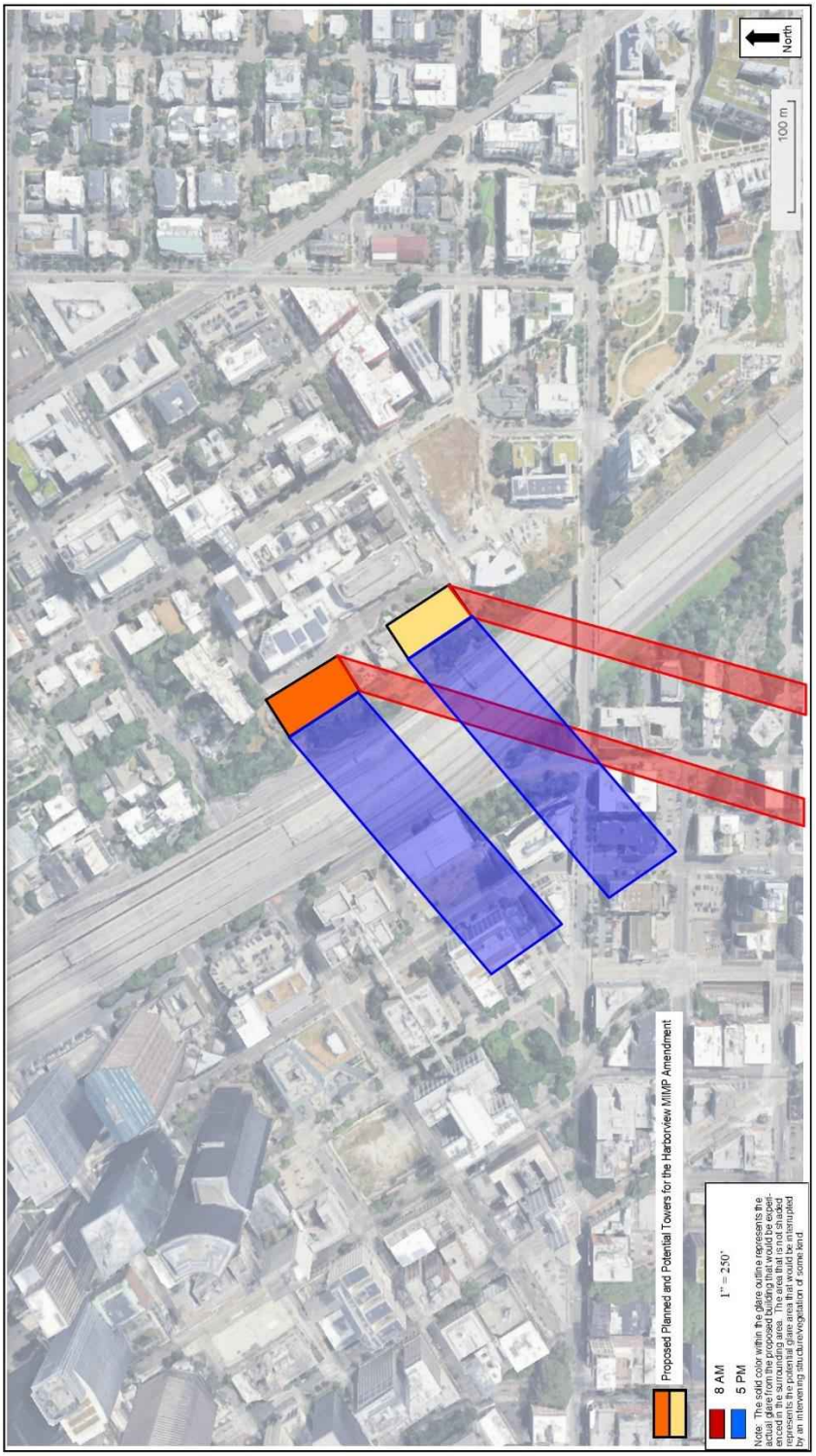
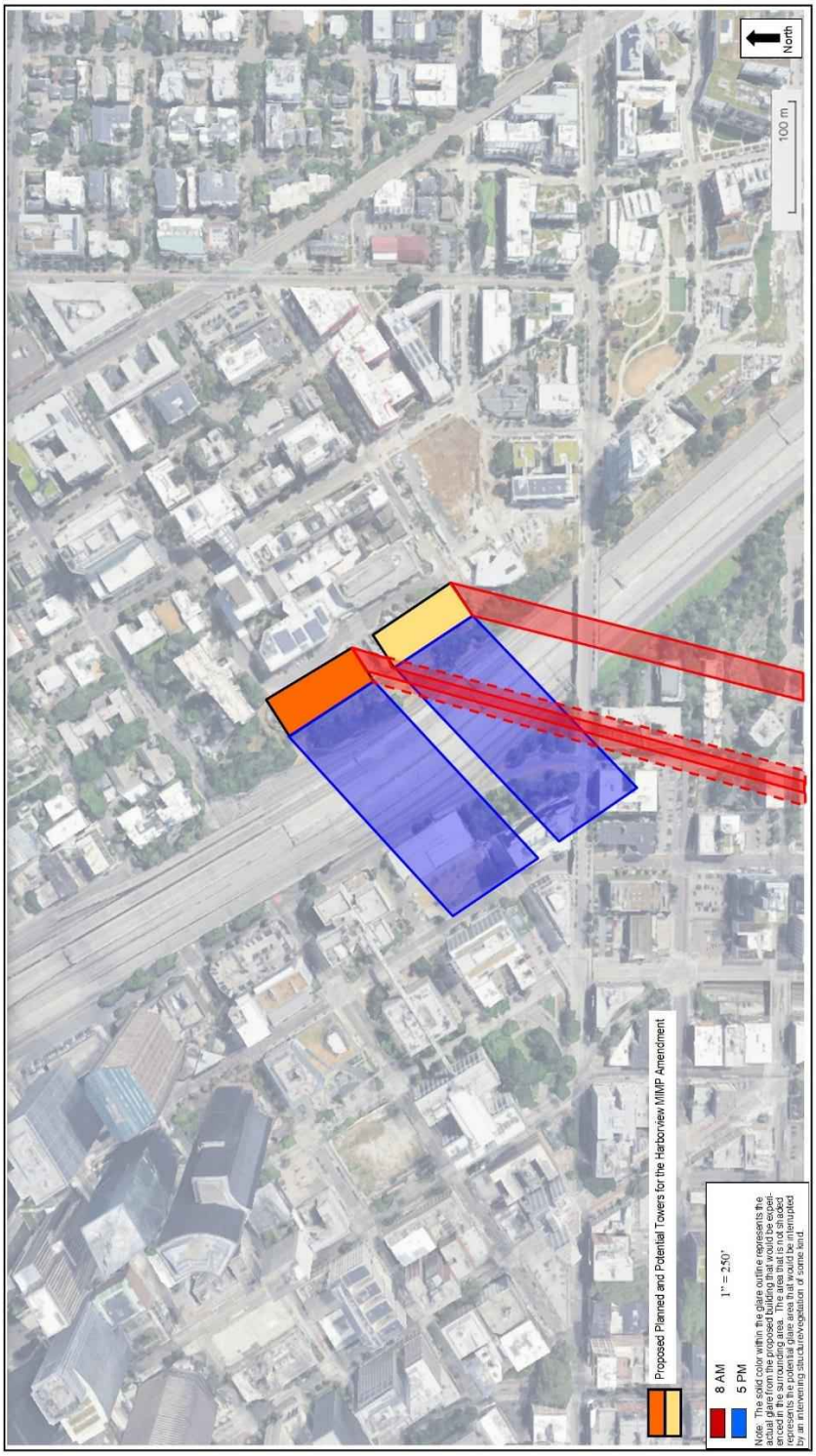


Figure 58: Alternative 2 – Autumnal Equinox – September 20



While noticeable, the reflected solar glare on I-5 would be outside of drivers' cone-of-influence and would not be expected to cause problems for motorists nor would they differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. Also, due to the fact that I-5 is substantially below the at-grade level of the towers, the reflected glare from the towers would not impact motorists at the street-level of I-5. Additionally, existing street trees along the top of the retaining wall that spans the I-5 ROW in this area would also partially block reflected glare at the I-5 street-level if retained or replaced

Winter Solstice – Approximately December 21st (refer to **Figure 59** and **Figure 60**). Climatic data indicate that December typically has 2 clear days, 4 partly cloudy days and 25 cloudy days.[53] On this day of the year at 4 PM the altitude of the sun above the horizon is approximately 2 degrees; therefore, reflected solar glare distances are great.

- At **8:30 AM**, reflected solar glare could extend from the south façades of the towers towards the south, and could potentially be visible to northbound motorists on I-5 for approximately 2-4 seconds assuming normal travel speeds adherent to the posted speed limit. The glare from the two towers would be adjacent to each other and could cause glare to be visible to motorists for a slightly extended period of time.

  While noticeable, the reflected solar glare would mostly be outside of drivers' cone-of-influence and would not be expected to cause problems for motorists nor would they differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. Also, due to the fact that I-5 is substantially below the at-grade level of the towers, the reflected glare from the towers would not impact motorists at the street-level of I-5. Additionally, existing street trees along the top of the retaining wall that spans the I-5 ROW in this area would also partially block reflected glare at the I-5 street-level if retained or replaced

- At **4 PM**, reflected solar glare could extend from the west façades of the towers towards the west and could potentially be visible to north- and south-bound motorists for approximately 5-6 seconds total, approximately 3 seconds for each of the two towers in the proposed development at this time of day assuming normal travel speeds adherent to the posted speed limit. The glare from the two towers would be adjacent to each other and could cause glare to be visible to motorists for a slightly extended period of time.

[53] U.S. Dept. of Commerce, NOAA, 1992.

Figure 59: Alternative 1 – Winter Solstice – December 21

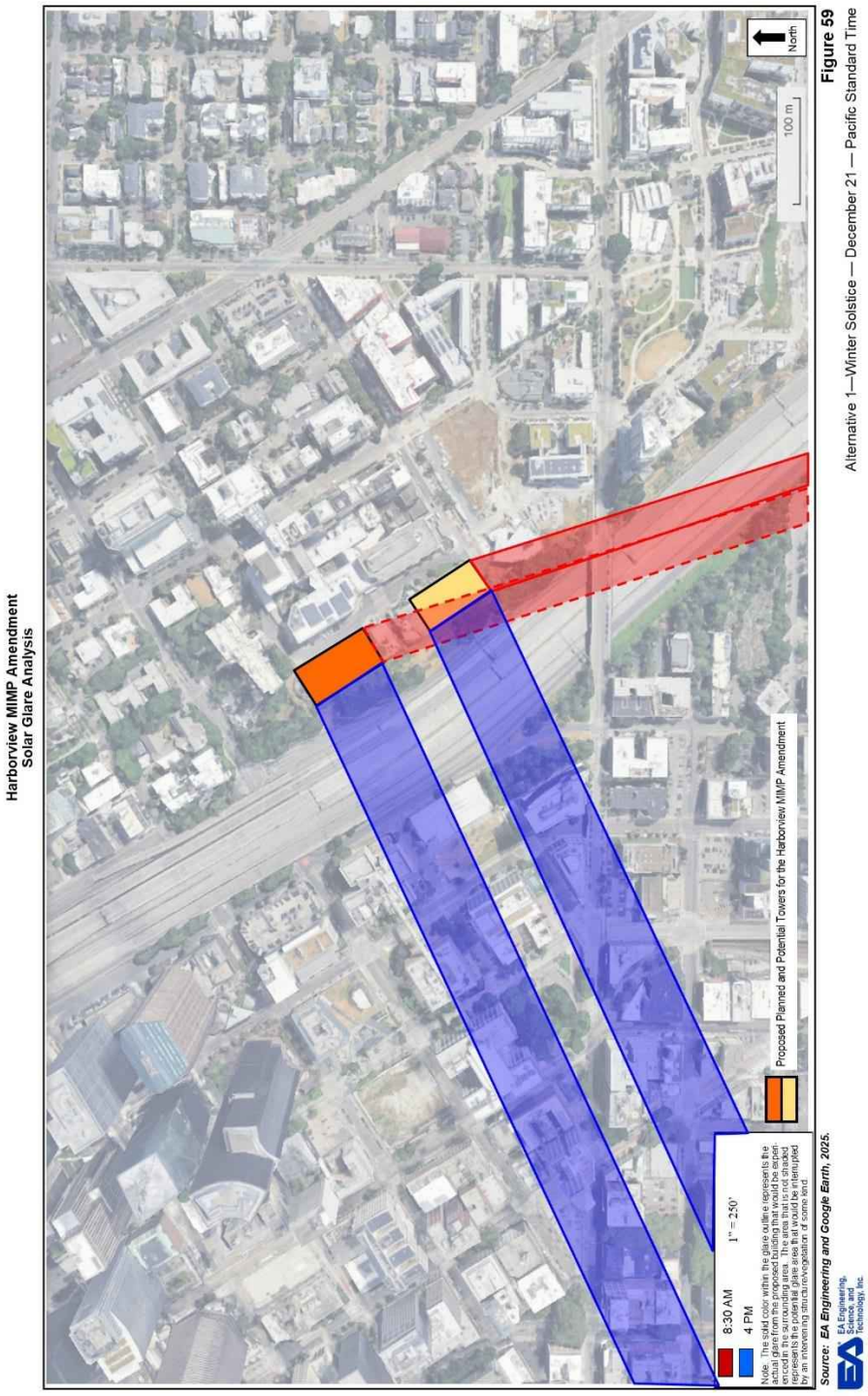
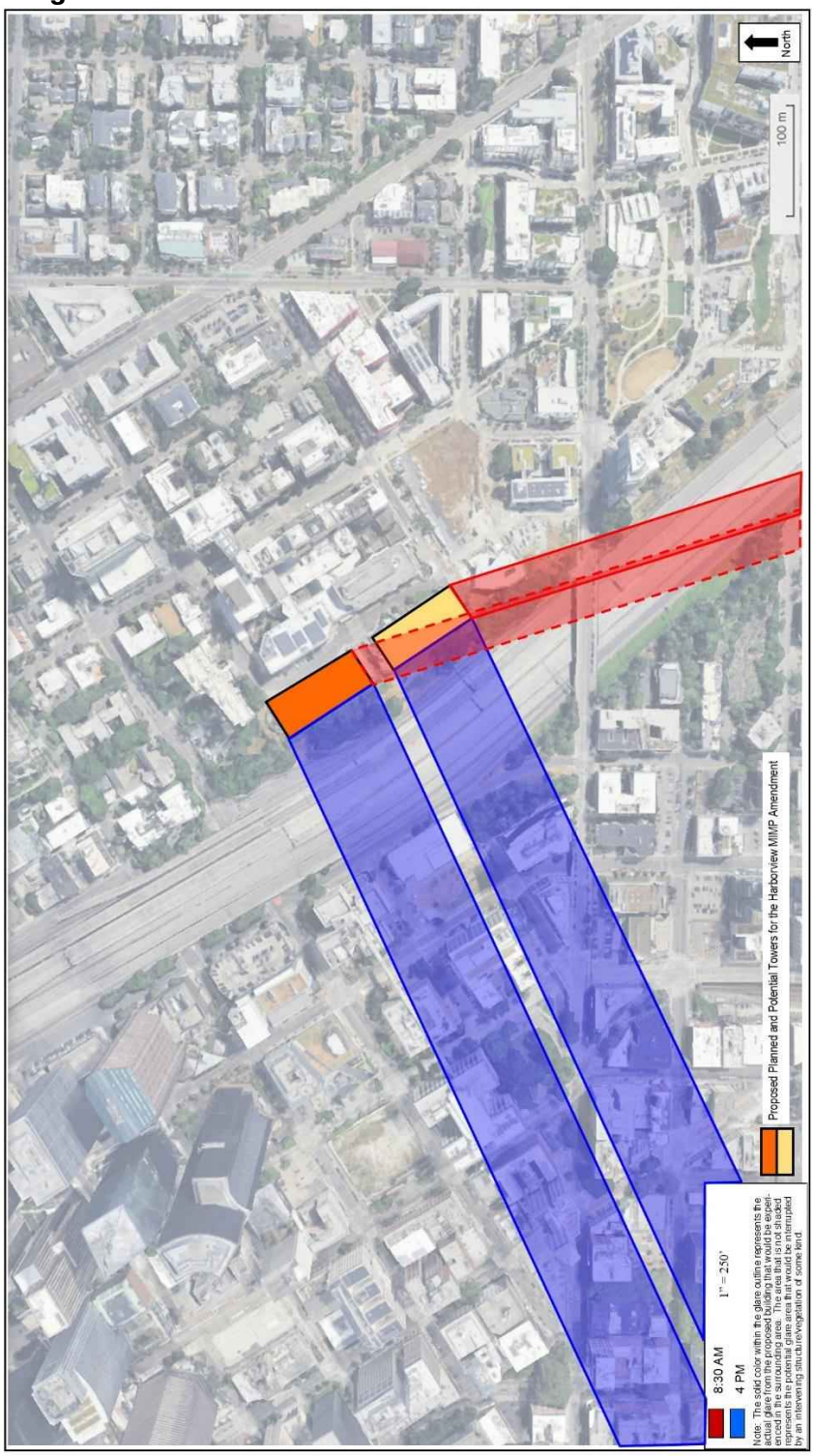


Figure 60: Alternative 2 – Winter Solstice – December 21



While noticeable, the reflected solar glare on I-5 would be outside of drivers' cone-of-influence and would not be expected to cause problems for motorists nor would they differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. s well, due to the fact that I-5 is substantially below the at-grade level of the towers, the reflected glare from the towers would not impact motorists at the street-level of I-5. Additionally, existing street trees along the top of the retaining wall that spans the I-5 ROW in this area would also partially block reflected glare at the I-5 street-level, if retained or replaced.

In summary, while motorists on I-5 could experience reflected solar glare from the south and west façades of the proposed building, such glare would primarily be outside of the cone-of-influence and would not be expected to cause problems for motorists or cyclists nor differ substantially from periodic glare from stationary and mobile sources that motorists typically experience.

MITIGATION MEASURES

In summary, no significant long term, reflected solar glare-related impacts are anticipated for motorists on I-5 as a result of the towers and no mitigation measures are necessary. However, the following measures would help to reduce overall light and glare from the projects as it relates to the neighborhood surrounding the site.

- Decisions on building façade materials are still substantially in the future. Principal exterior building materials could include glass, brick, and metal panels. Reflectivity of the glazing will be dictated by the nature of glass that is employed and the requirements set forth by the City's Energy Code. It is anticipated, however, that no excessively reflective surfaces (i.e., mirrored glass, or polished metals) that go beyond what is required to meet energy-related code provisions are proposed anywhere on the exterior of the project building.
- Retaining the trees lining the top of the retaining wall on WSDOT ROW adjacent to the east side of I-5 or the replacement or addition of any other street trees along the I-5 ROW, as well as the use of building materials with relatively low-reflectivity at street level would minimize reflective glare-related impacts to pedestrians and motorists.
- Pedestrian-scale lighting would be provided consistent with code, function, and safety requirements. Exterior lighting would include fixtures to direct the light downward and/or upward and away from off-site land uses.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse impacts are anticipated.

3.9. HISTORIC AND CULTURAL RESOURCES

This chapter provides an overview of the Harborview Medical Center history and how city, state, and federal historic resource designation regulations affect the Proposed Action. The chapter outlines potential impacts of the Proposed Action and Alternatives on historic and cultural resources. In addition, the chapter includes mitigation methods, most notably the actions that would be taken with the city, if necessary.

AFFECTED ENVIRONMENT

Harborview sits above downtown Seattle on the western edge of First Hill, which was one of the city's first neighborhoods settled in the 1870s. First Hill benefited from its short distance from the city's commercial district. The 1880s and 1890s saw First Hill become the home of many of Seattle's powerful people and prominent families.

When the Great Seattle Fire of 1889 destroyed the entire central business district, the city required fireproof brick and stone buildings downtown. As a result, less expensive construction moved to First Hill. Many institutions, apartments, and hotels were seeking convenient, spacious locations for expansion.

In 1890, the new King County Courthouse was built at 7th Avenue and Alder Street, and area that became known as "profanity hill." Other institutions followed, including St. James Cathedral, the Sorrento Hotel, Seattle University, Cabrini Hospital, and Swedish Hospital. By the 1920s, First Hill had acquired the nickname "Pill Hill" due to the number of medical centers in the area. In 1929, when the County faced the need for a new hospital, it chose the First Hill site adjacent to the courthouse. In 1931, King County completed Harborview Hospital and Harborview Hall.

First Hill institutions have continued their growth. The neighborhood is home to campuses for Swedish Medical Center, Virginia Mason Medical Center, Seattle Central Community College, and Seattle University. Other neighborhood uses include medical facilities, schools, museums, institutional offices, and residential uses.

Historic Resource Regulation

No building or place on the Harborview campus is listed on the State or National Registers of Historic Places. However, East Hospital (formerly Center Wing) may meet the criteria for listing on the National Register of Historic Places and the Washington Heritage Register.

The U.S. Department of Interior has standards for the preservation, rehabilitation, restoration, and reconstruction of historic properties.[54] The purpose of the standards is to guide historic building owners and building managers, preservation consultants, architects, contractors, and project reviewers prior to beginning work.

The City of Seattle regulates historic landmarks through its Landmarks Preservation Ordinance (Seattle Municipal Code [SMC] 25.12). Per SMC 25.12.350, a resource considered for landmark designation must be more than 25 years old and meet at least one of the following criteria:

- It is the location of, or is associated in a significant way with, an historic event with a significant effect upon the community, City, state, or nation; or
- It is associated in a significant way with the life of a person important in the history of the city, state, or nation; or
- It is associated in a significant way with a significant aspect of the cultural, political, or economic heritage of the community, City, state, or nation; or
- It embodies the distinctive visible characteristics of an architectural style, or period, or of a method of construction; or
- It is an outstanding work of a designer or builder; or
- Because of its prominence of spatial location, contrasts of siting, age, or scale, it is an easily identifiable visual feature of its neighborhood or the city and contributes to the distinctive quality or identity of such neighborhood or the city.

According to the City Historic Preservation website, anyone can nominate a building, structure, or object by submitting a complete nomination format to the Historic Preservation Program. The landmark designation process consists of nomination, designation, negotiation of a Controls and Incentives Agreement between the owner and the city, and adoption of an ordinance by the Seattle City Council.[55]

Federal and State agencies have defined standards and processes for listing historic resources on State and National registers.

[54] The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings (2017), U.S. Department of the Interior, National Park Service, https://www.nps.gov/orgs/1739/secretary-standards-treatment-historic-properties.htm

[55] City of Seattle Department of Neighborhoods, Historic Preservation Program, City Landmarks https://www.seattle.gov/neighborhoods/historic-preservation/city-landmarks#nominationanddesignationprocess

On January 26, 2026, the State of Washington Department of Archaeology & Historic Preservation (DAHP) submitted comments on the Draft EIS (Appendix H DAHP & Tribal Consultation). The DAHP opined that the project area has the potential to contain archaeological resources. Based on the long-term use of the area and evidence from Sanborn 1905 maps and historic properties, DAHP recommended professional archaeological monitoring of ground disturbance. In addition, DAHP recommended consultation with any tribes having a special interest in the area. Harborview responded with the results outlined in the Mitigation section of this chapter.

On April 13, 2026, Langan submitted a technical memorandum that served as a response to the January 26, 2026, comments from DAHP (Appendix H – DAHP & Tribal Consultation). The memorandum provided evidence of previous disturbance at the project site to depths below which archaeological deposits may exist with the intent of decreasing the recommended mitigation.

Based on the limited potential for the project implementation to encounter and adversely impact intact archaeological deposits or human remains, Langan requested reduction of the DAHP recommended measures. The measures would include proactive measures for the proper identification, treatment, and, if necessary, preservation of any inadvertently discovered resources and human remains. If required, the project would retain a qualified archaeologist to prepare and implement workers environmental awareness training, an inadvertent discovery treatment plan, and on-call response to any inadvertent discovery or suspected discovery of archaeological resources or human remains.

On April 20, 2026, DAHP sent a memorandum to Harborview regarding the Langan technical memorandum (Appendix H – DAHP & Tribal Consultation). DAHP concurred with the conclusions and findings of the Langan technical memorandum. DAHP recommends the project proceed as planned with an inadvertent discovery plan and training.

Designated Historic Landmarks

The city has designated the following Harborview Campus buildings as City of Seattle Landmarks:

- East Hospital Center Wing Tower: Ninth Avenue.

  In 2011, East Hospital/Center Wing was nominated and designated as a City Landmark, per Ord. 123557 (Appendix E – City of Seattle Landmarks Documentation). The ordinance acknowledges the designation of the East Hospital/Center Wing as a historic landmark based on a determination by the Landmarks Preservation Board and adds the building to the Table of Historic Landmarks contained in SMC 25:32.

The owners signed a Controls and Incentives Agreement that the Landmarks Preservation Board has approved. The controls in the agreement apply to the building's exterior, the interior of the Ninth Avenue lobby, and a portion of the site. The controls do not apply to any in-kind maintenance or repairs of the designated features. The East Hospital Center Tower is part of the Hospital/Super Block which has a floor area of 1,065,392 square feet.



Photograph 4: East Hospital Center Wing Tower (Source: City of Seattle Landmarks Map).

- Old Firehouse No. 3: 301 Terry Avenue.

  In 1976, the Landmarks Preservation Board designated Old Firehouse No. 3, built in 1903 for horse-drawn trucks, as a Seattle Landmark, per Ord. 106051 (Appendix E – City of Seattle Landmarks Documentation). Having 8,542 square feet of floor area of office space,



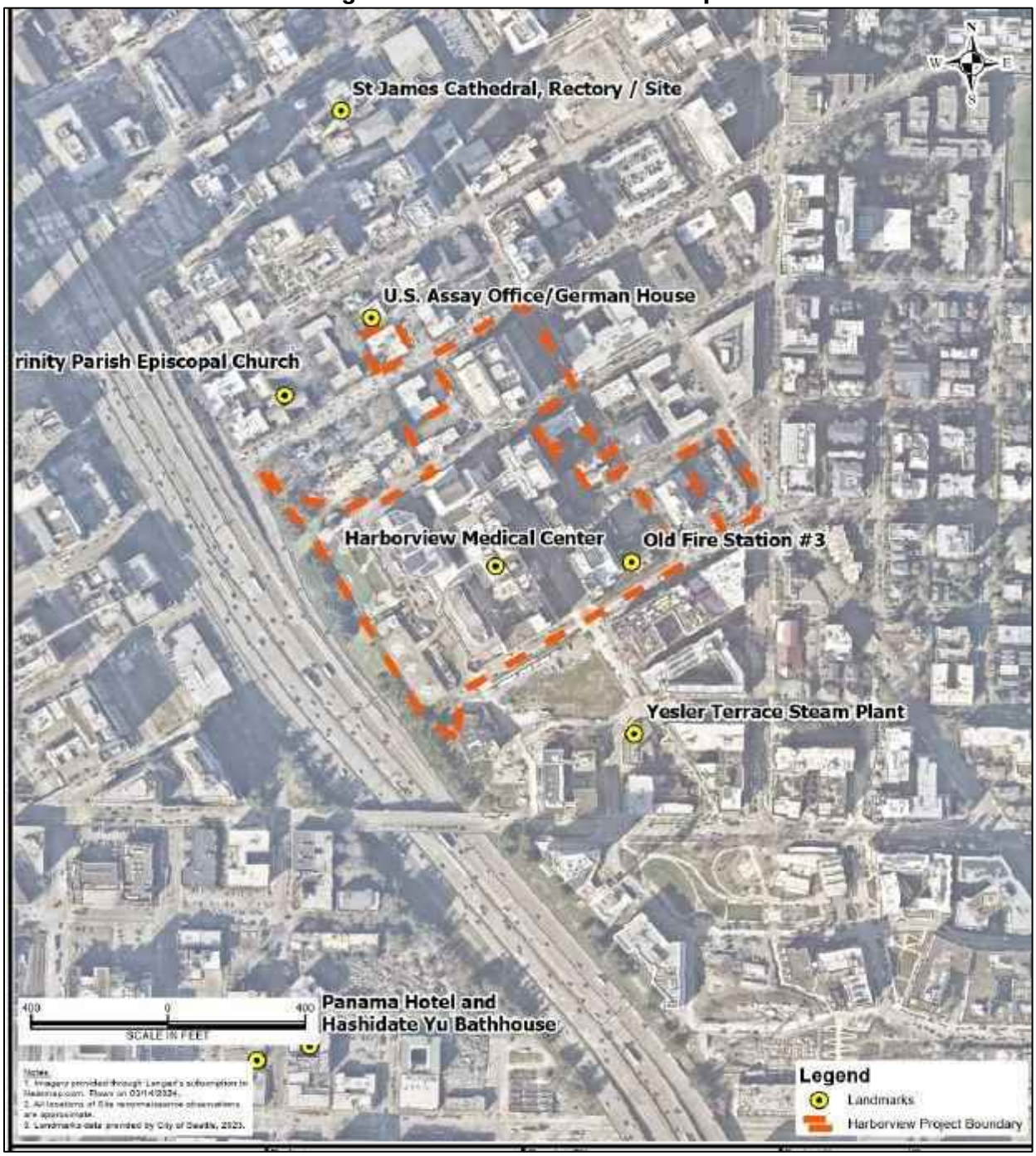
Photograph 5: Old Firehouse No. 3 (Source: City of Seattle Landmarks Map).

The following city designated landmarks are near the Harborview campus:

- U.S. Assay Office/German House: 613 Ninth Avenue; on National Register.
- Trinity Parish Episcopal Church: 609 Eighth Avenue.
- Yesler Terrace Steam Plant: 120 8th Avenue.

Figure 61 shows the location of the designated landmarks within the Harborview project boundary and around the broader area.

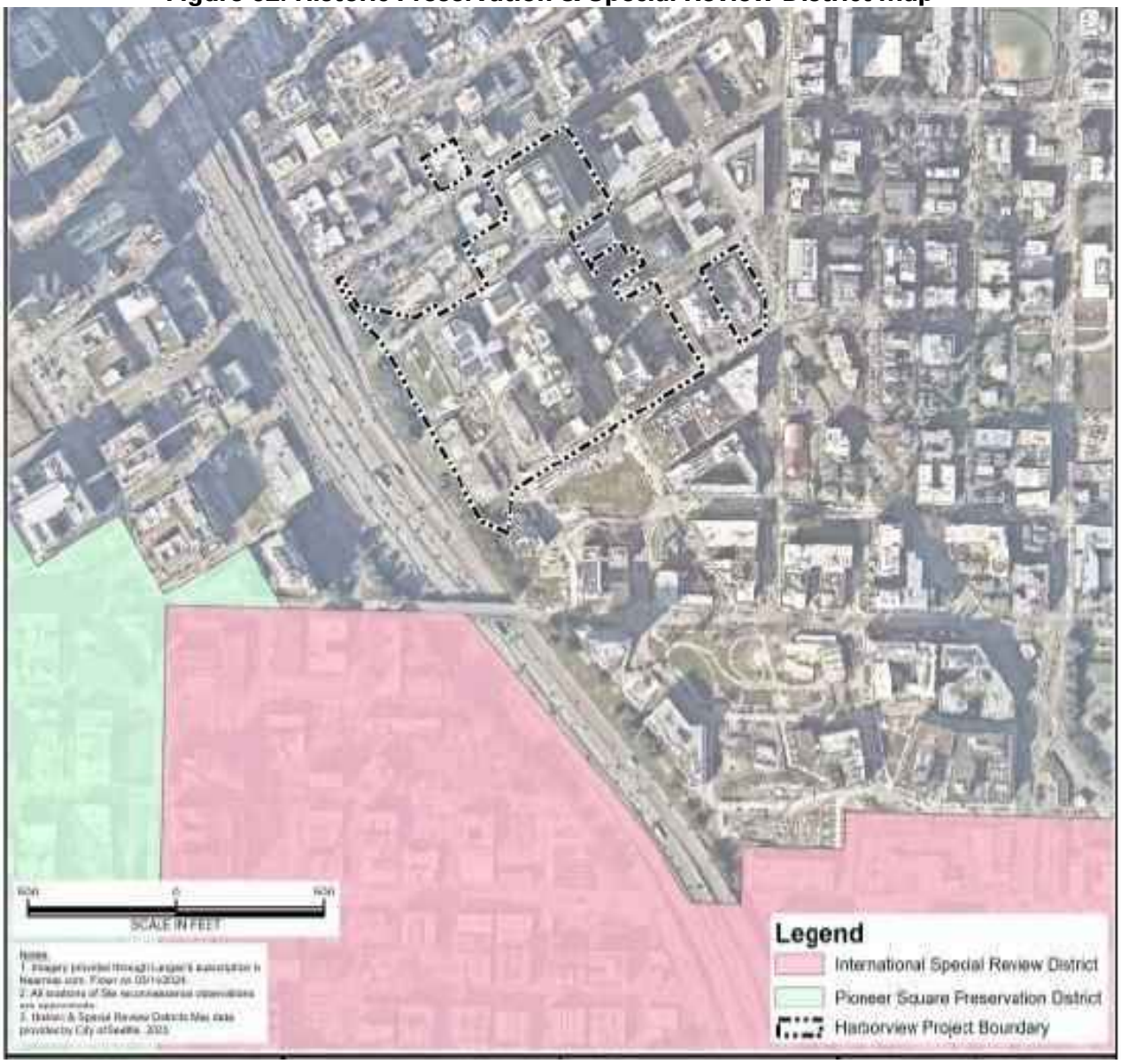
Figure 61: Seattle Landmarks Map



Source: City of Seattle Landmarks mapping data, 2023.

Figure 62 shows the Harborview campus is not part of a Historic Preservation or Special Review district.

Figure 62: Historic Preservation & Special Review District Map



Source: City of Seattle Historic & Special District mapping data, 2023.

Other Historic Preservation Actions

The 1999 MIMP proposed and required seismic mitigation for both Harborview Hall and East Hospital Center Wing Tower. Per 1999 SEPA Condition #33, the "*buttress expansion structures may be designed to have similar vertical emphasis and cladding, as a measure to seismically upgrade either building and to retain the exterior appearances*."

On September 16, 2009, the City Landmarks Preservation Board voted to deny the landmark designation of Harborview Hall. On March 9, 2012, the Washington Trust for Historic Preservation requested the King County Council to encourage the support and rehabilitation of Harborview Hall for ongoing medical-related uses. In 2014, the city approved an addendum to the 1999 MIMP, that defined the expansion and rehabilitation of Harborview Hall and the addition of a community plaza. The 1999 MIMP does not include the potential buttress expansion to East Hospital / Center Wing among the current proposed projects.

In November 2016, the county included $2.5 million in the budget to convert the building into a homeless shelter. While the project experienced significant delays due to code compliance issues, an overnight shelter opened in late 2018 on the first floor only. The County's Facilities Management Division of the Department of Executive Services oversaw the renovations to the building during 2019, which cost just over $2 million.

IMPACTS

Proposed Action

Fire Station #3 will remain as part of the campus, with no adverse impacts anticipated to the building. No adverse impacts will occur to the nearby designated landmarks of Trinity Parish Church and the U.S. Assay/German House. Neither landmark is adjacent to or across the street from the project site. Given their distance from the campus, Harborview does not anticipate impacts on their settings. Any construction impact would be minimal and short term. The Short-Term Construction chapter outlines mitigation for construction impacts.

Now a City Landmark, the East Hospital Center Wing is eligible for listing on the National Register of Historic Places. Its historic significance is due to its role as part of King County's health care system since 1931. The East Hospital Center Wing has played a significant role in medical education, first as a primary training facility for the UW School of Nursing and later for the UW School of Medicine and other health sciences departments, in addition to the building design as noted in the City of Seattle Landmarks designation documents.

2024 MIMP Planned Project: The 671,220 square foot, 320-foot-tall New Patient Tower location is at the current View Park I Garage on the west side of the campus. Built in 1972, the View Park I Garage, which has no historic or cultural resource significance from either a design or historic perspective, will be replaced by the New Patient Tower. Based on replacing a parking garage which has no identified design or historic significance, no adverse impact to historic and cultural resources would occur from the development of the New Patient Tower.

2024 MIMP Potential Projects:

- Future Tower: Adjacent and located to the south of the New Patient Tower described above, is the View Park II Garage, which will be the location of a future 671,220 square foot, 240-foot-tall medical tower on the west side of the campus. Built in 2001, the View Park II Garage, which is 24 years old and has no indicated design or historic significance, will be replaced by a 671,220 square foot, 320-foot-tall medical tower. No adverse impact on historic and cultural resources would occur from the development of the Future Tower.

- New East Clinic: The 280,000 square foot new clinic would be built on the footprint of the existing East Clinic. The 1999 EIS includes a Historic Resource Assessment (HRA) Report prepared by Sheridan Consulting Group in August 1999. The HRA noted that the East Clinic, built in 1952, was among several buildings found not to meet the criteria for designation as a landmark. The building could reapply for landmark consideration five years after being rejected by the commission. Therefore, the project does not anticipate any adverse impact to historic and cultural resources from the development of the New East Clinic.

- Expand Walter Scott Brown (WSB) site for multi-use building: Currently the site of the Harborview Medical Center Public Safety building, the site was identified in the 1999 MIMP as a potential project to add a 62,000 square foot building. Adding four floors above the future WSB multiuse building is a new 2024 MIMP potential project. Given its location, and the lack of landmark features, this project would have no adverse impact on historic and cultural resources.

1999 and 2014 Existing MIMP Projects to Remain:

- Demolition of East Clinic: The 1999 EIS includes a Historic Resource Assessment (HRA) Report prepared by Sheridan Consulting Group in August 1999. The HRA noted that the East Clinic, built in 1952, was among several buildings found not to meet the criteria for designation as a landmark. No adverse impact on historic and cultural resources would arise from the development of the New East Clinic.

- Center Tower Seismic Upgrade: The 1999 MIMP proposed and required seismic mitigation for both Harborview Hall and East Hospital Center Wing Tower. Per 1999 SEPA Condition #33, the "*buttress expansion structures may be designed to have similar vertical emphasis and cladding, as a measure to seismically upgrade either building and to retain the exterior appearances.*" The 2024 MIMP Includes a seismic upgrade to the Center Tower.

  The owners signed a Controls and Incentives Agreement that the Landmarks Preservation Board has approved. The controls in the agreement apply to the building's exterior, the interior of the Ninth Avenue lobby, and a portion of the site. The controls do not apply to any in-kind maintenance or repairs of the designated features. The seismic upgrade to the Center Tower would not have an adverse impact on historic and cultural resources as it would need to be consistent with the guidelines set forth by the Landmarks Preservation Board.

- Harborview Hall Seismic Upgrade and Community Plaza to East: On September 16, 2009, the City Landmarks Preservation Board voted to deny the landmark designation of Harborview Hall. In 2014, the city approved an addendum to the 1999 MIMP, that defined the expansion and rehabilitation of Harborview Hall and the addition of a community plaza.

  The lack of landmark status and a finding by the Landmarks Preservation Board confirms the building does not meet the criteria for landmark designation. Buildings can reapply for landmark consideration five years after the board rejects the application. The Harborview Hall seismic upgrade and community plaza would not have an adverse impact on historic and cultural resources.

- Demolition of Facilities Building: Built in 1988, the one-story flat-roofed portable building had no historic significance, as confirmed by the HRA study in the 1999 EIS. The recent facilities building demolition did not have an adverse impact on historic and cultural resources, given the lack of historic significance.

- Multiuse Building (WSB), including Demolition of Security Building: Currently the site of the Harborview Medical Center Public Safety building, the site was identified in the 1999 MIMP as a potential project to add a 62,000 square foot building. The security building, formerly the WSB Clinic, was built in 1947. According to the HRA study in the 1999 EIS, the building was not found to meet the criteria for designation as a landmark. Buildings can reapply for landmark consideration five years after the board rejects the application. Given the lack of landmark features, this project would have no adverse impact on historic and cultural resources.

240 Foot Height Limit

Alternative 2 has the same development plan as the Proposed Action, except the maximum building height for the campus area of the Proposed Action is 240 feet, as opposed to 320 feet. While the square footage floor area will not change, the 80-foot height difference affects the scale of the campus. However, this alternative does not have any additional adverse impact on historic and cultural resources.

No Action Alternative

The No Action Alternative has no impact on historic and cultural resources. All existing Harborview buildings remain as is. The 1999 and 2014 MIMP Potential Projects list would remain the same.

MITIGATION MEASURES

The 1999 MIMP proposed and required seismic mitigation for both Harborview Hall and East Hospital Center Wing Tower. Per 1999 SEPA Condition #33, the "*buttress expansion structures may be designed to have similar vertical emphasis and cladding, as a measure to seismically upgrade either building and to retain the exterior appearances.*" Continuing this condition as part of the seismic upgrades to Harborview Hall and the Center Tower would mitigate concerns regarding effects on the exterior appearance.

Harborview could implement the following measures to mitigate potential impacts on historic resources:

- Prepare a historical analysis for any structure 50 years of age or older that is proposed for demolition. The analysis would be required at the time of submission of a Master Use Permit for the replacement project and referred to the Department of Neighborhoods for review.
- New buildings constructed adjacent to or across the street from a designated historic Landmark would need to be referred to the Department of Neighborhoods for review.
- A Certificate of Approval would be required before changes could be made to a designated City Landmark.

UNAVOIDABLE ADVERSE IMPACTS

Under Potential Projects, the construction of a buttress building would impact the east face of the Harborview Hall main façade and the lobby of the East Hospital. While Harborview Hall is not a city landmark, the East Hospital Center Wing Tower is. The mitigation outlined per 1999 SEPA Condition #33 would balance the concern about seismic upgrading with retaining the exterior appearances of the building.

3.10. TRANSPORTATION

This chapter summarizes existing traffic and transportation conditions on the Harborview campus and the surrounding area, evaluating the potential impacts to traffic and transportation conditions that could occur due to the proposed *MIMP Major Amendment*. This section summarizes information contained in the Transportation Discipline Report (TDR) prepared by the Transpo Group (Appendix F). Please see Appendix F for additional details on the methodology used for collection of data and analysis, and for additional details contained in figures and tables provided to illustrate the information.

The following chapter provides an overview of the alternatives evaluated as part of the EIS, focusing on the transportation aspects of each. Chapter 2.8 includes a more detailed description of the alternatives.

- **No Action Alternative.** This includes the previously approved 1999 and 2014 MIMP projects that are anticipated to remain. These projects include the demolition of the east clinic, seismic upgrade to center tower, seismic upgrade to Harborview Hall with buttress building to east, full occupancy of Harborview Hall, community plaza east of Harborview Hall, demolition of the securities building, demolition of the facilities building, and construct a 6-story multiuse building (Walter Scott Building). The No Action projects result in an increase of 32,487 gross square feet (gsf) relative to existing conditions.

- **Action Alternative 1 – Maximum building height of 320 feet.** Alternative 1 includes the No Action development as identified above as well as planned and potential projects with a net increase of 1,706,172 gsf added to MIO.[56] The planned development includes the new patient tower at View Park I (VPI) and added skybridge. Options of the new patient tower connectivity to the existing hospital were reviewed that either maintained private roadway known as 8th Avenue or assumed occupancy at grade and below with direct connection to existing west hospital with closure of private roadway known as 8th Avenue. Potential additional projects include a future tower at View Park II (VPII), new East Clinic, expansion of the Walter Scott Building from 6 stories to 10 stories, and expansion of the Boren Parking Garage.

56 1,706,172 gsf includes the occupancy of Harborview Hall (76,964 sf) which is assumed as unoccupied under existing conditions for purposes of the transportation analysis as it is not generating traffic today. This reflects a difference from the other sections of the EIS above which account for the building shell of Harborview Hall under existing conditions resulting in a total increase in size for Alternative 1 of 1,629,208 gsf.

- **Action Alternative 2 – Maximum building height of 240 feet.** Alternative 2 is consistent with Alternative 1 in terms of overall developable floor area but alters the building heights and size per floor for a maximum building height of 240 feet. Note that the new patient tower under Alternative 2 assumes occupancy at grade and below with direct connection to the existing west hospital with closure of private roadway known as 8th Avenue.

The scope of the transportation analysis conducted for the DEIS was coordinated with King County staff, the Seattle Department of Construction and Inspections (SDCI), and the Seattle Department of Transportation (SDOT). This chapter evaluates the following transportation elements, and summarizes the results:

- **Trip Generation** – The basis of the existing, No Action, and Action Alternatives trip generation for Harborview is existing traffic counts conducted for the existing campus during the weekday AM and PM peak periods.

- **Street System** –The existing and future planned street system are identified. Alternative impacts to the street system are evaluated based on potential changes to the nearby street network connectivity.

- **Non-Motorized Transportation** – The existing and future pedestrian and bicycle system surrounding the site is evaluated. Pedestrian and bike connectivity to the adjacent transit stops or other key activity centers will be documented including considerations for the widths of sidewalks along these key connections and identification of any impedances. The number of non-motorized trips is estimated for the Alternatives and potential impacts associated with those trips are reviewed.

- **Transit Service** –The transit service of transit near the campus is reviewed including frequency, service area, and proximity as well as a screen line capacity analysis. Future investments in the local transit system have been identified and included in the evaluation as applicable.

- **Traffic Volumes** – Existing traffic volumes were collected at the study intersections in October 2024 during both the weekday AM (7:00-9:00 a.m.) and PM (4:00-6:00 p.m.) peak periods. Future (2035 and 2045) forecast traffic volumes for the No Action conditions are the existing traffic volumes, background traffic growth, traffic generated from the planned "pipeline" developments, and the trips associated with the No Action allowable development. Action Alternatives traffic volumes were then estimated by adding the trip generation for the Action Alternatives to the No Action volumes.

- **Traffic Operations** –The traffic operations are evaluated at the study intersections based on level of service (LOS) relative to the existing and forecast traffic volumes of each Alternative.

- **Traffic Safety** - Recent collision records are reviewed within the study area to identify existing traffic safety issues at the study intersections and along roadways within the Harborview Medical Center (HMC) Campus. Future traffic impacts are reviewed relative to existing collision history patterns and forecast growth of movements.

- **Site Loading** – The number and location of the existing and future campus loading docks will be identified.

The transportation analysis includes an evaluation of two future horizon years: 2035 and 2045. Based on the distribution patterns, review of the previous 1999 EIS conducted for the HMC MIMP, and feedback from City staff, the following study intersections are identified for AM and PM peak hour analysis.

1. 6th Avenue/Cherry Street
2. 7th Avenue/Cherry Street
3. 6th Avenue/James Street
4. 7th Avenue/James Street
5. 8th Avenue/James Street
6. 9th Avenue/James Street
7. Terry Avenue/James Street
8. Boren Avenue/James Street
9. Minor Avenue/James Street
10. Broadway Avenue/James Street
11. 9th Avenue/Jefferson Street
12. Terry Avenue/Jefferson Street
13. Boren Avenue/Jefferson Street
14. Broadway/Jefferson Street
15. Boren Avenue/Terrace Street
16. Broadway/Terrace Street
17. Broadway/Boren Avenue
18. 9th Avenue/Alder Street
19. Broadway/Alder Street
20. 9th Avenue/Fir Street/8th Avenue
21. 8th Avenue/Yesler Way

AFFECTED ENVIRONMENT

Campus Overview

The campus currently consists of 2,080,908 gsf of medical campus uses made up of a mix of emergency services, clinic areas, professional services, imagery and diagnostics, and numerous other supportive functions. Of this total space, 76,964 gsf is currently unoccupied, not currently generating trips, such that the overall occupied space is 2,003,944 gsf. The campus is located within the First Hill/Capitol Hill Urban Center within Seattle.

Trip Generation

Vehicle trip generation for the campus was defined based on weekday AM and PM peak period counts collected over a two-day period for the campus (parking lots, on-street, and loading areas) as well as consideration for mode split data.

The existing campus was estimated to generate 853 and 583 vehicle trips during the AM and PM peak hours, respectively. A trip generation rate was estimated based on the vehicle trips relative to the existing occupied HMC size of 2,003,944 gsf (the existing unoccupied space of 76,964 gsf is excluded as it is not currently generating trips). This resulted in trip generation rates of 0.43 trips/1,000 sf and 0.29 trips/1,000 sf in the AM and PM peak hours, respectively.

Person trips were also estimated for the campus based on the observed vehicle trip generation and results from the HMC Commute Trip Reduction (CTR) survey conducted in 2024/2025 for staff and estimated non-staff mode splits. The 2024/2025 CTR results showed that single occupancy vehicle (SOV) and transit trips by staff accounted for the majority of trips with 37 percent being SOV and 38 percent by transit.

Street System

The campus is located within the First Hill/Capitol Hill Urban Center within Seattle. The campus is bounded to the south by Alder Street, (a non-arterial roadway) and to the north by James Street (a principal arterial). North/south connectivity near the site is provided by Interstate 5 to the west of the campus and Boren Avenue (a principal arterial) and Broadway (a minor arterial) to the east of the campus. Additional characteristics of the existing street network in the proposed project vicinity are shown in **Table 22**.

Table 22: Existing Street Network Summary

Roadway	Arterial Classification[1]	Posted Speed Limit (mph)	Number of Travel Lanes	Parking?	Side walks ?	Bicycle Facilities ?	Transit Service ?
Cherry St	Principal Arterial[2]	25[5]	2	Yes[7]	Yes	Yes[8]	No
James St	Principal Arterial[3]	25	4	No	Yes	No	Yes[13]
Jefferson St	Collector Arterial[4]	25[6]	2	Intermittent	Yes	Yes	Yes
Terrace St	Non-Arterial	20	2	Yes	Yes	No	No
Alder St	Non-Arterial	20	2	Yes	Yes	No	No
Spruce St	Non-Arterial	20	2	No	Yes[9]	No	No

Roadway	Arterial Classification[1]	Posted Speed Limit (mph)	Number of Travel Lanes	Parking?	Side walks ?	Bicycle Facilities ?	Transit Service ?
Yesler Way	Minor Arterial	25	2	Intermittent	Yes	Yes	Yes
6th Ave	Principal Arterial	25	2-3	Yes[10]	Yes	No	No
7th Ave	Principal Arterial	25	2	Intermittent[11]	Yes	Intermittent[12]	Yes
8th Ave	Non-Arterial	20	2	Yes	Yes	No	No
9th Ave	Minor Arterial	25	2	Yes	Yes	Yes	Yes
Terry Ave	Non-Arterial	20	2	Intermittent	Yes	No	No
Boren Ave	Principal Arterial	25	4	No	Yes	No	Yes
Minor Ave	Non-Arterial	20	2	Yes	Yes	No	No
Broadway	Minor Arterial	25	2-3	Intermittent	Yes	Yes	Yes

1. Based on the Seattle Arterial Classification Map.
2. Classified as a principal arterial southwest of 7th Avenue and a non-arterial northeast of 7th Street.
3. Classified as a principal arterial southwest of Broadway and a minor arterial northeast of Broadway.
4. Classified as a collector arterial northeast of 9th Avenue.
5. Speed limit of 25 mph southwest of 7th Avenue and 20 mph northeast of 7th Avenue.
6. Speed limit of 25 mph northeast of 9th Avenue and 20 mph southwest of 9th Avenue.
7. Provided only on the north side of Cherry St south of 6th Ave and south side of Cherry St north of 7th Ave.
8. Provided only south of 7th Avenue.
9. Provided only east of Broadway.
10. Provided only north of Columbia Street along the west side of the roadway.
11. Provided on both sides of 7th Ave between James St and Cherry St, and along the east side of the roadway north of Cherry St.
12. Provided only north of Cherry St.
13. Operating only southwest of Boren Ave.

Transit

The transit service most proximate to the campus is provided by King County Metro. The nearest bus stops to the campus are located on campus along 9th Avenue at the intersections of Jefferson Street and Alder Street; however, King County Metro has 10 routes which have stops within an approximately a quarter mile radius of the campus. In addition to the King County Metro's nearby transit routes, SDOT's First Hill Streetcar travels along Broadway east of Harborview's campus providing connectivity from Pioneer Square through the International District, Yesler Terrace, First Hill and Capitol Hill. The nearest Streetcar stop to the Harborview Medical Center campus is located at the intersection of Broadway and Terrace Street, approximately 0.1 miles east of the campus.

Further from the campus, King County Metro's Rapid Ride G Line provides frequent service along Madison Street connecting Downtown Seattle with the Central District and Madison Valley. The nearest G Line station is located approximately 0.4 miles north of the campus. Additionally, Sound Transit's Link Light Rail provides regional access with current service north to Lynnwood and south to Federal Way. The nearest station to the campus is the Pioneer Square Station, located approximately one-half mile west of the campus including an approximate 13 percent grade. The Light Rail line also connects with SDOT's Streetcar, both the First Hill and South Lake Union lines.

A transit capacity analysis was conducted for the King County Metro bus routes proximate to the campus. This analysis utilized Spring 2024 ridership, capacity, and frequency data provided by King County Metro. The analysis found the onboard utilization on the buses surrounding campus range the buses operating around campus are at 6 to 41 percent utilization, such that all the routes serving the campus have some level of remaining capacity to accommodate additional riders during the weekday peak periods under existing conditions.

Additionally, the travel times for each of the transit routes traveling within the study area were reviewed by route direction during the weekday AM and PM peak hours based on the current transit route schedules as published by King County Metro in November 2025. The travel time of the buses range from one to six minutes under existing conditions within the study area.

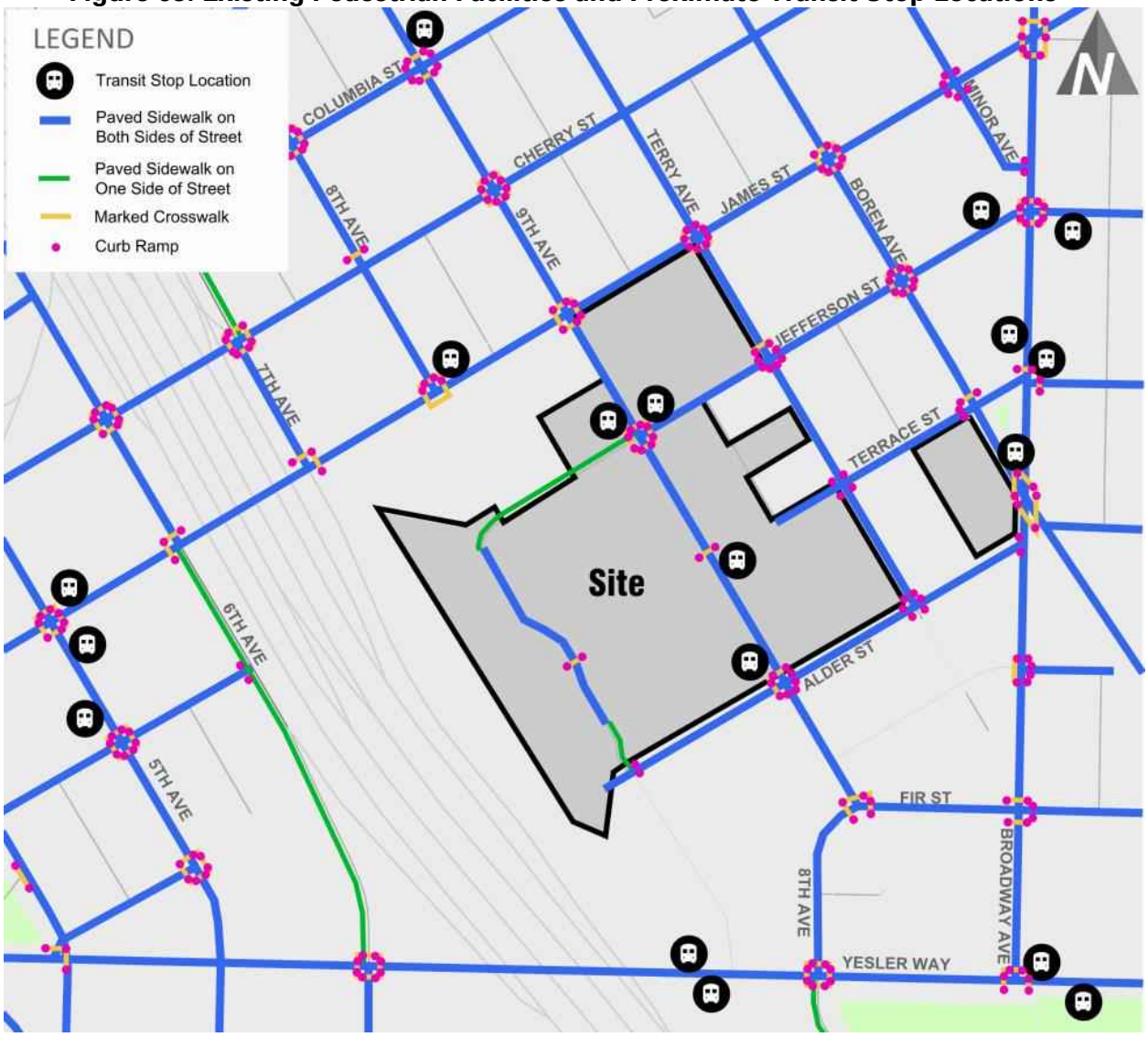
HMC also provides the Health Science Express Shuttle and the South Lake Union Shuttle. The shuttle runs along 9th Avenue and does not use the private roadway known as 8th Avenue.

Non-Motorized

All roadways in the project vicinity provide sidewalks on one or both sides of the roadway. Marked crosswalks and curb ramps exist at the signalized and stop-controlled intersections within the vicinity of the campus. On-campus, midblock crosswalks exist across 9th Avenue and 8th Avenue. Additionally, the existing pedestrian facilities include complete connections to all transit routes located within the vicinity of the site as described in the transit section above and shown in **Figure 63**.

Bicycle facilities within the vicinity of the campus include separated bicycle lanes along Broadway, painted bike lanes along Cherry Street west of 7th Avenue, 7th Avenue north of Cherry Street, and 9th Avenue south of Jefferson Street. Sharrow bike facilities are present along the remainder of 9th Avenue north of Jefferson Street, Jefferson Street west of Broadway, and Spruce Street.

Figure 63: Existing Pedestrian Facilities and Proximate Transit Stop Locations



Traffic Volumes

Existing traffic volumes at the off-site study intersections were based on traffic counts collected in November 2024. The estimated existing weekday AM and PM peak hour traffic volumes are shown on **Figure 64**.

Traffic Operations

Weekday peak hour traffic operations for existing conditions are evaluated at the study intersections. The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). At signalized and all-way stop-controlled intersections, LOS is measured in average control delay per vehicle and is typically reported using the intersection delay. At side-street stop-controlled intersections, LOS is measured in average delay per vehicle and is reported for the worst operating movement of the intersection.

Traffic operations and average vehicle delay for an intersection can be described qualitatively with a range of levels of service (LOS A through LOS F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. The City of Seattle's Comprehensive Plan does not define a LOS standard for individual intersections; however, the city recognizes LOS E and F as poor operations for signalized locations and LOS F for unsignalized locations. All study intersections currently operate acceptably at LOS D or better during the weekday AM and PM peak hours.

Traffic Safety

Recent collision records were reviewed within the study area to identify existing traffic safety issues at the study intersections and along the project site frontage. The most recent three-year summary of accident data from the Seattle Department of Transportation (SDOT) is for the period between January 1, 2021, and December 31, 2023.

SDOT defines High Collision Locations (HCL) as signalized intersections with an annual average of 10 or more collisions, unsignalized intersections with an annual average of 5 or more collisions, or mid-block locations with an annual average of 10 or more collisions, and locations with 5 or more pedestrian or bicycle collisions in the previous 3 years. Intersections designated as high accident locations are targeted for future safety improvements in an effort to reduce the occurrence of accidents. During the review period no study intersections met the HCL criteria as defined by the City of Seattle.

Figure 64: Existing Weekday Peak Hour Traffic Volumes



Each individual study intersection had an annual average of approximately 8 collisions or fewer reported per year over the last three-year review period. The majority of collisions resulted in property damage only throughout the study area with no reported fatalities. Additionally, between 1 and 3 reported collisions involving a pedestrian or bicyclist occurred at 8 of the study intersections including along James Street at 6th Avenue and 8th Avenue, Jefferson Street at 9th Avenue, Terry Avenue, Boren Avenue and Broadway, and Boren Avenue at Terrace Street and Broadway. Along the roadways within and surrounding the Harborview Medical Center Campus, there was an average of less than 1 collision reported per year over the last three-year review period. One collision along 9th Avenue between Jefferson Street and Alder Street involved a bicyclist striking a moving vehicle resulting in an injury. The two other collisions that took place along the roadways within and surrounding the Harborview Medical Center Campus were associated with on-street parking resulting in property damage only. No fatalities were reported adjacent to the campus during the review period.

Loading

There are three loading docks that serve the campus. The docks typically operate on weekdays between 7:00 a.m. and 3:00 p.m., having both scheduled and unscheduled arrivals. The location and access to the loading docks are as follows:

- The dock serving the main hospital super block is located at Alder Street, just east of the private roadway known as 8th Avenue.
- The dock serving 9th Avenue and Jefferson Street multi-purpose building is located on Terry Avenue.
- The dock serving the Research and Training building is located in the alleyway east of the building off of Terrace Avenue.

IMPACTS

This section summarizes the results of the No Action and Action Alternatives analysis.

No Action Alternative

Trip Generation

The No Action Alternative including projects previously approved as a part of the 1999 and 2014 MIMP that are anticipated to remain were evaluated, all are projected to occur by the future (2045) horizon year. No changes are anticipated to occur under the future (2035) horizon year. The existing HMC trip rates were used to estimate the vehicular trip generation for the No Action future (2045) condition.

The weekday AM and PM peak hour vehicular trip generation for each future year condition of the No Action Alternative is summarized below in Table 23.

Table 23: No Action Weekday Vehicle Trip Generation

Land Use	Size	AM Peak Hour Trips				PM Peak Hour Trips		
		In	Out	Total		In	Out	Total
Existing	*2,003,944 gsf*	*505*	*348*	*853*		*121*	*462*	*583*
Future (2045)								
No Action	+ 32,487 gsf	8	6	14		3	6	9
Total	**2,036,431 gsf**	**513**	**354**	**867**		**124**	**468**	**592**

Note: gsf = gross square feet. No projects identified for No Action for the future (2035) horizon year.

As shown in the table, the No Action alternative results in no meaningful change in vehicular trip generation relative to existing conditions with the approved 1999 and 2014 MIMP projects resulting in a slight increase in trips during both the weekday AM and PM peak hours relative to existing conditions.

Similar to the Affected Environment, personal trips for the campus are forecast. Consistent with the vehicular trip generation estimate under the No Action condition, the person trips under future (2045) conditions are anticipated to have a slight reduction relative to existing conditions.

Street System

The No Action Alternative assumes no change in the Harborview vehicle access and circulation. A review of local and regional capital improvement programs and long-range transportation plans was conducted to identify planned transportation projects that would impact the off-site study area within the study period. Two projects were identified which are described below.

James Street Maintenance and Modernization Project between 3rd Avenue and Broadway – Generally, Transportation levy street maintenance and modernization projects repave high volume arterial streets and improve infrastructure for non-motorized users. The James Street Corridor project is included as a corridor that will be evaluated for specific paving extents through a design process. Given no specific details on planned improvements are known at this time, no changes to the channelization or control along James Street were included in the future analysis.

Terry Avenue Green Street – A green street is planned along Terry Avenue; however, the details on any changes along the roadways and at the intersections surrounding Harborview Medical Center are not known, thus no improvements from the existing conditions were assumed as part of the future analysis.

In addition to the above planned improvement projects, additional improvements are anticipated to be constructed as part of continued development within the adjacent Yesler Terrace located south of Alder Street. The FEIS for Yesler Terrace's Preferred Alternative identified specific locations for required transportation mitigation measures and associated trip thresholds[57]. Based on the review of the thresholds and planned pipeline development projects including development at the corner of 9th Avenue/Alder Street, the identified mitigation of converting the existing two-way stop-controlled traffic control at the intersection of 9th Avenue/Alder Street to an all-way stop-controlled intersection is anticipated to be triggered. This improvement project is assumed in the future analysis given the inclusion of the added pipeline projects within Yesler Terrace and associated trips at the intersections. Note that there is an additional mitigation project identified for Yesler Terrace to install a traffic signal at the intersection of 9th Avenue/Jefferson Street; however, the trips associated with the trigger of the project are currently not forecast to be met by the Yesler Terrace projects included in this analysis. However, with full buildout of Yesler Terrace, the triggers would be hit, and this traffic signal would be constructed at this intersection.

Transit

Transit service changes in the vicinity of the Harborview Medical Center campus include the expansion of Sound Transit's Link Light Rail Network. As part of the ST3 measure, Sound Transit is working through the environmental process to extend the existing rail lines including a new downtown Seattle rail-only tunnel. As a part of the new tunnel and extension, additional stations will be constructed with the nearest anticipated to be the Midtown Station located along 4th Street between Yesler Way and James Street, a half mile west of the campus. No service changes to the transit capacity analysis were assumed associated with the Sound Transit system expansions. Given the No Action condition is forecast to have no change in trips or a small increase in trips, no capacity analysis was conducted for the No Action conditions.

[57] *Yesler Terrace Planned Action Ordinance 123962, Exhibit B to Ordinance: Planned Action Mitigation Document* (Table 2. Thresholds for mitigation implementation).

Given the No Action condition is forecast to have no change in trips or a reduction in trips, no capacity analysis was conducted for the No Action conditions; however, the change in travel times for the routes was reviewed under the future (2045) No Action conditions to reflect added growth in the study area. The anticipated increase in travel times was reviewed based on the operational analysis using Synchro and added delay at the intersections under the No Action conditions relative to existing conditions during the AM and PM peak hours. The forecast increase in travel times on any of the routes is less than 1 minute or a percent increase of less than 20 percent.

Also, no changes are anticipated to HMC's shuttles transit service as part of the No Action alternative.

Non-Motorized

Planned improvements with changes to the existing non-motorized system include the James Street Maintenance and Modernization project and the Terry Avenue Green Street. Both projects are still being evaluated and designed, thus there are no known specific details or year of completion.

The No Action condition is anticipated to result in no change or a slight increase in overall size of the campus and the non-motorized trips are correspondingly anticipated to increase minimally, by approximately 2 percent or less.

Traffic Volumes

Future 2035 traffic volumes were forecast considering the following. The details of each of these areas are described in more detail in the Transportation Discipline Report (Appendix F).

- Applied an annual background growth rate of 1 percent to the existing traffic volumes.
- Added in traffic associated with 25 pipeline projects - approved, but not yet constructed projects located in the vicinity.

In addition to the elements above, the future (2045) No Action forecasts include the trips associated with the approved 1999 and 2014 MIMP projects. The slight increase in trips associated with the approved MIMP projects under future (2045) conditions were distributed and assigned to the network. The distribution patterns are illustrated in **Figure 65**.

The resulting No Action weekday peak hour traffic volumes are shown for the future 2035 and 2045 conditions in **Figure 66** and **Figure 67**, respectively.

Figure 65: Trip Distribution

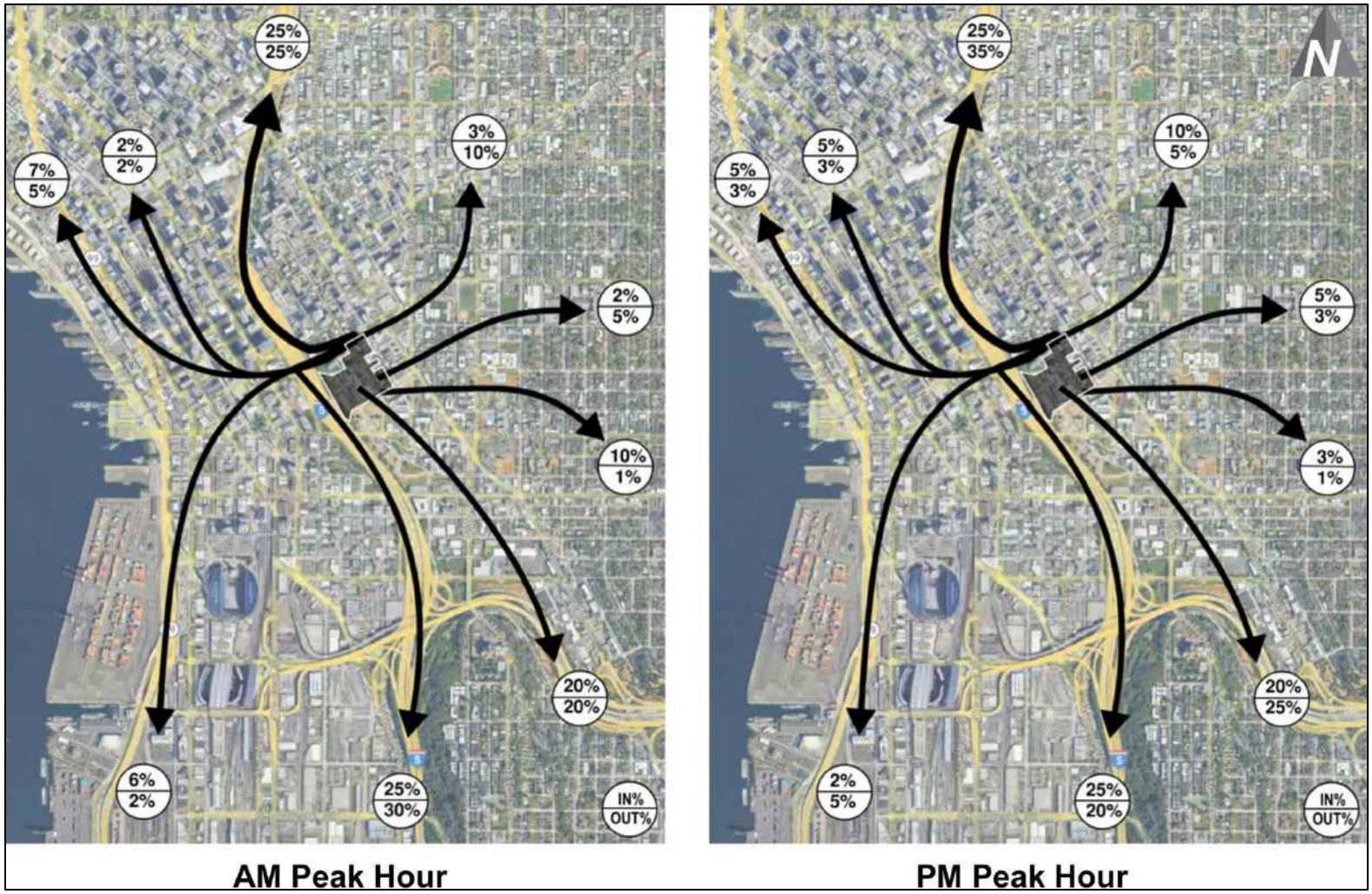


Figure 66: No Action (2035) Weekday Peak Hour Traffic Volumes



Figure 67: No Action (2045) Weekday Peak Hour Traffic Volumes



Traffic Operations

The future 2035 and 2045 No Action operations analysis was conducted using consistent methodology as utilized for the existing conditions analysis. Adjustments of analysis parameters between the existing and No Action (2035) conditions included optimization[58] of signal timing to reflect the continued growth in traffic volumes. Additionally, the revision to traffic control at 9th Avenue/Alder Street to convert the existing two-way stop controlled to all way stop was assumed associated with Yesler Terrace continued development. Right turn on red restrictions and leading pedestrian intervals were assumed at applicable intersections consistent with existing conditions.

Additional adjustments for the No Action (2045) conditions included additional optimization of signal timings (similar to 2030 conditions) as well as further refinement of the PHF at the off-site study intersections. The 2040 PHF adjustment was made consistent with WSDOT Synchro & Simtraffic Protocol – Aug 2018 which identifies assuming a PHF of 1.0 for future analysis conditions, with future analysis typically aligning with a design year condition which is a 20-year forecast, consistent with the future 2045 analysis.

Under future (2035 and 2045) No Action conditions, the study intersections are forecast to continue to operate acceptably at LOS D or better.

Traffic Safety

With no significant change in the traffic volumes along the roadways surrounding the HMC campus and no significant safety concerns identified within the study area under existing conditions, the No Action Alternative is not anticipated to cause any safety concerns

Loading

There are no changes to the existing loading dock facilities associated with the No Action conditions. Future inclusion of loading and service dock facilities will be provided per the requirements established in SMC 23.54.035.A for No Action future (2045) conditions as needed. Loading and service facilities will be designed to reduce any loading from adjacent public right-of-way and continue to be designed for the overall campus.

[58] Optimization included adjusting the splits and offsets. Existing cycle lengths for coordinated signals were maintained.

Alternative 1

Trip Generation

Alternative 1 includes the No Action development as identified above as well as planned and potential projects with a net increase of 1,706,172 gsf added to MIO, with a new patient tower planned for the 2035 future year, and three new potential projects in 2045. The vehicle trip generation was assumed to be consistent with the existing campus rates of 0.43 trips/1,000 sf and 0.29 trips/1,000 sf in the AM and PM peak hours, respectively. Note that these trip rates align with the existing mode splits and AVOs of the campus. It is anticipated that with implementation of Transportation Management Program (TMP) strategies for the campus, there is anticipated to be a reduction in the SOV rate over time, but maintaining the existing mode splits provides a conservative estimate of vehicular trips and associated impacts.

The weekday AM and PM peak hour trip generation for each future year condition of the Alternative 1 is summarized below in **Table 24**.

Table 24: Action Alternative 1 Weekday Vehicle Trip Generation

Condition	Size	AM Peak Hour Trips			PM Peak Hour Trips		
		In	Out	Total	In	Out	Total
Existing	*2,003,944 gsf*	*505*	*348*	*853*	*121*	*462*	*583*
Future (2035)							
Alternative 1	+ 672,065 gsf[1]	169	117	286	41	155	196
Total	**2,676,009 gsf**	**675**	**464**	**1,139**	**163**	**616**	**779**
Future (2045)							
Alternative 1	+ 1,706,172 gsf[1]	430	296	726	104	392	496
Total	**3,710,116 gsf**	**935**	**644**	**1,579**	**226**	**853**	**1,079**

Note: gsf = gross square feet

1. Added size relative to existing.

Under future (2035) conditions the Action alternative results in an increase of 286 vehicle trips during the weekday AM peak hour and 196 vehicle trips during the weekday PM peak hours. Under future (2045) action conditions the planned and potential projects result in an increase of 726 vehicle trips during the weekday AM peak hours and 496 vehicles during the weekday PM peak hours relative to existing conditions.

The total person peak hour trip generation for the campus was estimated for the future (2045) condition (potential and planned projects) based on the same methodology as assumed for the affected environment with no changes assumed to the mode splits or AVO. The estimated Alternative 1-person trip generation is summarized in **Table 25**.

Table 25: Future (2045) Action Alternative 1 Weekday Person Trip Generation

Trip Generation	Existing				Net New Alternative 1				Alternative 1 Total		
	In	Out	Total		In	Out	Total		In	Out	Total
Weekday AM Peak Hour											
Vehicle Trips	505	348	853		430	296	726		935	644	1,579
Person Trips[1]											
Walk and Bike Trips	87	59	146		74	51	125		89	110	271
Transit Trips	366	254	620		314	215	529		680	469	1,149
Other	81	55	136		68	48	116		149	103	252
Person Trips by Vehicle[2]	662	456	1,119		563	388	951		1,225	844	2,070
Total Person Trips	***1,196***	***824***	***2,020***		***1,019***	***702***	***1,721***		***2,215***	***1,526***	***3,741***
Weekday PM Peak Hour											
Vehicle Trips	121	462	583		104	392	496		225	854	1,079
Person Trips[1]											
Walk and Bike Trips	21	79	100		18	67	86		39	146	186
Transit Trips	88	335	423		75	287	362		163	622	785
Other	19	74	93		17	63	80		36	137	173
Person Trips by Vehicle[2]	159	606	765		136	514	650		295	1,120	1,415
Total Person Trips	***287***	***1,094***	***1,381***		***246***	***931***	***1,177***		***533***	***2,025***	***2,558***

1. The person trips reflect the 2024/2025 CTR survey results for the HMC campus.
2. Person trips by vehicle apply the average vehicle occupancy to the vehicle trips.

As shown in **Table 25**, under the future (2045) Alternative 1 conditions, 1,149 and 785 transit trips are estimated in the AM and PM peak hours, respectively and 271 and 186 non-motorized trips (walk, bike, other) in the AM and PM peak hours, respectively. Note that with implementation of TMP strategies for staff, there would be a shift in mode splits reducing the SOV rate and increasing the reliance of the non-SOV modes (e.g., higher transit, non-motorized, carpool, etc.). This sensitivity review is considered for purposes of reviewing non-motorized and transit impacts only.

Transit

No changes are proposed to public transit service as a result of the Action Alternative, such that transit capacities are consistent with the No Action condition as described above. A review of the public transit capacity review and travel times are reviewed below as a result of the Action Alternative.

Future Alternative 1 ridership was estimated for the future 2045 horizon year by applying an annual background growth rate to the existing ridership and adding transit trips for the campus specific to the Alternative 1 condition. An annual background growth rate of 1.5 percent was assumed consistent with the overall forecast growth in traffic volume at the study intersections when including both the annual background growth rate and pipeline traffic.

The peak hour transit trips for Alternative 1 were evaluated for both the existing SOV rate. Additionally, a sensitivity analysis of a reduced staff SOV mode split of 25 percent was also completed for purposes of estimating potential higher transit trips and associated impacts. These trips were assigned to the transit stops evaluated in the analysis. The transit utilization surrounding the campus shows up to 91 percent under the future (2045) Alternative 1 condition during the AM and PM peak periods. The detailed transit capacity analysis is included in the TDR (Appendix F).

The change in travel times for the routes was also reviewed for future (2045) Alternative 1 conditions relative to the future (2045) No Action conditions. The anticipated increase in travel times was reviewed based on the operational analysis using Synchro and added delay at the intersections under the Alternative 1 conditions relative to No Action conditions during the AM and PM peak hours. The forecast increase in travel times on any of the routes is approximately 1 minute or less.

Additionally, no changes are proposed to HMC's shuttles as a result of Alternative 1 given the shuttles do not utilize the private roadway known as 8th Avenue.

Street System

No changes are proposed to the off-site street network as a result of Alternative 1 relative to the No Action condition; however, there are a number of on-campus modifications evaluated with Alternative 1. Alternative 1 considers two primary access options:

- Option 1A: Closure of the private roadway known as 8th Avenue south of Jefferson Street as the planned new tower would include occupancy at grade and below with direct connection to the existing west hospital. Note that the connection along private roadway known as 8th Avenue from Alder Street to the existing mid-block turnaround is anticipated to be maintained.
- Option 1B: The private roadway known as 8th Avenue connection between Alder Street and Jefferson Street to remain open.

The roadway connectivity to the planned and potential new towers, west of the private roadway known as 8th Avenue connecting to on-site parking and/or loading areas for the new towers that are being considered include Alder Street, Jefferson Street, and Yesler Way. The reviewed connectivity options are illustrated in Figure 68 and detailed below:

- Option 1A – The private roadway known as 8th Avenue Closure. Roadway connections to the new towers are assumed at the following locations:
  1. Alder Street and Jefferson Street at the private roadway known as 8th Avenue.
  2. Alder Street and Jefferson Street at the private roadway known as 8th Avenue and a connection to Yesler Way.
  3. Alder Street at the private roadway known as 8th Avenue.
  4. Alder Street at the private roadway known as 8th Avenue and a connection to Yesler Way.

- Option 1B – The private roadway known as 8th Avenue to remain open. Roadway connections to the new towers are assumed at the following locations:
  1. Alder Street and Jefferson Street at the private roadway known as 8th Avenue.
  2. Alder Street and Jefferson Street at the private roadway known as 8th Avenue and a connection to Yesler Way.
  3. Alder Street at the private roadway known as 8th Avenue.
  4. Alder Street at the private roadway known as 8th Avenue and a connection to Yesler Way.

Traffic Volumes

Alternative 1 net new 2035 and 2045 vehicular trip generation was assigned to the transportation network based on the vehicle trip distribution (consistent with the No Action trip distribution patterns above) with the local roadway connections for each option as defined above. Given the road connection options are focused to the west side of the campus, the shifts in volumes associated with the options are limited to study intersections along and west of 9th Avenue. The resulting Alternative 1 peak hour traffic volumes are shown in Figures 68 through 71 for the 2035 and 2045 conditions.

This primary analysis assumes the planned new tower includes parking accessed via the proposed access road and the trips are assigned accordingly. A sensitivity analysis is conducted that considers the possibility of reduced parking within the planned new tower. The results of this analysis are presented in a subsequent section.

Figure 68: Alternative 1 – Road Connection Options

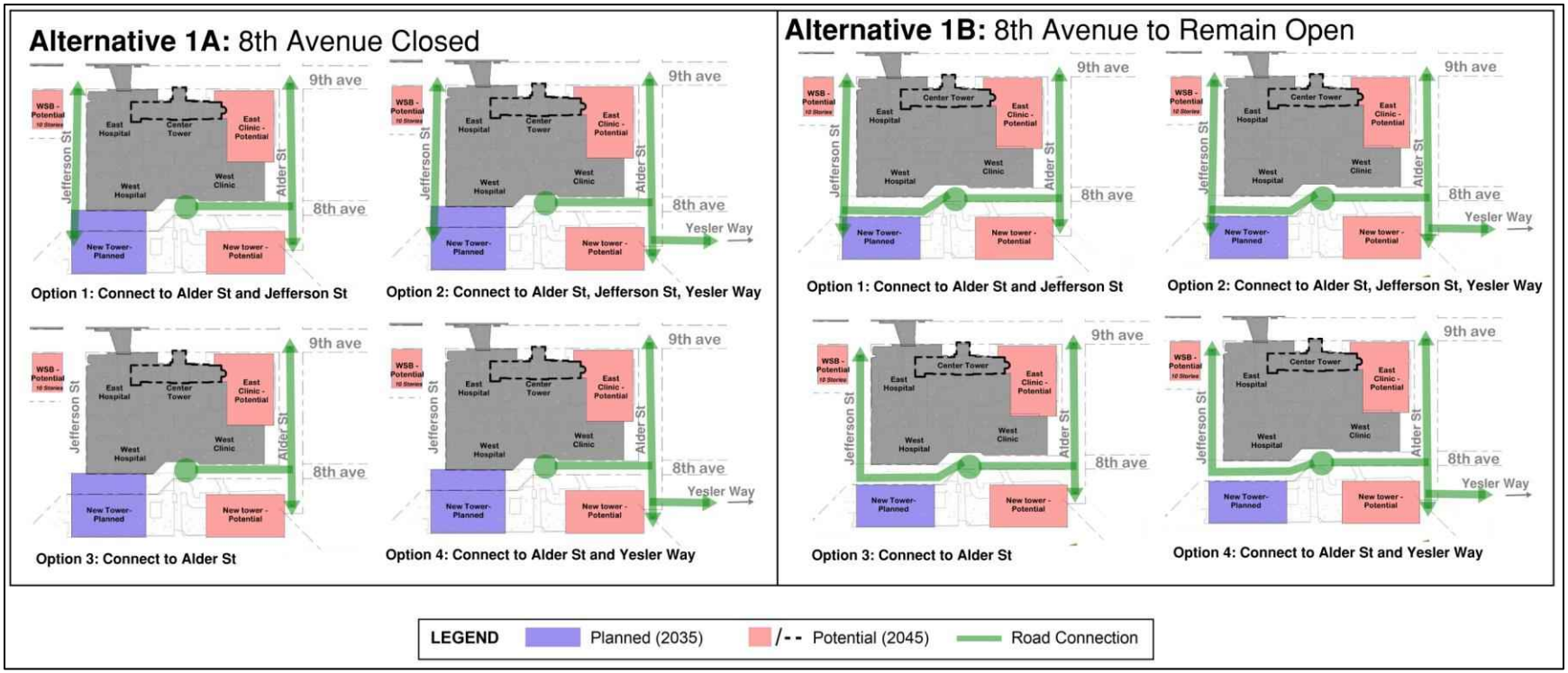


Figure 69: Alternative 1 – (2035) Weekday Peak Hour Traffic Volumes



Figure 70: Alternative 1 – (2035) Weekday Peak Hour Traffic Volumes (Road Connection Options)

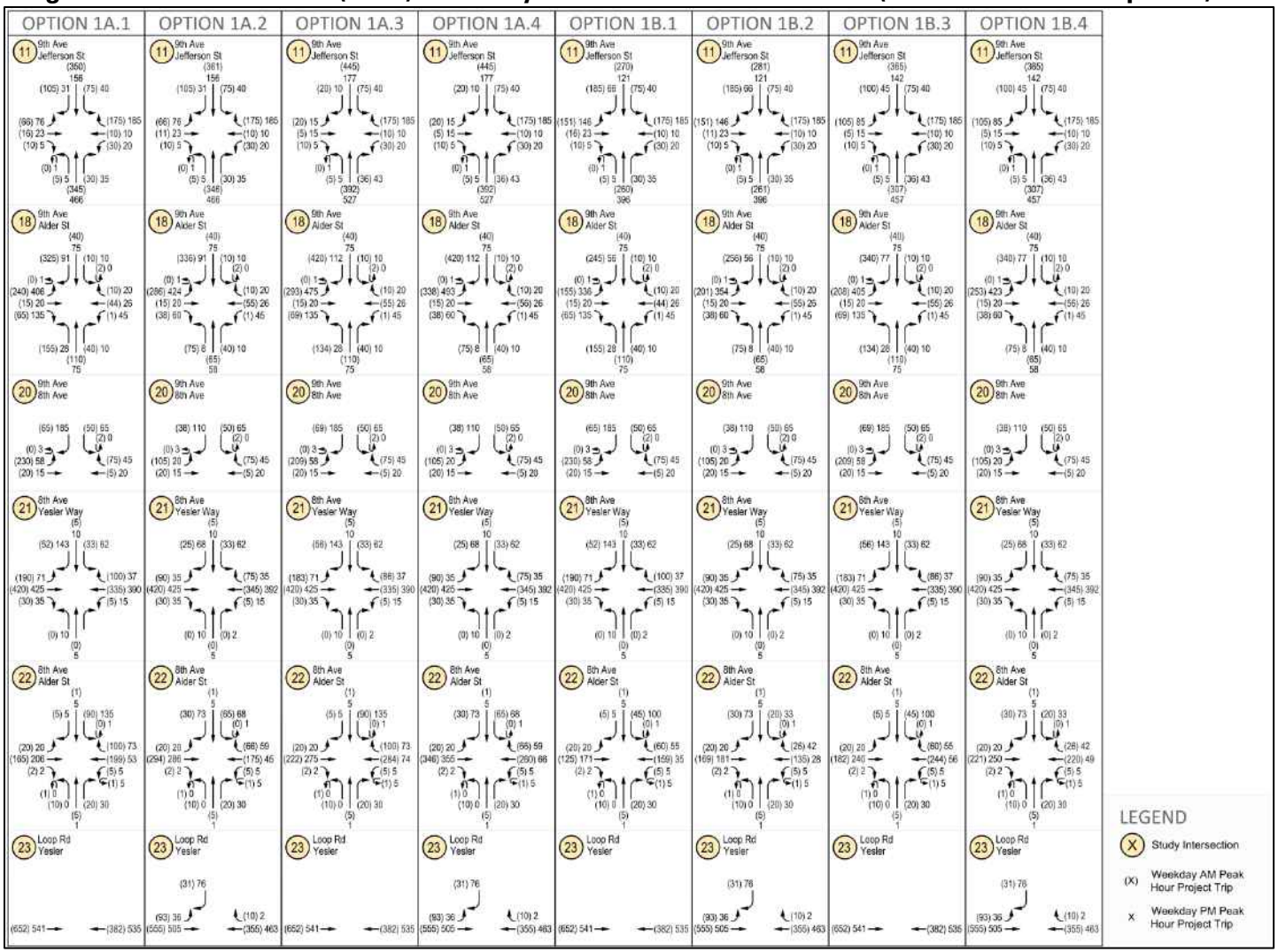
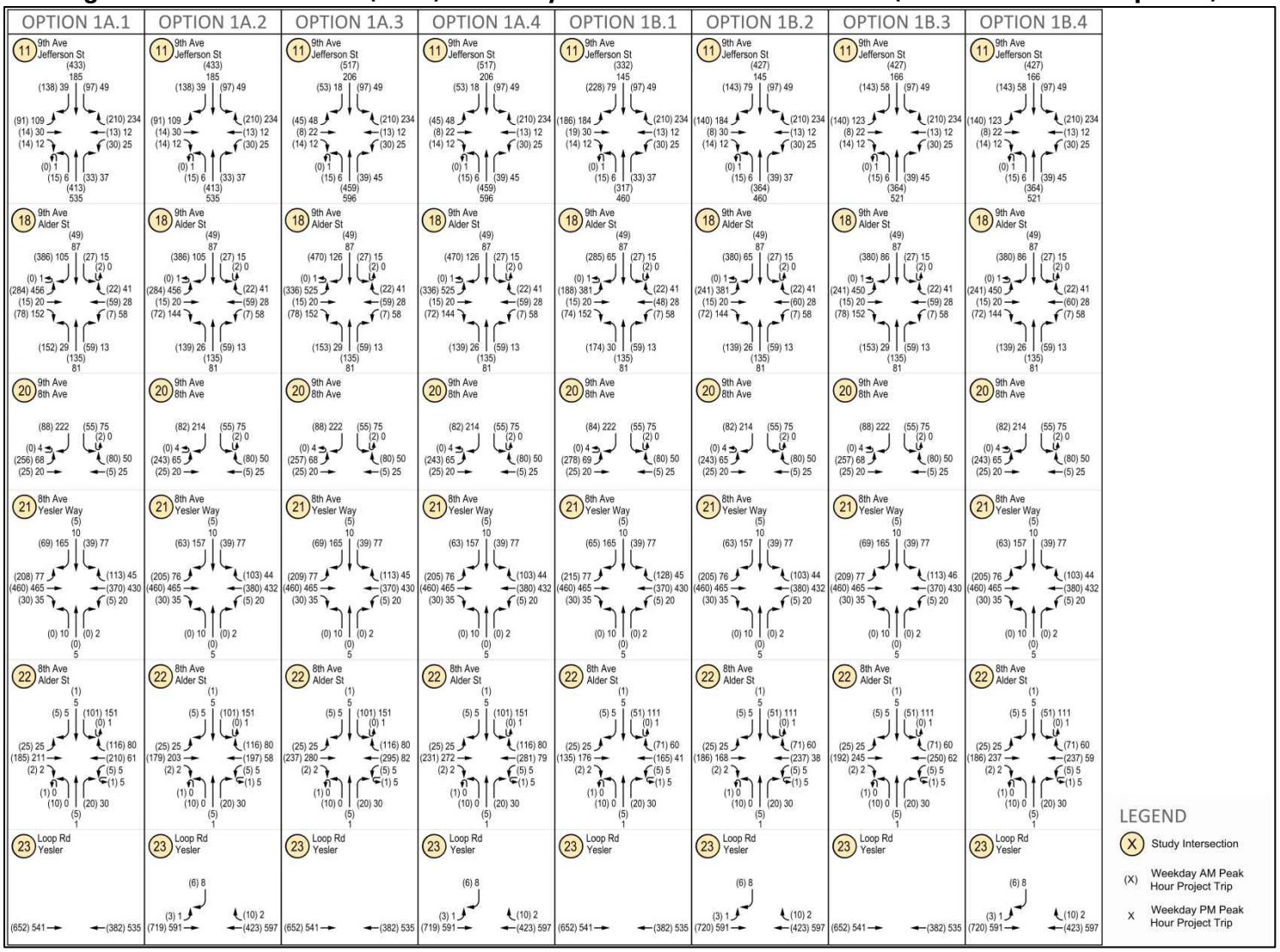


Figure 71: Alternative 1 – (2045) Weekday Peak Hour Traffic Volumes



Figure 72: Alternative 1 – (2045) Weekday Peak Hour Traffic Volumes (Road Connection Options)



Traffic Operations

Intersection levels of service were calculated for the study area intersections for the 2035 and 2045 weekday AM and PM peak hour conditions. The level of development and resulting trip generation assumed in each of the horizon years varies as previously noted. Intersection parameters were held consistent with the No Action analyses with the exception of optimization of signal timing assumed as applicable given the added traffic associated with Alternative 1 relative to No Action conditions.

The analysis showed that all study intersections under all road connection options operate acceptably under future (2035) Alternative 1 conditions during the AM and PM peak hours such that the added traffic forecast to occur with the addition of the planned tower project does not result in any significant impacts.

Under future (2045) Alternative 1 conditions, the study intersections are forecast to operate acceptably at LOS E or better with the exception of the all-way stop-controlled intersection of Jefferson Street at 9th Avenue which is discussed below.

Jefferson Street/9th Avenue – This all-way stop-controlled intersection is forecast to operate acceptably at LOS E or better under all future (2045) No Action and Alternative 1 options during the PM peak hour. During the AM peak hour, the intersection is forecast to degrade from LOS C under No Action conditions to LOS F under all road connection options. The delay of the intersection does not reflect impacts associated with pedestrians such that delay may be greater than reflected with the addition of those conflicting movements that occur at the intersection. The LOS F operations at the all-way stop-controlled intersection during the AM peak hour are identified as a significant impact which will require mitigation which is reviewed in the Mitigation section below. Note that Yesler Terrace has identified signalization of this intersection as mitigation with an identified trip threshold; however, the pipeline development projects[59] have not indicated this threshold was met such that the signal was not assumed in the analysis.

59 Note future development within the Yesler Terrace project is expected but was not assumed. With future buildout of the Yesler Terrace project, this mitigation would be triggered.

Sensitivity Review – Alternative Trip Assignment

As noted above, the analysis above of Alternative 1 assumes the planned new tower includes parking and the trips are assigned accordingly. A sensitivity analysis was conducted that considers the possibility of parking not being located within the planned new tower to provide flexibility for the campus as design progresses and evaluates the alternative assignment of the trips associated with a shift in parking location. The change in parking would result in localized shifts in travel patterns of campus traffic.

The sensitivity analysis showed the study intersections are forecast to operate acceptably with the exception of the Jefferson Street/9th Avenue intersection which is forecast at LOS F under the future (2045) conditions during the AM peak hour. This is consistent with the findings of the Alternative 1 analysis above. Mitigation for this location is discussed below within the Mitigation section.

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. As shown in the trip generation table above (see **Table 25**), the total vehicle trips are forecast to increase with Alternative 1 relative to the No Action conditions associated with the additional development. Based on the existing safety review, there are no intersections within the study area that meet the City of Seattle's High Collision Location criteria within the last three-year review period. With no existing high collision locations and no collisions resulting in fatalities within the study area, no significant impacts from a safety perspective are anticipated at any of the study area intersections with Alternative 1. The City of Seattle has implemented right-turn on red (RTOR) restrictions at most signalized intersections within the study area. The City will continue to monitor collision data within the City and implement additional RTOR restrictions as needed.

Loading

There are no changes to the existing loading dock facilities associated with the Alternative 1 condition. Future inclusion of loading and service dock facilities will be provided per the requirements established in SMC 23.54.035.A for the planned and potential projects associated with Alternative 1 as needed. Loading and service facilities will be designed to reduce any loading from adjacent public right-of-way and continue to be designed for the overall campus. A loading and services facility dock will be located off of the access road as a part of the Planned new patient tower.

Construction Traffic

Alternative 1 would generate construction traffic (e.g., employees and trucks) associated with demolition, excavation, infrastructure and building construction, and landscaping. The construction activity throughout the duration of the planned and potential projects will vary, with the greatest daily trips occurring during the initial import/export phase. Following the import/export phase, activity shifts to construction of structures which typically have lower daily activity levels with workers arriving prior to the weekday AM peak period and departing prior to the PM peak period.

For the planned development, the majority of the "heavy" hauling of the import/export phase is planned to occur during off-peak periods or night hauling. Assuming hauling occurs overnight, the duration is anticipated to be over a 4–6-month period with 4-6 trucks per hour or (8-12 trips). There may be other hauling and deliveries during the normal day shifts as expected for this type of project. The daytime peak period trips are anticipated to be minimal (less than 10 trips).

Haul route options for the project are discussed below. Final construction haul routes and activities would be reviewed and approved by City staff through a Construction Management Plan (CMP).

- North of Campus –
    - Direct Connection to James Street – To support construction traffic, a connection between Jefferson Street and James Street is anticipated could be constructed along the western side of campus extending north of the planned access road connection. This would be used for construction purposes only and would be removed once construction is completed. The connection at James would be controlled (e.g., traffic signal modification, a flagger, etc.) and only active when a vehicle is present. As shown above, the construction-related traffic demands are anticipated to be low during the peak periods. Note that this connection could serve inbound and/or outbound construction related traffic. Due to the proximity to the traffic signal at 7th Ave/James Street additional coordination and analysis would be required to implement this access. This additional analysis will be provided during the Construction Management Plan review process.

  - 9th Avenue/Jefferson Street intersection – This route provides a connection to the north of campus, connecting to James Street, proximate to regional connectivity via I-5, but requires access via the 9th Avenue/Jefferson Street all-way stop-controlled intersection. The all-way stop-controlled intersection is a key intersection serving the hospital with a high number of non-motorized trips as well as being adjacent to a transit stop serving a number of routes and the emergency vehicle access for the emergency room. As indicated above, the construction activity is anticipated to occur overnight or during non-peak periods when the general traffic volumes and pedestrian volumes are lower; however, times for emergency vehicles are unpredictable and the direct connection above provides increased separation of the trucks from that critical hospital function.

- South of Campus – Routing south of campus would utilize Yesler Way; however, regional connectivity from Yesler Way results in further routing to connect to I-5 at Dearborn Street or James Street and/or I-90 further to the south via Rainier Avenue S.

Alternative 2

The development size of Alternative 2 is consistent with Alternative 1, such that the associated trip generation and resulting impacts for Alternative 2 are consistent with those identified for Alternative 1. Note that Alternative 2 assumes the private roadway known as 8th Avenue is closed, consistent with Option 1A.

MITIGATION MEASURES

Mitigation measures identified are applicable for both Alternatives 1 and 2.

Intersection Improvements

The all-way stop-controlled intersection of **Jefferson Street/9th Avenue** is forecast to operate acceptably at LOS E or better under all future (2045) No Action and Alternative 1 options during the PM peak hour. During the AM peak hour, the intersection is forecast to degrade from LOS C under No Action conditions to LOS F under all road connection options. Additionally, this location is forecast to degrade to LOS F under the sensitivity conditions during the future (2045) AM peak hour conditions. As discussed above, the delay of the intersection does not reflect impacts associated with pedestrians such that delay may be greater than reflected with the addition of those conflicting movements that occur at the intersection.

A traffic signal warrant was completed for the 2045 horizon year condition. The traffic signal warrant for the options reviewed was shown to be met at this location. Note that Yesler Terrace has also identified signalization of this intersection as mitigation with an identified trip threshold; however, the pipeline development projects have not indicated this threshold was met such that the signal was not assumed in the analysis.

With the installation of the traffic signal (maintaining existing channelization), the intersection would operate acceptably at LOS B. Additionally, queuing at the Jefferson Street/9th Avenue intersection was reviewed given its proximity to the existing signalized intersection of 9th Avenue/James Street. The review forecasts that southbound queues extending from Jefferson Street/9th Avenue intersection would be reduced with signalization and would be accommodated between the two intersections so as to not impact the 9th Avenue/James Street intersection.

In addition to operations, the forecast change in travel times of the transit routes through the 9th Avenue/Jefferson Street intersection as a result of the change in traffic control from all-way stop controlled to a traffic signal result in changes of plus or minus a minute of travel times. This equates to changes of approximately 20 percent less to 15 percent higher with the signal compared to the current all-way stop-controlled condition.

The mitigation review has identified that with the planned and potential projects, a traffic signal would be warranted and would mitigate the identified impacts, resulting in the intersection operating at LOS B during the weekday AM and PM peak hours. The specific timing and warranting of the traffic signal would be confirmed through subsequent studies conducted for the potential development projects identified in the MIMP. If the subsequent studies conducted for the potential projects confirm the 9th Ave and Jefferson St intersection is forecast to degrade to LOS F conditions, and the signal is still warranted, then it would be constructed by HMC as mitigation. Alternatively, if the Yesler Terrace development triggers the signal based on defined trip thresholds for that development, it will be constructed by others and HMC would not have any obligation associated with that intersection improvement.

Non-motorized considerations

The installation of a signal at 9th Avenue and Jefferson Street will include non-motorized improvements at the intersection. The traffic signal design will include pedestrian improvements per the Right-of-Way Improvement Manual, such as ADA compliant curb ramps and updated crosswalk striping.

The midblock crossing along 9th Avenue south of Jefferson Street, showed one collision involving a bicyclist striking a moving vehicle resulting in an injury. With installation of a traffic signal at 9th Ave/Jefferson Street by HMC or others, HMC would construct improvements at the midblock crossing which could include the following:

- Rectangular Rapid Flashing Beacon (RRFB) to improve visibility of the midblock crossing
- Replacing the existing curb ramps at this crossing with ADA compliant curb ramps as applicable.

Construction Management Plan

To minimize/reduce impacts to the surrounding neighborhood a Construction Management Plan, consistent with City requirements will be prepared as part of any project included in this Master Plan. This plan will be coordinated with the City of Seattle and will include a review of the following elements:

- Construction hours
- Haul Routes
- Noise generating activities
- Noise sensitive receivers
- Construction noise management
- Construction milestones
- Construction parking
- Right-of-Way use (e.g., street closures, sidewalk closures, transit stop closures/relocations, etc.)
- Flagging Services

UNAVOIDABLE ADVERSE IMPACTS

No significant and unavoidable adverse impacts have been identified through this analysis.

3.11. PUBLIC SERVICES AND UTILITIES

AFFECTED ENVIRONMENT

Police/Safety and Security

Beat G1 of the Seattle Police Department (SPD) East Precinct provides police services for Harborview and is part of the First Hill Micro-Community Policing Plan (MCPP) neighborhood. The SPD creates these plans by bringing community engagement and crime data together and directing police services to address community needs. **Figure 73** shows Beat G1, a 0.23-square-mile area within the larger 91.57[60] square mile city.

Figure 73: Seattle Police Department East Precinct Beat G1 Map



Source: City of Seattle Police Department, Find Your Precinct webpage: https://www.seattle.gov/police/about-us/police-locations/precinct-locator

[60] City of Seattle Office of Planning and Community Development https://www.seattle.gov/opcd/population-and-demographics

Beat G1 is bounded by I-5 to the west, James and East Cherry streets to the north, 14th Avenue to the east, and Boren Avenue and East Yesler Way to the south.

The most recent First Hill MCPP survey results are from 2021. The top five concerns noted at that time were police capacity, property crime, homelessness, public safety and community capacity, and traffic safety.[61]

As of March 31, 2025, the East Precinct has 11 sergeants and 71 officers available for 911 emergency response.[62] Regarding response time to calls, the East Precinct experienced a substantial improvement from the first quarter of 2024 to the first quarter of 2025. Priority 1 (life threatening emergencies, serious crimes) response time improved by 18.5 percent with the median time going from 6.1 to 5.5 minutes. Priority 2 (non-life-threatening emergencies) and Priority 3 (non-emergency incidents) calls also had improved response times.

Table 26 outlines the SPD 2023 and 2024 crime statistics for Beat G1 and the city.

Table 26: SPD Crime Statistical Profile 2023-2024

Offense Category	Offense Subcategory	Beat G1 2023	City of Seattle 2023	Beat G1 2024	City of Seattle 2024
Violent Crime	Aggravated Assault	67	3,319	71	3,313
	Homicide	0	65	2	54
	Rape	12	340	15	397
	Robbery	20	1,700	23	1,716
	Violent Crime Total	**99**	**5,424**	**111**	**5,462**
Property Crime	Arson	3	149	3	157
	Burglary	141	8,641	140	8,932
	Larceny-Theft	198	22,902	261	24,614
	Motor Vehicle Theft	91	9,247	92	7,432
	Property Crime Total	**433**	**40,939**	**496**	**41,135**

Source: Seattle Police Department Crime Dashboard, 2024 Data[63]

[61] Seattle Police Department, Information & Data, Micro-Community Policing Plans, Survey Results Dashboard, First Hill MCPP, https://www.seattle.gov/police/information-and-data/data/mcpp-about/survey-results-dashboard

[62] Seattle City Council Central Staff, Seattle Police Department (SPD) 2025 Q1 Sworn Staffing, Overtime and Performance Metrics Report; Greg Doss, Analyst, Public Safety Committee, May 27, 2025.

[63] Seattle Police Department Crime Dashboard https://www.seattle.gov/police/information-and-data/data/crime-dashboard

From 2023 to 2024, the overall city crime statistics did not change significantly, with a less than one percent year-over-year increase in both overall violent and property crime. The raw data from East Precinct Beat G1 indicates year-over-year increases in violent crime, from 99 in 2023 to 111 in 2024, and property crime, from 433 in 2023 to 496 in 2024. The SPD has a crime heat map that measures crime activity relative to the city as a whole. Overall, the Beat G1 crime rates are similar to Seattle's overall crime rates when considering population.

The UW Police Department (UWPD) does not patrol Harborview. Harborview has its own security department with both in-house security staff and collaboration with external law enforcement agencies. The Washington State Patrol (on-site security 24 hours a day, 7 days a week) and the SPD (available for support as needed) supplement the Harborview Security Services Department.

Harborview security staff receive specialized training to manage situations involving potentially vulnerable populations, including psychiatric and suicidal/homicidal patients, and individuals experiencing involuntary admissions. Security staff regulate and control access to various areas of the medical center and its offsite facilities.

Fire Department and Emergency Services

The Seattle Fire Department (SFD) provides firefighting, emergency aid, and code inspection services to Harborview. The following SFD stations within an approximate 10-minute drive from the Harborview campus[64]:

- Station 10 – International District: 400 South Washington Street. Station 10 houses Engine 10, Ladder 1, Aid 10, Aid 5, Staff 10, and the Hazardous Materials Team (HMT). Station 10 also includes the Fire Alarm Center and the Emergency Operations Center.
- Station 25 – Capitol Hill: 1300 East Pine Street. Section 25 houses Engine 25, Ladder 10, and Aid 25.
- Station 5 – Waterfront: 925 Alaskan Way. Station 5 houses Engine 5, Fireboard Leschi, Fireboat 2, Rescue Boat 5, and PT520.

The 2024 SFD annual report provides response totals and call volume on a citywide basis. In 2024, SFD had 112,320 responses, including basic life support, advanced life support, fire-type responses, special operations, and mutual aid. SPD received 201,776 calls in 2024, with over 171,000 emergency calls.

[64] Seattle Fire Department Fire Stations https://www.seattle.gov/fire/about-us/fire-stations

Regarding call processing, NFPA 1225 (2022) states that 90 percent of the time dispatch centers should process high acuity fire and EMS calls within 60 seconds 90 percent of the time. Processing means from the time the phone is first picked up to a unit assigned. In 2023 and 2024, 51 percent of call processing met standard.

The EMS turnaround goal is within 60 seconds 90 percent of the time. In 2024, EMS turnaround time within 60 seconds was 55 percent. The fire turnout time goal is within 80 seconds 90 percent of the time. Only 60 percent of fire turnout calls met this goal.

Harborview is the headquarters of the Medic One Program[65]. Medic One provides emergency medical coverage to over 550 events in the city each year. The Emergency Medical Technicians (EMTs) and paramedics are available to staff large events in Seattle with bikes, gators, or medic units.

Medic One provides the community with Advanced Life Support (ALS) activities that, in the past, only licensed physicians could perform. In addition to medical emergency responses, medic units respond to all working fires, hazardous materials, and rescue responses. Medic One does not directly operate helicopters. Instead, the broader King County EMS system, of which Medic One is part of, uses helicopters, specifically Airlift Northwest, for rapid transport of critically ill patients, particularly in cases requiring advanced life support.

Utilities

Existing public utility systems within the Harborview MIO include storm drains, sanitary sewer, water distribution lines, and other utilities.

- Sanitary Sewer and Storm Drainage. Sanitary sewer and storm systems for the campus discharge to Seattle Public Utilities (SPU) storm, sewer and combined sewer mains located in the city rights-of-way that run throughout the campus. Jefferson Street and 9th Avenue have existing 8- and 12-inch combined sewer mains. North of Jefferson Street, 9th Avenue has an existing 12-inch storm main and 10-inch sewer main.[66] Sewer lines are also found within Terrace and Alder streets4. The mains direct site flows for treatment at the West Point Treatment Plant in Discovery Park, over 6 miles northwest of the project site.Figure 74 shows the existing storm and sewer system serving the campus.

[65] https://www.seattle.gov/fire/about-us/about-the-department/operations/medic-one

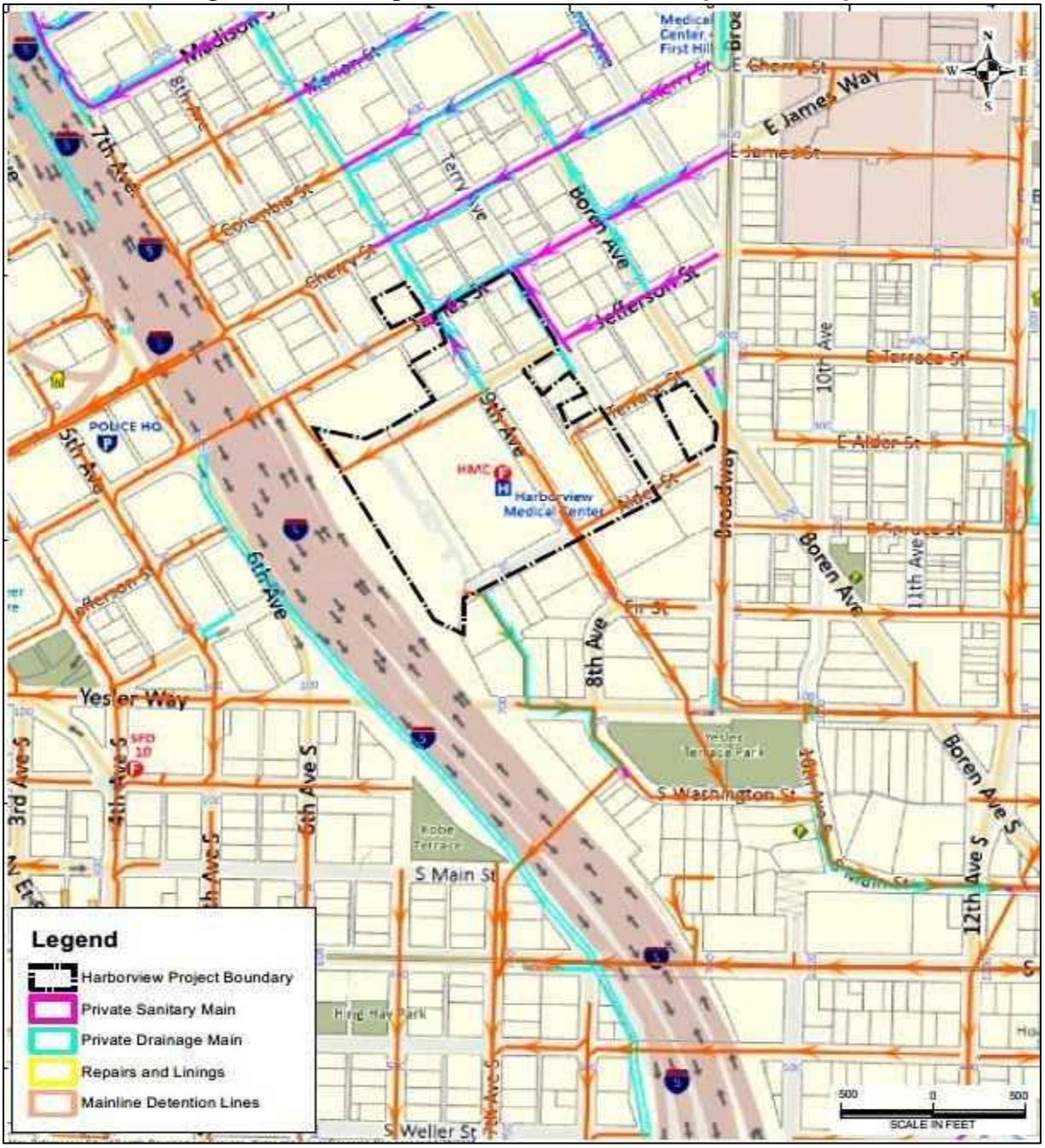
[66] King County Harborview Medical Center Facilities Master Plan, Seattle, WA, February 9, 2023, page 33.

- Water Distribution. The Harborview campus is located in a 3001-8000 gallons-per-minute water pressure zone.[67] SPU maintains the modeled water main capacity estimates, which were most recently modeled on March 5, 2025. Eight-inch cast iron water mains, mostly dating to 1981, surround the campus, as shown in **Figure 74.** New development would have to connect to this service.

- Other Utilities. In addition, the street grid that may have impacts from both the Planned and Proposed projects including mechanical, electrical, and communication utilities in and around the street grid. Among the utilities included are steam and gas. Figure 75 shows the Seattle City Light (SCL) electrical lines and poles on and around the campus. The Energy chapter provides a more substantive discussion of utilities serving Harborview. Harborview campus. Wastewater transport to West Point Treatment Plant includes separate and combined sewer systems. The King County Metro's Wet Weather Treatment Plants (WWTP) addresses any overflow. The two closest WWTPs are the Elliott West WWTP, 2.4 miles northwest of the campus, and the Georgetown WWTP, approximately 4 miles south of the campus.

[67] City of Seattle, Development Services Office, Water and Sewer Research Map, https://experience.arcgis.com/experience/95749d0993164eefa99300182e99bd43#data_s=id%3AdataSource_7-1907b2a4913-layer-88-19429222141-layer-52%3A2405502

Figure 74: Existing Stormwater and Sanitary Sewer Map

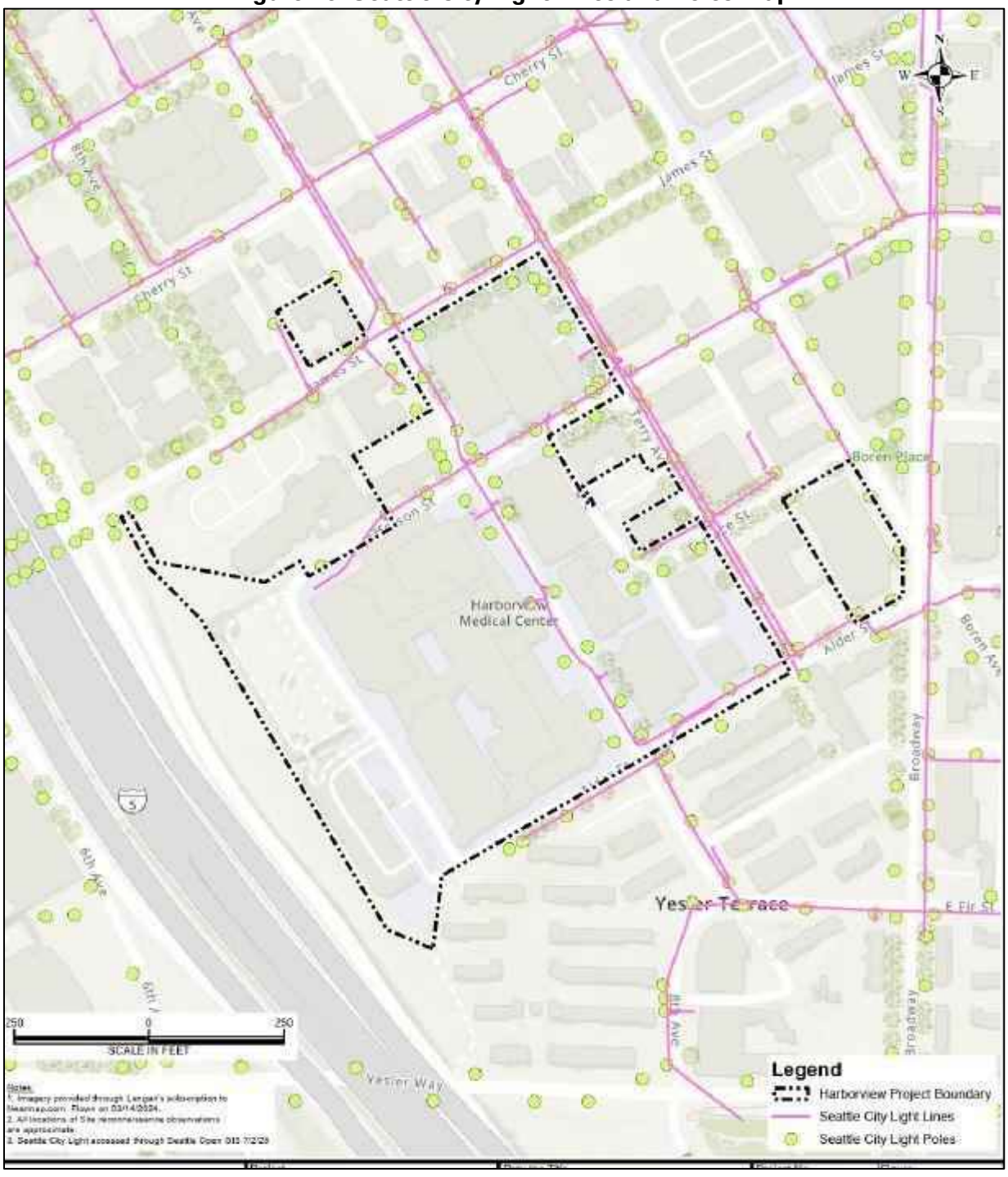


Source: City of Seattle Development Services Office, Water and Sewer Research Map.

Figure 75: Water Service Map



Figure 76: Seattle City Light Lines and Poles Map



Police/Safety and Security

The increased intensity of use due to the Proposed Action may result in needing additional police services. Among the potential additional service services may include parking and traffic control, and crime prevention. The Proposed Action may impact public safety on and around the campus in the following ways:

- Ongoing cooperation between SPD and Harborview security, in concert with potential campus lighting and pedestrian connections, to address security concerns. Additional security staffing may be necessary with the new development.
- Increased activity onsite due to the Proposed Action may increase a sense of "eyes on the street" and reduce opportunities for offenses.
- The proposed Loop Road will reroute some traffic and change interactions between cars and pedestrians.

Since the improvements will not change the nature of activity on the Harborview campus, the Proposed Action would require an assessment of the adequacy of campus security to address concerns about public safety. Although the SPD is making efforts to increase its officer headcount, the additional growth of Harborview will require upgrades in security, including employment. To avoid having an adverse impact regarding police/safety and security concerns, campus security may require additional staff.

Fire Department and Emergency Services

New facilities and the increased population on campus may increase Harborview's demand for fire safety and emergency services. Harborview will have to address fire safety issues in the building design, including sprinklers, standpipes, and adequate water flow. Fire department workloads may increase due to inspections, and fire prevention services may occur. In addition to SPD consultation with Harborview regarding fire safety SFD is currently addressing ongoing staffing issues and will continue to do so with the Proposed Action.

Separate fire water connections must be made to each new building, and the water entrance must have its own dedicated fire water service room that has access from the exterior of the building. This action allows first responders to gain access to the fire water service room in case of an emergency. In addition, high-rise buildings will require a fire pump to boost pressure for the sprinklers and standpipes on the upper levels. High-rise buildings require a secondary source of fire water in case the single fire water main is severed. Fire water flow requires a secondary containment tank.

Utilities

Planned or Potential Projects will require storm drain connections, sewer service, and water connections for domestic and fire purposes. The applicant will coordinate with SPU and other agencies to confirm available capacity for the Planned and Potential Projects.

- Public Right-of-Way Vacations. As noted in the KC Harborview Facilities Master Plan, the new patient tower may result in the removal of the private roadway known as 8th Avenue. A new access road would be built around the west side of the building connecting to Jefferson Street.[68]

- Sanitary Sewer and Storm Drainage. The KC Harborview Facilities Master Plan indicates the new patient tower project proposes rerouting the 12-inch combined sewer reroute. In addition, SPU requires a proposed 20-foot sewer easement.[69]

  Per the 2026 City of Seattle Stormwater Manual and SMC 22.805.050.C.5, Harborview needs to meet the Peak Control Standard for sites that discharge to the combined sewer system. The Peak Control Standard is the flow control standard that sets the maximum allowable stormwater release rates from the development site for the 2-year, 5-year, and 25-year storms based on the site area.

  As infiltration is not feasible, the Proposed Action will need a detention system providing approximately 13,850 cubic feet (CF) of live storage volume for the project to meet the flow control requirements.[70] The applicant will coordinate with city officials to meet the 2026 city stormwater requirements.

- Water Distribution. Regarding fire safety, Separate fire water connections must be made to each new building, and the water entrance must have its own dedicated fire water service room that has access from the exterior of the building, to allow first responders to gain access to the fire water service room in case of an emergency.

  In addition, high-rise buildings will require a fire pump to boost pressure for the sprinklers and standpipes on the upper levels. In case of a severed single fire water main, high-rise buildings need a secondary source of fire water in case the single fire water main is severed. Fire water flow requires a secondary containment tank.

[68] King County Harborview Medical Center Facilities Master Plan, Seattle, WA, February 9, 2023, Appendix C5, Civil Supporting Documents, New Inpatient Tower – Sewer Reroute, Appendix C5: Tier 1 – Sewer Reroute.
[69] Ibid.
[70] King County Harborview Medical Center Facilities Master Plan, Seattle, WA, February 9, 2023, page 57.

For the new patient tower, a proposed 8-inch water main extension on the east side of the new patient tower. The new extension would have an option to add building connections from the Main Building. A 20-foot-wide water easement would run along the private roadway known as 8th Ave.[71]

The applicant will coordinate with Seattle Public Utility officials to coordinate changes to serve the campus.

ALTERNATIVES

The Proposed Action is Alternative 1, for which this chapter outlines the public services and utilities existing conditions and potential impacts. The primary difference when considering Alternative 2 is the proposed maximum building height of 240 feet. This chapter also considers the potential impact of the No Action Alternative.

- Alternative 2 - 240 Foot Maximum Building Height: Alternative 2 would have public service and utility demand similar to the Proposed Action. The difference is that Alternative 2 would have greater building footprints to provide the same floor area for services.

- No Action Alternative: Not implementing the Planned and Potential Projects would still allow development of the 1999 and 2014 MIMP existing and approved projects. The water and sewer reconfigurations would not be necessary since the new patient tower would not be built.

MITIGATION MEASURES

Police/Safety and Security

- Provide adequate updated lighting with clear sightlines that balances safety and security with aesthetic concerns.
- Scale street lighting to pedestrian use to ensure sidewalks are well lit.
- Maintain landscaping to improve visibility for pedestrian spaces.
- Increase construction site security.

Fire Department and Emergency Services

- New construction to comply with applicable Seattle Fire Code in addition to Uniform Building Code.

[71] King County Harborview Medical Center Facilities Master Plan, Seattle, WA, February 9, 2023, Appendix C5, Civil Supporting Documents, New Inpatient Tower – Sewer Reroute, Appendix C6: Tier 2, New Tower – Civil Scope.

- Notify SFD of extended street closures or blockages during construction.
- Minimize storage and accumulation of construction materials and waste.

Utilities

Sewer Main Relocation – New Patient Tower: The approximate location of the existing combined sewer main runs through the proposed patient tower footprint. The following options are available for mitigation:[72]

- Reroute sewer line to the north of the new tower.
- Reduce building footprint to provide a minimum 10-foot clearance from sewer line.

Harborview will coordinate utility mitigation with the following responsible agencies:

Table 26: Utility Coordination

Agency	System
Seattle Public Utilities – Drainage and Wastewater Division	Storm Drain Connections and Abandonments
	Sanitary Sewer Connections and Abandonments
Seattle Public Utilities – Water Division	Domestic and Fire Water Service Connections and Abandonments
Seattle Fire Department	Fire Water Connections
Seattle Transportation Department Street Use Division	Sidewalk Demolition and Improvements
Seattle Transportation Department – Resource Management Division	Street Vacations
King County Department of Metropolitan Services - Construction	METRO Trolley Service

UNAVOIDABLE ADVERSE IMPACTS

The Proposed Action will result in increased demand for public services and utilities. As noted in this chapter, the Proponent can work to mitigate potential impacts and reduce their significance.

[72] King County Harborview Medical Center Facilities Master Plan, Seattle, WA, February 9, 2023, Appendix C5, Civil Supporting Documents, New Inpatient Tower – Sewer Reroute, Appendix C5: Tier 1 – Sewer Reroute.

3.12. CONSTRUCTION IMPACTS (SHORT-TERM)

This chapter identifies short-term impacts that will occur during construction. Most of the short-term construction impacts arise from the alteration of existing site conditions. Most of the short-term construction impacts are a consequence of the development process. The Developer will mitigate unavoidable impacts to the greatest extent possible through the proposed engineering design and by the use and implementation of specific mitigation measures summarized in the EIS.

EARTH

Affected Environment

Several sites on the Harborview campus, as indicated in the EIS, comprise the affected environment regarding earth and geology concerns. The campus sites undergoing construction activities related to earth movement will experience short-term impacts as noted in this chapter. Harborview is in an area of dense, consolidated soils with excellent bearing capacity. The seismic response of underlying glacial soils is likely to be more stable and less severe than in softer soils such as fill or alluvial deposits. Despite this circumstance, Harborview can still expect severe shaking during significant seismic events.

Impacts

Proposed Action

Demolition, retrofits, and site preparation, including cutting and grading, would impact the Harborview area. Although the amount of soil to be removed needs to be finalized, trucks would remove the material to an approved disposal site. The trucks may result in minor, short-term traffic disruption. The proposed new tower will require more significant site excavation and activity than the other Proposed and Planned Projects.

240 Foot Height Limit

This alternative includes the Planned and Potential Projects, except the MIO height limit would remain at 240 feet. Short-term earth impacts may include increased soil and debris removal to provide larger footprints since this alternative proposes the same square footage floor area as the Proposed Action.

No Action Alternative

The No Action Alternative limits any short-term impacts regarding earth disturbance due to the lack of construction activity. Any activity would accompany previously approved Planned and Proposed Projects already accounted for in previous EIS review.

Mitigation Measures

The Proposed Action would implement the following mitigation features related to earth disturbance activities.

- Further geotechnical investigations as project design progresses to identify effective excavation, shoring, and foundations.
- Construction consistent with best management practices as identified by the Seattle Department of Construction and Inspections (SDCI),
- Contractors shall meet all applicable codes for grading, drainage, construction hours and noise regulations.
- Coordinate route planning and traffic control measures with SPD, SFD, S DOT, and Sound Transit for construction vehicle activity, particularly for soil and debris removal, and rerouting other traffic.
- Protect waterways from sediment with silt fences and other catch facilities.
- When possible, require construction vehicle wheel washing to minimize tracking soil onto roadways.
- Provide regular street cleaning on affected streets.
- When possible, cover truck payloads to minimize spills.
- When possible, schedule construction during drier months to reduce wet weather exposure to disturbed soils.
- Protect exposed soil from erosion and wind.

AIR QUALITY

Affected Environment

Short-term construction may raise concerns regarding carbon monoxide (CO) and suspended particulates. Motor vehicle emissions are primarily responsible for CO, with higher concentrations found along roadways and at intersections. Low temperatures and still, windless weather also contributes to higher CO concentrations. Particulates consist of dust, smoke, pollen, and other suspended materials in the air. Particulate sources include motor vehicle traffic, industrial operations, fuel combustion, fires, and construction. Still weather increases suspended particulate concerns.

The Washington State Department of Ecology and the Puget Sound Clean Air Agency (PSCAA) monitor air quality and promulgate federal standards. For CO, the standard is 9 particles per million (ppm) over an 8-hour average. PM^{10} and $PM^{2.5}$ are the particulate matter categories, with standards of 150 $\mu g/m^3$ and 35 $\mu g/m^3$ respectively, for 24-hour periods averaging over three years. CO concentrations, measured at the 5th/James monitoring station, and particulate levels, measured at 3400 13th Avenue SW and 3752 East Marginal Way South, meet the established standards.

Impacts

Proposed Action

Construction may result in a short-term CO increase due to construction equipment use. Vehicles, site preparation, demolition, and construction also generate particulates. The disturbance would be associated with land clearing, drilling, blasting (if any), excavation, earth moving, and construction of the Proposed Action. Vehicle travel on unpaved areas of the site may generate dust particles. Vehicle exhaust from construction equipment would be short term and temporary in nature. The proper use of vehicle emissions and mufflers would control any adverse exhaust.

240 Foot Height Limit

This alternative includes the Planned and Potential Projects, except the height limit would remain at 240 feet. As with the Proposed Action, the disturbance would be associated with land clearing, drilling, blasting (if any), excavation, earth moving, and construction. Vehicle travel on unpaved areas of the site may generate dust particles. Vehicle exhaust from construction equipment would be short term and temporary in nature.

No Action Alternative

The no action alternative would result in no short-term impacts on air quality related to construction. The Potential and Planned Projects approved in the 2014 MIMP Amendment update are the only projects with potential for limited short-term construction impacts.

Mitigation Measures

- Encourage mass transit use, carpooling, and bicycle trips through the Transportation Management Program.
- Properly use vehicle mufflers and other equipment to manage short-term construction emissions.
- Follow PSCAA regulations regarding dust and particulate reduction, with measures like wetting exposed soils, covering transported materials, and more.
- Prioritize electric equipment to reduce CO emissions from contractors, check that internal combustion engine equipment is in good repair to reduce CO emissions.
- When possible, consider weather and conditions when scheduling major construction efforts to reduce particulate exposure.

Unavoidable Significant Adverse Impacts

Construction may result in a short-term CO increase due to construction equipment use. Vehicles, site preparation, demolition, and construction also generate particulates. The mitigation measures outlined above would address the noted adverse impacts.

WATER

Affected Environment

The Harborview campus is made up of mostly impervious surfaces, which in concert with the city stormwater system affect surface water runoff, movement, and groundwater recharge conditions. Buildings and paved areas cover the majority of the Harborview Campus and local streets, and most stormwater is directed into storm drains rather than absorbed into the ground.

Impacts

Proposed Action

The Planned and Potential Projects would result in limited increase to the total amount of impervious surface, as the areas proposed for development are already mostly developed. The stormwater system would be developed in compliance with local and state regulations, with minimal impact on stormwater runoff. Short-term impacts related to construction and sediment may impact the quality of surface runoff. Site preparation, excavation, demolition, and other construction activities may contribute to a short-term increase in soils, materials, and sedimentation within the stormwater system.

240 Foot Height Limit

This alternative would still contain the Planned and Potential Projects, except the height limit would remain at 240 feet. Short term impacts would not be meaningfully different from the Proposed Action.

No Action Alternative

The No Action Alternative would have no short-term impact on water. The Potential and Planned Projects approved in the 2014 MIMP Amendment update are the only projects with potential for limited short-term construction impacts.

Mitigation Measures

- Design drainage facilities to applicable state and local standards.
- Construction consistent with best management practices as identified by the Seattle Department of Construction and Inspections (SDCI).
- Protect waterways from sediment with silt fences, berming, hay bales and similar at relevant locations.
- When possible, require covering truck payloads to minimize spills.
- When possible, schedule construction during drier months to reduce wet weather exposure to disturbed soils.
- Include and regularly maintain oil/water separators in drainage systems.
- When possible, provide wheel washing to construction vehicles to avoid tracking sediment onto local streets.
- Coordinate utility service disruptions with affected parties to minimize impacts.

Unavoidable Significant Adverse Impacts

Water service may have temporary shutdowns during utility maintenance and road work. Harborview will provide notice as required to parties that may experience temporary suspension of water service.

ENVIRONMENTAL HEALTH / NOISE

Affected Environment

The EIS scoping process identified construction noise as a concern to address (See Chapter 2.4 for long-term noise impacts). The Seattle Noise Ordinance (SMC 25.08) regulates short-term construction noise.

Impacts

Proposed Action

Sound levels would increase during construction at building sites, as well as along the adjacent streets and in the neighborhood. The intensity and duration of undesirable sound increases would create noise impacts. Sound increases depend on equipment and construction techniques, and duration is dependent on construction timing.

Equipment such as rock drills and concrete mixers may exceed municipal noise limits from a 50-foot distance. As a result, construction activities will occur during times permitted by ordinance and construction equipment maintenance will be a priority to prevent excess equipment noise.

240 Foot Height Limit

This alternative would still contain the Planned and Potential Projects, except the height limit would remain at 240 feet. Short-term impacts would not be meaningfully different from the proposed action.

No Action Alternative

The No Action Alternative would have no short-term impacts on noise. No new construction would take place.

Mitigation Measures

- Compliance with the Seattle Noise Ordinance (SMC 25.08).
- Consider increased mitigation beyond the requirements of the ordinance by further limiting construction hours.
- Consider reducing the presence of noisy equipment onsite with actions such as prefabricated building components or concrete mixed offsite.
- Effective and compliant mufflers required on construction equipment, as well as compliance with state and local anti-idling laws.
- Preference electric equipment.
- Locate noisy equipment away from sensitive receivers.
- Design construction vehicle routes to minimize impact on residential and commercial areas.
- Consider temporary solutions such as acoustical barriers around equipment.

Unavoidable Significant Adverse Impacts

Temporary, short-term noise impacts would result from construction activity. Impact significance can be reduced via mitigation measures. No significant adverse impacts are expected.

TRANSPORTATION AND PARKING

Affected Environment

Harborview offers public transportation options in addition to parking areas for car transport. Chapter 2.10 Transportation provides a more detailed analysis of the transportation issues affecting Harborview and the Proposed Action.

Impacts

Proposed Action

Transportation impacts vary across phased projects associated with the Proposed Action. Short-term impacts include increased trip generation, temporary lane and street closures, trip generation, and parking.

Construction activity generates increased short-term vehicle trips due to construction workers arriving and leaving the worksite, delivery of materials, vehicles and equipment, delivery and removal of fill materials, and removal of construction debris. Construction worker trips usually occur outside of peak commute times, minimizing impact on peak hour traffic operation. The other associated trips are truck trips, which depend on project phasing and timing.

Construction associated with the Proposed Action would generate temporary decreases in parking supply and temporary increases in parking demand. Temporary supply decreases when existing lots and street spots are closed due to construction, until completion of projects. Temporary demand increases when construction workers are added to the site and need places to park.

Due to the urbanized nature of the campus, construction may require temporary lane and street closures.

240 Foot Height Limit

This alternative would still contain the Planned and Potential Projects, except the height limit would remain at 240 feet. Short-term impacts would not be meaningfully different from the proposed action.

No Action Alternative

The No Action Alternative would have no new short-term impacts on transportation and parking. No new construction would take place, so transportation and parking would not be altered.

Mitigation Measures

- Develop and implement construction traffic management plans in coordination with SDOT, with the goal of moving workers, equipment, and materials to and from the site quickly and safely, minimizing interruptions to traffic and pedestrians.
- Minimize, to the extent possible, lane closures on busiest streets.
- Designate construction worker-specific parking to minimize crowding at existing parking facilities.
- Minimize temporary decreases in parking supply by phasing development.

Unavoidable Significant Adverse Impacts

- Occasional, short-term street and sidewalk closures may restrict flow of pedestrian and vehicle traffic.
- Site preparation, excavation, demolition, and construction will generate truck trips with incoming materials and outgoing debris and soils.

4.0 COMMENT MATRIX

Project	Harborview Medical Center (HMC) Major Amendment (MA) to Major Institution Master Plan (MIMP)

Reviewers: Kelsey Timmer (KT) - Street Use; Ellie Smith (ES) - Transit & Mobility; Alisa Nguyen (AJN) - Transportation Operations;

Priority codes

HarborviewBondProgram.com/DraftEIS

Page #	Priority	Reviewer comment	Reviewer initials	KC/HMC Response	Response Review Status
303 - 304	1	Please include in the mitigation section language that HMC will install a traffic signal at 9th Ave and Jefferson St prior to the completion of the building project that will result in degredation of the intersection to LOS F. HMC would be responsible for the cost of the design and installation of the signal and completion of this improvement should be a condition precendent to the occupancy of said building. SDOT is happy to work on coordinating the exact language for this mitigation.	KT	Mitigation language modified to note the timing of the signal installation and responsibility as identified per the comment.	
303 - 304	3	Note that installation of a signal at 9th Ave and Jefferson will include any pedestrian improvements triggereb per the Right-of-Way Improvement Manual, such as ADA compliant curb ramps and updated crosswalk striping.	AJN	Comment noted. This is identified in the revised study.	
303 - 304	3	If a traffic signal is installed at 9th Ave and Jefferson St, Traffic Operations would support installation of a RRFB at the midblock crossing on 9th Ave between Jefferson St and Alder St to improve visibility of the midblock crossing. Traffic Operations would also support replacing the existing curb ramps at this crossing with ADA compliant curb ramps (if not already).	AJN	The installation of an RRFB is included as a project to be implemented in junction with the traffic signal mitigation. The curb ramps of the midblock crosswalk will be updated to meet current standards with the installation of the RRFB.	
295-296	4	Include diagrams of proposed Options 1A and 1B in this section. This would be easier to understand than reading through bulleted list of connections.	KT	A figure showing the connection options is included in the revised report.	
295-296	3	Consider moving existing driveway at SW corner of 9th Ave and Jefferson St to avoid conflicts with crosswalk crossing 9th.	AJN/CL	The existing driveway is the entrance for the emergency vehicles and ER. There are no plans to alter this location as part of the MIMP.	
280; 293 -294	3	Given anticipated net increase in walk, bike, and transit trips, please confirm which intersections near transit stops in the study area have ADA compliant curb ramps and which do not. This could be included in Figure 63 on page 280.	KT	The curb ramps in the vicinity of the transit stops were identified and illustrated in the revised report. The ramps were not assessed for ADA compliance.	
302	3	Though there are currently no high collision locations in the study area, an increase in vehicle, walk, bike, and transit trips increases the opportunities for conflict and collisions at intersections. Upgrading any intersections in the study area that do not already have "no turn on red signs" with "no turn on red signs" would help to preemptively avoid these potential collisions.	KT	Signalized intersections in the study area are predominantly located along James Street, north of the campus, and Broadway Avenue, east of the campus. Along these corridors, locations proximate to transit stops including James St/8th Ave, Broadway at Jefferson St, Terrace St, and Boren Ave provide no turn on red signs.	
303	1	REPEAT COMMENT FROM PRELIMINARY DEIS - NOT ADDRESSED IN DEIS. Regarding construction traffic and the proposal to use James as egrees/ingress for heavy haul or any significant hauling is not as a practice that has been historically approved by Commercial Vehicle Enforcement or Traffic Operations, primarily because of the grade of James and daily volume of traffic the James St carries. I recommend against the use of James St as construction ingress/egress. 1. James St is a direct access to WSDOT I-5 and as such has high daily GP, emergency vehicle, high transit volume and futher serves a locally dense population of vulnerable travelers who use assistive devices for traveling. 2. The volume and size of construction vehicles that would need to integrate into James St would likely futher congest an already congested corridor and likely add to a corridor that frequently experiences gridlock throughout the day. 3. Historically, the James St grade combined with fully loaded trucks has created hazardous conditions resulting from truck equipment failure. 4. James is used as a major emergency route to several hospitals, any blockage of James St may result in emergency vehicle travel delays to the several Hospitals around this corridor. I am recommending that the DEIS explores other haul route ingress/egress opportunities which could include 1. Use of Alder to 9th to Yesler to Boren to Rainier or in reverse, this route has been successfully used for much of the build out of Yesler Terrace. 2. Alternately you may be able to engage Seattle Housing Authority for use of their private access drive, directly south of Alder leading to egress at Yesler, and out to Boren etc...	DP	The construction impacts discussion was expanded per the comment including consideration of multiple routing options.	
64 (TMP)	3	Based on the time horizon of the amended master plan, it would be worthwhile to outline some of the large capital projects identified in the near vicinity that support multimodal mobility, as outlined in the Seattle Transportation Plan; see Appendix A, which includes the STP Large Capital Projects, including projects on Boren, James, Broadway, 12th Ave, etc. While these aren't necessarily funded, they point to potential improvements in the area that would support TMP goals.	ES	The capital projects will be added to the TMP as noted in the comment.	
66 (TMP)	3	We are glad to see a reduction in the SOV rate from a previous draft. The definition of to whom the SOV rate applies may be overly complicated and challenging to implement in practice. We recommend you simply align your population definition with that of the CTR program. This would mean referencing it, but not outlining all of the qualifications for inclusion.	ES	The population definition is the revised MIMP is in alignment with SMC with the exception of the exception of also noting "who do not need a personal vehicle to do their work."	
67 (TMP)	4	Header repeating between committed strategies 2 and 3 reads strangely.	ES	The header in the table was corrected.	
68 (TMP)	4	Please note that transportation network companies (TNCs) are considered equivalent to SOVs per CTR, so the TMP goals are not well served by promoting that type of commuting.	ES	Comment noted. The TNC was eliminated as a promoted commuting option. Note that TNCs are one of the important modal options for patients.	
68 (TMP)	4	It would be worthwhile to provide an objective to the Parking Management element to underscore the importance in meeting TMP goals.	ES	Comment noted. An objective has been added as noted in the comment.	
70 (TMP)	4	Worth noting that providing lockers and showers is also a strategy under the Pedestrian element.	ES	Comment noted	
71 (TMP)	4	You could include the TC position as a strategy itself, not under the Objective section.	ES	Comment noted. The TC position was identified as a strategy in the revised TMP.	
71 (TMP)	4	Consider simply folding the Telecommuting strategy into the Institutional Policy section for streamlining the document.	ES	Comment noted. The telecommuting strategy was included within the Institutional Policy section as identified in the comment.	
303	3	I do not have any concerns about installing a new signal at this location at this time, provided it is warranted based on the projected volumes and allows the project to proceed through the plan review process. However, we should plan to revisit the intersection as we approach the year 2045 and collect updated traffic volumes to confirm that the signal remains justified and that pedestrian delay is not excessive.	NT	Comment noted. A supplemental traffic study will be conducted to support the implementation. This was identified in the revised report.	
303	3	9th Ave and Jefferson St is particularly important for pedestrians, as it serves as the entrance to the hospital. The hospital accommodates many regular and new patients, including elderly individuals and persons with disabilities. Given its proximity to the hospital, a significant number of users are older adults, patients, and individuals with mobility challenges. The signal must operate effectively for all modes of transportation, especially for pedestrians.	NT	Comment noted.	

SDCI		Repeat Correction: On page 255 of the DRAFT EIS, it is unclear what Harborview's commitment to signalizing the 9th and Jefferson intersection is. Is Harborview proposing a signal as mitigation? What is Yesler Terrace's commitment to the signal? What are the time and payment commitments? What is the delta between not signalizing the intersection and the current state? Update on this correction: The draft EIS does not appear to include a commitment to the installation or payment toward installation of a signal at 9th and Jefferson. Without a commitment to a signal, staff is concerned that future development of floor area at Harborview combined with a gap in development at Yesler Terrace could lead to significant traffic issues at this intersection.		The intersection is forecast to operate at LOS F with both the planned and potential projects constructed and occupied. The EIS identifies a traffic signal would mitigate for the project impacts at this location. The specific mitigation language has been modified in the revised EIS to note the timing of the signal installation and responsibility. Yesler Terrace established PM peak hour trip thresholds in the Planned Action Ordinance 123962, Exhibit B, P. 10, September 4, 2012. This included signalizing the intersection of 9th Ave/Jefferson St with the trip threshold of 1,060 PM peak hour trips. Based on recent analyses completed within Yesler Terrace, the trips are currently well below this threshold and therefore it was not assumed to be installed.	

Greg Johnson, SDCI Senior Land Use Planner	Is the installation of a traffic signal at the intersection of 9th Avenue and Jefferson Street proposed as part of this project? The only statement that I can find that seems to discuss a commitment to constructing this signal by Harborview is on page 41 of the draft EIS, which states: "As this intersection is all-way stop controlled, a signal warrant was reviewed and are shown to be met (meeting one or more warrants) and is proposed as mitigation at the intersection for the applicable options pending approval from SDOT." Is this signal proposed as mitigation and is it currently under review by SDOT? Do you know who is reviewing it at SDOT?		King County Email Response: Hello Greg Johnson, My name is Alex Hurtado with the Harborview Construction and Infrastructure Division. Thank you for your question - the installation of a traffic signal at the intersection of 9th Avenue & Jefferson Street is not inherently part of the project scope, but we have identified this as a mitigation option if both planned & potential projects are completed. Coordination with SDOT and SDCI would need to occur if that were our trajectory. SDOT has been reviewing the transportation sections of MIMP and EIS since scoping – Kelsey Timmer has been point for this. Our EIS Public Comment period closes Monday, January 26. Happy to assist if there's anything else. - The traffic signal has been identified as an option that would mitigate the impacts associated with the planned project's alternatives. The report has been updated to include considerations of timing for the installation of the identified traffic signal. Installation of a traffic signal would be coordinated with SDOT and SDCI.

Project	**Harborview Medical Center (HMC) Major Institution Master Plan (MIMP) Major Amendment**
Document(s)	**Public Comments for HMC Draft MIMP Major Amendment and Draft EIS (DEIS)**
Date	6-Jan-26

Name and Address	Public Comment	KC/HMC Response	Response Review Status
Zachary Drennan 423 Terry Avenue Apt. 505 Seattle, WA 98104	I appreciate the work HVMC has done to put together this draft EIS and for facilitating public comment. The proposed amendments to the FAR and open space are sensible and the proposed park location seems more condusive to public access. The statement also predicts a significant increase in trip generation and traffic volumes but offers little in the form of mitigation. I would like a see a more agressive SOV rate, stronger alignment of the MIMP & TMP, and for HVMC to participate in district transportation plans.	Based on recent surveys conducted for the institution, the campus has been achieving a SOV rate of 30 percent and 38 percent in 2022 and 2024, respectively. They have identified a future goal of 25 percent to continue to reduce their SOV trips. Note that the primary vehicular analysis reflects the higher observed SOV rates to provide a conservative operational analysis. A sensitivity review was conducted to reflect the higher non-motorized and transit impacts aligning with their reduced SOV goal. Identified mitigation includes the installation of a traffic signal at the intersection of Jefferson St/9th Ave with the potential projects. With the installation of the traffic signal, the potential installation of a Rectangular Rapid Flashing Beacon (RRFB) would also be considered at the midblock crossing across 9th Avenue. The HMC TMP has identified multiple strategies that include collaborating or partnering with the City and local transit agencies.	
Cathy Jaramillo 1321 Seneca St. Seattle, WA 98101	I have reviewed the current EIS for the Harborview expansion and support almost all of the effort into insuring this project will support the First Hill neighborhood. My only concern is with the traffic plan. I felt it completely missed the concerns of the facility and neighboring residents. No real analysis was done to remedy the usafe conditions for pedestrians as well as provide better access to our emergency vehicles. Traffic is unacceptable on James/Terry/9th Ave for staff, patients, and residents. More review and discusscion on resolutions should be done in this one area.	Further review of pedestrian facilities such as curb ramps is included in the DEISs. Additional considerations of mitigation for non-motorized facilities has been identified.	
Bill Roach wtroach41@gmail.com (No physical address listed)	I'm Bill Roach and a resident at Horizon House as well as a member of the First Hill Improvement Assn and serve on both the Transportation and Public Spaces Committees of that organization. I am speaking as a First Hill resident. I am retired from KC Metro where I developed the UPass program, initiated the region's vanpool program and served 15 years representing Metro on the Washington State Commute Trip Reduction Board. I am no stranger to the impact of growth. I am very much in favor of the proposed major expansion of this outstanding institution in our community but the proposed 65% increase in vehicle trips which are projected in the EIS is a major challenge to our community that has our attention. We need to mitigate many of those trips. I've reviewed the Harborview Transportation Management Plan and while I find some very good elements in it that can mitigate the impact, a more aggressive Single Occupancy Vehicle Goal by 2035 must be established to take advantage of these parking pricing elements! I am particularly impressed by the proposed parking management program with emphasis on a market rate charge for long term or commute parking which can generate revenue to help fund other elements of the TMP and directly effect parking demand. As I understand the goals of this pricing, it prioritizes patient parking. However, as a retired KC Metro professional, I would disagree with the EIS statement that Harborview is well served by transit. I would suggest "ineffectively served by transit". Harborview is a half mile up hill from the regional Light Rail system and Rapid Ride service and the existing connecting bus and streetcar service struggles to be timely, particularly for a 24 hour institution. The G Rapid Ride is 4 blocks away. As a County institution, you are in a unique position to work with KC Metro to explore longer term improvement in service connection to the regional transit network. The TMP is silent as it relates to Emergency Services. The level of service at the intersection of Ninth and James is quite often at a level F, which Is a major issue for the operation of emergency vehicles to and from Harborview. There are some possible opportunities to giving both transit and emergency vehicles restricted lanes on Ninth from James to Jefferson. Seattle voters have recently voted to support a substantial increase in SDOT funding over the next 6 years. As you navigate the City regulatory environment and the "pro transit" views of the Wilson administration, a partnership of SDOT and this outstanding institution could help immeasurably to improve transportation access to better handle growth. We on First Hill want to be an committed advocate for your managed growth.	Based on recent surveys conducted for the institution, the campus has been achieving a SOV rate of 30 percent and 38 percent in 2022 and 2024, respectively. They have identified a future goal of 25 percent to continue to reduce their SOV. Note that the primary vehicular analysis reflects the higher observed rates to provide a conservative operational analysis and a sensitivity review was conducted to reflect the higher non-motorized and transit impacts aligning with their reduced SOV goal. Identified mitigation includes the installation of a traffic signal at the intersection of Jefferson St/9th Ave with the potential projects. With the installation of the traffic signal, the potential installation of a Rectangular Rapid Flashing Beacon (RRFB) would also be considered at the midblock crossing across 9th Avenue. The HMC TMP has identified multiple strategies that include collaborating or partnering with the City and local transit agencies. The description of transit service has been updated in the revised report. Right of way does not currently allow for dedicated lanes for emergency services; however, emergency services are able to maneuver on the campus with lights and sirens as needed.	
Cathy Jaramillo 1321 Seneca St. Seattle, WA 98101	I have reviewed the current EIS for the Harbroview MIMP. I feel that it was a comprehensive and specific review of the requirements needed to address for further the project, and look forward to a timely construction of this health facility. However I would like to comment on two concerns which may be more appropriate to address with the city in addition to the Harborview development team. 1) I feel the MIMP does an adequate job of addressing the replacement of the existing open space . They have come up with a creative solution to the issue in regards to the limited space they are provided. I also feel the placement of the open space can be greatly enhanced if the city would also take into consideration the Terry Street Improvement plan sketched out by First HIll. This would make the suggested open space more safe and welcoming. A major concern is the congestion and unsafe crossing at Jefferson / Terry and James/Terry. (see #2 below). 2) Traffic & Congestion: I was extremely disappointed to hear from the traffic survey that the city considers a "D" grade for traffic intersections in the surrounding area an acceptable grade! With the projected increase of trips to/from Harborview, which today an issue, I can't image why the city would think more traffic without any mitigation or re-routing is acceptable. Poor SDOT planning for James / Yelser/ Broadway and the surrounding streets puts the Harborview hospital in a precarious situation of not being able to amply respond to emergencies and further increases poor access for patients. I encourage the city to address this congestion now and provide a plan for the future growth of this institution.	Open space comment noted. The traffic analysis conducted was completed consistent with City of Seattle standards.	

Ryan Packer, Reporter, The Urbanist	1. What transportation demand management programs (TDM) have been incorporated into the analysis in order to reduce the share of single-occupancy vehicle trips to the Harborview campus? 2. What alternatives to increase parking capacity were considered in the alternatives analysis process for this EIS? 3. The DEIS refers to a "potential redevelopment" of the Boren garage, increasing the size of the garage to 14 stories. What is the likelihood of this redevelopment occurring? Are there triggers in place that would advance this project? 4. What steps would need to occur after the environmental review process to increase the number of parking facilities on the Harborview campus? 5. Is there an estimated cost associated with the redevelopment of the Boren Garage at this time?	1. This background is outlined in detail in the Draft MIMP Major Amendment, which is publicly available here. The committed and potential TMP program elements begin on page 61. 2. The DEIS outlines considerations we have made related to transportation and the Bond in detail in the Draft MIMP Major Amendment, which is publicly available here. The Transportation Management Plan Program Goals begin on page 66. Harborview promotes commuting alternatives for staff but will always need to have onsite access for patients so that they can receive the care they need. 3. At one point, the Bond Team considered redevelopment of the current Boren Garage into a larger parking structure as an option to increase parking capacity on the Harborview campus. We are now pursuing different options. 4. Funding from the Harborview Bond or the King County Hospital Levy would need to be identified and approved by the King County Council, in consultation with UW Medicine. 5. The option of redeveloping the Boren Garage is no longer in consideration.	Responses were sent via email following a media inquiry from The Urbanist
First Hill Association Eli Lemanski on behalf of the Board of Directors 1425 Broadway #281 Seattle, WA 98122	Dear HVMC Draft EIS Team, We, the First Hill Improvement Association (FHIA), want to thank you for the opportunity to provide comments on the Environmental Impact Statement for the tower construction projects behind the MIMP Amendment. FHIA recognizes the need to accommodate the increasing demand for medical services and wants to provide support while ensuring minimal impact to the lives of neighbors and visitors of First Hill. To that end, we have reviewed the draft and determined several priority areas for collaboration. FHIA's mission is to cultivate a welcoming, vibrant, and connected First Hill. As such, the comments below focus on the open space, traffic, and access impacts outlined in the statement. To begin, while the MIMP Major Amendment proposes a reduction in HVMC's open space commitment, the plan to relocate the space lost from the development of the View Park to the lot on Terrace and Terry is appreciated. The new open space location is more accessible to the surrounding neighborhood and aligns with FHIA's Park-to-Park Walking Loop and Public Realm Action Plans. We see this alignment as an excellent opportunity to collaborate as the project moves forward. Regarding transportation impacts, the EIS predicts approximately 65% increase in AM/PM peak traffic volumes, yet proposes only one mitigating effort that, we feel, does not give enough priority to Emergency Services Mobility (EMS) through the campus or anticipate future trends in mode splits. We believe HVMC is in a unique position with the MIMP to do more for both EMS and transit in the area by including specific goals and visions in the EIS. FHIA insists on the following: 1. A more aggressive SOV reduction goal of 17% by 2035 (from 32%). This is crucial to the plan as it represents an area of mutual interest in transportation and maintaining EMS access to the right-of-way. We believe that a more aggressive goal will work with the following two focus areas to catalyze efforts for ROW improvements. 2. Focus the EIS on prescriptive goals and strategies beyond those in the MIMP's TMP. Update the Current and Potential Strategies included in the TMP to reflect work done to date in identifying opportunities for transportation improvements and begin planning for bond implementation via prescriptive goals and visions. For example, increase pedestrian infrastructure projects like striping the crosswalk at Terry & Jefferson, include a 10% bicycle commute trip mode split, and prioritize transit access projects like connecting to light rail and connecting the #40 Route from Ballard to First Hill. 3. Participate in district transportation planning. Focus on circulation between HVMC campus and the First Hill neighborhood while prioritizing emergency services and transit access. This could include EMS restricted lanes on 9th Avenue and the subsequent re-routing of traffic throughout the campus. Thank you again for this opportunity to provide feedback. We look forward to working together to make this plan a reality and ensure critical medical services are expanded in our region. Kind regards, Eli Lemanski, FHIA Board President on behalf of the First Hill Improvement Association's Board of Trustees	Open space comment noted. Based on recent surveys conducted for the institution, the campus has been achieving a SOV rate of 30 percent and 38 percent in 2022 and 2024, respectively. They have identified a future goal of 25 percent to continue to reduce their SOV which was identified through coordination with SDOT staff. Note that the primary vehicular analysis reflects the higher observed rates to provide a conservative operational analysis and a sensitivity review was conducted to reflect the higher non-motorized and transit impacts aligning with their reduced SOV goal. Specific and prescriptive mitigation is identified as part of the EIS. That has included mitigation to install a traffic signal at the intersection of Jefferson St/9th Ave with the potential projects. With the installation of the traffic signal, the potential installation of a Rectangular Rapid Flashing Beacon (RRFB) would also be considered at the midblock crossing across 9th Avenue. The identified strategy to partner with the First Hill neighborhood has been added as a strategy in the revised TMP.	
State of Washington Department of Archaeology & Historic Preservation Tamela Smart PO Box 48343 Olympia, WA 98504	Dear Alex Hurtado: Thank you for contacting the Washington State Historic Preservation Officer (SHPO) and Department of Archaeology and Historic Preservation (DAHP) and providing documentation regarding the above referenced project. As a result of our review, our professional opinion is that the project area has the potential to contain archaeological resources. Based on the long-term use of the area as evidenced by Sandborn maps (1905) and historic properties, we recommend professional archaeological monitoring of all ground disturbing activities that have the potential for encountering native soil deposits. In addition, the affected tribes have a special interest in this area. Therefore, we recommend that the tribes be consulted and would appreciate receiving any correspondence or comments from the tribes or other parties concerning cultural resource issues that you receive. These comments are based on the information available at the time of this. Should additional information become available, our assessment may be revised. Thank you for the opportunity to comment on this project and we look forward to receiving the monitoring report. Please ensure that the DAHP Project Number (a.k.a. Project Tracking Code) is shared with any hired cultural resource consultants and is attached to any communications or submitted reports. Should you have any questions, please feel free to contact me. Sincerely, Tamela Smart, M.A.	See appendix H for response	

Appendix A: PRELIMINARY GEOTECHNICAL EVALUATION

10 January 2023

Mr. John Lett
Vanir Construction Management
707 South Grady Way, Suite 120
Renton, Washington 98057

Re: Preliminary Geotechnical Evaluation
Harborview Medical Center Campus Expansion
Seattle, Washington
Langan Project No.: 791006401

Dear Mr. Lett:

This report presents the results of our preliminary geotechnical evaluation for the proposed expansion and improvements at Harborview Medical Center in Seattle, Washington as part of the Harborview Bond Program. The site is east of the James Street overpass of Interstate 5; the site location is shown on Figure 1. The site consists of multiple hospital and medical campus facilities spanning several blocks, as shown on Figure 2. This work is being performed as part of the updated Major Institution Master Plan (MIMP) modifications and improvements to the campus currently being developed by King County. The buildings under consideration for improvements or replacement are included within this study and are highlighted on Figure 2.

Based on our review of the Master Plan Report (HDR, 2020), we understand the planned improvements consist of renovating approximately 558,000 square feet of medical facility space, including Harborview Hall, Center Tower, East and West Hospital, and Pioneer Square. Seismic retrofits are planned for Harborview Hall and Center Tower in accordance with the Seattle Existing Building Code (SEBC) and by reference ASCE 41. The planned improvements also consist of demolishing two structures (East Clinic and View Park I Garage). A new 360-bed hospital building with up to four below-grade levels will be constructed at the View Park I Garage location. The new tower will be designed using performance-based procedures in accordance with the PEER Tall Building Initiative (TBI) Version 2.03 (2017) and by reference, ASCE 7-16. To improve traffic circulation and reduce interference with emergency vehicle access, a new loop road is anticipated to be constructed along the southern portion of the property (just south of View Park II garage and the new hospital tower), connecting Alder Street and Jefferson Street.

1.0 SCOPE OF SERVICES

Our services were performed in accordance with our agreement dated 28 February 2022. As part of our services, we reviewed and evaluated available subsurface information in the site vicinity, performed a site visit, and developed preliminary conclusions and recommendations regarding the geotechnical aspects of the proposed project, including:

- soil and groundwater conditions
- geotechnical capacity of existing foundation elements

- appropriate foundation types for new foundation elements
- site seismicity
- geologic hazards
- environmentally critical areas
- 2018 International Building Code seismic design criteria
- construction considerations
- recommendations for detailed analytical studies necessary for final design and subsurface investigation.

2.0 SITE CONDITIONS

The project site is located near the intersection of Jefferson Street and 9th Avenue. The site has been steadily developed as the Harborview Medical Center (HMC) and has been expanded and retrofitted since its initial construction. The majority of the Harborview campus site slopes gently (less than 5 percent) to the southwest. Southwest of 8th Street, in the vicinity of View Park I and II garages, the surrounding grades steepen to about 15 to 20 percent grades; where the site abuts the Interstate 5 (I-5) right-of-way. The Washington State Department of Transportation (WSDOT) right-of-way and Interstate 5 (I-5) highway structure are southwest and downslope of the HMC campus. A relatively steep cut slope, which includes three retaining wall structures, are within the right-of-way; the approximate locations of the retaining walls (labeled W-9 through W-11) are shown on Figure 3. Based on the as-built drawings, we understand the retaining walls consist of 8-1/2–foot-diameter and 10-foot-diameter drilled piers[1]. The top of retaining wall W-9 is at-grade, while the tops of retaining walls W-10 and W-11 are below grade (the tops of the piers are buried). See Appendix A for as-built drawings of the existing WSDOT retaining walls. The HMC campus consists of multiple buildings; those being considered as part of the capital bond program include:

- Center Tower, 15 stories tall, 1 basement, to be retrofitted
- East Clinic, 8 stories tall, 1 basement, to be demolished
- East Hospital, 11 stories tall, 1 basement, no structural changes planned
- West Clinic, five stories tall, 1 basement, no structural changes planned
- West Hospital, 6 stories tall, 1 basement, no structural changes planned
- Harborview Hall, 12 stories tall, 1 basement, to be retrofitted
- View Park I Garage, 4 below-grade levels, to be demolished

[1] Based on as-built drawings titled "Primary State Highway No.1, Sign Route No. 5, Seattle Freeway, Dearborn Street to James Street, King County, Sheets 108 to 115" prepared by Washington State Highway Department of Transportation and dated 13 March 1964.

- Pioneer Square Clinic, 2 stories tall; plans are to be determined

The first five buildings listed above make up the HMC "Superblock," and share a common subterranean 1-level basement. While the structural plans for the campus were not available, the Master Plan Report states that these buildings are constructed of reinforced concrete and are supported on spread footings. Also included as part of the planned project is the development of a portion of the parcel southwest of the View Park I and II garages, which will be redeveloped to accommodate a new campus loop roadway and utility corridor.

2.1 Environmentally Critical Areas

The southwestern portion of the site is designated as an Environmentally Critical Area in accordance with the Seattle Municipal Code (SMC) Chapter 25.09 for steep slopes; the location of the areas with slopes greater than 40 percent is shown on Figure 2. Previous landslides have occurred in the vicinity of the site (however these landslides occurred downslope to the southwest in the footprint of what became the I-5 structure), and the site is not mapped as being within landslide area (Shannon & Wilson, 2000). The initiation of the former slides are at least 250 feet from the project site, the locations of which are shown on Figure 2. The project will need to apply for relief from prohibition on development regarding steep slopes.

3.0 REGIONAL GEOLOGY

The site lies within the Puget Sound Lowland, located between the Cascade Range to the east and the Olympic Mountains to the west. The area has been impacted by repeated glaciation in the past 2.4 million years (Troost and Booth, 2008). The site geology is comprised of a complex and incomplete succession of glacial and nonglacial deposits that extend below sea level. The glaciation process consists of repeated cycles of scouring and deposition and tectonic folding, then modified by stream erosion, and stream deposition. The last glacier to override the area, the Vashon-age glacier of the Fraser glacier, receded from the region about 13,500 years ago.

4.0 SUBSURFACE CONDITIONS

To evaluate the subsurface conditions at the site, we reviewed geotechnical investigations from previous studies at the site and in the site vicinity that are available in our files and provided by Vanir. The locations of the borings reviewed from these studies are shown on Figure 2. The logs of the borings reviewed are included in Appendix B.

Based on the available subsurface data, the site is underlain by either fill material or native glacially consolidated material. The fill, where observed, is generally less than 10 feet thick and does not extend below existing building foundations. The fill generally consists of silty sand with some gravel. Locally in the southwest corner of the site between View Park I and II garages and I-5, the fill is as thick as 22-1/2 feet. The fill observed in this particular area may be associated with previous grading activities and construction of the retaining wall structures. Where encountered, the fill is loose to very dense and includes varying amounts of construction debris. The native glacially consolidated soils consist of either outwash or till. The glacial till generally consists of hard sandy silt with varying amounts of gravel. The outwash deposits generally consist of very dense sand and gravel with trace amounts of silt.

Although not encountered within the borings reviewed in the project footprint, deeper layers of glaciolacustrine silt and nonglacial lacustrine silts and clay were observed to the north of the Superblock. These materials are hard with varying amounts of sand and gravel.

A thin 1-foot-thick layer of peat was observed within boring D&M B-5-91 at a depth of 12-1/2 to 13-1/2 feet, corresponding to Elevations 280 to 279 feet[2], near the southern corner of the West Clinic Building. Peat was not observed in any of the other borings reviewed.

Groundwater was not encountered within the majority of the borings performed within the project footprint, with the exception of boring DM-4-98, where groundwater was observed at a depth of 57 feet below ground surface (bgs), corresponding to Elevation 230 feet. During the Ninth and Jefferson Building (NJB) investigation north of the site, regional groundwater was observed at depths of 85 to 88 feet bgs, corresponding to Elevations 236 to 239 feet. Perched groundwater was observed at the NJB site at depths between 5 and 8 feet bgs, corresponding to Elevations 318 to 315 feet. Also, groundwater generally appears to be perched within the glacial outwash deposits. The elevation of groundwater should be expected to fluctuate seasonally. It will be at its highest in the spring and after periods of substantial precipitation, and will generally decrease in the late summer and early fall.

5.0 SEISMICITY

The seismicity of the site is governed by the activity of the nearby active faults. The intensity of earthquake ground motion at the site will depend upon the characteristics of the generating fault, distance to the earthquake epicenter, magnitude and duration of the earthquake, and specific subsurface conditions. On the basis of our knowledge of subsurface conditions, we conclude ground shaking at the site during a major earthquake will be strong to very strong.

The Cascadia Subduction Zone, where the offshore Juan de Fuca plate subducts beneath the continental North American plate at their boundary, heavily influences western Washington seismicity. Three main types of earthquakes are typically associated with subduction zone environments: crustal, intraplate, and interplate earthquakes. Seismic records in the Puget Sound area clearly indicate a distinct shallow zone of crustal seismicity, the Seattle Fault, which may have surficial expressions and can extend to depths of 25 to 30 km. The site is approximately 4 km north of the Seattle Fault. A deeper zone is associated with the subducting Juan de Fuca plate and produces intraplate earthquakes at depths of 40 to 70 km beneath the Puget Sound region (e.g., the 1949, 1965, and 2001 earthquakes) and interplate earthquakes at shallow depths near the Washington coast (e.g., the 1700 earthquake with an approximate magnitude of 9.0), as depicted on Figure 4.

6.0 GEOLOGIC HAZARDS

During a major earthquake on a segment of one of the nearby faults, strong to violent ground shaking is expected to occur at the project site. Strong shaking during an earthquake can result

[2] The datum referenced in the reports reviewed was not available; however, we assume that the datum referenced is likely the North American Vertical Datum of 1988 (NAVD88).

in ground failure such as that associated with soil liquefaction[3], lateral spreading[4], seismic densification[5], and permanent ground deformations (landsliding). We used the available subsurface information to evaluate the potential of these phenomena occurring at the project site.

6.1 Soil Liquefaction, Seismic Densification and Lateral Spreading

Soil susceptible to liquefaction includes saturated loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits. Based on the existing available subsurface data, it appears that the material encountered below the groundwater table is sufficiently dense or has sufficient cohesion to resist liquefaction. We therefore conclude that the potential for liquefaction at the site is low. Because we conclude the potential for liquefaction is low, we also conclude that the potential for lateral spreading is low. However, liquefaction and lateral spreading potential should be further studied during the final geotechnical investigation.

Seismic densification can occur during strong ground shaking in loose, clean granular deposits above the water table, resulting in ground surface settlement. Based on our review of available subsurface data, we judge the majority of the soil deposits above the water table in the site vicinity are generally sufficiently dense or have significant fines content such that the potential for seismic densification to occur at the site is low. However, the composition and density of fill that may be present in isolated areas of the site are unknown and could possibly be susceptible to seismic densification. Based on our review of available data, any fill present would have been removed from within the building footprints; so these potential settlements will not likely influence the seismic performance of the existing or future buildings.

The potential for seismic densification should be further studied during the final geotechnical investigation.

6.2 Fault Rupture

Historically, ground surface displacements closely follow the traces of geologically young faults. The northernmost splay of the Seattle Fault is approximately 4 km (2-1/2 miles) south of the site. In a seismically active area, the remote possibility exists for future faulting in areas where no faults previously existed; however, we conclude the risk of surface faulting at the site is low.

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[3] Liquefaction is a transformation of soil from a solid to a liquefied state during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits.

[4] Lateral spreading is a phenomenon in which surficial soil displaces along a shear zone that has formed within an underlying liquefied layer. Upon reaching mobilization, the surficial blocks are transported downslope or in the direction of a free face by earthquake and gravitational forces.

[5] Seismic densification is a phenomenon in which non-saturated, cohesionless soil is densified by earthquake vibrations, causing differential settlement.

6.3 Landslides

Landslides can be a result of a variety of geologic, morphological, physical, and/or human causes. Weak, weathered, fractured, permeable, and/or adversely oriented geologic conditions are common causes of slope instabilities. Common physical causes of slope instabilities are generally prolonged and/or intense precipitation, seismic events, and shrink-swell processes. Common manmade causes are excavation at toes of slopes, loading in the upland portion of slides, mining, and/or leaking utilities. Based on our review of the subsurface conditions in the site vicinity, we anticipate the existing hillside southwest of View Park I and II garages consists of a layer of fill over glacially consolidated till and outwash deposits. Along the slope, the fill thickness ranges from 10 to 22-1/2 feet. The existing View Park I and II garages are cut into the native glacially consolidated soils; extending beneath the fill material. As discussed in Section 4.0, the fill is generally sandy and is loose to very dense. The outwash and till deposits are either hard or very dense. The till and outwash soils are generally resistant to landsliding unless graded very steeply. The existing slopes within the WSDOT right of way have been cut to about 50 to 60 percent slopes. To strengthen and reinforce this cut slope, a series of retaining walls were designed and installed by WSDOT. The as-built drawings for the retaining walls are included in Appendix A. The lowest of the three walls (W-9) supports a vertical face adjacent I-5 that is up to 45 feet tall. We understand the purpose of the two other walls, walls W-10 and W-11, are to reinforce the existing cut slope; thereby reducing the lateral demands on the lower wall (W-9). Since construction of the walls in the 1960s we understand there has been no evidence of landsliding or slope movement.

As previously discussed, the site is not mapped as being in a landslide area in accordance with the SMC provisions, and we preliminarily conclude that the potential for landsliding based on the site's current condition is low. However, landslides have occurred within the vicinity of the site. We preliminarily recommend that the potential for landsliding and slope stability during intermittent construction conditions and following construction of the new tower be studied during the final geotechnical investigation for the project.

Provided the preliminary recommendations provided herein for the design of grading, surface water flow, and foundations in the vicinity of this slope are implemented in the final design of these elements, we conclude the risk of landsliding and significant seismic slope displacements are low. These recommendations include offsetting the weight of new structures (which could impose new loading on the existing retaining walls) and transferring building loads to sufficient depth below any potential slip surfaces to mitigate the potential effects of landsliding.

7.0 PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

The primary preliminary geotechnical issues for the existing buildings and proposed development are:

- selection of the appropriate foundation type to support the new seismic strengthening elements
- development of the new tower adjacent to the existing WSDOT retaining walls and relatively steep slope

- appropriate temporary shoring for protection of surrounding buildings and improvements
- minimizing the impacts to the existing cut-slope southwest of the site.

Our preliminary conclusions and recommendations regarding the geotechnical aspects of the proposed development are presented in the remainder of this report. These conclusions and recommendations should not be used for final design. A final geotechnical investigation that includes new field exploration (borings and laboratory testing) should be performed to evaluate the site-specific subsurface characteristics and develop final geotechnical recommendations for any proposed development.

7.1 Existing Structures Seismic Strengthening

We understand that the bond program scope includes seismically retrofitting the existing Harborview Hall and Center Tower structures. As previously discussed, structural plans were not available for these facilities, but we understand that they are supported on spread footings bearing on glacially-consolidated soils. The considered seismic strengthening of these facilities will likely consist of adding new shear walls or seismic-force resisting frames, which will require additional foundation support. In addition, we understand that the Harborview Hall retrofit will likely require additional uplift resistance at localized locations to resist seismic overturning loads.

We anticipate that the seismic strengthening of Center Tower and Harborview Hall can likely consist of widening existing spread footings. Where new foundations are required, they may supported on spread footings bearing on the glacially-consolidated soils which should be exposed at the existing foundation level. Allowable bearing capacity in glacially consolidated soils will be on the order of 8,000 pounds per square foot (psf) for dead plus live loads. For bearing pressures on the order of 8,000, settlements can likely be limited to less than ½ inch of total settlement. Existing shallow foundations for these buildings can also be assumed to have an allowable bearing pressure of 8,000 psf. These bearing pressures assume new and existing foundations are embedded directly in the native glacially-consolidated soils and have a minimum embedment of at least 24 inches below the lowest adjacent grade. In general, where new foundations are installed adjacent to existing foundations, the two foundations should bear at the same elevation as the adjacent foundation.

Where additional uplift capacity is needed to resist seismic overturning, tiedowns or micropiles may be used. Micropiles consist of small-diameter (typically 6- to 12-inch-diameter), drilled, concrete- or grout-filled shafts with steel bars or pipes embedded in the concrete or grout. Micropiles develop their resistance from friction between the perimeter of the shaft and the surrounding soil. By nomenclature, tiedowns are similar to micropiles; however, tiedowns are designed to only provide axial tension capacity, while micropiles can provide both compression and tension capacity. The capacity of micropiles will vary depending on the installation procedure used by the specialty contractor. For preliminary estimating purposes, properly designed and post-grouted micropiles can likely achieve bond capacities on the order of 1,500 to 2,500 pounds per square foot in friction. Because of their nominal diameter, micropiles are not often used to support significant lateral loads in shear/bending. Where micropiles are utilized they should be double-corrosion protected. Micropiles should be spaced at least three shaft diameters or four feet apart center to center, whichever is greater.

7.2 New Tower Development

We understand the new hospital bed tower will include up to four levels of below-grade construction (relative to 8th Avenue grades), requiring an excavation up to 50 feet. From our review of the material in the site vicinity, the depth to competent bearing material varies from a few feet along 8th Avenue to up to 22-1/2 feet southwest of the View Park I garage. The existing View Park I garage includes four levels below-grade – so the new tower will extend slightly deeper than the existing garage building. At the anticipated excavation level of the new tower, the material exposed will likely consist of dense to very dense glacially consolidated soil. We preliminarily conclude that the new tower can be supported on shallow foundations bearing in glacially consolidated soil. Where additional lateral or axial capacity is required, tiedowns, micropiles, or drilled shafts may be used. For planning purposes, for shallow foundations to be the selected foundation alternative, the basement of the building needs to be sufficiently embedded into the hillslope so that the building loads are offset by the planned excavation. This initial load-offset approach is to check that the factor of safety of the adjacent slopes is not lowered by the planned building construction. During final design, a detailed slope stability analyses should be performed to evaluate these conditions. If needed, foundation loads can be extended to additional depth through the use of drilled shaft foundations.

The planned structure will be constructed immediately adjacent to the existing I-5 retaining walls, see Figure 3. As the below-grade portion of the new tower is constructed, the excavation required will remove the retained soil from behind the WSDOT walls. The lateral resistance for the slope formerly carried by the WSDOT walls will need to be carried by the new shoring system and new tower structure. Based on our understanding, the new tower foundations will not extend below the top of the nearest WSDOT retaining wall (W-11). The design and construction of the new tower should be designed to mitigate impact to the existing WSDOT retaining walls and the overall slope. This may require transfer of building load with deep foundation elements to avoid surcharging the WSDOT retaining walls.

As discussed in the Master Plan Report, the new tower will require a 50-foot deep excavation about 45 feet laterally away from the existing West Hospital, which we understand is a critical facility. The excavation will extend significantly below the West Hospital foundations. If the temporary shoring wall were to deflect significantly during construction, this deformation could impart shoring-related deformations adjacent to and below the West Hospital foundations. The Master Plan Report advises that a robust and stiff shoring system, such as a secant wall or slurry wall, will be needed to retain the excavation adjacent to the West Hospital structure, as well as to provide support of the West Hospital foundations. The report also advises that a soil structure interaction analysis be performed to evaluate the anticipated deformations. We conclude that this approach is appropriate – temporary shoring systems are typically designed to be flexible and there is the potential for ground movement for retained improvements. Temporary shoring systems are also not typically designed for earthquake loading conditions. We preliminarily conclude that either 1) the West Hospital foundations be underpinned; or 2) the shoring adjacent to the West Hospital be designed to be compatible with the intended performance of the West Hospital foundations (i.e. stiff and designed to account for both seismic loading and the surcharge from the nearby foundations). The latter would likely consist of a tied-back secant pile system or

equivalent. Soil structure interaction modeling may be used to better understand the interaction of the West Hospital foundations and the shoring system to estimate foundation performance.

The excavation for the new tower will also extend slightly below the existing View Park II garage foundations. The shoring system will need to be designed to support the View Park II garage foundations, either by underpinning the foundations to depths below the planned excavation, or by considering a foundation surcharge in the shoring design. Underpinning would likely consist of installing slant-drilled piles.

7.3 Loop Road Considerations

The planned improvements will likely include grading around the new tower for roadway and utility infrastructure. Based on preliminary conceptual grading plans from MKA dated 28 October 2022, new fill up to 50 feet will need to be placed if the roadway will be placed on grade. If soil will be used to raise grades, there will likely be settlement resulting from its placement. Settlements on the order of 1 to 2 percent of the fill height can be expected. To mitigate the potential for settlement, grades may be raised using controlled density fill (CDF) or geofoam.

If fill is used to support this new roadway, a new retaining wall would need to be constructed over the existing steep slope along the I-5 Right of Way. To mitigate the effects of this new retaining wall on the stability of the lower slopes, a deep and stiff foundation system would need to be integrated into the retaining wall. Final design for this wall will need to carefully consider both the static and seismic demands, and should be included in the final geotechnical report for the improvements.

As an alternative to conventional fill, one option for the support of the new roadway is to construct an aerial structure over the existing hillslope. For this option, the likely foundation support would include moderate- to large-diameter drilled shafts that could transfer both vertical and horizontal loads to sufficient depth to mitigate impacts to the stability of the existing slope.

7.4 Seismic Design Criteria

The closest active fault to the site is the northern splay of the Seattle Fault, which is about 4 kilometers from the site. Based on our review of the existing subsurface conditions and the planned depth of excavation, we anticipate that all existing and new foundations will bear in native dense to very dense glacially consolidated soil. Based on nearby shear wave velocity data, the average shear wave velocity of the fill is approximately 1,100 feet per second, and the underlying glacially consolidated material is on order of 1,900 to 2,600 feet per second. We preliminarily conclude that for design in accordance with 2018 or 2021 International Building Code (IBC), Site Class C should be considered for the planned improvements. Seismic Site Class should be studied further and confirmed during the final geotechnical investigations. The design of the new tower, which we understand will be performed using performance-based procedures, will require a site-specific response analysis.

For seismic design in accordance with the provisions of 2018 or 2021 IBC, we preliminarily recommend the following:

- Risk-Targeted Maximum Considered Earthquake (MCE_R) S_s and S_1 of 1.402g and 0.489g, respectively
- Site Class C
- Site Coefficients F_a and F_v of 1.2 and 1.5, respectively
- MCE_R spectral response acceleration parameters at short periods, S_{MS}, and at one-second period, S_{M1}, of 1.682g and 0.733g, respectively
- Design Earthquake (DE) spectral response acceleration parameters at short period, S_{DS}, and at one-second period, S_{D1}, of 1.121g and 0.489g, respectively

7.5 Additional Studies for Final Design

This letter-report presents the results of our preliminary geotechnical evaluation for the project and was based on data from geotechnical investigations performed by others in the vicinity of the property. This assessment was performed to evaluate the general engineering characteristics of soil conditions present at the site, and to provide insight into the anticipated geotechnical issues that could affect the existing structures or potential development options being considered. Once more detailed development plans become available, a final geotechnical evaluation for the proposed improvements should be performed that includes additional borings to further evaluate the subsurface characteristics.

The results of the field exploration should be used to develop design-level recommendations for use in the design of proposed improvements. The number and depth of borings will depend on the size and location of the proposed improvements, and should be performed to further study the depth to competent soil, provide estimates of total and differential settlements from static loads, and evaluate potential impacts of below-grade construction to adjacent settlement-sensitive structures. Given the likely height of the proposed new tower, site-specific response analysis and ground motion studies will likely be required to support the Performance-Based Seismic Design for the project, which will require a peer review through the City of Seattle. The results of this design process should be included in the final geotechnical design report.

8.0 LIMITATIONS

The conclusions and recommendations presented herein are preliminary and are based on site-specific subsurface data developed by others. They may be used to estimate costs and for preliminary schematic drawings; these conclusions and recommendations should not be used to develop final plans or drawings.

We trust this letter-report provides the information needed at this time. If you have any questions, please call.

Sincerely,
Langan Engineering and Environmental Services, Inc.

Erik C. Ellingsen, PE
Senior Project Manager

Scott A. Walker, PE
Principal/Vice President

Attachments: References
Figure 1 – Site Location Map
Figure 2 – Site Plan
Figure 3 – WSDOT Retaining Walls
Figure 4 – Cascadia Subduction Zone Earthquake Fault Sources
Appendix A – WSDOT Retaining Wall As-Built Drawings
Appendix B – Selected Data From Reports By Others

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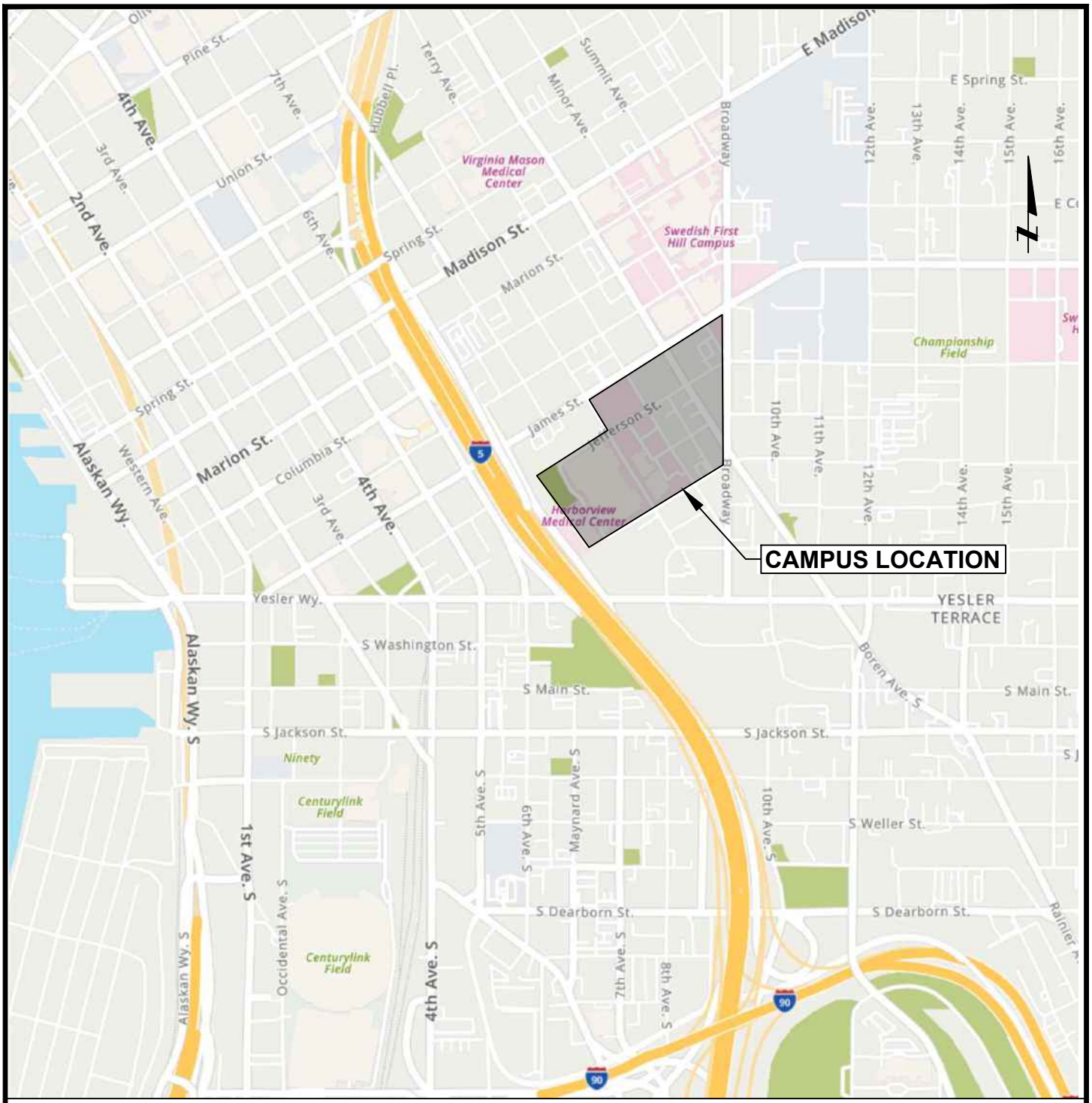
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FIGURES



Note:
Map by Mapquest 2022.

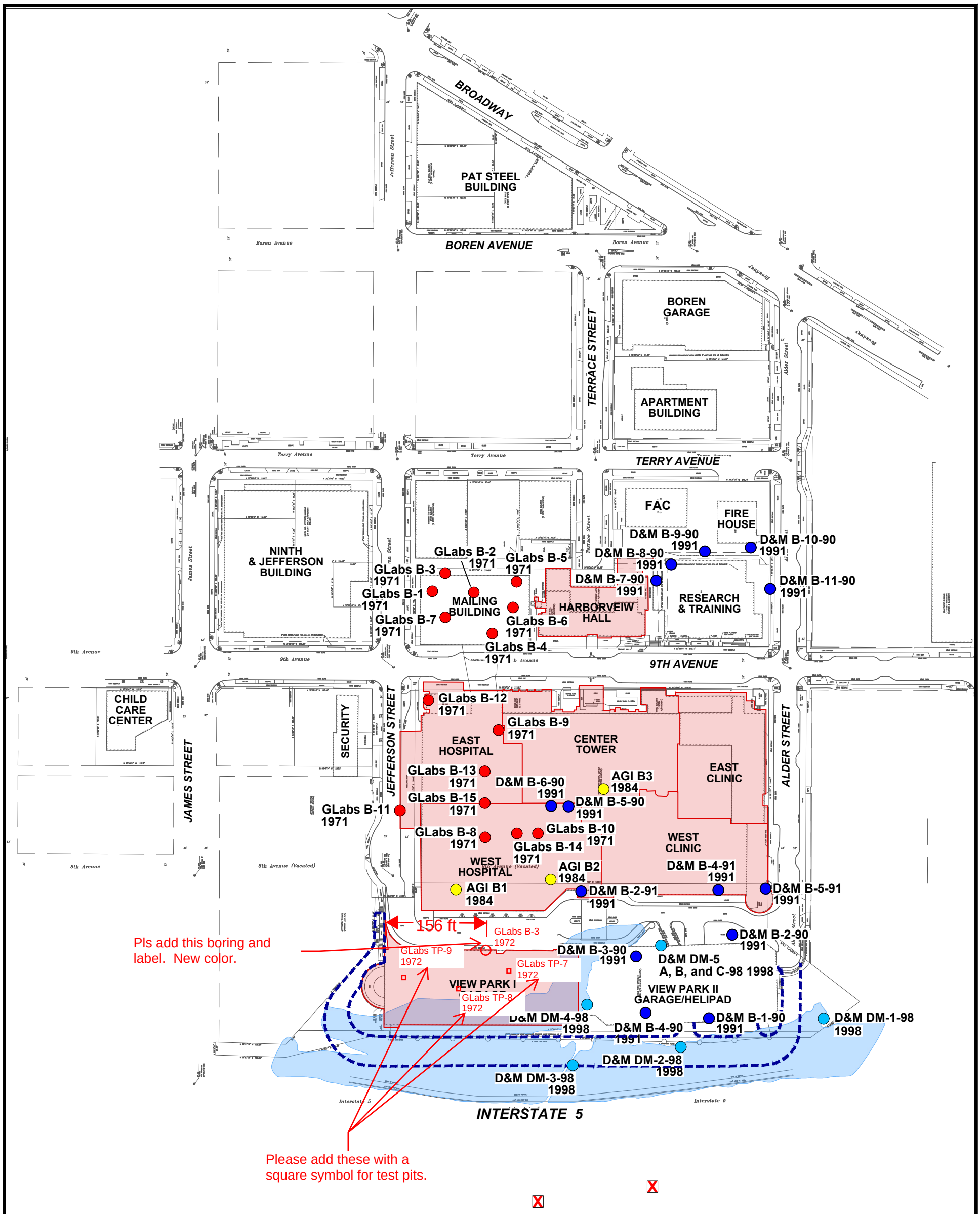
0 1,000 Feet

Approximate scale

LANGAN Langan Engineering and Environmental Services, Inc. 1420 Fifth Avenue Seattle, WA 98101 T: 206.504.3489 www.langan.com	Project **HARBORVIEW MEDICAL CENTER CAMPUS EXPANSION** SEATTLE KING COUNTY WASHINGTON	Figure Title **VICINITY MAP**	Project No. 791006401 Date 01/05/2023 Drawn By AG Checked By EE	Figure 1

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Filename: \\langan.com\data\SEA\data4\791006401\Project Data\CAD 01\791006401-GI0102_SiteLocMap.dwg Date: 1/5/2023 Time: 13:31 User: agekas Style Table: Langan.stb Layout: Figure 1 Site Loc



EXPLANATION

- **D&M B-1-90 1991** — Approximate location of boring by Dames and Moore, 1998
- **D&M B-5-91 1991** — Approximate location of boring by Dames and Moore, 1991
- **GLabs B-1 1971** — Approximate location of boring by AGI, 1984
- **AGI B1 1984** — Approximate location of boring by Geolabs, 1971
- Buildings within Phase I Scope
- Limits of proposed loop road
- Steep slope Environmentally Critical Area per Seattle Municipal Code Chapter 25.09
- X — Historical Landslide Initiation Point

Reference: Base map provided by True North Land Surveying, Inc., Auto CAD drawing Titled "J216101.dwg" dated 12-05-2022.

0 150 ft 150 Feet

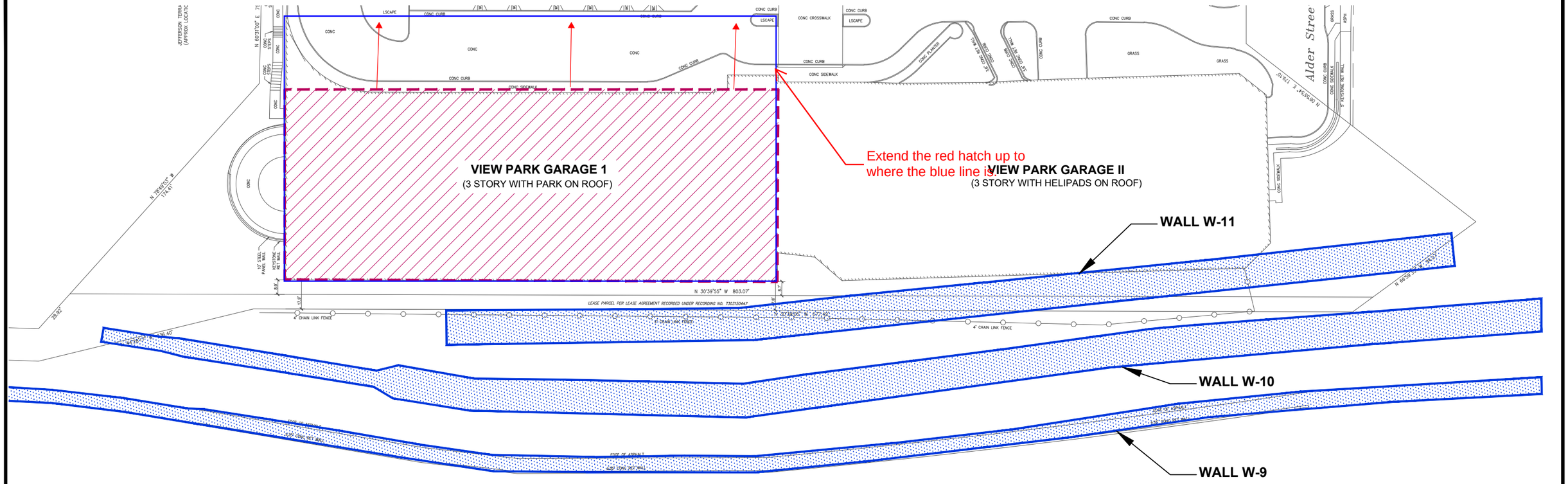
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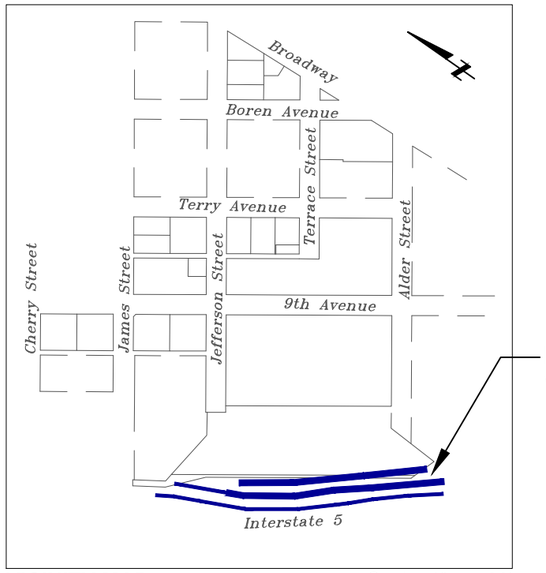
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Project	HARBORVIEW MEDICAL CENTER CAMPUS EXPANSION SEATTLE KING COUNTY WASHINGTON
Figure Title	SITE PLAN
Project No.	791006401
Date	01/05/2023
Drawn By	AG
Checked By	EE
Figure	2

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VICINITY MAP Scale: 1" = 500'

EXPLANATION

Approximate footprint of existing WSDOT retaining wall structures

Approximate footprint of planned hospital bed tower (basement footprint)

Reference: Base map provided by True North Land Surveying, Inc., Auto CAD drawing Titled "J216101.dwg" dated 12-05-2022.

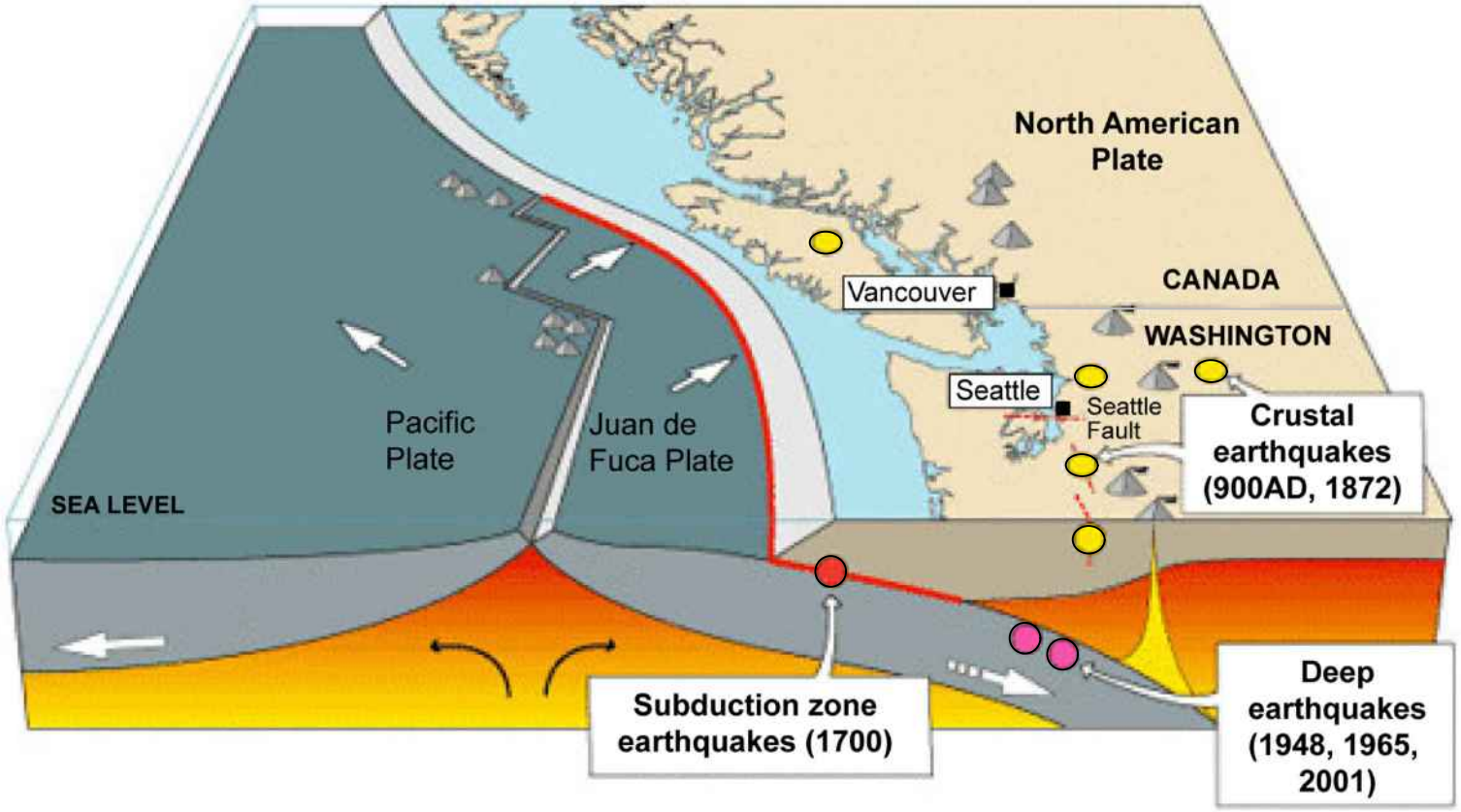
0 60 Feet

Approximate scale

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Source	Affected area	Max. Size	Recurrence
Subduction Zone	W.WA, OR, CA	M 9	500-600 yr
Deep Juan de Fuca plate	W.WA, OR	M 7+	30-50 yr
Crustal faults	W.WA, CA	M 7+	Hundreds of yr?

NOT TO SCALE

Reference: Image by USGS titled "Cascadia earthquake sources".

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Project
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KING COUNTY WASHINGTON

Drawing Title
CASCADIA SUBDUCTION ZONE EARTHQUAKE FAULT SOURCES

Project No.	791006401
Date	01/05/2023
Drawn By	AG
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Figure 4

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Filename: \\langan.com\data\SEA\data4\791006401\Project Data\CAD 01\791006401-B-GI0103_Zones.dwg Date: 1/6/2023 Time: 08:00 User: agekas Style Table: Langan.stb Layout: FIGURE 3

APPENDIX A

WSDOT RETAINING WALL AS-BUILT DRAWINGS

FED. ROAD DIV NO.	STATE	FED. AID PROJ NO	SHEET NO	TOTAL SHEETS
8	WASH.	I-BI-5-3(102)164	108	269

145.38' CYLINDER PILE WALL (See Sheet No. 116)

1 Cast In Place Panel @ 36'-10½" | 1 Cast In Place Panel @ 36'-3½" | 1 Cast In Place Panel @ 36'-2" | 1 Cast In Place Panel @ 36'-0"

Begin Retaining Wall W-9 Sta. 2181+12.23 N.B.C.L. Sta. 2181+12.23 El. 215.81

℄ Junction Box Sta. 2181+39.70 (See Details, Sheet 128)

Sta. 2181+45.07 ℄ Anchor Block El. 213.50 (See Detail Sheet 61)

Sta. 2181+69.07 El. 214.42

℄ Light Bracket Sta. 2181+96.00 ℄ El. Upper Bolt Circle 216.40 (See Detail Sheet 131)

Sta. 2182+05.59 El. 221.98

Last of all Horizontal Appurtenances @ 4'-0" Cols. from El. 212.00

Sta. 2182+41.56 El. 226.52

℄ Post Sta. 2182+74.56 Sta. 2182+77.56 El. 230.05

6'-0" | 6'-0" Var. | 6'-0" | 2'-0" | 1'-6" Parapet | 3'-0" (Typ.) | 1'-0" (Typ.)

Existing Ground Line | Top of Parapet | +9.80% | CAP BEAM | Face Wall Footing | El. 212.00 | El. 191.75

Shoulder Line El. 183.00 | El 186.50 | +3.61%

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

30 | 32 | 35 | 37

Continue 6'P.D.P. (Connect to 6" P.D.P. Behind Pier 6 Yesler Way Undercrossing)

REAR ELEVATION PIER NO. 6
YESLER WAY UNDERCROSSING
Scale: 1" = 10'-0"

End 6"P.D.P. | Begin 6"P.D.P.

W-9 Sta. 2181+45.07 ℄ 8"M.D.P. Connect Underdrain to Catch Basin

REAR ELEVATION WALL W-9
STA. 2181+32.23 TO STA. 2182+77.56
Scale: 1"=10'-0"

Continue 6"P.D.P.

PC Sta. 2181+32.23 N. 223,141.754 E. 1,632,517.981

PC Sta. 2181+32.23 N. 223,136.534 E. 1,632,511.700

℄ Blockout Sta. 2181+45.07 (See Detail, Sheet 106)

PT Sta. 2182+22.74 N. 223,214.132 E. 1,632,463.693

PT Sta. 2182+29.56 N:223,209.562 E:1,632,456.924

0'-10" (Typ.) | 3'-0" (Typ.) | 3'-2" (Typ.) | Working Line | N 34°01'02" W

N 39° 43'40" W | 5'-2" Typ. | 6'-0" | For Typical Detail (See Sheet 107)

9 Spaces @ 12'-0" = 108'-0" | 6'-0"

2 Spa. @ 12'-3"

TYPE 'A' BEAM
10'-0" ℄ CYLINDERS X 88'-0"

TYPE 'B' BEAM
10'-0" ℄ CYLINDERS X 93'-0"

3'-3¾" | 1'-9¾" | 7 Spaces @ 11'-6" = 80'-6" | 3'-3¾"

TYPE 'F' BEAM 10'-0" ℄ CYLINDERS X 85'-0"

90'-9"

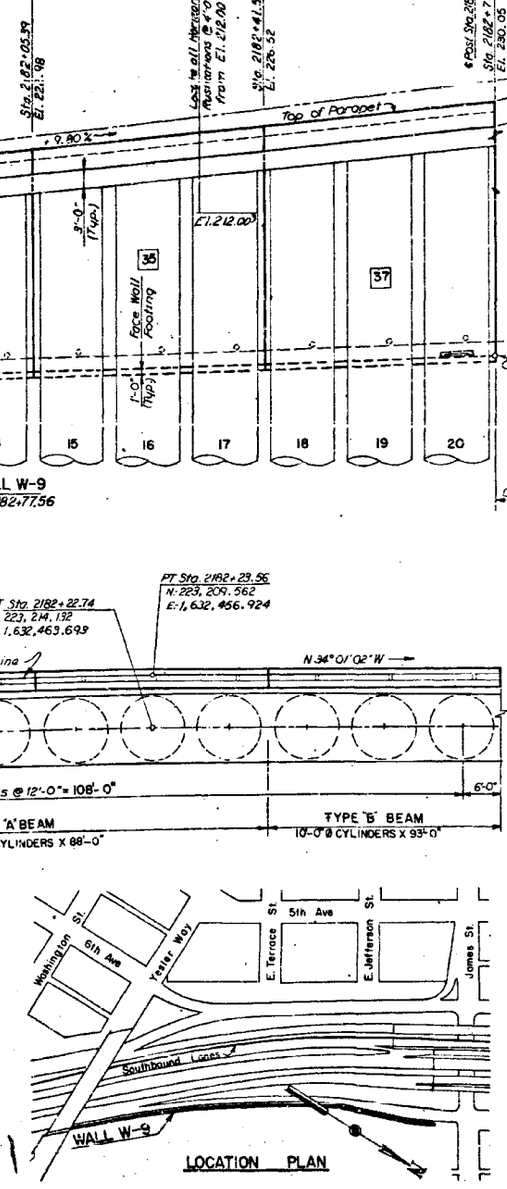
FOOTING PLAN
(FOR BEAM DETAILS SEE SHEETS 120 and 121)

CURVE DATA
ALONG WORKING LINE

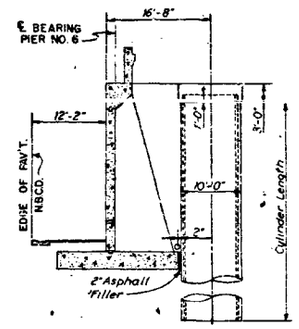
PI Sta. 2181+77.93
N. = 223,171.682
E. = 1,632,482.491
Δ = 5°42'38"
D = 6°15'11"
R = 916.31'
L = 91.33'
T = 45.70'

CURVE DATA
ALONG ℄ OF CYLINDERS

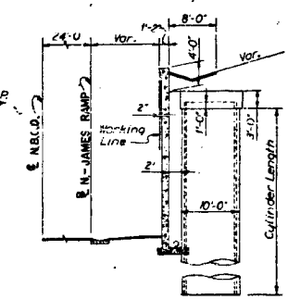
PI Sta. 2181+77.52
N. = 223,176.589
E. = 1,632,489.032
Δ = 5°42'38"
D = 6°18'33"
R = 908.14'
L = 90.51'
T = 45.29'



LOCATION PLAN



SECTION A-A



SECTION B-B

Dimensions Along ℄ of Cylinders

DATE	REVISION	BY
12-7-66	Revised To As Builts	H.H.M.
6-10-64	Revised Cylinder Spacing - Footing Plan View	T.F.B.

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

RETAINING WALL W-9

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

R. A. Cowell, Engineer of Design
S. C. Babcock, Bridge Engineer
A. H. Anderson, Director
As Shown
Approved March 13, 1964

SHEET 108 OF 269 SHEETS

CONTRACT NUMBER 7504

DATUM
CITY OF SEATTLE

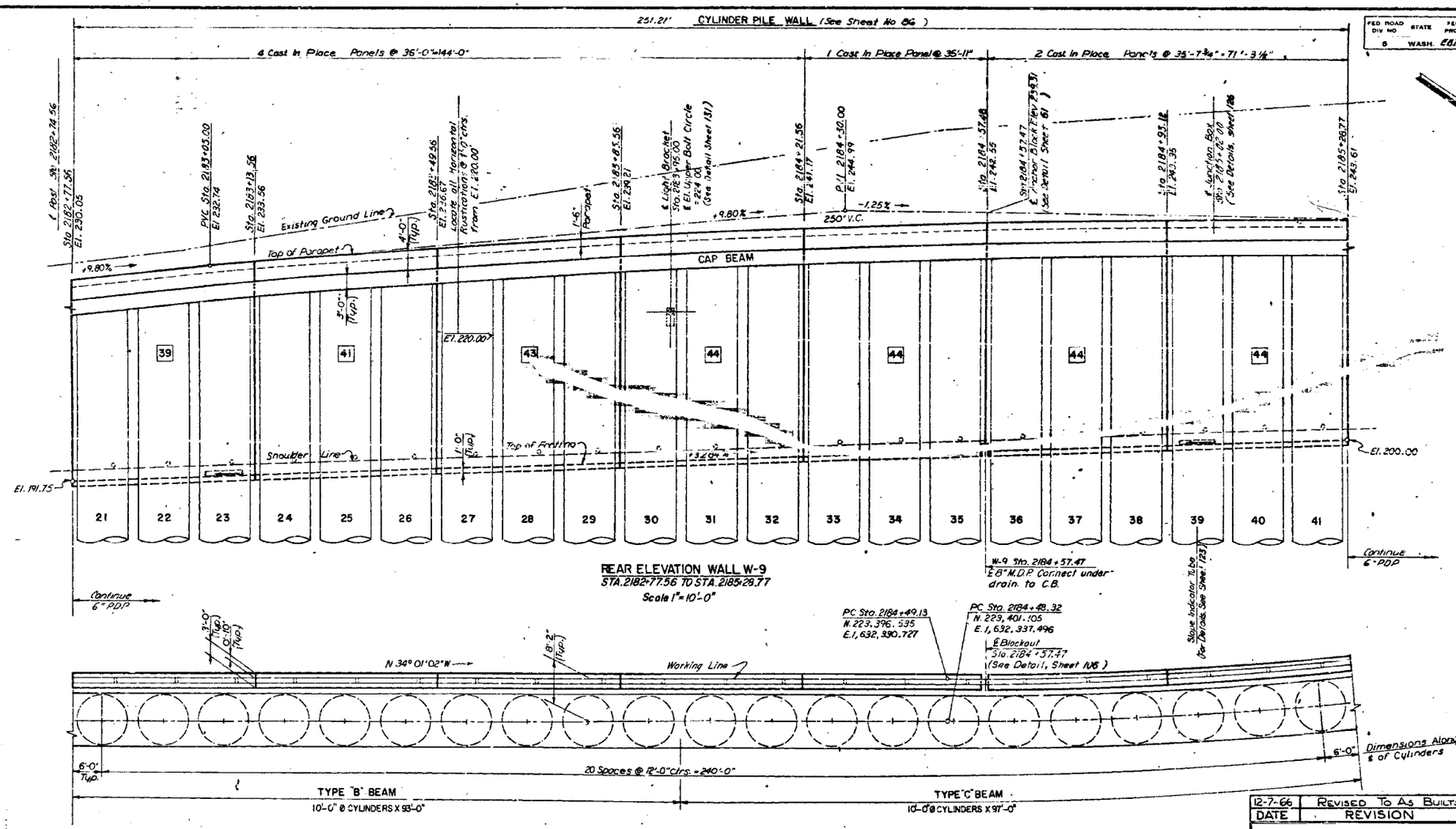
JOSEF SORKIN REGISTERED PROFESSIONAL ENGINEER STATE OF WASHINGTON

HOWARD, NEEDLES TAMMEN & BERGENDOFF

FED ROAD DIV NO	STATE	FED AID PROJ. NO.	SHEET NO	TOTAL SHEETS
8	WASH.	E&T-5-3(202)169	109	269

251.21' CYLINDER PILE WALL (See Sheet No 86)

4 Cast In Place Panels @ 36'-0"=144'-0" | 1 Cast In Place Panel @ 35'-11" | 2 Cast In Place Panels @ 35'-7 3/4" = 71'-3 1/2"



REAR ELEVATION WALL W-9
STA. 2182+77.56 TO STA. 2185+28.77
Scale 1"=10'-0"

W-9 Sta. 2184+57.47
8" M.D.P. Connect under drain to C.B.

Stove indicator To be installed by others For Details See Sheet 123

FOOTING PLAN
(For Beam Details See Sheets 120 and 121)

CURVE DATA ALONG WORKING LINE
P.I. Sta. 2184+89.44
N = 223,429.945
E. = 1,632,308.117
Δ = 5°42'38"
D = 7°05'22"
R = 808.17'
L = 80.55'
T = 40.31'

CURVE DATA ALONG ℄ OF CYLINDERS
P.I. Sta. 2184+89.03
N. = 223,434.852
E. = 1,632,314.718
Δ = 5°42'38"
D = 7°01'07"
R = 816.33'
L = 81.36'
T = 40.71'

DATUM
CITY OF SEATTLE

JOSEF SORRIN STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

DATE	REVISION	BY
12-7-66	REVISED TO AS BUILTS	H.H.M.

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

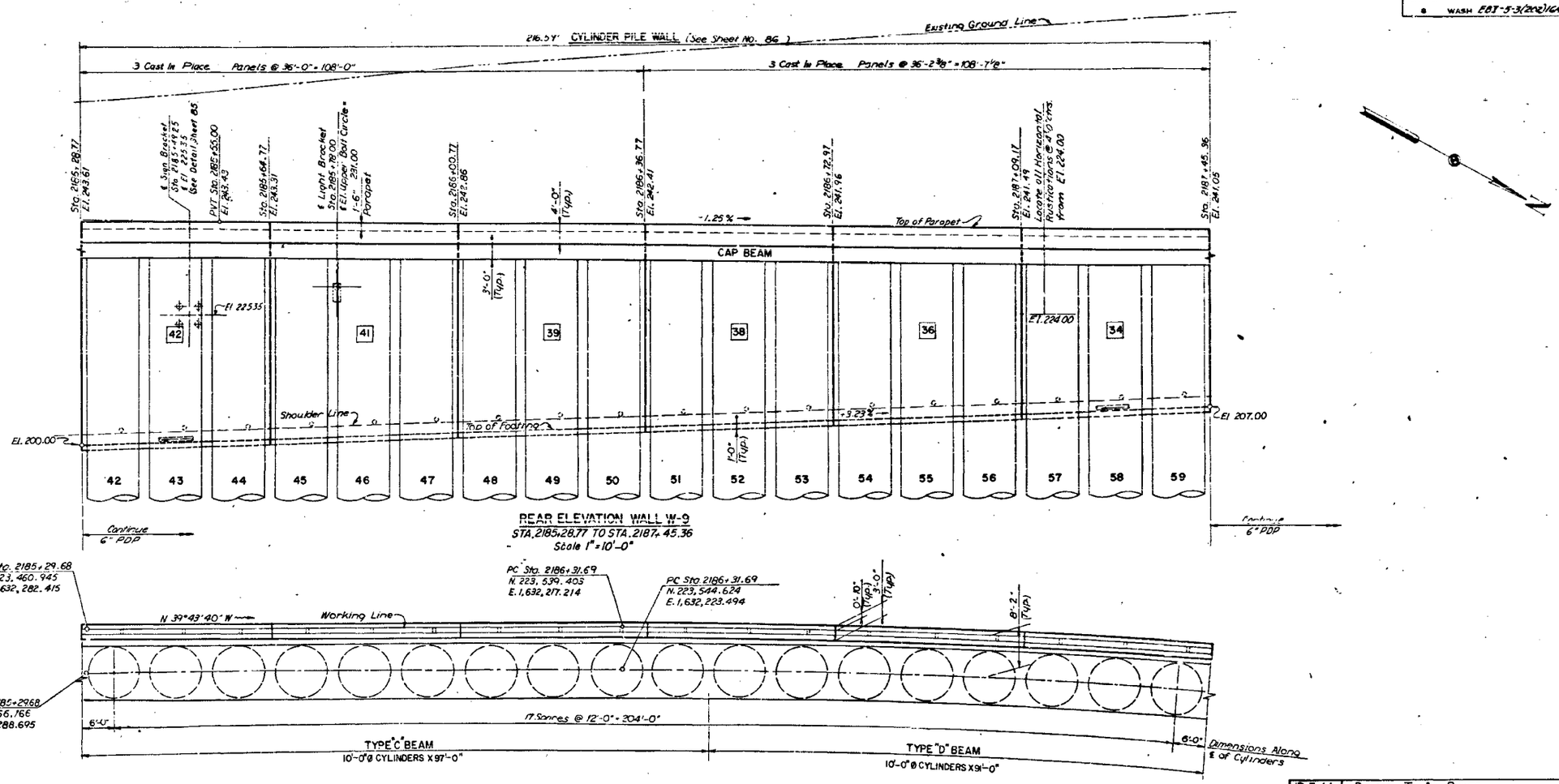
RETAINING WALL W-9

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SCALE As Shown
APPROVED March 13, 1968

SHEET 109 OF 269 SHEETS
CONTRACT NUMBER 7504

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH	FBT-5-3(202)IC4	110	269



REAR ELEVATION WALL W-9
STA. 2185+28.77 TO STA. 2187+45.36
Scale 1" = 10'-0"

FOOTING PLAN
(For Beam Details See Sheets 120 and 121)

CURVE DATA
ALONG WORKING LINE
P.I. Sta. 2187+94.09
N. = 223,664.305
E. = 1,632,113.416
Δ = 12° 11' 58"
D = 3° 46' 13"
R = 1519.72'
L = 323.58'
T = 162.40'

CURVE DATA
ALONG ℄ OF CYLINDERS
P.I. Sta 2187+93.22
N. = 223,668.854
E. = 1,632,120.254
Δ = 12° 11' 58"
D = 3°47'26"
R = 1511.55'
L = 321.84'
T = 161.53'

DATUM
CITY OF SEATTLE

JOSEF SORKIN
STATE OF WASHINGTON
REGIS. NO.
PROFESSIONAL ENGINEER

12-7-66	Revised To As Builts	H.H.M.
DATE	REVISION	BY

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

RETAINING WALL W-9

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

Scale As Shown
Approved March 13, 1964

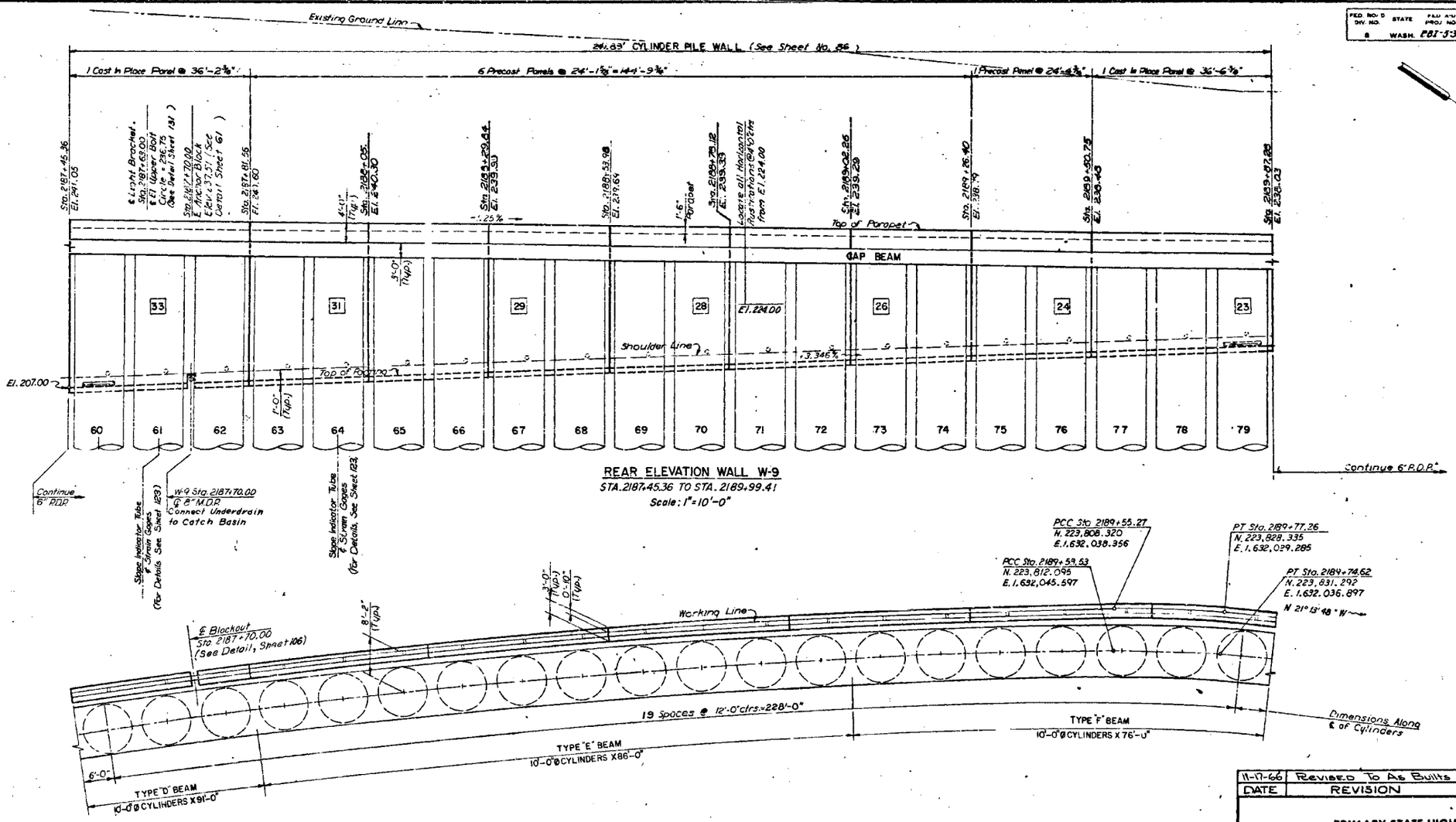
SHEET 110 OF 269 SHEETS
CONTRACT NUMBER 7504

DESIGNED
DETAILED
DRAWN
QUANTITIES
CHECKED

DRAWN
TRACED
CHECKED
LEAD ENGR.
ASST. ENGR.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

FED. NO. D DIV. NO.	STATE	FAU A'U PROJ NO.	SHEET No.	TOTAL SHEETS
8	WASH.	F81-5-3(202)164	111	269



FOOTING PLAN
(For Beam Details See Sheets 120 and 121)

CURVE DATA
ALONG WORKING LINE
P.I. Sta 2189+66.27
N. 223,818.078
E. 1,632,033.270
Δ = 6° 17' 54"
D = 28° 38' 52"
R = 200.00'
L = 21.99'
T = 11.00'

CURVE DATA
ALONG ℄ OF CYLINDERS
P.I. Sta. 2189+64.08
N. 223,821.454
E. 1,632,000.719
Δ = 6° 17' 54"
D = 29° 52' 03"
R = 191.83'
L = 21.09'
T = 10.55'

DATUM
CITY OF SEATTLE

JOSEF SORKIN REGISTERED PROFESSIONAL ENGINEER

HOWARD, NEEDLES TAMMEN & BERGENDOFF

DATE	REVISION	BY
11-17-66	Revised To As Builts	HNM

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

RETAINING WALL W-9

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

Scale As Shown
Approved March 16, 1964

SHEET 111 OF 269 SHEETS
7504

FED ROAD DIST NO	STATE	FED AID PROJ NO	SHEET NO	TOTAL SHEETS
8	WASH	EBI-5-3(202)164	112	269

293.45' CYLINDER PILE WALL (See Sheet No. 86)

1 Precast Panel @ 24'-2½" | 5 Precast Panels @ 24'-0" = 120'-0" | 1 Precast Panel @ 22'-0" | 1 Precast Panel @ 20'-0" | 2 Cast In Place Panels @ 29'-7⅜" - 57'-3⅜" | 1 Precast Panel @ 30'-0" | 18'-0" TYPE HC-30 (See Sheet 84)

Sta. 2189+87.28 El. 238.05 | Sta. 2190+11.46 El. 237.92 | Sta. 2190+15.46 El. 237.42 | Sta. 2190+59.46 El. 237.12 | Sta. 2191+33.46 El. 236.88 | Sta. 2191+43.41 El. 235.09 | Sta. 2191+53.41 El. 235.22 | Sta. 2191+73.41 El. 234.60 | Sta. 2191+93.00 El. 234.19 | Sta. 2192+03.64 El. 231.47 | Sta. 2192+32.68 El. 228.07 | Sta. 2192+85.10 El. 221.76 | Sta. 2192+87.62 El. 221.68 | Sta. 2192+94.11 El. 221.63

Existing Ground Line

Top of Parapet | 1'-6" Parapet | 4'-0" (Typ.) | -1.25% | Locate all Horizontal Reinforcing @ 2'-0" cts From El. 224.00 | Sta. 2191+15.46 El. 236.52 | PVC Sta. 2191+15.00 El. 236.43 | ℄ Light Standard Sta. 2191+34.44 | PVT Sta. 2191+15.00 El. 235.68 | Sta. 2191+93.00 ℄ Anchor Block Elev. 229.19 (See Detail Sheet 61) | 120' R.C. | -13.20% | -13.20% | End Retaining Wall W-9 Sta. 2192+80.68 N. Jones Sta. 2192+87.63 El. 211.13

CAP BEAM

El. 215.50 | Shoulder Line | +0.50% | El. 224.00 | Top of Footing | 3'-0" | 2'-6" | 1'-0" (Typ.) | El. 216.67 | El. 212.71 | El. 217.50 | El. 217.50 | 1'-0"

22 | 21 | 20 | 19 | 18 | 16 | 15 | 14 | 12 | 11 | 6

80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104

Continue 6" P.D.P.

W-9 Sta. 2191+93.00 ℄ 8" M.D.P. Connect Underdrain to Catch Basin

End PDP

W-9 Sta. 2192+75.00 ℄ 8" M.D.P.

Slope Indicator Tube (For Details, See Sht. No. 123)

REAR ELEVATION WALL W-9
STA. 2189.99.41 TO STA. 2192.80.68
Scale: 1"=10'-0"

PC Sta. 2191+86.19 N. 224,027.267 E. 1,631,959.870

PC Sta. 2191+87.82 N. 224,024.612 E. 1,631,953.095

PT Sta. 2192+27.69 N. 224,060.993 E. 1,631,936.772

PT Sta. 2192+25.79 N. 224,064.316 E. 1,631,943.309

Sta. 2192+80.68 N. 224,108.232 E. 1,631,912.764

℄ Blockout Sta. 2191+99.00 (See Detail, Sheet 106)

3'-0" (Typ.) | 0'-10" (Typ.) | 8'-2" (Typ.) | N 21°13'48" W | Working Line | N 26°56'26" W | 1'-1" | 3'-0" | 1'-1" | 3'-10" | Sta. 2192+60.77 N. 224,095.509 E. 1,631,927.496 | 5'-0"

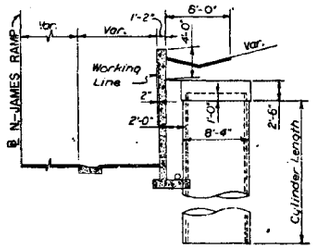
5'-0" | 12 Spaces @ 12'-0" = 144'-0" | 6'-0" | 5'-0" | 11 Spaces @ 10'-0" = 110'-0"

TYPE "F" BEAM 10'-0"Ø CYLINDERS X 76'-0" | TYPE "G" BEAM 10'-0"Ø CYLINDERS X 67'-0" | TYPE "H" BEAM 10'-0"Ø CYLINDERS X 63'-0" | TYPE "J" BEAM 8'-4"Ø CYLINDERS X 51'-6" | TYPE "K" BEAM 8'-4"Ø CYLINDERS X 45'-6"

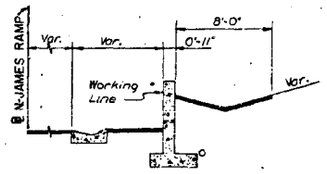
FOOTING PLAN
(For Beam Details See Sheets 120 and 121)

CURVE DATA ALONG WORKING LINE	
PI Sta.	2192+07.77
N.	224,043.208
E.	1,631,945.811
Δ	= 5°42'38"
D	= 14°19'26"
R	= 400.00
L	= 39.87'
T	= 19.95

CURVE DATA ALONG ℄ OF CYLINDERS	
PI Sta.	2192+06.50
N.	224,046.205
E.	1,631,922.514
Δ	= 5°42'38"
D	= 14°03'58"
R	= 407.33'
L	= 40.60'
T	= 20.32'



SECTION A-A



SECTION B-B

CITY OF SEATTLE

JOSEF SORKIN STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

DATE	REVISION	BY
11-21-66	Revised To As Builts	H.H.M.

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

RETAINING WALL W-9

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

Approved March 13, 1967

SHEET 112 OF 269 SHEETS

CONTRACT NUMBER 7504

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH.	I-5-3(202)164	113	269

647.59'

Begin Retaining Wall
Sta. 2181+51.78 W-10 =
Sta. 2181+51.78 N-James
El. 213.66

Existing Ground Line
Final Ground Line

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
	El. 214.78 Top of Cylinder (Typical)	El. 215.95	El. 217.11	El. 218.27	El. 219.43	El. 220.60	El. 221.76	El. 221.20	El. 224.09	El. 225.25	El. 226.41	El. 227.57	El. 228.74	El. 229.87	El. 230.94	El. 231.96	El. 232.92	El. 233.80	El. 234.62	El. 235.38	El. 236.09	El. 236.72	El. 237.29	El. 237.80	El. 238.23	El. 238.63	El. 238.94	El. 239.20	El. 239.39	El. 239.52	El. 239.59	El. 239.54	El. 239.41	El. 239.26	El. 239.00	El. 238.81	El. 238.66	El. 238.51	El. 238.36	El. 238.20	El. 238.05	El. 237.90	El. 237.75	El. 237.60	El. 237.45	El. 237.30	El. 237.15	El. 236.99	El. 236.84	El. 236.69	El. 236.54	El. 236.40

Slope Indicator Tube
4 Strain Gages
(For Details, See Sheet 123)

ELEVATION W-10

STA 2181+51.78 TO STA 2187+99.37
SCALE: 1" = 20'

Begin Cylinder Wall W-10
Sta. 2181+51.78 W-10=
Sta. 2181+51.78 N-James
62.96' Rt @ N-James
N. 223,179.824
E. 1,632,343.106

Note:
All Cylinders Located 5 Feet East Or West Of Survey Line As Shown Except Cylinders 21, 33, 52 & 53 Which Are Located As Indicated On Plan View.

Bend Point No 1
Sta 2185+35.78 W-10=
Sta 2185+29.95 N-James
59.00' Rt. @ N-James
N. 223,493.434
E. 1,632,321.510

Bend Point No 2
Sta 2187+99.37 W-10=
Sta 2188+00.00 N-James
56.50' Rt @ N-James
N 223,700.681
E 1,632,158.003

32 Spaces @ 12'-0" = 384'-0"
N 35° 14' 42" W
21 Spaces @ 12'-0" = 252'-0"
N 38° 20' 20" W
WEST 4.5
WEST 4.5
WEST 7.0
EAST 7.0
11.78'

TYPE "A" BEAM
10'-0" ø CYLINDERS X 91'-0"
EXCEPT CYL. 4 WHICH IS 88.5 FT. LONG & CYL. 9 WHICH IS 89.3 FT. LONG

TYPE "B" BEAM
10'-0" ø CYLINDERS X 96'-0"
EXCEPT CYL. 10, CYL. 19 & CYL. 20 WHICH ARE 95.0 FT. LONG & CYL. 15 WHICH IS 94.8 FT. LONG

TYPE "C" BEAM
10'-0" ø CYLINDERS X 100'-0"
EXCEPT CYL. 32 & CYL. 41 WHICH ARE 98.5 FT. LONG & CYL. 33 WHICH IS 99.0 FT. LONG & CYL. 37 WHICH IS 98.9 FT. LONG.

TYPE "D" BEAM
10'-0" ø CYLINDERS X 94'-0"

TYPE E BEAM
10'-0" ø CYLINDERS X 89'-0"

PLAN VIEW

(For Beam Details See Sheets 120 and 121)

Variable
Variable
8'-2"
25'-0"
2:1 MAX
0.25%
2"
EDGE OF PAV'T. N-JAMES RAMP
Working Line
& Cylinder
Cylinder Length
10" for 16'-0" Cyls.
1'6" for 8'-9" Cyls.
Furnishing, Placing & Compacting Selected Backfill Material
Cylinder Excavation
14'-0" ±
2'-0" for 10'-0" ø Cyls.
1'6" for 8'-9" ø Cyls.

WALL W-9
WALL W-10
WALL W-11

TYPICAL SECTION

DATUM
CITY OF SEATTLE

JOSEF SOKKIN
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

Washington St.
Yesler Way
6th Ave.
Southbound Lanes
Wall W-10
8th Ave.
Adler St.
Jefferson St.
James St.

LOCATION PLAN

DATE	REVISION	BY
11-21-66	Revised To As Builts	H.H.M.

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

RETAINING WALL W-10

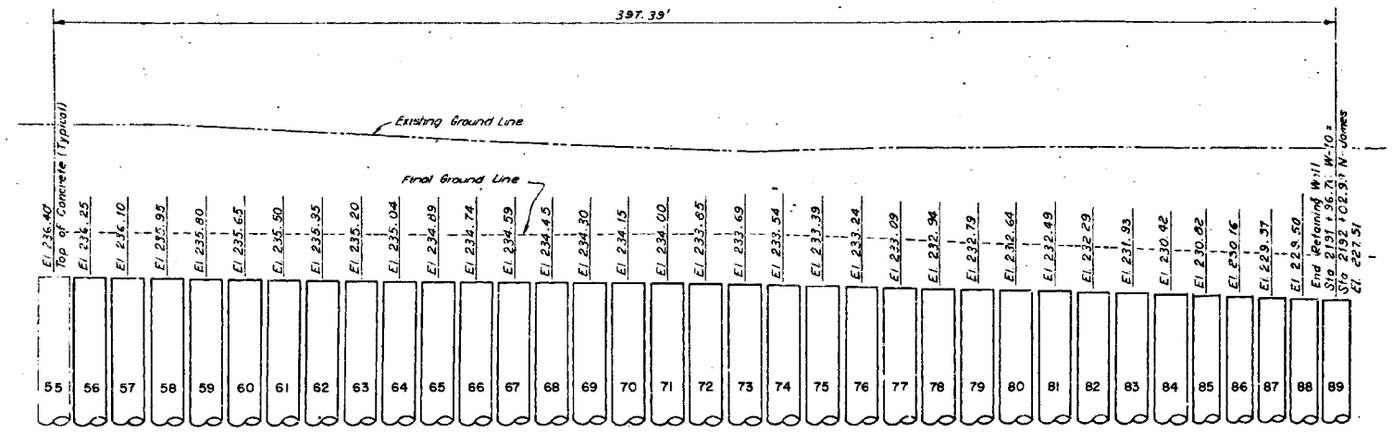
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SCALE As Shown
APPROVED March 13, 1964

SHEET 113 OF 269 SHEETS
CONTRACT NUMBER 7504

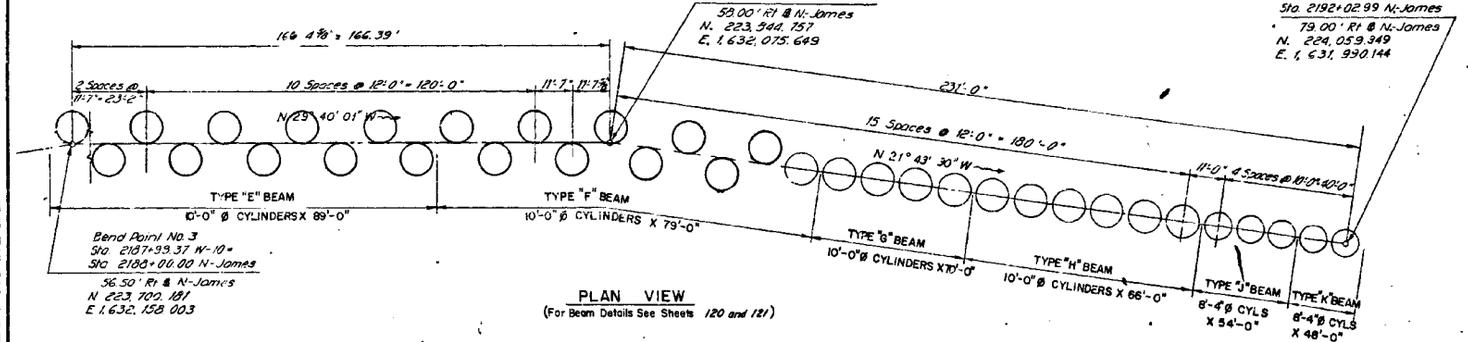
DESIGNED
DRAWN
CHECKED
QUANTITIES CHECKED
DATE 12-27-63

FED. ROAD DIV NO.	STATE	FED AID PROJ NO	SHEET NO	TOTAL SHEETS
8	WASH.	I-82-5-3(102)169	114	269



ELEVATION W-10

STA 2187+99.37 TO STA 2191+96.76
SCALE: 1" = 20'



PLAN VIEW

(For Beam Details See Sheets 120 and 121)

W-10 CYLINDER OFFSETS

CYL. NO.	OFFSET	CYL. NO.	OFFSET	CYL. NO.	OFFSET
1	5' W	31	5' W	61	5' W
2	5' E	32	5' E	62	5' E
3	5' W	33	7'6" W, 0'6" E	63	5' W
4	5' E	34	5' E	64	5' E
5	5' W	35	5' W	65	5' W
6	5' E	36	5' E	66	5' E
7	5' W	37	5' W	67	5' W
8	5' E	38	5' E	68	5' E
9	5' W	39	5' W	69	5' W
10	5' E	40	5' E	70	5' E
11	5' W	41	5' W	71	5' W
12	5' E	42	5' E	72	5' E
13	5' W	43	5' W	73	5' W
14	5' E	44	5' E	74	¢
15	5' W	45	5' W	75	¢
16	5' E	46	5' E	76	¢
17	5' W	47	5' W	77	¢
18	5' E	48	5' E	78	¢
19	5' W	49	5' W	79	¢
20	5' E	50	5' E	80	¢
21	7'6" W	51	5' W	81	¢
22	5' E	52	7' E	82	¢
23	5' W	53	7' W	83	¢
24	5' E	54	5' E	84	¢
25	5' W	55	5' W	85	¢
26	5' E	56	5' E	86	¢
27	5' W	57	5' W	87	¢
28	5' E	58	5' E	88	¢
29	5' W	59	5' W	89	¢
30	5' E	60	5' E		

DATE	REVISION	BY
6-27-68	REVISED TO AS BUILT	EBJ

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

RETAINING WALL W-10

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SCALE 1" = 20'
APPROVED March 19, 1968
SHEET 114 OF 269 SHEETS
CONTRACT NUMBER 7506

DESIGNED ENGINEER
DESIGNED
DETAILED
DRAWN
CHECKED
QUANTITIES CHECKED

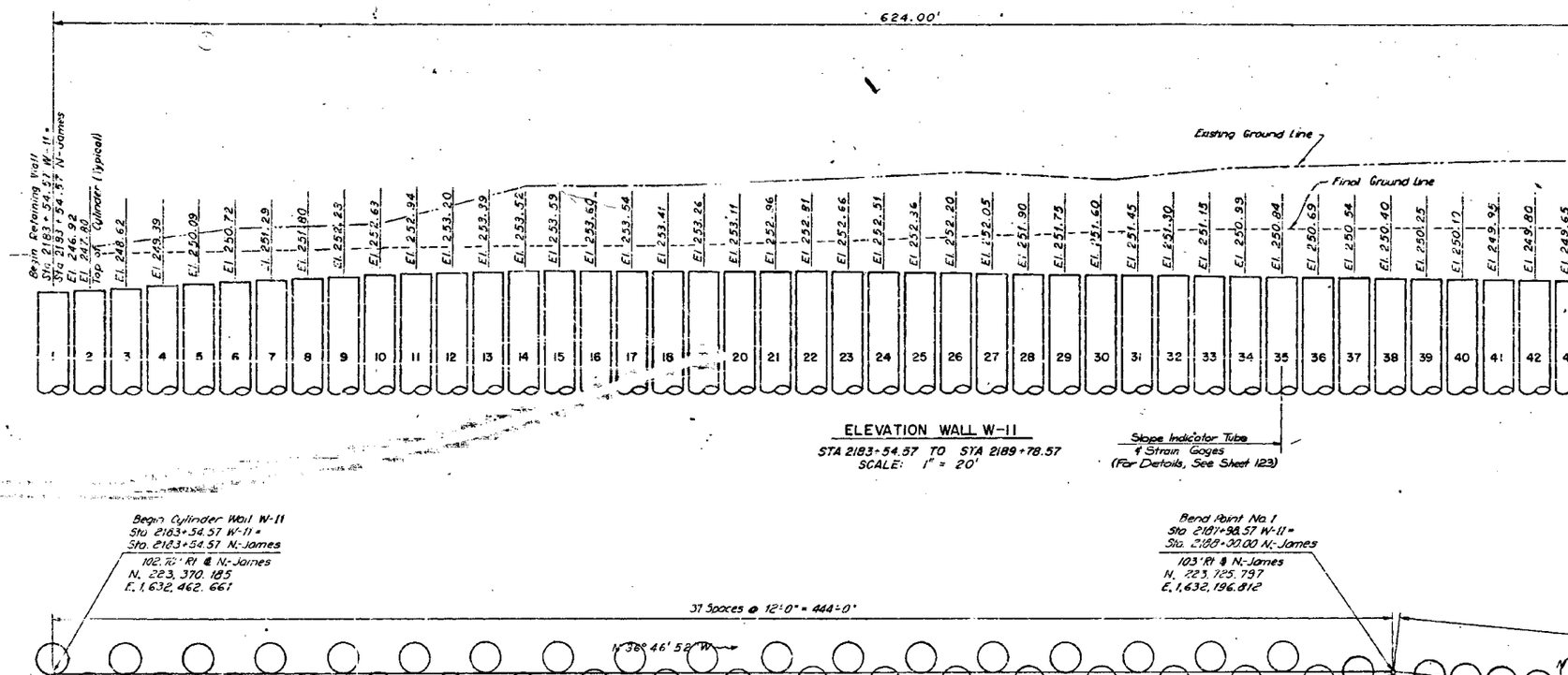
DRAWN
TRACED
CHECKED
DOC. ENGR.

DATE 12-27-67 BY LVH

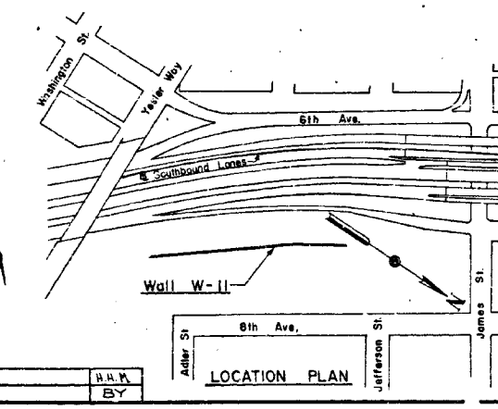
DATUM
CITY OF SEATTLE

JOSEF YORKIN
REGISTERED PROFESSIONAL ENGINEER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF



CYLINDER OFFSETS					
CYL. NO.	OFFSET	CYL. NO.	OFFSET	CYL. NO.	OFFSET
1	5' W	19	5' W	37	3' W
2	5' E	20	4' E	38	6' E
3	5' W	21	5' W	39	℄
4	5' E	22	3' E	40	℄
5	5' W	23	5' W	41	℄
6	5' E	24	3' E	42	℄
7	5' W	25	5' W	43	6' W
8	5' E	26	3' E	44	℄
9	5' W	27	5' W	45	3' E
10	5' E	28	3' E	46	3' W
11	5' W	29	3' W	47	℄
12	5' E	30	3' E	48	℄
13	5' W	31	5' W	49	℄
14	5' E	32	3' E	50	6' E
15	5' W	33	5' W	51	℄
16	4' E	34	3' E	52	6' E
17	5' W	35	5' W	53	℄
18	4' E	36	3' E		



DATUM
CITY OF SEATTLE

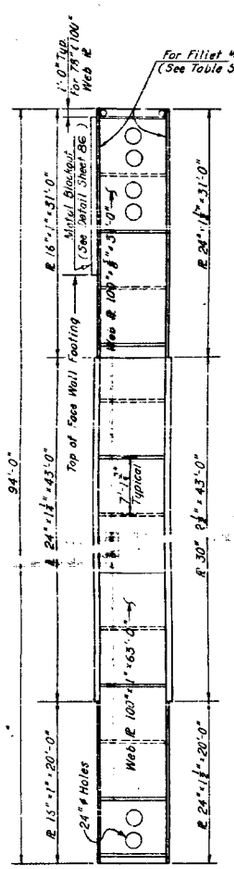
JOSEF SORKIN
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

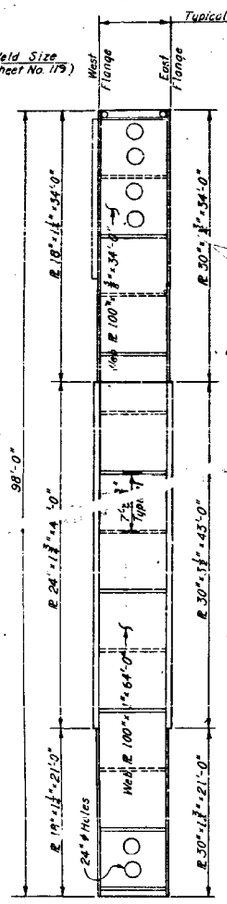
DRAWN JJB
CHECKED
SUBM. BY
DATE 12-27-63

DATE	REVISION	BY
11-21-66	Revised To As Builts	H.H.M.

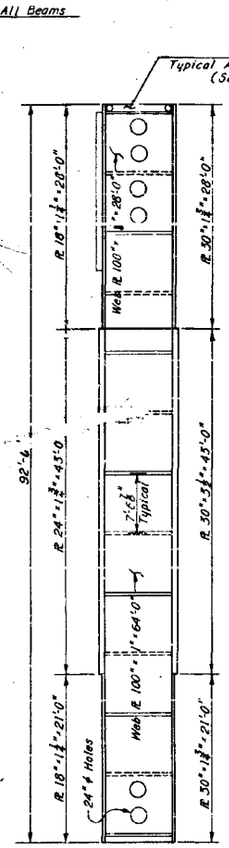
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
8	WASH.	FBT-5-3(202)164



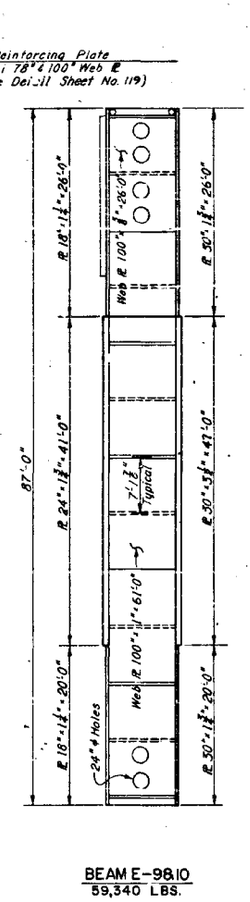
BEAM B-98.10
53,130 LBS.



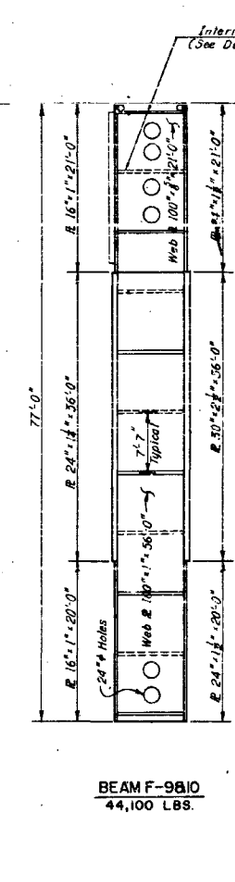
BEAM C-98.10
65,440 LBS.



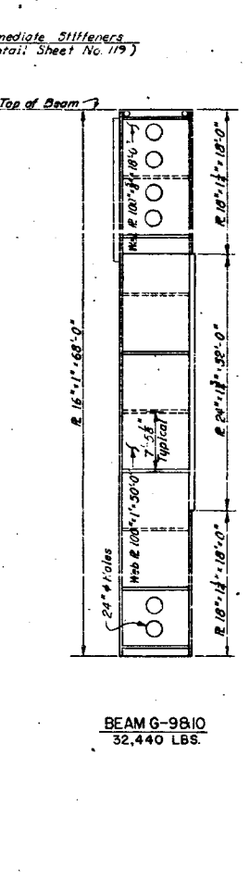
BEAM D-98.10
62,550 LBS.



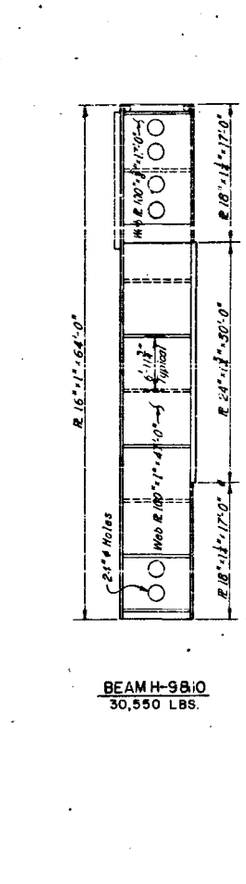
BEAM E-98.10
59,340 LBS.



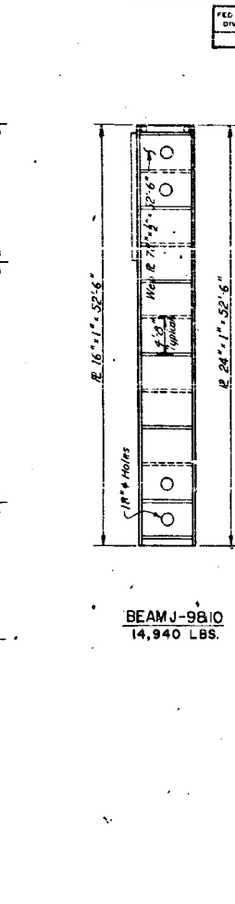
BEAM F-98.10
44,100 LBS.



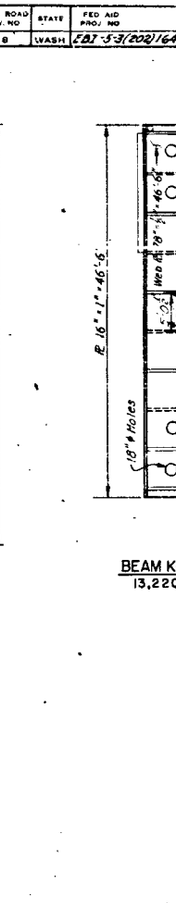
BEAM G-98.10
32,440 LBS.



BEAM H-98.10
30,550 LBS.



BEAM J-98.10
14,940 LBS.



BEAM K
13,220

CYLINDER BEAM DETAILS WALLS W-9 & W-10

(FOR ADDITIONAL BEAM DETAILS SEE SHEET NO. 119)
(Metal Blockout Not Applicable For W-10)
Scale: 1/8" = 1'-0"

DATE	REVISION
8-18-68	REVISED TO AS-BUILT

PRIMARY STATE HIGHWAY NO
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES ST
KING COUNTY

CYLINDER BEAM DETAILS WALLS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 121 OF 269 SHEETS
7504

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

JOSEF SORKIN
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

CYLINDER BEAM DETAILS WALL W-11

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 122 OF 263 SHEETS

DATE	REVISION	BY
8-19-68	REVISED TO AS-BUILT	LER

CYLINDER BEAM DETAILS WALL W-11
(FOR ADDITIONAL BEAM DETAILS SEE SHEET NO. 119)
Scale: 1/8" = 1'-0"

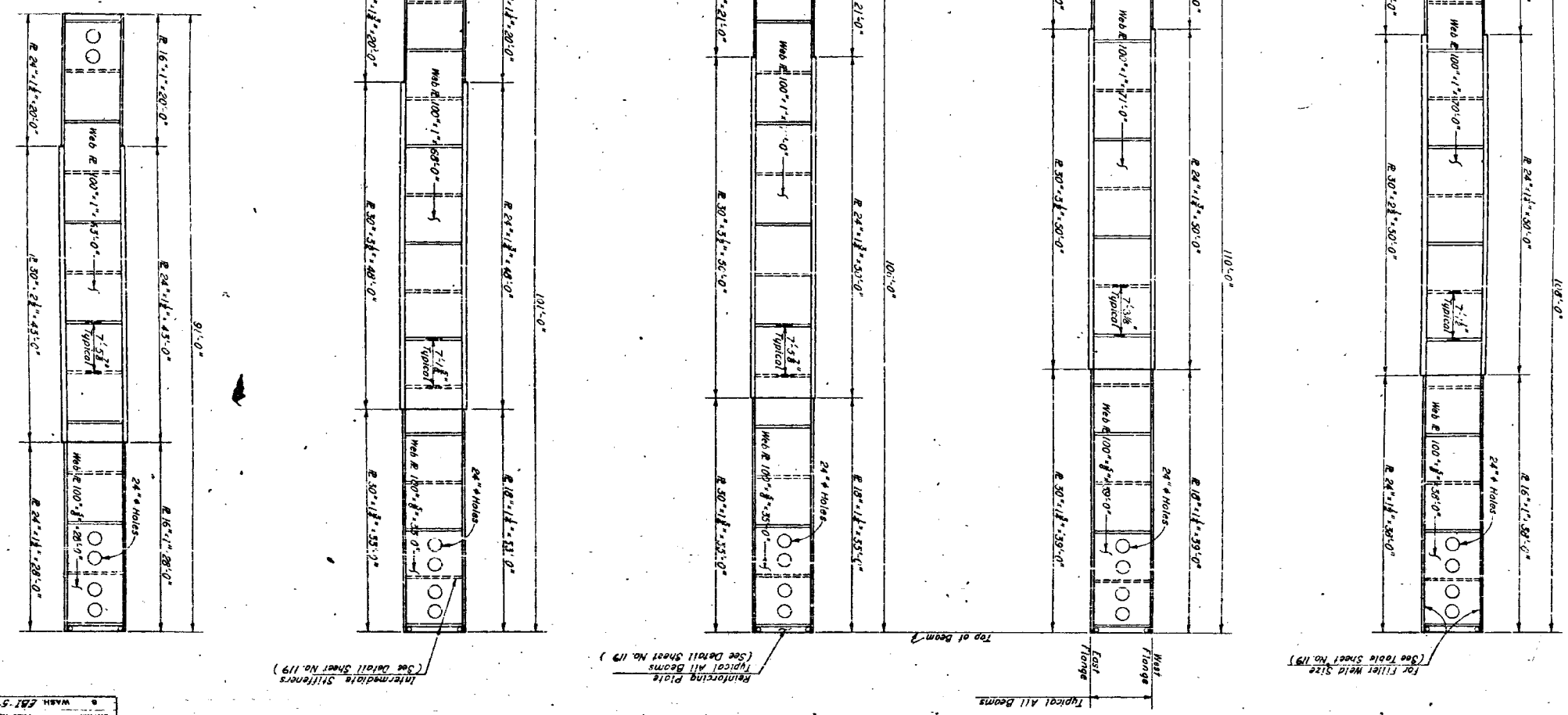
BEAM A-11
60,910 LBS.

BEAM B-11
73,630 LBS.

BEAM C-11
71,870 LBS.

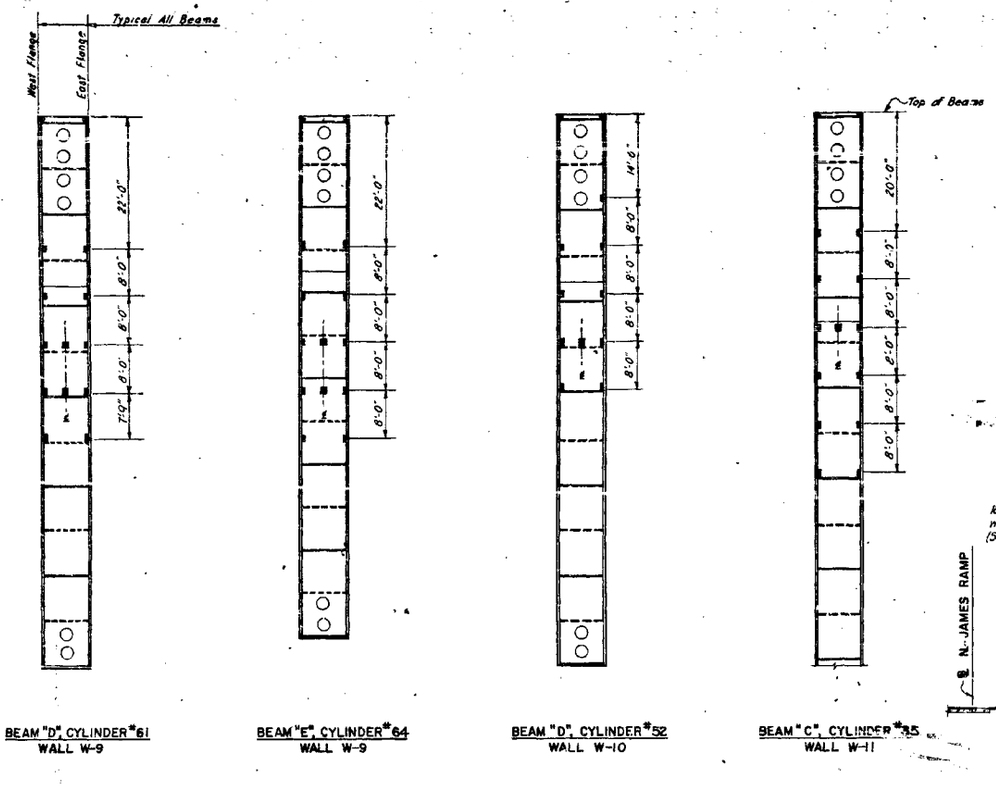
BEAM D-11
68,660 LBS.

BEAM E-11
52,730 LBS.



FED ROAD DIV NO	STATE	FED AID PROJ NO	SHEET NO	TOTAL SHEETS
8	WASH	I 5-3(202)#4	122	263

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH	I-5-3(202)164	123	263



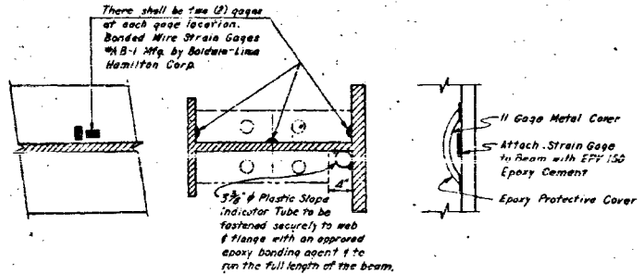
BEAM "D", CYLINDER #61
WALL W-9

BEAM "E", CYLINDER #64
WALL W-9

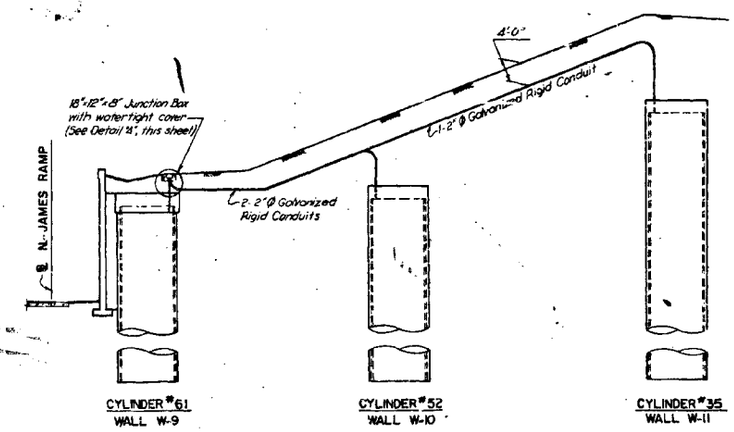
BEAM "D", CYLINDER #52
WALL W-10

BEAM "C", CYLINDER #35
WALL W-11

SR-4 STRAIN GAGE LOCATIONS
Scale: 3/32" = 1'-0"



STRAIN GAGE AND SLOPE INDICATOR TUBE MOUNTING DETAILS

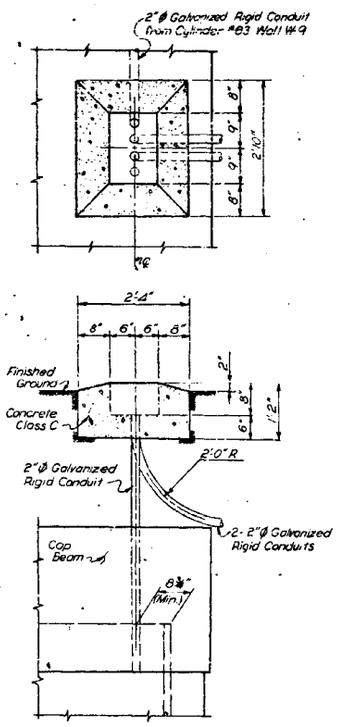


CYLINDER #61
WALL W-9

CYLINDER #52
WALL W-10

CYLINDER #35
WALL W-11

WALL SECTION



DETAIL "A"
(For Junction Box Details, See Sheet 128)

SLOPE INDICATOR TUBES		
WALL NO.	CYL. NO.	LENGTH FT.
W-2	65	530
W-4	78	450
W-8	66	665
W-8	88	860
W-9	39	980
W-9	61	920
W-9	64	870
W-9	99	465
W-10	52	920
W-11	35	1060

QUANTITIES		
WALL NO.	SLOPE INDICATOR TUBES LIN. FT.	SR-4 STRAIN GAGES INSTALLED EACH
W-2	530	—
W-4	450	—
W-8	1525	—
W-9	3235	46
W-10	920	20
W-11	1060	26
Total	7720	94

GENERAL NOTES

The 3 3/8" diameter plastic slope indicator tubes (see table on this sheet), the SR-4 strain gages, and the 2" ϕ galvanized rigid conduit shall be paid for on a lump sum basis for "Instrumentation".

Shorten web stiffeners A* for installation of slope indicator tubes. (see table on this sheet for beams which are affected)

DATE	REVISION	BY
11-21-66	Revised To As Builts	HHM

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

STRAIN GAGE AND SLOPE INDICATOR TUBE DETAILS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

Scale: As Shown
Approved March 15, 1966

SHEET 123 OF 263 SHEETS
CONTRACT NUMBER 7504

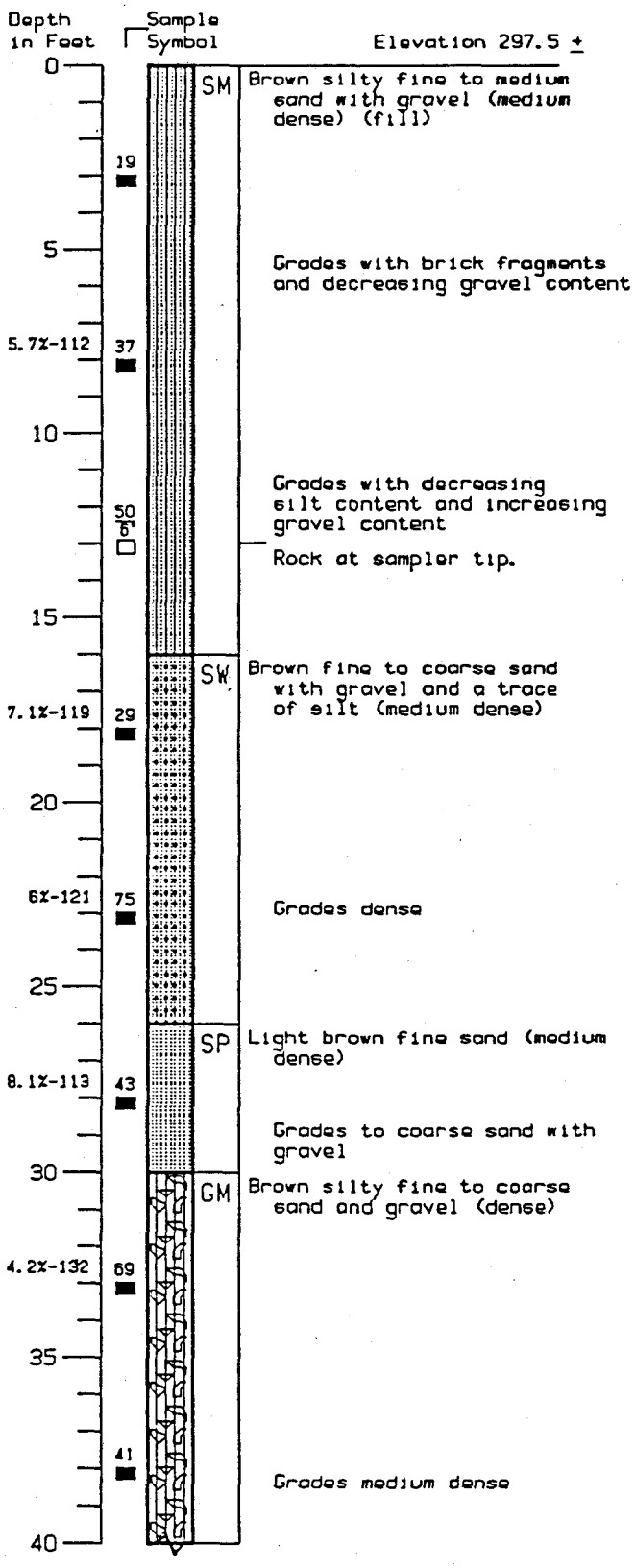
JOSEF SOMLO — REGISTERED PROFESSIONAL ENGINEER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

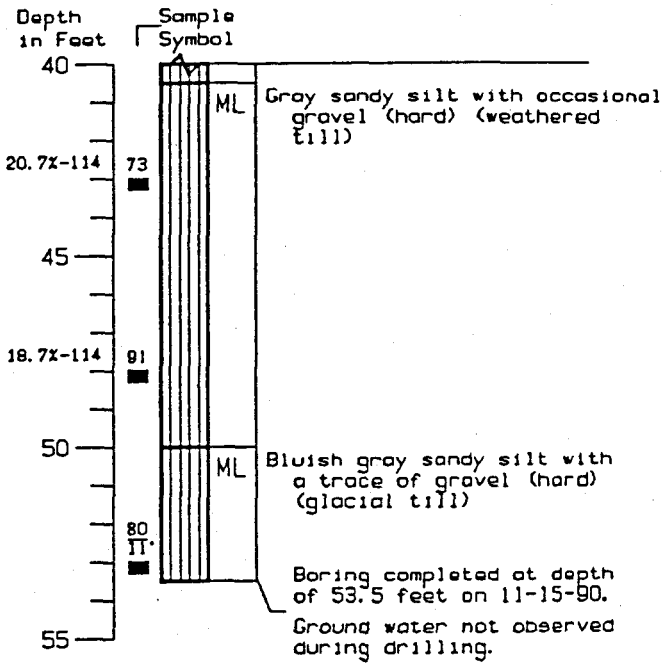
APPENDIX B

SELECTED DATA FROM REPORTS BY OTHERS

Boring B-1-90



Boring B-1-90, Cont.



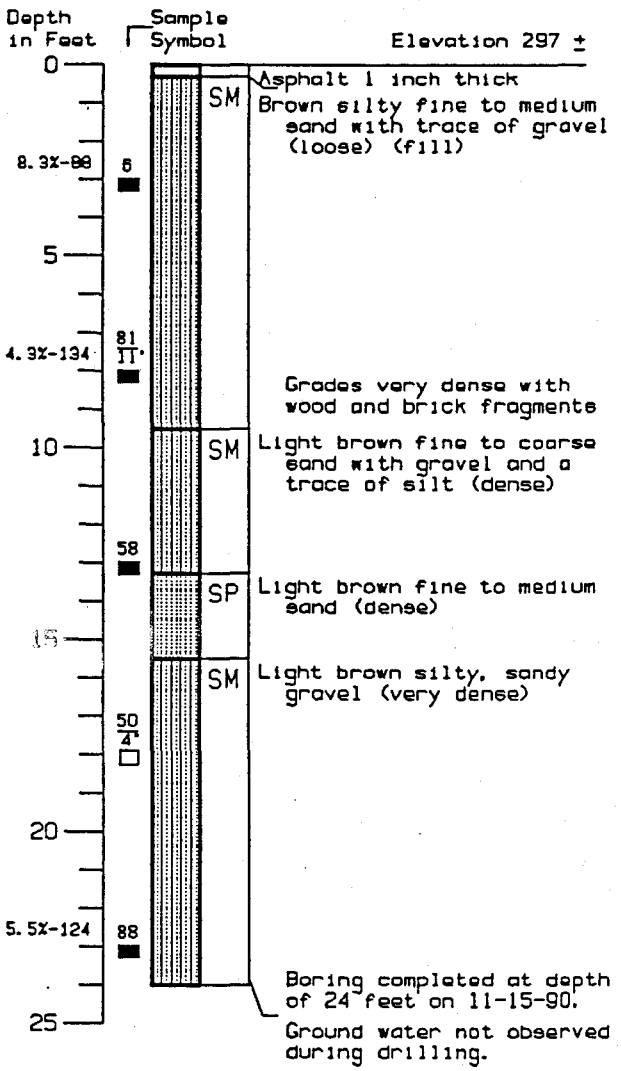
Log of Borings

Dames & Moore

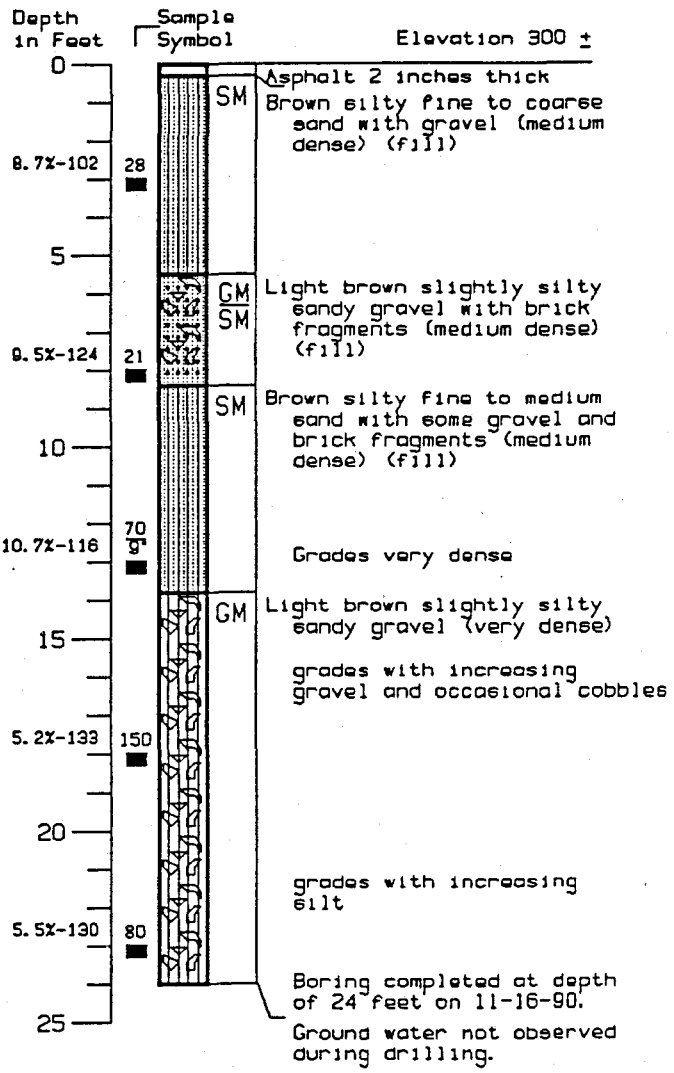
Job No. 05586-043-016

Plate A-1

Boring B-2-90



Boring B-3-90



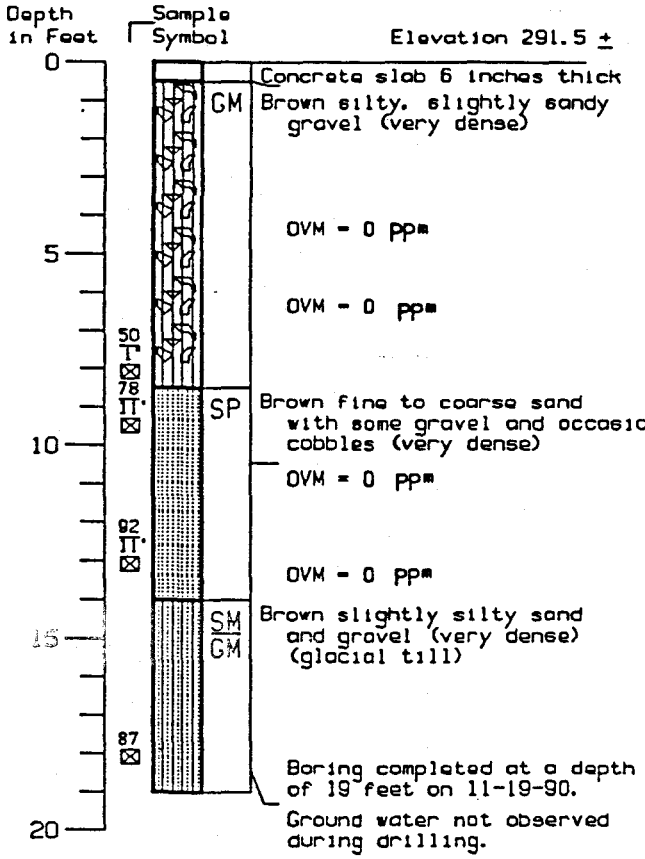
Log of Borings

Domes & Moore

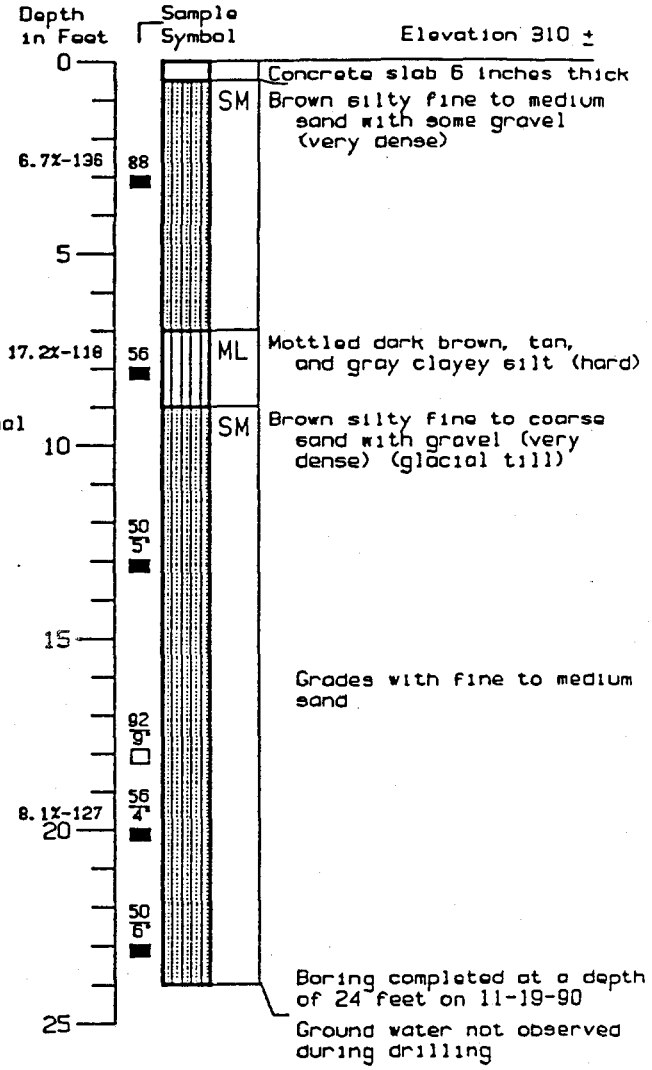
Job No. 05586-043-016

Plate A-2

Boring B-6-90



Boring B-7-90



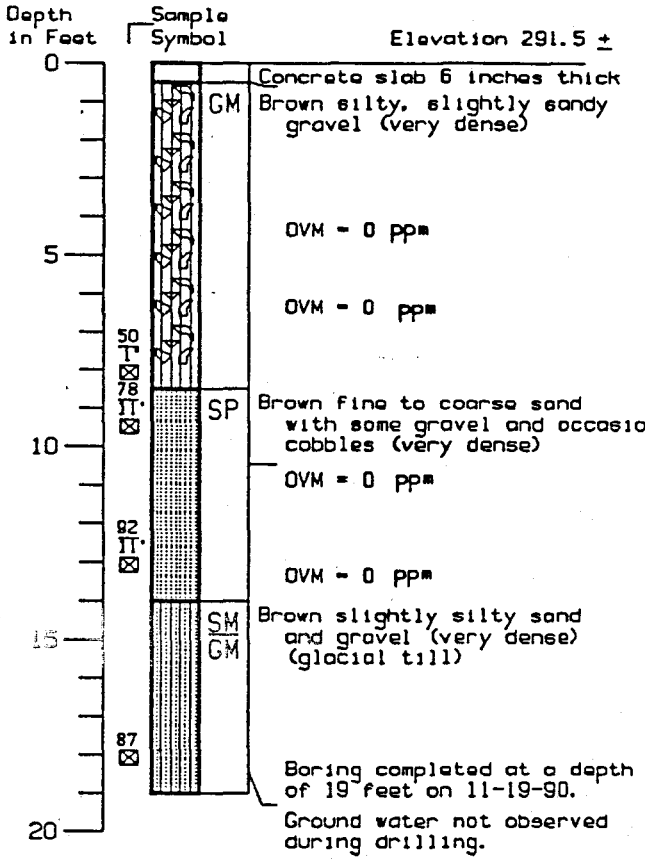
Log of Borings

Dames & Moore

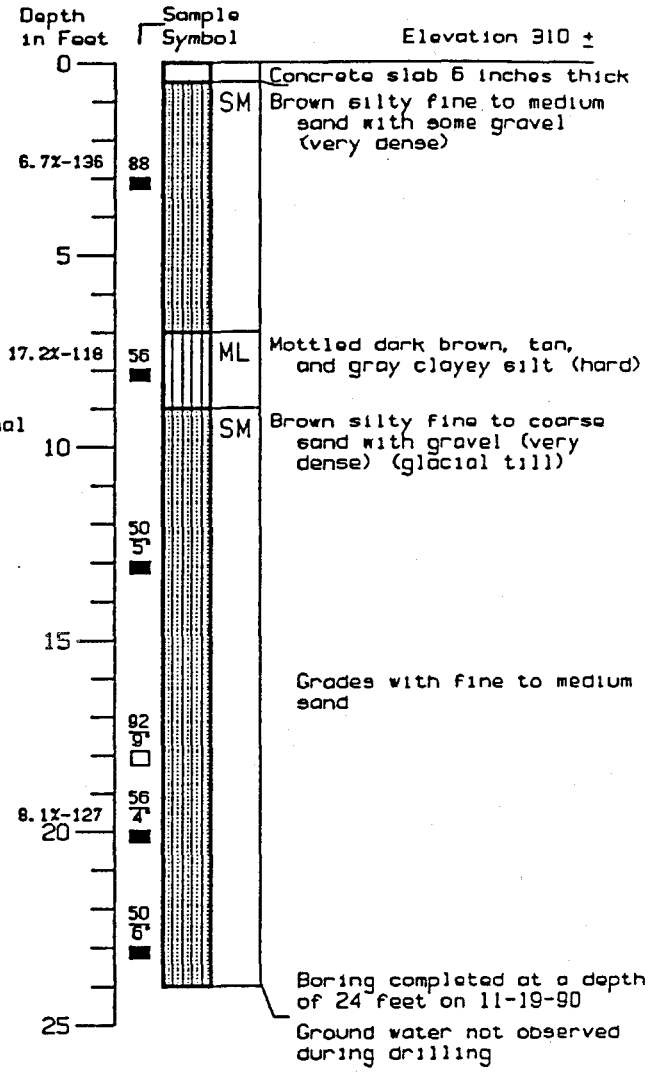
Job No. 05586-043-016

Plate A-4

Boring B-6-90



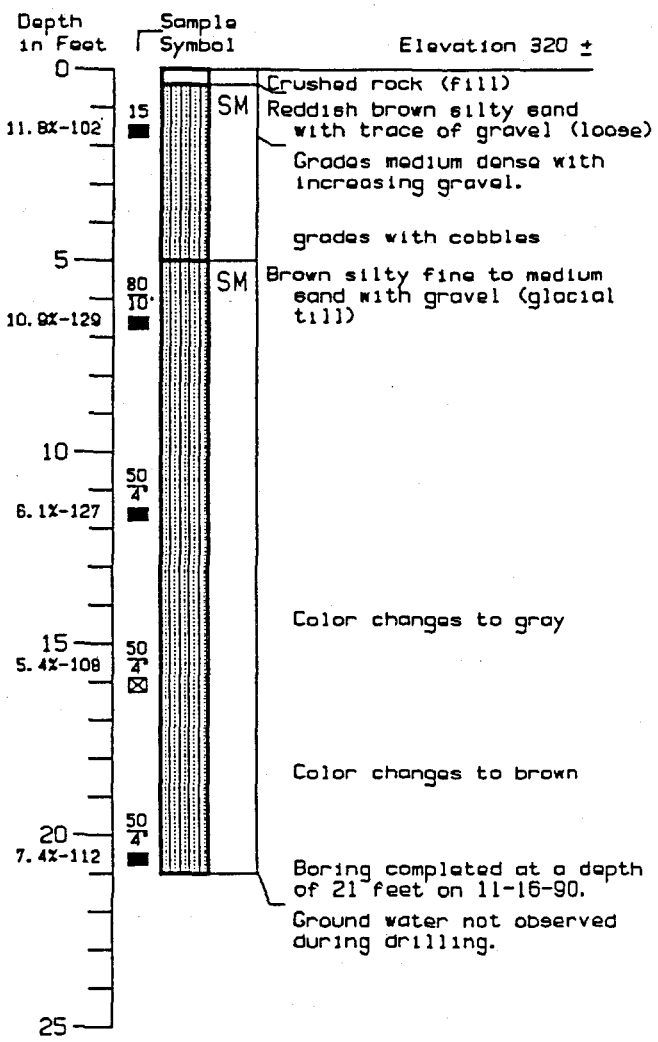
Boring B-7-90



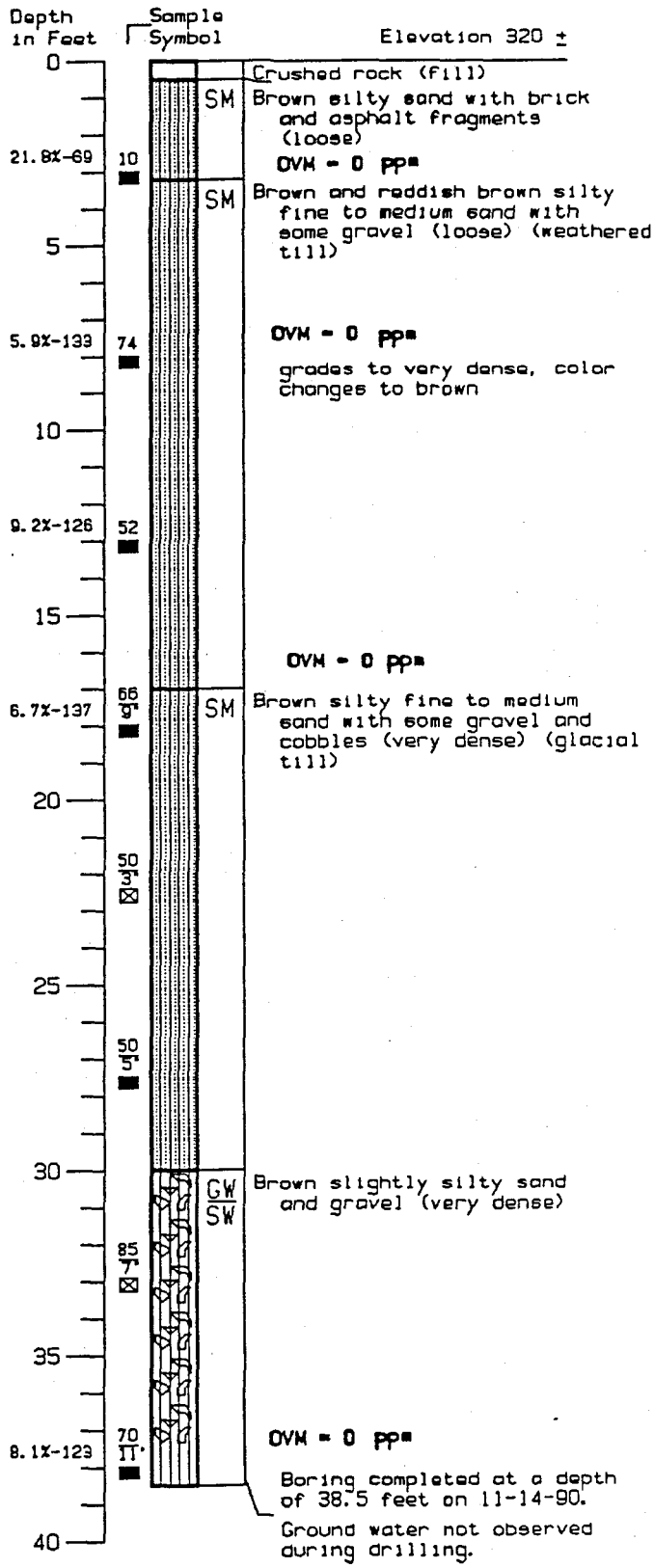
Log of Borings

Dames & Moore

Boring B-8-90



Boring B-9-90



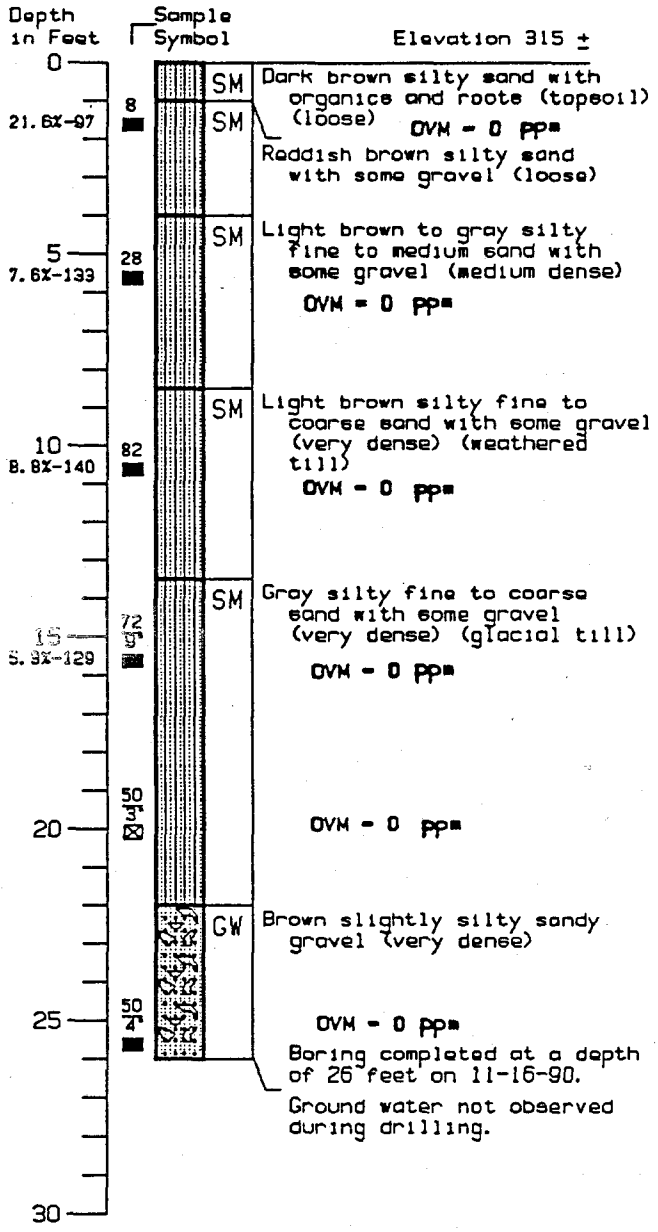
Log of Borings

Dames & Moore

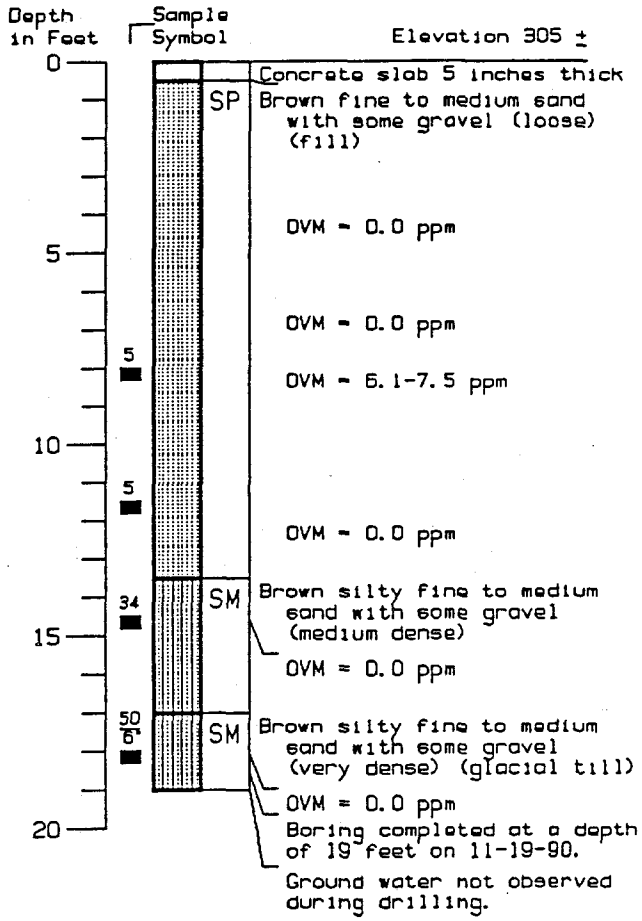
Job No. 05586-043-016

Plate A-5

Boring B-10-90



Boring B-11-90

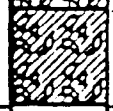
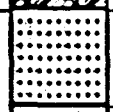
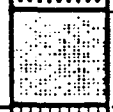
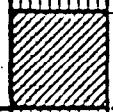
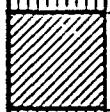
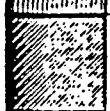
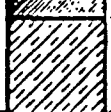
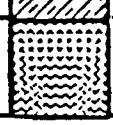


Log of Borings

Dames & Moore

Job No. 05586-043-016

Plate A-6

MAJOR DIVISIONS			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS — MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

FORM NO. 467.3 (4-78)

Dames & Moore

Plate A-8

APPENDIX A

Field Exploration

We conducted a geotechnical investigation of the proposed building area during the period of December 22 to 31, 1983. We explored the subsurface conditions by drilling three borings to a maximum depth of 39.2 feet below the existing site grade at the approximate locations indicated on the attached Site Plan, Figure 1. The two deeper borings were drilled with a B61 Mobile truck-mounted drill rig, the shallower boring was drilled using a Jeep-mounted B41 Mobile drill rig.

The boring locations were determined by tape measurements from existing structures. Boring Elevations were interpolated from the Topographic Plan of the site. The Datum, and the reference Elevation of 308.17 feet, is at the cased monument located at the intersection of Eighth Avenue and Jefferson Street. The location and elevation of each boring should only be considered accurate to the degree implied by the method used.

The borings were drilled under the full time observation of our engineer who located the borings, examined and classified the materials encountered, obtained representative soil samples, recorded pertinent information including soil stratigraphy, engineering characteristics of the soils, and groundwater occurrence.

Representative bulk and relatively undisturbed soil samples were obtained and were field classified in accordance with the Unified Soil Classification System which is presented with a key to the boring logs on Plate 1, Soil Classification/Legend.

All samples were placed in sealed containers to limit moisture loss, labeled and returned to our laboratory for further examination and testing. The boring logs, modified

to reflect the results of laboratory examination and testing, are presented on Plates 2 through 4. The stratification lines shown on the individual logs represent the approximate boundaries between soil types. The actual transitions may be more gradual, or possibly more severe.

Equipment B 61 Mobile

Elevation 311.5 feet* Date 12/22/83

Laboratory Tests	Blows/foot +	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
	54			0	T	GRAY BROWN SILTY SAND (SM) dense, moist, with occasional gravel, roots near top (fill)
SA	68/10"				T	GRAY BROWN SILTY SAND (SM) very dense, moist, some gravel (weathered till)
				5	T	Occassional cobbles
	75/3"				T	
				10		Becomes sandier
	50/5"	5.9	114.1		T	
				15		
	50/3"				T	
				20		
	50/5"				T	Rock in sampler. Becomes slate gray, moist, more silt (Unweathered)
				25		
	50/6"				T	MOTTLED BROWN SILTY SAND (SP) very dense, moist, with some gravel (Outwash)
				30		
	50/6"				T	Pockets of clayey sand
				35		
	85/10"				T	Boring terminated at 38.8 foot depth on 12/22/83.
				40		No groundwater seepage encountered.

+Blows per foot obtained using a 300 lb. hammer freely falling 30 inches.

*City of Seattle Datum; Monument in center of junction between Jefferson St. & 8th Ave. at Elev. 308.17 feet.

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Log of Boring 1

Harborview Medical Center Addition
Seattle, Washington

PLATE 2

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
14,621.004	WLT				

Equipment: B 61 Mobile

Elevation 308.5 feet Date 12/31/83

Laboratory Tests	Blows/foot +	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		
	47				T	BROWN SILT TOPSOIL
						GRAY SILTY SAND (SM)
						dense, moist, with occasional gravel
	76/11"	5.8	126.3		T	(Glacial Till)
				5		Becomes light brown & very dense.
	87/8"				T	Increasing gravel, decreasing silt content.
				10		
	75/6"				T	
				15		
SA	85/9"	6.1	130.9		T	NOTE: Encountered cobble or boulder at 19 feet. Pull out. Redrill ≈ 2 feet away.
				20		
	71				T	Increasing gravel content, becomes moist.
				25		
						BROWN GRAVELLY SAND (SP)
	82/10"				T	very dense, moist, little silt
				30		(Outwash)
	74				T	Piece of gravel in ring
				35		Becomes mottled yellow-brown.
						Boring terminated at 39.2 foot depth on 12/31/83.
	73				T	
				40		No groundwater seepage encountered.

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Log of Boring 2

Harborview Medical Center Addition
Seattle, Washington

PLATE 3

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
14,621.004	WLT				

Equipment: B 61 Mobile

Elevation 393 feet Date 12/22/83

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
	16			0	S	LIGHT BROWN MEDIUM FINE SAND (SP) medium dense, moist; a few roots at top, little silt, little gravel
	4.3	9.3			S	Rock stuck in sampler tip.
SA	58	18.8		5	S	Becomes very dense, only a trace of silt.
	50/6"			10	S	BROWN SAND (SP) very dense, wet, with pockets of clayey fine sand (Outwash) Occasional gravel.
	55			15	S	Becomes medium fine sand, with occasional zone of coarse sand.
	83			20	S	Boring terminated at 19.5 foot depth on 12/22/83.
						No groundwater seepage encountered.
				25		
				30		
				35		
				40		

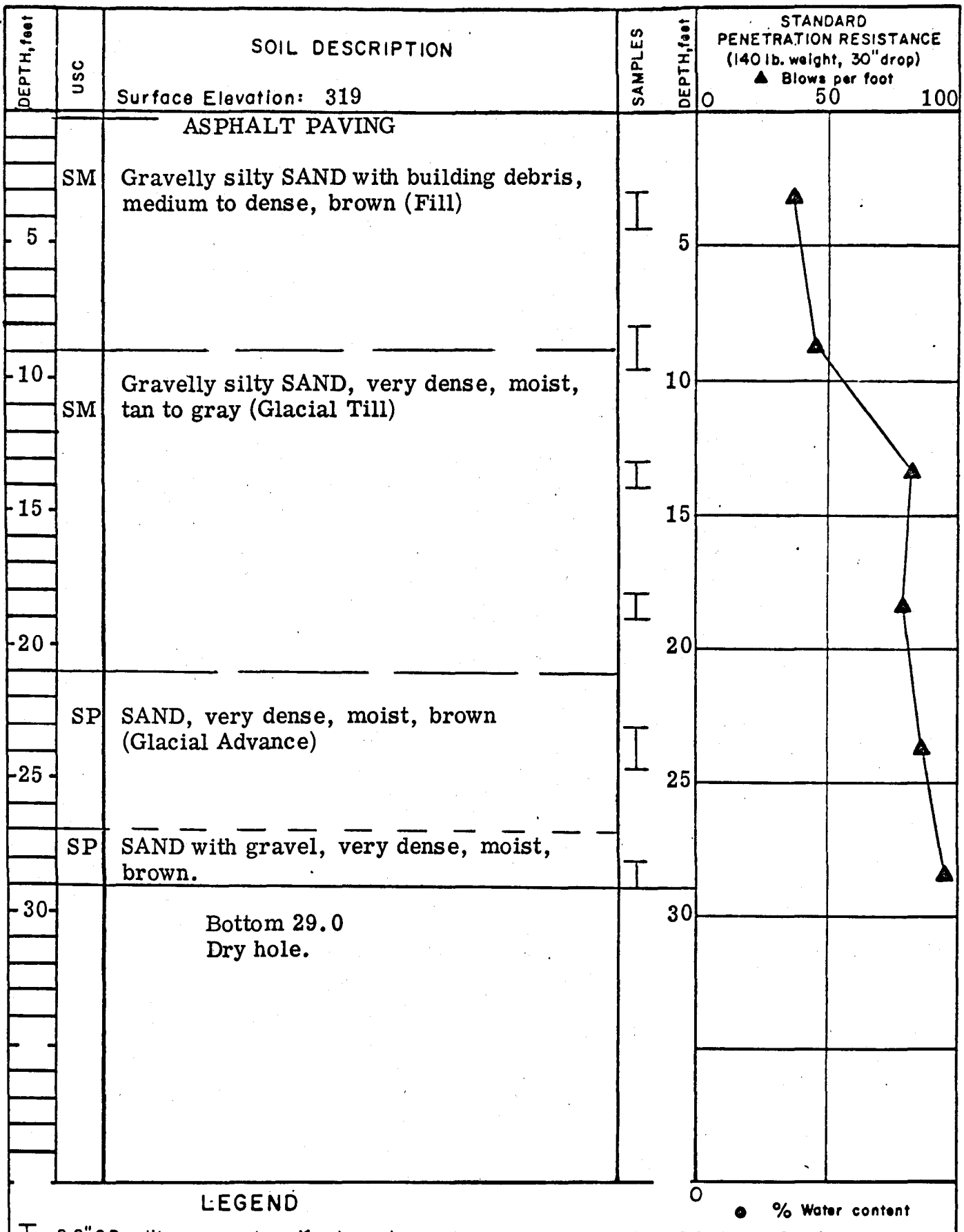
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Log of Boring 3

Harborview Medical Center Addition
Seattle, Washington

PLATE **4**

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
14,621.004	WLT				



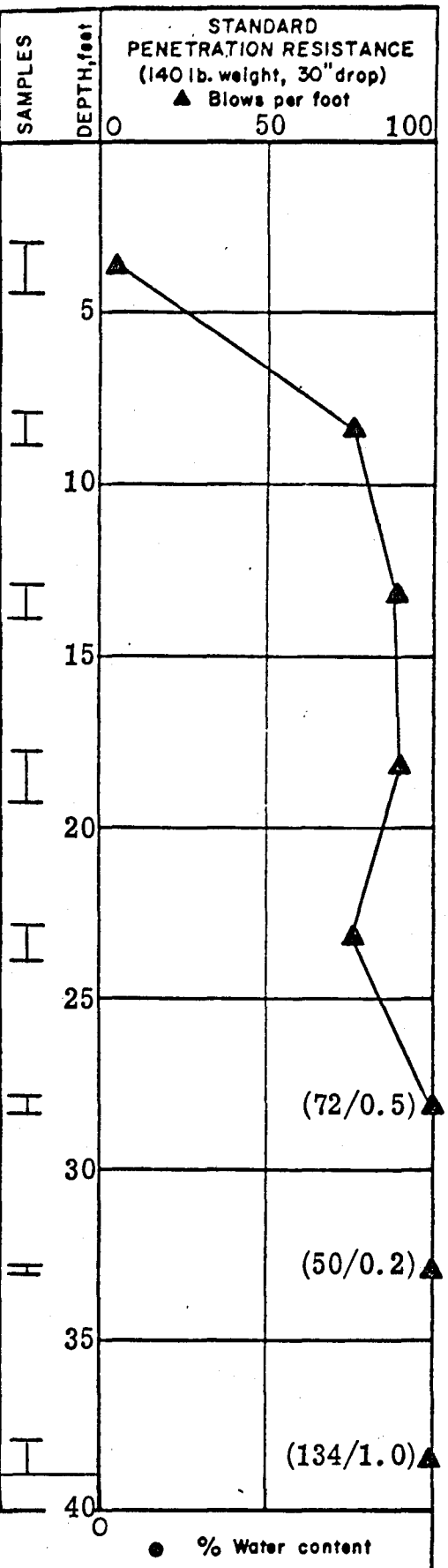
Harborview Medical Center
Community Mental Health Center

LOG OF BORING NO. B-1
W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate 1-A

DEPTH, feet	USC	SOIL DESCRIPTION Surface Elevation: 319
0		ASPHALT PAVING
5	GP	Sandy GRAVEL with debris, very loose, moist, tan and gray (Fill)
10	SM	Gravelly silty SAND, very dense, moist, tan and gray. (Glacial Till)
15		
20	SP	SAND, very dense, moist, tan (Glacial Advance)
25		
30	GP	Sandy GRAVEL, very dense, moist, tan.
35		
40		Bottom 39.0. Dry hole.



LEGEND

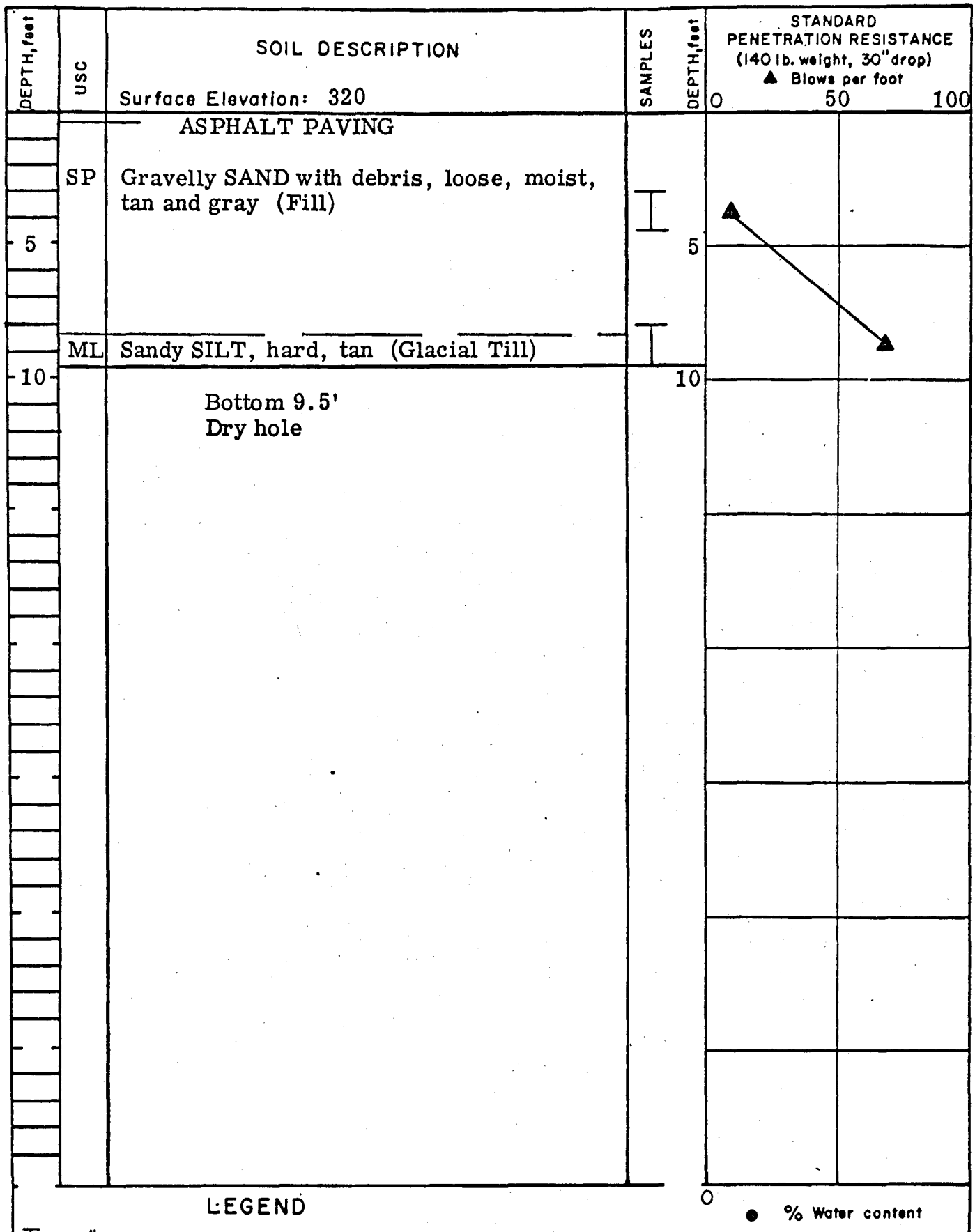
- 2.0" O.D. split spoon sample
- 3.0" O.D. thin-wall sample
- * Sample not recovered
- Atterberg limits: Liquid limit; Natural water content; Plastic limit
- Impervious seal
- Water level
- Piezometer tip
- P Sampler pushed
- USC Unified Soil Classification

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Community Mental Health Center

LOG OF BORING NO. B-2
W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate 2-A



Harborview Medical Center
Community Mental Health Center

LOG OF BORING NO. B-3

W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate 3-A

DEPTH, feet	USC	SOIL DESCRIPTION	SAMPLES	DEPTH, feet
		Surface Elevation: 318		
		ASPHALT PAVING		
	SM	Silty SAND, loose (Fill)		
	SM	Gravelly silty SAND, very dense, moist, tan (Glacial Till)		
5				5
10		Bottom 9.0 Dry hole		10

STANDARD PENETRATION RESISTANCE
(140 lb. weight, 30" drop)
▲ Blows per foot

0 50 100

0

● % Water content

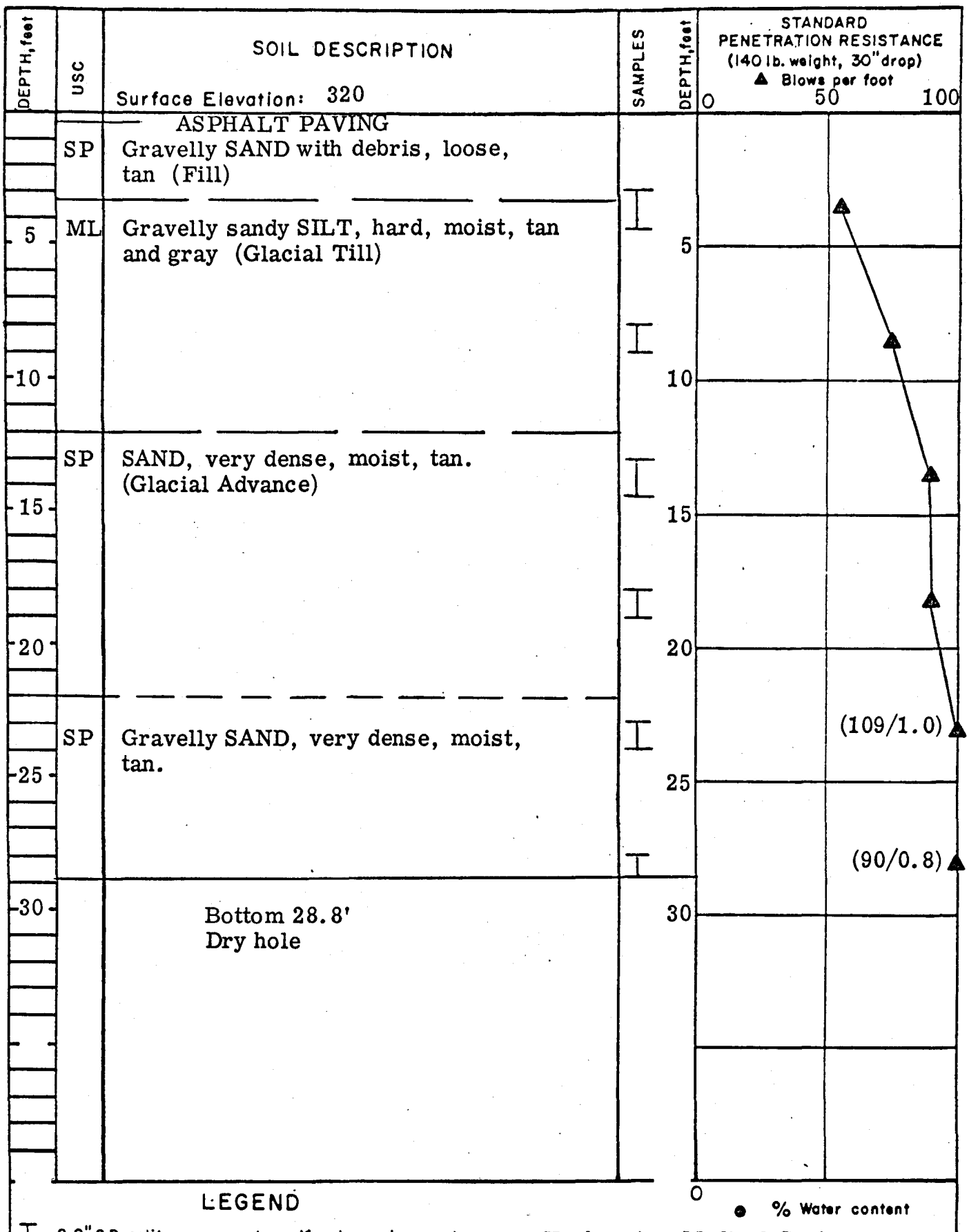
LEGEND

- 2.0" O.D. split spoon sample
- 3.0" O.D. thin-wall sample
- * Sample not recovered
- Atterberg limits: Liquid limit, Natural water content, Plastic limit
- Impervious seal
- Water level
- Piezometer tip
- P Sampler pushed
- USC Unified Soil Classification

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LOG OF BORING NO. B-4
W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate 4-A



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Community Mental Health Center

LOG OF BORING NO. B-5

W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate 5-A

DEPTH, feet	USC	SOIL DESCRIPTION Surface Elevation: 319	SAMPLES	DEPTH, feet	STANDARD PENETRATION RESISTANCE (140 lb. weight, 30" drop) ▲ Blows per foot 0 50 100
		ASPHALT PAVING			
	SP	Gravelly SAND with debris, loose (Fill)			
5	SM	Silty SAND with gravel, very dense, moist, tan and gray (Glacial Till)	I	5	(50/0.5)
10		Bottom 8.5' Dry hole		10	

LEGEND

- 2.0" O.D. split spoon sample
- 3.0" O.D. thin-wall sample
- * Sample not recovered
- Atterberg limits: Liquid limit; Natural water content; Plastic limit
- Impervious seal
- Water level
- Piezometer tip
- P Sampler pushed
- USC Unified Soil Classification

0 ● % Water content

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Community Mental Health Center

LOG OF BORING NO. B-6

W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate 6-A

DEPTH, feet	USC	SOIL DESCRIPTION Surface Elevation: 319	SAMPLES	DEPTH, feet
		ASPHALT PAVING		
	GP	Sandy GRAVEL with organic debris, loose, tan (Fill)		
5				5
	SM	Gravelly silty SAND, very dense, moist, tan (Glacial Till)		
10		Bottom 8.5 Dry hole		10

STANDARD PENETRATION RESISTANCE
(140 lb. weight, 30" drop)
▲ Blows per foot

0 50 100

(50/0.5)

0

● % Water content

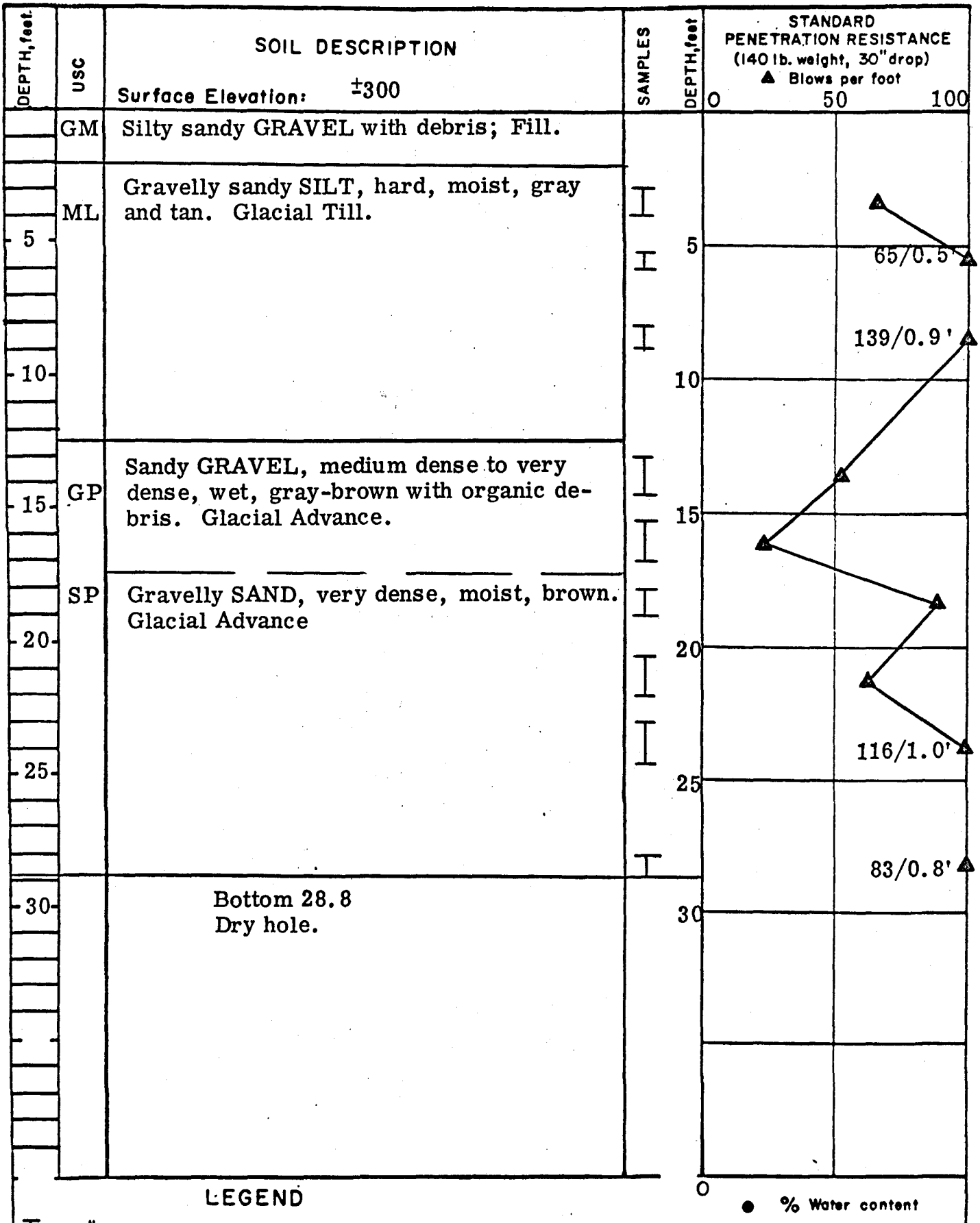
LEGEND

- 2.0" O.D. split spoon sample
- 3.0" O.D. thin-wall sample
- * Sample not recovered
- Atterberg limits: Liquid limit, Natural water content, Plastic limit
- Impervious seal
- Water level
- Piezometer tip
- P Sampler pushed
- USC Unified Soil Classification

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Community Mental Health Center
LOG OF BORING NO. B-7
W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate 7-A



LEGEND

- 2.0" O.D. split spoon sample
- 3.0" O.D. thin-wall sample
- Sample not recovered
- Atterberg limits: Liquid limit; Natural water content; Plastic limit
- Impervious seal
- Water level
- Piezometer tip
- P Sampler pushed
- USC Unified Soil Classification

Harborview Medical Center

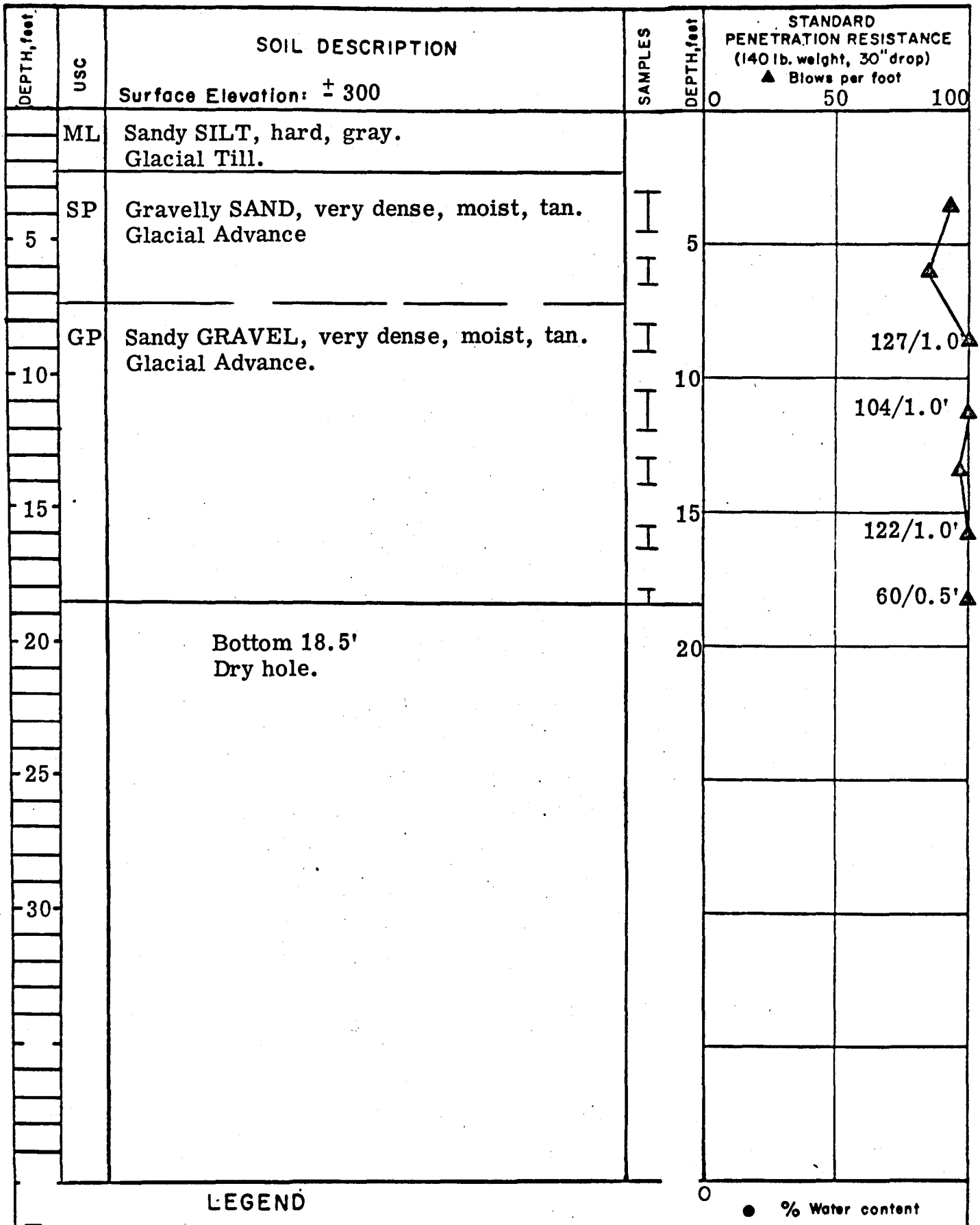
LOG OF BORING NO. B-8

W-490

GEOLABS, INC.

SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-1



Harborview Medical Center

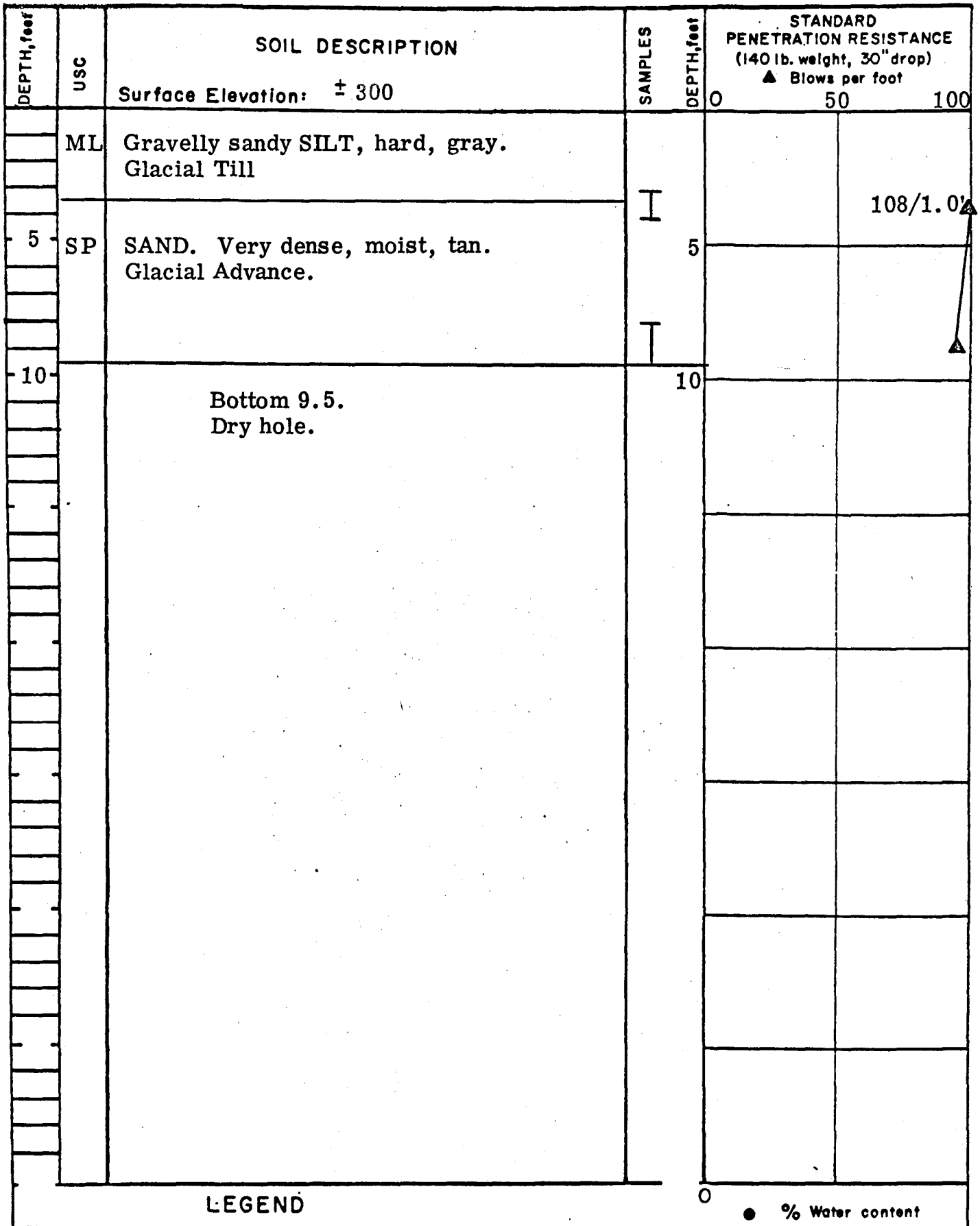
LOG OF BORING NO. B-9

W-490

GEOLABS, INC.

SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-2



Harborview Medical Center

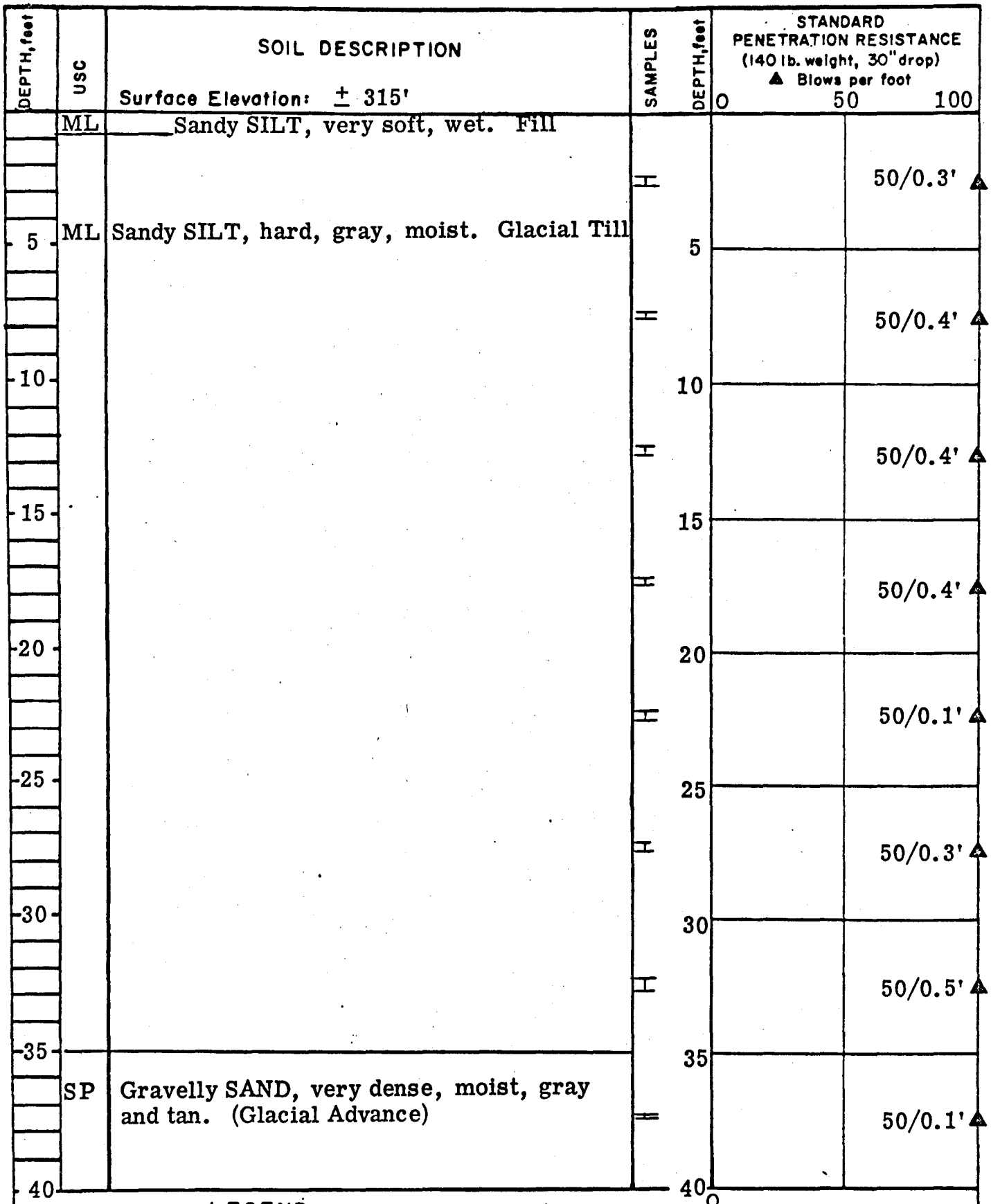
LOG OF BORING NO. B-10

W-490

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SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-3



LEGEND

I 2.0" O.D. split spoon sample
II 3.0" O.D. thin-wall sample
* Sample not recovered

Atterberg limits:
Liquid limit
Natural water content
Plastic limit

Impervious seal
Water level
Piezometer tip
P Sampler pushed
USC Unified Soil Classification

Harborview Medical Center

LOG OF BORING NO. B-11

W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-4

DEPTH, feet	USC	SOIL DESCRIPTION Surface Elevation: ± 315'	SAMPLES	DEPTH, feet	STANDARD PENETRATION RESISTANCE (140 lb. weight, 30" drop) ▲ Blows per foot 0 50 100
45	SP	Gravelly SAND, very dense, moist, gray and tan. (Glacial Advance)		45	50/0.4' ▲
					50/0.5' ▲
50		Bottom 48.0' Dry hole		50	

LEGEND

- I 2.0" O.D. split spoon sample
- II 3.0" O.D. thin-wall sample
- * Sample not recovered
- Atterberg limits: Liquid limit; Natural water content; Plastic limit
- Impervious seal
- Water level
- Piezometer tip
- P Sampler pushed
- USC Unified Soil Classification

0 ● % Water content

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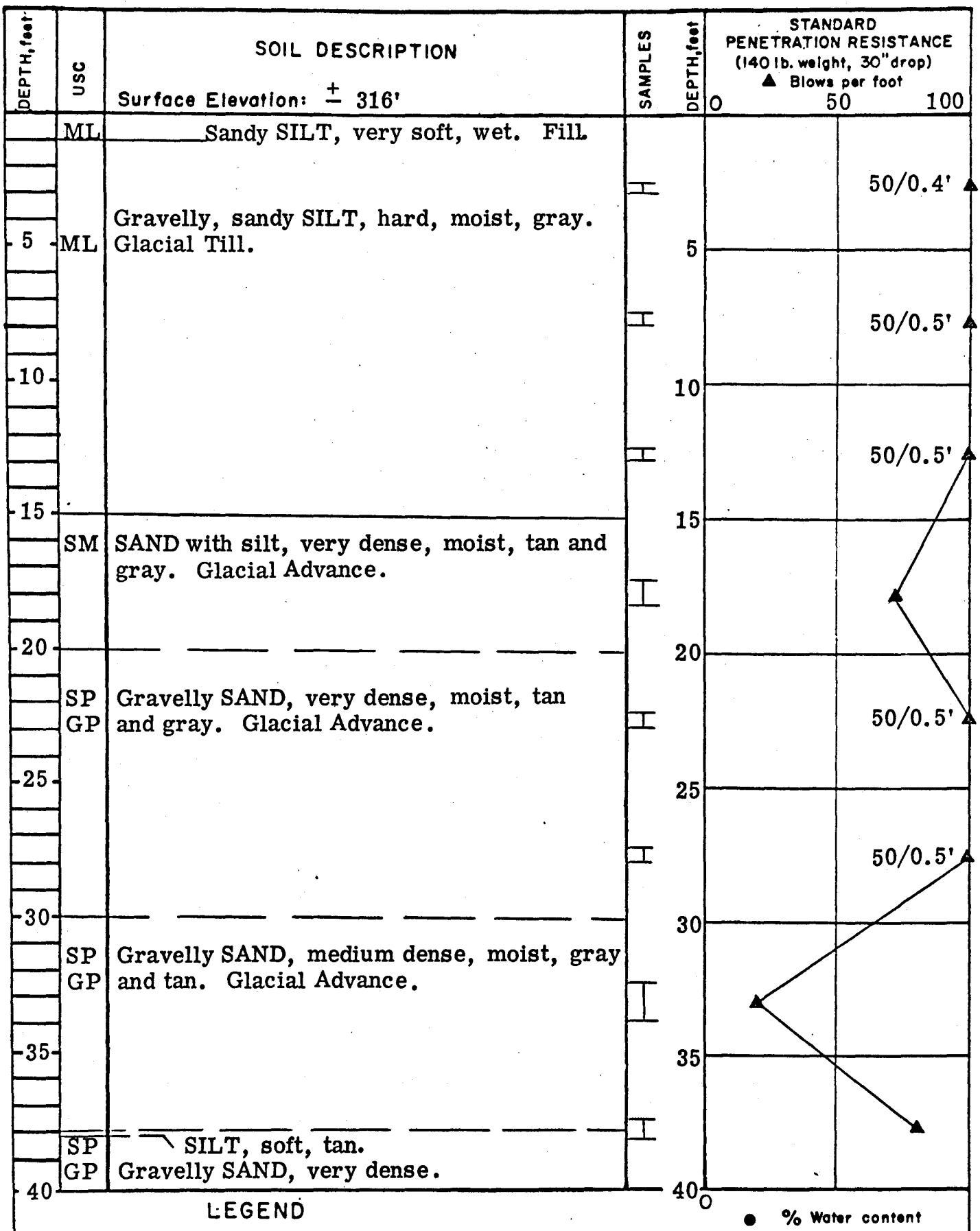
LOG OF BORING NO. B-11 (cont)

W-490

GEOLABS, INC.

SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-5


DEPTH, feet
USC
SOIL DESCRIPTION
Surface Elevation: ± 316'
SAMPLES
DEPTH, feet
STANDARD PENETRATION RESISTANCE
(140 lb. weight, 30" drop)
▲ Blows per foot
0
50
100
ML
Sandy SILT, very soft, wet. Fill
Gravelly, sandy SILT, hard, moist, gray.
ML
Glacial Till.
50/0.4'
50/0.5'
50/0.5'
SM
SAND with silt, very dense, moist, tan and gray. Glacial Advance.
SP
GP
Gravelly SAND, very dense, moist, tan and gray. Glacial Advance.
50/0.5'
50/0.5'
SP
GP
Gravelly SAND, medium dense, moist, gray and tan. Glacial Advance.
SP
SILT, soft, tan.
GP
Gravelly SAND, very dense.
5
10
15
20
25
30
35
40
LEGEND
2.0" O.D. split spoon sample
3.0" O.D. thin-wall sample
Sample not recovered
Atterberg limits:
Liquid limit
Natural water content
Plastic limit
Impervious seal
Water level
Piezometer tip
P Sampler pushed
USC Unified Soil Classification
% Water content
Harborview Medical Center
LOG OF BORING NO. B-12
W-490
GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

DEPTH, feet	USC	SOIL DESCRIPTION Surface Elevation: ± 316'	SAMPLES	DEPTH, feet
	SP GP	Gravelly SAND, very dense, moist, tan and gray. Glacial Advance.	II	
45				45
	SP	SAND, very dense, moist, tan. Glacial Advance.	I	
50		Bottom 48.5' Dry hole		50

STANDARD PENETRATION RESISTANCE
(140 lb. weight, 30" drop)
▲ Blows per foot

0 50 100

50/0.5'

0 ● % Water content

LEGEND

I 2.0" O.D. split spoon sample
II 3.0" O.D. thin-wall sample
* Sample not recovered

Atterberg limits:
Liquid limit
Natural water content
Plastic limit

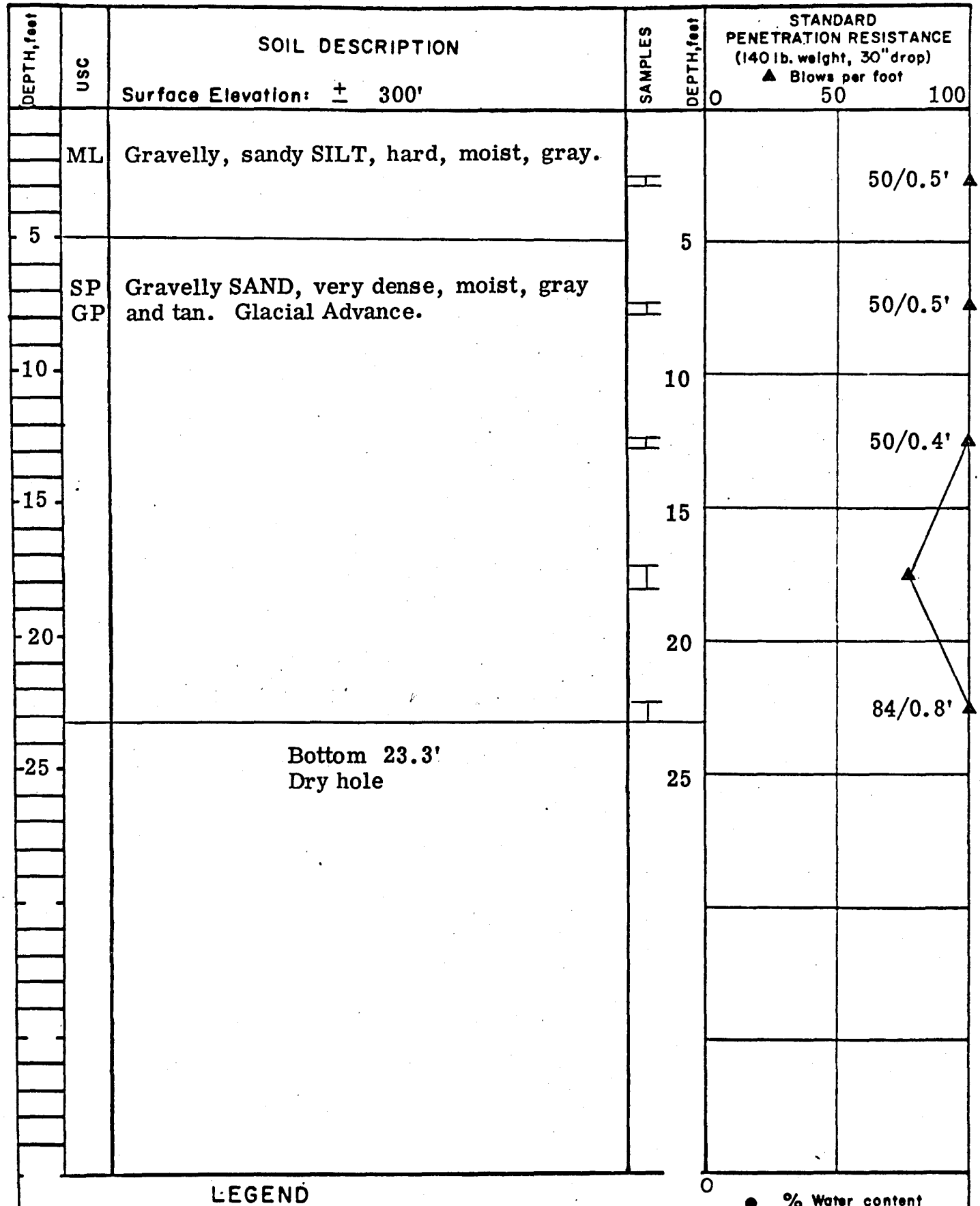
Impervious seal
Water level
Piezometer tip
P Sampler pushed
USC Unified Soil Classification

Harborview Medical Center

LOG OF BORING NO. B-12 (cont)
W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-7



Harborview Medical Center

LOG OF BORING NO. B-13

W-490

GEOLABS, INC.

SOIL MECHANICS & FOUNDATION ENGINEERS

DEPTH, feet	USC	SOIL DESCRIPTION Surface Elevation: ± 300'	SAMPLES	DEPTH, feet	STANDARD PENETRATION RESISTANCE (140 lb. weight, 30" drop) ▲ Blows per foot 0 50 100
5	ML	Gravelly, sandy SILT, hard, moist, gray. Glacial Till.		5	50/0.2' ▲
10	SP	SAND, very dense, moist, tan. Glacial Advance.		10	66/0.9' ▲
15	SP GP	Gravelly SAND, very dense, moist, tan and gray. Glacial Advance.		15	50/0.4' ▲
20				20	50/0.5' ▲
25		Bottom 23.0' Dry hole		25	50/0.5' ▲

0 ● % Water content

LEGEND

- 2.0" O.D. split spoon sample
- 3.0" O.D. thin-wall sample
- Sample not recovered
- Atterberg limits: Liquid limit; Natural water content; Plastic limit
- Impervious seal
- Water level
- Piezometer tip
- P Sampler pushed
- USC Unified Soil Classification

Harborview Medical Center

LOG OF BORING NO. B-14

W-490

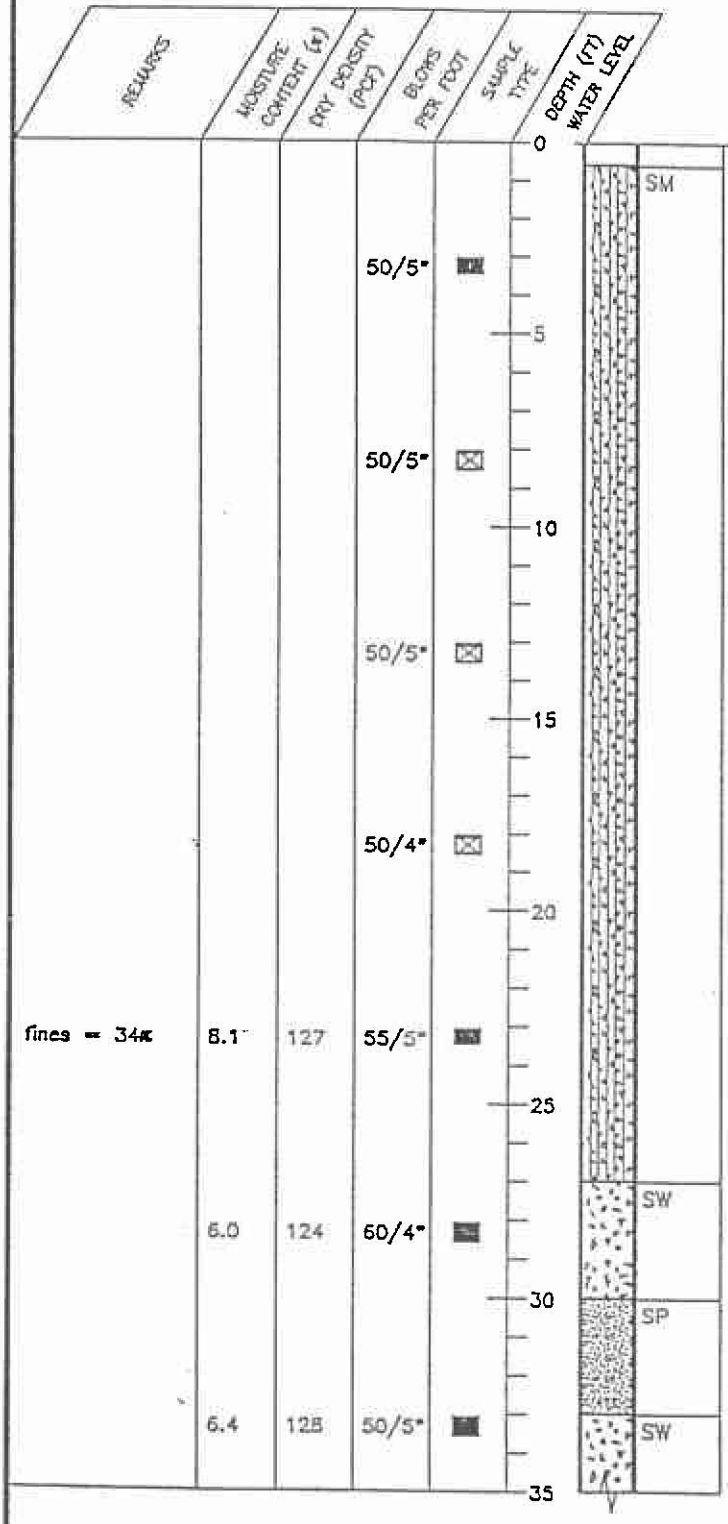
GEOLABS, INC.

SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-9

BORING B-2-91

Surface Elevation: 308.0±



Concrete slab, 7 inches

Light brown silty fine to medium sand with fine to coarse gravel (dense) (weathered till)

Very dense below 3 feet

Unweathered till below 20 feet

Occasional cobbles and organic matter at 23 feet

Light brown silty fine to coarse sand with some fine to coarse gravel (very dense)

Light brown fine sand (very dense)

Light brown fine to coarse sand with some fine to coarse gravel and trace clay (very dense) (wet)

Logged by ARG 08-16-1991 SUperLOG V 2.0, 3-1991

LOG OF BORING

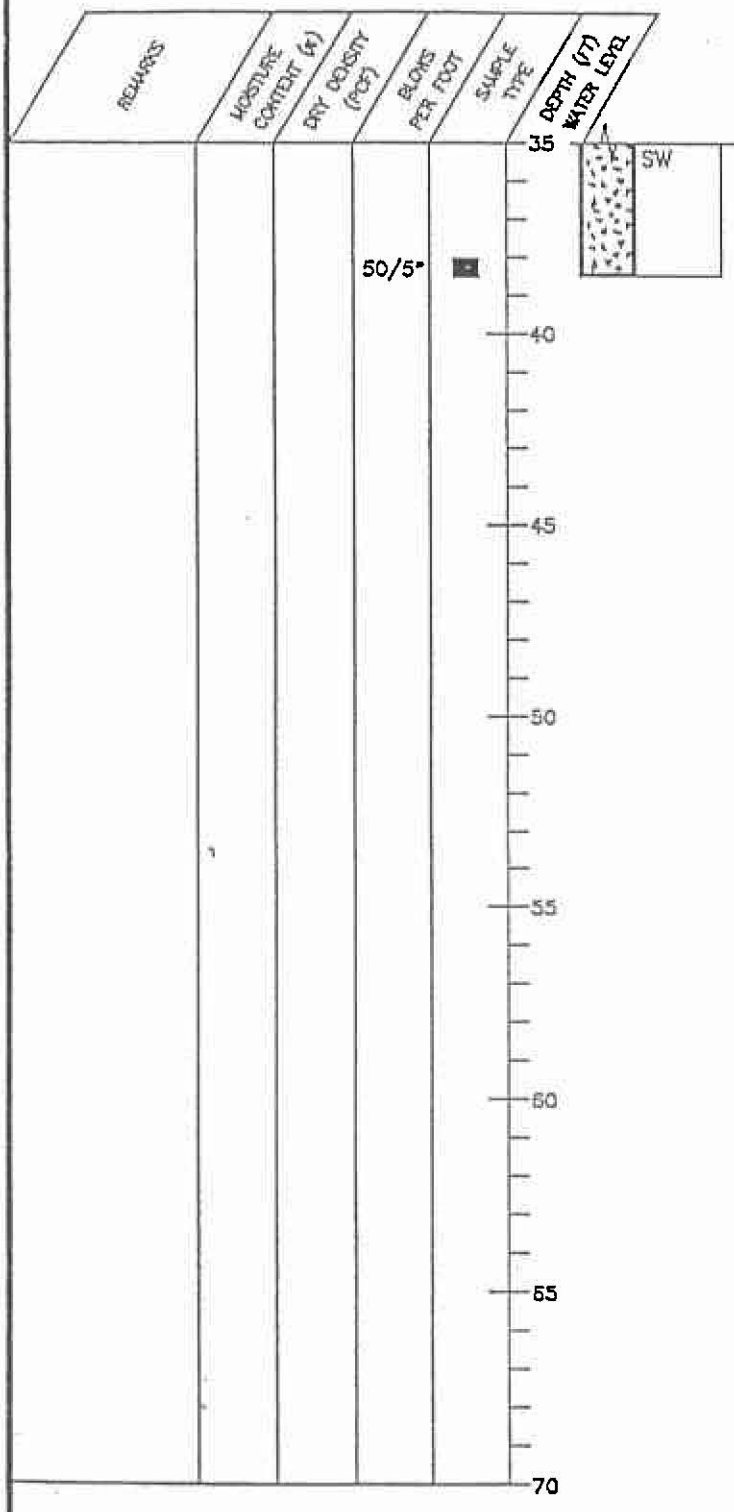
Dames & Moore

Job No. 05586-044-016

Figure B-4

BORING B-2-91

(Continued)



Boring completed at a depth of 38.5 feet on 5/23/91.
No ground water encountered during drilling.

LOG OF BORING

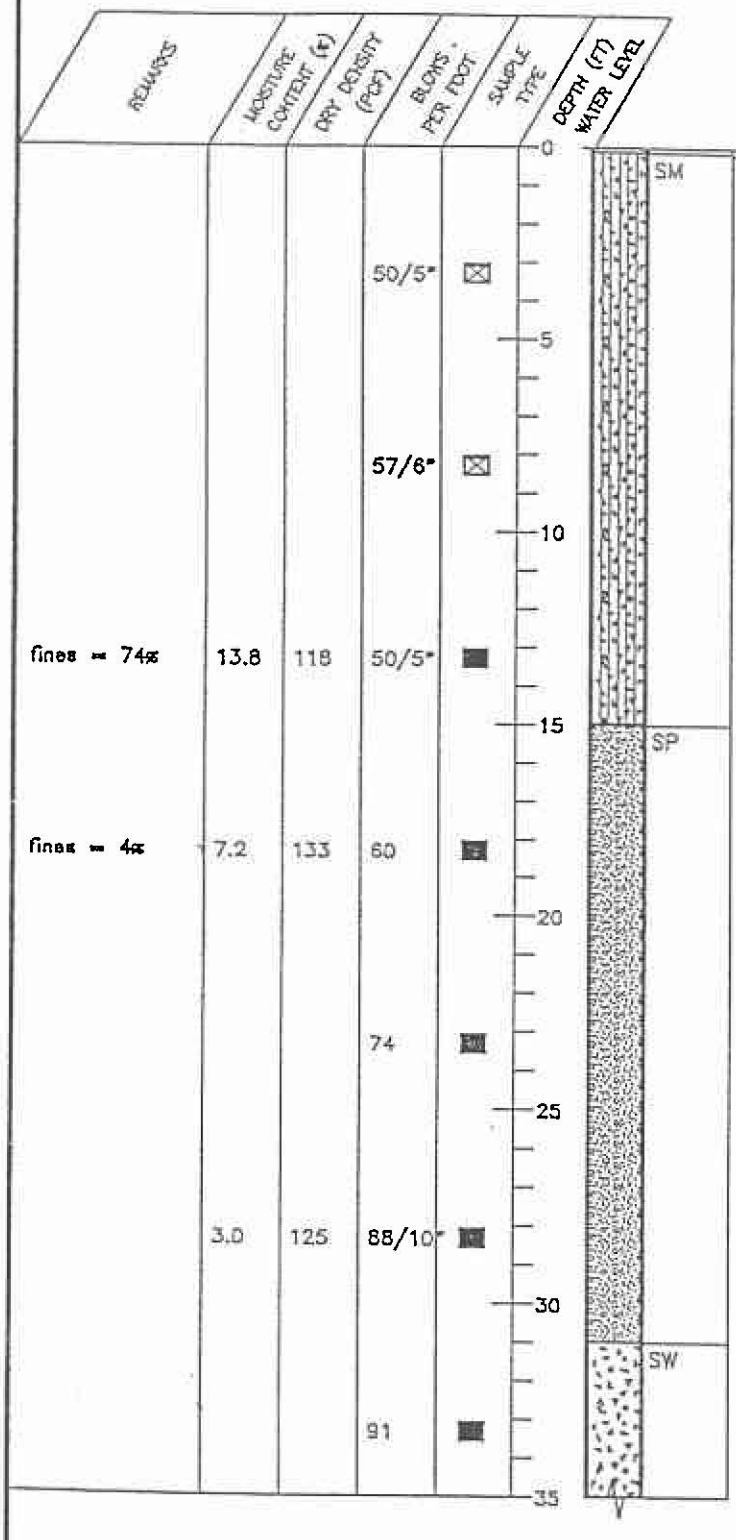
Dames & Moore

Job No. 05586-044-016

Figure B-4A

BORING B-4-91

Surface Elevation: 297.0±



Asphalt pavement, 2 inches

Brown silty fine to medium sand with some fine to coarse gravel and coarse cobbles (very dense) (till)

Dark gray below 13 feet

Brown fine to coarse sand with some fine to coarse gravel (very dense) (moist to wet)

Brown fine to coarse sand with some fine to medium gravel (very dense)

Logged by ARG 09-16-1991 SUperLOG V 2.0, 3-1991

LOG OF BORING

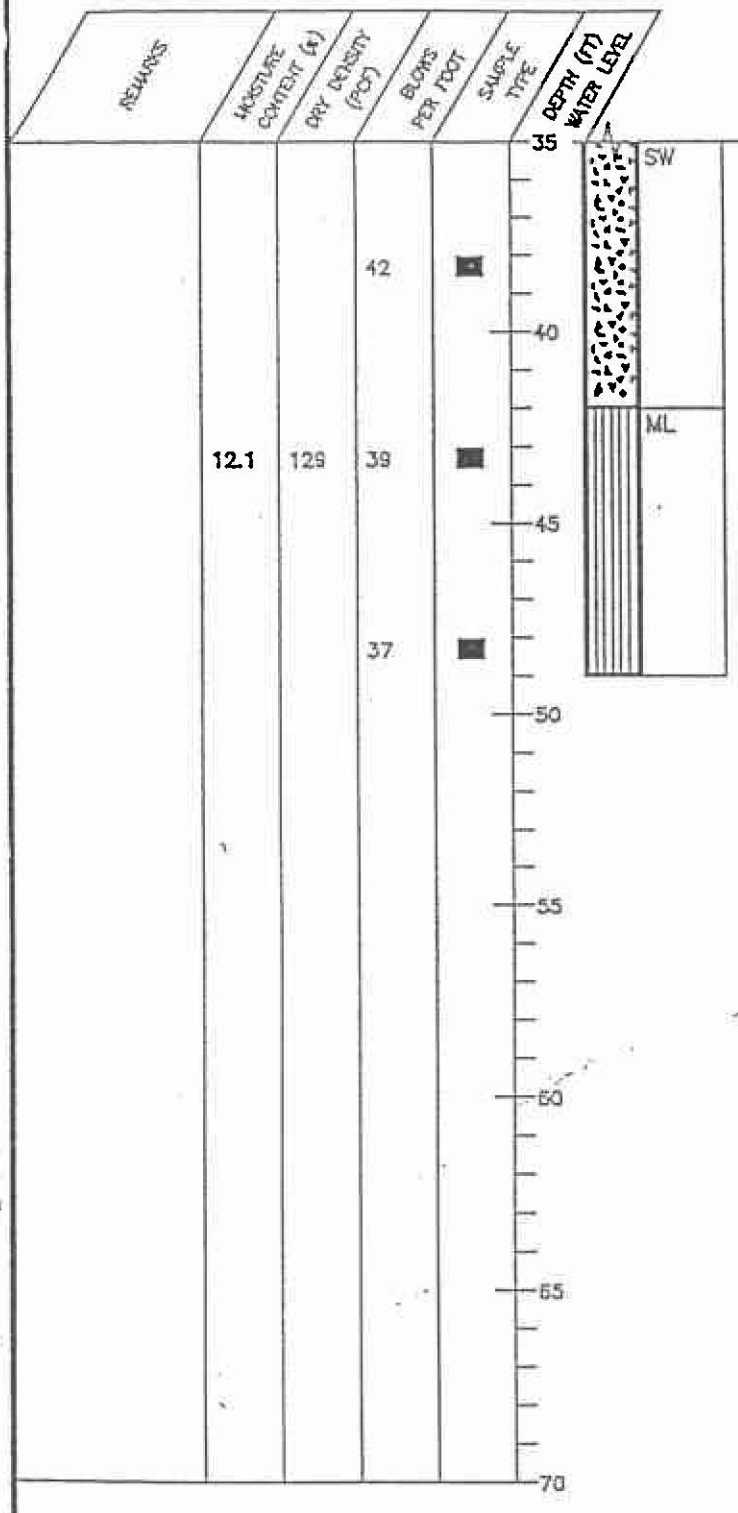
Dames & Moore

Job No. 05586-044-016

Figure B-5

BORING B-4-91

(Continued)



Dark gray silt with trace to some fine to coarse gravel (very stiff)

Boring completed at a depth of 49 feet on 5/29/91.
Ground water encountered at a depth of 42 feet during drilling.

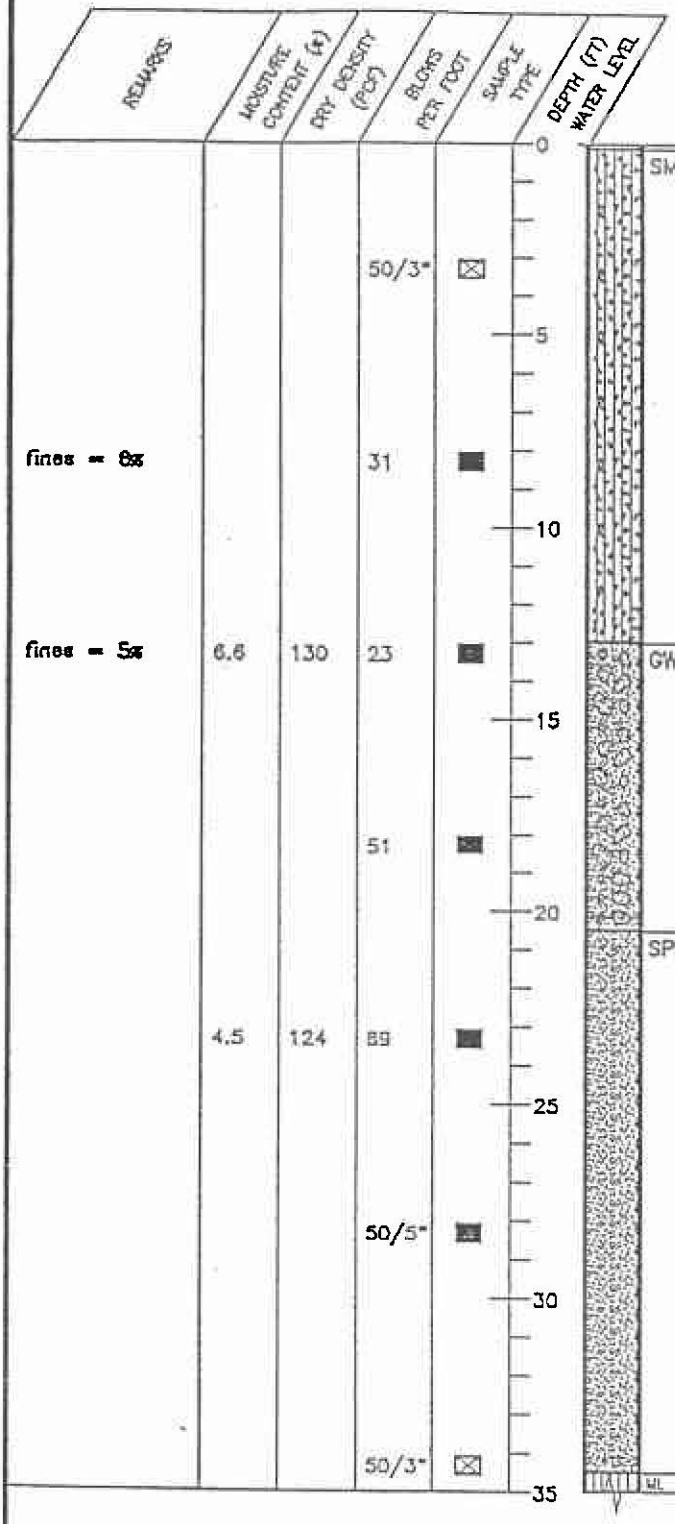
LOG OF BORING — Dames & Moore

Job No. 05586-044-016

Figure B-5A

BORING B-5-91

Surface Elevation: 292.5±



Asphalt pavement, 2 inches

Brown silty fine to medium sand with some fine to coarse gravel and occasional cobbles (very dense) (till)

Medium dense below 8 feet

Saturated peat lenses from 12.5 to 13.5 feet

Brown fine to coarse gravel with occasional cobbles and fragments of hard silt (medium dense)

Brown fine sand with some fine to coarse gravel (very dense)

Decreasing gravel below 26 feet

Increasing gravel and trace silt below 32.5 feet

Brown and gray sandy silt (hard)

Logged by ARC 09-16-1991 SUperLOG V 2.0, 3-1991

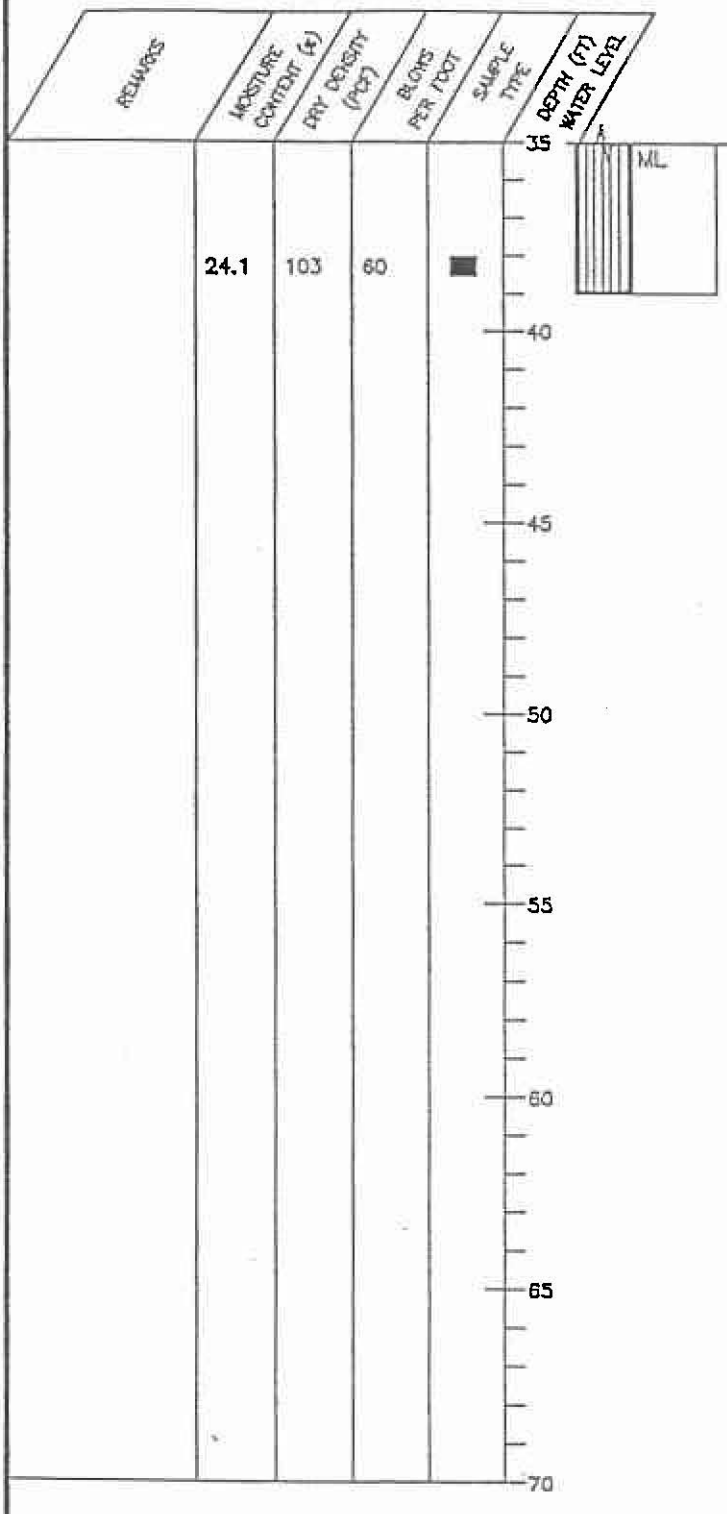
LOG OF BORING Dames & Moore

Job No. 05586-044-016

Figure B-6

BORING B-5-91

(Continued)



Boring completed at a depth of 39 feet on 5/29/91.
No ground water encountered during drilling.
Possible perched water at 13 feet.

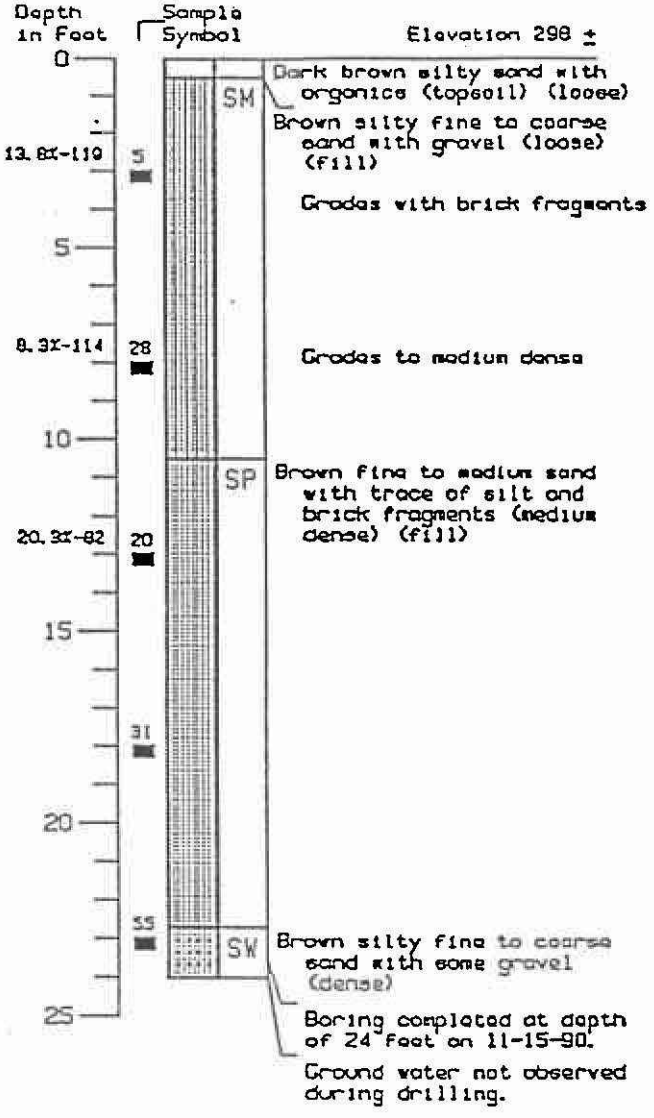
LOG OF BORING

Dames & Moore

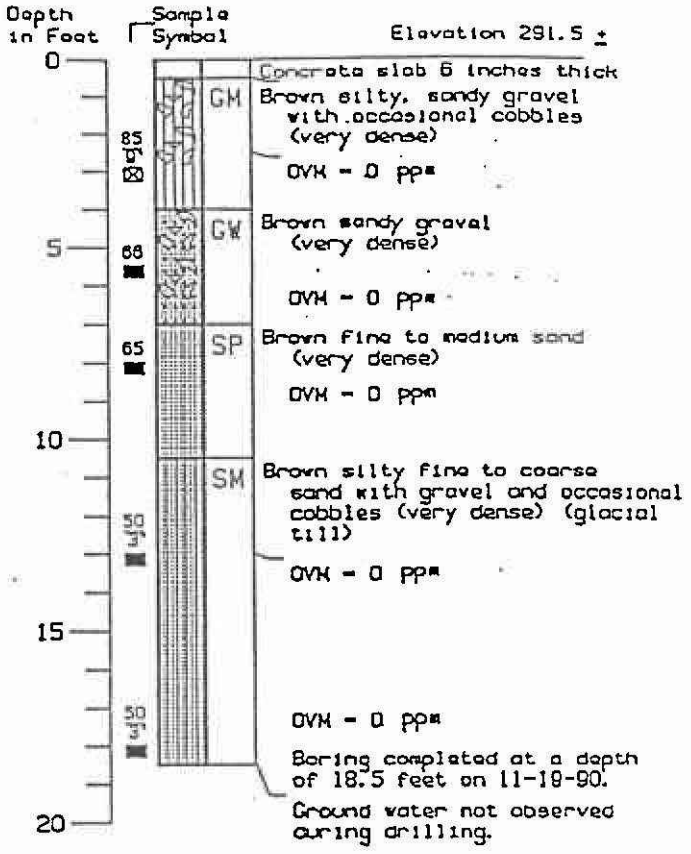
Job No. 05586-044-016

Figure B-6A

Boring B-4-90



Boring B-5-90



Log of Borings

Reference: Dames & Moore Report # 5586-043; February 8, 1991

Dames & Moore

Job No. 05586-044-016

Figure B-3

LOG OF BORING NO. DM-1-98

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA
CLIENT NAME:
DATE STARTED: May 1 1998
DATE COMPLETED: May 1 1998
DRILLING CONTRACTOR: Geoboring
DRILLER: Pat
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: D&M U-Type Sampler, 300# Hammer, 30" Drop

WATER LEVEL: ▽ ▼

GROUND SURFACE ELEVATION: 282
DATUM:
WEATHER: Sunny, 70's
FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						282.0	0	SM		Brown/light brown silty fine to coarse SAND with scattered gravel (medium dense)(damp)(fill)	
18	18			24							
						277.0	5			Brick debris in cuttings	
18	18	120.9	10.8	14						Brick debris in sample	%fines = 28.0
						272.0	10				
18	18	123.1	8.9	20							%fines = 19.5
						267.0	15				
								GP		Brown fine to medium sandy GRAVEL with a trace of silt (very dense)(moist)(rounded & angular)	
18	18	113.4	3.4	56							%fines = 1.7
						262.0	20				
								SP		Brown fine to coarse SAND with scattered gravel and a trace of silt (dense)(moist)	
18	18			40							
						257.0	25				
18	18	120.7	5.0	36							
						252.0	30				

NOTES:

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LOG OF BORING DM-1-98

Figure A-3

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA

FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						252.0	30				
18	18			39				CL/ ML		Olive gray silty CLAY and SILT with occasional fine sand partings and seams (hard)(moist)	
						247.0	35				
18	18			52						Grades gray	
						242.0	40				
18	18			35						1/4" vertical sand seam with moderate clay fracturing	
										End of boring at 44 feet on 5/1/98 at 915. No groundwater encountered during drilling.	

NOTES:

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LOG OF BORING DM-1-98

Figure A-4

LOG OF BORING NO. DM-2-98

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA
CLIENT NAME:
DATE STARTED: May 2 1998
DATE COMPLETED: May 2 1998
DRILLING CONTRACTOR: Geoboring
DRILLER: Pat
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: D&M U-Type Sampler, 300# Hammer, 30" Drop

WATER LEVEL: ▽ ▼

GROUND SURFACE ELEVATION: 281
DATUM:
WEATHER: Overcast, 60's
FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						281.0	0			Asphalt road	
18	18			25				SP/ SM		Brown slightly silty fine to coarse SAND with some gravel (medium dense)(moist)(fill)	
						276.0	5				
18	18	114.3	7.0	23							
						271.0	10				
18	18			1						Grades very loose, possible void	
						266.0	15			Very loose gravel and cobbles at approximately 15 to 17 feet	
18	18	116.4	8.2	27				SP		Brown medium to coarse SAND, occasional gravel (medium dense)(moist)	
						261.0	20	GP		Brown fine to medium sandy GRAVEL (very dense)(moist)	
12	12			50/6"							
						256.0	25	ML		Yellowish red SILT (hard)(moist)	
18	18	103.5	23.9	74							
						251.0	30				

NOTES:

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LOG OF BORING DM-2-98

Figure A-5

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA

FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						251.0	30	CL/ ML		Brown silty CLAY and SILT with fine sand partings and seams (hard)(damp)	
12	12	103.9	21.9	50/6"							%fines = 96.0
						246.0	35				
17	17			81/11"						Grades gray	
						241.0	40				
18	18			52						Sample shows moderate fracturing	
						236.0	45				
18	18			74						Grades occasional gravel	
						231.0	50				
12	12			50/5"							
										End of boring at 53.5 feet on 5/2/98 at 1300. No groundwater encountered during drilling.	

NOTES:

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LOG OF BORING DM-2-98

Figure A-6

LOG 05586056.GPJ 6/15/98

LOG OF BORING NO. DM-3-98

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA
CLIENT NAME:
DATE STARTED: May 1 1998
DATE COMPLETED: May 1 1998
DRILLING CONTRACTOR: Geoboring
DRILLER: Pat
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: D&M U-Type Sampler, 300# Hammer, 30" Drop

WATER LEVEL: ▽ ▼

GROUND SURFACE ELEVATION: 275
DATUM:
WEATHER Sunny, 70's
FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						275.0	0	SP		Brown fine to coarse SAND with scattered gravel and a trace of silt (loose)(moist)(fill)	
18	18			5							
						270.0	5				
18	18			31						Grades dense	
						265.0	10				
18	18	104.7	5.0	26				SP		Brown fine to medium SAND, occasional gravel (medium dense to dense)	%fines = 1.8
						260.0	15				
18	18			44						Increasing coarse sand and gravel at approximately 17 to 20 feet	
						255.0	20				
18	18			34							
						250.0	25	SP/ GP		Brown gravelly SAND and sandy GRAVEL (very dense)(moist)	
18	18	116.5	6.3	55							%fines = 2.0
						245.0	30				

NOTES:

LOG 05586056.GPJ 6/15/98

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LOG OF BORING DM-3-98

Figure A-7

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA

FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						245.0	30				
18	18	109.1	3.0	66							%fines = 1.4
						240.0	35				
18	18			56							
						235.0	40	CL/ ML		Olive gray silty CLAY and SILT with occasional fine sand partings/seams and scattered gravel (hard)(moist)	
										Vertical sand partings	
18	18			73							
						230.0	45			Red/brown staining, approximate 12-inch fine sand layer.	
18	18	119.7	18.5	43							
						225.0	50			Grades gray	
17	17			91/11"							
						220.0	55				
12	12			55/6"							
										End of boring at 58.5 feet on 5/1/98 at 1650. No groundwater encountered in boring during drilling.	

NOTES:

LOG 05586056.GPJ 6/15/99

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LOG OF BORING DM-3-98

Figure A-8

LOG OF BORING NO. DM-4-98

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA
CLIENT NAME:
DATE STARTED: May 2 1998
DATE COMPLETED: May 2 1998
DRILLING CONTRACTOR: Geoboring
DRILLER: Pat
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: D&M U-Type Sampler, 300# Hammer, 30" Drop

WATER LEVEL: ▽ ▼ 57
GROUND SURFACE ELEVATION: 287
DATUM:
WEATHER: Overcast, 60's
FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						287.0	0	SP/GP		Brown gravelly SAND and sandy GRAVEL with a trace of silt (dense)(moist)(probable fill)	
18	18			60							
						282.0	5				
18	18	129.3	7.2	66							%fines = 3.3
						277.0	10				
18	18			16						Grades medium dense	
						272.0	15	SP/GP		Brown gravelly SAND to sandy GRAVEL, trace of silt (dense)(moist)	
18	18			45							
						267.0	20				
18	18	126.3	5.3	57							%fines = 2.3
						262.0	25				
18	18			54				SP		Brown clean fine to medium SAND (dense)(moist)	
						257.0	30				

NOTES:

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LOG OF BORING DM-4-98

Figure A-9

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA

FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						257.0	30				
								SP/ GP		Brown gravelly SAND to sandy GRAVEL, trace of silt (very dense)(moist)	
18	18	128.5	6.0	84							%fines = 2.1
						252.0	35				
18	18	99.4	8.8	49				SP		Brown fine sand with a trace of silt (dense)(moist)	%fines = 4.1
						247.0	40				
								SP/ GP		Brown gravelly SAND and sandy GRAVEL with a trace of silt (very dense)(moist)	
18	18			61							
						242.0	45				
17	17			84/11"							
						237.0	50	ML/ CL		Gray silty CLAY and SILT (hard)(damp)	
16	16			80/10"						Fracture plane at 45 degrees to horizontal, slight sheen	
						232.0	55				
12	12			50/5"							
						227.0	60				
10	10			50/4"							
										End of boring at 63 feet on 5/2/98 at 1600. No groundwater encountered in boring during drilling. Piezometer, 1" diameter, screened from 51 to 61 feet below ground surface (bgs) with sand packer, backfill cuttings to 10 feet bgs and bentonite sealed. Flush monument installed. No groundwater detected in piezometer at completion.	

NOTES:

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LOG OF BORING DM-4-98

Figure A-10

LOG OF BORING NO. DM-5A-98

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA
CLIENT NAME:
DATE STARTED: May 3 1998
DATE COMPLETED: May 3 1998
DRILLING CONTRACTOR: Geoboring
DRILLER: Pat
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: D&M U-Type Sampler, 300# Hammer, 30" drop

WATER LEVEL: ▽ ▼

GROUND SURFACE ELEVATION: 300
DATUM:
WEATHER: Overcast, 60's
FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						300.0	0			Asphalt helicopter landing area	
								SM		Brown silty fine to coarse SAND with gravel (loose)(moist)(fill)	
18	14			6							
						295.0	5				
18	18	125.6	10.8	3						Grades very loose	%fines = 25.0
						290.0	10			Brick pieces in soil cuttings	
1	1			50/1"						Refusal, sampler shoe had gravel and concrete chips	
										End of boring at 12 feet on 5/3/98 at 1035. No groundwater encountered in boring during drilling. Boring relocated 5 feet due west for DM-5B-98.	

NOTES:

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LOG OF BORING DM-5A-98

Figure A-11

LOG OF BORING NO. DM-5B-98

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA
CLIENT NAME:
DATE STARTED: May 3 1998
DATE COMPLETED: May 3 1998
DRILLING CONTRACTOR: Geoboring
DRILLER: Pat
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: D&M U-Type Sampler, 300# Hammer, 30" Drop

WATER LEVEL: ▽ ▼

GROUND SURFACE ELEVATION: 300
DATUM:
WEATHER: Overcast, 60's
FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						300.0	0			Asphalt helicopter landing area	
					G			SM		Brown silty fine to coarse SAND with gravel (very loose to loose)(moist)(fill)	
					G	295.0	5				
					G						
					G	290.0	10			Brick debris in soil cuttings Auger refusal at 12 feet	
										End of boring at 12 feet on 5/3/98 at 1105. No groundwater encountered in boring during drilling. Boring relocated 5 feet north for DM-5C-98.	

NOTES:

LOG 05586056.GPJ 6/15/98

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LOG OF BORING DM-5B-98

Figure A-12

LOG OF BORING NO. DM-5C-98

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA
CLIENT NAME:
DATE STARTED: May 3 1998
DATE COMPLETED: May 3 1998
DRILLING CONTRACTOR: Geoboring
DRILLER: Pat
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: D&M U-Type Sampler, 300# Hammer, 30" Drop

WATER LEVEL: ▽ ▼

GROUND SURFACE ELEVATION: 300
DATUM:
WEATHER: Overcast, 60's
FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						300.0	0			Asphalt helicopter landing area	
					G			SM		Brown silty fine to coarse **SAND** with gravel (very loose to loose)(moist)(fill)	
						295.0	5				
					G						
						290.0	10			Increased drilling difficulty, brick and concrete debris in cuttings	
9	5	116.0	6.8	50/3"							%fines = 10.0
						285.0	15	SP/ GP		Brown gravelly **SAND** and sandy **GRAVEL** with a trace of silt (very dense)(moist)	
11	11			50/5"							
						280.0	20				
12	12	114.3	7.3	50/6"							%fines = 2.8
						275.0	25				
12	12	121.5	4.9	50/6"							%fines = 2.1
						270.0	30				

NOTES:

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LOG OF BORING DM-5C-98

Figure A-13

PROJECT: Harborview Parking Garage
PROJECT NO: 05586-056-020
PROJECT LOCATION: Seattle, WA

FIELD ENGINEER: C. Ochiltree
PREPARED BY: M. Bonus

SAMPLE TYPE KEY:
- Relatively undisturbed sample
- Disturbed sample
- Sample attempt with no recovery
- SPT split spoon sample

SAMPLER DRIVEN (in)	SAMPLE RECOVERY (in)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION(ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
						-270.0	30				
18	18			75							
										End of boring at 33.5 feet on 5/3/98 at 1205. No groundwater encountered in boring during drilling.	

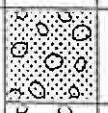
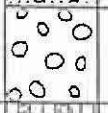
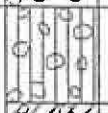
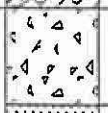
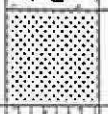
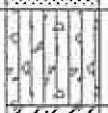
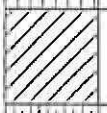
NOTES:

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LOG OF BORING DM-5C-98

Figure A-14

LOB 05586056.GPJ 6/15/98

Major Divisions			Graphic Symbol	Letter Symbol	Typical Descriptions
Coarse Grained Soils	Gravel and Gravelly Soils	Clean Gravels (little or no fines)		GW	Well-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines
				GP	Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines
	More than 50% of Coarse Fraction Retained on No. 4 Sieve	Gravels with Fines (appreciable amount of fines)		GM	Silty Gravels, Gravel-Sand-Silt Mixtures
				GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
More than 50% of Material is Larger than No. 200 Sieve Size	Sand and Sandy Soils	Clean Sand (little or no fines)		SW	Well-Graded Sands, Gravelly Sands, Little or no Fines
				SP	Poorly-Graded Sands, Gravelly Sands, Little or no Fines
	More than 50% of Coarse Fraction Passing through No. 4 Sieve	Sands with Fines (appreciable amount of fines)		SM	Silty Sands, Sand-Silt Mixtures
				SC	Clayey Sands, Sand-Clay Mixtures
Fine Grained Soils	Silts and Clays	Liquid Limit Less than 50		ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
				CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
				OL	Organic Silts and Organic Silty Clays of Low Plasticity
More than 50% of Material is Smaller than No. 200 Sieve Size	Silts and Clays	Liquid Limit Greater than 50		MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soils
				CH	Inorganic Clays of High Plasticity, Fat Clays
				OH	Organic Clays of Medium to High Plasticity, Organic Silts
Highly Organic Soil				PT	Peat, Humus, Swamp Soils with High Organic Contents

DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

UNIFIED SOIL CLASSIFICATION SYSTEM

Figure A-15

10438

9/9

SOILS AND FOUNDATION INVESTIGATION

HARBORVIEW VIEW PARK/PARKING GARAGE

SEATTLE, WASHINGTON

W-756-31

for

KING COUNTY DESIGN COMMISSION
Room 402-M
King County Courthouse
Seattle, Washington

APRIL 1972

By

GEOLABS-WASHINGTON, INC.
12893 N. E. 15th Place
Bellevue, Washington

RECEIVED
APR 19
Joyce Copeland & Vaughan

II. PROJECT DESCRIPTION

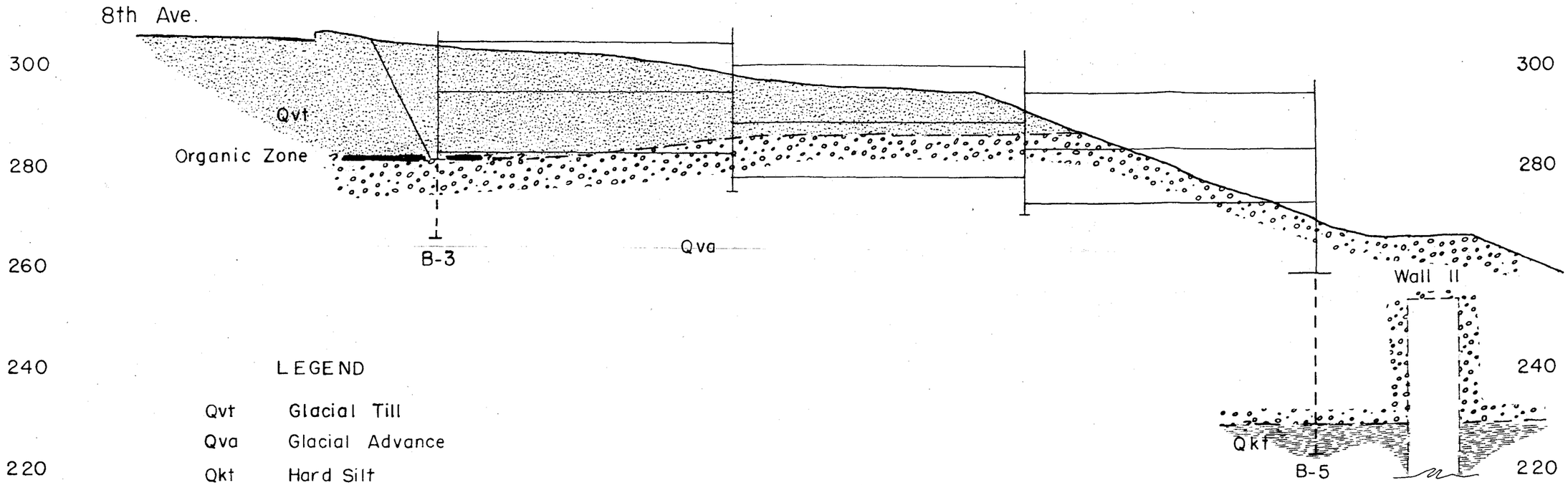
The project is located on the west side of Eighth Avenue between Alder and Jefferson Streets. The easterly half of the site is a slightly sloping area presently used for parking for the adjacent Harborview Hospital. Formerly, housing from the Yesler Terrace development of the Seattle Housing Authority occupied the area. The westerly half of the site slopes 2.5H:1V downward toward the Seattle Freeway, Interstate 5. This slope is part of the cut made for the freeway.

Preliminary plans call for construction of a three-level parking garage with its upper level developed as a park at approximately the same elevation as Eighth Avenue. The structure will consist of three bays, stair-stepping down the hillside.

A steeply sloping excavation is proposed along Eighth Avenue. This cut would be approximately twenty-five feet deep at an angle of 1H:2V. Preliminary designs anticipate foundation loads to be on the order of 500 kips per column and 8 to 10 kips per foot beneath wall footings.

III. SUBSURFACE EXPLORATION

Our initial exploration program consisted of drilling a total of five test borings with a truck mounted hollow stem auger. The approximate boring locations are shown on Plate 1, Site Plan. Two of the borings were located at column locations adjacent to Eighth Avenue. A third boring was placed at a planned column location near the center of the structure. The



LEGEND

Qvt	Glacial Till
Qva	Glacial Advance
Qkt	Hard Silt

Scale
1"=20' H & V

Section A - A

GEOLABS, INC.
GEOLOGY AND SOIL ENGINEERING
1507 128TH PLACE N.E.
BELLEVUE, WASHINGTON 98004
(206) GL 5-2018
OTHER OFFICES:
VAN NUYS, CALIFORNIA
SANTA ANA, CALIFORNIA
LAS VEGAS, NEVADA

W.O. W-756 DATE Apr 72
BY TJB SCALE 1"=20' H&V

PLATE 2

APPENDIX B

TEST PIT LOGS

TEST PIT LOGS (CONT.)

Depth - ft.	Soil Classification
	Test Pit No. 7
0.0 - 1.0	Loose, grey, silty, gravelly SAND. (Fill)
1.0 - 1.5	Very dense, brown to grey, silty, gravelly SAND. (Till)
	Test Pit No. 8
0.0 - 2.5	Medium dense, grey to brown, silt, gravel and SAND. (Fill)
2.5 - 3.0	Very dense, grey, silty, gravelly SAND. (Till)
	Test Pit No. 9
0.0 - 3.0	Loose to medium dense, brown, silty gravel and SAND. (Fill)
3.0 - 3.5	Very dense, brown, silty, gravelly SAND. (Till)

TP-2

TP-3

TP-5

TP-8

TP-9

B-1

TP-7

B-3

B-2

Eighth Avenue

A

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SANTA ANA, CALIFORNIA
LAS VEGAS, NEVADA

W.O. W-756 DATE Apr 72

BY TJB SCALE 1" = 20'

PLATE 1

A

B-5

B-4

TP-4

P-1

TP-2

TP-3

TP-5

TP-8

Appendix B: GREENHOUSE GAS EMISSIONS WORKSHEETS

HMC MIMP Major Amendment - Alts 1 + 2

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO2e) Embodied	Energy	Transportation	**Lifespan Emissions (MTCO2e)**
Single-Family Home.....	0		98	672	792	**0**
Multi-Family Unit in Large Building	0		33	357	766	**0**
Multi-Family Unit in Small Building	0		54	681	766	**0**
Mobile Home.....	0		41	475	709	**0**
Education		0.0	39	646	361	**0**
Food Sales		0.0	39	1,541	282	**0**
Food Service		0.0	39	1,994	561	**0**
Health Care Inpatient		1,146.9	39	1,938	582	**2934459**
Health Care Outpatient		653.9	39	737	571	**880505**
Lodging		0.0	39	777	117	**0**
Retail (Other Than Mall).....		0.0	39	577	247	**0**
Office		0.0	39	723	588	**0**
Public Assembly		0.0	39	733	150	**0**
Public Order and Safety		0.0	39	899	374	**0**
Religious Worship		0.0	39	339	129	**0**
Service		0.0	39	599	266	**0**
Warehouse and Storage		0.0	39	352	181	**0**
Other		0.0	39	1,278	257	**0**
Vacant		0.0	39	162	47	**0**

Section II: Pavement.....

Pavement.....		0.00				**0**

Total Project Emissions: **3814964**

HMC MIMP Major Amendment - No Action

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO2e) Embodied	Energy	Transportation	**Lifespan Emissions (MTCO2e)**
Single-Family Home.....	0		98	672	792	**0**
Multi-Family Unit in Large Building	0		33	357	766	**0**
Multi-Family Unit in Small Building	0		54	681	766	**0**
Mobile Home.....	0		41	475	709	**0**
Education		0.0	39	646	361	**0**
Food Sales		0.0	39	1,541	282	**0**
Food Service		0.0	39	1,994	561	**0**
Health Care Inpatient		0.0	39	1,938	582	**0**
Health Care Outpatient		127.3	39	737	571	**171348**
Lodging		0.0	39	777	117	**0**
Retail (Other Than Mall).....		0.0	39	577	247	**0**
Office		0.0	39	723	588	**0**
Public Assembly		0.0	39	733	150	**0**
Public Order and Safety		0.0	39	899	374	**0**
Religious Worship		0.0	39	339	129	**0**
Service		0.0	39	599	266	**0**
Warehouse and Storage		0.0	39	352	181	**0**
Other		0.0	39	1,278	257	**0**
Vacant		0.0	39	162	47	**0**

Section II: Pavement.....

Pavement.....		0.00				**0**

Total Project Emissions: **171348**

Appendix C: HARBORVIEW WASTE MANAGEMENT PLANS

ENVIRONMENTAL HEALTH & SAFETY
UNIVERSITY of WASHINGTON

SITE-SPECIFIC PROCEDURES FOR AUTOCLAVING BIOHAZARDOUS WASTE

AUTOCLAVE INFORMATION			
Autoclave make/model:	San-I-Pak 342L	**Lab/Facility Name:**	Harborview Medical Center
Location (building/room):	NJB Loading Dock (SNJ-S21)	**Principal Investigator/ Supervisor name:**	Julianna Musungu
Person responsible for autoclave:	Gabriella Henkels	**Phone number:**	206-744-3131
Email:	ghenkels@uw.edu	**Location of autoclave records:**	EVS Director's Office
Completed by:	Gabriella Henkels	**Date completed:**	8/11/2023
MAINTENANCE INFORMATION			
Maintenance schedule:	Quarterly	**Maintenance contact:**	HMC Engineering
Company:	Sanipak	**Phone number:**	206-744-3191 (Engineering) 209-836-2310 (Sanipak)

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED:

☐ Lab coat	☐ Safety glasses	☐ Face shield
☐ Heat-resistant gloves	☒ Latex gloves	☐ Other (specify):

PREPARE THE AUTOCLAVE

- Inspect the door gasket for cracks or bulges. Gasket should be smooth and pliable.
- Clean drain screen of debris if necessary.
- If the autoclave is not already on, turn the power on, and allow time for jacket to reach sufficient temperature and pressure.
- If any problems are found, contact the responsible person listed above.

PREPARE ITEMS

- Package waste items according as specified on the EH&S Biohazardous Waste and Sharps and Laboratory Glass webpages.
- Refer to the Packaging Sharps and Lab Glass Waste poster.

Waste Type (select all that apply)	**Preparation**
☒ Bagged solid biohazardous waste	▪ Loosely tie or tape biohazard bags. ▪ Double bag agar plates to prevent leaking. ▪ Affix autoclave tape to bag. ▪ If items are protruding from the bag (e.g., pipet tips), re-package as biohazardous lab glass or plastic.
☒ Liquid biohazardous waste	▪ Ensure caps on tubes or bottles are loose. ▪ Cover uncapped bottles or flasks with foil. ▪ Affix autoclave tape to items.

PREPARE ITEMS (continued)	
Waste Type (select all that apply)	**Preparation**
☐ Sharps containers	▪ Affix autoclave tape across closed lid and attach to sides without blocking vent holes. ▪ Label container with PI name and room number. ▪ If items are protruding from sharps container, place inside a larger sharps container before autoclaving.
☒ Biohazardous lab glass and plastic	▪ Loosely tie or tape biohazard bags if using. ▪ Tape boxes closed, but do not seal completely. ▪ Label with PI name and room number. ▪ Affix autoclave tape to box. ▪ If items are protruding from box, place inside a larger box and relabel.

LOAD THE AUTOCLAVE

- Place waste into autoclave tubs. Always use secondary containment in case of spillover.
- Load tubs onto autoclave rack or shelf. Do not place directly on bottom of autoclave.
- Insert a chemical integrator into the center of the load.
- If necessary, add water to tubs, or add an autoclavable cup of water to the load.
- Do not overfill the autoclave.

OPERATE

- Close and lock door. Be sure door is secure before starting a cycle.
- Select appropriate cycle to achieve minimum of 121°C/250°F for at least 30 minutes.

Waste Type (select all that apply)	**Cycle Number**	**Liquid / Dry**	**Sterilization Time**	**Sterilization Temperature**
☒ Bagged solid biohazardous waste	Sterilize		30 minutes	270 F
☐ Liquid biohazardous waste				
☐ Sharps containers				
☐ Biohazardous lab glass and plastic				

- Record run on autoclave log sheet.
- Do not open the autoclave door during a cycle! If necessary, abort the cycle and wait until chamber depressurizes.
- If cycle fails, notify responsible person and follow back-up plan. Post the “Do Not Use Autoclave” poster. The waste still needs to be sterilized even if autoclave tape changed color. Cycle failure includes:
  - Autoclave tape did not change color.
  - Chemical integrator failed.
  - Cycle did not maintain sterilization temperature for required time.
  - Biological indicator test failed (refer to Biological Indicator Instructions).

UNLOAD

- When cycle is complete, verify that chamber temperature has dropped and pressure is zero.
- Wear appropriate PPE to protect yourself from heat and steam.
- Slowly open the door to allow steam to escape gradually. Keep your face away from the door.
- Allow items to stand in the autoclave for 10 minutes.
- Visually inspect bags, boxes, and sharps containers for protruding objects.
- Cautiously remove items, and place items in a safe area to cool. Do not agitate containers.
- Record run information on autoclave log sheet.

DISPOSAL

- Black lines on autoclave tape indicate waste is safe for handling by custodial staff.
- Refer to the Biohazardous Waste Flow Chart for your location.

Waste Type (select all that apply)	**Disposal information**
☒ Bagged solid biohazardous waste	▪ Place in regular trash container for custodial pick-up and disposal via municipal waste.
☐ Liquid biohazardous waste	▪ After liquids have cooled, dispose via sanitary sewer.
☐ Sharps containers	▪ Depends on location; refer to the Biohazardous Waste Flow Chart for your location.
☐ Biohazardous lab glass and plastic	▪ Place next to regular trash container for custodial pick-up and disposal via municipal waste.

ACCIDENTS AND NEAR MISSES

- Post the Exposure Response Poster near the autoclave.
- In the event of an accident, immediately provide first aid and get help.
- Report any accidents or near misses via the Online Accident and Reporting System (OARS).

BACK-UP PLAN IF AUTOCLAVE IS OUT OF SERVICE (SELECT ONE):

☐ Use an alternate autoclave. Specify location:

☐ Transport waste to Health Sciences Laboratory Services (T276).

☒ Ship waste off-site via contracted carrier (training and account set-up required).

☐ Store waste in secure freezer for up to 90 days. Specify location:

ENVIRONMENTAL HEALTH & SAFETY
UNIVERSITY of WASHINGTON

Site-Specific Procedures for Shipping Regulated Medical Waste (RMW)

LAB INFORMATION			
Waste Contractor:	Stericycle	**Lab/Facility name:**	Harborview Medical Center
Location (building/room):	Main Hospital	**Principal Investigator (PI)/ Supervisor name:**	Juan Escalante
Main contact for shipping waste:	Brenda Nissley	**Phone Number:**	206-744-3131
Email:	bnissley@uw.edu	**Location of waste shipment records:**	EVS Director's Office
Completed by:	Brenda Nissley	**Date completed:**	11/29/2021

INNER PACKAGING	
Who will perform? (Specify job titles or names)	Clinical, Lab or Environmental Services staff
Waste Type (select all that apply)	**Inner packaging procedure**
☒ Sharps waste	1. Collect sharps waste in red plastic sharps containers labeled with the biohazard symbol. 2. When the container is no more than 2/3 full, close the lid and place autoclave tape over the lid and sides without blocking the vent holes. Label with PI name and room number. 3. Place sharps container into lined shipping container. Package sharps containers separate from other waste types.
☐ Solid biohazardous waste (includes bagged biohazardous waste and biohazardous lab glass and plastic waste)	1. Collect bagged biohazard waste in plastic autoclavable waste bags with a biohazard symbol. Double bagging is recommended for petri dishes with agar. Tie or tape bags closed. 2. Collect biohazardous lab glass and plastic in a container that cannot be punctured and can be easily autoclaved, such as a pipette box/keeper OR package contaminated items in a sturdy cardboard box lined with a biohazard bag. Label the box with the biohazard symbol and PI name and room number. Seal with “Laboratory Glass” tape.
☐ Animal carcasses	1. Bag in single biohazard bag. 2. Tie or tape bags closed. 3. Label with PI name, biohazardous agent and date.
☒ Human pathological waste	1. Collect in biohazard bags. 2. Tie or tape bags closed. 3. Label with PI name and room number.
☐ Trace chemo waste	1. Collect in yellow sharps waste container 2. Label as "trace chemo waste" with PI name and room number.

INTERMEDIATE PACKAGING (EH&S Shipping RMW training required)	
Who will perform? (Specify job titles or names)	Environmental Services staff
Waste Type (select all that apply)	**Intermediate packaging procedure**
☒ Sharps waste ☐ Solid biohazardous waste ☐ Animal carcasses ☒ Human pathological waste ☐ Trace chemo waste	1. Line outer shipping container with a red liner bag (provided by the waste contractor). 2. Place sealed bags or containers into lined outer shipping container. 3. Verify all items are packaged correctly: • No loose items • All inner packaging is closed • No mixed waste or inappropriate waste 4. When no more than 2/3 full, tie the liner bag in a single, tight overhand knot. • The knot must be tight enough to prevent leaking from the bag. • Do not use other knot styles such as “bunny ears."
OUTER PACKAGING (EH&S Shipping RMW training required)	
Who will perform? (Specify job titles or names)	Environmental Services staff
Waste Type (select all that apply)	**Outer packaging procedure**
☒ Sharps waste ☐ Solid biohazardous waste ☐ Animal carcasses ☒ Human pathological waste ☐ Trace chemo waste	1. Visually inspect outer shipping containers prior to sealing and labelling. Containers must be intact with no cracks or damage. If container is damaged or visibly soiled, transfer waste to a new shipping container. 2. Close outer container securely to prevent release of materials during normal transport and shipping conditions. a. Seal cardboard boxes with packing tape (provided by contractor). b. Plastic tubs are self-latching. 3. Affix and fill out the appropriate shipping label to the outer package. The labels must match the type of waste. Do not attach incorrect labels and attempt to ship. If you do not have the correct shipping labels, contact the contractor for the correct labels. 4. Transport waste to a secure storage area. Store containers in a secure indoor area with restricted access until pick up. At no time should untreated waste sit unattended in a non-secure area. Specify storage location (building and room): NJB Soiled Utility Room 5. Offer for shipment in person. Do not leave waste unattended for drive to collect. Together with the driver: a. Confirm the number of containers and type of waste. b. Ensure containers do not exceed weight limit. 6. Place a copy of shipping papers into logbook or binder. Maintain shipping records for six years.
Do Not Ship If There Are: • Cracked, damaged, leaking, overfilled or improperly closed or improperly labelled containers • Containers that exceed the weight limit (you should be able to lift the package yourself comfortably) o 40 lbs for boxes and 17 gallon totes / 60 lbs for 31 and 43 gallon tote	

PERSONNEL TRAINING			
Name	**Date trained on site-specific SOP**	**EH&S Shipping RMW Training date**	**Trained to do which packaging steps**
See HMC Master List			☒ Inner only ☒ Intermediate and outer
			☐ Inner only ☐ Intermediate and outer
			☐ Inner only ☐ Intermediate and outer
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			☐ Inner only ☐ Intermediate and outer

ENVIRONMENTAL HEALTH & SAFETY
UNIVERSITY of WASHINGTON

Site-Specific Procedures for Shipping Regulated Medical Waste (RMW)

LAB INFORMATION			
Waste Contractor:	Stericycle	**Lab/Facility name:**	Harborview Medical Center
Location (building/room):	9th & Jefferson Bldg	**Principal Investigator (PI)/ Supervisor name:**	Juan Escalante
Main contact for shipping waste:	Brenda Nissley	**Phone Number:**	206-744-3131
Email:	bnissley@uw.edu	**Location of waste shipment records:**	NJB EVS Supervisor's Office
Completed by:	Brenda Nissley	**Date completed:**	11/29/2021

INNER PACKAGING	
Who will perform? (Specify job titles or names)	Clinical, Lab or Environmental Services staff
Waste Type (select all that apply)	**Inner packaging procedure**
☒ Sharps waste	1. Collect sharps waste in red plastic sharps containers labeled with the biohazard symbol. 2. When the container is no more than 2/3 full, close the lid and place autoclave tape over the lid and sides without blocking the vent holes. Label with PI name and room number. 3. Place sharps container into lined shipping container. Package sharps containers separate from other waste types.
☐ Solid biohazardous waste (includes bagged biohazardous waste and biohazardous lab glass and plastic waste)	1. Collect bagged biohazard waste in plastic autoclavable waste bags with a biohazard symbol. Double bagging is recommended for petri dishes with agar. Tie or tape bags closed. 2. Collect biohazardous lab glass and plastic in a container that cannot be punctured and can be easily autoclaved, such as a pipette box/keeper OR package contaminated items in a sturdy cardboard box lined with a biohazard bag. Label the box with the biohazard symbol and PI name and room number. Seal with “Laboratory Glass” tape.
☐ Animal carcasses	1. Bag in single biohazard bag. 2. Tie or tape bags closed. 3. Label with PI name, biohazardous agent and date.
☒ Human pathological waste	1. Collect in biohazard bags. 2. Tie or tape bags closed. 3. Label with PI name and room number.
☐ Trace chemo waste	1. Collect in yellow sharps waste container 2. Label as "trace chemo waste" with PI name and room number.

INTERMEDIATE PACKAGING (EH&S Shipping RMW training required)	
Who will perform? (Specify job titles or names)	Environmental Services staff
Waste Type (select all that apply)	**Intermediate packaging procedure**
☒ Sharps waste ☐ Solid biohazardous waste ☐ Animal carcasses ☒ Human pathological waste ☐ Trace chemo waste	1. Line outer shipping container with a red liner bag (provided by the waste contractor). 2. Place sealed bags or containers into lined outer shipping container. 3. Verify all items are packaged correctly: • No loose items • All inner packaging is closed • No mixed waste or inappropriate waste 4. When no more than 2/3 full, tie the liner bag in a single, tight overhand knot. • The knot must be tight enough to prevent leaking from the bag. • Do not use other knot styles such as “bunny ears."
OUTER PACKAGING (EH&S Shipping RMW training required)	
Who will perform? (Specify job titles or names)	Environmental Services staff
Waste Type (select all that apply)	**Outer packaging procedure**
☒ Sharps waste ☐ Solid biohazardous waste ☐ Animal carcasses ☒ Human pathological waste ☐ Trace chemo waste	1. Visually inspect outer shipping containers prior to sealing and labelling. Containers must be intact with no cracks or damage. If container is damaged or visibly soiled, transfer waste to a new shipping container. 2. Close outer container securely to prevent release of materials during normal transport and shipping conditions. a. Seal cardboard boxes with packing tape (provided by contractor). b. Plastic tubs are self-latching. 3. Affix and fill out the appropriate shipping label to the outer package. The labels must match the type of waste. Do not attach incorrect labels and attempt to ship. If you do not have the correct shipping labels, contact the contractor for the correct labels. 4. Transport waste to a secure storage area. Store containers in a secure indoor area with restricted access until pick up. At no time should untreated waste sit unattended in a non-secure area. Specify storage location (building and room): NJB Soiled Utility Room 5. Offer for shipment in person. Do not leave waste unattended for drive to collect. Together with the driver: a. Confirm the number of containers and type of waste. b. Ensure containers do not exceed weight limit. 6. Place a copy of shipping papers into logbook or binder. Maintain shipping records for six years.
Do Not Ship If There Are: • Cracked, damaged, leaking, overfilled or improperly closed or improperly labelled containers • Containers that exceed the weight limit (you should be able to lift the package yourself comfortably) o 40 lbs for boxes and 17 gallon totes / 60 lbs for 31 and 43 gallon tote	

PERSONNEL TRAINING			
Name	**Date trained on site-specific SOP**	**EH&S Shipping RMW Training date**	**Trained to do which packaging steps**
See HMC Master List			☒ Inner only ☒ Intermediate and outer
			☐ Inner only ☐ Intermediate and outer
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ENVIRONMENTAL HEALTH & SAFETY
UNIVERSITY of WASHINGTON

Site-Specific Procedures for Shipping Regulated Medical Waste (RMW)

LAB INFORMATION			
Waste Contractor:	Stericycle	**Lab/Facility name:**	Harborview Medical Center
Location (building/room):	Pat Steel Building	**Principal Investigator (PI)/ Supervisor name:**	Juan Escalante
Main contact for shipping waste:	Brenda Nissley	**Phone Number:**	206-744-3131
Email:	bnissley@uw.edu	**Location of waste shipment records:**	PSB Front Desk
Completed by:	Brenda Nissley	**Date completed:**	11/29/2021

INNER PACKAGING	
Who will perform? (Specify job titles or names)	Clinical or Environmental Services staff
Waste Type (select all that apply)	**Inner packaging procedure**
☐ Sharps waste	1. Collect sharps waste in red plastic sharps containers labeled with the biohazard symbol. 2. When the container is no more than 2/3 full, close the lid and place autoclave tape over the lid and sides without blocking the vent holes. Label with PI name and room number. 3. Place sharps container into lined shipping container. Package sharps containers separate from other waste types.
☒ Solid biohazardous waste (includes bagged biohazardous waste and biohazardous lab glass and plastic waste)	1. Collect bagged biohazard waste in plastic autoclavable waste bags with a biohazard symbol. Double bagging is recommended for petri dishes with agar. Tie or tape bags closed. 2. Collect biohazardous lab glass and plastic in a container that cannot be punctured and can be easily autoclaved, such as a pipette box/keeper OR package contaminated items in a sturdy cardboard box lined with a biohazard bag. Label the box with the biohazard symbol and PI name and room number. Seal with “Laboratory Glass” tape.
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☒ Human pathological waste	1. Collect in biohazard bags. 2. Tie or tape bags closed. 3. Label with PI name and room number.
☐ Trace chemo waste	1. Collect in yellow sharps waste container 2. Label as "trace chemo waste" with PI name and room number.

INTERMEDIATE PACKAGING (EH&S Shipping RMW training required)	
Who will perform? (Specify job titles or names)	Environmental Services staff
Waste Type (select all that apply)	**Intermediate packaging procedure**
☐ Sharps waste ☒ Solid biohazardous waste ☐ Animal carcasses ☒ Human pathological waste ☐ Trace chemo waste	1. Line outer shipping container with a red liner bag (provided by the waste contractor). 2. Place sealed bags or containers into lined outer shipping container. 3. Verify all items are packaged correctly: • No loose items • All inner packaging is closed • No mixed waste or inappropriate waste 4. When no more than 2/3 full, tie the liner bag in a single, tight overhand knot. • The knot must be tight enough to prevent leaking from the bag. • Do not use other knot styles such as “bunny ears."
OUTER PACKAGING (EH&S Shipping RMW training required)	
Who will perform? (Specify job titles or names)	Environmental Services staff
Waste Type (select all that apply)	**Outer packaging procedure**
☐ Sharps waste ☒ Solid biohazardous waste ☐ Animal carcasses ☒ Human pathological waste ☐ Trace chemo waste	1. Visually inspect outer shipping containers prior to sealing and labelling. Containers must be intact with no cracks or damage. If container is damaged or visibly soiled, transfer waste to a new shipping container. 2. Close outer container securely to prevent release of materials during normal transport and shipping conditions. a. Seal cardboard boxes with packing tape (provided by contractor). b. Plastic tubs are self-latching. 3. Affix and fill out the appropriate shipping label to the outer package. The labels must match the type of waste. Do not attach incorrect labels and attempt to ship. If you do not have the correct shipping labels, contact the contractor for the correct labels. 4. Transport waste to a secure storage area. Store containers in a secure indoor area with restricted access until pick up. At no time should untreated waste sit unattended in a non-secure area. Specify storage location (building and room): FMC Soiled Utility Room 5. Offer for shipment in person. Do not leave waste unattended for drive to collect. Together with the driver: a. Confirm the number of containers and type of waste. b. Ensure containers do not exceed weight limit. 6. Place a copy of shipping papers into logbook or binder. Maintain shipping records for six years.
Do Not Ship If There Are: • Cracked, damaged, leaking, overfilled or improperly closed or improperly labelled containers • Containers that exceed the weight limit (you should be able to lift the package yourself comfortably) o 40 lbs for boxes and 17 gallon totes / 60 lbs for 31 and 43 gallon tote	

PERSONNEL TRAINING			
Name	**Date trained on site-specific SOP**	**EH&S Shipping RMW Training date**	**Trained to do which packaging steps**
See HMC Master List			☒ Inner only ☒ Intermediate and outer
			☐ Inner only ☐ Intermediate and outer
			☐ Inner only ☐ Intermediate and outer
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HARBORVIEW MEDICAL CENTER
UW Medicine

Waste Management Plan

Developed by

san-i-pak
WORLD HEALTH SYSTEMS

2015

This operation plan sets forth the procedures for disposing, collecting, transporting, and treating regulated medical waste (RMW).

I. Segregation of Wastes

Regulated medical waste (RMW) is segregated from other wastes at the point of generation. RMW is in plastic bags, which are in compliance with applicable laws and regulations. Human pathological waste, animal carcasses and body parts (collectively "pathological waste") are collected and stored separately in red bags or containers bearing appropriate labels or markings, which distinguish them from other waste categories.

Non-related waste is collected in black, clear, or other bags, which are clearly distinguished from the red bags or containers used for Bio-medical waste. Hazardous waste, antineoplactic waste, chemotherapeutic waste and radioactive waste containers bearing appropriate labels or markings, which distinguish them, from other waste categories.

NON-AUTOCLAVEABLE WASTE

1. **PATHOLOGICAL WASTE**
   A. Body Parts, Limbs
   B. Organs
   C. Preserved Specimens

2. ANIMAL BODY PARTS AND CARCASSES

3. CHEMOTHERAPY WASTE
   A. Needles and Syringes used in chemo preparation
   B. Gloves, IV tubing and bags used in chemo preparation
   C. Chemotherapeutic agents
   D. Containers used for discarded chemo products.

4. OTHER HAZARDOUS WASTE
   A. Materials that exhibit flammability, ignitability, corrosivity, reactivity, EP toxicity (e.g. Formalin, lab reagents, paints, solvents)

5. RADIONUCLEAR WASTE
   A. Long-lived isotopes
   B. Short-lived isotopes
   C. KR81
   D. Needles, Syringes and other equipment contaminated by radioactive waste.

REGULATED MEDICAL WASTE FOR AUTOCLAVE TREATMENT

1. All liquid waste, human blood and blood products and disposable materials saturated and/or dripping with human blood or items that were saturated or dripping with human blood that are

now caked with dried human blood, including serum, plasma, other blood components and their containers.
2. Waste from surgical and or obstetrical procedures, which consist of items contaminated with blood, body fluids, or body substances.
3. Biological waste from suction canisters, hemovac drainage and pluerovac drainage emanating from patients and which cannot be discarded directly into a sanitary sewer
4. Biological waste and discarded material contaminated with blood, excretions, exudates or secretions from humans or animals infected with the following highly communicable diseases: Ebola, Lassa, Marburg and smallpox viruses and other CDC class 4 diseases
5. Laboratory waste, which has come into contact with infectious agents, blood or blood products. Cultures and stocks, if infectious agents, associated biological, culture dishes and devices used to transfer, inoculate and mix cultures.
6. Dialysis waste, including tubing and other blood contaminated items.
7. Discarded serums and vaccines that have not been returned to the manufacturer or point of origin.
8. IV bags.
9. Animal Bedding.

II. Autoclaving Procedures

A. Operating Procedures

Bagged RMW, excluding pathological waste, is brought to the San-I-Pak 342L Treatment System in collection carts. An autoclave cart liner, which has a time/temperature sensitive indicator affixed to it is inserted into the collection carts prior to collection. Next, the chamber is placed in the load position. The medical waste collection carts are then loaded into the chamber with the automatic cart dumper. When the chamber is full, it is placed into the sterilize position.

The door is closed and the unit's cycle is initiated. After the waste is autoclaved, the door is opened and the chamber dumps the treated waste into the compactor via slide. The treated waste is automatically compacted into the roll off container.



San-I-Pak 342L

Loading and Operating

1. Load (with cart liners, approximately 3 minutes/chamber)
   - Place cart liner into carts.
   - Collect RMW.
   - Tie/secure the cart liner.
   - Rotate chamber into the sterilization position.



2. Sterilization
   - Blue “Sterilize” button is activated.
   - San-I-Pak first pulls a vacuum with a minimum of 18 inches within the chamber.
   - Air removes during the vacuum stage is mixed with 307° F. steam.
   - Steam is then injected into the sterilization chamber; chamber reaches a maximum of 38 psig.
   - After a temperature of 270° F. is achieved; a 30-minute timer is automatically activated.
   - Chamber quickly reaches an ultimate temperature of 281° F. – 284° F.
   - Chamber is held in a high temperature, high-pressure environment for the full 30 minutes.
   - Upon completion of the sterilization cycle the chamber vents down.
   - Existing steam is piped to the condensate tank; it condenses and flows into the sanitary sewer.

3. Discharge
   - Open load door.
   - Activate “Dump” button.
   - Sterilized waste falls into compactor.
   - Return to load position.

4. Compaction
   - Activate cart dump/compactor button.

Most operations of a San-I-Pak System require a minimum operator interface. Operators are needed to load the unit, (cart dumping systems are available), close the sterilization chamber door, and to open the sterilization chamber door. Besides pressing a few buttons, no other operator interaction is required.

B. Monitoring

Each autoclave is equipped with recording devices, which automatically and continuously monitor and record performance and process parameters throughout the autoclave cycle. The autoclave's programmable logic controller is programmed to achieve the prescribed time, temperature and the process is reinitiated through another complete cycle. Through the telecommunication system, San-I-Pak, Inc. is also able to monitor the system from our factory upon your request.

San-I-Pak recommends spore testing at least once a month. Regarding requirements for the state of Nevada, please visit http://ndep.nv.gov/bwm/special.htm

"Nevada has adopted the US Dept. Of Transportation definition for regulated medical waste found in 49CFR Part 173, App. G. Other pertinent regulations are at Nevada Administrative Code 444.646 and 444.662. If medical waste has been treated by incineration, autoclaving or an alternative method approved by the solid waste management authority, it can be managed as ordinary solid waste with no special requirements. Special requirements apply to the storage, collection, labeling, transporting and disposal of regulated medical waste. Nevada regulations allow the direct disposal by landfilling of untreated medical waste. Commercial treatment facilities exist in the Reno and Las Vegas areas, but not in rural areas of the state."

The San-I-Pak sterilization process can be monitored with a biological indicator. We recommend the use of the 3M 1276 Attest Steam Pack. This pack contains a biological indicator sample, indicator strips and a record-keeping card. The indicator strips on the label and within the pack will change color to show the pack was indeed steam processed. The biological indicator located within the pack will show the ability of the San-I-Pak to penetrate the barriers within the test pack, thus achieving sterilization.



This pack is a simple and effective method of challenging the sterilization abilities of any autoclave system. With the San-I-Pak unit the testing can be accomplished quickly and easily. During a normal waste processing cycle the 3M Test Pack should be placed in the chamber with the waste to be processed. By loading the test kit last, near the door of the unit, it may be easily retrieved upon completion of the processing cycle. The 3M 1276 Attest Steam Pack is designed to be the equivalent to the standard linen pack (12" x 12" x 20", 12lbs.) which is recommended by the Association of the Advancement of Medical Instrumentation (AAMI). *Note: This pack has been designed by 3M to duplicate the Bowie Dick Towel Pack Testing of autoclaves. The test simulates a load of waste, therefore does not require insertion into the actual waste.*



After removal from the San-I-Pak, the biological indicators contained within the 3M Test Pack should be incubated at approximately 56°C. for 48 hours. After incubation, the ample visually indicates growth or no growth of the indicator spore. No color change (any growth) equals complete sterilization.

The requirements regarding the frequency of efficacy testing vary from state to state. Please check with local authorities for the requirements of your specific state.

Hospital Infection Control personnel may have a preferred method for testing effectiveness if they are presently sterilizing infectious waste. If not, San-I-Pak can assist the facility with any method desired. Most San-I-Pak users employ either the 3M Attest Steam pack or the Therma-log S Steam Sterilization Integrator for testing terminal destruction. Many similar biological indicators containing Bacillus Stearothermophilus are available.
San-I-Pak has been tested with the most stringent, recognized methods throughout the United States. Results have proven the San-I-Pak to be one of the most effective and reliable systems of steam sterilization available for processing biohazardous waste.

Note: Strict programming of the control electronics of all San-I-Pak units prevents the discharge of unsterilized waste. San-I-Pak employs parametric motoring, which is superior to Biological Test. The computer has a built-in steam table that enables constant comparison of vessel temperature with vessel pressure. Other fail-safes such as time to vacuum, vacuum level, time to temperature, droop control and vent time exceed conventional testing. In the unusual occurrence of any discrepancy in the programmed parameters, the process will be halted and then after correction cycle must be restarted.

C. Maintenance

Maintenance of the autoclaves is performed consistent with the autoclave manufacturer's recommendations, which include the following schedule of maintenance activities and planned frequency.

Planned Frequency

Month	Maintenance Activity Description
3	Examine door seals. Replace if necessary.
6	Check door clearances and operations. Adjust/Lubricate.
3	Check door safety operation.
6	Check and adjust loading/unloading mechanisms and equipment.
3	Check/calibrate temperature and pressure indicators
3	Test safety valves.
3	Check strainers and steam traps. Clean if necessary.
3	Check filters. Clean or replace as required.
3	Check all controls and indicator for proper operation.
3	Check recording devices for proper pull-down.
3	Test vacuum system for proper pull down.
6	Perform vacuum leak test.
3	Run all cycles while recording temperatures and pressures.
3	Check piping for leaks and valves for proper operation.
3	Check manual override for proper operations.
6	Check Battery for memory backup.

The procedures are recorded on a data sheet, signed by the performing technician and autoclave-operating supervisor, and maintained in a logbook.

E. Training

No person is permitted to operate an autoclave used to treat RMW without first receiving training. The manufacturer's representatives provide training to all hospital personnel who are required to implement portions of the Operation Plan. All such training is documented. Copies of the documentation are maintained in the individual's personnel file at the hospital.

The training includes the following:

1. Classroom instructions on:
   a. The types of waste that may and may not be autoclaved.
   b. Waste segregation procedures.
   c. Procedures for containing, handling, storing and transporting RMW.
   d. Procedures for containing, handling, storing and transporting hazardous waste, chemotherapeutic waste, antineoplactic waste and radioactive waste.
   e. Procedures for validation testing of the autoclaves.
   f. Procedures for the operation of the autoclaves.

g. Procedures for handling spills.
h. Procedures for dealing with emergency shutdowns.
i. Challenge testing procedures.
j. Maintenance procedures.
k. Manifesting procedures.
l. Certification procedures.
m. Procedures for sealing the roll-off containers prior to transport to the facility.

2. Hands on Equipment Instruction for the staff responsible from the facility.
   a. Loading and unloading procedures.
   b. Validation testing.
   c. Operation of the equipment.
   d. Challenge testing.
   e. Emergency shutdown procedures, including unloading and decontamination of the autoclave and adjacent areas.
   f. Procedures for sealing the roll-off container prior to transport.

UW Medicine
HARBORVIEW MEDICAL CENTER

Harborview Medical Center
Environment of Care Plan

Name: Hazardous Materials and Waste Management Plan
Effective Date: Nov 1995
Reviewed By: Anita Gould
EOC Committee Review/Approval Date: 3/13/2023
Semi-Annual Review Date: 8/2023
Annual Review Date: 3/2024

I. EXECUTIVE SUMMARY:

The Hazardous Materials and Waste Management Plan (Hazmat Plan) describes the methods used to design, implement, monitor and manage the Hazardous Materials and Waste program to reduce the risk of injury for patients, staff and visitors for Harborview Medical Center and to assure compliance with applicable codes and regulations, as applied to buildings and services provided at Harborview Medical Center.

Risks of the environment are identified by conducting and maintaining proactive risk assessment(s). These risk assessments are used to eliminate or reduce the probability of adverse outcomes.

This plan is evaluated annually to determine if it accurately describes the program and that the scope, objectives, performance, and effectiveness of the program are appropriate.

II. PLAN RESPONSIBILITY:

- The Harborview Medical Center Board of Trustees receives regular reports of the activities of the EOC Committee and its programs.
- The Medical Center Administration collaborates with the Environment of Care Committee (EOC) regarding issues, which may necessitate changes to the environment, practices, policies and procedures, orientation or education. As needed, the Medical Center Administration reviews Environment of Care Committee reports and responds to recommendations or concerns.
- Membership on the Environment of Care Committee is appointed by the Environment of Care Committee Chair and includes subject matter and technical experts.
- The Environment of Care Committee meets monthly to receive reports, evaluate risks, and as needed make recommendations for changes to the environment, practices, policies and procedures, orientation or education.
- The Safety Officer manages and develops the Hazmat management plan. The Safety Officer advises the Environment of Care Committee regarding issues which may necessitate changes to the environment, practices, policies and procedures, orientation or education.
- The University of Washington Environmental Health and Safety office (EH&S) operates under a memorandum of understanding (MUA) to aid HMC in compliance with applicable laws regarding hazardous materials and waste.
- Department managers/supervisors are responsible for implementing the appropriate departmental and job related procedures and controls required to minimize risk and the potential of adverse outcomes.

- Individual staff members are responsible for following policies and procedures and being familiar with the risks inherent in their work and present in their work environment.

PLAN SCOPE:

The Hazmat Plan describes how HMC establishes and maintains safe use, storage, and disposal of hazardous materials and waste. The Hazmat Plan applies to hazardous materials and waste acquired, used, stored and generated by Harborview Medical Center (HMC), including all of its associated buildings and hospital-based clinics. The Hazmat Plan applies to all work operations at HMC that may expose employees to hazardous materials or wastes under normal working conditions or during an emergency situation. This plan includes processes designed to minimize the risk of harm. The intent of the Hazmat Plan is to comply with federal, state, and local government regulations and Joint Commission standards. The Hazmat Plan is managed by the Safety Officer.

The Hazmat Plan addresses processes outlined below:

1. Hazardous Material Inventory
2. Procedures for spills or exposures
3. Hazardous chemicals
4. Radioactive materials
5. Hazardous energy sources
6. Hazardous medications
7. Hazardous gases and vapors
8. Exposure monitoring
9. Permits, licenses, manifests, and safety data sheets (SDS)
10. Hazardous Material Labeling

III. PLAN OBJECTIVES:

The Objectives for the Hazmat Plan are developed from information gathered during risk assessment activities, the annual evaluation of the previous year's program activities, performance measures, environmental tours, and employee incidents and concerns. A risk assessment is developed using known risks in the environment and hazmat data collected on environmental tours and through PSN incident reports as shown in the annual Hazmat Plan assessment. This analysis of data determines objectives and indicators for the upcoming year's plan.

The Objectives for this plan are:

A. Track all hazardous material and waste incidents; use findings to modify policies and procedures to reduce further incidents.

B. Develop and implement policies and procedures regarding hazardous material exposures and spills.

C. Educate staff on procedures of the Hazmat Plan including safe handling, proper disposal, labeling of secondary containers, and accessing SDSs.

D. To comply with all applicable safety laws, rules, and Joint Commission, Department of Labor and Industries and Department of Ecology standards.

IV. PLAN PERFORMANCE MONITORING:

The performance monitoring process is used to measure the effectiveness of the plans Objectives. The plans performance monitoring Indicators are:

2022 MP Indicators	*Goal*	*Value / Measure of Performance*	*Semi-Annual Review Jan-June 2022*	*Annual Review July-Dec 2022*
Labeling and proper storage of Hazardous Waste Containers	85%	% of departments compliant as observed on EOC rounds, includes dating of Rx Destroyer containers	95% Compliant in labeling and proper storage 80% Compliant in dating of Rx Destroyer	75% Compliant in labeling and proper storage 50% Compliant in dating of Rx Destroyer
Reduce pharmaceutical waste using pharmacy inventory management system	5%	5% reduction in waste by mass as compared to 2021	12.8% Reduction	22.7%
Proper storage and segregation of e-cylinders	85%	% of departments compliant as observed on EOC rounds	79%	36.8%

V. PLAN ELEMENTS:

EC.02.02.01.1 – Identifying and Inventorying Hazardous Materials and Waste

HMC maintains a written, current inventory of hazardous materials and waste that is used, stored or generated at HMC. Materials included in the inventory are only those where handling, use and storage are addressed by law and regulation.

An HMC-wide physical inventory is conducted on a routine basis. Hazardous material inventories list the quantities, types and location of hazardous materials found in each department. New products and chemicals are added to the inventory as needed. The inventory is available to staff through the MyChem database.

EC.02.02.01.3, EC.02.02.01.4 - Procedures in response to hazardous material and waste spills or exposures

1. Hazardous Materials and Waste Spills and exposures
   The Safety Officer and UW EH&S work together to maintain procedures and policies regarding hazardous materials and waste spills. The Code Orange Administrative Policy and Procedure (APOP 50.12) outline response to incidental, minor, and major hazardous material spills. Departments that use hazardous chemicals on a daily basis have spills kits and train staff in their use for incidental spills. Minor or major hazmat spills and releases exceeding the capability of HMC staff requires clean up by a designated hazmat contractor and possible Code Orange initiation.

2. Spill Incidents and Records
   All spill incidents shall be documented using the Patient Safety Net (PSN) report system. PSN reports shall be completed by involved employee(s). Submitted PSN reports are reviewed, investigated and evaluated by the Department Manager, Ancillary managers, Employee Health and the Safety Officer. After Action Reports are also used to summarize and document major hazmat incidents, needing

corrective actions and follow-up. After Action reports are reviewed by the EOC committee and Emergency Management Committee as needed.

The Safety Officer and EOC Committee are responsible for developing recommendations based on reports of incidents. The Safety Officer is responsible for taking appropriate action to implement any recommendation developed by EOC Committee. A thorough investigation and After Action Report will be completed for all Code Orange incidents.

3. Personal Protective Equipment
HMC Staff is trained by their supervisor on personal protective equipment (PPE), including gloves, safety glasses, and protective clothing that are used when handling hazardous materials or waste. The HMC Respiratory Protection program outlines roles and responsibilities, tasks requiring respiratory protection, training, fit-testing and other requirements of the program.

HMC staff is not trained in the use of PPE when a major spill has occurred. HMC staff is to remove themselves from the area where a spill or release has occurred and follow emergency procedures for a Code Orange. Major hazardous material and waste spills are cleaned up by an outside contractor.

EC.02.02.01.5 - Chemicals

1. Selecting hazardous materials

All hazardous materials and products are evaluated for hazards, safe use and waste generated. The least hazardous materials that are effective for the intended purpose are preferred.

Prior to purchasing new disinfectants and cleaning chemicals, new products are evaluated by Environmental Services leadership, the Safety Officer and Infection Control. Following this initial review, the new product is presented to the Product Evaluation and Standardization committee and is evaluated based on recommendations, distribution and available vendors. The Safety Officer and Infection Control work with Environmental Services to create policies and procedures regarding use of disinfectants.

Lab Medicine (see New Instrument or Procedure Checklist) and Pathology (Safety, Chemical Receiving Instructions) have internal processes for evaluating new chemicals for safety and hazard controls. Final approval of new chemicals is determined by Lab Medicine, Pathology leadership with review by the Safety Officer.

The Safety Officer is notified by Supply Chain Management when other types of new chemicals and hazardous products are requested for procurement.

2. Handling and using hazardous materials

Managers must ensure that staff has training and information for safe handling of hazardous materials that are used in their departments. General hazard communication and chemical hygiene is presented at New Employee Orientation and provided in Annual Competencies. Staff is educated for using safe handling methods, as outlined below:

a. How to access SDSs using MyChem; How to understand the information provided by SDSs
b. Use of personal protective equipment such as gloves or eyewear when handling hazardous materials
c. Proper labeling of secondary containers with the chemical name and hazard warnings
d. Accessing the Emergency Flipchart to respond to chemical spills Proper disposal of hazardous waste
e. Chemical Hygiene, keeping food and personal items away from areas where chemicals are used

Safety information, hazard controls, exposure, spill and disposal policies and procedures are written for specific hazardous chemicals, such as Formaldehyde, Cidex OPA and Mercury.

The survey team on EOC rounds evaluates compliance with use, labeling, and storage of hazardous materials and waste. Deficiencies are reported to appropriate managers for immediate follow-up, including reeducation of staff involved.

3. Storing hazardous materials and wastes

   All bulk hazardous chemicals and waste shall be stored in approved storage rooms or cabinets. The working quantity of hazardous chemicals and waste the department needs or generates shall be stored in the department in an approved location, container and flammable cabinet, if needed.

   UW EH&S picks up hazardous waste from departments on a routine or periodic basis as needed. Accumulated hazardous waste is securely stored at HMC in the hazardous waste storage room in basement West Clinic. UW EH&S inspects the HMC hazardous waste room on a weekly basis and ensure waste is not stored for longer than 90 days.
   Storage of Hazardous Materials and Wastes require Seattle Fire Department's permit. The Facilities and Engineering department is responsible for acquiring usage and storage permit.

4. Disposing hazardous materials and wastes

   The Director of Environmental Services, Safety Officer, and UW EH&S are responsible for developing policies and procedures for handling hazardous wastes. Department managers are responsible for enforcing these procedures. The following parties are responsible for the management of specific types of wastes generated at HMC.

   EH&S is responsible for managing the final disposal of chemical, pharmaceutical (including chemotherapeutic) and radiological wastes generated by HMC. Each HMC department shall dispose its chemical, regulated medical waste, pharmaceutical or radioactive waste in the appropriate waste container.

   Department managers request chemical waste pick-up from EH&S by submitting a Chemical Waste Collection Request. An EH&S Technician collects the hazardous material waste from individual departments and stores the waste in the satellite hazardous waste storage room at HMC. EH&S conducts weekly inspections to ensure storage compliance and takes a quarterly inventory. Hazardous waste is not stored on site longer than 90 days.

   EH&S maintains an outside contractor to pack, transport, and destroy the wastes. All hazardous chemical waste is disposed of at Environmental Protection Agency (EPA) permitted hazardous disposal facilities or recycling facilities. EH&S maintains all records pertaining to waste management and disposal activities, requests for waste collection, off-site shipping manifests and certificates of disposal or recycling. Copies of hazardous waste manifests, quarterly inventories, and weekly inspection documents are kept locally by the Safety Officer.

   Environmental Services (EVS) collects the regulated medical and pharmaceutical wastes, with the exception of sharps waste from HMC departments. EVS treats regulated medical waste onsite using steam sterilization (Sani-Pak) the decontaminated medical waste is then disposed of via the regular solid waste stream.

   Staff disposes of sharps waste, such as needles, broken ampoules and scalpels into puncture resistant, biohazard sharps bins. EVS maintains a contractor service to remove sharps waste from all of the HMC departments when the bins are more than three-quarters full. Sharps

containers are picked up directly from rooms and transported offsite for decontamination and disposal. EVS maintains the documentation for medical waste and sharps disposal.

Specific procedures for proper handling of sharps and infectious waste to avoid injury and exposure are found in the blood-born pathogen exposure plan of the Infection Control Manual.

EC.02.02.01.6 - Radioactive Materials

HMC policy regarding handling, storing, transporting, using and disposing of radioactive materials is found in the University of Washington Radiation Safety Manual. HMC clinical staff using radioactive materials must be trained and licensed radiology or nuclear medicine technologists. HMC research lab staff using radioactive materials must complete training through UW EH&S.

The Radiation Safety Officer (RSO) is responsible for the day-to-day coordination and management of the radiation safety program. The RSO is responsible for assuring that all areas where radioactive materials are used are maintained in compliance with applicable Nuclear Regulatory Commission and Washington Department of Health regulations.

Radiology Staff who may be potentially exposed to 10 % of the annual occupational limit for radiation exposure wear personal dosimeters that are managed by the Area Dosimetry Coordinator for the area and returned to the RSO for processing and evaluation. The RSO and the Radiation Safety Committee must approve the use of all radioactive materials at HMC. All radioactive materials are initially received and surveyed through the EH&S Radiation Safety Office.

Radioactive waste is held within the department until decay. All containers having radioactive materials shall have a warning label with a standard symbol indicating that the material is radioactive. All areas where radioactive materials are stored and wastes are decayed are secured from entry by unauthorized staff.

Spills and unwanted exposures to radioactive materials are documented using PSN. Incidents of over exposure will be investigated by the RSO and Safety Officer.

EC.02.02.01.7 - Minimizing risks associated with selecting and using hazardous energy sources

All equipment that emits ionizing and non-ionizing radiation is selected and managed as part of the Medical Equipment management program. The energy emitted by equipment is surveyed as part of the Radiation Safety program to determine and prevent hazards posed to patients and staff.
All staff who works with or around hazardous energy sources are oriented and trained on safe work practices and provided appropriate PPE.

All HMC staff are trained on the hazards of the Magnetic Resonance Imaging (MRI) units and requirements for entering a MRI suite. Non-radiology staff members who may enter this area require additional training.

EC.02.02.01.8 - Hazardous Medications

In order to protect staff from inadvertent exposure and to meet WAC 296-62-500, the hazardous drug program has been implemented. The Hazardous Drug Control Program (HDCP) is a safety program administered and maintained by the UW Medicine Pharmacy with input and review by stakeholders including Nursing, Environmental Services and Safety. UW Medicine Pharmacy Administrative Policy and Procedures addresses compounding and preparation of hazardous drugs in the Pharmacy. Harborview Nursing Administrative Procedures address administration of hazardous drugs by Nursing and support staff.

A written inventory of hazardous drugs is maintained by UW Medicine Pharmacy and is available to staff through the HMC intranet. The hazardous drug list is based on the characteristics defining hazardous medication and guidelines from regulatory agencies. The overall program implementation is overseen at HMC by Safety Officer, Pharmacy and Clinical Education with review by the Environment of Care Committee.

Hazardous medications, including chemotherapy waste, are disposed of in designated collection bins located in the Pharmacy and in affected nursing units and clinics. EVS stores and transports the hazardous medication waste from the Pharmacy.

EC.02.02.01.9 - Hazardous Gases and Vapors

The Safety Officer is responsible for identifying needs for monitoring gases and vapors. Monitoring requirements and action levels are determined from regulations and industry standards.

Hazardous materials used by HMC may release vapors during normal use; including formalin, xylenes, ortho-phthalaldehyde (Cidex OPA), anesthetic gases and nitrous oxide. All staff is given specific training on handling such chemicals before use and personal protective equipment (PPE) requirements.

All chemical fume hoods and biosafety cabinets are inspected bi-annually by EH&S to ensure proper function. Vapor producing chemicals are stored in departments in closed and approved containers.

Plumbed vacuum systems are maintained by Clinical Engineering and Facilities & Engineering to remove excess nitrous and anesthetic gases during medical procedures.

EC.02.02.01.10 - Monitoring of Hazardous Gases and Vapors

Periodic monitoring of the levels of vapors generated by hazardous chemicals is conducted to ensure a safe environment. Personal and area monitoring is conducted by EH&S Industrial Hygienists.

The Safety Officer reviews exposure monitoring reports and implements any further corrective action or recommendations to reduce exposure. If exposure levels exceed regulatory standards, use of the hazardous gases and vapors shall stop until engineering and administrative controls or temporary use of appropriate PPE could be implemented.

EC.02.02.01.11 - Permits, Licenses, Manifests, and Material Safety Data Sheets

The Safety Officer and EH&S ensure that all required permits and licenses for storage, use and production of hazardous materials and waste are obtained. The permits and licenses are updated as required. Copies of the permits and licenses are posted in areas as required by law or regulation.

EH&S receives and reviews all manifests required by law or regulation from the licensed waste contractor. Copies of the manifests are maintained at HMC by the Safety Officer.

SDSs are managed by EH&S and can be accessed by all employees online at https://cspc.admin.washington.edu/mychem/uwnetid/home/greeting.aspx. EH&S uses the annual inventory to ensure that all HMC SDSs are current.

An annual report for hazardous waste generated by HMC is required by the Washington State Department of Ecology. This report is prepared and submitted by EH&S. The Safety Officer receives a copy of the annual report that is kept at HMC.

EC.02.02.01.12 - Labeling hazardous materials and waste

All staff are trained that all, primary and secondary containers and waste containers, shall be labeled with contents and hazard warnings. Compliance with container labeling is audited during EOC rounds.

All hazardous waste has designated waste containers with content labels and appropriate hazard warnings.

EC.02.02.01.17–18 - Staff Dosimetry

The Radiology Policy and Procedure outlines HMC's guidelines for monitoring and protecting staff from radiation exposure. Federal and state regulations require the UW to monitor the radiation dose to employees who may be exposed to radiation as part of their job duties. Workers are required to wear dosimetry if they are likely to receive at least 10 percent of the annual dose limit. Depending on the source and amount of exposure, this may include whole body badges, rings or both as determined by the HMC Radiation Safety Officer (RSO). Individual badges are collected monthly or quarterly, and the reported doses are reviewed by the HMC RSO.
The As Low as Reasonably Achievable (ALARA) principle ensures individual doses are monitored closely, and helps ensure employees are not receiving excess radiation exposure from the jobs they perform. Regulatory dose limits are used to determine whether further investigation by the RSO is needed for staff radiation exposures.

EC.02.02.01.19 – Storage and disposal of trash

HMC Environmental Services oversees prompt disposal of trash throughout the hospital in offices, clinics, and all outpatient and inpatient care areas. EVS has storage space for trash on each floor awaiting pick up for central disposal to onsite waste dumpster. Staff may contact EVS for needed trash pick-up outside of routine pick-up.

CROSS REFERENCE

- University of Washington Memorandum of Understanding between Environmental Health & Safety and Harborview Medical Center
- Code Orange Administrative Policy and Procedure
- After Action Report
- Harborview Medical Center Respiratory Protection Program
- Lab Medicine: New Instrument or Procedure Checklist
- Pathology: Safety, Policy & Procedure 1.07.15: Chemical Receiving Instructions
- Health & Safety Policy and Procedure: CIDEX OPA
- Health & Safety Policy and Procedure: Formaldehyde Management Plan
- Health & Safety Policy and Procedure: Mercury Management
- Chemical Waste Collection Request
- University of Washington Radiation Safety Manual
- UW Medicine Hazardous Drug Control Program
- Radiology Policy and Procedure: Radiation Exposure Monitoring and Protection of Patients and Staff

UW Medicine
HARBORVIEW MEDICAL CENTER

HMC Policies and Procedures

WASTE MANAGEMENT PLAN

Department:	Environmental Services
Policy Number:	
Effective Date:	June 1985
Revision Date:	August 2023
Owner:	Julianna Musungu

POLICY PURPOSE

The cleanliness of the healthcare environment is important for infection prevention and control as well as patient well-being. Environmental Services (EVS) staff, along with other healthcare professionals, plays an important role in quality improvement, in the confidence the public has in hospitals and healthcare, and in reducing infection related risks.

Harborview Medical Center (HMC) is dedicated to minimizing the risk of nosocomial infections by establishing guidelines for the management of waste generated in both clinical and non-clinical areas. HMC is committed to incorporating environmental stewardship practices into the waste management process in an effort to divert noninfectious waste from the landfill while meeting regulatory requirements. A variety of terms are used by federal, state, county, and city regulatory agencies to describe hospital waste. These terms include regulated medical waste, biohazardous waste, biomedical waste, infectious waste, pathological waste and general medical waste. Following are definitions of the waste categories that EVS is involved with at HMC.

DEFINITIONS

Biohazardous Waste: Biohazardous waste includes waste also referred to as infectious or biomedical waste. This includes liquid or semi-liquid blood or other potentially infectious materials (OPIM); contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that is caked with dried blood or other potentially infectious materials and is capable of releasing these materials during handling. OPIM includes semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and any body fluids in situations where it is difficult or impossible to differentiate between body fluid.

Human Pathological Waste: Human pathological waste includes human tissues and anatomical parts that emanate from surgery, obstetrical procedures, autopsy, teaching and research laboratories. It does not include extracted teeth, human corpses, remains, and anatomical parts that are intended for interment or cremation. Extracted teeth not intended for interment or cremation are treated and disposed as human pathological waste.

Sharps Waste: The term "sharps" is a regulatory waste classification associated with those instruments used to puncture, cut, or scrape body parts and that, in a waste container, can cause punctures or cuts to solid waste handlers or the public. This means that all sharps waste is placed in appropriate sharps containers and decontaminated prior to disposal. Sharps include the following: needles, syringes with needles, IV tubing with needles attached, lancets, guide wires and scalpel blades. If contaminated with biohazardous waste the following are also considered sharps waste: glass slides; cover slips; razor blades; glass tubes/vials that can be broken during handling such as Pasteur pipettes, ampoules, capillary tubes; and other sharp items not defined above when contaminated with biohazardous materials. If not contaminated with biohazardous materials, these items must be disposed of as laboratory glass in sealed cardboard boxes.

Hazardous Waste: Hazardous waste is waste that is dangerous or potentially harmful to human health or the environment. Hazardous waste can be liquids, solids, contained gases or sludges with one or more of

the following hazardous traits: ignitability, reactivity, corrosivity and toxicity. Hazardous waste includes the following: pharmaceutical waste, chemotherapy waste, chemical waste, paints and solvents, mercury-containing wastes, electronics, aerosols, and batteries.

Pharmaceutical Waste: Pharmaceutical waste is any form of medication from the Pharmacy that is no longer needed for a patient, has been partially used or contaminated and therefore cannot be returned to the Pharmacy. Pharmaceuticals can be in the form of a pill, an oral liquid, an intravenous liquid or another form that is intended for a patient to consume. Pharmaceutical waste includes the following: creams/paste/ointments, eye drops, inhalers, IV bags and tubing, lotions, powders, tablets/pills, sprays, test strips, nebulizer containers and chemotherapy drugs and administration debris.

Narcotic or Controlled Substances Waste: Narcotic waste is any form of narcotics or controlled substances from the Pharmacy that is no longer needed for a patient, has been partially used or contaminated and therefore cannot be returned to the Pharmacy. Narcotics or controlled substances can be in the form of a pill, an oral liquid, an intravenous liquid or another form that is intended for a patient to consume. Narcotic waste includes the following: tablets/capsules, lozenges, suppositories, liquids (oral/injectable), lollipops, and patches.

Battery Waste: Battery waste is considered universal waste which is a special category of hazardous waste and is subject to somewhat less stringent regulatory requirements. Batteries contain corrosive acids and toxic metals that are hazardous to the environment. Battery waste includes the following: alkaline, alkaline-manganese, lithium, button cell mercuric oxide, mercuric-oxide, lead acid, silver oxide, zinc air, zinc-carbon, nickel-cadmium and cell button batteries.

Recycling Waste: Recycling is the process of collecting and converting waste materials into new materials and products. Recycling can prevent the waste of potentially useful materials and reduce the consumption of fresh raw materials, thereby reducing energy usage, air pollution and water pollution. Commingled recycling or single stream recycling is a process in which recyclables are mixed together in a single collection container. Commingled recycling includes the following: glass bottles, paper products, paper boxes, plastic bottles, plastic containers, and metal cans. Cardboard is the generic term for a heavy-duty paper and includes corrugated boxes, paperboard boxes and cardstock.

Compostable Waste: Compost is organic matter that has been decomposed in a process called composting. Compost is used in gardens, landscaping, horticulture, urban agriculture and organic farming to enrich the soil, retain moisture, suppress plant diseases and pests and reduce the need for chemical fertilizers. Compostable waste includes: food waste, food soiled paper and boxes, plants and flowers, yard waste, wood scraps and approved compostable packaging, service ware and utensils.

Confidential Waste: Confidential information as defined by UW Medicine security policy includes, but is not limited to, personally identifiable information, protected health information, workforce records, student records, social security numbers, legally protected University records, research data, passwords and intellectual property. Items that can be placed in the confidential collection containers include the following: paper confidential documents, leftover patient labels, patient ID wrist bands, plastic bags with patient labels, and media storage devices, i.e., CDs, DVDs, flash drives, floppy disks, that contain confidential information.

Construction Debris Waste: Construction and demolition (C&D) materials are generated during the construction, renovation and demolition of new and existing buildings, roads and bridges. The materials can be diverted from disposal through recycling and reuse. Accepted materials include: concrete, porcelain, rigid plastics, i.e., paper towel dispenser, tile, lumbar, metals, masonry, plastic, rock, carpet, insulation, foam mattress, and clean Styrofoam.

Print Cartridges Waste: Print and toner cartridges are used in printers, copiers, fax machines and multi-functional devices and are recyclable. Accepted items include: printer/toner cartridges, fusers and transfer rollers, drum/imaging units, and fuser oil units.

Solid Waste: Solid waste AKA landfill waste is commonly known as trash or garbage. Solid waste includes anything with no recyclable value or regulated disposal requirements and is permitted for disposal at municipal solid waste landfill.

PERFORMED BY

EVS Custodian
EVS Supervisor

PROCEDURE

- HMC employees are responsible for the safe and proper disposal of the waste they generate.
- HMC approved waste containers will be placed at or near the points of waste generation. Waste containers and supplies will be provided by EVS and/or their contracted vendors. Containers will be located strategically to encourage the safe and proper disposal of the waste generated. Waste containers will be located so that no more than 32 gallon capacity is located within 64 square feet.
- EVS staff will line the waste containers requiring bags with the appropriate liners. Waste containers will be emptied or switched out per the cleaning schedule.
- The bags and/or containers will be securely closed or sealed prior to collection and transport. They will be handled carefully to avoid accidental injury, exposure, tearing, rupturing or puncturing during collection and transport.
- Waste containers provided by EVS contracted vendors will be monitored and serviced by their staff as per the agreed upon schedule. When contracted vendor staff is not present, EVS staff will monitor the containers and service as needed.
- EVS staff and EVS contracted vendor staff are required to wear the appropriate personal protective equipment (PPE) when handling waste.
- EVS staff and/or EVS contracted vendor staff will transport the collected waste from the generation points to consolidated collection sites, i.e., compactor, dumpster. Contracted waste vendors will pick-up the waste and transport off-site for proper disposal as per agreed upon schedule.

CROSS REFERENCE

Waste that presents a potential infection hazard to hospital waste handlers and the general public shall be identified, handled, and disposed of in a safe manner consistent with the recommendations of advisory and regulatory agencies.

University of Washington Environmental Health & Safety – https://www.ehs.washington.edu/

- Biosafety Manual – https://www.ehs.washington.edu/system/files/resources/uw-biosafety-manual.pdf
- Biohazardous Waste Management Plan – https://www.ehs.washington.edu/system/files/resources/biohaz-waste-plan.pdf
- Biohazardous Waste Flow Charts – https://www.ehs.washington.edu/biological/biohazardous-waste/biohazardous-waste-flow-charts
    - Harborview Medical Center – https://www.ehs.washington.edu/system/files/resources/harborview-waste.pdf
    - Harborview Research & Training Building – https://www.ehs.washington.edu/system/files/resources/hrt-waste.pdf
- Chemical Waste Guide for UW Facilities – https://www.ehs.washington.edu/system/files/resources/chemical-waste-guide-facilities.pdf

HMC 2020 Environment of Care Plan: Hazardous Materials and Waste Management – found under EOC Committee at https://hmc.uwmedicine.org/BU/EOC/Pages/EOCCommittee.aspx

HMC Waste Management Reference– Refer to attachment

Site-Specific Procedures for Biohazardous Waste – Refer to attachments

- Autoclaving Biohazardous Waste On-Site
    - Ninth & Jefferson Building SOPS
    - San-I-Pak Waste Management Plan
- Shipping Regulated Medical Waste via Contracted Carrier SOPs
    - Main Hospital

- Ninth & Jefferson Building
- Patricia Steel Building
- Harborview Research & Training Building

REVIEW / REVISION DATES

August 2023

Process Owner:	Julianna Musungu		
[enter name and title of dept. mgr. or leader who is authorized to sign]:		Date:	
[enter name and title of dept. mgr. or leader who is authorized to sign]:		Date:	

Required Committee Reviews (in this order)
1)
2)
3)

Appendix D: NOISE AND AIR QUALITY MEMORANDUM

ESA

2801 Alaskan Way
Suite 200
Seattle, WA 98121
206.789.9658 phone

esassoc.com

Technical Memorandum

Date	May 7, 2024
To	Ted Klainer, Laura Schermerhorn
From	Sean Burlingame, ESA Dominic Scarano, ESA
Subject	**Harborview Medical Center Heliport Noise and Air Quality Modeling Approach, Input Assumptions, and Results for Proposed Project**

1. Background

ESA is preparing a noise and air quality analysis for a proposed hospital building at the Harborview Medical Center (HMC) in Seattle, Washington, herein referred to as "The Project or Project." The Project includes the relocation of the three View Park II parking garage heliports at the Project site to the rooftop of a proposed hospital building. The existing heliports are located on the approximately 10-foot-tall Above Ground Level (AGL) View Park II parking garage located on the western portion of the campus site. The Project heliports would be relocated approximately 300 to 360 feet northwest of their existing location to the new hospital building roof.

Per the scope of work, noise contours and an air emission inventory were produced for three scenarios: 2022 Existing Conditions, 2028 Proposed Project Scenario A, and 2028 Proposed Project Scenario B. The Existing Conditions represent the heliport configuration atop the View Park II parking garage. The 2028 Proposed Project Scenario A reflects the shift to the northwest and places the future rooftop heliports at 240 feet AGL. The 2028 Proposed Project Scenario B reflects the same shift to the northwest and places the future rooftop heliports at 320 feet AGL.

This technical memorandum discusses the noise modeling approach, input assumptions, and results of the analysis for the Project. Please see **Appendix A** in this technical memorandum for additional information on aircraft noise and aircraft noise terminology. The following sections address the Federal Aviation Administration (FAA)'s Aviation Environmental Design Tool (AEDT)[1], Version 3f, inputs developed under the following categories:

- Heliport layout physical descriptions
- Aircraft operations
- Aircraft noise, air quality, and performance characteristics
- Heliport utilization
- Flight track geometry and use
- Meteorological conditions
- Terrain
- Discussion of results

1 https://aedt.faa.gov/

2. Heliport Layout Physical Descriptions

The HMC campus is in the First Hill neighborhood of Seattle, Washington at 325 9th Avenue. The campus site is surrounded by commercial and urban land uses. The existing heliport is atop an approximately 10-foot AGL parking garage located on the western portion of the campus.

This technical memorandum includes the existing heliport layout, which is used in the 2022 Existing Conditions Scenario, and the Proposed Project heliport layout which is used in the 2028 Proposed Project Scenario A and Scenario B. **Table 1** provides the heliport layout data for the Existing and Proposed Project scenarios. As shown in Table 1, the Proposed Project Scenario heliports will be collocated (i.e., same latitude and longitude) and only differ by their respective elevations.

Table 1. Heliport Data for Existing and Proposed Project Scenarios
Source: Project Team, 2024.

Heliport	Latitude	Longitude	Elevation (Feet Above Ground Level [AGL])
Existing H1 (EX H1)	47.603133	-122.325074	10
Existing H2 (EX H2)	47.602985	-122.324933	10
Existing H3 (EX H3)	47.602797	-122.324752	10
Proposed A H1 (PA H1)	47.603548	-122.325349	240
Proposed A H2 (PA H2)	47.60369	-122.325509	240
Proposed A H3 (PA H3)	47.604008	-122.32573	240
Proposed B H1 (PB H1)	47.603548	-122.325349	320
Proposed B H2 (PB H2)	47.60369	-122.325509	320
Proposed B H3 (PB H3)	47.604008	-122.32573	320

3. Aircraft Operations

Title 14 of the Code of Federal Regulations (CFR) Part 150 (14 CFR Part 150) and its table of noise/land use compatibility guidelines require the calculation of Day Night Average Sound Level (DNL) for aircraft noise analyses. That is, the total noise exposure (in DNL) averaged over a year – typically a calendar year. The AEDT produces these values of exposure utilizing an "Average Annual Day" (AAD) of aircraft operations.

Heliport operations for the modeled scenarios were derived from flight log data provided by the project team. Given the unpredictable nature of emergency services and the absence of projected operations, the project team concluded that the modeled number of annual operations for the existing year would be applied to the future year scenario. The annual operations modeled for the 2022 Existing Conditions Scenario and the 2028 Proposed Project Scenarios A and B were 2,330.[2]

Airlift Northwest (ALNW) and Life Flight Network (LFN) are the primary operators to/from HMC. Through collaboration with the project team and subsequently the operators, it was determined that ALNW's fleet is comprised of the Eurocopter EC-135 and LFN utilizes the Bell 429 (B429). The EC-135 is not a standard helicopter type in the AEDT 3f database. However, the appropriate substitute for the EC-135 was determined to be the B429 since the airframe and powerplant characteristics are similar to the EC-135. The operational characteristics and

[2] Each helicopter landing or takeoff counts as one aircraft operation.

noise levels of the B429 are representative of the helicopters that currently utilize or would be expected to utilize the existing and proposed heliports.

While ALNW and LFN make up most operations at HMC, occasional military operations are conducted for training or emergency purposes. The project team advised that the majority of these operations were conducted by the Sikorsky Black Hawk (UH-60) to the existing, southernmost heliport on the View Park II parking garage, Existing H3 (EX H3). These military operations to the EX H3 pad were included in the Existing Conditions Scenario and Proposed Project Scenarios A and B since a military-grade heliport is not planned to be constructed atop the proposed hospital building.

The day-night split for operations were obtained from calendar year 2022 flight logs and applied to the annual operations. This split was modeled as 77% (day) and 23% (night). **Table 2** presents the annual operations for the 2022 Existing Conditions Scenario and the 2028 Proposed Project Scenarios A and B.

Table 2. Annual Aircraft Operations – 2022 Existing Conditions and 2028 Proposed Project Scenarios
Source: Project Team, 2024.

Aircraft Type	Day	Night	Total
B429	1,789	535	2,324
UH-60	5	1	6
Total	**1,794**	**536**	**2,330**

4. Aircraft Noise, Air Emissions, and Performance Characteristics

Specific noise and performance data must be entered into the AEDT for the helicopter operating at the campus site. Noise data is included in the form of Sound Exposure Level (SEL) at a range of distances (from 200 feet to 25,000 feet) from a particular aircraft with engines operating at a specific thrust level. Performance data includes thrust, speed, and altitude profiles for takeoff and landing operations. This data includes, but is not limited to, ground idle, flight idle, hover, ascend/descend, accelerate/decelerate, and level flight, representing a full flight for standard helicopter arrival and departure operations along a flight track. The AEDT database contains standard noise and performance data for aircraft, most of which are civilian aircraft. The AEDT automatically accesses the noise and performance data for takeoff and landing operations by those aircraft when calculating the noise generated by these operations.

Besides identifying the aircraft types in the database, AEDT has STANDARD, ICAO, and Noisemap aircraft flight profiles for takeoffs, landings, and flight patterns or touch-and-go operations. ESA used standard profiles for the B429 and UH-60.

Air emissions sources (e.g., helicopter exhaust) at the heliport within this analysis are from the helicopters operating at the hospital. Emissions inventories from the operation of helicopter main engines during each phase of flight were prepared using the AEDT.

5. Heliport Utilization

Heliport utilization refers to the frequency with which helicopters use each heliport during a year for helicopter operations. Heliport utilization is often dictated by wind patterns, however emergency services may preclude this. The more often a heliport is used throughout the year, the more noise exposure is created in areas adjacent to the

heliport. Heliport utilization estimates were obtained via collaboration with the project team and operators. The 2022 Existing Conditions Scenario and 2028 Proposed Project Scenarios A and B are depicted in **Table 4** and **Table 5,** respectively.

Table 3. Estimated Heliport Utilization – 2022 Existing Conditions Scenario
Source: Project Team, 2024.

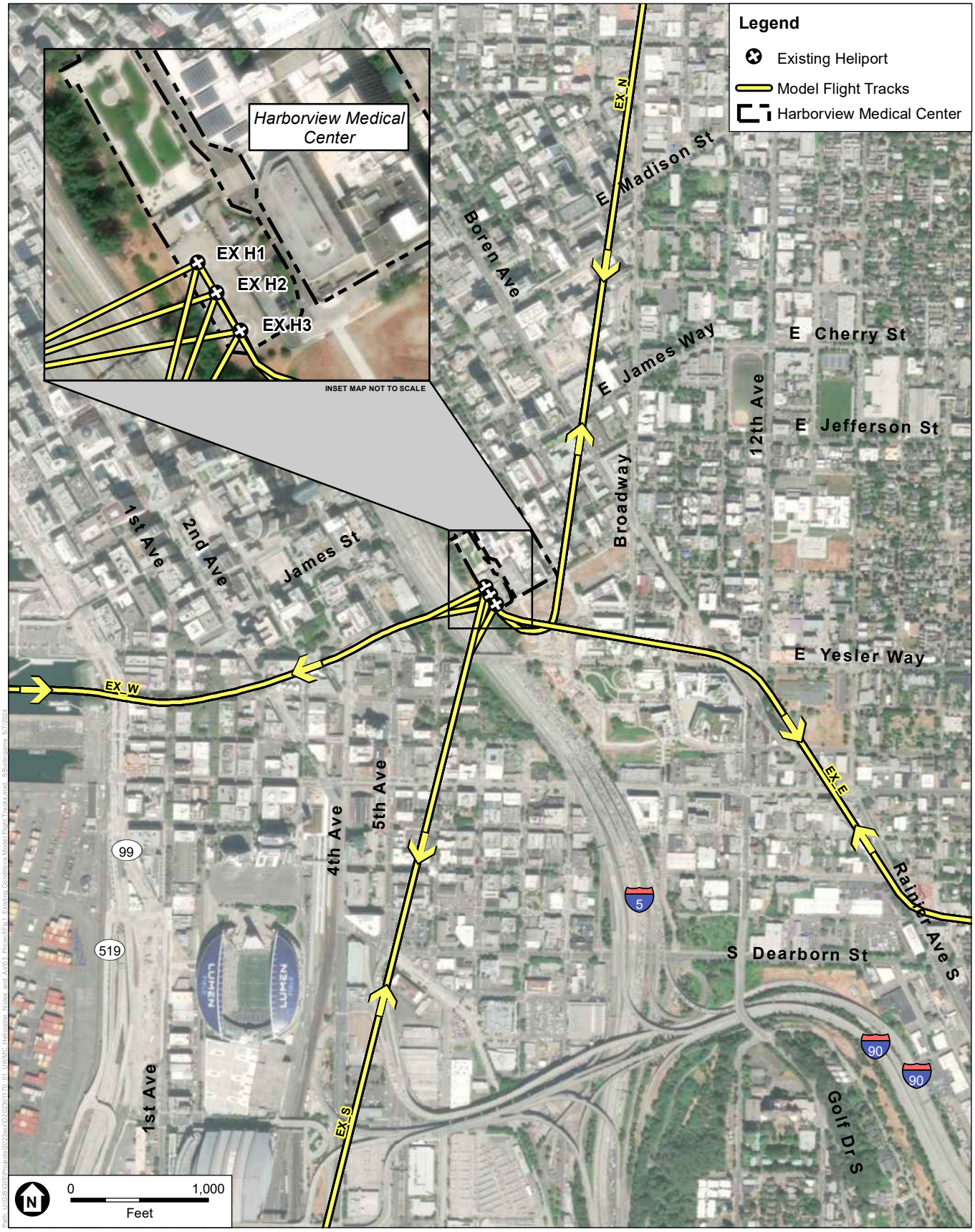
Existing H1 (EX H1)	Existing H1 (EX H2)	Existing H1 (EX_H3)	Total
30%	20%	50%	100%

Table 4. Estimated Heliport Utilization – 2028 Proposed Project Scenarios
Source: Project Team, 2024; ESA, 2024.

Proposed A H1 (PA/B H1)	Proposed A/B H2 (PA/B H2)	Proposed A/B H3 (PA/B H3)	Total
50%	20%	30%	100%

6. Flight Track Geometry and Use

Model flight track geometry was developed using information and diagrams provided by the project team. ESA updated the proposed arrival and departure tracks by shifting and snapping the existing flight tracks to the proposed heliport locations. As the AEDT models full flight operations, noise exposure is computed throughout the entire heliport environment, including the areas traversed by the flight tracks. This may not necessarily lead to increased noise exposure being shown in these areas, as noise exposure is normalized to an average annual day, and is heavily dependent on the number, type, and frequency of operations, in addition to other factors such as the aircraft type being modeled, the time of day of the operations, and the altitude of the aircraft along the flight path, among others. **Figure 1** and **Figure 2** present the Existing Conditions Scenario and Proposed Project Scenario A and B modeled flight tracks, respectively. Flight track utilization was provided by ALNW and LFN. **Table 6** and **Table 7** present the modeled flight track usage percentages.

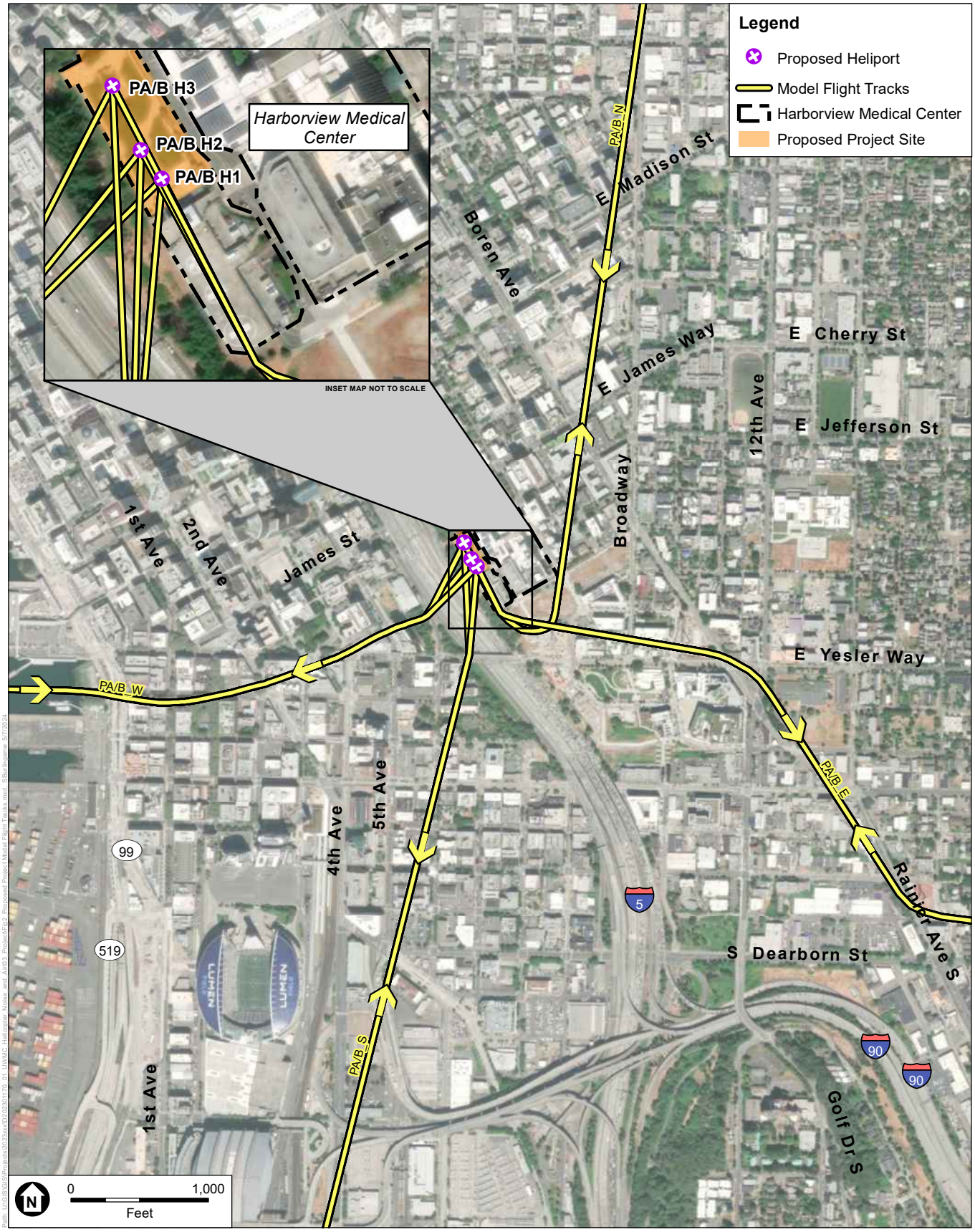


SOURCE: AEDT 3f; ESA, 2024.

Harborview Medical Center Noise and Air Quality Analysis

Figure 1
Existing Conditions Model Flight Tracks

ESA



SOURCE: AEDT 3f; ESA, 2024.

Harborview Medical Center Noise and Air Quality Analysis

Figure 2
Proposed Project Model Flight Tracks

ESA

Table 5. Flight Track Utilization – 2022 Existing Conditions Scenario
Source: ALNW, LFN, Project Team, 2024.

Track Name	Direction of Travel	Track Use	Track Name	Direction of Travel	Track Use	Track Name	Direction of Travel	Track Use
Arrivals								
Airlift Northwest			**Life Flight Network**			**Military**		
EX_E	Westbound	5%	EX_E	Westbound	-	EX_E	Westbound	5%
EX_N	Southbound	25%	EX_N	Southbound	5%	EX_N	Southbound	25%
EX_S	Northbound	50%	EX_S	Northbound	80%	EX_S	Northbound	50%
EX_W	Eastbound	20%	EX_W	Eastbound	15%	EX_W	Eastbound	20%
Arrivals Subtotal		**100%**	**Arrivals Subtotal**		**100%**	**Arrivals Subtotal**		**100%**
Departures								
Airlift Northwest			**Life Flight Network**			**Military**		
EX_E	Eastbound	5%	EX_E	Eastbound	-	EX_E	Eastbound	5%
EX_N	Northbound	25%	EX_N	Northbound	5%	EX_N	Northbound	25%
EX_S	Southbound	50%	EX_S	Southbound	80%	EX_S	Southbound	50%
EX_W	Westbound	20%	EX_W	Westbound	15%	EX_W	Westbound	20%
Departures Subtotal		**100%**	**Departures Subtotal**		**100%**	**Departures Subtotal**		**100%**

Table 6. Flight Track Utilization – Proposed Project Scenarios A and B
Source: ALNW, LFN, Project Team, 2024.

Track Name	Direction of Travel	Track Use	Track Name	Direction of Travel	Track Use	Track Name	Direction of Travel	Track Use
Arrivals								
Airlift Northwest			**Life Flight Network**			**Military**		
PA/B_E	Westbound	5%	PA/B_E	Westbound	-	EX_E	Westbound	5%
PA/B_N	Southbound	25%	PA/B_N	Southbound	5%	EX_N	Southbound	25%
PA/B_S	Northbound	50%	PA/B_S	Northbound	80%	EX_S	Northbound	50%
PA/B_W	Eastbound	20%	PA/B_W	Eastbound	15%	EX_W	Eastbound	20%
Arrivals Subtotal		**100%**	**Arrivals Subtotal**		**100%**	**Arrivals Subtotal**		**100%**
Departures								
Airlift Northwest			**Life Flight Network**			**Military**		
PA/B_E	Eastbound	5%	PA/B_E	Eastbound	-	EX_E	Eastbound	5%
PA/B_N	Northbound	25%	PA/B_N	Northbound	5%	EX_N	Northbound	25%
PA/B_S	Southbound	50%	PA/B_S	Southbound	80%	EX_S	Southbound	50%
PA/B_W	Westbound	20%	PA/B_W	Westbound	15%	EX_W	Westbound	20%
Departures Subtotal		**100%**	**Departures Subtotal**		**100%**	**Departures Subtotal**		**100%**

7. Meteorological Conditions

AEDT has several settings that affect aircraft performance profiles and sound propagation based on meteorological data. Meteorological settings include 10-year average temperature, barometric pressure, and relative humidity at the nearest weather reporting airport. Weather data from Boing Field/King County International (BFI) was used in the model, as weather information for HMC is not available in the AEDT. AEDT holds the following values for annual average weather conditions at BFI:

- Temperature: 53.70° F
- Pressure: 1016.51 millibars
- Sea-level Pressure: 1017.59 millibars
- Relative Humidity 70.27%
- Dew Point: 44.25° F
- Wind Speed: 4.53 Knots

8. Terrain

Terrain data describes the elevation of the ground surrounding a heliport. With the "use terrain" option enabled, the AEDT uses imported terrain data to adjust the ground level under the flight paths. The terrain data does not affect the aircraft's performance or noise levels but does affect the vertical distance between the aircraft and a "receiver" on the ground. This in turn affects how noise propagates over ground. ESA obtained 1/3 arcsecond terrain data from the United States Geological Survey (USGS) National Map Viewer and used it with the terrain feature of the AEDT in generating the noise contours.[3]

9. Discussion of Results

Changes in Noise Contours[4]

Figure 3 depicts the DNL 65, 70, and 75 contours for the Existing Conditions. The DNL contours consist of concentric circles radiating outward from the three existing heliports on the View Park II parking garage. The DNL 65 contour extends to the north towards Jefferson Street, south just past Yesler Way, west of Interstate 5, and east just short of 9th Avenue.

Figure 4 and **Figure 5** present the 2028 Proposed Project Scenarios A and B**,** respectively. The DNL contours are virtually identical and are very similar in size and shape to the Existing Conditions Scenario DNL, but reflect the shift north due to the location of the proposed heliports. Despite this shift, much of the noise exposure remains on HMC property. Additionally, noise west of the freeway or below the heliports will be reduced due to the increased elevation of the proposed heliports.

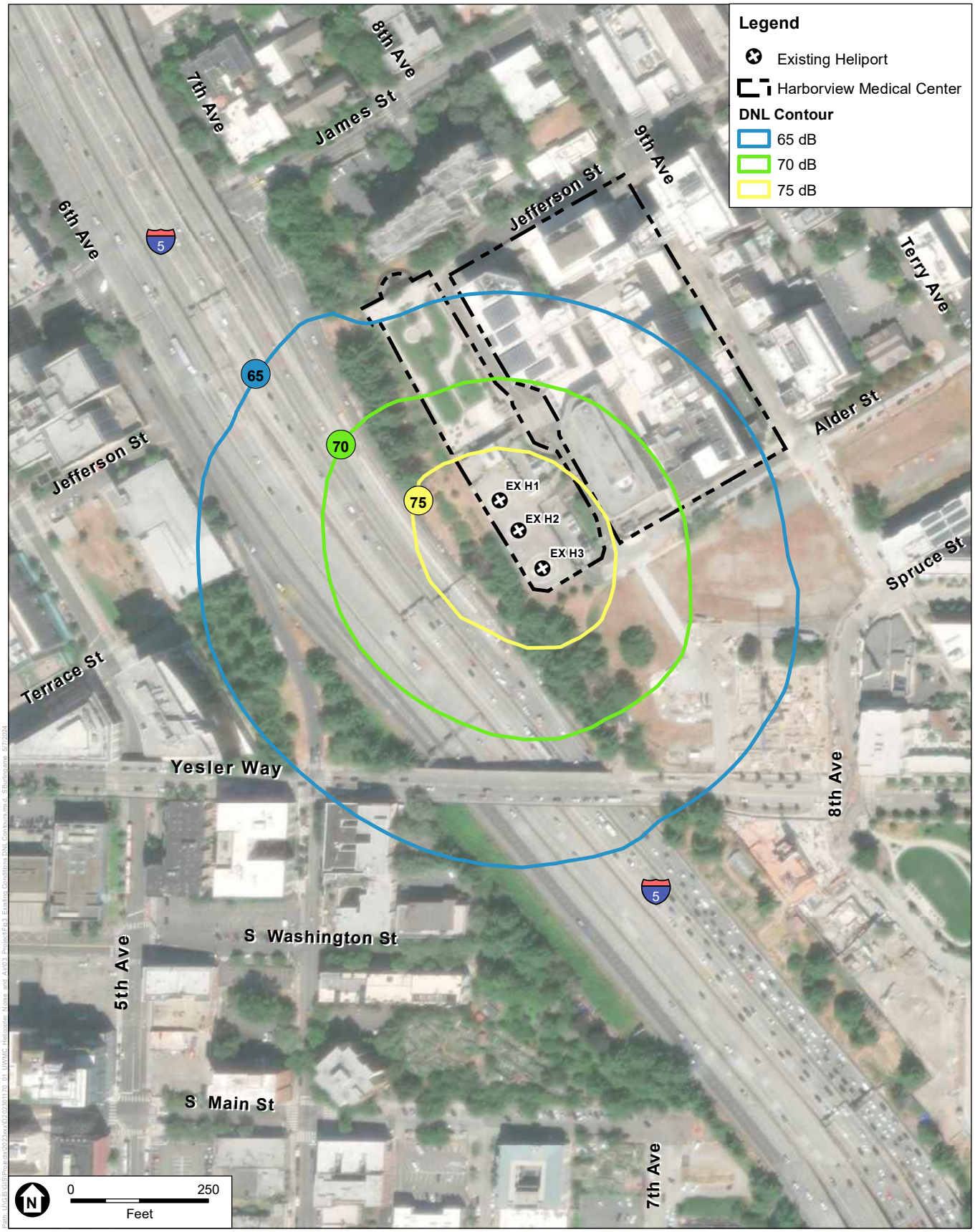
Figure 6 shows a comparison of the 2022 Existing Conditions Scenario and 2028 Proposed Project Scenarios A and B. As can be seen in Figure 6, the most discernable change resulting from Proposed Project Scenarios A and B

[3] USGS terrain obtained on January 25, 2023.

[4] Upon conducting the noise analysis with the AEDT terrain option enabled, we observed that the noise contours were identical for 2028 Future Proposed Project Scenarios A and B, regardless of the heliport elevation. However, the noise contour results with and without the terrain option were compared and it was observed that the noise contours with terrain option enabled were slightly larger and therefore more conservative, or "worst case" (i.e., louder) for each modeled scenario. Therefore, it was concluded that the noise contours with terrain enabled would be used for the purposes of this noise analysis.

is a shift in the contours to the northern location of the proposed heliports. Each figure shows the 65 through 75 DNL contours in 5 dB increments over an aerial basemap.

As shown in the aforementioned figures, the resulting noise from the existing and proposed project scenarios radiates outward from the heliports, in an omni-directional nature. The AEDT accounts for terrain, atmospheric attenuation, and possible shielding from the helicopter's airframe or engines, however it does not have the capacity to account for possible acoustical shielding provided by humanmade structures shielding a receptor (e.g., person) and the helicopter utilizing a heliport. As such, the results of this noise analysis should be considered conservative, or a "worst case scenario" for receivers surrounding the existing and proposed heliports.

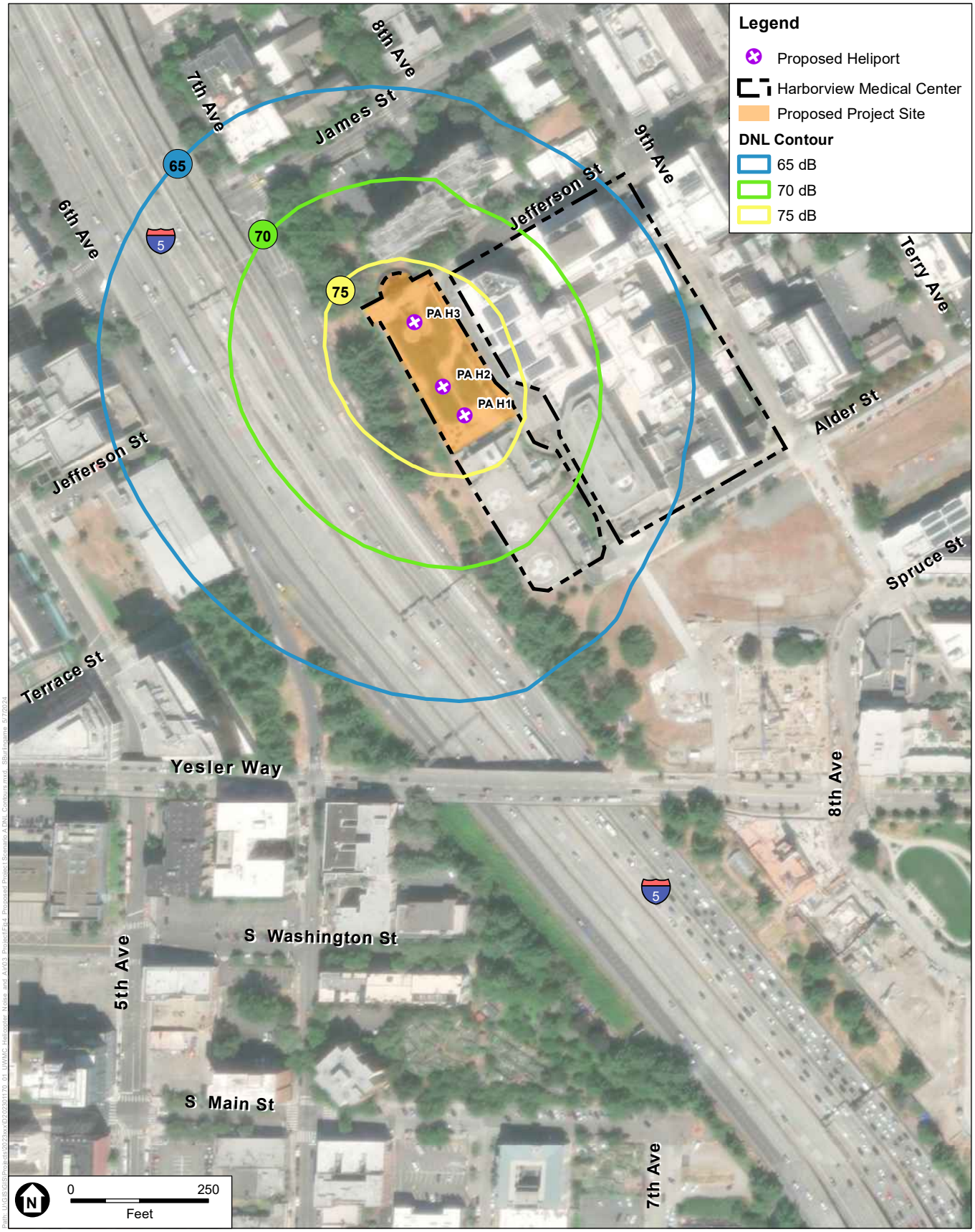


SOURCE: AEDT 3f; ESA, 2024.

Harborview Medical Center Noise and Air Quality Analysis

Figure 3
Existing Conditions DNL Noise Contours

ESA

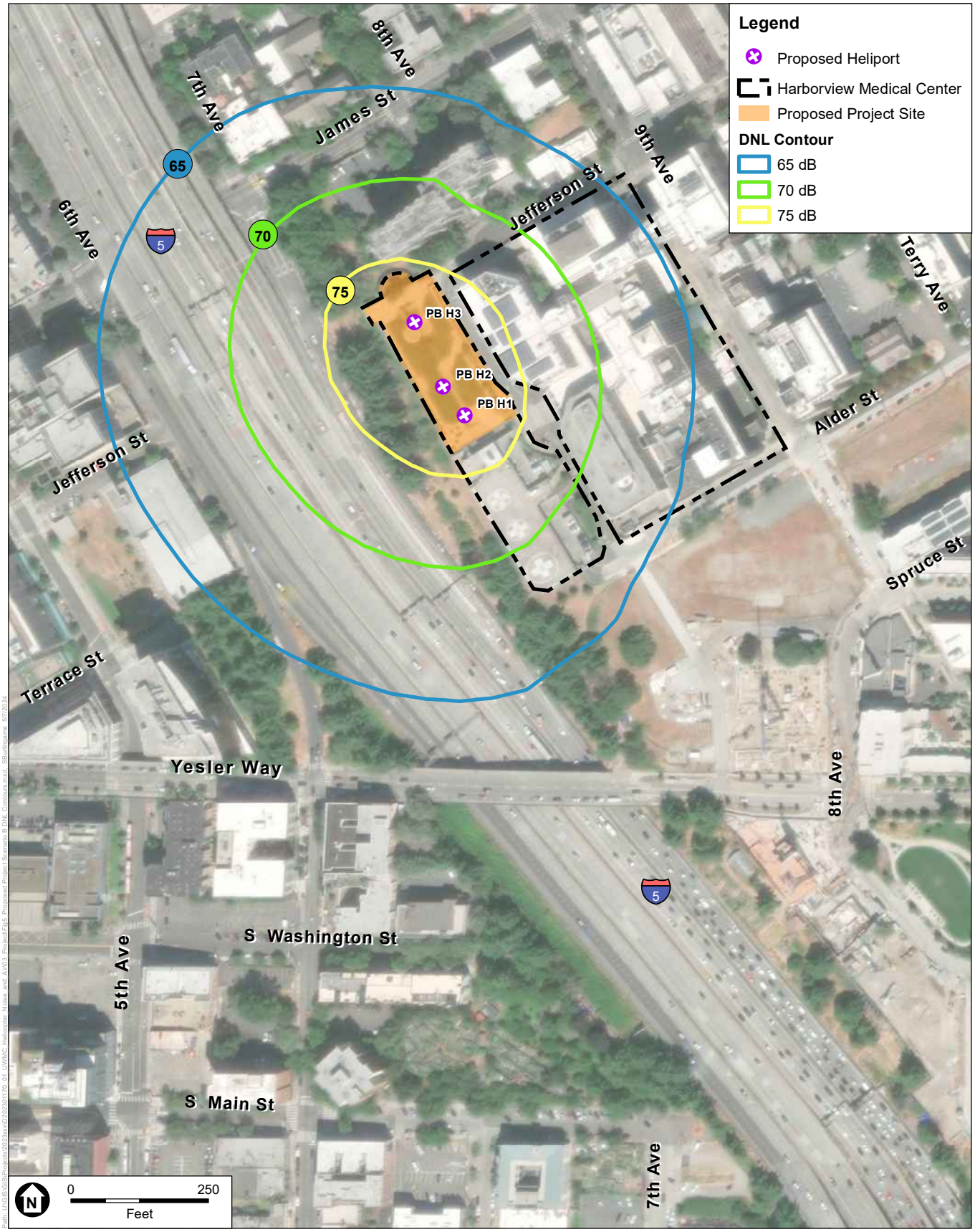


SOURCE: AEDT 3f; ESA, 2024.

Harborview Medical Center Noise and Air Quality Analysis

Figure 4
Proposed Project Scenario A DNL Noise Contours

ESA

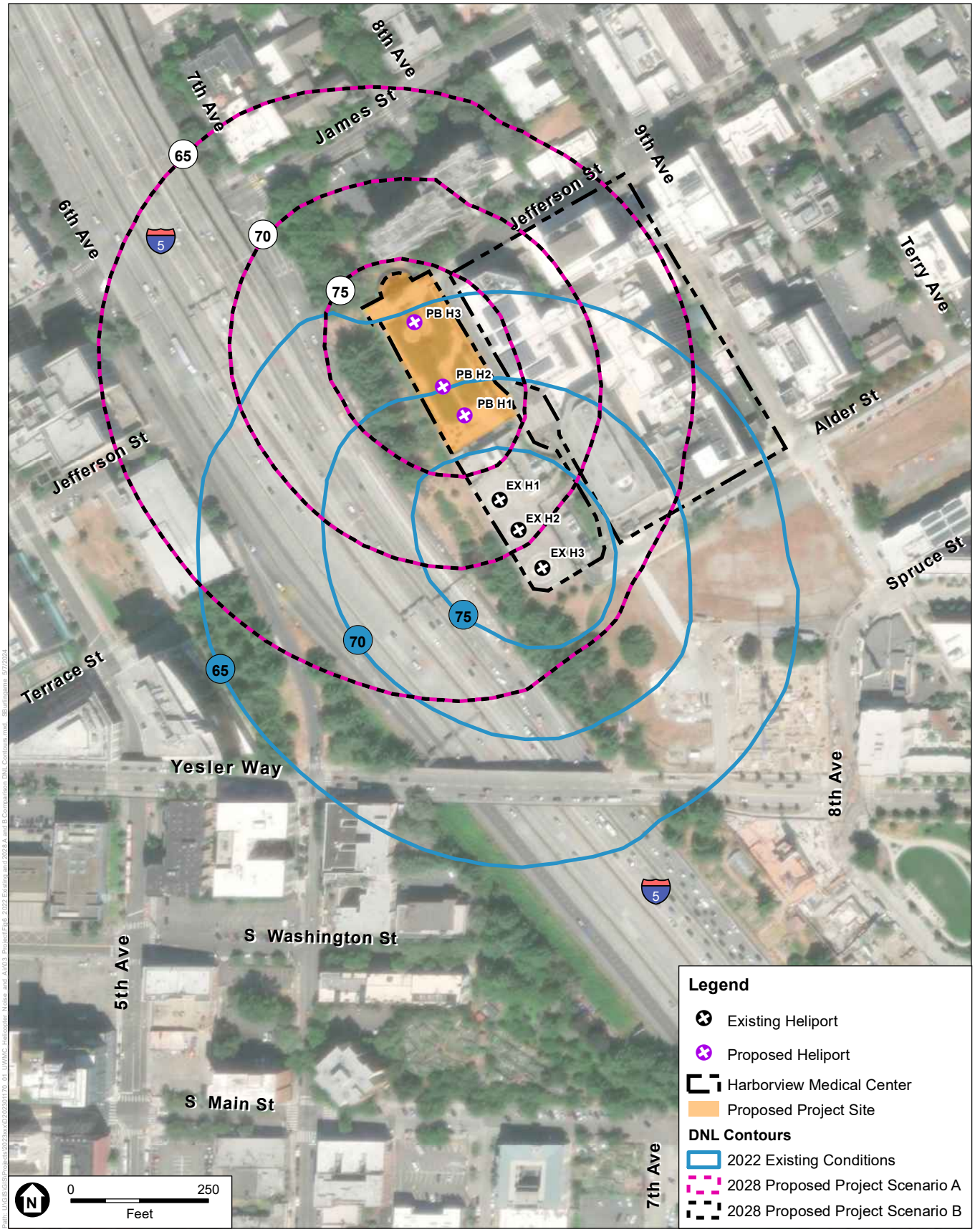


SOURCE: AEDT 3f; ESA, 2024.

Harborview Medical Center Noise and Air Quality Analysis

Figure 5
Proposed Project Scenario B DNL Noise Contours

ESA



SOURCE: AEDT 3f; ESA, 2024.

Harborview Medical Center Noise and Air Quality Analysis

Figure 6
Comparison of 2022 Existing Conditions and
2028 Proposed Project Scenarios A and B DNL Noise Contours

Criteria Pollutant Emissions from Heliport Operations

Emissions inventories for the following CARB criteria air pollutants were prepared for the 2022 Existing Conditions Scenario and 2028 Proposed Project Scenarios A and B using the modeling methodology described in previous sections: carbon monoxide, volatile organic compounds (a precursor to ozone), oxides of nitrogen, oxides of sulfur, particulate matter, and fine particulate matter contained in engine exhaust from the helicopters. The emissions inventories for the 2022 Existing Conditions Scenario and 2028 Project Scenarios A and B are shown in **Table 7**. Based on the emissions modeling results, heliport operations under the Proposed Project Scenarios A and B would not result in air emissions that would exceed applicable threshold of significance for any criteria air pollutants.

Table 7. Helicopter Air Emissions Inventories (Short Tons Per Year)
Source: AEDT 3f; ESA, 2024.

Scenario	CO	VOC	NOx	SO_X	PM_{10}	$PM_{2.5}$
2022 Existing Conditions	0.15	0.01	0.09	0.02	0.00	0.00
2028 Proposed Project A and B	0.16	0.01	0.10	0.02	0.00	0.00

APPENDIX A
Aircraft Noise

1.1 Environmental Noise Fundamentals

The measurement and human perception of sound involve two basic physical characteristics: intensity and frequency. Intensity is a measure of the acoustic energy of sound vibrations, expressed in terms of sound pressure. The higher the sound pressure, the more energy carried by the sound and the louder the perception of that sound. The second important physical characteristic is sound frequency, which is the number of times per second the air vibrates or oscillates. Low-frequency sounds are characterized as rumbles or roars, while high-frequency sounds are typified by sirens or screeches.

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level), which is measured in decibels (dB). On this scale, zero dB corresponds roughly to the threshold of human hearing and 120 to 140 dB corresponds to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound. Noise is commonly defined as unwanted sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. Sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts on humans, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency weighting and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown on **Figure A-1**.

1.2 General Characteristics of Aircraft Noise

Outdoor sound levels decrease as a function of distance from the source and as a result of wave divergence, atmospheric absorption, and ground attenuation. If sound is radiated from a source in a homogenous and undisturbed manner, the sound travels as spherical waves. As the sound wave travels away from the source, the sound energy is distributed over a greater area, dispersing the sound power of

the wave. Spherical spreading of the sound wave reduces the noise level, for most sound sources, at a rate of 6 dB per doubling of the distance.

Atmospheric absorption also influences the levels that are received by the observer. The greater the distance sound travels, the greater the influence of atmospheric effects. Atmospheric absorption becomes important at distances of greater than 1,000 feet. The degree of absorption is a function of the sound frequency, as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest at high humidity and higher temperatures. Turbulence and gradients of wind, temperature, and humidity also play a significant role in determining the degree of attenuation. Certain conditions, such as inversions, can also result in higher sound levels that would result from spherical spreading as a result of channeling or focusing the sound waves.

Absorption effects in the atmosphere vary with frequency. The higher frequencies are more readily absorbed than the lower frequencies. Over large distances, the lower frequencies become the dominant sound as the higher frequencies are attenuated.

The effects of ground attenuation on aircraft noise propagation are a function of the height of the source and/or receiver and the characteristics of the terrain. The closer the source of the noise is to the ground, the greater the ground absorption. Terrain consisting of soft surfaces, such as vegetation, provide for more ground absorption than hard surfaces, such as a large parking lot.

Aircraft noise originates from both the engines and the airframe of an aircraft, but the engines are, by far, the more significant source of noise. Meteorological conditions affect the transmission of aircraft noise through the air. Wind speed and direction, and the temperature immediately above ground level, cause diffraction and displacement of sound waves. Humidity and temperature materially affect the transmission of air-to-ground sound through absorption associated with the instability and viscosity of the air.

1.3 Aircraft Noise Descriptors

The description, analysis, and reporting of aircraft noise levels is made difficult by the complexity of human response to sound and the myriad of sound-rating scales and metrics that have been developed for describing acoustic effects. Various rating scales have been devised to approximate the human response to the “loudness” or “noisiness” of a sound. Noise metrics have been developed to account for additional parameters, such as duration and cumulative effect of multiple events.

Noise metrics can be categorized as single-event metrics and cumulative metrics. Single-event metrics describe the noise from individual events, such as an aircraft flyover. Cumulative metrics describe the noise in terms of the total noise exposure over a period of time.

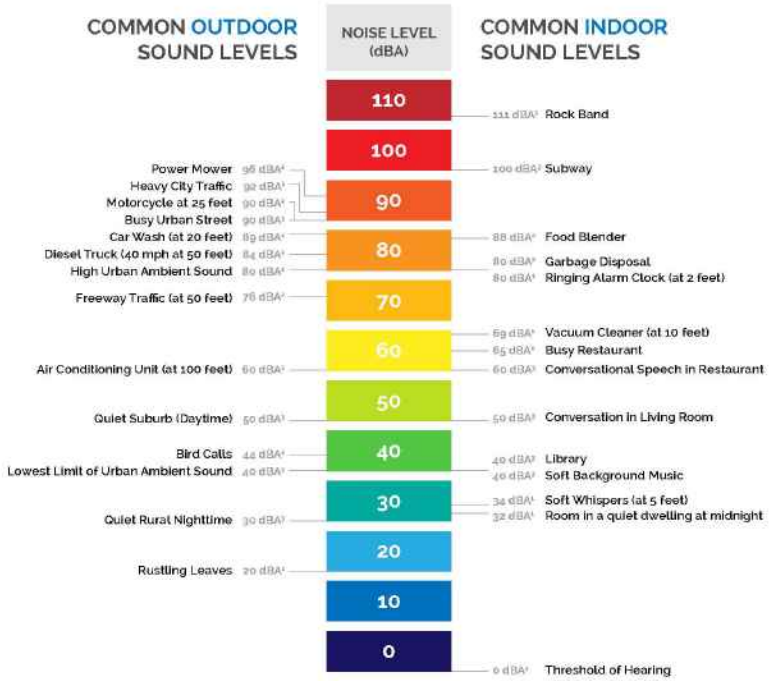
1.3.1 A-Weighted Sound Pressure Level (dBA)

The decibel is a unit used to describe sound pressure level. When expressed in dBA, the sound has been filtered to reduce the effect of very low and very high frequency sounds, much as the human ear filters sound frequencies. Without this filtering, calculated and measured sound levels would include events that the human ear cannot hear (e.g., dog whistles and low frequency sounds, such as the groaning sounds emanating from large buildings with changes in temperature and wind). With A-weighting, calculations

and sound monitoring equipment approximate the sensitivity of the human ear to sounds of different frequencies.

Some common sound levels on the dBA scale are listed in **Figure A-1**. As shown, the relative perceived loudness of a sound doubles for each increase of 10 dBA, although a 10-dBA change in the sound level corresponds to a factor of 10 changes in relative sound energy. Generally, single-event sound levels with differences of 2 dBA or less are not perceived to be noticeably different by most listeners.

FIGURE A-1
COMMON SOUNDS ON THE A WEIGHTED DECIBEL SCALE



1 Aviation Noise Effects, FAA, AEE, March, 1985 (FAA-EE-85-2), Table 11
2 Federal Agency Review of Selected Airport Noise Analysis Issues (Federal Interagency Committee on Noise), August 1992, Table B1
3 Children's health and the environment, A Global Perspective, World Health Organization, 2005, Table 16.1
4 OSHA Technical Manual, TED 01-00-015, Section III (Health Hazards), Chapter 5 Noise, Updated 8/15/2013)
Source: Environmental Science Associates, 2023

1.3.2 Maximum A-Weighted Sound Level (Lmax)

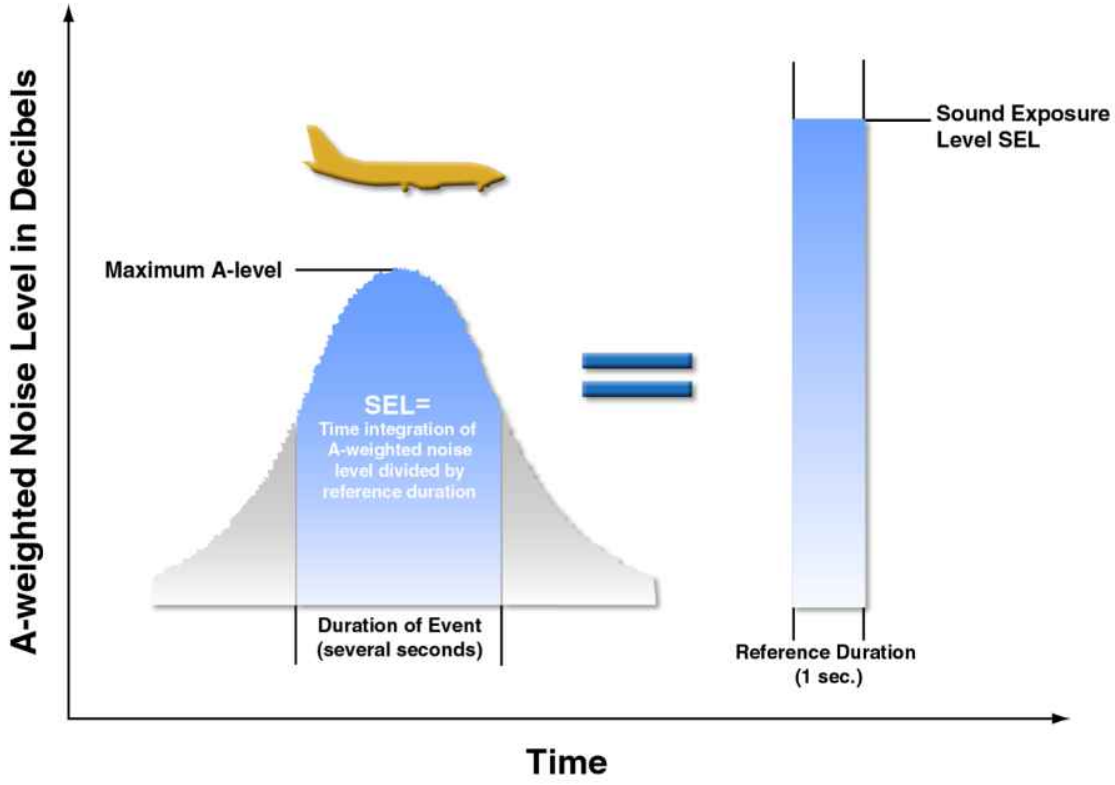
Lmax is the maximum, or peak, sound level during a noise event. The metric only accounts for the highest A-weighted sound level measured during a noise event, not for the duration of the event. For example, as an aircraft approaches, the sound of the aircraft begins to rise above ambient levels. The closer the aircraft gets, the louder the sound until the aircraft is at its closest point. As the aircraft passes, the sound level decreases until the sound returns to ambient levels. Some sound level meters measure and record the maximum sound level (Lmax). The Lmax for an aircraft flyover is illustrated on **Table A-1**.

TABLE A-1
COMMON SOUNDS ON THE A-WEIGHTED DECIBEL SCALE

Sound	Sound level (dBA)	Relative loudness (approximate)	Relative sound energy
Rock music, with amplifier	120	64	1,000,000
Thunder, snowmobile (operator)	110	32	100,000
Boiler shop, power mower	100	16	10,000
Orchestral crescendo at 25 feet, noisy kitchen	90	8	1,000
Busy street	80	4	100
Interior of department store	70	2	10
Ordinary conversation, 3 feet away	60	1	1
Quiet automobiles at low speed	50	1/2	.1
Average office	40	1/4	.01
City residence	30	1/8	.001
Quiet country residence	20	1/16	.0001
Rustle of leaves	10	1/32	.00001
Threshold of hearing	0	1/64	.000001

SOURCE: U.S. Department of Housing and Urban Development, Aircraft Noise Impact—Planning Guidelines for Local Agencies, 1972.

FIGURE A-2
SOUND EXPOSURE LEVEL AND MAXIMUM SOUND LEVEL



SOURCE: Brown-Buntin Associates, Inc., November 2004.

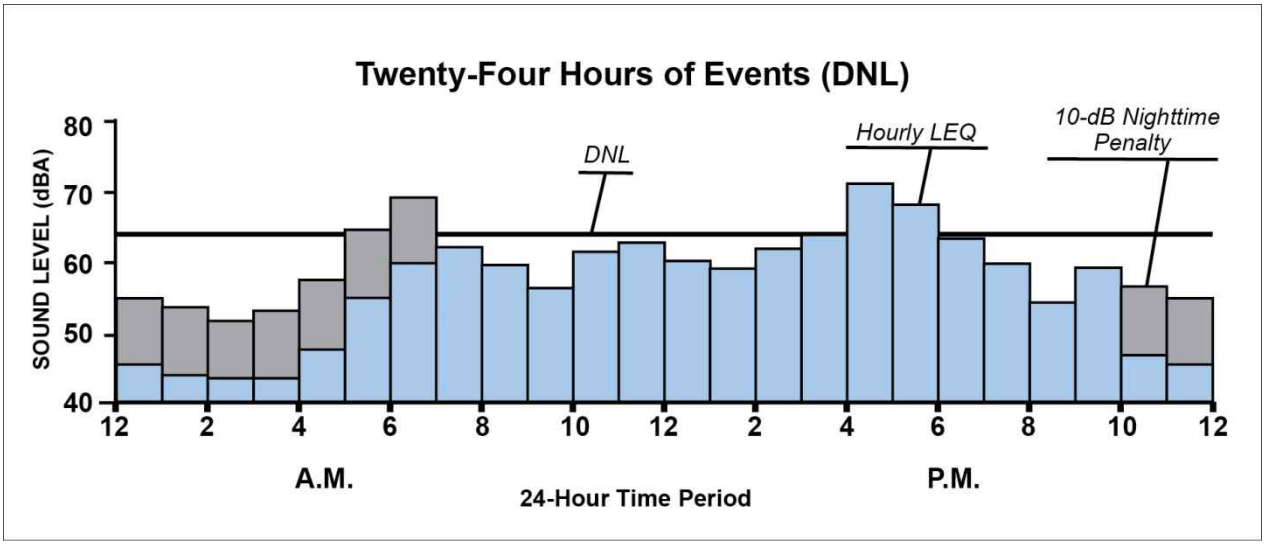
1.3.3 Sound Exposure Level (SEL)

Sound Exposure Level (SEL), is a time integrated measure, expressed in decibels, of the sound energy of a single noise event at a reference duration of one second. The sound level is integrated over the period that the level exceeds a threshold. Therefore, SEL accounts for both the maximum sound level and the duration of the sound. The standardization of discrete noise events into a one-second duration allows calculation of the cumulative noise exposure of a series of noise events that occur over a period of time. The SEL of an aircraft noise event is typically 7 to 12 dBA greater than the Lmax of the event. SELs for aircraft noise events depend on the location of the aircraft relative to the noise receptor, the type of operation (landing, takeoff, or overflight), and the type of aircraft. The SEL for an aircraft flyover is also illustrated on **Figure A-2**.

1.3.4 Equivalent Noise Level (L_{eq})

Equivalent Noise Level (Leq) is the sound level corresponding to a steady state, A-weighted sound level containing the same total energy as a time-varying signal over a given sample period. Leq is the "energy" average noise level during the time period of the sample. It is based on the observation that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. It is the energy sum of all the sound that occurs during that time period. This is graphically illustrated in the middle graph on **Figure A-3**. Leq can be measured for any time period, but is typically measured for 15 minutes, 1 hour, or 24 hours.

FIGURE A-3
DAY-NIGHT AVERAGE SOUND LEVEL



1.4 Aviation Environmental Design Tool

The noise analyses for the Harborview Medical Center were conducted using the most current version of the FAA's Aviation Environmental Design Tool (AEDT). The AEDT is the FAA's standard model for evaluating aircraft noise, fuel burn/consumption, and emissions at helipads.

The AEDT produces noise exposure contours that are used for land use compatibility maps. The program includes a built-in Geographic Information System (GIS) platform and tools for comparing contours and utilities that facilitate easy export to other GIS software suites. The model can also calculate predicted noise at specific sites such as hospitals, schools, or other noise-sensitive locations. For these discrete locations, the AEDT has the capability to report noise exposure levels at the specific location.

The AEDT accounts for each aircraft flight along flight tracks to or from the helipad, or aircraft overflying the helipad. Flight track definitions are coupled with information in the model's databases relating to noise levels at varying distances and flight performance data for each distinct type of aircraft selected. In general, the model computes noise levels at regularly-spaced grid receptors at ground level around the helipad. The distance to each aircraft in flight is computed (slant distance), and the associated noise exposure of each aircraft flying along each flight track within the vicinity of the grid receptor is determined. The logarithmic acoustical energy levels for each individual aircraft single-event are then summed for each grid receptor. The AEDT can create contours of specific noise levels based on the acoustical energy summed at each of the grid receptors for the selected metric. The cumulative values of noise exposure at each grid receptor are used to interpolate contours of equal noise exposure. The AEDT can also compute noise levels at user-defined points on the ground.

1.5.1 Graphic Representation of Aircraft Noise Exposure

Noise exposure contours are lines on a map that connect points of equal values, much like topographic contours are drawn to indicate area of equal ground elevation. For example, a contour may be drawn to connect all points of 60 dB; another may be drawn to connect all points of 65 dB; and so forth. Generally, noise contours are plotted at 5-dB intervals.

Appendix E: CITY OF SEATTLE LANDMARKS DOCUMENTATION

APPENDIX

CITY OF SEATTLE LANDMARKS DOCUMENTATION

DRAFT



The City of Seattle

Landmarks Preservation Board

Mailing Address: PO Box 94649 Seattle WA 98124-4649
Street Address: 700 5th Ave Suite 1700

REPORT ON DESIGNATION LPB 474/09

Name and Address of Property: Harborview Medical Center (Center Wing of the East Hospital)
325 Ninth Avenue

Legal Description: Blocks 66 and 67 of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington; together with the vacated alley within said Blocks 66 and 67, vacated by City of Seattle Ordinance #58470; together with vacated Terrace Street between 8th and 9th Avenues, vacated by City of Seattle Ordinance #58470; together with Lots 6 and 7, Block 68 of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington; and together with Lots 6 and 7, Block 69 of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington.

At the public meeting held on September 16, 2009, the City of Seattle's Landmarks Preservation Board voted to approve designation of Harborview Medical Center (Center Wing of the East Hospital) at 325 Ninth Avenue as a Seattle Landmark based upon satisfaction of the following standards for designation of SMC 25.12.350:

C. It is associated in a significant way with a significant aspect of the cultural, political, or economic heritage of the community, City, state or nation;

D. It embodies the distinctive visible characteristics of an architectural style, period, or of a method of construction;

E. It is an outstanding work of a designer or builder; and

F. Because of its prominence of spatial location, contrasts of siting, age, or scale, it is an easily identifiable visual feature of its neighborhood or the city and contributes to the distinctive quality or identity of such neighborhood or the City.

Architectural Description

The Harborview Medical Center Campus and Its Setting

Harborview Medical Center is located at the southwest edge of First Hill, rising high above the I-5 freeway and the southern part of downtown Seattle. Adjacent to the south is Yesler Terrace (1939), a 32-acre garden-style low-income housing community owned and operated by the Seattle Housing

Authority (SHA). Jefferson Terrace, an SHA high-rise apartment building, is directly north of the hospital.

The overall Harborview Medical Center campus encompasses slightly more than two square blocks. The Center Wing is located mid-block on the west side of Ninth Avenue between Jefferson and Alder streets. It is flanked by the South Wing (1955) and the North Wing (1974/80), with the emergency entrance at the north side. On the west side of the block is the large West Hospital/Clinic complex (1998). The primary entrance/patient drop-off area is on the west side of this building, and all of these buildings are connected internally. West of the entry drive is a block-long garage structure; because of the steep slope, it is above the freeway but below the grade of the hospital. The northern garage structure is topped with a green space known as Harbor View Park (1974); the south end has three helipads for emergency helicopters.

Across Ninth Avenue from the Center Wing is Harborview Hall, also built in 1931. To the south, at the corner of Alder Street, is an 8-story Research and Training Building completed in 2000. Behind it is Firehouse #3, a Seattle historic landmark that now houses the Harborview Public Safety Department. Adjoining it, on Terry Avenue, is a small 2-story administrative office building (1989). North of Harborview Hall is the Inpatient Expansion Building, currently under construction. It is connected to the North Wing of the hospital by a 6-level skybridge over Ninth Avenue. Across the street to the north, the Ninth & Jefferson Building is also under construction. This will occupy the entire block between Ninth and Terry avenues and James and Jefferson streets.

Most of the remainder of the immediate vicinity consists of apartment buildings and small commercial structures. Harborview owns three small buildings near the northwest corner of 9th Avenue and Jefferson Street. On the corner is a private clinic (1948) that was previously the Medic One garage and still houses their office/training space. Adjoining this is a house (c. 1900) converted to six apartments in 1941 and, farther north, a childcare center (1997). The two apartment houses, the Broadmore and Terry Terrace, located behind the new Inpatient Expansion Building, are privately owned and remain in residential use.

Exterior Description of the Center Wing of the East Hospital

The Center Wing is a 246,800 square-foot structure built of reinforced concrete faced with varicolored buff brick with terra cotta and cast stone ornament. The foundation level on the east side, below the first floor windows, is smooth granite blocks. The structure has the symmetrical stepped-back massing typical of tall buildings of the 1920s-30s. It has a total of fifteen stories, including a five-story tower. On the Ninth Avenue (front) elevation, the ninth floor steps back two window bays from the broad eight-story base; the tenth story is set back three bays, and the five-story tower is set back another six bays. The architect took advantage of the building setbacks by providing a solarium at each end of the ninth and tenth floors; these were originally used by patients in the maternity and children's wards, but they are not visible from the street. The square five-story tower has a pyramid shaped roof clad with golden yellow tile and topped by a green copper figure resembling a stylized flame. Reportedly, this once contained an illuminated beacon.

Windows throughout are original painted steel sash with three operable sections--a pair of operating casements above a hopper window. The tower and the ten-story base are each delineated by a wide bay with a single window on each floor; the narrow windows in these bays are deeply recessed with the openings capped by ornamental grillwork. At the tenth floor each window bay terminates in a round window surrounded by sun rays of cast stone or terra cotta; the scale is large enough to make a strong impression at a considerable distance.

Vertical piers (2.5 feet wide) project slightly between each bay of windows and give a strong vertical emphasis to the large structure. The spandrels (4.5 feet wide) between floors are of buff brick laid in a simple ornamental pattern, giving a woven effect. The cornice is capped with cream-colored terra cotta, with a very large-scale fern frieze and fluting in terra cotta. The four center piers terminate in column-like forms that may represent fern stems; early photographs show that these originally terminated in very large terra cotta fern fronds, curving as they opened up. These over-sized finials were removed at an unknown date, probably for earthquake safety.

Entry

The ornate entry now has a large modern canopy in glass and light green metal, added in 1998 to cover the entry and walkway. However, the large cast stone frieze above the doorway is still clearly visible. Its pattern features the caduceus (an ancient symbol of the medical profession) and what appear to be Northwest Indian totemic designs. The deeply recessed doorway is framed with a wide fluted surround of black marble. The two swinging doors (probably replacements, but compatible) in the center are flanked by two single doors. Each has a transom with ornamental grillwork; similar grillwork is on the two windows flanking the entry. Large original bronze light fixtures flank the entry. A new ramp for handicapped access is at the north side of the entry, with an Art Deco-patterned railing.

Building Additions

To the south of the main structure is the South Wing, now known as the East Clinic. It is an eight-story International Style building (1952-55) with bands of aluminum-framed windows. Between the bands of windows are deep projecting *brise-soleil* and spandrels clad with beige ceramic tile. Its strong horizontal emphasis contrasts with the vertical emphasis of the Center Wing.

To the north of the Center Wing is the nine-story North Wing, built of unornamented gray concrete in the Brutalist style. It was designed by NBBJ in 1972-74, with the top four stories added in 1980. Its overall massing, subtle vertical piers and regular fenestration attempt to relate to the massing of the Center Wing. It was similar in appearance to the Harborview Mental Health Services building (demolished) that was located across the street to the east.

The largest addition, the West Hospital and Clinic, was constructed in 1998. It is not visible from the front of the original building (Ninth Avenue), but is highly visible from downtown. Its design reflects a post-modern interpretation of the original hospital's Art Deco style, with vertical orientation, regular fenestration and terra cotta-like ornamentation.

Attached to the north side of the main facade of the Center Wing is a two-story 1998 addition containing a garage for Medic One ambulances, with living quarters above. It is of concrete, deeply scored to look like stone blocks, with sections of buff brick facing. Vertical piers of scored concrete and Art Deco-inspired chevron detailing above the four metal garage doors reflect the style of the 1931 building. The large windows have oversized aluminum mullions. The large mansard-like cornice is of light green metal.

In front of the southeast corner of the building is a windowless concrete structure housing equipment for the UW Gamma Knife Center, which provides radiological surgery for brain disorders. It is below the level of the first story and does not impede the view of the building.

Interior Description

Other than the east lobby, the hospital interior has been largely remodeled over the years, with new materials and some changes in room configurations. For seismic reasons, most of the Center Wing is no longer used for patient care, but is devoted to faculty and staff offices, with support and supply

services on the basement and ground floors. The three-story wing projecting to the west, which contained laboratories and the original ambulance court and driveway, has been obscured by later additions. The former kitchens and cafeteria on the ground floor have been remodeled into a central pharmacy. The only patient care services remaining in this structure are the original (although remodeled) inpatient psychiatric unit on the fifth floor, and burn and rehabilitation clinics. Some original features (such as steam radiators, ceramic tile walls and built-in supply cabinets) are visible in a few offices. Most floors, however, have been completely modernized, often more than once.

Lobby

The Ninth Avenue lobby, now used as a secondary entry, is in largely original condition and retains its Art Deco character. Necessary changes such as the wheelchair ramp have been generally sensitive to the original character. The lobby consists of a vestibule, a main lobby and, up a few stairs, an elevator lobby opening to corridors leading to the West Hospital and the north and south wings.

The vestibule has a pair of exterior swinging doors, flanked by similar single doors. The original interior doors have been removed. The inner doorway is bordered with brass. The wainscoting is of very dark red marble with a white plaster ceiling in a simple X pattern; the area is lighted by small Art Deco light fixtures.

The lobby has wainscoting of tan-colored marble with a dark gray marble base with a black rubber base added for protection. Newer gray carpet covers the floor. Four dark terrazzo stairs, with Art Deco-style brass handrails, ascend to the elevator lobby. These rails, and those on the wheelchair ramp, are modern additions but are in keeping with the lobby's character. The stairs are flanked by two large fluted square columns, of tan marble with a terra cotta frieze in a fern frond design. Original bronze railings, in a slightly more ornate Art Deco pattern, separate the lobby from the upper lobby.

At the north end of the main lobby are painted double doors that originally led to a small waiting room and now lead to a security office. Nearby on the east wall, adjacent to the main entry, is the bronze plaque noting the building's dedication in 1931, with the names of the county commissioners, the architect and the contractor. A 1943 plaque recognizes a major donor.

The highly-detailed ceiling of the lobby, painted a pinkish tan, is coffered in three sections separated by simple fluting. Each coffer is edged by dentils, with an Art Deco sunrise design on the inside. At the south side a ramp for wheelchair access has been added. The ramp runs behind an original marble wall with a large brass-bordered opening, through an area that was once the mail room. The original bronze-edged information window has been filled with a sculptural grill.

The upper lobby has the same tan marble wainscoting and dark base as the lower lobby. Above the main doorway, the entrance to the hospital itself, is a wide plaster frieze with a design of fern fronds, similar to that found on the building's exterior. Above the frieze is wide plaster molding in a sunrise pattern; both extend around the room, with a caduceus design in the center. This molding extends down to the center doorway, with an original clock in the center.

The original light fixtures remain. They are opaque glass lanterns, square in shape, surrounded by two levels of horizontal glass. The bottom has an Art Deco design in glass, with bronze ornament on the sides. Those in the main lobby are suspended by bronze rods; those in the elevator lobby are attached directly to the ceiling.

Statement of Significance

Harborview Medical Center, Center Wing, has played an important role in King County's health care system since its opening in 1931. It has been the county's major provider of health care for the poor and the primary provider of emergency services, trauma and burn care, communicable disease treatment and inpatient psychiatric services. It has also played a significant role in regional medical education, first as a primary training facility for the University of Washington School of Nursing (beginning in 1931) and later for School of Medicine and other health sciences departments.

Neighborhood Context

Harborview Medical Center sits above downtown Seattle on the southwestern ridge of First Hill. Due to its proximity to downtown, First Hill was one of the first areas to attract those seeking to settle outside of the increasingly crowded commercial center. By 1890 it was the home of some of Seattle's most prominent families, including the Fryes, the Stimsons, the Burkes, the Carkeeks, the Terrys, the Hallers and many Dennys. Its days as an exclusive neighborhood were short-lived, however. After the "Great Fire" of 1889, fireproof brick and stone construction was mandated downtown, and those seeking less expensive housing moved to nearby First Hill. At the same time, institutions, apartments, rooming houses and hotels arrived, seeking a convenient location with space to expand and a prominent position over the growing city.

In 1890 a new King County courthouse was built at Eighth Avenue and Alder Street, on what came to be known as "Profanity Hill." By 1891 three street railways coursed across the hill, with routes on James Street/Broadway, Yesler Way and Madison Street. Early in the century several other important institutions established themselves on the hill, including St. James Cathedral, the Sorrento Hotel, Seattle University, Cabrini Hospital, Swedish Hospital and Virginia Mason Hospital. By the 1920s First Hill had evolved into a regional medical center. Thus, in 1929, when the county faced a critical need for a new hospital, the First Hill site behind the old courthouse (a new one had been built downtown in1916) was a logical choice. Harborview Hospital and Harborview Hall were completed in 1931. The old courthouse was imploded the same year, opening up space to the west.[1]

Since that time, First Hill institutions have continued to grow, with three large medical centers (Harborview, Swedish and Virginia Mason) as well as related medical facilities, expanded Roman Catholic archdiocesan offices, O'Dea High School, the Frye Art Museum and Seattle University. Large-scale housing has been built to supplement the early apartment buildings. Yesler Terrace, a 43-acre (now 32 acre) garden-style housing project just south of Harborview was built in 1939. It housed war workers and veterans until the early 1950s, and has served low-income residents since that time. Two other Seattle Housing Authority developments, Jefferson Terrace and Hilltop House, are also located nearby. However, the most notable change in the vicinity has been the construction of the I-5 freeway in the mid-1960s, which went through Yesler Terrace and cut First Hill and Harborview off from downtown.

County Hospital to Regional Medical Center

Harborview Medical Center has its origins in the King County Poor Farm, established in Georgetown in 1877. The original ten-bed hospital was operated by the Sisters of Providence for fourteen months in 1877-78, until they built their own hospital in downtown Seattle, where they continued to care for the indigent sick under a county contract until 1887. In 1890 the county reopened its own facility,

1 Paul Dorpat, "Historic Seattle Neighborhoods: First Hill--Thumbnail History," HistoryLink.org, March 14, 2001.

and in 1893 built a new King County Hospital and Almshouse on Corson Avenue South in Georgetown. Designed by Willis Ritchie, it was an imposing three-story structure of local brick and stone, with 125 beds. A new wing with 100 more beds was added in 1908. However, by the mid-1920s more than 400 patients were often crowded into the 225-bed facility.[2] The need for a new hospital was critical.

The New Hospital

Construction of a new hospital was authorized in1925, and in November 1928 voters approved a $2,750,000 bond issue to build a 500-bed hospital "for care of the indigent, sick, injured and maternity cases." A site adjacent to the former King County Courthouse on "profanity hill" was selected, and in 1929 the name "Harborview" was adopted. In an attempt to separate it from political concerns, a board of six trustees was appointed, two from each county commission district. Operating costs were to be paid by the Washington State Department of Public Assistance, which was to receive legislative appropriations specifically for this purpose.

The county commissioners hired Dr. William H. Walsh, a hospital consultant from Chicago, to oversee the planning and construction of the new facility. The prominent Seattle architectural firm of Thomas, Grainger and Thomas was hired in January 1929 and completed a master plan and the design of two buildings (the hospital and a nurses' residence) by the end of that year. Construction, at a cost of about $3,000,000, was completed in early 1931, with patients arriving in March 1931. The Georgetown facility was retained until 1956 for the care of chronic and aged patients.

Upon its opening, the *Argus* hailed it as "the most prominent building in view from the harbor, dwarfing even the skyscrapers . . . one of the most complete institutions of its kind in the United States."[3] Its prominence was emphasized by the almost simultaneous construction of another Art Deco building, the U.S. Marine Hospital (Public Health Service Hospital/Pacific Medical Center/Amazon.com, 1930-32, Carl Gould), just to the south on Beacon Hill. A post-war book noted the juxtaposition of the two hospitals, "Harborview Hospital….is modern in every detail of hospital development. The two hospitals, each standing on a hilltop, are a distinctive feature of the Seattle skyline. The city is proud to have two such well equipped institutions."[4]

At its dedication on February 1, 1931, the new complex was seen as "the first two steps in the creation of what is hoped some day will be a great Western medical center." It was called:

> ...one of the finest 'plants' for the care of the sick anywhere in the United States; modern in its every appointment, breath-taking in its uncanny utilization of space and inspiring in its total lack of institutional atmosphere. ... Colors are soft and warm throughout . . . greens and yellows and pinks and browns. No bleak white walls in the County Hospital.[5]

Particularly noted were the tenth-floor pediatric ward with its solariums and views of Elliott Bay, and the "psychopathic" wards with large tubs for hydrotherapy. Others said ". . . it does not look like a county hospital. It has none of that humble sorry aspect that attaches to most county hospitals . . . it is built as a doctor would have done it.[6]

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2 Wilma, David, "King County Hospital begins operation in Georgetown in May 1877," Historylink.org, February 14, 2001.
3 Argus, 3/7/31.
4 Escobosa, Hector, Seattle Story, Seattle: Frank McCaffrey Publishers, 1948, p. 110.
5 Seattle Daily Times, 2/25/31, p. 3.
6 Ibid.

A physician inspecting the hospital for its professional certification said:

> King County has the distinction of having the most complete hospital ever built in the country. This designation does not refer to mere size or to capital investment, but to the completeness of its departments, its equipment and its modern arrangement. The laboratories, outpatient department, psychopathic division, maternity pavilion, obstetrical pavilion, physical therapy department, its X-ray department, its children's department and its wonderful nurses' home make it an exceptional institution.[7]

These features are shown on the original building drawings, giving an indication of the variety of modern equipment and special spaces included in the design. In addition to the features mentioned above, the first floor, for example, had rooms for pathology, bacteriology, biochemistry and EKGs.

However, within a year the Depression had started to take its toll. The poor economy meant that state revenues were declining, just as more people than expected were relying on charity care and on Harborview. By 1938, the hospital saw 11,712 admissions, 30,492 emergency cases and an overwhelming 120,406 outpatient visits. Between 1936 and 1939 outpatient visits increased more than fifty percent, from 11,100 a month to 16,500, in a facility built for 75 patients a day.

The 1941 guide to Washington prepared by the Works Progress Administration noted

> …a 12-story setback structure designed by Thomas, Grainger, and Thomas. Clinics, dispensary, and X-ray facilities are provided free of charge to those unable to pay. This unit of the hospital contains 394 beds and a nurses' training school, affiliated with the University of Washington. It serves from 500-700 out- patients a daily. All but the resident physicians serve without remuneration.[8]

From its opening in 1931 until the 1950s, Harborview was virtually the only source of care for patients on welfare and for many who could not afford private hospital or outpatient care. Its primary role as a charity hospital was repeatedly emphasized: "The county hospital accepts as patients only those who are not able to pay for care by private doctors and in private hospitals. The hospital . . . screens all applicants."[9] The significance of this role and its impact on the hospital's functioning was described by the superintendent in 1947:

> There are not two standards of medical care, one for patients in private hospitals and another for patients in tax-supported hospitals, but there are no frills and niceties in the public hospitals. It must maintain out-patient service, communicable disease wards, a psychiatric ward and other facilities which private hospitals do not have . . . . Since our funds come from the state welfare fund we are required by law to treat only indigent patients, except emergency cases. Those who can afford to pay must do so if they are forced by circumstances to be admitted to the hospital.[10]

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7 Seattle Daily Times, 2/24/31, p. 2.
8 Writers Program, WPA, Washington: A Guide to the Evergreen State, Portland, OR: Binfords & Mort, Publishers, 1941. p. 228.
9 Seattle Municipal News, 10/9/48.
10 Seattle Times, 8/27/47.

Post-War Hospital Expansion

In 1940, less than ten years after Harborview's completion, its superintendent complained of "acute overcrowding."[11] Built for 350 beds, it now had nearly 600 patients at times, with beds in corridors and up to 46 people in thirty-bed wards.[12] Overcrowding increased in 1945, when the hospital became the local center for polio treatment. Plans were made to address the problem with expanded outpatient and emergency facilities and a new isolation wing, plus a new 1,000-bed hospital in Georgetown for chronic patients.[13] The office of local architect Henry Bittman produced renderings of the proposed addition, matching the Art Deco massing and detailing of the original structure. However, in 1946, despite the crisis conditions, voters defeated the $10,000,000 bond issue.

Also during this period, Harborview's formal role as a teaching hospital expanded significantly. The hospital had been the primary training center for University of Washington nursing students since 1931. The establishment of the university's School of Medicine in 1946 enhanced the hospital's importance. Harborview was the school's major teaching facility from that time until the opening of the University of Washington Hospital in 1959.

In 1948 voters approved a scaled-down $2,750,000 bond issue to expand Harborview, but without the 1,000 bed chronic-care hospital in Georgetown. However, the bonds were not actually sold, allowing construction to proceed, until 1951.[14] The seven-story South Wing (now the East Clinic) was designed by Theo Damm of Henry Bittman's office in 1952 and was dedicated in March 1955. Damm was better known for later work with his own firm of Damm, Daum & Associates, and was the architect of record for the Seattle Municipal Building (1959-61, demolished). The final design, less compatible than Bittman's earlier renderings, was in the International style, with bands of windows, a strong horizontal emphasis and no ornamentation.

The south addition contained emergency and surgery facilities, outpatient clinics, a communicable disease ward and a new laboratory. Much of the original 1931 structure was modernized at this time, particularly the kitchen and dining rooms, an enlarged x-ray department, a new physiotherapy center, and expanded physician quarters in the old laboratory.

Later Expansions

A second crisis came in the 1960s, when facilities and patient services had severely deteriorated and were no longer keeping up with modern standards of medical care. An article in *Seattle* magazine asked "Is Harborview an Emergency Case?" A consultant report recommended another addition and modernization of the existing sections "to maintain its vital role in the community." The report had "the highest praise for it as an educational facility."[15]

A $15 million capital improvement bond was approved in 1966. Shortly afterward, on July 1, 1967, the University of Washington assumed management of the hospital, under contract with King County. In 1972 the five-story North Wing was completed, primarily for patient rooms but also including a new emergency department and surgery suites. Renovations were also made to the 1931 structure, including modified circulation to connect to the new wing. A parking garage was added on the west side of the building in 1974. Two years later, a two-story addition behind the south wing was added for the King County Medical Examiner. Another successful bond election in 1976 led to four stories

11 Seattle Daily Times, 10/20/40.
12 Seattle Post-Intelligencer, 1/25/46.
13 Seattle Star, 1/7/45.
14 Seattle Times, 8/27/47.
15 Seattle Magazine, "Is Harborview an Emergency Case?" August 1966.

being added to the north wing in 1981 to accommodate a 40-bed Burn Center and additional nursing floors, with more interior updates to the 1931 and 1955 structures.

The most recent additions, the West Hospital and the West Clinic, were completed in 1998, doubling the size of the facility. Designed by Kaplan McLaughlin Diaz, the new buildings provide a greatly expanded trauma center, 18 outpatient clinics, six new operating rooms, a new intensive care unit, and new laboratory, radiology and food service facilities. A new garage with living quarters above was provided for the Medic One emergency service; this was built on the front of the original 1931 building.

The Architect: Harlan Thomas

The Center Wing was designed in 1929-31 by the firm of Thomas, Grainger and Thomas. The firm's principle, Harlan Thomas (1870-1953), was a prominent architect who had studied and traveled in Europe and was interested in advances in architectural style. Both as a practitioner and as the longtime head of the School of Architecture of the University of Washington, Thomas was aware of design trends throughout the world and was influential in the design community.

Thomas was born in Iowa in 1870, but his family moved to Fort Collins, Colorado in 1879. He entered Colorado Agriculture and Mechanical College (now Colorado State University) in 1885, but withdrew after his father's death in 1886. He found work as a carpenter, but later returned to college and received his B. S. degree in 1894. Even before graduation, he designed two campus buildings and a local residence that is now listed in the National Register of Historic Places. After graduation, he opened his own architectural practice in Denver and married Edith Partridge. He and his wife twice traveled through Europe for extensive periods, for sixteen months in 1895-96, when he studied architecture in Paris, and another fifteen months of sketching and painting in 1903-04.

Thomas moved to Seattle in 1906 at the age of 36 and soon obtained commissions to design the Chelsea Hotel (1907, 620 West Olympic Place) on Queen Anne and the Sorrento Hotel (1907, 900 Madison Street) on First Hill. These remain among Seattle's most notable buildings. Both were carefully sited in prominent locations and set new standards for Seattle hotels. They also clearly show the influence of his European training and his willingness to innovate rather than to accept existing conventions.

In 1910 Thomas formed the firm of Thomas, Russel and Rice. Between 1908-11 they completed three high schools, in Aberdeen (J. M. Weatherwax High School), Enumclaw and Monroe (both now demolished). For several years after the partnership dissolved in 1912, Thomas worked alone or collaborated with others. He designed a number of public buildings during this period (1912-1914), including the Queen Anne library, the Columbia City library (both with W. Marbury Somervell) and the Henry L. Yesler (now Douglass-Truth) library.

In 1921 Thomas hired Clyde Grainger as chief draftsman. Grainger became a full partner in 1925, and Thomas' son Donald joined the firm in 1926. The elder Thomas continued as the senior designer for the firm of Thomas, Grainger and Thomas until his retirement in 1949. Their work showed great versatility in building type and style. Two smaller buildings, the finely-detailed Seattle Chamber of Commerce Building (1923-25, 219 Columbia Street) and the Seventh Church of Christ Scientist (1926, 2555 8th Avenue W.) on Queen Anne were a return to his more exotic European-influenced designs, showing Byzantine and Italian Romanesque features. Other works of this period, besides Harborview Hospital, include:

- The ornate terra cotta William O. McKay Ford sales building (1925, 601 Westlake Avenue N.);

- The Rhodes Department Store (1926-27, demolished);
- The Kappa Kappa Gamma house (1930, 4504 18th Avenue NE); and
- St. Stephen's Episcopal Church (1940, 4805 NE 45th Street).

Although most of the firm's work was near Seattle, they also designed a high school and Masonic temple in Juneau. Like most architects, the firm turned to housing design during World War II, completing a 500-unit project in Bremerton with Smith, Carroll & Johanson, and undertaking speculative post-war housing in northeast Seattle for developer Albert Balch.

In addition to his private practice, Thomas served as head of the Department of Architecture at the University of Washington from 1926 until 1940. He was active in the Seattle chapter of the American Institute of Architects and was elected a fellow in 1928. Thomas retired from practice in 1949, but embarked on a new career to become a respected watercolorist before his death in 1953.

Thomas' vast body of work was eclectic, relying on both historical precedents and modern idioms to develop a design appropriate to each project. The Harborview complex was Thomas' largest project and his crowning achievement. The design shows his interest in Modernism, seen clearly in the building's stepped-back massing, strong vertical orientation and modernistic ornamentation. Norman B. Johnston, professor emeritus in the University of Washington Department of Architecture, notes "The influence of personalities and developments in American architecture in the 1920s and 1930s was clearly demonstrated in Thomas's work of those decades . . . the vertical emphasis and lack of ornament at Harborview is reminiscent of Saarinen's 1922 *Chicago Tribune* submittal."[16]

The Style: Art Deco

The Center Wing is an example of Moderne architecture, a variation of Art Deco architecture, in both massing and ornamentation. *A Guide to Architecture in Washington State*, a standard reference work, describes Harborview Hospital as "an impressive Moderne design with a finely detailed entrance."

"Art Deco" is a term applied retroactively to a style that came to the world's attention at the *Exposition des Arts Décoratifs et Industriels Modernes* held in Paris in 1925. The exposition was a celebration of modernity, things that were new, exciting and unorthodox for the jazz age—a reaction to both the excesses of the Victorian Age and the handmade simplicity of the Craftsman. Art Deco architecture is "a particularly hard concept to define as it refers to a decorative style at once traditional and innovative, which absorbed influences from a variety of sources and movements and introduced a whole range of new or improved materials into the vocabulary of architecture."[17]

Art Deco fused modern concepts and the latest industrial materials and techniques into a distinctive but eclectic style. The new design vocabulary drew from both nature and diverse historical sources. Influences included Art Nouveau, the Vienna Secession movement, the new Cubist artists, the Bauhaus architecture of Germany. American industrial design, and ancient forms such as American Indian, Celtic, Egyptian, African, Assyrian and Mayan patterns. Stylized flowers, plants, animals, sea creatures, sunbursts and waves, and geometric forms such as chevrons and zigzags, were seen frequently. Here in the Pacific Northwest nature was a particularly strong influence, as seen in the stylized sea creatures, flowers and the ferns seen at Harborview.

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16 Jeffrey K. Ochsner (ed.), Shaping Seattle Architecture: A Historical Guide to the Architects, University of Washington Press, 1994, p. 129.

17 Bayer, Patricia, Art Deco Architecture: Design, Decoration and Detail from the Twenties and Thirties. London: Thames & Hudson, Ltd. 1992, p. 7.

The Art Deco spirit was expressed in all types of design, from the ocean liner *Normandie*, the glassware of Lalique and the fashions of Erté to innumerable Hollywood movie sets and posters. However, Art Deco's longest lasting influence has been in architecture. The style's popularity coincided with a period of strong growth and development in both the United States and Europe in the late 1920s. Although construction was largely curtailed during the Great Depression, Art Deco was the style of choice for the major structures that were built during this period, including the Chrysler Building (1928-30), the Empire State Building (1930-32), Rockefeller Center (1932-40) and the Miami Beach hotels of the 1930s.

Art Deco's boldness was particularly suited to large buildings, where traditional Greek or Renaissance forms seemed out of place. By the mid-1920s tall buildings were the norm in major US cities, made possible by the elevator and reinforced concrete and steel construction techniques developed earlier in the century. What makes large buildings distinctly Art Deco is not just their height but their distinctive decorative elements and their setback terraced silhouettes. This form was initially dictated by the New York zoning code of 1916, in order to encourage height while allowing light and air to the streets below. The new building forms and ornaments meant that, more than ever before, an architect could make a building recognizable from a distance. Bold bands of ornament were used at building tops and along the sidewalk, with materials such as marble, terra cotta, cast stone and bronze. The style was the building itself– not just applied ornament, but vertical emphasis achieved through massing and tall piers. The massing was most effective in the hillside setting, rising above the city like a beacon proclaiming the importance of its mission.

This, it is not surprising that Art Deco was clearly seen as the most appropriate style for Seattle's most modern, most prominently sited hospital. The architect, Harlan Thomas, was cosmopolitan in outlook, familiar with trends in Europe and throughout this country, and interested in the new modernism. Other major buildings of this period that used the same style include the Northern Life Tower (A. H. Albertson, 1927-29), the Exchange Building (John Graham, Sr., 1929-31) and the U. S. Marine Hospital (Bebb & Gould with John Graham, Sr., 1930-32).

As described above, East Hospital (Center Wing) has numerous features of the Art Deco style, including:

- Its siting in a prominent location above the city, and the views of it from each side;
- Its stepped-back massing, with a ten-story base and a square central tower rising to fifteen stories with a tile-clad pyramidal top;
- The brick cladding and decorative brickwork;
- The vertical emphasis of the window bays, piers and decorative spandrels;
- The Art Deco-style terra cotta cornice and other ornament at the top of the building;
- The highly detailed entry, with its ornamental frieze, marble and grillwork; and,
- The vestibule, main lobby and elevator lobby with marble wainscot, columns, railing and extensive intact Art Deco ceiling and wall detailing.

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Personal Communication
Ed Langdon, Harborview Medical Center, 6/24/99

Maureen McCarry, Harborview Medical Center, 6/24/99

The features of the Landmark to be preserved include:

The exterior of the building, the interior of the Ninth Avenue lobby, and the portion of the site as indicated on the site plan dated September 2, 2009 (see attached).

Issued: September 29, 2009

Karen Gordon
City Historic Preservation Officer

cc: Kathy Brown, King County
Thomas Walsh, Foster Pepper PLLC
Elise Chayet, Harborview Medical Center
Stephen Lee, LPB
Stella Chao, DON
Diane Sugimura, DPD
Cheryl Mosteller, DPD
Ken Mar, DPD

Ordinance No. 123557

Council Bill No. [redacted] 117115

The City of Seattle – Legislative Department

Council Bill/Ordinance sponsored by: Sally J. Clark

AN ORDINANCE relating to historic preservation, imposing controls upon the Harborview Medical Center (Center Wing of the East Hospital), a landmark designated by the Landmarks Preservation Board under Chapter 25.12 of the Seattle Municipal Code, and adding it to the Table of Historical Landmarks contained in Chapter 25.32 of the Seattle Municipal Code.

Related Legislation File: _____

Date Introduced and Referred:	To: (committee):
2.22.11	Built Environment
Date Re-referred:	**To: (committee):**
Date Re-referred:	**To: (committee):**
Date of Final Action: 3/14/11	**Date Presented to Mayor:** 3/15/11
Date Signed by Mayor: 3.18.11	**Date Returned to City Clerk:** 3.18.11
Published by Title Only X **Published in Full Text** _____	**Date Vetoed by Mayor:**
Date Veto Published:	**Date Passed Over Veto:**
Date Veto Sustained:	**Date Returned Without Signature:**

Committee Action:

Date	Recommendation	Vote
03/09/11	APPROVE	3-0 SC JB KO

This file is complete and ready for presentation to Full Council. _____

Full Council Action:

Date	Decision	Vote
3/14/11	PASSED	7-0 (excused: Burgess, Conlin)

Law Department

Sarah Sodt/jom
DON Harborview Medical Center Landmark Designation ORD
January 5, 2011
Version #4

ORDINANCE 123557

AN ORDINANCE relating to historic preservation, imposing controls upon the Harborview Medical Center (Center Wing of the East Hospital), a landmark designated by the Landmarks Preservation Board under Chapter 25.12 of the Seattle Municipal Code, and adding it to the Table of Historical Landmarks contained in Chapter 25.32 of the Seattle Municipal Code.

WHEREAS, the Landmarks Ordinance, Chapter 25.12 of the Seattle Municipal Code (SMC), establishes a procedure for the designation and preservation of sites, improvements and objects having historical, cultural, architectural, engineering or geographic significance; and

WHEREAS, the Landmarks Preservation Board ("the Board"), after a public meeting on August 5, 2009, voted to approve the nomination of the improvement (the building) and a portion of the property on which the improvement is located at 325 Ninth Avenue in Seattle, which are together referred to as the Harborview Medical Center (Center Wing of the East Hospital) for the purposes of this ordinance, for designation as a landmark under SMC Chapter 25.12; and

WHEREAS, after a public meeting on September 16, 2009 the Board voted to approve the designation of the Harborview Medical Center (Center Wing of the East Hospital) under SMC Chapter 25.12; and

WHEREAS, on March 17, 2010, the Board and the owner of the designated landmark agreed to controls and incentives; and

WHEREAS, the Board recommends that the City Council enact a designating ordinance approving the controls and incentives;

NOW, THEREFORE,

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. DESIGNATION: Pursuant to SMC 25.12.660, the designation by the Landmarks Preservation Board ("the Board") of the improvement (building) and a portion of the

property located at 325 Ninth Avenue in Seattle, which are together referred to as the Harborview Medical Center (Center Wing of the East Hospital), is hereby acknowledged.

A. Legal Description. The Harborview Medical Center (Center Wing of the East Hospital) is located on the property legally described as:

Blocks 66 and 67 of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington; together with the vacated alley within said Blocks 66 and 67, vacated by City of Seattle Ordinance #58470; together with vacated Terrace Street between 8th and 9th Avenues, vacated by City of Seattle Ordinance #58470; together with Lots 6 and 7, Block 68 of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington; and together with Lots 6 and 7, Block 69 of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington.

B. Specific Features and/or Characteristics Designated. Pursuant to SMC 25.12.660.A.2, the following specific features and/or characteristics of the Harborview Medical Center (Center Wing of the East Hospital) are designated:

1. The exterior of the building.
2. The interior of the Ninth Avenue lobby.
3. The portion of the property ("Site") legally described as follows:

Lots 1 – 4, Block 66, and Lots 5 – 8, Block 67, of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington; together with that portion of the vacated alley adjacent thereto, vacated by City of Seattle Ordinance #58470; and together with vacated Terrace Street between 8th and 9th Avenues, vacated by City of Seattle Ordinance #58470.

For illustrative purposes, Attachment A to this ordinance is a map that depicts the Site.

C. Basis of Designation. The designation was made because the Harborview Medical Center (Center Wing of the East Hospital) has significant character, interest or value as a part of the development, heritage or cultural characteristics of the City, state or nation, it has integrity or the ability to convey its significance, and because it satisfies the following from Section 25.12.350:

1. It is associated in a significant way with a significant aspect of the cultural, political, or economic heritage of the community, City, state or nation (SMC 25.12.350.C).
2. It embodies the distinctive visible characteristics of an architectural style, period, or of a method of construction (SMC 25.12.350.D).
3. It is an outstanding work of a designer or builder (SMC 25.12.350.E).
4. Because of its prominence of spatial location, contrasts of siting, age, or scale, it is an easily identifiable visual feature of its neighborhood or the City and contributes

to the distinctive quality or identity of such neighborhood or the City (SMC 25.12.350.F).

Section 2. CONTROLS: The following controls are hereby imposed on the features and characteristics of the Harborview Medical Center (Center Wing of the East Hospital) that were designated by the Board for preservation:

A. Certificate of Approval Process.

1. Except as provided in Section 2.A.2 and Section 2.B of this ordinance, the owner must obtain a Certificate of Approval issued by the Board pursuant to SMC chapter 25.12, or the time for denying a Certificate of Approval must have expired, before the owner may make alterations or significant changes to the following specific features or characteristics:
   a. The exterior of the building.
   b. The interior of the Ninth Avenue lobby.
   c. The Site.
2. No Certificate of Approval or approval by the City Historic Preservation Officer (CHPO) is required for the following:
   a. Any in-kind maintenance or repairs of the features listed in Section 2.A.1.
   b. The addition, alteration or removal of the following landscape elements: trees less than eight inches in diameter measured four and one-half feet above ground, shrubs, perennials and annuals.
   c. The installation, alteration, or removal of bike racks on existing exterior concrete pads.
   d. Replacement of lobby flooring, excluding the original interior terrazzo lobby stairs.

e. Alterations to the non-original ADA ramp and handrails in the lobby.

f. The installation, alteration, or removal of interior signage and directories, if existing penetrations are used for attachments or penetrations are not made into historic features.

g. The installation, alteration or removal of interior art pieces.

h. The installation, alteration or removal of freestanding furniture (including benches, information desk, and ATM machine located in the lobby).

i. Replacement of elevator doors and signals.

B. City Historic Preservation Officer (CHPO) Approval Process.

1. The CHPO may review and approve the items listed in Section 2.B.3 of this Ordinance according to the following procedure:

a. The owner shall submit to the CHPO a written request for the alterations, including applicable drawings and/or specifications.

b. If the CHPO, upon examination of submitted plans and specifications, determines that the alterations are consistent with the purposes of SMC chapter 25.12, the alterations shall be approved without further action by the Board.

c. If the CHPO does not approve the alterations, the owner may submit revised materials to the CHPO, or apply to the Board for a Certificate of Approval under SMC chapter 25.12, as provided in Section 2.A.

2. The CHPO shall transmit a written decision on the owner's request to the owner within 14 days of receipt of the request. Failure of the CHPO to approve or disapprove the request shall constitute approval of the request.

3. CHPO approval for changes or alterations to the designated features or characteristics of the landmark described in Section 1.B of this Ordinance, is available for the following:

   a. For the specified features and characteristics of the building, the addition or elimination of duct conduits, HVAC vents, grilles, fire escapes, pipes, and other similar wiring or mechanical elements necessary for the normal operation of the building.

   b. Installation, alteration or removal of exterior security lighting, video cameras, and security equipment.

   c. Installation, alteration or removal of other exterior and interior lighting fixtures not specified under Section 2.B.3.b.

   d. Installation, alteration, or removal of signage not excluded under Section 2.A.2.f.

   e. Replacement of the non-original main entry doors.

   f. Replacement of the doors on the interior north wall of the lobby.

Section 3. INCENTIVES. The following incentives are hereby granted on the features and characteristics of the Harborview Medical Center (Center Wing of the East Hospital) that were designated by the Board for preservation:

A. Uses not otherwise permitted in a zone may be authorized in a designated Landmark by means of an administrative conditional use issued pursuant to Seattle Municipal Code Title 23.

B. Exceptions to certain of the requirements of the Seattle Building Code, SMC chapter 22.100, and the Energy Code of the City, SMC chapter 22.700, may be authorized pursuant to the applicable provisions thereof.

C. Special tax valuation for historic preservation may be available under Chapter 84.26 RCW upon application and compliance with the requirements of that statute.

Section 4. Enforcement of this ordinance and penalties for its violation are as provided in SMC 25.12.910.

Section 5. The Harborview Medical Center (Center Wing of the East Hospital) is hereby added to the Table of Historical Landmarks contained in SMC Chapter 25.32.

Section 6. The City Clerk is directed to record a certified copy of this ordinance with the King County Director of Records and Elections, deliver two certified copies to the City Historic Preservation Officer, and deliver one copy to the Director of the Department of Planning and Development. The CHPO is directed to provide a certified copy of the ordinance to the owner of the landmark.

Section 7. This ordinance shall take effect and be in force 30 days from and after its approval by the Mayor, but if not approved and returned by the Mayor within ten days after presentation, it shall take effect as provided by Seattle Municipal Code Section 1.04.020.

Passed by the City Council the 14th day of March, 2011, and signed by me in open session in authentication of its passage this 14th day of March, 2011.

President Pro Tem of the City Council

Approved by me this 18th day of March, 2011.

Michael McGinn, Mayor

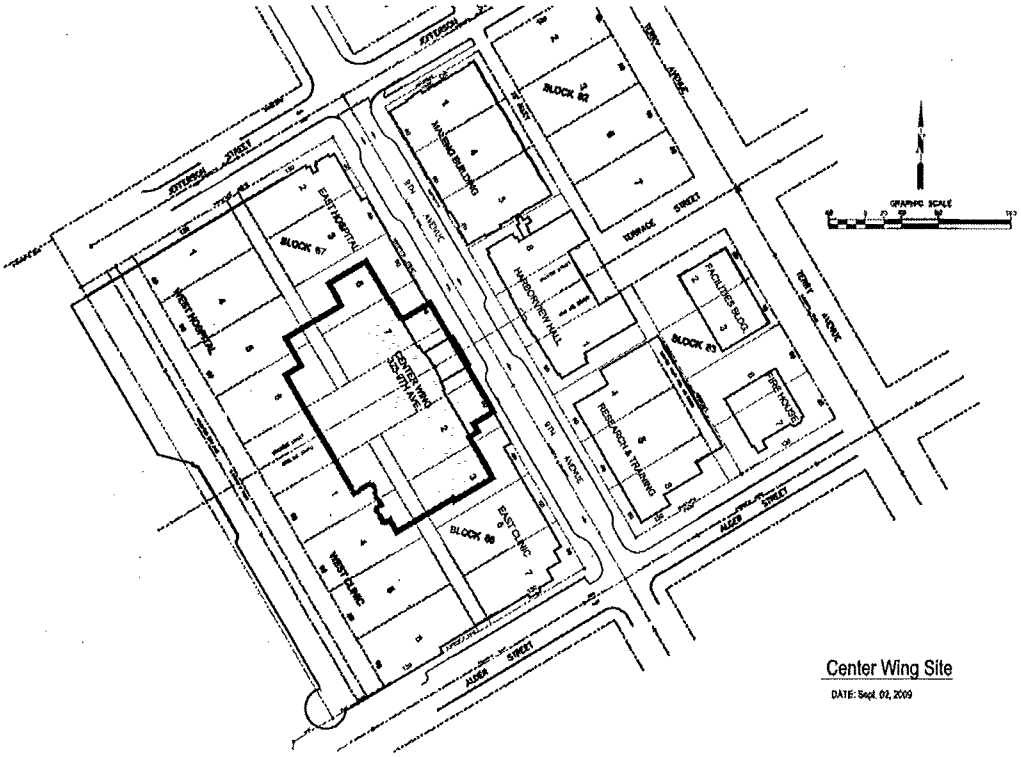
Filed by me this 18th day of March, 2011.

City Clerk

(Seal)

Attachment A – Designated Site Area of Harborview Medical Center (Center Wing of the East Hospital)

Sarah Sodt/jom
DON Harborview Medical Center Landmark Designation ORD Attachment A
January 5, 2011
Version #1



Attachment A to the Ordinance – Designated Site Area of Harborview Medical Center (Center wing of the East Hospital)

Form revised: December 14, 2010

FISCAL NOTE FOR NON-CAPITAL PROJECTS

Department:	Contact Person/Phone:	CBO Analyst/Phone:
Department of Neighborhoods	Sarah Sodt/206-615-1786	Amy Williams/206-233-2651

Legislation Title:
AN ORDINANCE relating to historic preservation, imposing controls upon the Harborview Medical Center (Center Wing of the East Hospital), a landmark designated by the Landmarks Preservation Board under Chapter 25.12 of the Seattle Municipal Code, and adding it to the Table of Historical Landmarks contained in Chapter 25.32 of the Seattle Municipal Code.

Summary of the Legislation:
The attached legislation acknowledges the designation of the Harborview Medical Center (Center Wing of the East Hospital) as a historic landmark based upon a determination by the Landmarks Preservation Board and adds the building to the Table of Historical Landmarks contained in SMC Chapter 25.32. The legislation does not have a financial impact.

Background:
The Harborview Medical Center (Center Wing of the East Hospital) was built in 1929-1931, in the First Hill neighborhood. A Controls and Incentives Agreement has been signed by the owners and has been approved by the Landmarks Preservation Board. The controls in the agreement apply to the exterior of the building, the interior of the Ninth Avenue lobby, and a portion of the site. However, the controls do not apply to any in-kind maintenance or repairs of the designated features.

__X__ **This legislation does not have any financial implications.**

List attachments to the fiscal note below:

Exhibit A – Vicinity Map of the Harborview Medical Center (Center Wing of the East Hospital)

Sarah Sodt/jom
DON Harborview Medical Center Landmark Desidnation FISC Exhibit A
January 5, 2011
Version #1



Exhibit A to the Fiscal Note – Vicinity map of Harborview Medical Center (Center wing of the East Hospital)

FILED
CITY CLERK

City of Seattle
Office of the Mayor

February 8, 2011

Honorable Richard Conlin
President
Seattle City Council
City Hall, 2nd Floor

Dear Council President Conlin:

I am pleased to transmit the attached proposed Council Bill that designates the Harborview Medical Center (Center Wing of the East Hospital), located at 325 Ninth Avenue as a historic landmark and adds it to the Table of Historical Landmarks in the Seattle Municipal Code.

A Controls and Incentives Agreement has been signed by the owner and has been approved by the Landmarks Preservation Board. The controls in the agreement apply to the exterior of the building, the interior of the Ninth Avenue lobby, and a portion of the site. However, the controls do not apply to any in-kind maintenance or repairs of the designated features.

Thank you for your consideration of this legislation. Should you have questions, please contact Sarah Sodt, Department of Neighborhoods at 206-615-1786.

Sincerely,

Michael McGinn
Mayor of Seattle

cc: Honorable Members of the Seattle City Council

Michael McGinn, Mayor
Office of the Mayor
600 Fourth Avenue, 7th Floor
PO Box 94749
Seattle, WA 98124-4749

Tel (206) 684-4000
Fax (206) 684-5360
TDD (206) 615-0476
mike.mcginn@seattle.gov

STATE OF WASHINGTON – KING COUNTY

--ss.

268784 No.
CITY OF SEATTLE,CLERKS OFFICE

Affidavit of Publication

The undersigned, on oath states that he is an authorized representative of The Daily Journal of Commerce, a daily newspaper, which newspaper is a legal newspaper of general circulation and it is now and has been for more than six months prior to the date of publication hereinafter referred to, published in the English language continuously as a daily newspaper in Seattle, King County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of this newspaper. The Daily Journal of Commerce was on the 12th day of June, 1941, approved as a legal newspaper by the Superior Court of King County.

The notice in the exact form annexed, was published in regular issues of The Daily Journal of Commerce, which was regularly distributed to its subscribers during the below stated period. The annexed notice, a

CT:123555-561 TITLE ONLY

was published on

03/24/11

The amount of the fee charged for the foregoing publication is the sum of $ 116.03, which amount has been paid in full.

Subscribed and sworn to before me on

03/24/11

Notary public for the State of Washington residing in Seattle

State of Washington, King County

City of Seattle

TITLE-ONLY PUBLICATION

The full text of the following resolutions, passed by the City Council on March 14, 2011, and published here by title only, will be mailed upon request, or can be accessed at http://clerk.seattle.gov. For further information, contact the Seattle City Clerk at 684-8344.

ORDINANCE NO. 123555

AN ORDINANCE relating to historic preservation, imposing controls upon the Laurelhurst Community Center, a landmark designated by the Landmarks Preservation Board under Chapter 25.12 of the Seattle Municipal Code, and adding it to the Table of Historical Landmarks contained in Chapter 25.32 of the Seattle Municipal Code.

ORDINANCE NO. 123556

AN ORDINANCE vacating the east 200 feet of the alley in Block 3, Bonen's Addition to the City of Seattle, on the petition of Bethany Community Church; accepting an easement for non-exclusive street purposes; and ratifying and confirming certain prior acts. (Clerk File 307183).

ORDINANCE NO. 123557

AN ORDINANCE relating to historic preservation, imposing controls upon the Harborview Medical Center (Center Wing of the East Hospital), a landmark designated by the Landmarks Preservation Board under Chapter 25.12 of the Seattle Municipal Code, and adding it to the Table of Historical Landmarks contained in Chapter 25.32 of the Seattle Municipal Code.

ORDINANCE NO. 123558

AN ORDINANCE vacating a portion of Wolcott Avenue between the east margin of Rainier Avenue South and the west margin of the alley in Block 17, C.D. Hillman's Atlantic City Addition to the City of Seattle Division No. 2, on the petition of Housing Resources Group and Chung Tai International Chan Buddhist Association; suspending the vacation compensation provision of Seattle Municipal Code subsection 15.62.090A to accept one-half the appraised value for the purposes of this ordinance only; and accepting a Property Use and Development Agreement as reflected in Clerk File 309627.

ORDINANCE NO. 123559

AN ORDINANCE relating to Seattle Public Utilities; authorizing the Director of Seattle Public Utilities to enter into long-term, full and partial requirements contracts and emergency intertie agreements with wholesale customers that have expiring water supply contracts with Seattle, and ratifying and confirming certain prior acts

ORDINANCE NO. 123560

AN ORDINANCE relating to the Opportunity Fund category of the 2008 Parks and Green Spaces Levy; accepting the recommendations of the 2008 Parks and Green Spaces Levy Oversight Committee; authorizing the acquisition of real property commonly known as 18th Ave. SW & SW Brandon St. (Puget Ridge Edible Park) and 19th and Madison Neighborhood Park; authorizing acceptance of the deeds for open space, park, and recreation purposes; amending the 2011 Adopted Budget and 2011-2016 Capital Improvement Program; and increasing appropriations in connection thereto; and ratifying and confirming certain prior acts, all by a three-fourths vote of the City Council.

ORDINANCE NO. 123561

AN ORDINANCE appropriating money to pay certain audited claims and ordering the payment thereof.

Publication ordered by the City Clerk

Date of publication in the Seattle Daily Journal of Commerce, March 24, 2011.

3/24(268784)

Return Address:

Seattle City Clerk's Office

600 4th Avenue, Floor 3

P O Box 94728

Seattle, WA 98124 - 4728

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SEATTLE CITY C ORD 70.00
PAGE-001 OF 009
03/30/2011 13:31
KING COUNTY, WA

FILED
CITY OF SEATTLE
11 JUN 15 AM 10: 23
CITY CLERK

WASHINGTON STATE RECORDER'S Cover Sheet (RCW 65.04)

Please print or type information

Document Title(s) (or transaction contained therein): (Insert Ordinance or Resolution Number Here)

1. Ordinance 123557

Grantor(s)

☐ 1.City of Seattle

☐ Additional names on page___ of document.

Grantee(s) (Last name first, then first name and initials)

☐ 1.Public

☐ 2.

Legal description (abbreviated: i.e. lot, block, plat or section, township, range)

Additional legal on page ___ of document

Lots 1 – 4, Block 66, and Lots 5 – 8, Block 67, of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington; together with that portion of the vacated alley adjacent thereto, vacated by City of Seattle Ordinance #58470; and together with vacated Terrace Street between 8th and 9th Avenues, vacated by City of Seattle Ordinance #58470.

☐ N/A

Assessor's Property Tax Parcel/Account Number

#__8590400545_____

☐ Assessor Tax # not yet assigned.

☐ N/A

The Auditor/Recorder will rely on the information provided on the form. The staff will not read the document to verify the accuracy or completeness of the indexing information provided herein.

I am requesting an emergency nonstandard recording for an additional fee as provided in RCW 36.18.010. I understand that the recording processing requirements may cover up or otherwise obscure some part of the text of the original document.

_____ Signature of Requesting Party

Sarah Sodt/jom
DON Harborview Medical Center Landmark Designation ORD
January 5, 2011
Version #4

ORDINANCE 123557

AN ORDINANCE relating to historic preservation, imposing controls upon the Harborview Medical Center (Center Wing of the East Hospital), a landmark designated by the Landmarks Preservation Board under Chapter 25.12 of the Seattle Municipal Code, and adding it to the Table of Historical Landmarks contained in Chapter 25.32 of the Seattle Municipal Code.

WHEREAS, the Landmarks Ordinance, Chapter 25.12 of the Seattle Municipal Code (SMC), establishes a procedure for the designation and preservation of sites, improvements and objects having historical, cultural, architectural, engineering or geographic significance; and

WHEREAS, the Landmarks Preservation Board ("the Board"), after a public meeting on August 5, 2009, voted to approve the nomination of the improvement (the building) and a portion of the property on which the improvement is located at 325 Ninth Avenue in Seattle, which are together referred to as the Harborview Medical Center (Center Wing of the East Hospital) for the purposes of this ordinance, for designation as a landmark under SMC Chapter 25.12; and

WHEREAS, after a public meeting on September 16, 2009 the Board voted to approve the designation of the Harborview Medical Center (Center Wing of the East Hospital) under SMC Chapter 25.12; and

WHEREAS, on March 17, 2010, the Board and the owner of the designated landmark agreed to controls and incentives; and

WHEREAS, the Board recommends that the City Council enact a designating ordinance approving the controls and incentives;

NOW, THEREFORE,

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. DESIGNATION: Pursuant to SMC 25.12.660, the designation by the Landmarks Preservation Board ("the Board") of the improvement (building) and a portion of the

SEA CITY CLERK

property located at 325 Ninth Avenue in Seattle, which are together referred to as the Harborview Medical Center (Center Wing of the East Hospital), is hereby acknowledged.

A. Legal Description. The Harborview Medical Center (Center Wing of the East Hospital) is located on the property legally described as:

Blocks 66 and 67 of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington; together with the vacated alley within said Blocks 66 and 67, vacated by City of Seattle Ordinance #58470; together with vacated Terrace Street between 8th and 9th Avenues, vacated by City of Seattle Ordinance #58470; together with Lots 6 and 7, Block 68 of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington; and together with Lots 6 and 7, Block 69 of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington.

B. Specific Features and/or Characteristics Designated. Pursuant to SMC 25.12.660.A.2, the following specific features and/or characteristics of the Harborview Medical Center (Center Wing of the East Hospital) are designated:

1. The exterior of the building.
2. The interior of the Ninth Avenue lobby.
3. The portion of the property ("Site") legally described as follows:

SEA CITY CLERK

Lots 1 – 4, Block 66, and Lots 5 – 8, Block 67, of Terry's First Addition to the Town of Seattle, according to the plat recorded in Volume 1 of Plats, page 49, records of King County, Washington; together with that portion of the vacated alley adjacent thereto, vacated by City of Seattle Ordinance #58470; and together with vacated Terrace Street between 8th and 9th Avenues, vacated by City of Seattle Ordinance #58470.

For illustrative purposes, Attachment A to this ordinance is a map that depicts the Site.

C. Basis of Designation. The designation was made because the Harborview Medical Center (Center Wing of the East Hospital) has significant character, interest or value as a part of the development, heritage or cultural characteristics of the City, state or nation, it has integrity or the ability to convey its significance, and because it satisfies the following from Section 25.12.350:

1. It is associated in a significant way with a significant aspect of the cultural, political, or economic heritage of the community, City, state or nation (SMC 25.12.350.C).
2. It embodies the distinctive visible characteristics of an architectural style, period, or of a method of construction (SMC 25.12.350.D).
3. It is an outstanding work of a designer or builder (SMC 25.12.350.E).
4. Because of its prominence of spatial location, contrasts of siting, age, or scale, it is an easily identifiable visual feature of its neighborhood or the City and contributes

SEATTLE CITY CLERK

to the distinctive quality or identity of such neighborhood or the City (SMC 25.12.350.F).

Section 2. CONTROLS: The following controls are hereby imposed on the features and characteristics of the Harborview Medical Center (Center Wing of the East Hospital) that were designated by the Board for preservation:

A. Certificate of Approval Process.

1. Except as provided in Section 2.A.2 and Section 2.B of this ordinance, the owner must obtain a Certificate of Approval issued by the Board pursuant to SMC chapter 25.12, or the time for denying a Certificate of Approval must have expired, before the owner may make alterations or significant changes to the following specific features or characteristics:
   a. The exterior of the building.
   b. The interior of the Ninth Avenue lobby.
   c. The Site.
2. No Certificate of Approval or approval by the City Historic Preservation Officer (CHPO) is required for the following:
   a. Any in-kind maintenance or repairs of the features listed in Section 2.A.1.
   b. The addition, alteration or removal of the following landscape elements: trees less than eight inches in diameter measured four and one-half feet above ground, shrubs, perennials and annuals.
   c. The installation, alteration, or removal of bike racks on existing exterior concrete pads.
   d. Replacement of lobby flooring, excluding the original interior terrazzo lobby stairs.

DNS CITY CLERK

e. Alterations to the non-original ADA ramp and handrails in the lobby.

f. The installation, alteration, or removal of interior signage and directories, if existing penetrations are used for attachments or penetrations are not made into historic features.

g. The installation, alteration or removal of interior art pieces.

h. The installation, alteration or removal of freestanding furniture (including benches, information desk, and ATM machine located in the lobby).

i. Replacement of elevator doors and signals.

B. City Historic Preservation Officer (CHPO) Approval Process.

1. The CHPO may review and approve the items listed in Section 2.B.3 of this Ordinance according to the following procedure:

a. The owner shall submit to the CHPO a written request for the alterations, including applicable drawings and/or specifications.

b. If the CHPO, upon examination of submitted plans and specifications, determines that the alterations are consistent with the purposes of SMC chapter 25.12, the alterations shall be approved without further action by the Board.

c. If the CHPO does not approve the alterations, the owner may submit revised materials to the CHPO, or apply to the Board for a Certificate of Approval under SMC chapter 25.12, as provided in Section 2.A.

2. The CHPO shall transmit a written decision on the owner's request to the owner within 14 days of receipt of the request. Failure of the CHPO to approve or disapprove the request shall constitute approval of the request.

SEA CITY CLERK

3. CHPO approval for changes or alterations to the designated features or characteristics of the landmark described in Section 1.B of this Ordinance, is available for the following:

   a. For the specified features and characteristics of the building, the addition or elimination of duct conduits, HVAC vents, grilles, fire escapes, pipes, and other similar wiring or mechanical elements necessary for the normal operation of the building.

   b. Installation, alteration or removal of exterior security lighting, video cameras, and security equipment.

   c. Installation, alteration or removal of other exterior and interior lighting fixtures not specified under Section 2.B.3.b.

   d. Installation, alteration, or removal of signage not excluded under Section 2.A.2.f.

   e. Replacement of the non-original main entry doors.

   f. Replacement of the doors on the interior north wall of the lobby.

Section 3. INCENTIVES. The following incentives are hereby granted on the features and characteristics of the Harborview Medical Center (Center Wing of the East Hospital) that were designated by the Board for preservation:

A. Uses not otherwise permitted in a zone may be authorized in a designated Landmark by means of an administrative conditional use issued pursuant to Seattle Municipal Code Title 23.

B. Exceptions to certain of the requirements of the Seattle Building Code, SMC chapter 22.100, and the Energy Code of the City, SMC chapter 22.700, may be authorized pursuant to the applicable provisions thereof.

CITY CLERK

C. Special tax valuation for historic preservation may be available under Chapter 84.26 RCW upon application and compliance with the requirements of that statute.

Section 4. Enforcement of this ordinance and penalties for its violation are as provided in SMC 25.12.910.

Section 5. The Harborview Medical Center (Center Wing of the East Hospital) is hereby added to the Table of Historical Landmarks contained in SMC Chapter 25.32.

Section 6. The City Clerk is directed to record a certified copy of this ordinance with the King County Director of Records and Elections, deliver two certified copies to the City Historic Preservation Officer, and deliver one copy to the Director of the Department of Planning and Development. The CHPO is directed to provide a certified copy of the ordinance to the owner of the landmark.

2011 CITY CLERK

Section 7. This ordinance shall take effect and be in force 30 days from and after its approval by the Mayor, but if not approved and returned by the Mayor within ten days after presentation, it shall take effect as provided by Seattle Municipal Code Section 1.04.020.

Passed by the City Council the 14th day of March, 2011, and signed by me in open session in authentication of its passage this 14th day of March, 2011.

President Pro Tem of the City Council

Approved by me this 18th day of March, 2011.

Michael McGinn, Mayor

Filed by me this 18th day of March, 2011.

City Clerk

(Seal)

State of Washington,
County of King

I, Janet Sodt certify that this is a true and correct copy of Ordinance No. 123537, on file in the records of the City of the Office of the City Clerk

Signed by:
Signature
Title: Information Specialist
Date: March 21, 2011

Attachment A – Designated Site Area of Harborview Medical Center (Center Wing of the East Hospital)

CITY CLERK

JB:rl
11/17/76

ORDINANCE 106051

AN ORDINANCE designating as a Landmark Old Fire Station No. 3 and its site at 301 Terry Avenue, and specifying the particular features to be preserved in accordance with the Landmarks Preservation Ordinance (102229).

WHEREAS, Ordinance 102229 created the Landmarks Preservation Board and established a procedure for the designation and preservation of structures and areas having historical, cultural, architectural, engineering or geographical importance; and

WHEREAS, pursuant to Ordinance 102229 and due notice, the Landmark Preservation Board, after a public hearing on March 19, 1975 duly considered (a) the evidence and testimony presented at such hearing, including the Seattle Historical Building Data Sheet in C.F. 283709, and (b) the conformance or lack of conformance of the proposed designation with the Comprehensive Plan of Seattle and with the purposes and standards of Ordinance 102229, and based upon such evidence and consideration determined that Old Fire Station No. 3 and its site situated upon Lots 6 and 7, Block 83, Terry's 2nd Add. at 301 Terry Avenue satisfies each of the following criteria required under Ordinance 102229 for designation of a Landmark:

Section 6 (1) has significant character, interest or value, as part of the development, heritage or cultural characteristics of the City, State or Nation; or is associated with the life of a person significant in the past;

Section 6 (5) embodies those distinguishing characteristics of an architectural-type or engineering specimen;

Section 6 (7) contains elements of design, detail, materials or craftsmanship which represents a significant innovation; and

Section 6 (9) owing to its unique location or singular physical characteristic, represents an established and familiar visual feature of the neighborhood, community or city;

and recommended to the City Council that Old Fire Station No. 3 and its site be designated a Landmark and that certain features thereof should be preserved; and

WHEREAS, the Planning and Urban Development Committee of the City Council considered the report and recommendation of the Landmarks Preservation Board at a public hearing held July 21, 1976 pursuant to due notice, and reported to the City Council in favor of such recommendation; Now Therefore,

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. That the attached report and recommendations of the Landmarks Preservation Board are hereby approved and Old Fire Station No. 3 and its site situated upon Lots 6 and 7, Block 83, Terry's 2nd Add. at 301 Terry Avenue are hereby designated a Landmark having a special character or special historical, cultural, architectural, engineering or geographic interest or value, based upon characteristics specified in the attached report of the Landmarks Preservation Board, and the Secretary of the Landmarks Preservation Board is hereby directed to send to the owner of record of the property designated, by registered or certified mail, and to the Superintendent of Buildings, a copy of this ordinance and a letter outlining the basis for such designation and the obligations and restrictions which result from such designation within ten days after approval of this ordinance by the Mayor.

Section 2. That the following particular features of the landmark designated in Section 1 above shall be preserved:

(a) The exterior of the building and its site, including its painting;

(b) the loft doors and lookout (hoist beam);

(c) the driveway including its size and surface;

(d) the landscaping of the east, north and south sides of the site;

(e) In the interior of the building:

(i) the ground floor surface, horse stalls, fire pole holes and western upper floor loft, and

(ii) all portions which if changed would affect the exterior appearance of the building.

Section 3. (30 day ending)

APPROVED: DEC 21, 1976

CITY OF SEATTLE

LPB 1946

Landmarks Preservation Board
Nomination Form

NAME (present) PLAYGROUND MAINTENANCE

(historic) Old FIRE STATION #3

ADDRESS 301 TERRY AVE.

NOMINATION AS:

- [X] Building
- [ ] Site
- [ ] Structure
- [ ] District
- [ ] Object

NOMINATED UNDER CRITERIA (ORDINANCE 102229)

[X] (1) has significant character, interest or value, as part of the development, heritage or cultural characteristics of the City, State or Nation; or is associated with the life of a person significant in the past; or

[ ] (2) is the site of an historic event with a significant effect upon society; or

[ ] (3) exemplifies the cultural, political, economic, social or historic heritage of the community; or

[X] (4) portrays the environment in an era of history characterized by a distinctive architectural style; or

[X] (5) embodies those distinguishing characteristics of an architectural-type or engineering specimen; or

[ ] (6) is the work of a designer whose individual work has significantly influenced the development of Seattle; or

[X] (7) contains elements of design, detail, materials or craftsmanship which represent a significant innovation; or

[ ] (8) by being part of or related to a square, park or other distinctive area, should be developed or preserved according to a plan based on a historic, cultural or architectural motif; or

[X] (9) owing to its unique location or singular physical characteristic, represents an established and familiar visual feature of the neighborhood, community or city; or

[ ] (10) has yielded, or may be likely to yield, information important in pre-history or history.

NOMINEE Jim Ellerman

address 1922 E. CALHOUN ST.

phone EA9-4381

Reviewed _____ Historic Preservation Officer

date 12-18-74

NOMINATION DATE 12/18/74

DEC 18 1974

BOARD SPONSOR Margaret A. Cotter

date Dec. 18, 1974

Landmarks Preservation Board

Seattle Historic Building Data Sheet

1. **Name** (common or present and/or historic) Old Fire Station No. 3

2. **Street and Number** 301 Terry Avenue Block ____ Lot ____ Year Built 1903

3. **Present Owner** City of Seattle Present Use Park maintenance shop

4. **Interim Owner(s)** City of Seattle Interim Use(s) ____

5. **Original Owner** City of Seattle Original Use Fire Station

6. **Architect** ____ Builder ____

7. **Assessed Value:** Building ____ Land ____ Assessors File No ____

8. **Classification:**

☒ Building	☒ Public	☒ Occupied	Open to Public
☐ Site	☐ Private	☐ Unoccupied	X ☐ Yes
☐ Structure	☐ Both	☐ Preservation work in progress	☐ No
☐ Object		☐ Threatened by demolition	Hours Upon request
☐ Other		☐ Unknown	

9. **Neighborhood Information:**

A. Compatibility With Neighborhood

Structure Yes ____ No X

Use Yes ____ No X

B. Importance to Neighborhood

Great ____
Moderate ____
Minor ____

C. Architecturally Strong Neighborhood

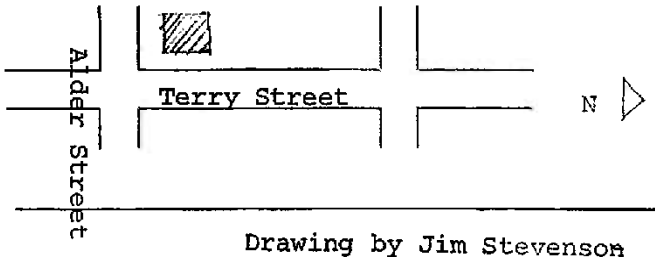
Comments The neighborhood, originally residential, has been much disrupted by recent development of Harborview Hospital, nearby clinics and apartment houses.

10. **Special Research Sources (Be Specific, list name or item and where found)**

National Register Nomination Form

"Seattle Firehouses" by Jim Stevenson

11. **Cross Street Reference**



12. Photos Attached & **Photographer** ____

Drawing by Jim Stevenson

13. Physical Description

A. Style of Architecture

Residential - Tudor Style

B. Construction Material

Ground Floor brick
Upper Floor - wood frame

C. No. of Stories

D. Condition

Excellent ____
Good X
Fair ____
Poor ____

E. Exterior Desecreation of Original Design

None or little X
Moderate amount ____
Considerable ____

Note: Hose drying tower removed.

F. Architectural worth at Example of Its Style

Exceptional ____
Excellent X
Good ____
Fair ____
Poor ____

G. Notable Features: (Be specific, i.e., detailing, craftsmanship, proportions, materials, colors, interior, etc. Refer to Guidelines of Landmarks Preservation Board).

Old Firehouse No. 3 sited on the northeast corner of the intersection of Terry Avenue and Alder Street, was set back from the street with a well landscaped yard in an effort to make the building more compatible with the then residential neighborhood on First Hill. The building itself is of Tudor style architecture, most probably again to be campatible with the large homes of the original neighborhood. The ground floor, of the two-storey structure, is faced in purple and buff brick of common bond. All the original doors remain in pperable condition except for the removal of the opening springs. The upper floor and attic are faced to mimic half timber and stucco construction, with pairs of double hung windows having a single pane on the lower half and multiple panes on the upper half. The rear of the building retains the hayloft hatch and beam used to hoist hay to the loft. Especially noteworthy is the wood detailing of the second floor and intricate brackets under the eaves.

The interior of the firehouse contains much of the original equipment used when the building served as a horse-drawn firehouse. The brick floor still contains the steel rails used to park the apparatus. The holes in the ceiling remain visible, although firemen's poles have been removed and the openings patched from above. In the rear of the building the hayloft can still be recognized as well as the stall doors and the horse stables. Many smaller items of this era can also be found upon closer inspection.

14. Significance

A. Major Significance
- ☒ Historical
- ☒ Architectural
- ☐ Engineering
- ☐ Cultural
- ☐ Geographical
- ☐ Archaeological

B. Level of Significance
- ☐ National
- ☒ State
- ☒ Community

C Statement of Significance (Be specific, history, personages, events, etc.)

Numbers apply to Landmarks Ordinance criteria Section 6. Numbers not listed do not significantly apply to subject property.

Section 6 (1) Old Fire Station No. 3 is Seattle's oldest remaining firehouse. The station, built in 1903 and abandoned as a firehouse 18 years later, housed Engine Hose Company 3, and until 1913 the Ladder Company 3. The station never had motor equipment. The firehouse remains as a reminder of an era of only horse-drawn apparatus. The hay loft in the rear still has its loft door and hoist beam used to lift the bales of hay from the alley to the loft above. Below, the original stables and horse stalls remain, many still covered with sheet metal to protect the wood from gnawing horses. The apparatus room where the fire wagons were kept still has its original brick floor complete with steel rails which gave the wagons a faster start and aided the fireman in backing the wagons back into the firehouse. The large wagon doors, much larger than those of later firehouses designed later, after the introduction of motor equipment,remain in much of their original condition. Upon closer inspection, many smaller items can be found, all reminders of an era past, of firewagons, clanging bells and charging horses.

Section 6 (5) The exterior of the firehouse is designed in what might be called "tudor style." This is understandable since when the station was built in 1903, the neighborhood was largely residential, comprised of many of the finest large homes in Seattle. Tudor style architecture is generally associated with residential construction rather than commercial and so this was the choice for the design of Old Firehouse No. 3, which would be more appropriate for the neighborhood. The choice of this style, together with the building being set back from the street and landscaped surrounding lawn, created a design that was compatible with the neighborhood.

Surveyor Signature John Johnson Date 18 March 1975

Reviewed: _____
Historic Preservation Officer Date

Appendix F: TRANSPORTATION DISCIPLINE REPORT

Transportation Discipline Report

HARBORVIEW MEDICAL CENTER MAJOR INSTITUTION MASTER PLAN

Prepared for:
Harborview Medical Center

August 2026

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Introduction

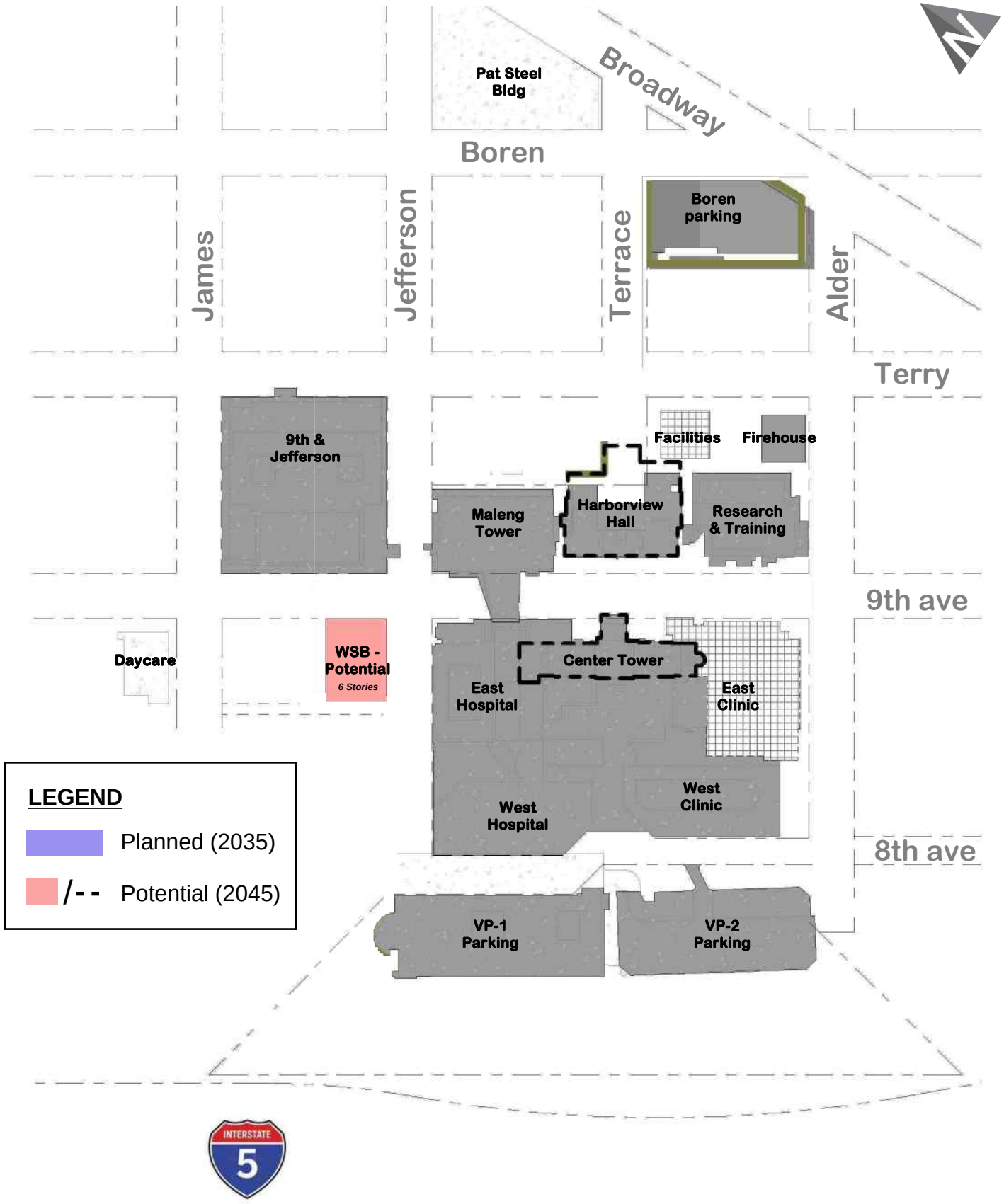
This report summarizes the results of the transportation impact analysis conducted evaluating the transportation impacts of the proposed major amendment to the Harborview Medical Center (HMC) Major Institution Master Plan (MIMP). This report is organized into the following sections:

- **Introduction** – This section outlines project alternatives, the overall approach and scope, and provides the methodology of the transportation analysis completed for the project.
- **Affected Environment** – This section documents the existing transportation conditions within the study area defined for this analysis.
- **No Action** – This section describes the No Action transportation conditions within the study area defined for this analysis.
- **Impacts of Alternative 1**– This section describes the impacts of Action Alternative 1. Transportation impacts are identified through a comparison of Alternative 1 to the No Action Alternative.
- **Impacts of Alternative 2**– This section describes the impacts of Action Alternative 2. Transportation impacts are identified through a comparison of Alternative 2 to the No Action Alternative.
- **Mitigation** – This section describes the potential transportation mitigation measures to mitigate Alternative-related impacts.
- **Secondary and Cumulative Impacts** – This section describes secondary and cumulative impacts that could occur with development of the project.
- **Significant and Unavoidable Adverse Impacts** – This section documents adverse transportation-related impacts that could not be fully mitigated with the Alternatives.

Alternatives Evaluated

Three alternatives are evaluated in this DRAFT Environmental Impact Statement (DEIS), including one (1) No Action Alternative and two (2) development alternatives. The Alternatives include:

- **No Action Alternative.** This includes the previously approved 1999 and 2014 MIMP projects that are anticipated to remain. These projects include the demolition of the east clinic, seismic upgrade to center tower, seismic upgrade to Harborview Hall with buttress building to east, community plaza east of Harborview Hall, full occupancy of Harborview Hall, demolition of the securities building, demolition of the facilities building, and construct a 6-story multiuse building (Walter Scott Building). The No Action projects result in an increase of 32,487 gross square feet (gsf) relative to existing conditions. The site plan of the No Action is provided in Figure 1.
- **Action Alternative 1 – Maximum building height of 320'.** Alternative 1 includes the No Action development as identified above as well as planned and potential projects with a net increase of 1,706,172 gsf added to MIO. The planned development includes the new patient tower at VPI and added skybridge. Options of the new patient tower connectivity to the existing hospital were reviewed that either maintained the private roadway known as 8th Avenue or assumed occupancy at grade and below with direct connection to existing west hospital with closure of the private roadway known as 8th Avenue. Potential additional projects include a future tower at VPII, new east clinic, expansion of the Walter Scott Building from 6 stories to 10 stories, and expansion of the Boren Parking Garage. The site plan of Alternative 1A and 1B are provided in Figures 2 and 3, respectively.
- **Action Alternative 2 – Maximum building height of 240'.** Alternative 2 is consistent with Alternative 1 in terms of overall developable floor area, but alters the building heights and size per floor for a maximum building height of 240'. Note that new patient tower under Alternative 2 assumes occupancy at grade and below with direct connection to existing west hospital with closure of the private roadway known as 8th Avenue. The site plan of Alternative 2 is provided in Figure 4.

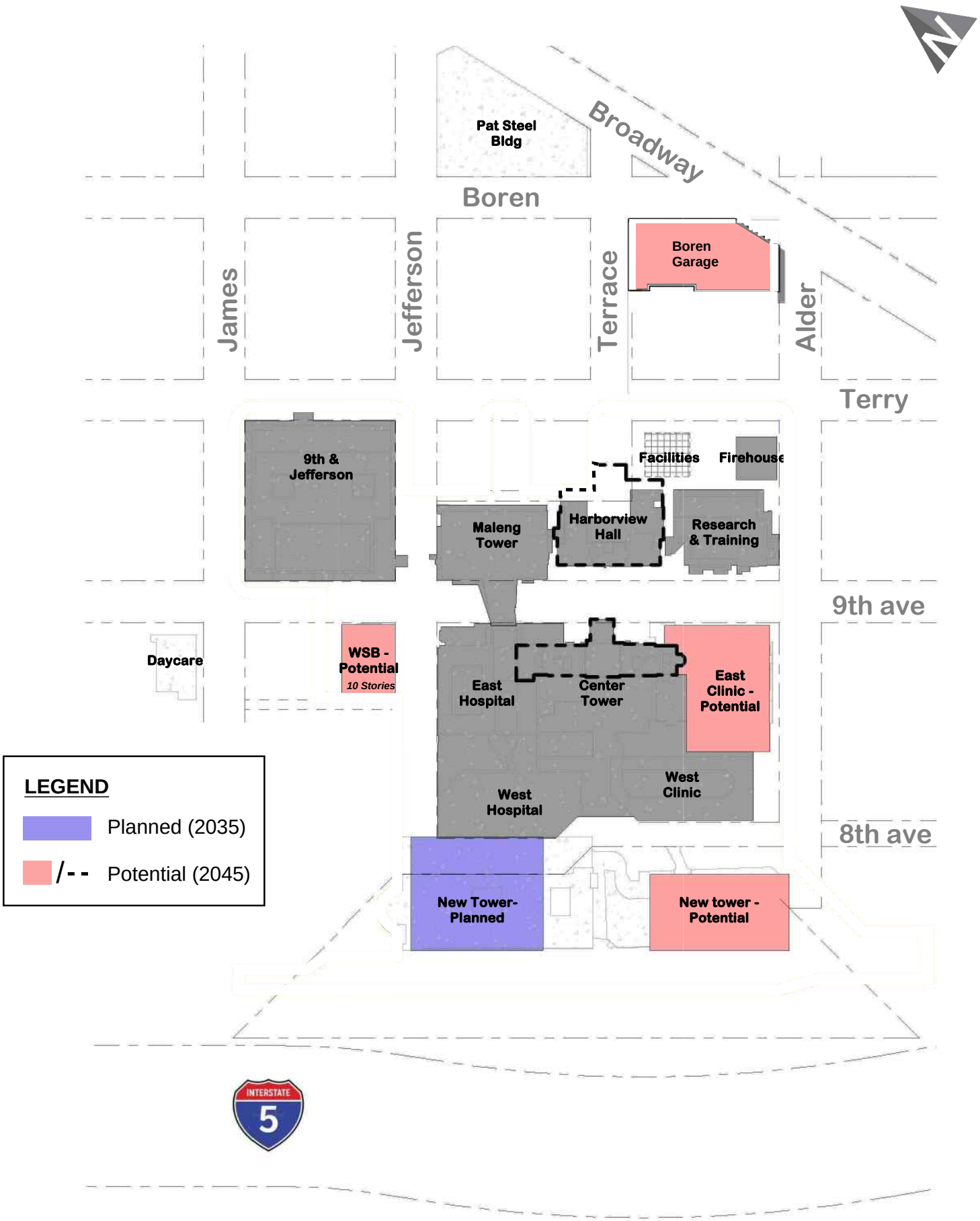


No Action Site Plan

Harborview Medical Center TDR

FIGURE
1

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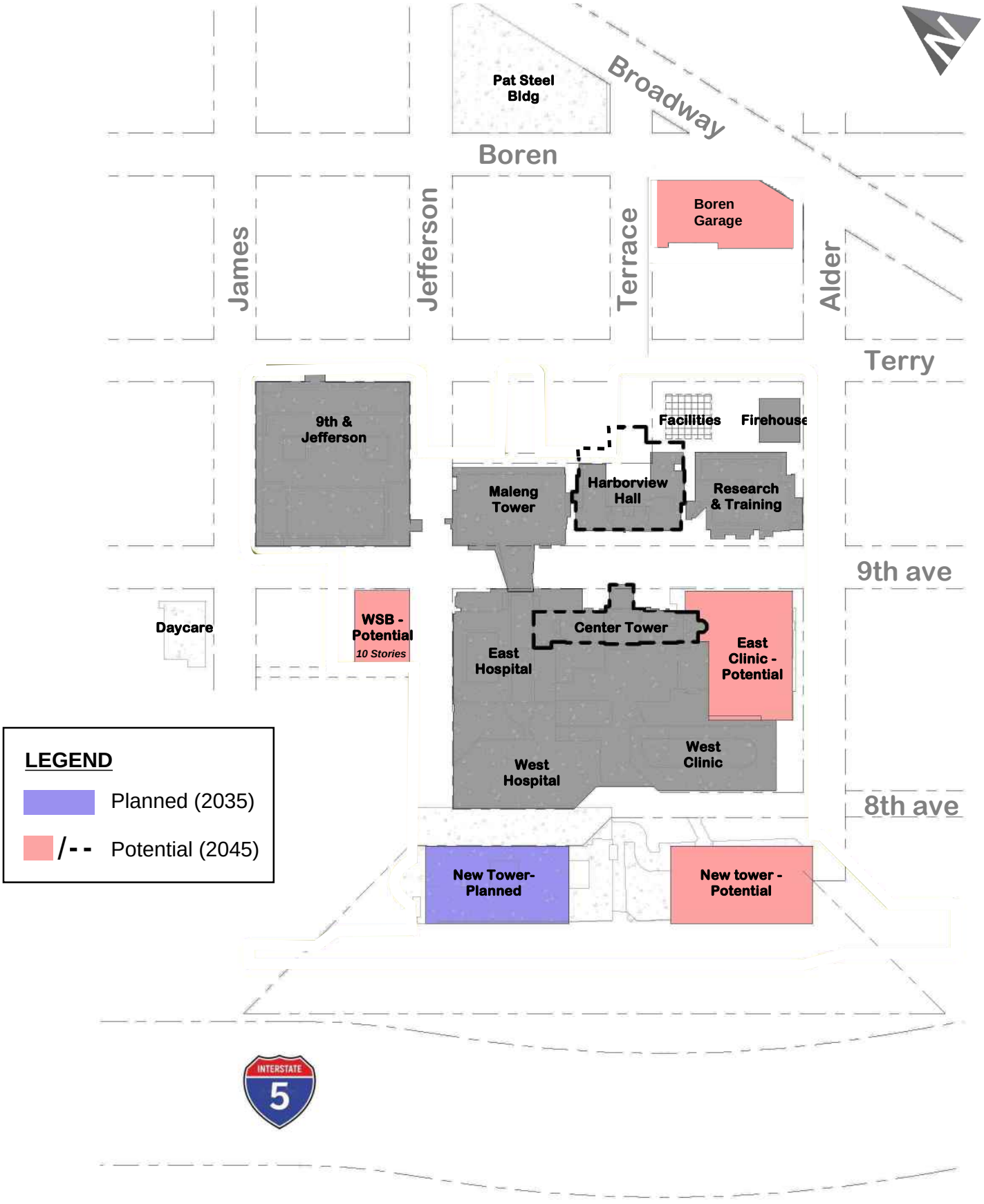


Alternative 1A Site Plan

FIGURE 2

Harborview Medical Center TDR

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Alternative 1B Site Plan

Harborview Medical Center TDR

FIGURE
3

transpogroup



Action Alternative 2 Site Plan

FIGURE 4

Harborview Medical Center TDR

transpogroup

The summary of development for the Alternatives is summarized in Table 1.

Table 1. Alternative Summary

Project		Size		
		No Action	**Alternative 1:** Maximum building height of 320'	**Alternative 2:** Maximum building height of 240'
Existing				
Occupied		2,003,944 gsf	2,003,944 gsf	2,003,944 gsf
Unoccupied[3]		76,964 gsf	76,964 gsf	76,964 gsf
Total		2,080,908 gsf	2,080,908 gsf	2,080,908 gsf
2024 MAJOR AMENDMENT PLANNED PROJECTS				
New Patient Tower		-	671,220 gsf	671,220 gsf
Skybridge			845 gsf	845 gsf
	Subtotal	-	+ 672,065 gsf	+ 672,065 gsf
2024 MAJOR AMENDMENT POTENTIAL PROJECTS				
Future Tower		-	671,220 gsf	671,220 gsf
New East Clinic in footprint of Existing East Clinic		-	280,000 gsf	280,000 gsf
Boren Parking Garage Expansion[2]		-	-	-
Skybridges		-	10,400 gsf	10,400 gsf
Expand WSB Site for Multi-Use Building (+ 4 stories)		-	40,000 gsf	40,000 gsf
	Subtotal	-	+ 1,001,620 gsf	+ 1,001,620 gsf
1999 & 2014 EXISTING MIMP PROJECTS TO REMAIN[1]				
Demolition of East Clinic		- 119,718 gsf	- 119,718 gsf	- 119,718 gsf
Seismic Upgrade to center tower		- 38,300 gsf	- 38,300 gsf	- 38,300 gsf
Seismic upgrade to Harborview hall with buttress building to east		65,250 gsf	65,250 gsf	65,250 gsf
Full Occupancy of Harborview Hall[3]		76,964 gsf	76,964 gsf	76,964 gsf
Demolition of facilities building		- 5,616 gsf	- 5,616 gsf	- 5,616 gsf
Community plaza east of Harborview Hall		-	-	-
Multiuse Building (WSB), 6 stories		62,000 gsf	62,000 gsf	62,000 gsf
Demolition of Securities (site of future WSB)		- 8,093 gsf	- 8,093 gsf	- 8,093 gsf
	Subtotal	*+ 32,487 gsf*	*+ 32,487 gsf*	*+ 32,487 gsf*
Net New Total (Planned)		-	+ 672,065 gsf	+ 672,065 gsf
2035 Future Total *(planned only)*		**2,003,944 gsf**	**2,676,009 gsf**	**2,676,009 gsf**
Net New Total (Planned and Potential[1])		*+ 32,487 gsf*	+ 1,706,172 gsf	+ 1,706,172 gsf
2045 Future Total *(planned and potential[1])*		**2,036,431 gsf**	**3,710,116 gsf**	**3,710,116 gsf**
Private Roadway known as 8th Avenue to Remain Open?		**Yes**	**Option A – No Option B – Yes**	**No**

Note: gsf = gross square feet. GSF excludes parking areas.
1. Potential includes the 1999 & 2014 MIMP projects.
2. The expansion of the Boren Garage would increase the parking supply relative to the current parking supply. Parking is excluded from GSF.
3. Reflects the existing unoccupied space within Harborview Hall becoming occupied with the seismic upgrades.

Study Approach and Area

The scope of the transportation analysis conducted for the DEIS was coordinated with staff from the King County, Seattle Department of Construction and Inspections (SDCI) and the Seattle Department of Transportation (SDOT)[1]. The following transportation elements were evaluated, and results are summarized in this report:

- **Trip Generation** – The basis of the existing, No Action, and Action Alternatives trip generation for HMC is existing traffic counts conducted for the existing campus during the weekday AM and PM peak periods.
- **Street System** – The existing and future planned street system are identified. Alternative impacts to the street system are evaluated based on potential changes to the nearby street network connectivity.
- **Non-Motorized Transportation** – The existing and future pedestrian and bicycle system surrounding the site is evaluated. Pedestrian and bike connectivity to the adjacent transit stops or other key activity centers will be documented including considerations for the widths of sidewalks along these key connections and identification of any impedances. The number of non-motorized trips are estimated for the Alternatives and possible impacts associated with those trips are reviewed.
- **Transit Service** – The transit service of transit near the campus is reviewed including frequency, service area, and proximity as well as a screenline capacity analysis. Future investments in the local transit system have been identified and included in the evaluation as applicable.
- **Traffic Volumes** – Existing traffic volumes were collected at the study intersections in October 2024 during both the weekday AM (7-9 a.m.) and PM (4-6 p.m.) peak periods. Future (2035 and 2045) forecast traffic volumes for the No Action conditions are comprised of the existing traffic volumes, background traffic growth, traffic generated from the planned “pipeline” developments, and the trips associated with the No Action allowable development (see Table 1). Action Alternatives traffic volumes were then estimated by adding the trip generation for the Action Alternatives to the No Action volumes.
- **Traffic Operations** – The traffic operations are evaluated at the study intersections based on level of service (LOS) relative to the existing and forecast traffic volumes of each Alternative.
- **Traffic Safety** - Recent collision records are reviewed within the study area to identify existing traffic safety issues at the study intersections and along roadways within the Harborview Medical Center Campus. Future traffic impacts are reviewed relative to existing collision history patterns and forecast growth of movements.
- **Site Loading** – The number and location of the existing and future campus loading docks will be identified.

The transportation analysis includes an evaluation of two future horizon years: 2035 and 2045. Based on the distribution patterns, review of the previous 1999 EIS conducted for the HMC MIMP, and feedback from City staff, the following study intersections are identified for AM and PM peak hour analysis.

1. 6th Avenue/Cherry St
2. 7th Avenue/Cherry St
3. 6th Avenue/James St
4. 7th Avenue/James St
5. 8th Avenue/James St
6. 9th Avenue/James St
7. Terry Avenue/James St
8. Boren Avenue/James St
9. Minor Avenue/James St
10. Broadway Avenue/James St
11. 9th Avenue/Jefferson St
12. Terry Avenue/Jefferson St

[1] The final approved scoping memorandum was the *HMC MIMP Major Amendment EIS – Final Transportation Analysis Scope and Methodology* (Transpo Group, January 2025). Following this coordination, the scope was confirmed and coordinated with King County, SDCI and SDOT in the *HMC MIMP Major Amendment EIS – Confirmation of Transportation Analysis Scope and Methodology* (Transpo Group, April, 2026) due to proposed increase in the size of the alternatives.

13. Boren Avenue/Jefferson St
14. Broadway/Jefferson St
15. Boren Avenue/Terrace Street
16. Broadway/Terrace Street
17. Broadway/Boren Avenue
18. 9th Avenue/Alder St
19. Broadway/Alder Street
20. 9th Avenue/Fir Street/8th Avenue
21. 8th Avenue/Yesler Way

The study intersections are shown on Figure 5. Note that additional intersections in the vicinity of future connections are also reviewed under future Action Alternative conditions.



Site Vicinity and Study Intersections

FIGURE 5

Harborview Medical Center TDR

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Affected Environment

This section provides an overview of the existing conditions within the defined study area. The campus currently consists of 2,080,908 gsf (2,003,944 gsf being occupied space) of medical campus uses made up of a mix of emergency services, clinic areas, professional services, imagery and diagnostics, and numerous other supportive functions. The existing transportation system including trip generation, street system, transit service, non-motorized transportation, traffic volumes, traffic operations, traffic safety and loading are described below.

Trip Generation

The trip generation of the campus is made up of all modes of travel (e.g. vehicle, transit, non-motorized, etc.). The modes in which people travel to/from the campus may change over time but the overall trip generation to/from the campus remains consistent based on the size of the hospital which is generating the trips. The existing HMC size is 2,080,908 gsf and includes a variety medical uses such as emergency services, clinic areas, professional services, imagery and diagnostics, and numerous other supportive functions. Of this total space, 76,964 gsf is currently unoccupied, not currently generating trips, such that the overall occupied space is 2,003,944 gsf. The occupied space, the space currently generating trips, was assumed for purposes of calculating the existing trip generation. A breakdown by use is not considered in the trip generation studies due to the interaction of staff and patients between multiple disciplines/services.

In order to estimate the overall existing campus trip generation, the vehicle trips were collected and total campus person trips estimated using mode split data. These observed vehicle trips were used to estimate the overall person trip generation for the campus by applying mode split and average vehicle occupancy (AVO) data for the campus available through the Commute Trip Reduction (CTR) survey conducted for the campus. In this case, the original vehicle observations were conducted concurrent with the 2022 CTR and since then a more recent CTR survey was conducted for the campus. The more recent mode splits were then applied for purposes of the analysis. This general trip generation process is illustrated in the flowchart below and detailed below.



The observed vehicle trips for the campus represent a combination of Harborview Medical Center staff, visitors and patients, and service vehicles and deliveries to the campus. Vehicle trips were collected for two mid-weekdays in 2022 and 2023 including the HMC parking lots, loading areas, and on-street parking. Data for trip generation was collected during the weekday AM and PM peak periods (7-9 a.m. and 4-6 p.m.). The observed average weekday AM and PM peak hour counts over the 2 days are summarized in Table 2. The detailed observed counts are included in Appendix A.

Table 2. Observed Existing Vehicle Trips

Observations[1]	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Lots/Garages	418	265	683	74	394	468
Loading Areas	31	38	69	34	31	65
On Street	23	22	45	6	6	12
Total	**472**	**325**	**797**	**114**	**431**	**545**

1. Existing counts were collected for two mid-weekdays in 2022 and 2023.

These observed vehicle trips were used to estimate the overall person trip generation for the campus by applying mode split and AVO data for the campus. This mode split data is available for staff through the

CTR survey conducted for campus staff.[2] CTR data is not available for non-staff; however, given the nature of the visitors to campus and users of the medical care, non-staff users were assumed to have a higher vehicle mode split usage.[3] The 2022 CTR study was used for the overall person trip generation estimate as both the CTR survey and counts were completed in 2022.

Since the completion of the 2022 CTR, a 2024/2025 CTR was completed for the campus which aligns with the counts conducted at the study intersections as identified in the Traffic Volumes section below. A comparison of the 2022 and 2024/2025 CTR survey's completed for the staff is provided in Figure 6.[4]

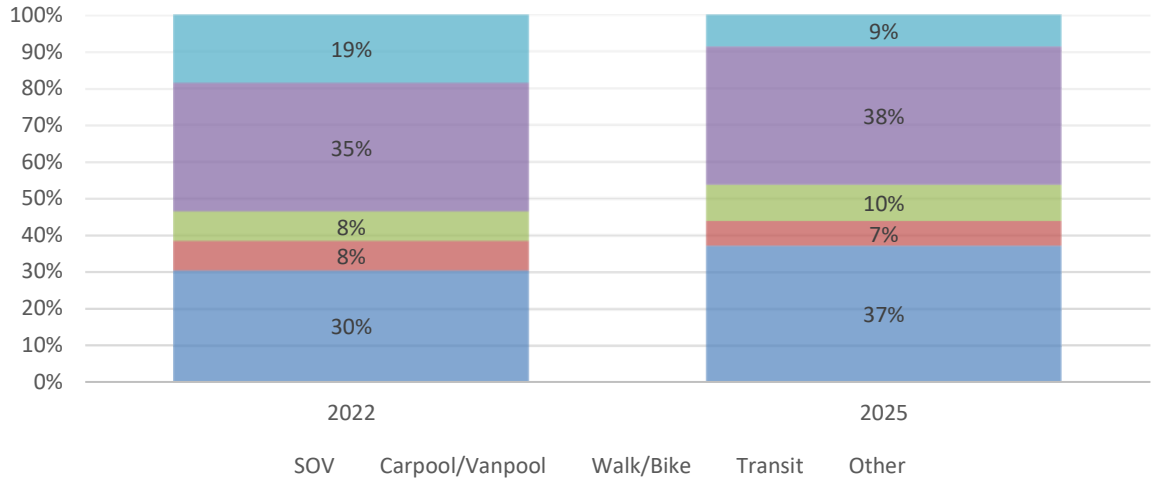


Figure 6. Existing CTR for the Campus

As shown in the figure, the more recent survey had a higher single occupancy vehicle (SOV) rate of 37 percent compared to 30 percent in 2022.

The more recent CTR survey results were applied to the total of total person trips estimated for the campus from the 2022 counts. The resulting person trip generation for the campus is summarized in Table 3. The detailed trip generation calculations for the campus are included in Appendix B.

Table 3. Existing Campus Trip Generation

	Weekday AM Peak Hour			Weekday PM Peak Hour		
Trip Generation	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Person Trips[1]						
Walk and Bike Trips	87	59	146	21	79	100
Transit Trips	366	254	620	88	335	423
Other	81	55	136	19	74	93
Person Trips by Vehicle[2]	662	456	1,119	159	606	765
Total Person Trips	**1,196**	**824**	**2,020**	**287**	**1,094**	**1,381**
Vehicle Trips[2]	**505**	**348**	**853**	**121**	**462**	**583**
Vehicle Trip Rate[3]	*0.43 trips/1,000 sf*			*0.29 trips/1,000 sf*		

1. The person trips reflect the 2024/2025 CTR survey results for the HMC campus.
2. Vehicle trips apply the average vehicle occupancy to the person trips by vehicle.
3. The existing occupied size is 2,003,944 gsf relative to the vehicle trips.

[2] Staff parking demand counts available for the campus garages suggest the staff represents approximately 35 percent of the trips that occur during the peak hours.
[3] The non-staff users were assumed to have 25 percent less of transit and non-motorized mode splits with that percentage reallocated as vehicle use.
[4] The "other" mode split includes remote work, day-off, employer shuttle, taxi, rideshare.

As shown in Table 3, the existing campus is estimated to generate 853 and 583 vehicle trips during the AM and PM peak hours, respectively. A trip generation rate was estimated based on the vehicle trips relative to the existing occupied HMC size of 2,003,944 gsf. This resulted in trip generation rates of 0.43 trips per 1,000 sf and 0.29 trips per 1,000 sf in the AM and PM peak hours, respectively. The existing HMC trip rates were used to estimate the trip generation for the Alternatives.

The table also shows that the campus generates 620 and 423 transit trips in the AM and PM peak hours, respectively and 146 and 100 non-motorized trips (e.g. walk, bike) in the AM and PM peak hours, respectively.

Street System

The campus is located within the First Hill/Capitol Hill Urban Center within Seattle. The campus is bounded to the south by Alder Street, (a non-arterial roadway) and to the north by James Street (a principal arterial). North/south connectivity near the site is provided by Interstate 5 to the west of the campus and Boren Avenue (a principal arterial) and Broadway (a minor arterial) to the east of the campus. Additional characteristics of the existing street network in the proposed project vicinity are shown in Table 4.

Table 4. Existing Street Network Summary in Study Area

Roadway	Arterial Classification[1]	Posted Speed Limit	Number of Travel Lanes	Parking?	Sidewalks?	Bicycle Facilities?	Transit Service?
Cherry Street	Principal Arterial[2]	25 mph[5]	2	Yes[7]	Yes	Yes[8]	No
James Street	Principal Arterial[3]	25 mph	4	No	Yes	No	Yes[13]
Jefferson Street	Collector Arterial[4]	25 mph[6]	2	Intermittent	Yes	Yes	Yes
Terrace Street	Non-Arterial	20 mph	2	Yes	Yes	No	No
Alder Street	Non-Arterial	20 mph	2	Yes	Yes	No	No
Spruce Street	Non-Arterial	20 mph	2	No	Yes[9]	No	No
Yesler Way	Minor Arterial	25 mph	2	Intermittent	Yes	Yes	Yes
6th Avenue	Principal Arterial	25 mph	2-3	Yes[10]	Yes	No	No
7th Avenue	Principal Arterial	25 mph	2	Intermittent[11]	Yes	Intermittent[12]	Yes
8th Avenue	Non-Arterial	20 mph	2	Yes	Yes	No	No
9th Avenue	Minor Arterial	25 mph	2	Yes	Yes	Yes	Yes
Terry Avenue	Non-Arterial	20 mph	2	Intermittent	Yes	No	No
Boren Avenue	Principal Arterial	25 mph	4	No	Yes	No	Yes
Minor Avenue	Non-Arterial	20 mph	2	Yes	Yes	No	No
Broadway	Minor Arterial	25 mph	2-3	Intermittent	Yes	Yes	Yes

1. Based on the Seattle Arterial Classification Map.
2. Classified as a principal arterial southwest of 7th Avenue and a non-arterial northeast of 7th Street.
3. Classified as a principal arterial southwest of Broadway and a minor arterial northeast of Broadway.
4. Classified as a collector arterial northeast of 9th Avenue.
5. Speed limit of 25 mph southwest of 7th Avenue and 20 mph northeast of 7th Avenue.
6. Speed limit of 25 mph northeast of 9th Avenue and 20 mph southwest of 9th Avenue.
7. Provided only on the north side of Cherry Street south of 6th Avenue and south side of Cherry Street north of 7th Avenue.
8. Provided only south of 7th Avenue.
9. Provided only east of Broadway.
10. Provided only north of Columbia Street along the west side of the roadway.
11. Provided on both sides of 7th Avenue between James Street and Cherry Street, and along the east side of the roadway north of Cherry Street.
12. Provided only north of Cherry Street.
13. Operating only southwest of Boren Avenue.

Transit Service

Transit service in the study area is provided by King County Metro. The nearest bus stops to the campus are located on campus along 9th Avenue at the intersections of Jefferson Street and Alder Street. A summary of these routes, headways, and hours of operation are summarized in Table 5.

In addition to the King County Metro's nearby transit routes, SDOT's First Hill Streetcar travels along Broadway east of Harborview's campus providing connectivity from Pioneer Square through the International District, Yesler Terrace, First Hill and Capitol Hill. The nearest Streetcar stop to the Harborview Medical Center campus is located at the intersection of Broadway and Terrace Street, approximately 0.1 miles east of the campus.

Local transit routes with stops within the vicinity of the project site are shown in Figure 7.

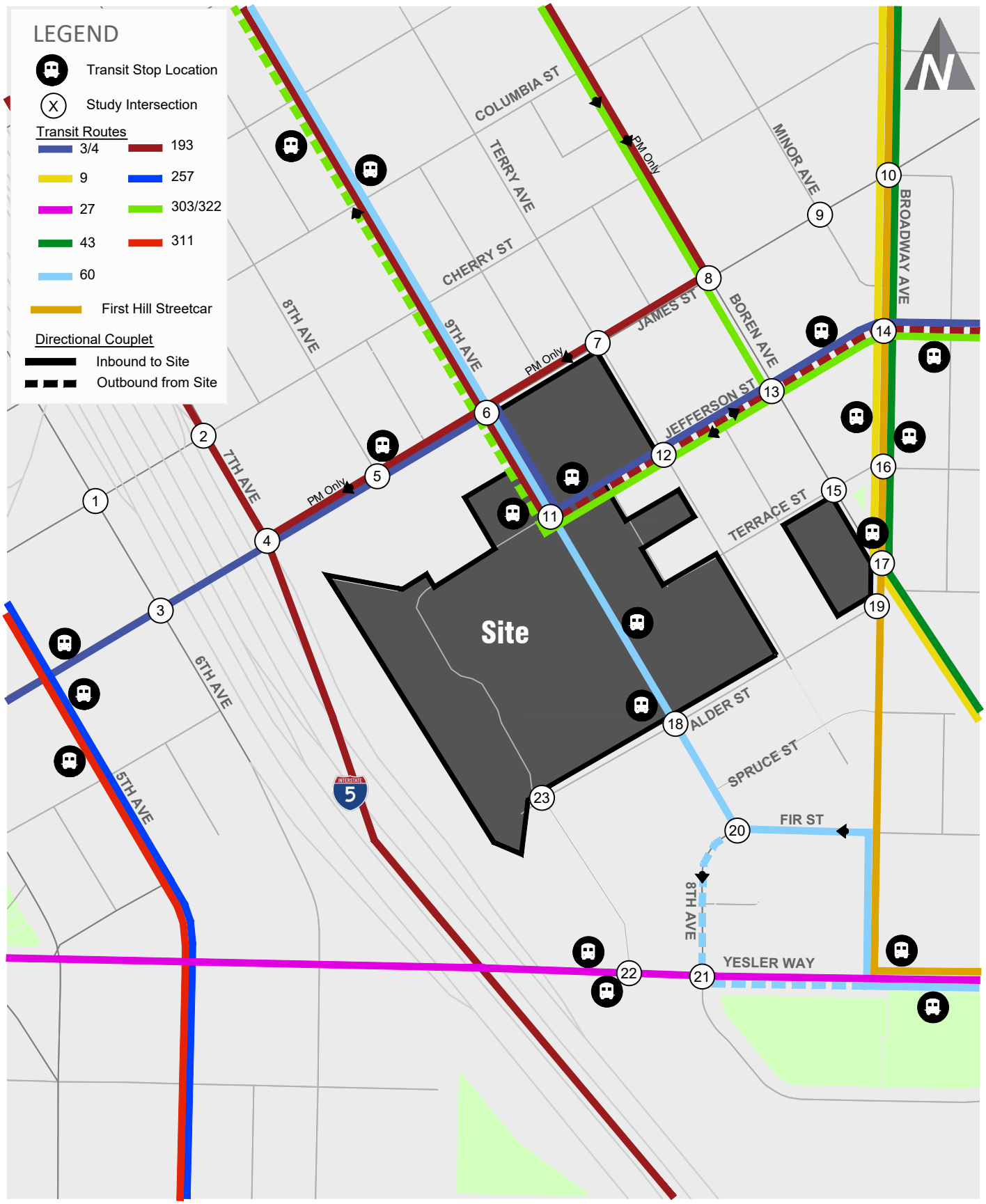
Table 5. Transit Routes Summary

Route	Days of Operation	Hours of Operation		Headway[1]
		Weekdays	Weekends	
3 – Summit, Lower Capitol Hill, Downtown Seattle, First hill, Seattle University, Central District, Madrona	Mon-Sun	5:45 a.m. – 1:00 a.m.	5:40 a.m. – 12:10 a.m.	30
4 – Seattle Pacific University, East Queen Anne, Seattle Center, Downtown, First Hill, Seattle University, Cherry Hill, Madrona, Judkins Park	Mon-Sun	5:00 a.m. – 4:20 a.m.	4:45 a.m. – 4:15 a.m.	15
9 – Ranier Beach, Columbia City, Seattle University, Broadway	Mon-Fri	7:00 a.m. – 6:20 p.m.	-	15-30
27 – Colman Park, Leschi Park, Downtown Seattle	Mon-Sun	5:45 a.m. – 9:40 p.m.	6:20 a.m. – 8:35 p.m.	30
43 – University District, Montlake, Capitol Hill, First Hill	Mon-Sun	7:45 a.m. – 5:15 a.m.	11:50 a.m. – 5:30 a.m.	15-30
60 – Westwood Village, White Center, Olson/Meyers P&R, Georgetown, Beacon Hill, First Hill, Broadway	Mon-Sun	4:15 a.m.-12:50 a.m.	5:35 a.m. – 1:00 a.m.	10-15
193 – Federal Way, Star Lake, Kent-Des Moines Freeway Station, Tukwila P&R, First Hill	Mon-Fri	5:20a.m. – 9:00 a.m. 3:10 p.m. – 8:30 p.m.	-	15-30
257/311 – Kingsgate P&R, Woodinville, Totem Lake Station, Yarrow Point Station, Evergreen Point, Downtown Seattle	Mon-Fri	4:55 a.m. – 9:45 a.m. 3:15 p.m. – 7:20 p.m.	-	20-30
303 – Aurora Village Transit Center, Northgate Station, South Lake Union, First Hill, Cherry Hill	Mon-Fri	5:30a.m. – 9:00 a.m. 3:50 p.m. – 8:30 p.m.	-	30
322 – Kenmore, Lake Forest Park, Lake City, Roosevelt, First Hill	Mon-Fri	5:45a.m. – 9:50 a.m. 4:10 p.m. – 8:30 p.m.	-	15-30

Source: King County Metro (February 2025)
1. Headways in minutes during weekday AM and PM Peak periods.

Further from the campus, King County Metro's Rapid Ride G Line provides frequent service along Madison Street connecting Downtown Seattle with the Central District and Madison Valley. The nearest G Line station is located approximately 0.4 miles north of the campus. Additionally, Sound Transit's Link Light Rail provides regional access with current service north to Lynnwood and south to Federal Way. The nearest station to the campus is the Pioneer Square Station, located approximately a half mile west of the campus including an approximate 13 percent grade. The Light Rail line also connects with SDOT's Streetcar, both the First Hill and South Lake Union lines.

Transit capacity and travel times of the routes summarized in Table 5 are reviewed in the sections below.



Transit Routes and Stop Locations

FIGURE 7

Harborview Medical Center TDR

transpogroup

Transit Capacity Analysis

To understand how weekday transit capacity compares to transit demand, screenlines were analyzed around HMC (see Figure 8). Screenlines are imaginary lines drawn across corridors to capture transit operations (capacity and demand) to and from Harborview Medical Center.[5] As shown in the figure, the analysis focused on the transit routes included in Table 5 (King County Metro bus routes proximate to the campus). The capacity for frequent service transit including the Rapid Ride, Streetcar, and Light Rail were not evaluated.

Each screenline was evaluated by direction for the weekday AM and PM peak periods (5 to 9 a.m. and 3 to 7 p.m.). Transit bus vehicle capacity was estimated assuming bus frequency for weekday AM and PM peak periods (current in Spring 2024).[6] The capacities of the individual routes were then used at each of the screenlines in aggregate. The transit capacity for service to and from the campus was completed for the screenlines. The total available capacity and ridership at the screenlines is summarized in Table 6 for the weekday peak periods. The detailed calculations are included in Appendix C.



Figure 8. Transit Stops and Capacity Screenlines Reviewed

[5] Screenlines can be applied for other forms of transportation as well, such as private vehicles, trucks, or total traffic.
[6] A load factor of 1.25 was applied to seated capacities which accounts for the standing capacity of transit vehicles.

Table 6. Existing Vehicle Capacity Analysis

Screenline/Location	Weekday Routes	Direction of Travel	AM Peak Period			PM Peak Period		
			Capacity[1]	Ridership[1]	Utilization	Capacity[1]	Ridership[1]	Utilization
Jefferson Street/ 9th Avenue	3, 4, 193, 303, 322	NB	1,300	431	33%	2,412	730	30%
		SB	1,872	707	38%	1,560	639	41%
9th Avenue between Jefferson Street and Alder Street	60	NB	714	245	34%	1,020	244	24%
		SB	714	122	17%	969	333	34%
Broadway	9, 43	NB	776	68	9%	No PM Period Trips		
		SB	104	6	6%	255	60	24%
Yesler Way	27	EB	357	44	12%	459	154	34%
		WB	306	113	37%	408	77	19%
5th Avenue	257, 311	SB	384	27	7%	No PM Period Trips		
		NB	No AM Period Trips			432	40	9%

1. Based on bus frequencies and ridership data provided by the respective agencies for Spring 2024.

As shown in the table, the buses operating around campus are at 6 to 41 percent utilization. All the routes serving the campus have some level of remaining capacity to accommodate additional riders during the weekday peak periods under existing conditions.

Transit Travel Times

In addition to the transit capacity review above, the travel times for each of the transit routes to travel within the study area between the indicated stop locations are detailed below in Table 7 by route direction during the weekday AM and PM peak hours. This information is based on the current transit route schedules at each of the indicated transit stops, as published by King County Metro in November 2025.

Table 7. Existing Transit Travel Times Through Study Area

Route	Direction of Travel	Stop Location		Travel Time (minutes)[1]	
		From	To	AM Peak Hour	PM Peak Hour
3/4	WB	Jefferson St at Broadway	James St at 5th Ave	6	6
	EB	James St at 5th Ave	Jefferson St at Broadway	5	6
9	NB	Broadway at Terrace St	Broadway at Marion St	4	-
	SB	Broadway at Marion St	Broadway at Terrace St	-	4
27	WB	Yesler Way at Broadway	Yesler Way at 8th Ave	1	1
	EB	Yesler Way at 8th Ave	Yesler Way at Broadway	1	1
43	NB	Broadway at Terrace St	Broadway at Marion St	2	3
	SB	Broadway at Marion St	Broadway at Terrace St	3	3
60	NB	Yesler Way at Broadway	9th Ave at Cherry St	5	5
	SB	9th Ave at Cherry St	Yesler Way at Broadway	3	3
193	EB	9th Ave at Cherry St	Jefferson St at Broadway	3	-
	WB	Jefferson St at Broadway	Jefferson St at 9th Ave	-	2
303/322	WB/NB	Jefferson St at Broadway	9th Ave at James St	3	3

Note: Routes 257 and 311 only provide one stop within the study area and so were not included in travel time review.
1. Based on current bus schedules published in the King County Metro Trip Planer, November 2025.

As shown in the table, the travel time of the buses between two or more transit stops within the study area are estimated to range from one to six minutes under existing conditions.

Non-Motorized Transportation

All roadways in the project vicinity provide sidewalks on one or both sides of the roadway. Marked crosswalks and curb ramps generally exist at the signalized and stop-controlled intersections within the vicinity of the campus. On-campus, midblock crosswalks exist across 9th Avenue and the private roadway known as 8th Avenue. Additionally, the existing pedestrian facilities include complete connections to all transit routes located within the vicinity of the site as described in the transit section above and shown in Figure 9.

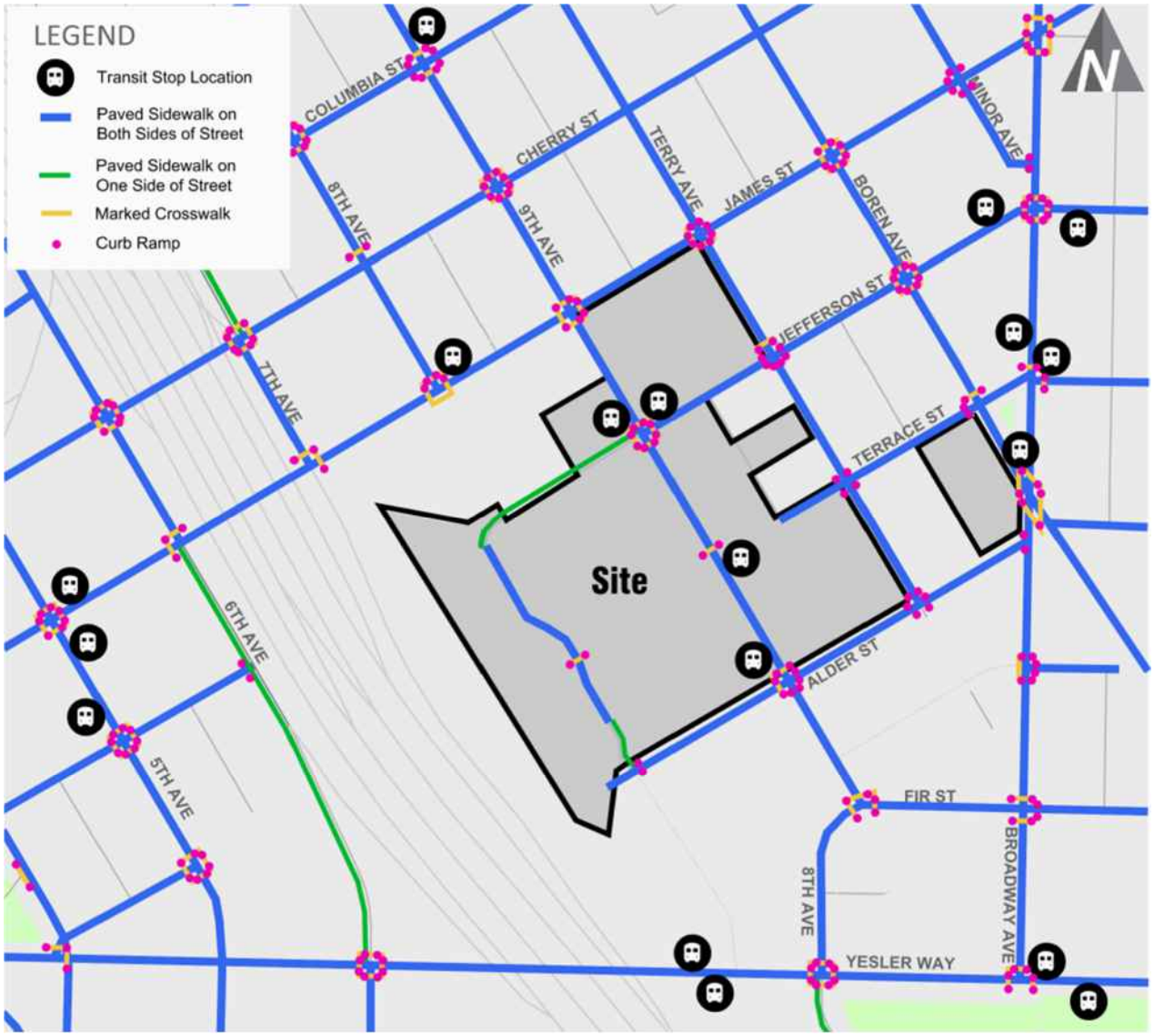


Figure 9. Existing Pedestrian Facilities

Bicycle facilities within the vicinity of the campus include separated bicycle lanes along Broadway, painted bike lanes along Cherry Street west of 7th Avenue, 7th Avenue north of Cherry Street, and 9th Avenue south of Jefferson Street. Sharrow bike facilities are present along the remainder of 9th Avenue north of Jefferson Street, Jefferson Street west of Broadway, and Spruce Street (see Figure 10).

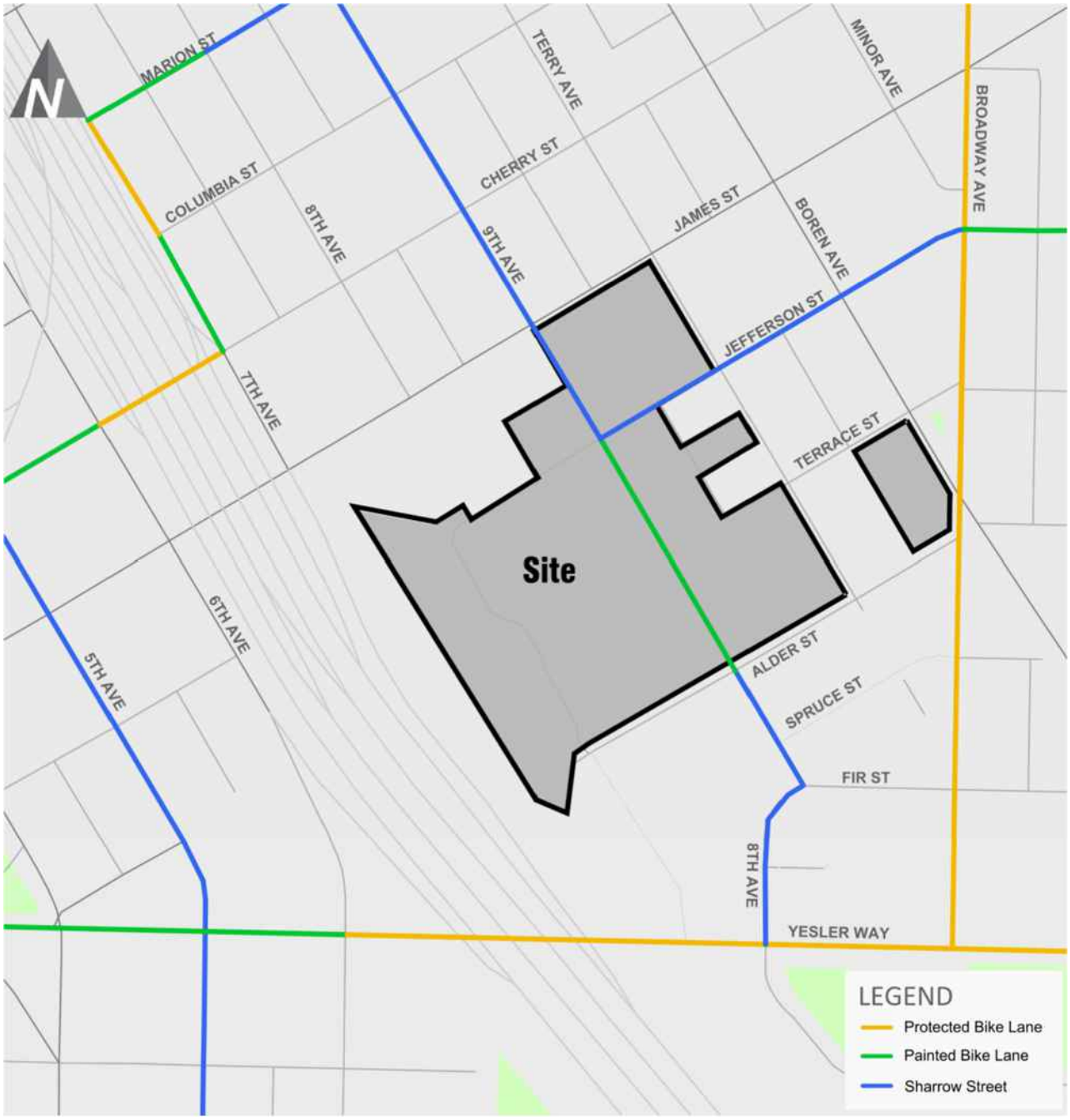


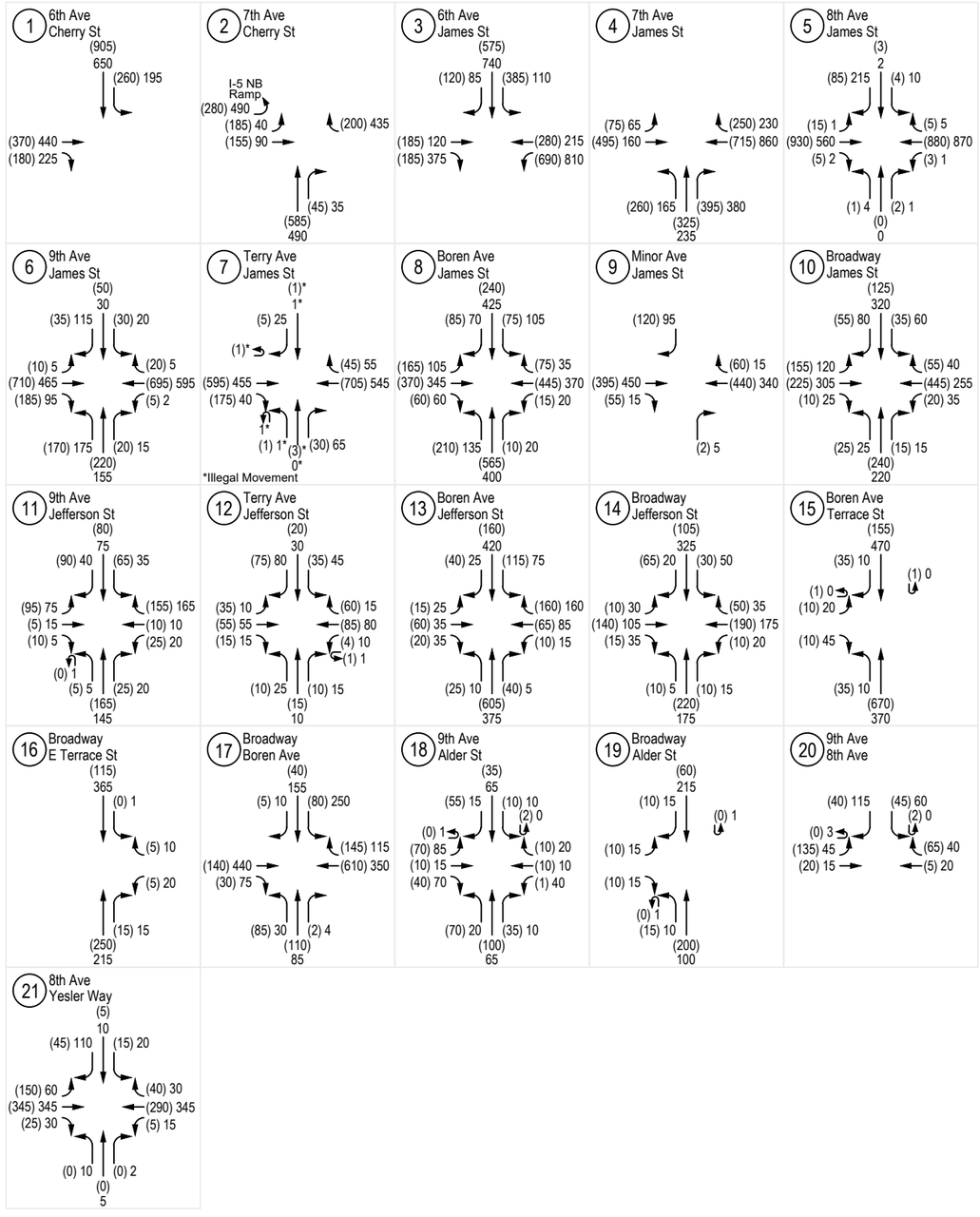
Figure 10. Existing Bike Facilities

Traffic Volumes

Existing traffic volumes at the off-site study intersections were based on traffic counts collected in November 2024.[7] The estimated existing weekday AM and PM peak hour traffic volumes are shown on Figure 11.[8] The traffic volumes are rounded to the nearest five vehicles to account for daily fluctuations in traffic. The detailed weekday peak period traffic counts are included in Appendix D.

[7] Note that as the trip generation estimates reflected above were modified to align with the 2024/2025 CTR results, the existing traffic volumes at the study intersections are inclusive and consistent with the existing trip generation.
[8] Illegal movements shown at the intersection of Terry Avenue and James Street; however, illegal movements are not included in operational analyses.





Existing Weekday AM and PM Peak Hour Traffic Volumes

Harborview Medical Center TDR

FIGURE 11

transpogroup

Traffic Operations

Weekday peak hour traffic operations for existing conditions are evaluated at the study intersections. The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). At signalized and all-way stop-controlled intersections, LOS is measured in average control delay per vehicle and is typically reported using the intersection delay. At side-street stop-controlled intersections, LOS is measured in average delay per vehicle and is reported for the worst operating movement of the intersection. Traffic operations and average vehicle delay for an intersection can be described qualitatively with a range of levels of service (LOS A through LOS F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix E contains a detailed explanation of LOS criteria and definitions.

Signal timing and phasing information is obtained from the Seattle Department of Transportation (SDOT). Right turn on red restrictions and leading pedestrian intervals were assumed at applicable intersections consistent with existing conditions. Weekday AM and PM peak hour traffic operations are evaluated based on the procedures identified in the *Highway Capacity Manual, 7th Edition* (HCM 7) as available and HCM 2000 for the signalized intersections that are unable to be evaluated in 7th edition due to the limitations of the methodology. *Synchro 12* was used for the analysis which is a software program that uses *HCM* methodology to evaluate intersection LOS and average vehicle delay. The worst movement is reported for the unsignalized intersections.

The City of Seattle's Comprehensive Plan does not define a LOS standard for individual intersections; however, the City generally recognizes LOS E and F as poor operations for signalized locations and LOS F for unsignalized locations. Results for the existing operations analyses are summarized in Table 8. Detailed LOS worksheets for each intersection analysis are included in Appendix F.

Table 8. Existing Peak Hour Level of Service Summary

Intersection	Traffic Control	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS[1]	Delay[2]	WM[3]	LOS	Delay	WM
1. Cherry St/6th Ave	Signal	B	16.5	-	B	18.8	-
2. Cherry St/7th Ave	Signal	C	33.0	-	C	32.3	-
3. James St/6th Ave	Signal	C	34.6	-	D	37.0	-
4. James St/7th Ave	Signal	C	23.7	-	C	34.9	-
5. James St/8th Ave	Signal	A	6.5	-	A	9.5	-
6. James St/9th Ave	Signal	C	24.1	-	C	23.4	-
7. James St/Terry Ave	TWSC	B	14.2	NB	B	13.7	NB
8. James St/Boren Ave	Signal	D	40.7	-	D	38.1	-
9. James St/Minor Ave	TWSC	B	12.5	SB	B	11.9	SB
10. James St/Broadway[4]	Signal	D	46.8	-	D	43.5	-
11. Jefferson St/9th Ave	AWSC	B	10.5	-	A	9.3	-
12. Jefferson St/Terry Ave	TWSC	C	21.4	SB	C	23.1	SB
13. Jefferson St/Boren Ave	Signal	B	16.1	-	C	23.8	-
14. Jefferson St/Broadway[4]	Signal	D	35.3	-	C	33.8	-
15. Terrace St/Boren Ave	SSSC	C	15.6	EB	C	15.8	EB
16. Terrace St/Broadway[4]	Signal	A	8.9	-	A	8.1	-
17. Broadway/Boren Ave	Signal	B	17.4	-	C	23.3	-
18. Alder St/9th Ave	TWSC	C	19.8	EB	C	20.6	EB
19. Alder St/Broadway	SSSC	B	10.5	EB	B	11.9	EB
20. 9th Ave/8th Ave/Fir St	AWSC	A	8.1	-	A	7.9	-
21. 8th Ave/Yesler Way	Signal	A	6.0	-	A	8.0	-

Note: TWSC = Two-Way Stop Controlled, AWSC = All-Way Stop=Controlled, SSSC = Side-Street Stop-Controlled.
1. Level of Service (A – F) as defined by the Highway Capacity Manual (TRB, 7th Edition).
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections. NB = northbound, SB = southbound EB = eastbound.
4. HCM 2000 methodology used to evaluate signalized intersections due to limitations of HCM 7th Edition to evaluate due to signal timing.

Table 8 shows the study intersections currently operate acceptably at LOS D or better during the weekday AM and PM peak hours.

It should be noted that due to limitations of the Synchro software, the operations at an all-way stop controlled intersection do not reflect the impacts associated with pedestrian volumes, such that, intersections with high pedestrian volumes may have greater delay than reported. Given this limitation, the pedestrian volumes at the all-way stop controlled intersections were reviewed further which included the intersections of Jefferson Street and Fir Street along 9th Avenue. The review showed the pedestrian volumes across the legs at the Fir Street/9th Avenue intersection were approximately 40 or fewer pedestrians in the AM and PM peak hours (less than 1 pedestrian a minute) and likely to have limited impact on the forecast delay; however, there is high pedestrian activity at the intersection of Jefferson Street/9th Avenue. The volumes at the intersection of Jefferson Street/9th Avenue are illustrated in Figure 12 during the AM peak hour (the higher volume peak hour).

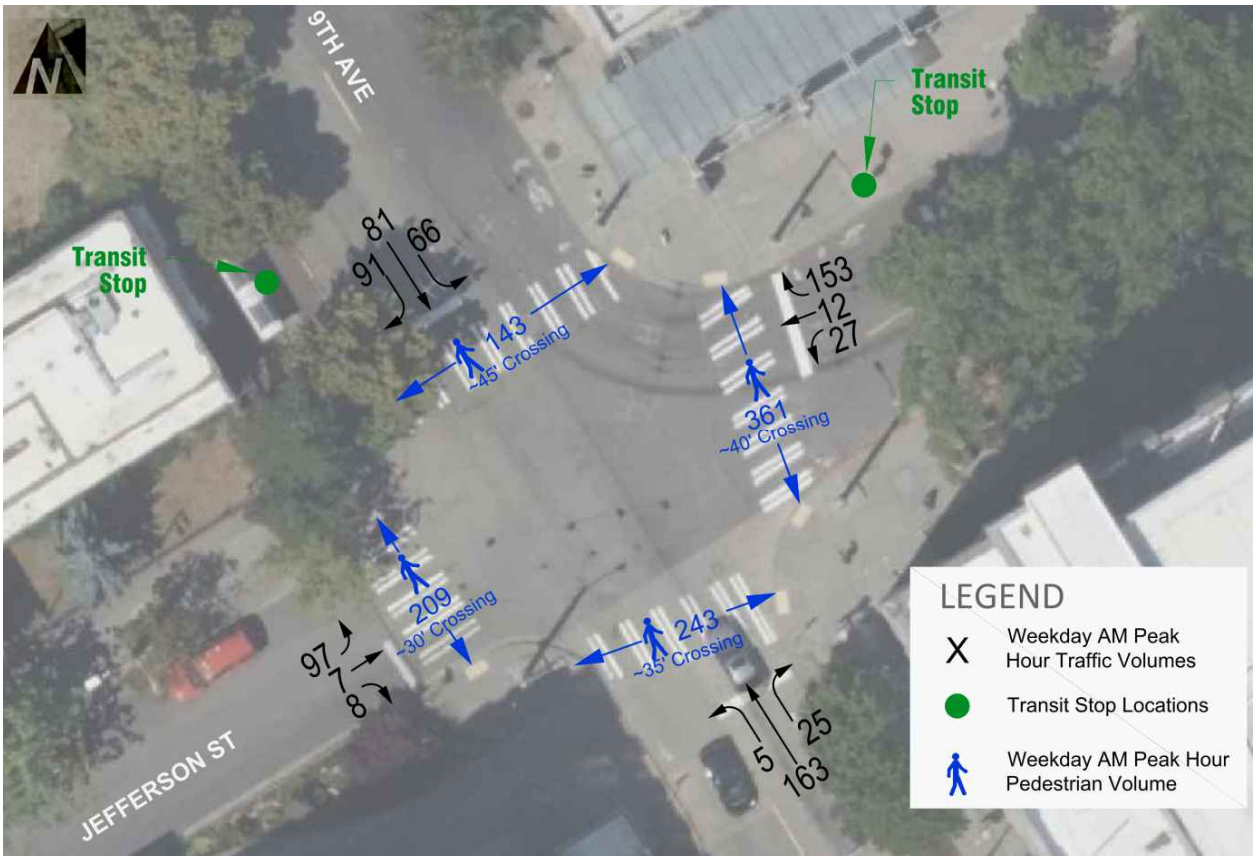


Figure 12. 9th Avenue/Jefferson Street Existing Volumes and

As shown in the figure, the total pedestrian volumes across the 4 legs of the intersection in the AM peak hour are approximately 950 whereas the total entering vehicular volumes at the intersection are 735 vehicles, such that there is higher pedestrian activity at this location than vehicles. There are higher pedestrian volumes across the legs of the intersection during both the weekday AM and PM peak hours. The high non-motorized activity is associated with this intersection being located adjacent to the transit stops at the intersection of 9th Avenue/Jefferson Street and the intersection being relatively centrally located within the Harborview campus, adjacent to the emergency room access. Figure 12 also showed that the crosswalks across the legs of the intersection vary between 30 and 45 feet. A longer crossing distance, increases the time for pedestrians to cross, contributing toward additional delay for both pedestrians and vehicles.

Due to the high pedestrian activity at the Jefferson Street/9th Avenue all-way stop controlled intersection, further review of traffic operations at this intersection was completed using SimTraffic 12 which does include delay relative to pedestrians; however, the vehicle delays and queueing are simulated to be worse than the existing conditions shown during peak hour observations. Given the limitations in software to accurately report the LOS and delay at the all-way stop-controlled intersection of Jefferson Street/9th Avenue using, the traffic operations at this intersection were reported using HCM 7th Edition, consistent with other intersections in the study area.

Traffic Safety

Recent collision records were reviewed within the study area to identify existing traffic safety issues at the study intersections and along the roadway segments within the Harborview Medical Center Campus. The most recent three-year summary of accident data from the Washington State Department of Transportation (WSDOT) for the period between January 1, 2021 and December 31, 2023 is summarized in Table 9.

Table 9. Three-Year Collision Summary – 2021 to 2023

Location	Traffic Control	Number of Collisions			Total	Annual Average	Collisions involving a pedestrian or bicyclist over the previous 3 Years
		2021	2022	2023			
Intersections							
1. Cherry St/6th Ave	Signal	4	3	3	10	3.33	0
2. Cherry St/7th Ave	Signal	2	0	0	2	0.67	0
3. James St/6th Ave	Signal	13	7	3	23	7.67	1
4. James St/7th Ave	Signal	1	2	2	5	1.67	0
5. James St/8th Ave	Signal	4	2	3	9	3.00	1
6. James St/9th Ave	Signal	5	4	3	12	4.00	0
7. James St/Terry Ave	TWSC	0	0	0	0	0.00	0
8. James St/Boren Ave	Signal	0	2	2	4	1.33	0
9. James St/Minor Ave	TWSC	0	0	0	0	0.00	0
10. James St/Broadway	Signal	1	0	0	1	0.33	0
11. Jefferson St/9th Ave	AWSC	0	0	2	2	0.67	1
12. Jefferson St/Terry Ave	TWSC	1	1	1	3	1.00	2
13. Jefferson St/Boren Ave	Signal	1	1	2	4	1.33	1
14. Jefferson St/Broadway	Signal	2	1	2	5	1.67	3
15. Terrace St/Boren Ave	SSSC	0	2	0	2	0.67	1
16. Terrace St/Broadway	Signal	0	0	1	1	0.33	0
17. Broadway/Boren Ave	Signal	2	2	1	5	1.67	2
18. Alder St/9th Ave	TWSC	0	1	0	1	0.33	0
19. Alder St/Broadway	SSSC	0	0	0	0	0.00	0
20. 9th Ave/8th Ave/Fir St	AWSC	0	0	0	0	0.00	0
21. 8th Ave/Yesler Way	Signal	0	0	2	2	0.67	2
Roadway Segment							
8th Ave between Jefferson St and Alder St	-	0	0	0	0	0.00	0
9th Ave between Jefferson St and Alder St	-	0	2	0	2	0.67	1
Alder St between 8th Ave and 9th Ave	-	1	0	0	1	0.33	0

Source: WSDOT, 2024.
Note: TWSC = Two-Way Stop Controlled, AWSC = All-Way Stop=Controlled, SSSC = Side Street Stop-Controlled.

SDOT defines High Collision Locations (HCL) as signalized intersections with an annual average of 10 or more collisions, unsignalized intersections with an annual average of 5 or more collisions, or mid-block locations with an annual average of 10 or more collisions, and locations with 5 or more pedestrian or bicycle collisions in the previous 3 years. Intersections designated as high accident locations are targeted for future safety improvements in an effort to reduce the occurrence of accidents. As shown in Table 9,

there are no intersections during the review period that meet the HCL criteria as defined by the City of Seattle.

The severity and collision type of each reported collision included in Table 9 above is summarized in 0 below.

Table 10. Three-Year Collision Severity and Collision Type Summary

Location	Severity			Collision Type							
	PDO[1]	Injury	Fatality	Fixed Object	Approach Turn	Rear End	Head On	Ped/Bike	Angle	Sideswipe	Other
Intersections											
1. Cherry St/6th Ave	9	1	0	0	2	1	0	0	6	1	0
2. Cherry St/7th Ave	2	0	0	0	0	0	0	0	1	0	1
3. James St/6th Ave	15	8	0	0	5	4	1	1	9	3	0
4. James St/7th Ave	4	1	0	0	0	3	0	0	1	0	1
5. James St/8th Ave	6	3	0	1	0	4	0	1	1	0	2
6. James St/9th Ave	6	6	0	0	3	4	0	0	4	1	0
7. James St/Terry Ave	0	0	0	0	0	0	0	0	0	0	0
8. James St/Boren Ave	3	1	0	0	0	0	0	0	4	0	0
9. James St/Minor Ave	0	0	0	0	0	0	0	0	0	0	0
10. James St/Broadway	0	1	0	0	0	1	0	0	0	0	0
11. Jefferson St/9th Ave	1	1	0	0	0	0	0	1	0	0	1
12. Jefferson St/Terry Ave	1	2	0	0	0	0	0	2	1	0	0
13. Jefferson St/Boren Ave	1	3	0	0	2	1	0	1	0	0	0
14. Jefferson St/Broadway	2	3	0	0	0	0	0	3	2	0	0
15. Terrace St/Boren Ave	0	2	0	0	1	0	0	1	0	0	0
16. Terrace St/Broadway	0	1	0	0	0	0	0	0	0	1	0
17. Broadway/Boren Ave	2	3	0	1	0	2	0	2	0	0	0
18. Alder St/9th Ave	0	1	0	0	0	0	0	0	1	0	0
19. Alder St/Broadway	0	0	0	0	0	0	0	0	0	0	0
20. 9th Ave/8th Ave/Fir St	0	0	0	0	2	1	0	0	6	1	0
21. 8th Ave/Yesler Way	0	2	0	0	0	0	0	2	0	0	0
Roadway Segment											
8th Ave between Jefferson St and Alder St	0	0	0	0	0	0	0	0	0	0	0
9th Ave between Jefferson St and Alder St	1	1	0	0	0	0	0	1	0	0	1
Alder St between 8th Ave and 9th Ave	1	0	0	0	0	0	0	0	0	0	1

Source: WSDOT, 2024.
1. PDO = Property Damage Only

Each individual study intersection had an annual average of approximately 8 collisions or fewer reported per year over the last three-year review period. As detailed in 0, the majority of collisions resulted in property damage only throughout the study area with no reported fatalities. Additionally, between 1 and 3 reported collisions involving a pedestrian or bicyclist occurred at 8 of the study intersections including along James Street at 6th Avenue and 8th Avenue, Jefferson Street at 9th Avenue, Terry Avenue, Boren Avenue and Broadway, and Boren Avenue at Terrace Street and Broadway.

Along the roadways within and surrounding the Harborview Medical Center Campus, there was an average of less than 1 collision reported per year over the last three-year review period. One collision along 9th Avenue between Jefferson Street and Alder Street involved a bicyclist striking a moving vehicle resulting in an injury. The two other collisions that took place along the roadways within and surrounding the Harborview Medical Center Campus were associated with on-street parking resulting in property damage only. No fatalities were reported adjacent to the campus during the review period.

Loading

There are three loading docks that serve the campus. The docks typically operate weekdays between 7 am and 3 pm, having both scheduled and unscheduled arrivals. The location and access to the loading docks are as follows:

- The dock serving the main hospital super block is located at Alder Street, just east of the private roadway known as 8th Avenue,
- The dock serving 9th Avenue and Jefferson Street multi-purpose building in located on Terry Avenue.
- The dock serving the Research and Training building is located in the alleyway east of the building off of Terrace Avenue.

Impacts of No Action

This section describes the transportation conditions for the future (2035 and 2045) No Action Alternative. The No Action Alternative is the metric by which the Action Alternatives impacts are measured against to identify the transportation impacts of the proposal.

The No Action Alternative includes the previously approved 1999 and 2014 MIMP projects that are anticipated to remain. These projects include the demolitions of the east clinic, seismic upgrade to the center tower, seismic upgrade to Harborview Hall with buttress building to east, full occupancy of Harborview Hall (occupancy of the currently assumed unoccupied space), community plaza east of Harborview Hall, demolition of the securities building, and construction of a 6-story multiuse building (Walter Scott Building). The No Action projects result in an increase of 32,487 gsf relative to existing conditions. Each project included in the No Action Alternative are detailed in Table 11 below.

Table 11. No Action Alternative Summary

Project		No Action
		Size (GSF)
Existing Total		*2,003,944 gsf*
2035		*No Change*
1999 & 2014 EXISTING MIMP PROJECTS TO REMAIN[1]		
Demolition of East Clinic		- 119,718 sf
Seismic Upgrade to center tower		- 38,300 sf
Seismic upgrade to Harborview hall with buttress building to east		65,250 sf
Full Occupancy of Harborview Hall[2]		76,964 gsf
Demolition of facilities building		- 5,616 sf
Community plaza east of Harborview Hall		-
Multiuse Building (WSB), 6 stories		62,000 sf
Demolition of Securities (site of future WSB)		- 8,093 sf
	Subtotal	*+ 32,487 gsf*
2045 Future Total *(planned and potential[1])*		**2,036,431 gsf**
Private roadway known as 8th Avenue to Remain Open?		**Yes**

1. Potential includes the 1999 & 2014 MIMP projects.
2. 2. Reflects the existing unoccupied space within Harborview Hall becoming occupied with the seismic upgrades.

Trip Generation

The No Action Alternative including projects previously approved as a part of the 1999 and 2014 MIMP that are anticipated to remain were evaluated under two future horizon years, future (2035) interim conditions and future (2045) long term conditions. The existing HMC trip rates were used to estimate the vehicular trip generation for the Alternatives. The weekday AM and PM peak hour vehicular trip generation for each future year condition of the No Action Alternative is summarized below in Table 12.

Table 12. No Action Weekday Vehicle Trip Generation

Land Use		Size	AM Peak Hour Trips In	AM Peak Hour Trips Out	AM Peak Hour Trips Total	PM Peak Hour Trips In	PM Peak Hour Trips Out	PM Peak Hour Trips Total
Existing		**2,003,944 gsf**	**505**	**348**	**853**	**121**	**462**	**583**
Future (2035)								
No Action		-	0	0	0	0	0	0
	Total	**2,003,944 gsf**	**505**	**348**	**853**	**121**	**462**	**583**
Future (2045)								
No Action		+ 32,487 gsf	8	6	14	3	6	9
	Total	**2,036,431 gsf**	**513**	**354**	**867**	**124**	**468**	**592**

Note: gsf = gross square feet

As shown in the table, the No Action Alternative results in no significant change in vehicular trip generation relative to existing conditions. Under future (2035) conditions the No Action alternative results in no change in the number of trips generated by the campus compared to existing conditions. Under Future (2045) No Action Conditions the approved 1999 and 2014 MIMP projects result in a slight increase in trips during both the weekday AM and PM peak hours relative to existing conditions.

The total person trip generation for the campus was estimated for the peak hours based on the same methodology as assumed for the affected environment with no changes assumed to the mode splits or AVO. The estimated No Action person trip generation is summarized in Table 13 for the future (2045) conditions. There is no change in size for the future (2035) conditions such that the trip generation for the future (2035) conditions are consistent with existing conditions.

Table 13. Future (2045) No Action Person Trip Generation

Trip Generation	Existing In	Existing Out	Existing Total	Net New No Action In	Net New No Action Out	Net New No Action Total	No Action Total In	No Action Total Out	No Action Total Total
Weekday AM Peak Hour									
Vehicle Trips	*505*	*348*	*853*	*8*	*6*	*14*	*513*	*354*	*867*
Person Trips[2]									
Walk and Bike Trips	87	59	146	2	1	3	89	60	149
Transit Trips	366	254	620	5	5	10	371	259	630
Other	81	55	136	2	1	2	83	56	138
Person Trips by Vehicle[1]	662	456	1,119	11	8	19	673	464	1,138
Total Person Trips	**1,196**	**824**	**2,020**	**20**	**15**	**34**	**1,216**	**839**	**2,054**
Weekday PM Peak Hour									
Vehicle Trips	*121*	*462*	*583*	*3*	*6*	*9*	*124*	*468*	*592*
Person Trips[2]									
Walk and Bike Trips	21	79	100	0	1	2	21	80	102
Transit Trips	88	335	423	2	5	7	90	340	430
Other	19	74	93	0	1	2	19	75	95
Person Trips by Vehicle[1]	159	606	765	3	8	11	162	614	776
Total Person Trips	**287**	**1,094**	**1,381**	**5**	**15**	**20**	**292**	**1,109**	**1,401**

1. Person trips by vehicle apply the average vehicle occupancy to the vehicle trips.
2. The person trips reflect the 2024/2025 CTR survey results for the HMC campus.

As shown in Table 13, consistent with the vehicular trip generation estimate under the No Action condition, the person trips under future (2045) conditions are anticipated to have a slight increase relative to existing conditions.

Street System

The No Action Alternative assumes no change in the Harborview Medical Center vehicle access and circulation. The existing access will be maintained with the No Action Alternative including parking in 3 existing garages on campus, the 9th & Jefferson Garage with access along Terry Avenue between James Street and Jefferson Street, the Boren Garage with access along Terrace Street between Boren Avenue and Terry Avenue, and the View Park II Garage with two accesses, one along the private roadway known as 8th Avenue just north of Alder Street and one along Alder Street just west of the private roadway known as 8th Avenue.

A review of local and regional capital improvement programs and long-range transportation plans was conducted to identify planned funded and unfunded transportation projects that would impact the off-site study area within the study period. The City of Seattle 2024 – 2029 *Adopted Capital Improvement Program* (CIP), 2025 – 2030 *Proposed Capital Improvement Program* (CIP), 2035 Seattle Comprehensive Plan, *One Seattle Plan* (2025), the 2024 Transportation Levy and the 2024 Seattle Transportation Plan were reviewed and the following projects were identified:

James Street Maintenance and Modernization Project between 3rd Avenue and Broadway – Generally, Transportation Levy street maintenance and modernization projects repave high volume arterial streets and improve infrastructure for non-motorized users. The James Street Corridor project is included as a corridor that will be evaluated for specific paving extents through a design process. Given no specific details on planned improvements are known at this time, no changes to the channelization or control along James Street were included in the future analysis.

Terry Avenue Green Street –A green street is planned along Terry Avenue; however, the details of any changes associated with the project along the roadways and at the intersections surrounding Harborview Medical Center are not known, thus no improvements from the existing conditions were assumed as part of the future analysis.

James St Multimodal Improvements – This project will make it easier and safer for non-motorized users along James Street to access transit. There are no finalized plans for improvements although they could include repaving and redesigning the roadway to better support transit, reducing interactions between pedestrians, bicyclists and vehicles with medians or curbing, and implementing intelligent transportation system improvements. Given no specific details on planned improvements are known at this time, no changes to the channelization or control along James Street were included in the future analysis.

Boren Avenue Multimodal Improvements – Improvements are planned along Boren Avenue to provide a safer and more reliable connection between First Hill and the Denny Triangle. No formal plans for improvement are finalized at this time although improvements could include adding a landscaped median along Boren Avenue to encourage slower speeds along the roadway, repairing sidewalks, improving crosswalks and improving access to local businesses for vehicles making deliveries. Given no specific details on planned improvements are known at this time, no changes to the channelization or control along James Street were included in the future analysis.

In addition, to the above planned improvement projects identified, additional improvements are anticipated to be constructed as part of continued development within the adjacent Yesler Terrace located south of Alder Street. The FEIS for Yesler Terrace's Preferred Alternative identified specific locations for proposed and required transportation mitigation measures. It also identified specific thresholds that could be used to estimate when these mitigation measures could be needed. Based on the elements of the EIS, the City Council adopted the Yesler Terrace Planned Action Ordinance[9]. The review of the thresholds and planned pipeline development projects including development at the corner **of 9th Avenue/Alder Street**, the identified mitigation of converting the existing two-way stop-controlled traffic control at the intersection of 9th Avenue/Alder Street to an all-way stop controlled intersection is anticipated to be triggered.[10] This improvement project is assumed in the future analysis given the inclusion of the added pipeline projects

[9] *Yesler Terrace Planned Action Ordinance 123962, Exhibit B to Ordinance: Planned Action Mitigation Document* (Table 2. Thresholds for mitigation implementation).
[10] Thresholds established by Planned Action Ordinance 123962, Exhibit B, P. 10, September 4, 2012.

within Yesler Terrace and associated trips at the intersections. Note that there is an additional mitigation project identified for Yesler Terrace to install a traffic signal at the intersection of **9th Avenue/Jefferson Street**; however, the trips associated with the trigger of the project is currently not forecast to be met by the Yesler Terrace projects included in this analysis. However, with full buildout of Yesler Terrace, the triggers would be hit, and this traffic signal would be constructed at this intersection.

Transit Service

Transit service changes in the vicinity of the Harborview Medical Center campus predominantly include the expansion of Sound Transit's Link Light Rail Network. As part of the ST3 measure, Sound Transit is working through the environmental process to extend the existing rail lines including a new downtown Seattle rail-only tunnel. As a part of the new tunnel and extension, additional stations will be constructed with the nearest anticipated to be the Midtown Station located along 4th Street between Yesler Way and James Street, a half mile west of the campus. No service changes to the transit capacity analysis were assumed associated with the Sound Transit system expansions. Also, no changes are anticipated to HMC's shuttles transit service as part of the No Action alternative.

Given the No Action condition is forecast to have minimal change in trips, no capacity analysis was conducted for the No Action conditions; however, the change in travel times for the routes was reviewed under the future (2045) No Action conditions to reflect added growth in the study area[11]. The anticipated increase in travel times was reviewed based on the operational analysis using Synchro and added delay at the intersections under the No Action conditions relative to existing conditions during the AM and PM peak hours. The forecast increase in travel times for transit routes in the study area are summarized in Table 14. As shown in the table, the forecast increase in travel times on any of the routes is less than 1 minute or a percent increase of less than 20 percent.

Table 14. No Action (2045) Transit Travel Times Through Study Area

Route	Direction of Travel	Stop Location		AM Peak Hour Travel Time (minutes)		PM Peak Hour Travel Time (minutes)	
		From	To	Existing[1]	No Action Total[2]	Existing[1]	No Action Total[2]
3/4	WB	Jefferson St at Broadway	James St at 5th Ave	6	6.4	6	6.3
	EB	James St at 5th Ave	Jefferson St at Broadway	5	5.3	6	6.3
9	NB	Broadway at Terrace St	Broadway at Marion St	4	4.3	-	-
	SB	Broadway at Marion St	Broadway at Terrace St	-	-	4	4.3
27	WB	Yesler Way at Broadway	Yesler Way at 8th Ave	1	1.1	1	1.0
	EB	Yesler Way at 8th Ave	Yesler Way at Broadway	1	1.0	1	1.0
43	NB	Broadway at Terrace St	Broadway at Marion St	2	2.1	3	3.1
	SB	Broadway at Marion St	Broadway at Terrace St	3	3.2	3	3.2
60	NB	Yesler Way at Broadway	9th Ave at Cherry St	5	5.7	5	5.5
	SB	9th Ave at Cherry St	Yesler Way at Broadway	3	3.6	3	3.6
193	EB	9th Ave at Cherry St	Jefferson St at Broadway	3	3.1	-	-
	WB	Jefferson St at Broadway	Jefferson St at 9th Ave	-	-	2	2.3
303/322	WB/NB	Jefferson St at Broadway	9th Ave at James St	3	3.1	3	3.2

1. Based on current bus schedules published in the King County Metro Trip Planer, November 2025.
2. The anticipated increase in travel times was reviewed based on the operational analysis using Synchro and added delay at the intersections under the No Action conditions relative to existing conditions during the AM and PM peak hours.

Non-Motorized Transportation

As noted above, planned improvements with changes to the existing non-motorized system include the James Street Maintenance and Modernization project and the Terry Avenue Green Street. Both projects

[11] Note the review was limited to the future (2045) conditions as that reflects the higher volume condition, such that the future (2035) conditions would reflect a lesser change than compared to the future (2045) conditions.

are included in the 2024 Transportation Levy and 2035 Seattle Comprehensive Plan, respectively, as future planned projects to be evaluated and designed, thus there are no known specific details or year of completion.

As shown above, the No Action condition is anticipated to result in no change or a slight increase in overall size of the campus and the non-motorized trips are correspondingly anticipated to increase minimally, by approximately 2 percent or less.

Traffic Volumes

Future (2035) forecast traffic volumes for the No Action conditions are comprised of the existing traffic volumes, background traffic growth, and traffic generated from the planned "pipeline" developments. An annual growth rate of 1.0 percent was applied to the existing traffic counts as coordinated with City staff during scoping which is consistent with the growth rate assumed for previously approved for projects throughout Seattle and tends to be conservative with the additional inclusion of growth from pipeline projects. In addition to the background growth rate, which accounts for the general growth in the area, traffic from specific pipeline development projects in the vicinity were added to the forecasts. Pipeline projects included in the analysis were based on information from the SDCI website. A total of 25 pipeline projects are included. The pipeline projects are listed in Appendix G. As noted above, the pipeline projects include development at the corner of 9th Avenue/Alder Street within Yesler Terrace.

Note that pipeline development assumed within Yesler Terrace includes those approved projects. There is additional development planned within Yesler Terrace as evaluated as part of the Yesler Terrace Planned Action Ordinance identified above which is not included as part of these forecasts.[12]

The average equivalent annual growth rate at the study intersections when considering the addition of both pipeline projects and the annual growth rate results in approximately 1.5 percent. The future (2035) No Action does not result in any change in size of the campus such that there is no change in trip generation relative to the existing conditions. The resulting future (2035) No Action weekday peak hour traffic volumes are shown in Figure 13.

The future (2045) No Action forecasts methodology is consistent with the future (2035) conditions inclusive of both background growth and pipeline projects and under (2045) No Action conditions, includes the trips associated with the approved 1999 and 2014 MIMP projects as outlined in Table 12 above. The additional trips associated with the approved MIMP projects under future (2045) conditions were distributed and assigned to the network based on Streetlight Data. Streetlight Data is a company that buys anonymized GPS data from in-vehicle navigation systems, as well as "location-based services" data from cell phone apps. These two datasets are used to perform origin-destination studies based on "zones" surrounding the campus. Based on the study area, the online processing engine computed the percentage of trips travelling from the origin zone to each of the destination zones, providing trip distribution. The data identifies midweek trips during the weekday AM and PM peak periods by direction (i.e. inbound and outbound from the Site)[13]. The distribution patterns are illustrated in Figure 14.

The resulting No Action weekday peak hour traffic volumes are shown for the future 2035 and 2045 conditions in Figure 13 and Figure 15, respectively.

Traffic Operations

The future 2035 and 2045 No Action operations analysis was conducted using consistent methodology as utilized for the existing conditions analysis. Adjustments of analysis parameters between the existing and No Action (2035) conditions included optimization[14] of signal timing to reflect the continued growth in traffic

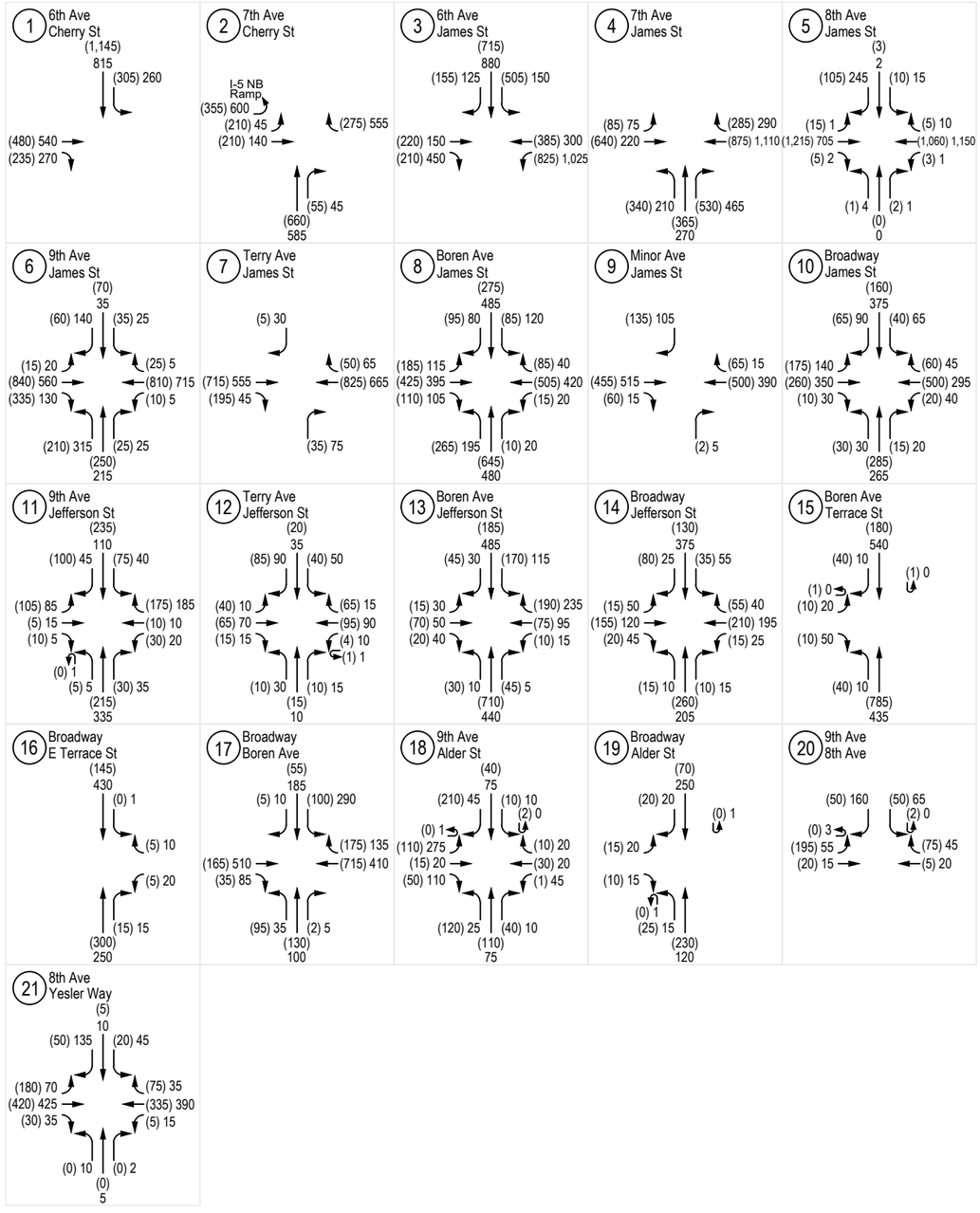
[12] Mitigation requirements for Yesler Terrace is tied to specific trip thresholds for developments within its boundary including the installation of a traffic signal at the intersection of 9th Avenue/Jefferson Street; however, the current trips included in this study do not meet those identified thresholds.
[13] Data conducted Fall 2022 on midweek days (Tues-Thur) during the AM peak period (7-9 a.m.) and the PM peak period (4-6 p.m.).
[14] Optimization included adjusting the splits and offsets. Existing cycle lengths for coordinated signals was maintained.

volumes. Additionally, the revision to traffic control at 9th Avenue/Alder Street to convert the existing two way stop controlled to all way stop was assumed as described above as mitigation associated with Yesler Terrace that is anticipated to be triggered with continued development.

Additional adjustments for the No Action (2045) conditions included additional optimization of signal timings (similar to 2030 conditions) as well as further refinement of the PHF at the off-site study intersections. The 2045 PHF adjustment was made consistent with *WSDOT Synchro & Simtraffic Protocol – Aug 2018* which identifies assuming a PHF of 1.0 for future analysis conditions, with future analysis typically aligning with a design year condition which is generally an approximately 20-year forecast, consistent with the future 2045 analysis.[15] The future 2035 and 2045 No Action weekday peak hour intersection operations are shown in Table 15. The detailed LOS worksheets are included in Appendix F.

[15] WSDOT's criteria identifies adjustment for the PHF for design year conditions.



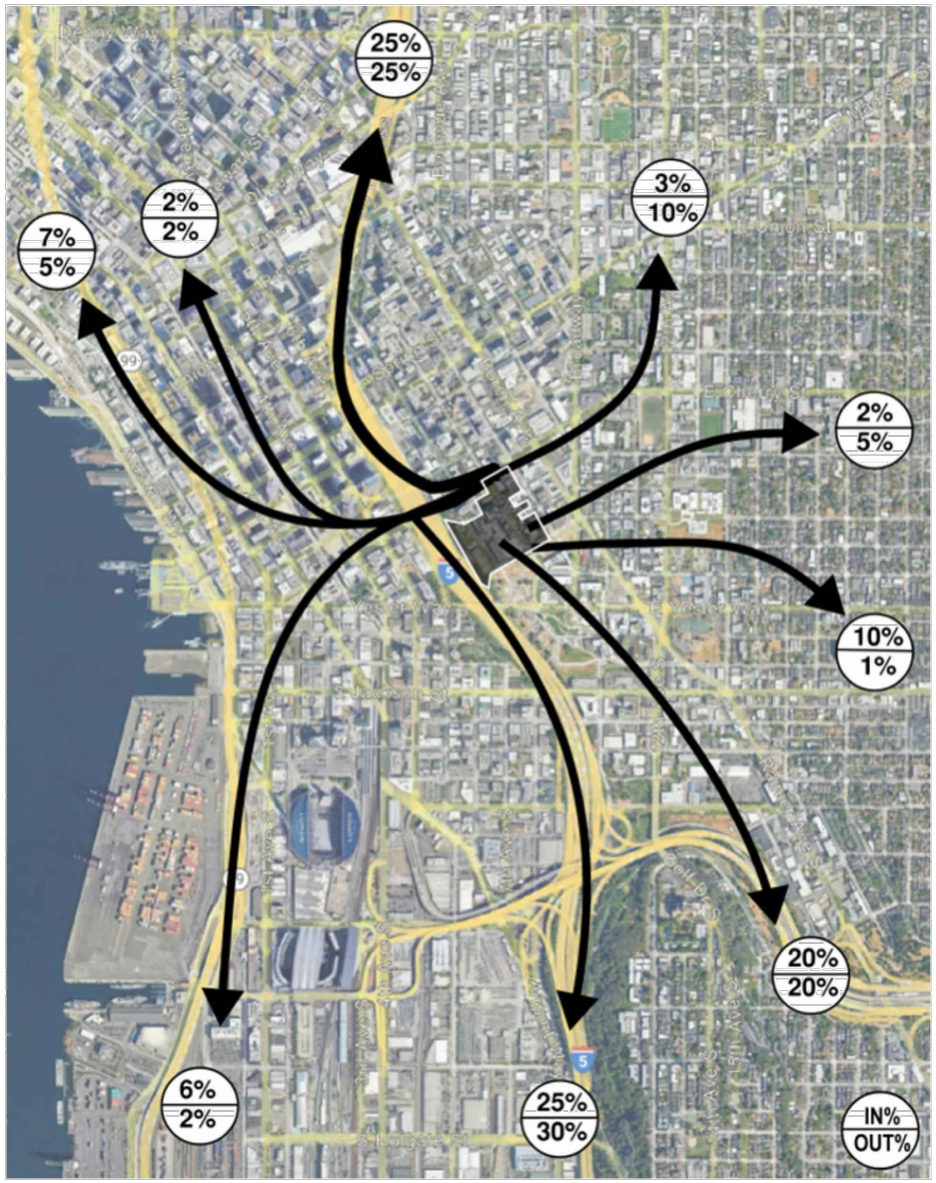


No Action (2035) Weekday AM and PM Peak Hour Traffic Volumes

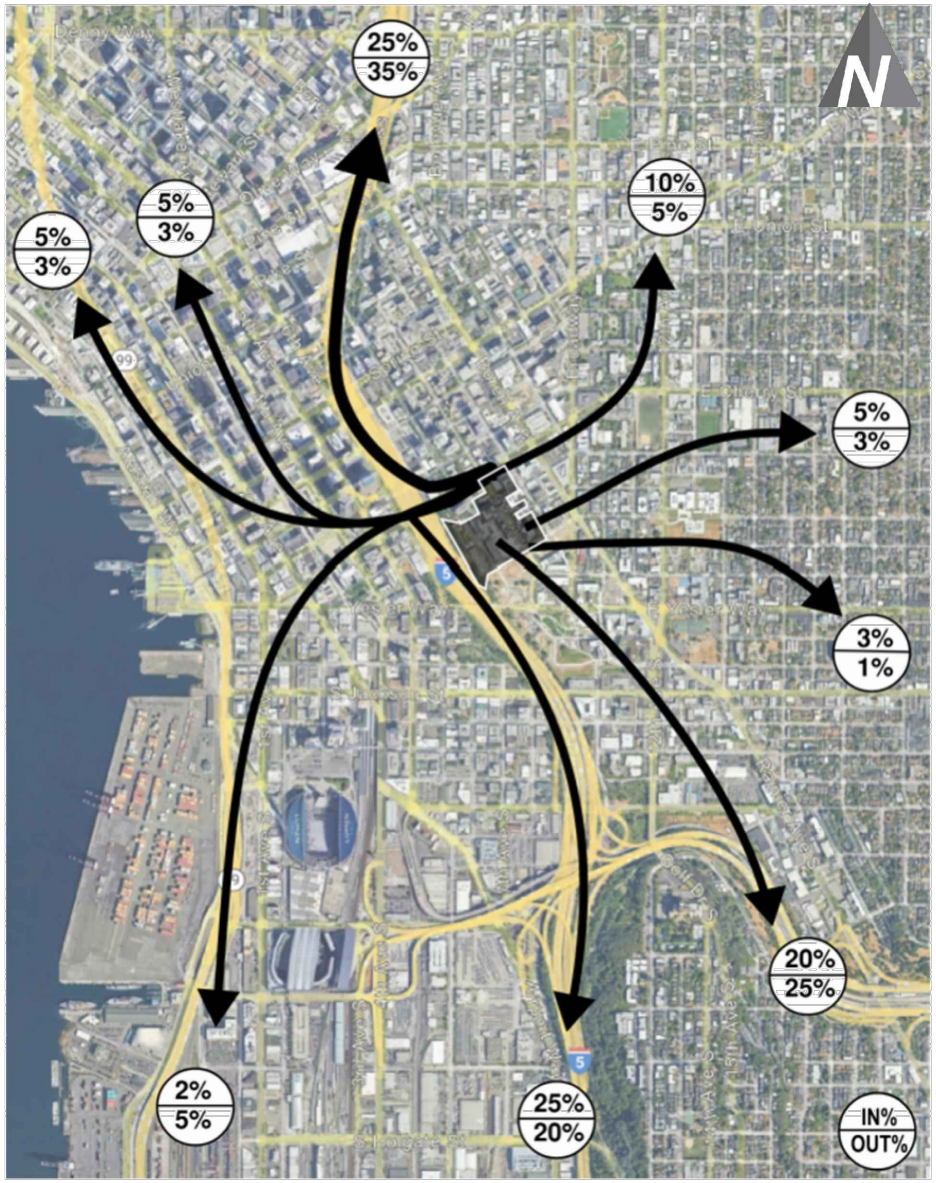
Harborview Medical Center TDR

FIGURE
13

transpogroup



AM Peak Hour



PM Peak Hour

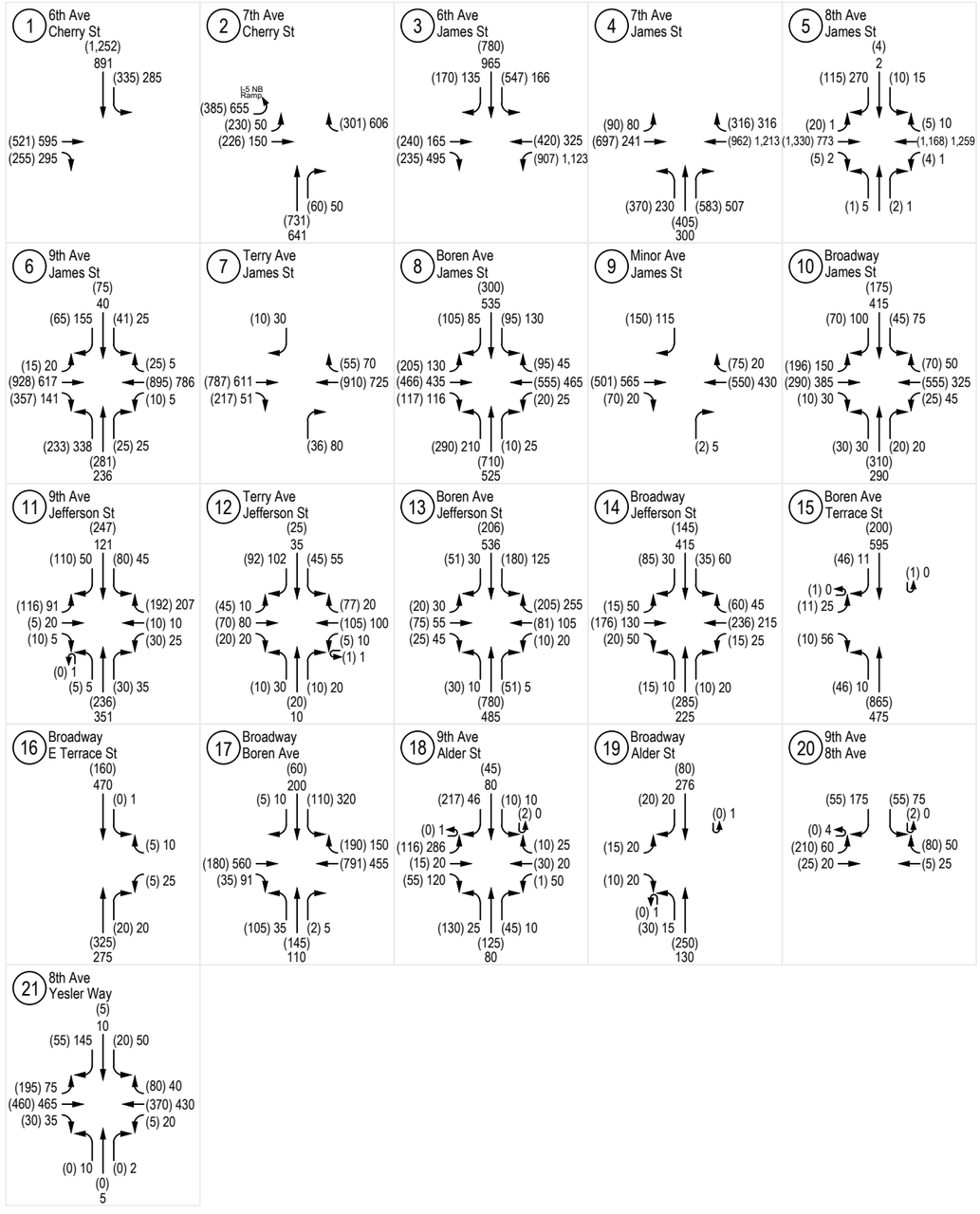
Weekday Peak Hour Trip Distribution

Harborview Medical Center TDR

FIGURE
14

transpogroup





No Action (2045) Weekday AM and PM Peak Hour Traffic Volumes

Harborview Medical Center TDR

FIGURE
15

Table 15. Existing and No Action Weekday Peak Hour LOS Summary

Intersection	Traffic Control	Existing			No Action (2035)			No Action (2045)		
		LOS[1]	Delay[2]	WM[3]	LOS	Delay	WM	LOS	Delay	WM
AM Peak Hour										
1. Cherry St/6th Ave	Signal	B	16.5	-	B	18.0	-	B	18.5	-
2. Cherry St/7th Ave	Signal	C	33.0	-	C	25.9	-	C	25.9	-
3. James St/6th Ave	Signal	C	34.6	-	D	37.3	-	D	35.8	-
4. James St/7th Ave	Signal	C	23.7	-	C	32.0	-	C	34.5	-
5. James St/8th Ave	Signal	A	6.5	-	A	7.9	-	A	8.0	-
6. James St/9th Ave	Signal	C	24.1	-	B	10.1	-	A	9.6	-
7. James St/Terry Ave	TWSC	B	14.2	NB	C	15.6	NB	C	15.8	NB
8. James St/Boren Ave	Signal	D	40.7	-	D	43.6	-	D	45.0	-
9. James St/Minor Ave	TWSC	B	12.5	SB	B	13.3	SB	B	13.7	SB
10. James St/Broadway[4]	Signal	D	46.8	-	D	48.9	-	D	50.8	-
11. Jefferson St/9th Ave	AWSC	B	10.5	-	C	16.5	-	C	15.4	-
12. Jefferson St/Terry Ave	TWSC	C	21.4	SB	C	23.8	SB	D	25.2	SB
13. Jefferson St/Boren Ave	Signal	B	16.1	-	B	16.9	-	B	16.8	-
14. Jefferson St/Broadway[4]	Signal	D	35.3	-	D	36.4	-	C	36.8	-
15. Terrace St/Boren Ave	SSSC	C	15.6	EB	C	17.2	EB	C	18.2	EB
16. Terrace St/Broadway[4]	Signal	A	8.9	-	A	9.1	-	A	8.9	-
17. Broadway/Boren Ave	Signal	B	17.4	-	B	18.4	-	B	18.6	-
18. Alder St/9th Ave	TWSC/*AWSC*[5]	C	19.8	EB	B	11.3	-	B	10.7	-
19. Alder St/Broadway	SSSC	B	10.5	EB	B	11.3	EB	B	11.2	EB
20. 9th Ave/8th Ave/Fir St	AWSC	A	8.1	-	A	8.8	-	A	8.7	-
21. 8th Ave/Yesler Way	Signal	A	6.0	-	A	6.6	-	A	6.7	-
PM Peak Hour										
1. Cherry St/6th Ave	Signal	B	18.8	-	C	20.8	-	C	20.8	-
2. Cherry St/7th Ave	Signal	C	32.3	-	C	22.6	-	C	23.9	-
3. James St/6th Ave	Signal	D	37.0	-	C	30.9	-	C	32.2	-
4. James St/7th Ave	Signal	C	34.9	-	D	43.3	-	D	39.6	-
5. James St/8th Ave	Signal	A	9.5	-	B	10.3	-	B	10.7	-
6. James St/9th Ave	Signal	C	23.4	-	C	23.0	-	C	31.5	-
7. James St/Terry Ave	TWSC	B	13.7	NB	B	15.0	NB	C	15.0	NB
8. James St/Boren Ave	Signal	D	38.1	-	D	42.2	-	D	42.8	-
9. James St/Minor Ave	TWSC	B	11.9	SB	B	12.5	SB	B	12.2	SB
10. James St/Broadway[4]	Signal	D	43.5	-	D	46.1	-	D	45.8	-
11. Jefferson St/9th Ave	AWSC	A	9.3	-	B	13.1	-	B	13.2	-
12. Jefferson St/Terry Ave	TWSC	C	23.1	SB	D	26.6	SB	D	26.0	SB
13. Jefferson St/Boren Ave	Signal	C	23.8	-	C	27.9	-	C	28.7	-
14. Jefferson St/Broadway[4]	Signal	C	33.8	-	C	39.0	-	D	39.2	-
15. Terrace St/Boren Ave	SSSC	C	15.8	EB	C	17.2	EB	C	18.5	EB
16. Terrace St/Broadway[4]	Signal	A	8.1	-	A	7.7	-	A	7.6	-
17. Broadway/Boren Ave	Signal	C	23.3	-	C	28.9	-	C	30.3	-
18. Alder St/9th Ave	TWSC/*AWSC*[5]	C	20.6	EB	B	11.5	-	B	11.8	-
19. Alder St/Broadway	SSSC	B	11.9	EB	B	12.8	EB	B	12.7	EB
20. 9th Ave/8th Ave/Fir St	AWSC	A	7.9	-	A	8.3	-	A	8.4	-
21. 8th Ave/Yesler Way	Signal	A	8.0	-	A	8.9	-	A	8.8	-

Note: TWSC = Two-Way Stop Controlled, AWSC = All-Way Stop=Controlled, SSSC = Side Street Stop-Controlled.
1. Level of Service (A – F) as defined by the Highway Capacity Manual (TRB, 7th Edition).
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections. NB = northbound, SB = southbound EB = eastbound.
4. HCM 2000 methodology used to evaluate signalized intersections due to limitations of HCM 7th Edition to evaluate due to signal timing.
5. Existing Traffic Control / *Future Traffic Control*

As shown in Table 15, under future (2035 and 2045) No Action conditions, the study intersections are forecast to continue to operate acceptably at LOS D or better. Improvements from existing to future conditions reflect either optimization of signal timing or the implementation of the anticipated future change in traffic control as identified above. Note that consistent with existing conditions, traffic operations at the all-way stop-controlled intersection of Jefferson Street/9th Avenue were reported using HCM 7th Edition, consistent with other intersections in the study area given the limitations in software to accurately report the LOS and delay.

Traffic Safety

With no significant change in the traffic volumes along the roadways surrounding the HMC campus and no significant safety concerns identified within the study area under existing conditions, the No Action Alternative is not anticipated to cause any safety concerns.

Loading

There are no changes to the existing loading dock facilities associated with the No Action conditions. Future inclusion of loading and service dock facilities will be provided per the requirements established in SMC 23.54.035.A for No Action future (2045) conditions as needed. Loading and service facilities will be designed to reduce any loading from adjacent public right-of-way and continued to be designed for the overall campus.

Impacts of Action Alternative 1

This chapter describes the transportation conditions for the future (2035 and 2045) Action Alternative. The impacts of the Action Alternative are identified through a comparison to the respective future 2035 and 2045 No Action Alternative.

Alternative 1 includes the No Action development as identified above as well as planned and potential projects with a net increase of 1,706,172 gsf added to the MIO. The planned development includes the new patient tower at VPI and skybridges resulting in an increase of 672,065 gsf. Development options of the new patient tower connectivity to the existing hospital were reviewed that either: (A) assumed occupancy at grade and below with direct connection to existing west hospital with closure of the private roadway known as 8th Avenue or (B) maintained the private roadway known as 8th Avenue. Potential additional projects include a future tower at VPII, new east clinic, skybridges, Boren parking garage expansion, and expansion of the Walter Scott Building from 6 stories to 10 stories. The projects included in the Action Alternative compared to the No Action Alternative projects are detailed in Table 16 below.

Table 16. Action Alternative Comparison Summary

Project	Size	
	No Action	**Alternative 1:** Maximum building height of 320'
Existing		
Occupied	2,003,944 gsf	2,003,944 gsf
Unoccupied[3]	76,964 gsf	76,964 gsf
Total	2,080,908 gsf	2,080,908 gsf
2024 MAJOR AMENDMENT PLANNED PROJECTS		
New Patient Tower	-	671,220 gsf
Skybridge	-	845 gsf
Subtotal	-	+ 672,065 gsf
2035 Future Total *(planned only)*	**2,003,944 gsf**	**2,676,009 gsf**
2024 MAJOR AMENDMENT POTENTIAL PROJECTS		
Future Tower	-	671,220 gsf
New East Clinic in footprint of Existing East Clinic	-	280,000 gsf
Boren Parking Garage Expansion[2]	-	-
Skybridges	-	10,400 gsf
Expand WSB Site for Multi-Use Building (+ 4 stories)	-	40,000 gsf
Subtotal	-	+ 1,001,620 gsf
1999 & 2014 EXISTING MIMP PROJECTS TO REMAIN[1]		
Demolition of East Clinic	- 119,718 gsf	- 119,718 gsf
Seismic Upgrade to center tower	- 38,300 gsf	- 38,300 gsf
Seismic upgrade to Harborview hall with buttress building to east	65,250 gsf	65,250 gsf
Full Occupancy of Harborview Hall[3]	76,964 gsf	76,964 gsf
Demolition of facilities building	- 5,616 gsf	- 5,616 gsf
Community plaza east of Harborview Hall	-	-
Multiuse Building (WSB), 6 stories	62,000 gsf	62,000 gsf
Demolition of Securities (site of future WSB)	- 8,093 gsf	- 8,093 gsf
Subtotal	*+ 32,487 gsf*	*+ 32,487 gsf*
Net New Total (Planned and Potential[1])	*+ 32,487 gsf*	+ 1,706,172 gsf
2045 Future Total *(planned and potential[1])*	**2,036,431 gsf**	**3,710,116 gsf**
Private Roadway known as 8th Avenue to Remain Open?	**Yes**	**Option 1A – No Option 1B – Yes**

Note: gsf = gross square feet
1. Potential includes the 1999 & 2014 MIMP projects.

Trip Generation

Alternative 1 includes the No Action development as identified above as well as planned and potential projects with a net increase of 1,706,172 gsf added to the MIO, with the planned projects assumed for the 2035 future year and potential projects by 2045. The vehicle trip generation was assumed consistent with the existing campus rates of 0.43 trips per 1,000 sf and 0.29 trips per 1,000 sf in the AM and PM peak hours, respectively. Note that these trip rates align with the existing mode splits and AVOs of the campus. It is anticipated that with implementation of Transportation Management Program (TMP) strategies for the campus, there is anticipated to be a reduction in the SOV rate over time, but maintaining the existing mode splits provides a conservative estimate of vehicular trips and associated impacts.

The weekday AM and PM peak hour trip generation for each future year condition of the Alternative 1 is summarized below in Table 17.

Table 17. Action Alternative 1 Weekday Vehicle Trip Generation

			AM Peak Hour Trips			PM Peak Hour Trips		
Condition		**Size**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Existing		**2,003,944 gsf**	**505**	**348**	**853**	**121**	**462**	**583**
Future (2035)								
Action Alternative 1		+ 672,065 sf[1]	169	117	286	41	155	196
	Total	**2,676,009 sf**	**675**	**464**	**1,139**	**163**	**616**	**779**
Future (2045)								
Action Alternative 1		+ 1,706,172 sf	430	296	726	104	392	496
	Total	**3,710,116 sf**	**935**	**644**	**1,579**	**226**	**853**	**1,079**

Note: gsf = gross square feet
1. Added size relative to existing.

As shown in the table, the Action Alternative results in an increase in the vehicular trip generation under both future 2035 and future 2045 conditions relative to existing conditions. Under future (2035) conditions the Action alternative results in an increase of 286 vehicle trips during the weekday AM peak hour and 196 vehicle trips during the weekday PM peak hours. Under future (2045) action conditions the planned and potential projects result in an increase of 726 vehicle trips during the weekday AM peak hours and 496 vehicles during the weekday PM peak hours relative to existing conditions.

The total person trip generation for the campus was estimated for the peak hours for the future (2045) condition (potential and planned projects) based on the same methodology as assumed for the affected environment with no changes assumed to the mode splits or AVO. The estimated Alternative 1 person trip generation is summarized in 0. The table shows, under the future (2045) Alternative 1 conditions, there are estimated to be a total of 1,149 and 785 transit trips in the AM and PM peak hours, respectively and 271 and 186 non-motorized trips (walk, bike, other) in the AM and PM peak hours, respectively.

Table 18. Future (2045) Alternative 1 Person Trip Generation

Trip Generation	Existing			Net New Alternative 1			Alternative 1 Total		
	In	Out	Total	In	Out	Total	In	Out	Total
Weekday AM Peak Hour									
Vehicle Trips	*505*	*348*	*853*	*430*	*296*	*726*	*935*	*644*	*1,579*
Person Trips[1]									
Walk and Bike Trips	87	59	146	74	51	125	89	110	271
Transit Trips	366	254	620	314	215	529	680	469	1,149
Other	81	55	136	68	48	116	149	103	252
Person Trips by Vehicle[2]	662	456	1,119	563	388	951	1,225	844	2,070
Total Person Trips	**1,196**	**824**	**2,020**	**1,019**	**702**	**1,721**	**2,215**	**1,526**	**3,741**
Weekday PM Peak Hour									
Vehicle Trips	*121*	*462*	*583*	*104*	*392*	*496*	*225*	*854*	*1,079*
Person Trips[1]									
Walk and Bike Trips	21	79	100	18	67	86	39	146	186
Transit Trips	88	335	423	75	287	362	163	622	785
Other	19	74	93	17	63	80	36	137	173
Person Trips by Vehicle[2]	159	606	765	136	514	650	295	1,120	1,415
Total Person Trips	**287**	**1,094**	**1,381**	**246**	**931**	**1,177**	**533**	**2,025**	**2,558**

1. The person trips reflect the 2024/2025 CTR survey results for the HMC campus.
2. Person trips by vehicle apply the average vehicle occupancy to the vehicle trips.

The above trip generation estimates maintained the existing mode splits and AVO relative to existing conditions to provide a conservative estimate of vehicular trip generation for the campus; however, with implementation of TMP strategies for staff, there would be a shift in mode splits reducing the SOV rate and increasing the reliance of the non-SOV modes (e.g. higher transit, non-motorized, carpool, etc.). A sensitivity analysis was completed to assess the higher trip generation of the non-vehicular modes with a reduced SOV percentage of staff trips from the existing approximate percentage of 37 percent to 25 percent. The mode split of non-staff was maintained relative to the existing conditions. Note that with the shift in mode split, the person trips are unchanged but the trips by use changes. Also, the change in mode split is also assumed to be applied to the existing campus size. This resulting person trip generation is summarized in Table 19. This sensitivity review is considered for purposes of reviewing non-motorized and transit impacts only.

Table 19. Future (2045) Alternative 1 Person Trip Generation (Sensitivity – 25% SOV)

Person Trip Generation[1]	Existing			Net New Alternative 1			Alternative 1 Total		
	In	Out	Total	In	Out	Total	In	Out	Total
Weekday AM Peak Hour									
Walk and Bike Trips	97	66	163	82	57	139	89	116	285
Transit Trips	405	281	686	349	238	587	715	492	1,207
Other	90	61	151	76	53	129	157	108	265
Person Trips by Vehicle	604	416	1,020	512	353	865	1,174	809	1,984
Total Person Trips	**1,196**	**824**	**2,020**	**1,019**	**702**	**1,721**	**2,215**	**1,526**	**3,741**
Weekday PM Peak Hour									
Walk and Bike Trips	23	89	112	20	76	96	41	155	196
Transit Trips	97	371	468	83	317	400	171	652	823
Other	22	82	104	19	70	89	38	144	182
Person Trips by Vehicle	145	552	697	124	468	591	283	1,074	1,356
Total Person Trips	**287**	**1,094**	**1,381**	**246**	**931**	**1,177**	**533**	**2,025**	**2,558**

1. The person trips reflect the sensitivity analysis assuming a reduced SOV rate of 25% for staff.

As shown in Table 19, with a reduced SOV rate of 25% for staff under the future (2045) Alternative 1 conditions, there are estimated to be an increase in total transit trips in the AM and PM peak hours of approximately 58 and 38, respectively. The non-motorized trips are estimated to increase by 14 and 10 trips during the AM and PM peak hours, respectively. Both represent an increase of approximately 10 percent relative to the current SOV rate for staff under the future (2045) Alternative 1 conditions.

Transit

No changes are proposed to public transit service as a result of the Action Alternative, such that transit capacities are consistent with the No Action condition as described above. A review of the public transit capacity review and travel times are reviewed below as a result of the Action Alternative.

Additionally, no changes are proposed to HMC's shuttles as a result of Alternative 1 given the shuttles do not utilize the private roadway known as 8th Avenue.

Transit Capacity Analysis

Future Alternative 1 ridership was estimated for the future 2045 horizon year by applying an annual background growth rate to the existing ridership and adding transit trips for the campus specific to the Alternative 1 condition. An annual background growth rate of 1.5 percent was assumed consistent with the overall forecast growth in traffic volume at the study intersections when including both the annual background growth rate and pipeline traffic as identified in the Traffic Volume section above.

The peak hour transit trips for Alternative 1 for both the existing SOV rate and sensitivity SOV rate of 25 percent were evaluated as summarized in 0 and Table 19, respectively. Note that the transit trip generation estimates are for the peak hour, whereas the transit analysis is for the peak transit periods (4-hour periods, 5-9 am and 3-7 pm). The peak hour transit trips were converted to the 4-hour transit period by multiplying the trips by 4, which conservatively assumes that peak hour transit trips for the campus occur continuously throughout the 4-hour transit period.

These trips were assigned to the transit stops evaluated in the analysis assuming a greater percentage distributed based on the proximity of the stop to the campus and number of routes being served at the stop. Note that 10 percent of the trips were assumed to use routes outside of the study area (i.e. Link Light Rail or streetcar or BRT). The resulting Alternative 1 vehicle capacity analysis is summarized in Table 20 for the 2045 future conditions during the AM and PM peak periods. The detailed transit capacity analysis is included in Appendix C.

Table 20. Future (2045) Alternative 1 Vehicle Capacity Analysis

			AM Peak Period Utilization[1]		PM Peak Period Utilization[1]	
Screenline/Location	**Weekday Routes**	**Direction of Travel**	**Existing SOV (~37%)**	**Sensitivity SOV (25%)**	**Existing SOV (~37%)**	**Sensitivity SOV (25%)**
Jefferson Street/ 9th Avenue	3, 4, 193, 303, 322	NB	86%	91%	57%	58%
		SB	80%	83%	79%	82%
9th Avenue between Jefferson Street and Alder Street	60	NB	77%	80%	47%	48%
		SB	53%	56%	62%	63%
Broadway	9, 43	NB	19%	20%	No PM Period Trips	
		SB	58%	65%	60%	65%
Yesler Way	27	EB	46%	51%	62%	64%
		WB	84%	90%	43%	46%
5th Avenue	257, 311	SB	37%	41%	No PM Period Trips	
		NB	No AM Period Trips		29%	31%

Note: SOV = single occupancy vehicle
1. Capacity for each route/stop assumed for the utilization calculation unchanged for Alternative 1 relative to existing conditions.

As shown in the table, the transit utilization for the screenlines reviewed surrounding the campus show up to 91 percent under the future (2045) Alternative 1 condition during the AM and PM peak periods.

Transit Travel Time

The change in travel times for the routes was also reviewed for future (2045) Alternative 1 conditions relative to the future (2045) No Action conditions. The anticipated increase in travel times was reviewed based on the operational analysis using Synchro and added delay at the intersections under the Alternative 1 conditions relative to No Action conditions during the AM and PM peak hours. The forecast increase in travel times for transit routes in the study area are summarized in Table 21. As shown in the table, the forecast increase in travel times on any of the routes is approximately 1 minute or less.

Table 21. Future (2045) Alternative 1 Transit Travel Times Through Study Area

Route	Direction of Travel	Stop Location		AM Peak Hour Travel Time (minutes)		PM Peak Hour Travel Time (minutes)	
		From	To	No Action	Alt 1	No Action	Alt 1
3/4	WB	Jefferson St at Broadway	James St at 5th Ave	6.4	7.2	6.3	6.4
	EB	James St at 5th Ave	Jefferson St at Broadway	5.3	6.6	6.3	6.6
9	NB	Broadway at Terrace St	Broadway at Marion St	4.3	4.3	-	-
	SB	Broadway at Marion St	Broadway at Terrace St	-	-	4.3	4.3
27	WB	Yesler Way at Broadway	Yesler Way at 8th Ave	1.1	1.1	1.0	1.0
	EB	Yesler Way at 8th Ave	Yesler Way at Broadway	1.0	1.0	1.0	1.0
43	NB	Broadway at Terrace St	Broadway at Marion St	2.1	2.2	3.1	3.2
	SB	Broadway at Marion St	Broadway at Terrace St	3.2	3.2	3.2	3.2
60	NB	Yesler Way at Broadway	9th Ave at Cherry St	5.7	6.3	5.5	5.8
	SB	9th Ave at Cherry St	Yesler Way at Broadway	3.6	3.9	3.6	4.0
193	EB	9th Ave at Cherry St	Jefferson St at Broadway	3.1	3.9	-	-
	WB	Jefferson St at Broadway	Jefferson St at 9th Ave	-	-	2.3	2.4
303/322	WB/NB	Jefferson St at Broadway	9th Ave at James St	3.1	3.3	3.2	3.2

Note: The existing travel times was based on current bus schedules published in the King County Metro Trip Planer, November 2025. The anticipated increase in travel times was reviewed based on the operational analysis using Synchro and added delay at the intersections under the alternatives conditions relative to existing conditions during the AM and PM peak hours.

Non-Motorized Transportation

As noted above and consistent with No Action conditions, planned improvements with changes to the existing non-motorized system include the James Street Maintenance and Modernization project and the Terry Avenue Green Street. Both projects are included in the 2024 Transportation Levy and 2035 Seattle Comprehensive Plan, respectively, as future planned projects to be evaluated and designed, thus there are no known specific details or year of completion.

The total non-motorized trips for the campus under the Alternative 1 2045 conditions are anticipated to be range between 241 and 269 trips during the AM peak hour and between 165 and 185 during the PM peak hour depending on the mode split assumed for the campus.

Street System

No changes are proposed to the off-site street network as a result of Alternative 1 relative to the No Action condition; however, there are a number of on-campus modifications evaluated with Alternative 1. As identified above, Alternative 1 includes two primary access options being considered:

- **Option 1A:** Closure of the private roadway known as 8th Avenue south of Jefferson Street as the planned new tower would include occupancy at grade and below with direct connection to existing west hospital. Note that the connection along the private roadway known as 8th Avenue from Alder Street to the existing mid-block turnaround is anticipated to be maintained.

- **Option 1B:** The private roadway known as 8th Avenue between Alder Street and Jefferson Street is to remain open.

The roadway connectivity to the planned and potential new towers, west of the private roadway known as 8th Avenue connecting to on-site parking and/or loading areas for the new towers that are being considered include Alder Street, Jefferson Street, and Yesler Way. The reviewed connectivity options are illustrated in Figure 16 and detailed below:

- **Option 1A** – The private roadway known as 8th Avenue Closure. Roadway connections to the new towers are assumed at the following locations:
    1. Alder Street and Jefferson Street at the private roadway known as 8th Avenue.
    2. Alder Street and Jefferson Street at the private roadway known as 8th Avenue and a connection to Yesler Way.
    3. Alder Street at the private roadway known as 8th Avenue.
    4. Alder Street at the private roadway known as 8th Avenue and a connection to Yesler Way.

- **Option 1B** – The private roadway known as 8th Avenue to remain open. Roadway connections to the new towers are assumed at the following locations:
    1. Alder Street and Jefferson Street at the private roadway known as 8th Avenue.
    2. Alder Street and Jefferson Street at the private roadway known as 8th Avenue and a connection to Yesler Way.
    3. Alder Street at the private roadway known as 8th Avenue.
    4. Alder Street at the private roadway known as 8th Avenue and a connection to Yesler Way.

Traffic Volumes

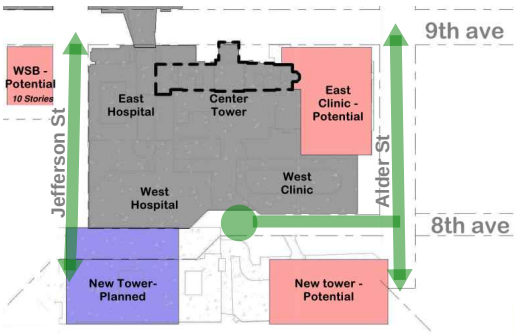
Alternative 1 net new 2035 and 2045 vehicular trip generation (see Table 17) was assigned to the transportation network based on the vehicle trip distribution (see Figure 14) with the local roadway connections for each option as defined above (see Figure 16). Given the road connection options are focused to the west side of the campus, the shifts in volumes associated with the options are limited to study intersections along and west of 9th Avenue, which include the following intersections:

11. 9th Avenue/Jefferson Street
18. 9th Avenue/Alder Street
20. 9th Avenue/Fir Street/8th Avenue
21. 8th Avenue/Yesler Way
22. Alder Street/the private roadway known as 8th Avenue *(evaluated with the access road connection)*
23. Access Road/Yesler Way *(only included in options which extend the Access Road to Yesler Way)*

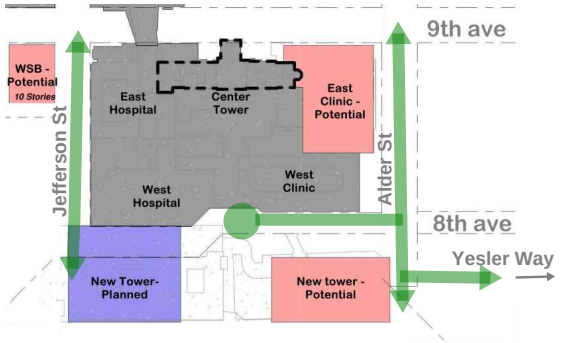
The remaining study intersection volumes are consistent between the various road connection options evaluation. The Action Alternative peak hour trip assignment is shown in for the 2035 and 2045 conditions in Figure 17 - Figure 20. The Alternative 1 trip assignment volumes were added to the existing volumes. The resulting Alternative 1 peak hour traffic volumes are shown on Figure 21 - Figure 24 for the 2035 and 2045 conditions.

This primary analysis assumes the planned new tower includes parking accessed via the proposed access road and the trips are assigned accordingly. A sensitivity analysis is conducted that considers the possibility of reduced parking within the planned new tower. The results of this analysis are presented in a subsequent section.

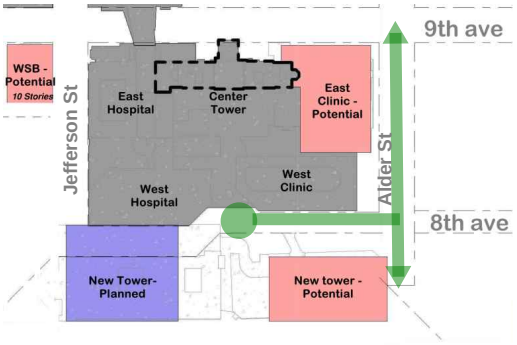
Alternative 1A: 8th Avenue Closed



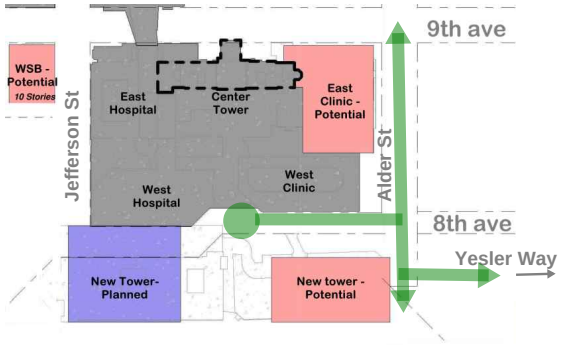
Option 1: Connect to Alder St and Jefferson St



Option 2: Connect to Alder St, Jefferson St, Yesler Way

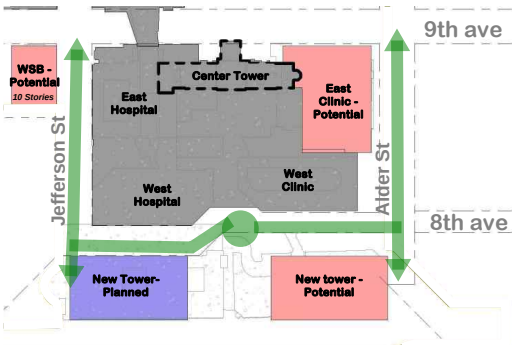


Option 3: Connect to Alder St

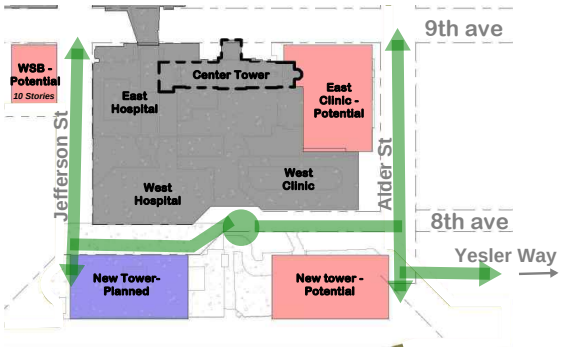


Option 4: Connect to Alder St and Yesler Way

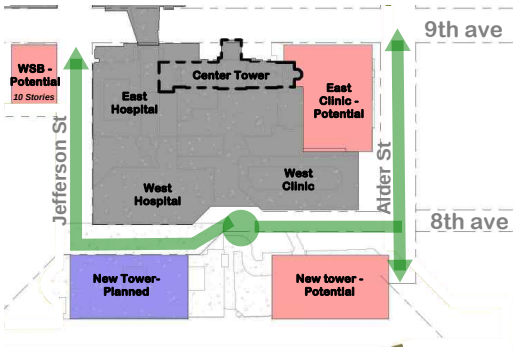
Alternative 1B: 8th Avenue to Remain Open



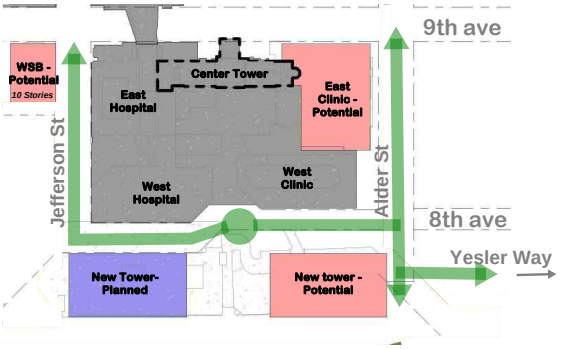
Option 1: Connect to Alder St and Jefferson St



Option 2: Connect to Alder St, Jefferson St, Yesler Way



Option 3: Connect to Alder St



Option 4: Connect to Alder St and Yesler Way

LEGEND Planned (2035) Potential (2045) Road Connection

Alternative 1 Roadway Connection Options

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FIGURE **16**

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Aug 12, 2025 - 2:13pm lilyh M:\21\1.21156.00 - Harborview 2020 CBP\Graphics\DWG\Harborview TDR_Graphics.dwg Layout: 15. Alt 1 Roadway Connection Options



1 6th Ave Cherry St
(43) 10
(12) 2

2 7th Ave Cherry St
(18) 31
(12) 2
(12) 23

3 6th Ave James St
(43) 10
(3) 2
(8) 9
(46) 54

4 7th Ave James St
(12) 23
(46) 12
(54) 63
(59) 15

5 8th Ave James St
(105) 27
(66) 86

6 9th Ave James St
(12) 2
(105) 27
(3) 3
(66) 86
(7) 5
(18) 31

7 Terry Ave James St
(7) 5
(3) 3

8 Boren Ave James St
(7) 5
(3) 3

9 Minor Ave James St
(7) 5
(3) 3

10 Broadway James St
(3) 2
(1) 2
(6) 3
(1) 2
(2) 1
(6) 4
(2) 2

11 9th Ave Jefferson St
See Figure 18 - Road Connection Options Trip Assignment

12 Terry Ave Jefferson St
(11) 8

13 Boren Ave Jefferson St
(11) 8

14 Broadway Jefferson St
(3) 2
(8) 6
(3) 2
(2) 1

15 Boren Ave Terrace St

16 Broadway E Terrace St
(5) 3

17 Broadway Boren Ave
(5) 3
(9) 3

18 9th Ave Alder St
See Figure 18 - Road Connection Options Trip Assignment

19 Broadway Alder St
(14) 6

20 9th Ave 8th Ave
See Figure 18 - Road Connection Options Trip Assignment

21 8th Ave Yesler Way
See Figure 18 - Road Connection Options Trip Assignment

22 8th Ave Alder St
See Figure 18 - Road Connection Options Trip Assignment

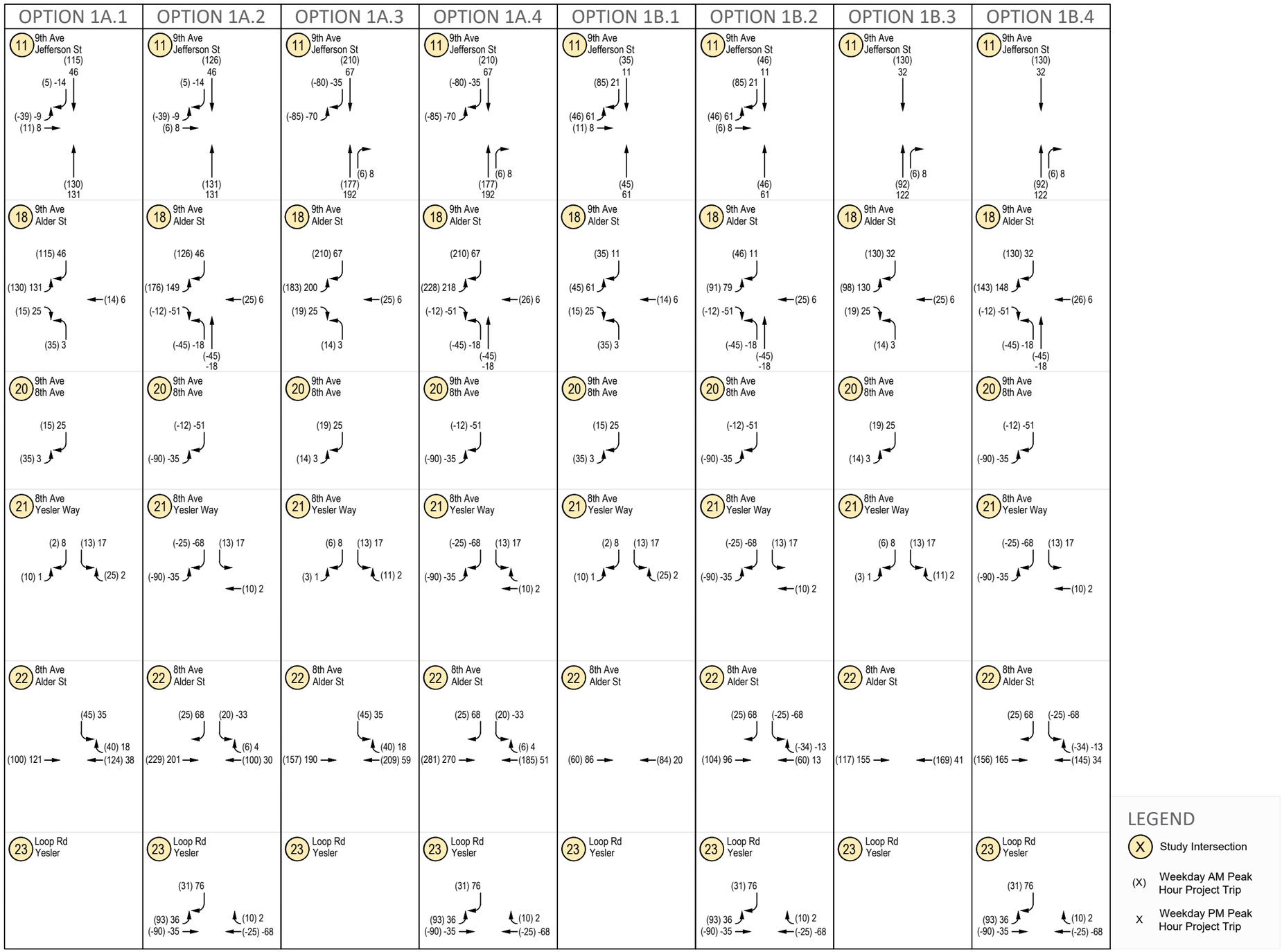
23 Loop Rd Yesler Way
See Figure 18 - Road Connection Options Trip Assignment

Alternative 1 - (2035) Weekday AM and PM Peak Hour Trip Assignment

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transpogroup

FIGURE
17



Alternative 1 - (2035) Weekday AM and PM Peak Hour Trip Assignment (Road Connection Options)

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FIGURE
18



1 6th Ave Cherry St
(110) 24
(22) 6

2 7th Ave Cherry St
(56) 78
(22) 6
(42) 58

3 6th Ave James St
(110) 24
(18) 6
(18) 22
(105) 139

4 7th Ave James St
(42) 58
(128) 30
(123) 161
(151) 36

5 8th Ave James St
(279) 65
(165) 219

6 9th Ave James St
(22) 6
(11) 15
(84) 20
(48) 60
(195) 45
(14) 5
(117) 159
(8) 7
(45) 63

7 Terry Ave James St
(92) 27
(73) 80

8 Boren Ave James St
(8) 7
(14) 5
(84) 20
(12) 3
(59) 75
(3) 5

9 Minor Ave James St
(11) 12
(26) 8

10 Broadway James St
(19) 6
(18) 6
(9) 8
(2) 4
(8) 2
0 (4)
(4) 4
(10) 12

11 9th Ave Jefferson St
See Figure 20 - Road Connection Options Trip Assignment

12 Terry Ave Jefferson St
(12) 12
(1) 1
(17) 4
(20) 28

13 Boren Ave Jefferson St
(96) 23
(12) 12
(1) 1
0 (3)
(6) 7
(62) 80

14 Broadway Jefferson St
(22) 4
(1) 1
(14) 16
(4) 3
(3) 0
(4) 2

15 Boren Ave Terrace St
(99) 23
(68) 87
(2) 1

16 Broadway E Terrace St
(26) 7

17 Broadway Boren Ave
(26) 7
(2) 1
(25) 7

18 9th Ave Alder St
See Figure 20 - Road Connection Options Trip Assignment

19 Broadway Alder St
(51) 14
(13) 17

20 9th Ave 8th Ave
See Figure 20 - Road Connection Options Trip Assignment

21 8th Ave Yesler Way
See Figure 20 - Road Connection Options Trip Assignment

22 8th Ave Alder St
See Figure 20 - Road Connection Options Trip Assignment

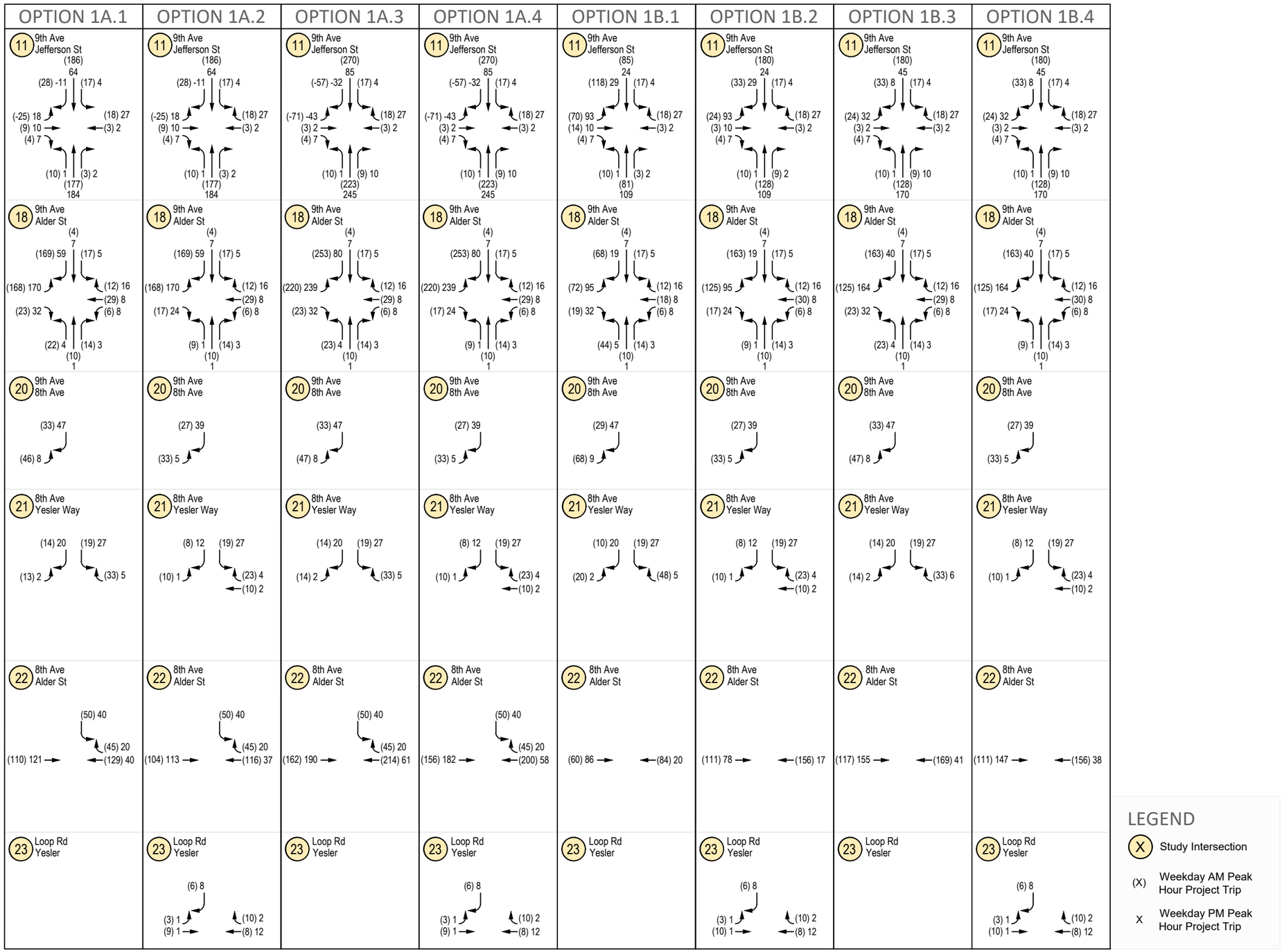
23 Loop Rd Yesler Way
See Figure 20 - Road Connection Options Trip Assignment

Alternative 1 - (2045) Weekday AM and PM Peak Hour Trip Assignment

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FIGURE
19

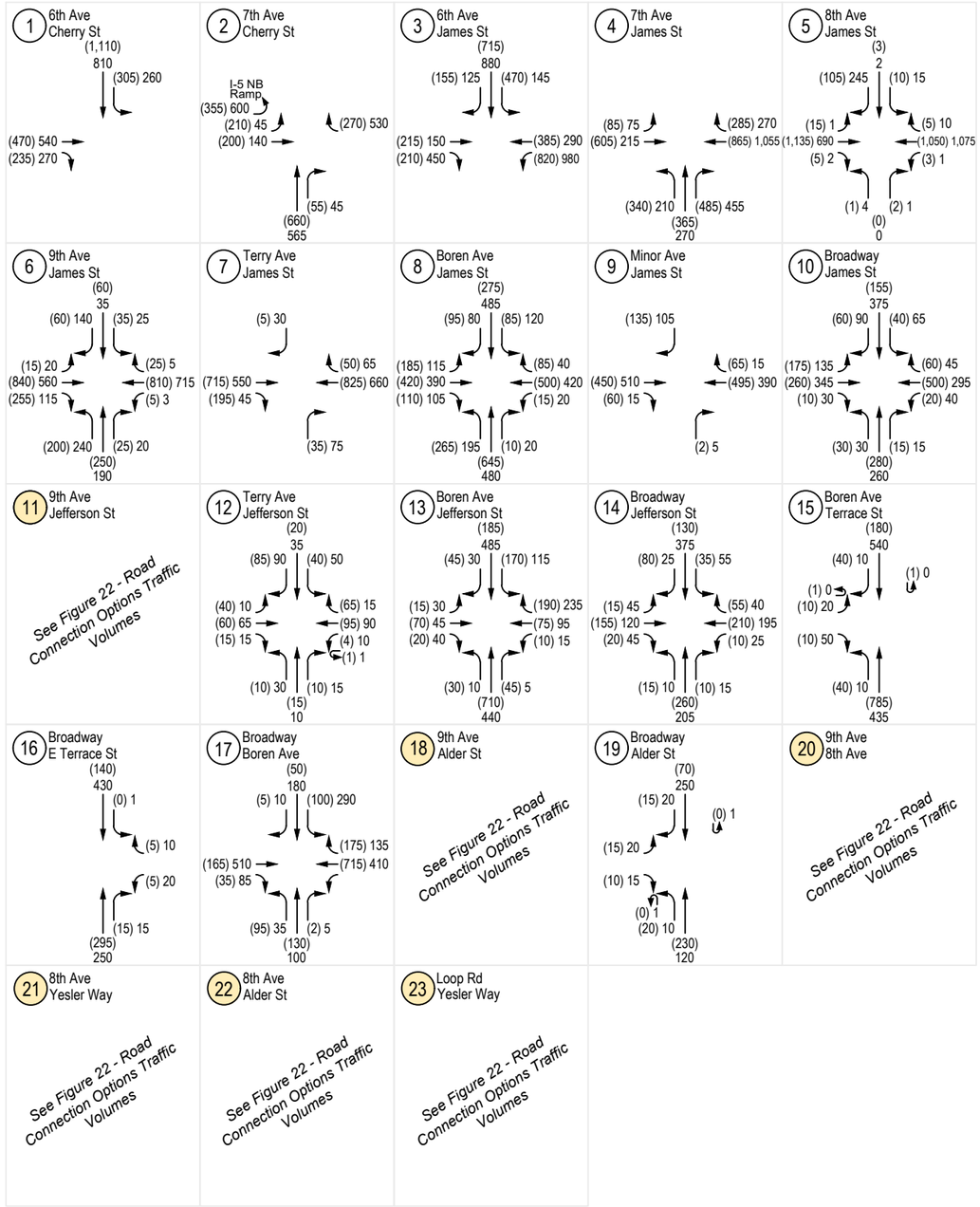


Alternative 1 - (2045) Weekday AM and PM Peak Hour Trip Assignment (Road Connection Options)

Harborview Medical Center TDR

FIGURE **20**



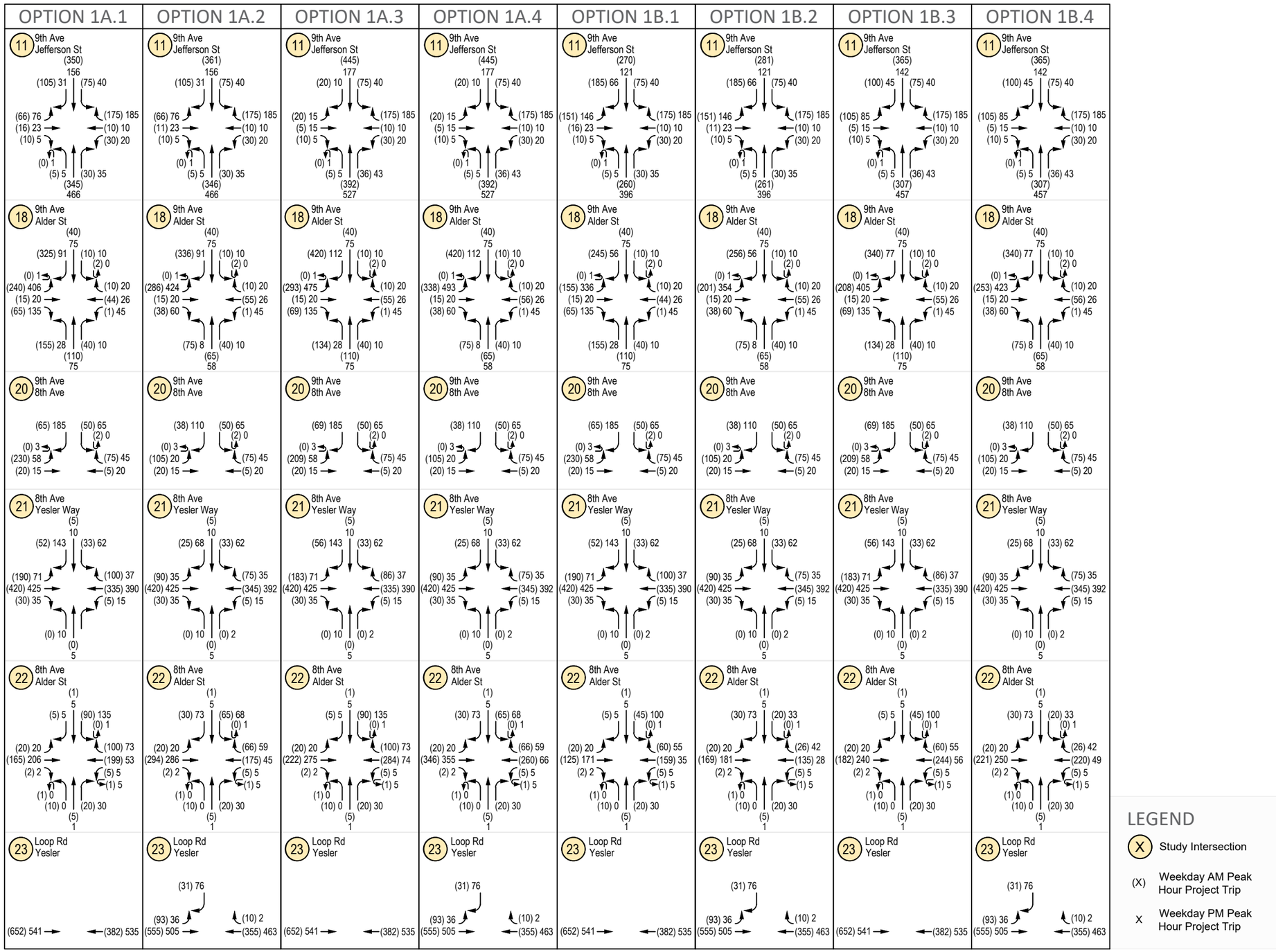


Alternative 1 - (2035) Weekday AM and PM Peak Hour Traffic Volumes

Harborview Medical Center TDR

FIGURE
21

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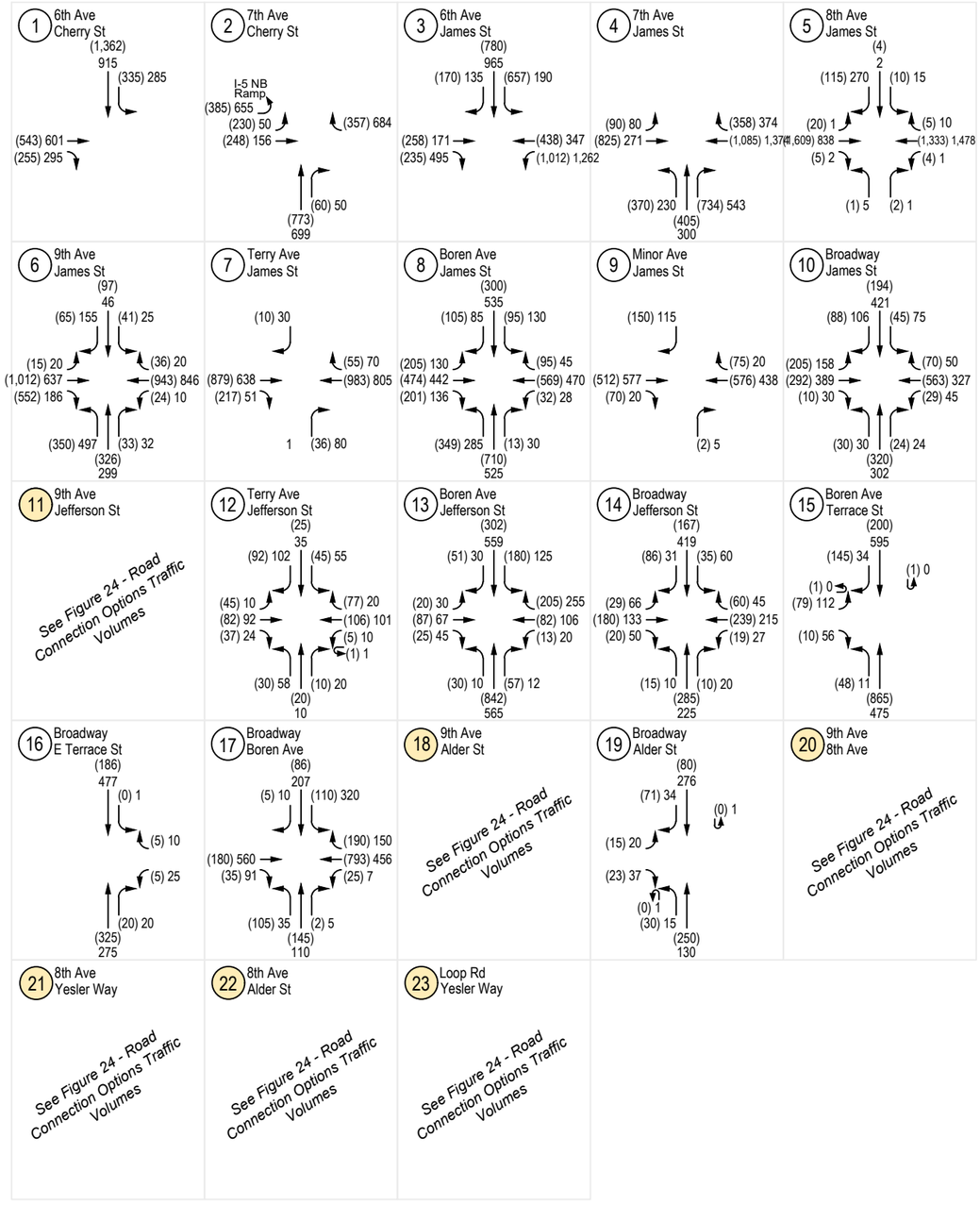
Alternative 1 - (2035) Weekday AM and PM Peak Hour Traffic Volumes (Road Connection Options)

Harborview Medical Center TDR

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FIGURE
22



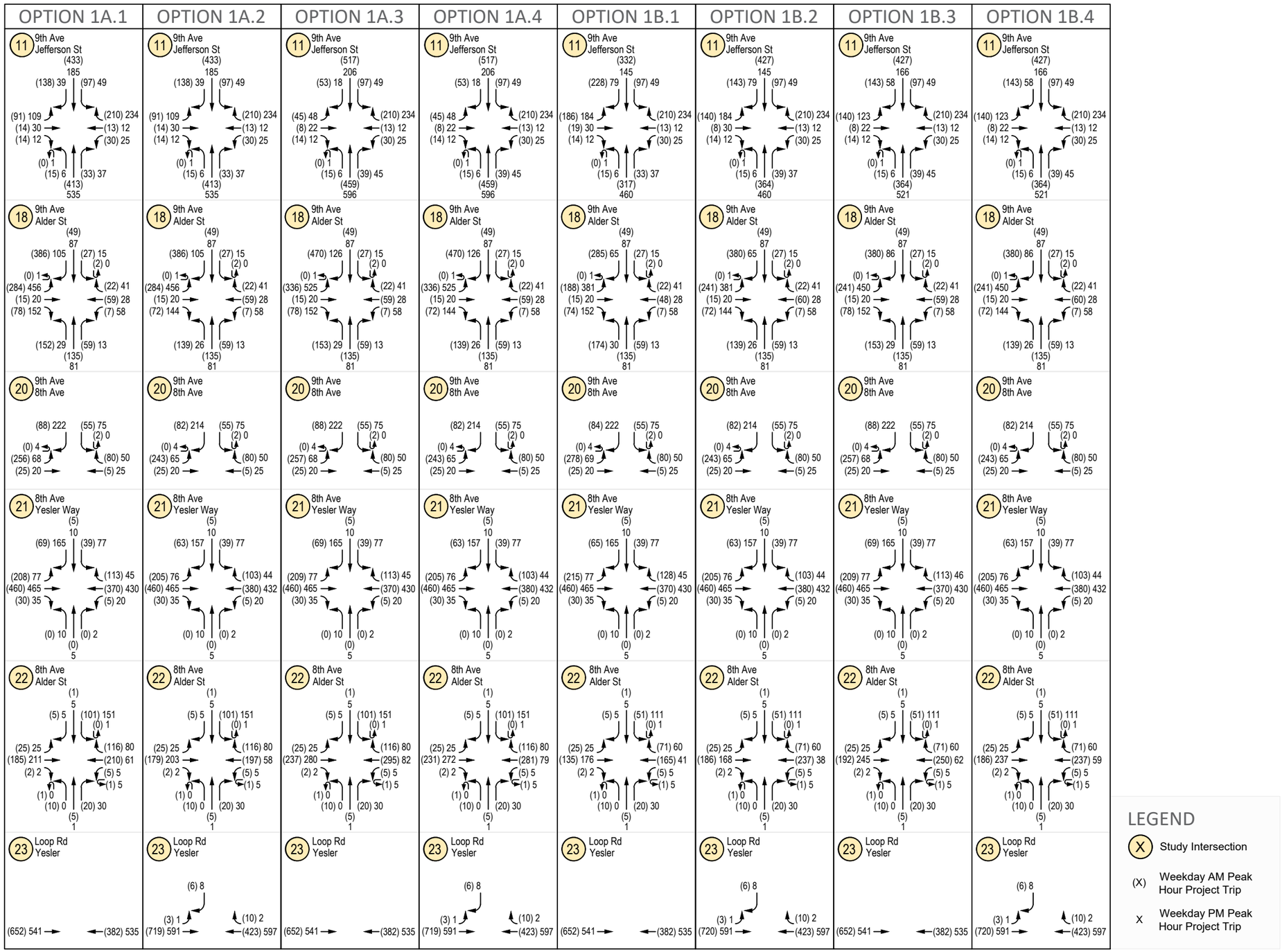


Alternative 1 - (2045) Weekday AM and PM Peak Hour Traffic Volumes

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FIGURE
23

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Alternative 1 - (2045) Weekday AM and PM Peak Hour Traffic Volumes (Road Connection Options)

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FIGURE
24

Traffic Operations

The Alternative 1 LOS analysis utilized the same methodology as the Existing and No Action conditions. All intersection parameters such as channelization, intersection control, and PHF for Alternative 1 are consistent with those used in the evaluation of future No Action conditions. Optimization of signal timing was assumed as applicable given the added traffic associated with Alternative 1 relative to No Action conditions.[16] A comparison of the No Action and Alternative 1 weekday peak hour operations at the off-site study intersections are summarized for the 2035 conditions in Table 22 and Table 23 and for the 2045 conditions in Table 24 and Table 25. The detailed LOS worksheets are included in Appendix F.

Table 22. Alternative 1 (2035) Weekday Peak Hour LOS Summary

		AM Peak Hour						PM Peak Hour					
	Traffic	No Action			Alternative 1			No Action			Alternative 1		
Intersection	Control	LOS[1]	Delay[2]	WM[3]	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. Cherry St/6th Ave	Signal	B	18.0	-	B	18.2	-	C	20.8	-	C	20.9	-
2. Cherry St/7th Ave	Signal	C	25.9	-	C	25.7	-	C	22.6	-	C	23.4	-
3. James St/6th Ave	Signal	D	37.3	-	D	38.9	-	C	30.9	-	C	30.5	-
4. James St/7th Ave	Signal	C	32.0	-	D	39.7	-	D	43.3	-	D	46.5	-
5. James St/8th Ave	Signal	A	7.9	-	A	8.0	-	B	10.3	-	B	10.2	-
6. James St/9th Ave	Signal	B	10.1	-	B	16.5	-	C	23.0	-	D	47.1	-
7. James St/Terry Ave	TWSC	C	15.6	NB	C	15.6	NB	B	15.0	NB	B	15.0	NB
8. James St/Boren Ave	Signal	D	43.6	-	D	43.7	-	D	42.2	-	D	42.3	-
9. James St/Minor Ave	TWSC	B	13.3	SB	B	13.4	SB	B	12.5	SB	B	12.5	SB
10. James St/Broadway[4]	Signal	D	48.9	-	D	49.2	-	D	46.1	-	D	46.3	-
11. Jefferson St/9th Ave	AWSC	C	16.5	-	*See Road Connection Options*			B	13.1	-	*See Road Connection Options*		
12. Jefferson St/Terry Ave	TWSC	C	23.8	SB	C	24.2	SB	D	26.6	SB	D	26.9	SB
13. Jefferson St/Boren Ave	Signal	B	16.9	-	B	17.1	-	C	27.9	-	C	28.0	-
14. Jefferson St/Broadway[4]	Signal	D	36.4	-	D	37.4	-	C	39.0	-	D	39.3	-
15. Terrace St/Boren Ave	SSSC	C	17.2	EB	C	17.2	EB	C	17.2	EB	C	17.2	EB
16. Terrace St/Broadway[4]	Signal	A	9.1	-	A	9.0	-	A	7.7	-	A	7.5	-
17. Broadway/Boren Ave	Signal	B	18.4	-	B	18.6	-	C	28.9	-	C	28.9	-
18. Alder St/9th Ave	AWSC	B	11.3	-	*See Road Connection Options*			B	11.5	-	*See Road Connection Options*		
19. Alder St/Broadway	SSSC	B	11.3	EB	B	11.4	EB	B	12.8	EB	B	12.8	EB
20. 9th Ave/8th Ave/Fir St	AWSC	A	8.8	-	*See Road Connection Options*			A	8.3	-	*See Road Connection Options*		
21. 8th Ave/Yesler Way	Signal	A	6.6	-	*See Road Connection Options*			A	8.9	-	*See Road Connection Options*		

Note: TWSC = Two-Way Stop Controlled, AWSC = All-Way Stop=Controlled, SSSC = Side Street Stop-Controlled. Shading indicates a road connection impacted study intersection. See separate table for LOS.
1. Level of Service (A – F) as defined by the Highway Capacity Manual (TRB, 7th Edition).
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections. NB = northbound, SB = southbound EB = eastbound.
4. HCM 2000 methodology used to evaluate signalized intersections due to limitations of HCM 7th Edition to evaluate due to signal timing.

As described previously, the City of Seattle's Comprehensive Plan does not define a LOS standard for individual intersections; however, the City generally recognizes LOS E and F as poor operations for signalized locations and LOS F for unsignalized locations. In addition, the project impacts may be considered significant if the intersection delay at a signalized intersection increases by 5 or more seconds. As shown in Table 22, with the 2035 Alternative 1, the study intersections (excluding the road connection impacted locations) are forecast to operate acceptably at LOS D or better.

[16] Optimization included adjusting the splits and offsets. Existing cycle lengths for coordinated signals was maintained.

Table 23. Alternative 1 (2035) Weekday Peak Hour LOS Summary – Road Connection Options

	11. Jefferson St/ 9th Ave		18. Alder St/ 9th Ave		20. 9th Ave/ 8th Ave/Fir St		21. 8th Ave/ Yesler Way		22. Alder St/ 8th Ave[4]		23. Access Road/ Yesler Way		
	AWSC		AWSC		AWSC		Signal		AWSC		SSSC		
Option[5]	**LOS[1]**	**Delay[2]**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**WM[3]**
AM Peak Hour													
No Action	C	16.5	B	11.3	A	8.8	A	6.6	A	8.0	-	-	-
Option 1A.1	E	36.0	C	20.0	A	9.2	A	7.1	B	10.5	-	-	-
Option 1A.2	E	38.1	C	17.9	A	8.0	A	6.2	B	11.4	B	10.7	SB
Option 1A.3	E	37.0	E	39.7	A	9.0	A	7.2	B	13.1	-	-	-
Option 1A.4	E	37.0	D	30.8	A	8.0	A	6.2	B	14.3	B	10.7	SB
Option 1B.1	E	38.6	B	13.8	A	9.2	A	7.1	A	9.0	-	-	-
Option 1B.2	E	41.2	B	12.4	A	8.0	A	6.2	A	8.8	B	10.7	SB
Option 1B.3	E	40.1	C	18.6	A	9.0	A	7.2	B	10.4	-	-	-
Option 1B.4	E	40.1	C	16.3	A	8.0	A	6.2	A	10.0	B	10.7	SB
PM Peak Hour													
No Action	B	13.1	B	11.5	A	8.3	A	8.9	A	8.0	-	-	-
Option 1A.1	C	20.6	C	19.4	A	8.5	A	9.0	A	9.2	-	-	-
Option 1A.2	C	20.6	C	15.7	A	7.9	A	8.3	A	9.8	B	12.7	SB
Option 1A.3	C	24.7	D	29.3	A	8.5	A	9.0	B	10.1	-	-	-
Option 1A.4	C	24.7	C	21.1	A	7.9	A	8.3	B	11.0	B	12.7	SB
Option 1B.1	C	18.1	B	14.5	A	8.5	A	9.0	A	8.6	-	-	-
Option 1B.2	C	18.1	B	12.4	A	7.9	A	8.3	A	8.4	B	12.7	SB
Option 1B.3	C	20.4	C	19.0	A	8.5	A	9.0	A	9.3	-	-	-
Option 1B.4	C	20.4	B	15.0	A	7.9	A	8.3	A	9.1	B	12.7	SB

Note: AWSC = All-Way Stop=Controlled, SSSC = Side Street Stop-Controlled.
1. Level of Service (A – F) as defined by the Highway Capacity Manual (TRB, 7th Edition).
2. Average delay per vehicle in seconds
3. Worst movement reported for SSSC intersection. SB = southbound.
4. The private roadway known as 8th Avenue.
5. Options evaluated are as follows:

Option 1A – The private roadway known as 8th Avenue Closure. Roadway connections to the new towers assume the following:
1A.1 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue.
1A.2 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue and a connection to Yesler Way.
1A.3 - Alder Street at the private roadway known as 8th Avenue.
1A.4 - Alder Street at the private roadway known as 8th Avenue and a connection to Yesler Way.

Option 1B – The private roadway known as 8th Avenue to remain open. Roadway connections to the new towers assume the following:
1B.1 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue.
1B.2 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue and a connection to Yesler Way.
1B.3 - Alder Street at the private roadway known as 8th Avenue.
1B.4 - Alder Street at the private roadway known as 8th Avenue and a connection to Yesler Way.

As shown in Table 23, the road connection option intersections are all forecast to operate acceptably under future (2035) No Action and Alternative 1 conditions during the AM and PM peak hours, such that the added traffic forecast to occur with the addition of the planned tower project does not result in any significant impacts.

Table 24. No Action and Action Alternative 1 (2045) Weekday Peak Hour LOS Summary

Intersection	Traffic Control	AM Peak Hour						PM Peak Hour					
		No Action			Alternative 1			No Action			Alternative 1		
		LOS[1]	Delay[2]	WM[3]	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. Cherry St/6th Ave	Signal	B	18.5	-	B	19.1	-	C	20.8	-	C	21.0	-
2. Cherry St/7th Ave	Signal	C	25.9	-	C	25.5	-	C	23.9	-	C	25.2	-
3. James St/6th Ave	Signal	D	35.8	-	D	47.3	-	C	32.2	-	D	30.8	-
4. James St/7th Ave	Signal	C	34.5	-	E	60.8	-	D	39.6	-	D	49.8	-
5. James St/8th Ave	Signal	A	8.0	-	A	8.2	-	B	10.7	-	B	10.8	-
6. James St/9th Ave	Signal	A	9.6	-	C	25.6	-	C	31.5	-	B	17.9	-
7. James St/Terry Ave	TWSC	C	15.8	NB	C	16.7	NB	C	15.0	NB	C	15.3	NB
8. James St/Boren Ave	Signal	D	45.0	-	D	47.0	-	D	42.8	-	D	45.6	-
9. James St/Minor Ave	TWSC	B	13.7	SB	B	14.0	SB	B	12.2	SB	B	12.3	SB
10. James St/Broadway[4]	Signal	D	50.8	-	D	51.2	-	D	45.8	-	D	46.1	-
11. Jefferson St/9th Ave	AWSC	C	15.4	-	*See Road Connection Options*			B	13.2	-	*See Road Connection Options*		
12. Jefferson St/Terry Ave	TWSC	D	25.2	SB	D	28.1	NB	D	26.0	SB	D	29.5	NB
13. Jefferson St/Boren Ave	Signal	B	16.8	-	B	16.3	-	C	28.7	-	C	28.6	-
14. Jefferson St/Broadway[4]	Signal	C	36.8	-	D	38.4	-	D	39.2	-	D	40.1	-
15. Terrace St/Boren Ave	SSSC	C	18.2	EB	E	37.1	EB	C	18.5	EB	E	48.7	EB
16. Terrace St/Broadway[4]	Signal	A	8.9	-	A	8.5	-	A	7.6	-	A	7.4	-
17. Broadway/Boren Ave	Signal	B	18.6	-	B	19.1	-	C	30.3	-	C	30.3	-
18. Alder St/9th Ave	AWSC	B	10.7	-	*See Road Connection Options*			B	11.8	-	*See Road Connection Options*		
19. Alder St/Broadway	SSSC	B	11.2	EB	B	10.9	EB	B	12.7	EB	B	12.7	EB
20. 9th Ave/8th Ave/Fir St	AWSC	A	8.7	-	*See Road Connection Options*			A	8.4	-	*See Road Connection Options*		
21. 8th Ave/Yesler Way	Signal	A	6.7	-	*See Road Connection Options*			A	8.8	-	*See Road Connection Options*		

Note: TWSC = Two-Way Stop Controlled, AWSC = All-Way Stop=Controlled, SSSC = Side Street Stop-Controlled. Shading indicates a road connection impacted study intersection. See separate table for LOS.
1. Level of Service (A – F) as defined by the Highway Capacity Manual (TRB, 7th Edition).
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections. NB = northbound, SB = southbound EB = eastbound.
4. HCM 2000 methodology used to evaluate signalized intersections due to limitations of HCM 7th Edition to evaluate due to signal timing.

Under future (2045) Alternative 1 conditions, Table 24 shows the study intersections (excluding the road connection impacted locations) are forecast to operate acceptably at LOS E or better. The signalized intersection of James Street/7th Avenue is forecast to degrade during the weekday AM peak hour conditions to LOS E under Alternative 1 with approximately 25 seconds of added delay. As noted above, the City of Seattle does not have a standard LOS that must be met and with minimal increases in delay at this location, no intersection improvements are required with the addition of project generated trips. The operations of the intersection have been impacted by the recent implementation of right-turn on red restrictions in the City. While negatively impacting intersection operations the City has prioritized the safety for pedestrians crossing the intersection.

The road connection option intersections under future (2045) conditions are generally anticipated to operate acceptably under both the weekday AM and PM peak hours under options reviewed as summarized in 0. One exception was identified which includes the all-way stop controlled intersections of Jefferson Street at 9th Avenue which is discussed below.

Table 25. Alternative 1 (2045) Weekday Peak Hour LOS Summary – Road Connection Options

	11. Jefferson St/ 9th Ave		18. Alder St/ 9th Ave		20. 9th Ave/ 8th Ave/Fir St		21. 8th Ave/ Yesler Way		22. Alder St/ 8th Ave[4]		23. Access Road/ Yesler Way		
	AWSC		AWSC		AWSC		Signal		AWSC		SSSC		
Option[5]	**LOS[1]**	**Delay[2]**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**WM[3]**
AM Peak Hour													
No Action	C	15.4	B	10.7	A	8.7	A	6.7	A	7.8	-	-	-
Option 1A.1	**F**	**70.8**	C	23.4	A	9.4	A	7.6	A	9.8	-	-	-
Option 1A.2	**F**	**70.8**	C	22.3	A	9.2	A	7.5	A	9.7	B	10.8	SB
Option 1A.3	**F**	**64.5**	E	44.7	A	9.4	A	7.6	B	11.2	-	-	-
Option 1A.4	**F**	**64.5**	E	41.5	A	9.2	A	7.5	B	11.0	B	10.8	SB
Option 1B.1	**F**	**73.6**	B	15	A	9.6	A	7.6	A	8.6	-	-	-
Option 1B.2	**F**	**74.8**	C	19.4	A	9.2	A	7.5	A	9.4	B	10.8	SB
Option 1B.3	**F**	**74.8**	C	20.2	A	9.4	A	7.6	A	9.5	-	-	-
Option 1B.4	**F**	**74.8**	C	19.4	A	9.2	A	7.5	A	9.4	B	10.8	SB
PM Peak Hour													
No Action	B	13.2	B	11.8	A	8.4	A	8.8	A	8.0	-	-	-
Option 1A.1	D	34.9	D	27.1	A	8.7	A	9.1	A	9.2	-	-	-
Option 1A.2	D	34.9	D	25.9	A	8.7	A	9.0	A	9.1	B	12.3	SB
Option 1A.3	E	43.2	E	44.7	A	8.7	A	9.1	A	9.9	-	-	-
Option 1A.4	E	43.2	E	42.3	A	8.7	A	9.0	A	9.8	B	12.3	SB
Option 1B.1	D	28.9	C	17.6	A	8.7	A	9.1	A	8.6	-	-	-
Option 1B.2	D	28.9	C	17.1	A	8.7	A	9.0	A	8.5	B	12.3	SB
Option 1B.3	D	34	D	25.2	A	8.7	A	9.1	A	9.1	-	-	-
Option 1B.4	D	34	C	24.1	A	8.7	A	9.0	A	9.1	B	12.3	SB

Note: AWSC = All-Way Stop=Controlled, SSSC = Side Street Stop-Controlled.
Bold text indicates operating at LOS E or F if signalized or LOS F for stop controlled.
1. Level of Service (A – F) as defined by the Highway Capacity Manual (TRB, 7th Edition).
2. Average delay per vehicle in seconds
3. Worst movement reported for SSSC intersection. SB = southbound.
4. The private roadway known as 8th Avenue.
5. Options evaluated are as follows:

Option 1A – The private roadway known as 8th Avenue Closure. Roadway connections to the new towers assume the following:
1A.1 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue.
1A.2 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue and a connection to Yesler Way.
1A.3 - Alder Street at the private roadway known as 8th Avenue.
1A.4 - Alder Street at the private roadway known as 8th Avenue and a connection to Yesler Way.

Option 1B – The private roadway known as 8th Avenue to remain open. Roadway connections to the new towers assume the following:
1B.1 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue.
1B.2 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue and a connection to Yesler Way.
1B.3 - Alder Street at the private roadway known as 8th Avenue.
1B.4 - Alder Street at the private roadway known as 8th Avenue and a connection to Yesler Way.

Jefferson Street/9th Avenue – This all way stop controlled intersection is forecast to operate acceptably at LOS E or better under all future (2045) No Action and Alternative 1 options during the PM peak hour. During the AM peak hour, the intersection is forecast to degrade from LOS C under No Action conditions to LOS F under all road connection options. As discussed above, the delay of the intersection does not reflect impacts associated with pedestrians or the impacts of emergency vehicles accessing the ER bays such that delay may be greater than reflected with the addition of those conflicting movements that occur at the intersection. The LOS F operations at the all-way stop controlled intersection for these options is identified as a significant impact which will require mitigation which is further discussed in the Mitigation section below. Note that Yesler Terrace has identified signalization of this intersection as mitigation when the development reaches an identified trip threshold; however, the pipeline development projects[17] have not indicated this threshold was met such that the signal was not assumed in the analysis.

[17] Note future development within the Yesler Terrace project is expected but was not assumed. With future buildout of the Yesler Terrace project, this mitigation would be triggered.

Sensitivity Review – Alternative Trip Assignment

As noted above, the analysis of Alternative 1 assumes the planned new tower includes parking and the trips are assigned accordingly. A sensitivity analysis was conducted that considers the possibility of reducing the parking supply located within the planned new tower to provide flexibility for the location and density of the campus-wide parking plans. Two conditions were considered in the sensitivity analysis as summarized in the following:

A. Alternative Parking Scenario A (Boren Garage Expansion) - A potential project as defined above includes the Boren Parking Garage expansion which would increase the parking supply of the existing parking garage. The Alternative 1 analysis evaluates the potential project's to be completed for the future (2045) condition. The sensitivity analysis assumes the Boren garage expansion is completed under both the (2035 and 2045) horizon years.

B. Alternative Parking Scenario B (Yesler Terrace) - Adds parking for the campus within the adjacent Yesler Terrace, anticipated at the corner of the 9th Avenue/Alder Street intersection. The sensitivity analysis assumes the Yesler Terrace parking is available under both the (2035 and 2045) horizon years.

The sensitivity review for these two parking options were conducted for two of the road connection options:

- Option 1B.1 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue
- Option 1B.2 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue and a connection to Yesler Way

The parking assumptions of the sensitivity review conducted is summarized in Table 26.

Table 26. Alternative 1 Sensitivity – Parking Assignment Assumptions

Horizon Year:	2035			2045		
		Alternative Parking Sensitivity[2]			*Alternative Parking Sensitivity*[2]	
Parking Location	Alternative 1[1]	Scenario A	Scenario B	Alternative 1	Option A	Option B
New Tower	✓	*Reduced Parking*	*Reduced Parking*	✓	*Reduced Parking*	*Reduced Parking*
Redeveloped Boren Garage	-	✓	-	✓	✓	✓
Yesler Terrace	-	-	✓	-	-	✓

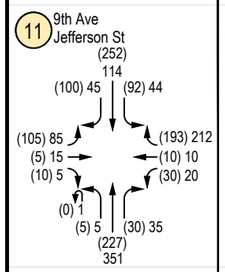
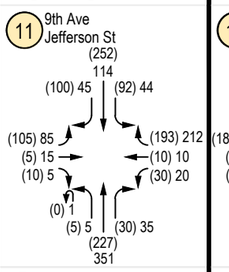
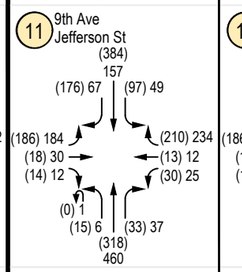
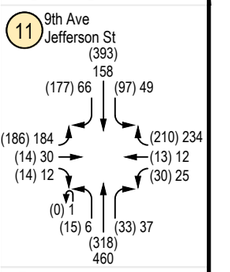
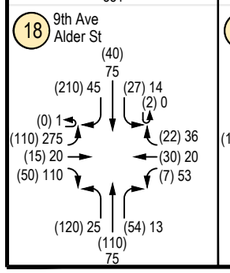
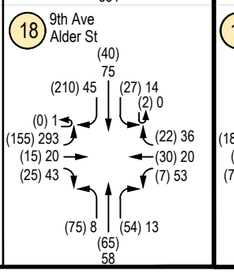
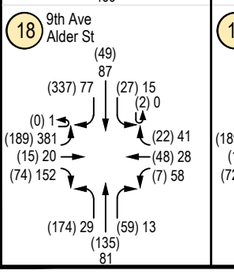
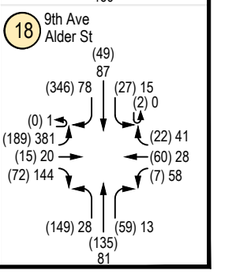
Note: ✓ indicates parking provided within identified location. For the planned New Tower, there are scenarios where the provided parking is reduced as noted.
1. Alternative 1 evaluated for Road connection options 1A.1-4 and 1B.1-4.
2. Sensitivity analysis conducted for Road connection options 1B.1-2 only.

The primary off-site distribution for the sensitivity options is consistent with the primary Alternative 1 analysis as described above with shifts relative to the localized location of the campus parking assumed. Given the localized shifts assumed with the change in parking, the analysis was limited to the intersections along 9th Avenue which were identified in the Alternative 1 analysis as forecast to be operating near or below the City's operational target. The resulting weekday AM and PM peak hour traffic volumes for the sensitivity analysis are shown in Figure 25.

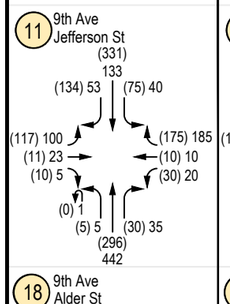
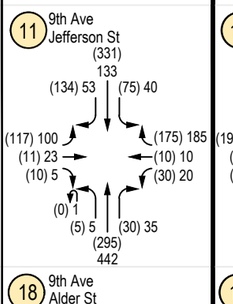
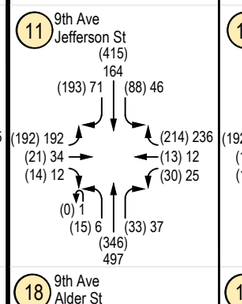
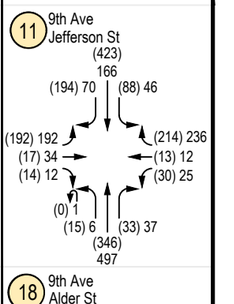
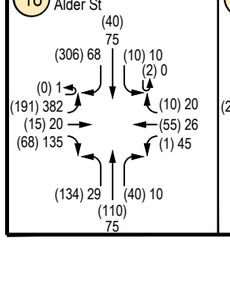
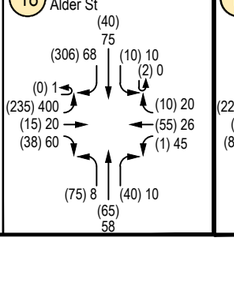
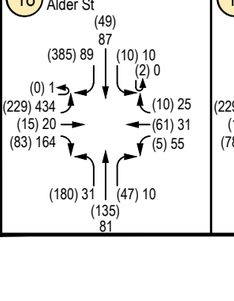
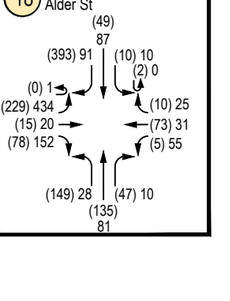
The operational analysis was conducted consistent with the methodology for the Alternative 1 analysis as described above. The resulting operations are summarized in Table 27 below



BOREN GARAGE OPTION

2035		2045	
OPTION 1B.1	OPTION 1B.2	OPTION 1B.1	OPTION 1B.2
			
			

YESLER TERRACE GARAGE OPTION

2035		2045	
OPTION 1B.1	OPTION 1B.2	OPTION 1B.1	OPTION 1B.2
			
			

Sensitivity Weekday Peak Hour Traffic Volumes

Harborview Medical Center TDR

FIGURE **25**

Table 27. Alternative 1 Sensitivity Weekday Peak Hours LOS Summary

	AM Peak Hour				PM Peak Hour			
	11. Jefferson St/9th Ave		18. Alder St/9th Ave		11. Jefferson St/9th Ave		18. Alder St/9th Ave	
	AWSC		AWSC		AWSC		AWSC	
Option	**LOS[1]**	**Delay[2]**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
Parking Sensitivity Scenario A *(Boren Garage)*								
2035								
Option 1B.1	C	19.7	B	11.9	B	14.1	B	11.7
Option 1B.2	C	19.7	B	11.1	B	14.1	B	10.8
2045								
Option 1B.1	**F**	**75.2**	C	16.3	D	28.8	C	17.9
Option 1B.2	**F**	**78.2**	C	16.1	D	28.8	C	17.4
Parking Sensitivity Scenario B *(Yesler Terrace)*								
2035								
Option 1B.1	E	40.5	C	16.2	C	20.1	C	17.2
Option 1B.2	E	40.3	B	14.5	C	20.1	B	13.9
2045								
Option 1B.1	**F**	**98.9**	C	19.4	E	38.8	C	23.9
Option 1B.2	**F**	**101.6**	C	18.8	E	39	C	22.6

Note: AWSC = All-Way Stop=Controlled, SSSC = Side Street Stop-Controlled.
Bold text indicates operating at LOS E or F if signalized or LOS F for stop controlled.
1. Level of Service (A – F) as defined by the Highway Capacity Manual (TRB, 7th Edition).
2. Average delay per vehicle in seconds
3. Worst movement reported for SSSC intersection. SB = southbound.
4. Options evaluated are as follows:

Option 1B – The private roadway known as 8th Avenue to remain open. Roadway connections to the new towers assume the following:
1B.1 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue.
1B.2 - Alder Street and Jefferson Street at the private roadway known as 8th Avenue and a connection to Yesler Way.

As shown in the table, under all options, the study intersections are forecast to operate acceptably with the exception of the Jefferson Street/9th Avenue intersection which is forecast to operate at LOS F under the future (2045) conditions during the AM peak hour, below the City's operational target. This is consistent with the findings of the Alternative 1 analysis above. Mitigation for this location is discussed below within the Mitigation section. Note that the table shows delay is lessened at the 9th Avenue/Jefferson Street intersection with the parking sensitivity Scenario A, providing parking concentrated within the Boren Garage as compared to the Yesler Terrace garage, reflecting the change in local trip assignment.

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. As shown in the trip generation table above (see Table 17), the total vehicle trips are forecast to increase with the Action Alternative relative to the No Action conditions with the additional development. Based on the existing safety review, there are no intersections within the study area that meet the City of Seattle's High Collision Location criteria within the last three-year review period. With no existing high collision locations and no collisions resulting in fatalities within the study area, no significant impacts from a safety perspective are anticipated at any of the study area intersections with the Action Alternative. The City of Seattle has implemented right-turn on red (RTOR) restrictions at most signalized intersections within the study area. The City will continue to monitor collision data within the City and implement additional RTOR restrictions as needed.

Loading

There are no changes to the existing loading dock facilities associated with the Alternative 1 conditions. Future inclusion of loading and service dock facilities will be provided per the requirements established in SMC 23.54.035.A for the planned and potential projects associated with Alternative 1 as needed. Loading

and service facilities will be designed to reduce any loading from adjacent public right-of-way and continued to be designed for the overall campus. A loading and services facility dock will be located off of the access road as a part of the Planned new patient tower.

Construction Traffic

Alternative 1 would generate construction traffic (e.g. employees and trucks) associated with demolition, excavation, infrastructure and building construction, and landscaping. The construction activity throughout the duration of the planned and potential projects will vary, with the greatest daily trips occurring during the initial import/export phase. Following the import/export phase, activity shifts to construction of structures which typically have lower daily activity levels with workers arriving prior to the weekday AM peak period and departing prior to the PM peak period.

For the planned development, the import/export phase of construction is estimated to have approximately 4,000 trucks[18] based on the average load size for a truck and pup being 18 cubic yards (CY). The majority of "heavy" hauling of the import/export phase is planned to occur during off-peak periods or night hauling. Assuming hauling occurs overnight, the duration is anticipated to be over a 4–6-month period with 4-6 trucks per hour or (8-12 trips).[19] There may be other hauling and deliveries during the normal day shifts as expected for this type of project. The daytime peak period trips are anticipated to be minimal (less than 10 trips).

Haul route options for the project are discussed below. Final construction haul routes and activities would be reviewed and approved by City staff through a Construction Management Plan (CMP).

- North of Campus –
    - *Direct Connection to James Street* – To support construction traffic, a connection between Jefferson Street and James Street is anticipated could be constructed along the western side of campus extending north of the planned access road connection. This would be used for construction purposes only and would be removed once construction is completed. The connection at James would be controlled (e.g. traffic signal modification, a flagger, etc.) and only active when a vehicle is present. As shown above, the construction related traffic demands are anticipated to be low during the peak periods. Note that this connection could serve inbound and/or outbound construction related traffic. Due to the proximity to the traffic signal at 7th Ave/James Street additional coordination and analysis would be required to implement this access. This additional analysis would be provided during the Construction Management Plan review process.
    - *9th Avenue/Jefferson Street intersection* – This route provides a connection to the north of campus, connecting to James Street, proximate to regional connectivity via I-5, but requires access via the 9th Avenue/Jefferson Street all-way stop controlled intersection. The all-way stop controlled intersection is a key intersection serving the hospital with a high number of non-motorized trips as well as being adjacent to a transit stop serving a number of routes and the emergency vehicle access for the emergency room. As indicated above, the construction activity is anticipated to occur overnight or during non-peak periods when the general traffic volumes and pedestrian volumes are lower; however, times for emergency vehicles are unpredictable and the direct connection above provides increased separation of the trucks from that critical hospital function.
- South of Campus – Routing south of campus would utilize Yesler Way; however, regional connectivity from Yesler Way results in further routing to connect to I-5 at Dearborn Street or James Street and/or I-90 further to the south via Rainier Avenue S.

[18] 4,000 Trucks is equivalent to 8,000 truck trips (4,000 inbound + 4,000 outbound)

[19] Assuming 8 hours per night with an average of 22 weekdays were month with the construction duration being 4-6 months, the estimated 4,000 trucks results in 4-6 trucks per hour or 8 to 12 truck trips.

Impacts of Action Alternative 2

The development size of Alternative 2 is consistent with Alternative 1, such that the associated trip generation and resulting impacts for Alternative 2 are consistent those identified for Alternative 1. Note that Alternative 2 assumes the private roadway known as 8th Avenue is closed, consistent with Option 1A.

Mitigation

This chapter presents mitigation measures that would offset or reduce potential impacts of the Action Alternatives. Mitigation measures identified are consistent for both development alternatives. Proposed mitigation for both the future 2035 and 2045 conditions under the Action Alternatives is identified below.

Future (2035) Action Alternatives – Planned Projects

Although the vehicular operations are forecast to operate at LOS E or better under future (2035) Action Alternatives during the peak hours, meeting the City's operational target for a stop-controlled intersection, given the limitations of the software to reflect the pedestrians in the delay calculations, additional consideration of mitigation at this location was given to acknowledge the high pedestrian volumes.

As identified above, under existing conditions, the pedestrian volumes across the 4 legs of the intersection are greater than the totaling entering vehicular volumes during both the weekday AM and PM peak hours. With continued growth in the vicinity both related to background traffic and the Planned projects associated with the Action Alternatives, both of the non-motorized[20] and vehicular volumes are forecast to continue to increase. To support reduced delay for both non-motorized and vehicles at the intersection, the crossing distance across the northern leg of the intersection is proposed to be reduced through the installation of curb bulbs, similar to the provided cross-section of the southern leg of the intersection. Additionally, the non-motorized improvements at the 9th Avenue and Jefferson Street intersection will include pedestrian improvements per the Right-of-Way Improvement Manual, such as ADA compliant curb ramps and updated crosswalk striping.

In addition to at the intersection of 9th Avenue and Jefferson Street, non-motorized improvements are proposed at the midblock crossing along 9th Avenue south of Jefferson Street which showed one collision involving a bicyclist striking a moving vehicle resulting in an injury. HMC would construct improvements at the midblock crossing which could include the following:

- Rectangular Rapid Flashing Beacon (RRFB) to improve visibility of the midblock crossing
- Replacing the existing curb ramps at this crossing with ADA compliant curb ramps as applicable.

Future (2045) Action Alternatives – Planned and Potential Projects

The Jefferson Street/9th Avenue all-way stop controlled intersection is forecast to operate acceptably at LOS E or better under all future (2045) No Action and Alternative 1 options during the PM peak hour. During the AM peak hour, the intersection is forecast to degrade from LOS C under No Action conditions to LOS F under all road connection options. Additionally, this location is forecast to degrade to LOS F under the sensitivity conditions during the future (2045) AM peak hour conditions as well.

As this intersection is all-way stop controlled, a signal warrant analysis was completed based on the *HCS7 Software* for the 2045 horizon year. The four-hour and eight-hour signal warrants were evaluated. Hourly traffic volumes were developed using the weekday peak hour traffic volumes and applying the hourly distribution from the National Cooperative Highway Research Program (NCHRP) Report 365 *Travel Estimation Techniques for Urban Planning*. A traffic signal should not be installed unless one or more of the signal warrants are met. The satisfaction of a traffic signal warrant or warrants does not itself require the installation of traffic control signal; however, locations that would meet a warrant or warrants and would benefit with operational and safety improvements are candidates for installation of a traffic signal. The signal warrant is included in Appendix H. The signal warrants are shown to be met (meeting one or more warrants).Given the traffic signal warrants are met at this location, the LOS, queuing, and transit travel time impacts were reviewed and are summarized in the sections below to confirm a traffic signal would mitigate the identified impact under future (2045) Action Alternatives.

[20] Note that transit users which are included in the trip generation estimates of the campus are anticipated to be reflected within the non-motorized activity at the intersection given its location adjacent to transit stops.

The traffic signal or other approved modification at the intersection and associated timing would be established through subsequent studies conducted for the potential development projects identified in the MIMP to be coordinated with SDOT and SDCI. The identified improvement at the intersection would be constructed by HMC as mitigation. Alternatively, if the Yesler Terrace development triggers the signal based on defined trip thresholds for that development, the mitigation will be constructed by others and HMC would not have any obligation associated with that intersection improvement.

Review of Traffic Signal

The LOS with the identified potential traffic signal installation at the intersection of Jefferson Street/9th Avenue is summarized in Table 23 below. Note that the traffic signal is identified at the intersection under future (2045) Alternative Options during the AM peak hour. The 9th Avenue/Jefferson Street traffic signal was assumed to be coordinated with the existing James Street/9th Avenue signal given its proximity and was assumed to include pedestrian recalls and leading pedestrian intervals (LPIs) given the high pedestrian volumes on campus. Additionally, the channelization at James Street was maintained; however, modifications to minimize queueing between the intersections could be considered further if/when the traffic signal design is being perused. This could include the modification to change the northbound channelization at the 9th Avenue/James Street intersection to provide a left-turn lane and shared left/through/right-turn lane and also modify the north/south phasing of the intersection to be split phase.

Table 28. Future (2045) Weekday Peak Hour Mitigation LOS Summary

	No Action (AWSC)		Action Alternative[3] WITHOUT Mitigation (AWSC)		Action Alternative WITH Mitigation (Traffic Signal)	
Jefferson St/ 9th Ave	**LOS[1]**	**Delay[2]**	**LOS**	**Delay**	**LOS**	**Delay**
AM Peak Hour	C	15.4	**F**	**74.8**	C	23.0
PM Peak Hour	B	13.2	D	28.9	C	21.7

Note: AWSC = All-Way Stop=Controlled, **Bold** text indicates operating at LOS E or F if signalized or LOS F for stop controlled.
1. Level of Service (A – F) as defined by the Highway Capacity Manual (TRB, 7th Edition).
2. Average delay per vehicle in seconds
3. Jefferson St/9th Ave under future (2045) Alt 1 (without mitigation) is forecast to operate at LOS F under all options during the AM peak hour. The operations reflect Option 1B.2 as it had the highest forecast delay at the intersection.

As shown in the table, the LOS at the intersection is forecast to improve to LOS C during the AM and PM peak hours under future (2045) conditions assuming the highest delay condition options as described above.

Queueing

In addition to LOS, given the proximity of the 9th Avenue/Jefferson Street intersection to the signalized intersection of James Street/9th Avenue, queueing was also reviewed between the intersections and is summarized in Table 29. The 95th percentile queues, which are the queues that are only exceeded 5 percent of the time, were evaluated using Synchro consistent with LOS analysis.

As shown in Table 29, the 95th percentile queues between the intersections of Jefferson Street and James Street along 9th Avenue without mitigation are forecast to exceed the available vehicular queue storage of approximately 220 feet. Without mitigation with the Action Alternatives under future (2045) conditions, the northbound queues are forecast to extend from the signal to the all-way stop as well as the southbound queue forecast to extend to the signal at James Street during the AM and/or PM peak hours. With the identified traffic signal as mitigation, the forecast southbound queues extending from Jefferson Street/9th Avenue intersection would be reduced with signalization and would be accommodated between the two intersections during the weekday PM peak hour so as to not impact the 9th Avenue/James Street intersection.

Table 29. Future (2045) 95th Percentile Queuing Summary 9th Ave at Jefferson St and James St

Intersection/*Movement*	AM Peak Hour 95th Percentile Queues (Feet)			PM Peak Hour 95th Percentile Queues (Feet)		
	No Action (AWSC[1])	Action Alternative WITHOUT Mitigation (AWSC)	Action Alternative WITH Mitigation (Traffic Signal)	No Action (AWSC)	Action Alternative WITHOUT Mitigation (AWSC)	Action Alternative WITH Mitigation (Traffic Signal)
6. James Street/9th Avenue						
Eastbound Through-Left	90	110	10	60	150	5
Eastbound Through-Right	100	195	10	60	120	5
Westbound Through-Left	295	405	10	265	245	5
Westbound Through-Right	280	205	10	250	235	10
Northbound Left-Turn	280	430	710	530	350	540
Northbound Through-Right	200	135	230	155	85	160
Southbound	160	105	190	205	120	220
11. Jefferson St/9th Ave						
Eastbound	55	140	215	95	260	215
Westbound	25	60	250	20	60	225
Northbound	45	70	180	45	70	285
Southbound	130	590	315	40	75	145

Note: Queues evaluated using Synchro for Alternative 1 assuming Option 1B.1 which had the highest forecast delay at the intersection and is consistent with the operations shown in the LOS mitigation table above.
Shading indicates storage of 220' available between Jefferson Street and James Street along 9th Avenue exceeded.
1. AWSC = All-Way Stop Controlled.

Transit Travel Time

The change in travel times for the routes that are travel through the 9th Avenue/Jefferson Street intersection were reviewed with and without the traffic signal in place for future (2045) Alternative 1 conditions. The anticipated increase in travel times was reviewed consistent with the methodology described above. The forecast increase in travel times for transit routes in the study area are summarized in Table 30.

Table 30. Future (2045) Alternative 1 Transit Travel Times Through Study Area

Route	Direction of Travel	Stop Location: From	Stop Location: To	AM Peak Hour Travel Time (minutes): Action Alternative WITHOUT Mitigation (AWSC)	AM Peak Hour Travel Time (minutes): Action Alternative WITH Mitigation (Traffic Signal)	PM Peak Hour Travel Time (minutes): Action Alternative WITHOUT Mitigation (AWSC)	PM Peak Hour Travel Time (minutes): Action Alternative WITH Mitigation (Traffic Signal)
3/4	WB	Jefferson St at Broadway	James St at 5th Ave	7.2	8.3	6.4	7.6
	EB	James St at 5th Ave	Jefferson St at Broadway	6.6	7.3	6.6	6.4
60	NB	Yesler Way at Broadway	9th Ave at Cherry St	6.3	6.6	5.8	6.6
	SB	9th Ave at Cherry St	Yesler Way at Broadway	3.9	4.3	4.0	4.2
193	EB	9th Ave at Cherry St	Jefferson St at Broadway	3.9	3.2	-	-
	WB	Jefferson St at Broadway	Jefferson St at 9th Ave	-	-	2.4	2.4
303/322	WB/NB	Jefferson St at Broadway	9th Ave at James St	3.3	3.8	3.2	3.0

Note: The existing travel times was based on current bus schedules published in the King County Metro Trip Planer, November 2025. The anticipated increase in travel times was reviewed based on the operational analysis using Synchro and added delay at the intersections under the alternatives conditions relative to existing conditions during the AM and PM peak hours.

As shown in the table, the forecast change in travel times of the routes through the 9th Avenue/Jefferson Street intersection as a result of the change in traffic control from all-way stop controlled to a traffic signal result in changes of plus or minus approximately a minute of travel times. This equates to changes of

approximately 20 percent less to 20 percent higher with the signal compared to the current all-way stop controlled condition.

Construction Management Plan (CMP)

As part of any future development to occur under this MIMP, the contractor would develop a Construction Management Plan (CMP) through coordination with City staff. Elements anticipated to be included in the CMP are identified below:

- Construction hours
- Haul Routes
- Noise generating activities
- Noise sensitive receivers
- Construction noise management
- Construction milestones
- Construction parking
- Right-of-Way use – (e.g. street closures, sidewalk closures, transit stop closures/relocations, etc.)
- Flagging Services or traffic control revisions

Secondary and Cumulative Impacts

Secondary and cumulative impacts on area transportation system are included in the analysis of direct impacts. In addition, there is a potential for cumulative impacts due to the combined effects of traffic being generated by the proposed development and construction activities on the HMC Campus and in the surrounding vicinity. This potential impact could be mitigated by scheduling construction activities such that arrival and departure of construction traffic occurs outside the peak hours.

Significant and Unavoidable Adverse Impacts

No significant and unavoidable adverse impacts have been identified through this analysis.

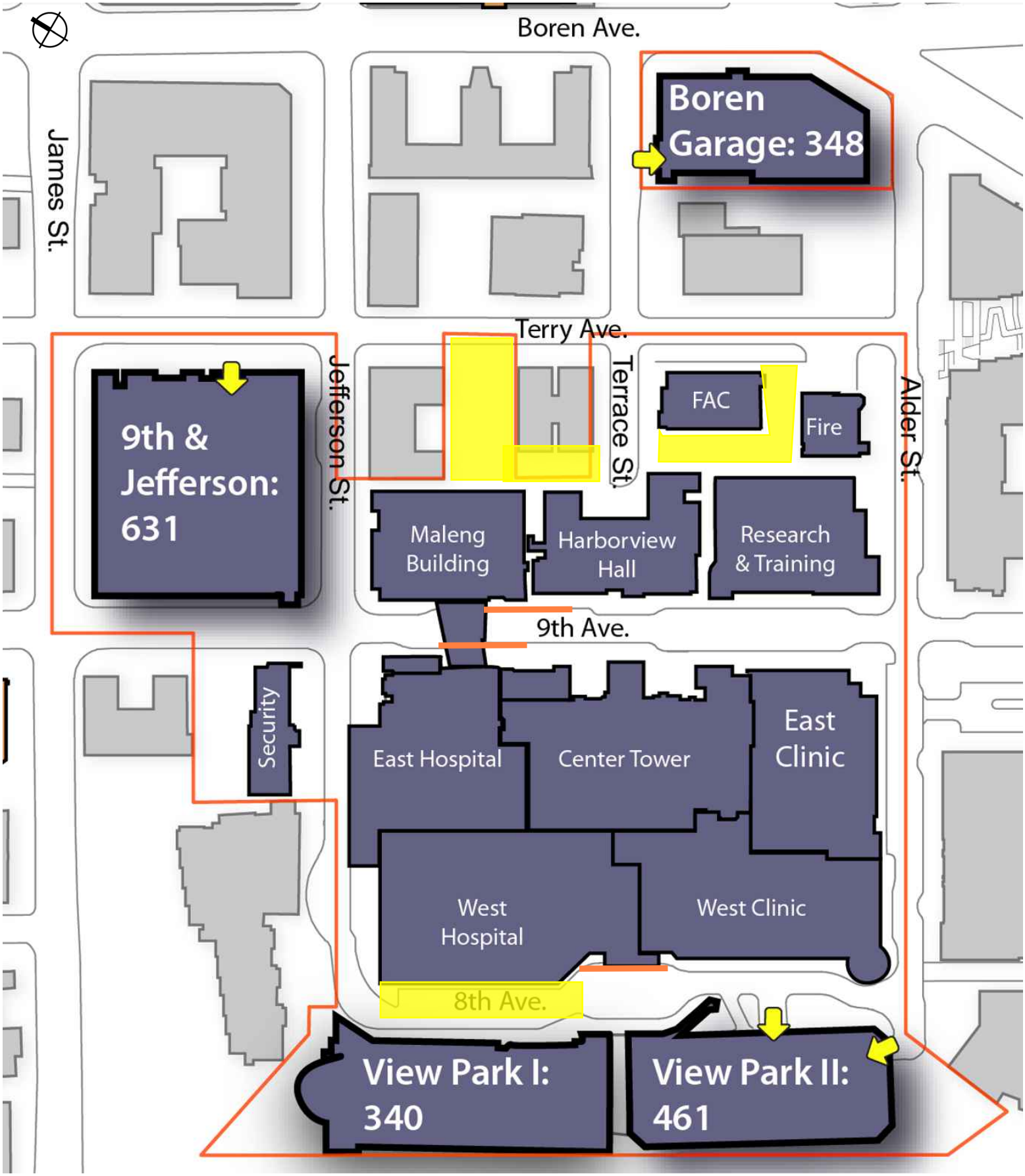
Appendix A Existing Vehicle Counts (Trip Generation)

Existing

		Total Trips	
		AM Peak Hour	PM Peak Hour
	Primary Lots (avg)	667	457
Counted May 2023	Additional Lots	16	11
Counted	Loading	69	65
*Estimated***	On Street	45	12
	Ex Total	797	545

	AM Peak Hour				PM Peak Hour			
	In %	In	Out	Total	In %	In	Out	Total
Primary Lots (avg)	61%	410	257	667	16%	71	386	457
Additional Lots	50%	8	8	16	27%	3	8	11
Loading	45%	31	38	69	53%	34	31	65
On Street	50%	23	22	**45**	50%	6	6	12
Total	59%	472	325	797	21%	114	431	545

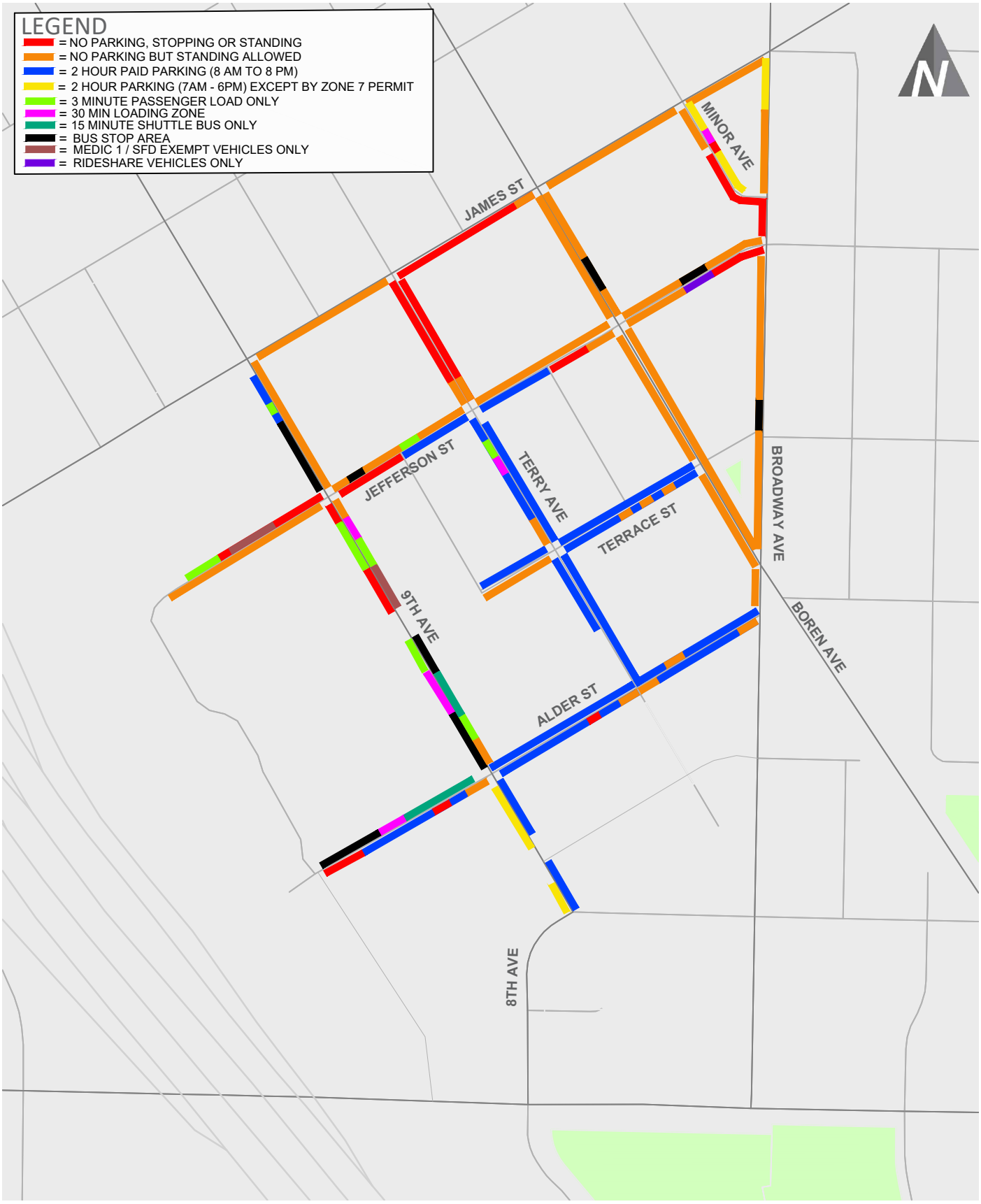
*** Estimated as turnover was not identified, rather demand was reviewed during counts.*



Vehicular Parking Entry

Surface Lot

Loading Area



Parking Facilities

APPENDIX

A

Harborview 2020 CBP

transpogroup

Appendix B Detailed Trip Generation

HMC - Existing CTR

Person Trips by Mode of Travel		AM Peak Hour Vehicle Trips In	AM Peak Hour Vehicle Trips Out	AM Peak Hour Vehicle Trips Total	PM Peak Hour Vehicle Trips In	PM Peak Hour Vehicle Trips Out	PM Peak Hour Vehicle Trips Total
Existing (Staff)							
Walk, Bike, Other Trips	*8.0%*	43	30	73	10	40	50
Transit Trips	*35%*	190	131	321	46	174	220
Other	*18.6%*	101	70	171	24	92	117
Person Trips by Vehicle	*38%*	208	144	352	50	191	241
Total	*100%*	542	375	917	130	497	628
Existing Use (Other)							
Walk, Bike, Other Trips	*5.0%*	33	22	55	8	30	38
Transit Trips	*25.0%*	163	113	276	39	149	188
Other	*5.0%*	33	22	55	8	30	38
Person Trips by Vehicle	*65.0%*	425	292	717	102	388	490
Total	*100%*	654	449	1103	157	597	754
Existing Total Project Person Trips							
Walk, Bike, Other Trips		76	52	128	18	70	88
Transit Trips		353	244	597	85	323	408
Other		134	92	226	32	122	154
Person Trips by Vehicle		633	436	1,069	152	579	731
Total		1,196	824	2,020	287	1,094	1,381

Staff vs non-staff split relavant for current conditions (before changed in CTR)

Staff	35%	*observations of staff parking*

Existing/Baseline:

CTR Employee Mode Split

Walk/Bike	8.0%
Transit	35.0%
Other	18.6%
Vehicle	38.4%
Total	100%

AVO	**1.26**	
SOV	30.40%	per 2022 HMC CTR report
Carpool	7%	
Vanpool	1%	4

Non-Staff	65%	

Existing/Baseline:

Estimated Mode Split**

Walk/Bike	5.0%
Transit	25.0%
Other	5.0%
Vehicle	65.0%
Total	100%

AVO	**1.38**	
SOV	40.00%	
Carpool	25%	
Vanpool	0%	4

***Estimated using ITE as a guide of reasonablenss as well as transit data*

Vehicle Trip Generation

Land Use	AVO	AM Peak Hour Vehicle Trips In	AM Peak Hour Vehicle Trips Out	AM Peak Hour Vehicle Trips Total	PM Peak Hour Vehicle Trips In	PM Peak Hour Vehicle Trips Out	PM Peak Hour Vehicle Trips Total
Existing Use (staff)	1.26	165	114	279	40	151	191
Existing Use (Visitors)	1.38	307	211	518	74	280	354
Total Vehicle Trips		**472**	**325**	**797**	**114**	**431**	**545**

HMC - Existing - 2025 CTR

Person Trips by Mode of Travel		AM Peak Hour Vehicle Trips In	AM Peak Hour Vehicle Trips Out	AM Peak Hour Vehicle Trips Total	PM Peak Hour Vehicle Trips In	PM Peak Hour Vehicle Trips Out	PM Peak Hour Vehicle Trips Total
Existing (Staff)							
Walk, Bike, Other Trips	*9.9%*	54	37	91	13	49	62
Transit Trips	*38%*	203	141	344	49	186	235
Other	*8.8%*	48	33	81	11	44	55
Person Trips by Vehicle	*44%*	237	164	402	57	218	275
Total	*100%*	542	375	917	130	497	627
Existing Use (Other)							
Walk, Bike, Other Trips	*5.0%*	33	22	55	8	30	38
Transit Trips	*25.0%*	163	113	276	39	149	188
Other	*5.0%*	33	22	55	8	30	38
Person Trips by Vehicle	*65.0%*	425	292	717	102	388	490
Total	*100%*	654	449	1103	157	597	754
Existing Total Project Person Trips							
Walk, Bike, Other Trips		87	59	146	21	79	100
Transit Trips		366	254	620	88	335	423
Other		81	55	136	19	74	93
Person Trips by Vehicle		662	456	1,119	159	606	765
Total		1,196	824	2,020	287	1,094	1,381

Existing/Baseline:

CTR Employee Mode Split

AVO	**1.20**			
SOV	37.10%	per 2022 HMC CTR report		
Walk/Bike	9.9%	Carpool	6%	
Transit	37.5%	Vanpool	1%	4
Other	8.8%			
Vehicle	43.8%			
Total	100%			

Existing/Baseline:

Estimated Non-Staff Mode Split**

AVO	**1.38**			
SOV	40.0%			
Walk/Bike	5.0%	Carpool	25%	
Transit	25.0%	Vanpool	0%	4
Other	5.0%			
Vehicle	65.0%			
Total	100%			

***Estimated using ITE as a guide of reasonablenss as well as transit data*

Vehicle Trip Generation

Land Use	AVO	AM Peak Hour Vehicle Trips In	AM Peak Hour Vehicle Trips Out	AM Peak Hour Vehicle Trips Total	PM Peak Hour Vehicle Trips In	PM Peak Hour Vehicle Trips Out	PM Peak Hour Vehicle Trips Total	
Existing Use (staff)	1.20	198	137	335	48	182	229	40%
Existing Use (Visitors)	1.38	307	211	518	74	280	354	60%
Total Vehicle Trips		**505**	**348**	**853**	**121**	**462**	**583**	

Appendix C Transit Analysis

Transit Analysis

CURRENT SOV

	AM	PM
In	314	75
Out	215	287
Total	529	362

Adjusted SOV (change from existing with current SOV)

	AM	PM
In	349	83
Out	238	317
Total	587	400

AM

			2,024 Existing						2045 GROWTH	Action Alternative						Action Alternative						
			Onboard Capacity Analysis							Onboard Capacity Analysis								Onboard Capacity Analysis				
	Route	Direction	Total Capacity	Bus Passenger Load	Utilization	1.50%	Dist	Total TG (Peak Hour)		Total Capacity	Future Without-Project Load	Additional MIMP (4-hr period)	Total Future Action Bus Passenger Load	Utilization	Dist	Total TG (Peak Hour)		Total Capacity	Without-Project Load	Additional MIMP (4-hr period)	Total Future Action Bus Passenger Load	Utilization
12880	3, 4, 193, 303, 322	N	1,300	431	33%	588.52	25%	132		1,300	589	528	1,117	86%	25%	147		1,300	589	588	1,177	91%
12910	3, 4, 193	S	1,872	707	38%	966.78	25%	132		1,872	967	528	1,495	80%	25%	147		1,872	967	588	1,555	83%
41930	60	N	714	245	34%	334.93	10%	53		714	335	212	547	77%	10%	59		714	335	236	571	80%
42010	60	S	714	122	17%	166.51	10%	53		714	167	212	379	53%	10%	59		714	167	236	403	56%
41904	9, 43	N	776	68	9%	93.37	3%	13		776	93	52	145	19%	3%	15		776	93	60	153	20%
41987	9, 43	S	104	6	6%	7.93	3%	13		104	8	52	60	58%	3%	15		104	8	60	68	65%
27500	27	E	357	44	12%	60.29	5%	26		357	60	104	164	46%	5%	30		357	60	120	180	51%
27430	27	W	306	113	37%	154.20	5%	26		306	154	104	258	84%	5%	30		306	154	120	274	90%
820	257,311	S	384	27	7%	37.18	5%	26		384	37	104	141	37%	5%	30		384	37	120	157	41%
860	257,311	N		PM Only		-	-					PM Only			-					PM Only		
Total			6,527	1,763			90%	474		6,527	2,410	1,896	4,306	66%	90%	532		6,527	2,410	2,128	4,538	70%
														86%								91%

PM

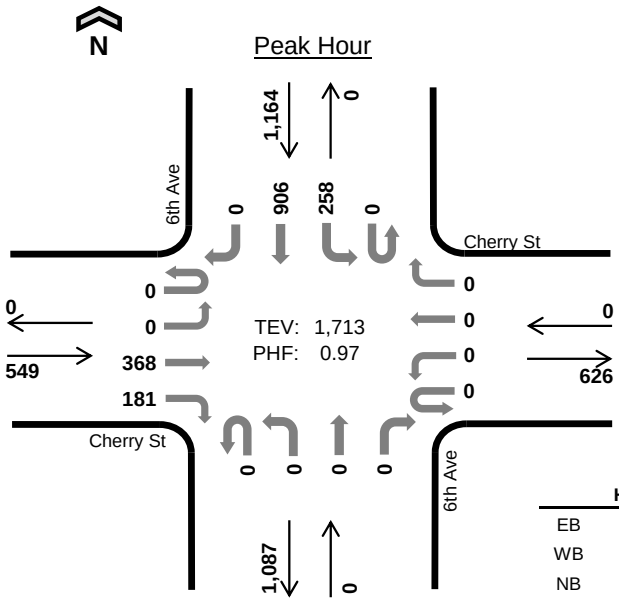
			2045 Existing						GROWTH	Action Alternative						Action Alternative						
			Onboard Capacity Analysis							Onboard Capacity Analysis								Onboard Capacity Analysis				
	Route	Direction	Total Capacity	Bus Passenger Load	Utilization	1.50%	Dist	Total TG (Peak Hour)		Total Capacity	Without-Project Load	Additional MIMP (4-hr period)	Total Future Action Bus Passenger Load	Utilization	Dist	Total TG (Peak Hour)		Total Capacity	Without-Project Load	Additional MIMP (4-hr period)	Total Future Action Bus Passenger Load	Utilization
12880	3, 4, 193, 303, 322	N	2,412	730	30%	997.54	25%	92		2,412	998	368	1,366	57%	25%	100		2,412	998	400	1,398	58%
12910	3, 4, 193	S	1,560	639	41%	874.10	25%	91		1,560	874	364	1,238	79%	25%	100		1,560	874	400	1,274	82%
41930	60	N	1,020	244	24%	333.56	10%	36		1,020	334	144	478	47%	10%	40		1,020	334	160	494	48%
42010	60	S	969	333	34%	454.55	10%	36		969	455	144	599	62%	10%	40		969	455	160	615	63%
41904	9, 43	N		AM Only		-		0				AM Only				0				AM Only		
41987	9, 43	S	255	60	24%	82.02	5%	18		255	82	72	154	60%	5%	21		255	82	84	166	65%
27500	27	E	459	154	34%	210.39	5%	18		459	210	72	282	62%	5%	21		459	210	84	294	64%
27430	27	W	408	77	19%	104.99	5%	18		408	105	72	177	43%	5%	21		408	105	84	189	46%
820	257,311	S		AM Only		-		0				AM Only				0				AM Only		
860	257,311	N	432	40	9%	54.41	5%	18		432	54	72	126	29%	5%	20		432	54	80	134	31%
Total			7,515	2,276			90%	327		7,515	3,112	1,308	4,420	59%	90%	363		7,515	3,112	1,452	4,564	61%
														79%								82%

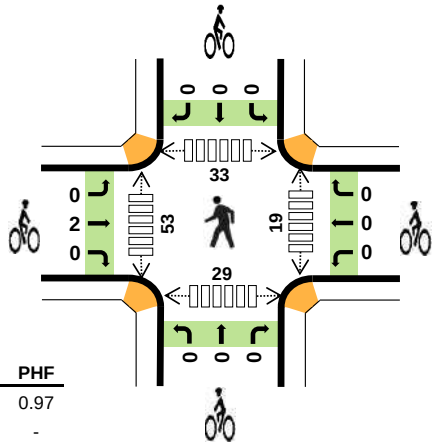
10% assumed to be assigned to other transit - light rail, street car, etc.

Appendix D Traffic Volumes

6th Ave
Cherry St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	3.3%	0.97
WB	-	-
NB	-	-
SB	2.1%	0.97
TOTAL	2.5%	0.97

Two-Hour Count Summaries

Interval Start		Cherry St Eastbound				Cherry St Westbound				6th Ave Northbound				6th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	66	28	0	0	0	0	0	0	0	0	0	78	202	0	374	0
7:15 AM		0	0	79	29	0	0	0	0	0	0	0	0	0	65	230	0	403	0
7:30 AM		0	0	76	41	0	0	0	0	0	0	0	0	0	78	227	0	422	0
7:45 AM		**0**	**0**	**86**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**65**	**223**	**0**	**426**	1,625
8:00 AM		**0**	**0**	**101**	**41**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**58**	**241**	**0**	**441**	1,692
8:15 AM		**0**	**0**	**87**	**48**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**64**	**223**	**0**	**422**	1,711
8:30 AM		**0**	**0**	**94**	**40**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**71**	**219**	**0**	**424**	**1,713**
8:45 AM		0	0	74	40	0	0	0	0	0	0	0	0	0	79	200	0	393	1,680
Count Total		0	0	663	319	0	0	0	0	0	0	0	0	0	558	1,765	0	3,305	0
Peak Hour	**All**	**0**	**0**	**368**	**181**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**258**	**906**	**0**	**1,713**	**0**
	HV	**0**	**0**	**14**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**21**	**0**	**43**	**0**
	HV%	**-**	**-**	**4%**	**2%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2%**	**2%**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	0	0	1	*2*	0	0	0	0	*0*	2	5	4	2	*13*
7:15 AM	1	0	0	6	*7*	0	0	0	0	*0*	5	7	9	2	*23*
7:30 AM	3	0	0	4	*7*	0	0	0	0	*0*	2	15	3	8	*28*
7:45 AM	**4**	**0**	**0**	**6**	***10***	**0**	**0**	**0**	**0**	***0***	**5**	**15**	**10**	**5**	*35*
8:00 AM	**6**	**0**	**0**	**8**	***14***	**0**	**0**	**0**	**0**	***0***	**5**	**20**	**13**	**10**	*48*
8:15 AM	**4**	**0**	**0**	**5**	***9***	**1**	**0**	**0**	**0**	***1***	**4**	**6**	**4**	**6**	*20*
8:30 AM	**4**	**0**	**0**	**6**	***10***	**1**	**0**	**0**	**0**	***1***	**5**	**12**	**6**	**8**	***31***
8:45 AM	4	0	0	3	*7*	0	0	0	0	*0*	1	8	10	6	*25*
Count Total	27	0	0	39	*66*	2	0	0	0	*2*	29	88	59	47	*223*
Peak Hour	**18**	**0**	**0**	**25**	***43***	**2**	**0**	**0**	**0**	***2***	**19**	**53**	**33**	**29**	***134***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Cherry St Eastbound				Cherry St Westbound				6th Ave Northbound				6th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	6	0	7	0
7:30 AM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	4	0	7	0
7:45 AM	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**10**	26
8:00 AM	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**7**	**0**	**14**	38
8:15 AM	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**0**	**9**	40
8:30 AM	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**0**	**10**	**43**
8:45 AM	0	0	4	0	0	0	0	0	0	0	0	0	0	1	2	0	7	40
Count Total	0	0	21	6	0	0	0	0	0	0	0	0	0	5	34	0	66	0
Peak Hour	**0**	**0**	**14**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**21**	**0**	**43**	**0**

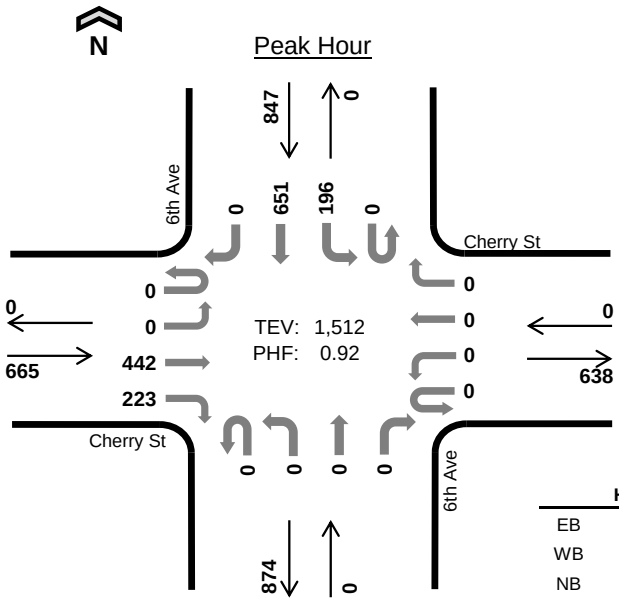
Two-Hour Count Summaries - Bikes

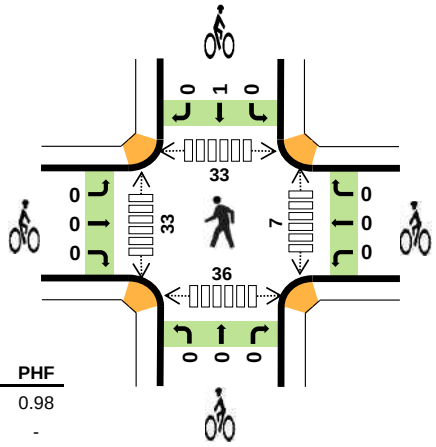
Interval Start	Cherry St Eastbound			Cherry St Westbound			6th Ave Northbound			6th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
8:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	2	0	0	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

6th Ave
Cherry St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	0.3%	0.98
WB	-	-
NB	-	-
SB	0.4%	0.86
TOTAL	0.3%	0.92

Two-Hour Count Summaries

Interval Start		Cherry St Eastbound				Cherry St Westbound				6th Ave Northbound				6th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	105	52	0	0	0	0	0	0	0	0	0	47	164	0	368	0
4:15 PM		0	0	108	45	0	0	0	0	0	0	0	0	0	51	146	0	350	0
4:30 PM		0	0	106	48	0	0	0	0	0	0	0	0	0	46	174	0	374	0
4:45 PM		**0**	**0**	**113**	**56**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**38**	**140**	**0**	**347**	1,439
5:00 PM		**0**	**0**	**111**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**56**	**149**	**0**	**368**	1,439
5:15 PM		**0**	**0**	**113**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**168**	**0**	**386**	1,475
5:30 PM		**0**	**0**	**105**	**60**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**194**	**0**	**411**	**1,512**
5:45 PM		0	0	84	47	0	0	0	0	0	0	0	0	0	31	158	0	320	1,485
Count Total		0	0	845	415	0	0	0	0	0	0	0	0	0	371	1,293	0	2,924	0
Peak Hour	**All**	**0**	**0**	**442**	**223**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**196**	**651**	**0**	**1,512**	**0**
	HV	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**5**	**0**
	HV%	**-**	**-**	**0%**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**0%**	**-**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	6	*6*	0	0	0	0	*0*	1	8	22	4	*35*
4:15 PM	0	0	0	4	*4*	0	0	0	0	*0*	3	15	11	13	*42*
4:30 PM	0	0	0	3	*3*	0	0	0	0	*0*	8	16	11	8	*43*
4:45 PM	**1**	**0**	**0**	**1**	***2***	**0**	**0**	**0**	**1**	***1***	**4**	**9**	**10**	**11**	*34*
5:00 PM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**3**	**5**	**10**	**13**	*31*
5:15 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**10**	**9**	**6**	*25*
5:30 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**9**	**4**	**6**	***19***
5:45 PM	0	0	0	2	*2*	0	0	0	0	*0*	0	11	7	4	*22*
Count Total	2	0	0	18	*20*	0	0	0	1	*1*	19	83	84	65	*251*
Peak Hour	**2**	**0**	**0**	**3**	***5***	**0**	**0**	**0**	**1**	***1***	**7**	**33**	**33**	**36**	***109***

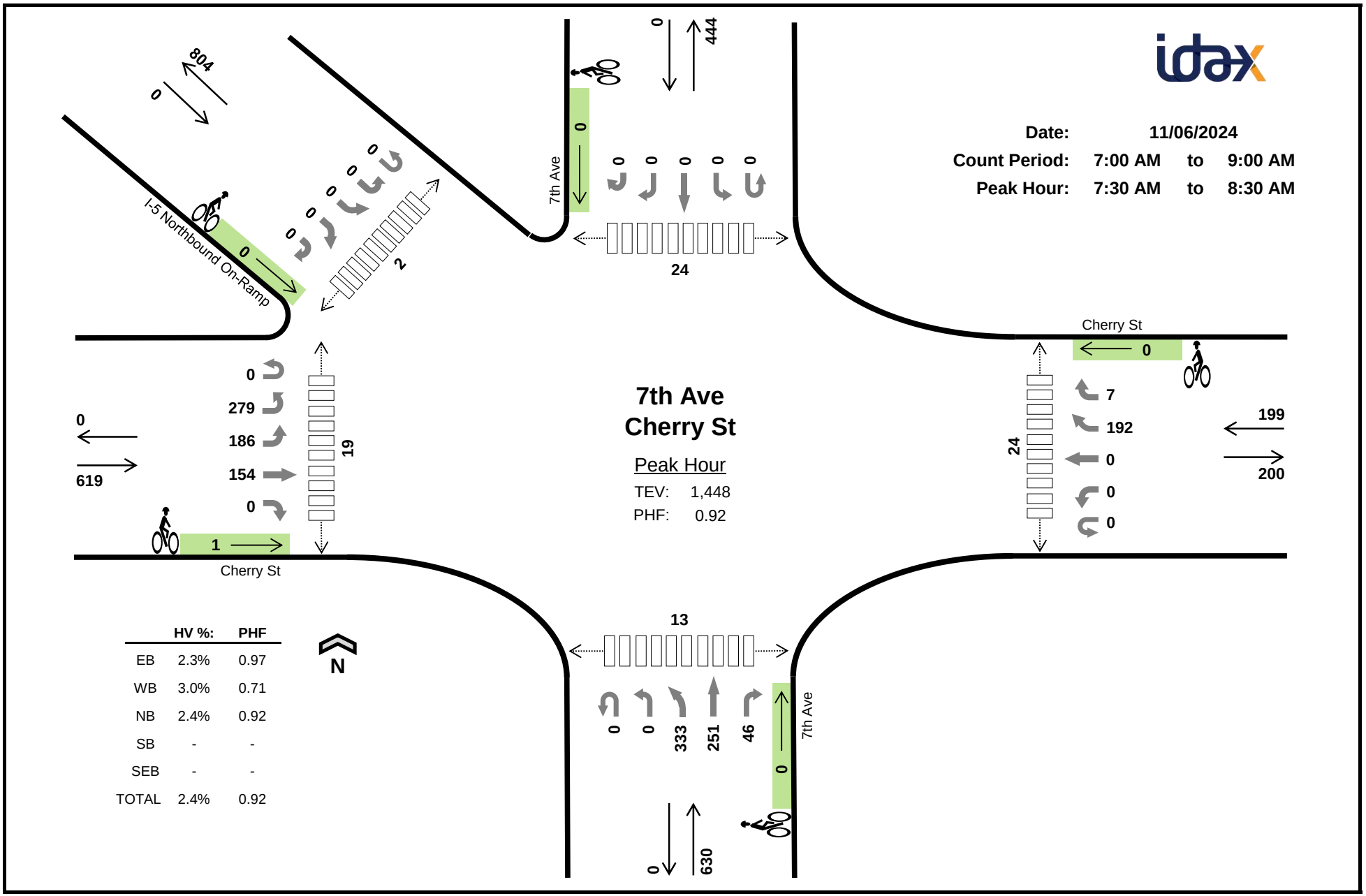
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Cherry St Eastbound				Cherry St Westbound				6th Ave Northbound				6th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	6	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	15
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	10
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	7
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**5**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	5
Count Total	0	0	2	0	0	0	0	0	0	0	0	0	0	1	17	0	20	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**5**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Cherry St Eastbound			Cherry St Westbound			6th Ave Northbound			6th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM

	HV %:	PHF
EB	2.3%	0.97
WB	3.0%	0.71
NB	2.4%	0.92
SB	-	-
SEB	-	-
TOTAL	2.4%	0.92

Two-Hour Count Summaries

Interval Start		Cherry St Eastbound					Cherry St Westbound					7th Ave Northbound					7th Ave Southbound					I-5 Northbound On-Ramp Southeastbound					15-min Total	Rolling One Hour
		UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
7:00 AM		0	66	38	34	0	0	0	0	25	0	0	0	70	65	11	0	0	0	0	0	0	0	0	0	0	309	0
7:15 AM		0	68	44	38	0	0	0	0	39	2	0	0	71	64	13	0	0	0	0	0	0	0	0	0	0	339	0
7:30 AM		**0**	**82**	**42**	**35**	**0**	**0**	**0**	**0**	**69**	**1**	**0**	**0**	**95**	**53**	**17**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**394**	0
7:45 AM		**0**	**66**	**43**	**45**	**0**	**0**	**0**	**0**	**61**	**2**	**0**	**0**	**81**	**51**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**365**	1,407
8:00 AM		**0**	**70**	**57**	**33**	**0**	**0**	**0**	**0**	**36**	**3**	**0**	**0**	**70**	**68**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**344**	1,442
8:15 AM		**0**	**61**	**44**	**41**	**0**	**0**	**0**	**0**	**26**	**1**	**0**	**0**	**87**	**79**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**345**	**1,448**
8:30 AM		0	67	55	47	0	0	0	0	33	3	0	0	73	83	13	0	0	0	0	0	0	0	0	0	0	374	1,428
8:45 AM		0	63	43	42	0	0	0	0	47	1	0	0	85	67	16	0	0	0	0	0	0	0	0	0	0	364	1,427
Count Total		0	543	366	315	0	0	0	0	336	13	0	0	632	530	99	0	0	0	0	0	0	0	0	0	0	2,834	0
Peak Hour	**All**	**0**	**279**	**186**	**154**	**0**	**0**	**0**	**0**	**192**	**7**	**0**	**0**	**333**	**251**	**46**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,448**	**0**
	HV	**0**	**8**	**3**	**3**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**11**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**0**
	HV%	**-**	**3%**	**2%**	**2%**	**-**	**-**	**-**	**-**	**3%**	**14%**	**-**	**-**	**3%**	**2%**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

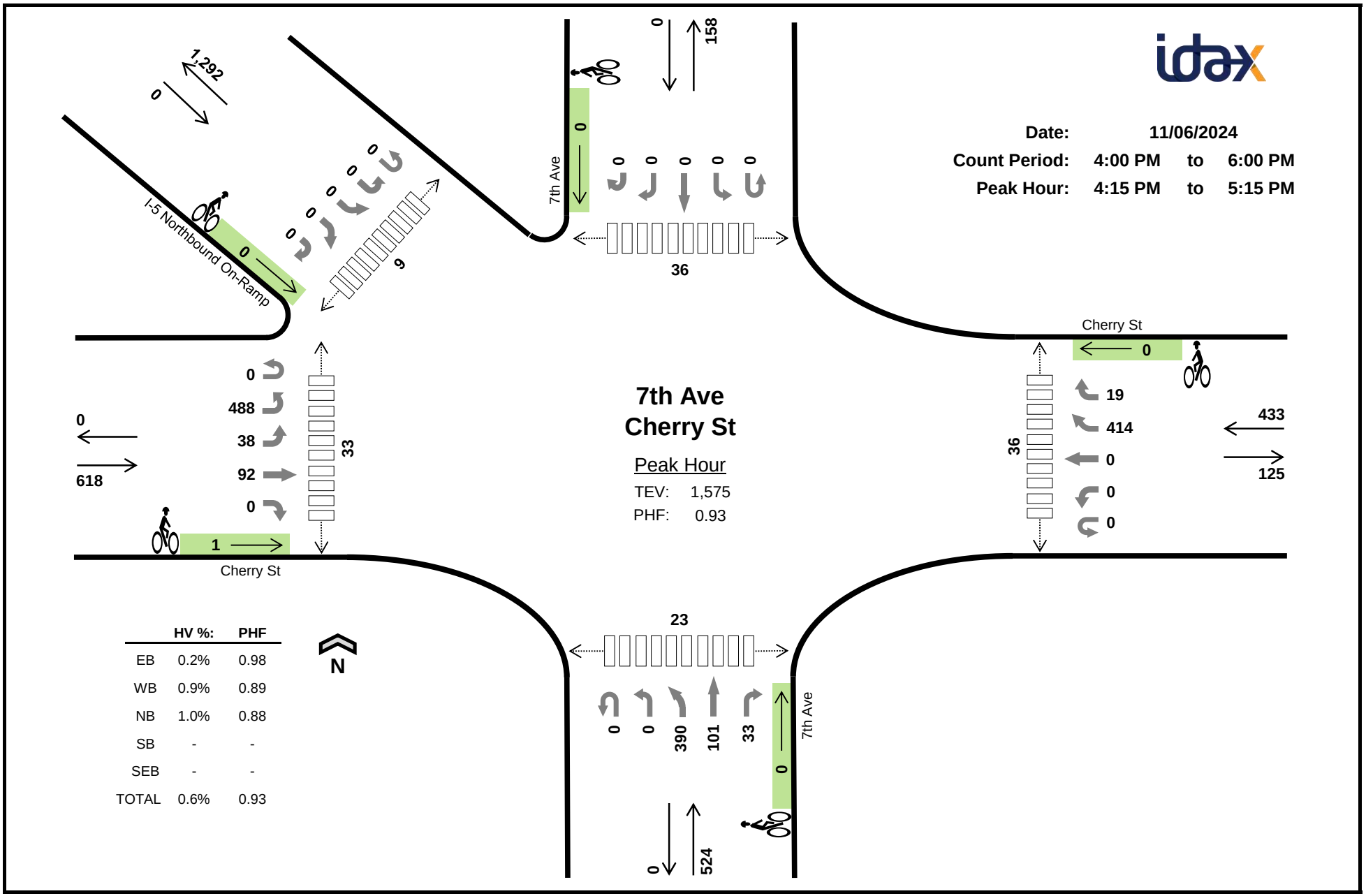
Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	SEB	Total	EB	WB	NB	SB	SEB	Total	East	West	North	South	Northwest	Total
7:00 AM	1	2	3	0	0	*6*	0	0	0	0	0	*0*	4	3	4	0	0	*11*
7:15 AM	1	0	3	0	0	*4*	0	0	0	0	0	*0*	4	3	4	0	0	*11*
7:30 AM	**1**	**4**	**2**	**0**	**0**	***7***	**0**	**0**	**0**	**0**	**0**	***0***	**8**	**4**	**8**	**2**	**0**	***22***
7:45 AM	**3**	**0**	**5**	**0**	**0**	***8***	**0**	**0**	**0**	**0**	**0**	***0***	**7**	**4**	**7**	**3**	**1**	***22***
8:00 AM	**6**	**2**	**3**	**0**	**0**	***11***	**0**	**0**	**0**	**0**	**0**	***0***	**3**	**7**	**3**	**4**	**1**	***18***
8:15 AM	**4**	**0**	**5**	**0**	**0**	***9***	**1**	**0**	**0**	**0**	**0**	***1***	**6**	**4**	**6**	**4**	**0**	***20***
8:30 AM	5	1	6	0	0	*12*	0	0	0	0	0	*0*	3	4	3	6	1	*17*
8:45 AM	5	0	4	0	0	*9*	0	0	0	0	0	*0*	9	2	9	0	0	*20*
Count Total	26	9	31	0	0	*66*	1	0	0	0	0	*1*	44	31	44	19	3	*141*
Peak Hr	**14**	**6**	**15**	**0**	**0**	***35***	**1**	**0**	**0**	**0**	**0**	***1***	**24**	**19**	**24**	**13**	**2**	*82*

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Cherry St					Cherry St					7th Ave					7th Ave					n/a					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Southeastbound						
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
7:00 AM	0	1	0	0	0	0	0	0	2	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	6	0
7:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	4	0
7:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	0
7:45 AM	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	25
8:00 AM	**0**	**3**	**2**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	30
8:15 AM	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**35**
8:30 AM	0	4	0	1	0	0	0	0	1	0	0	0	5	1	0	0	0	0	0	0	0	0	0	0	0	12	40
8:45 AM	0	4	0	1	0	0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0	9	41
Count Total	0	17	3	6	0	0	0	0	8	1	0	0	20	8	3	0	0	0	0	0	0	0	0	0	0	66	0
Peak Hour	**0**	**8**	**3**	**3**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**11**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	35	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Cherry St					Cherry St					7th Ave					7th Ave					n/a					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Southeastbound						
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	**0**


Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM
7th Ave
Cherry St
Peak Hour
TEV: 1,575
PHF: 0.93
I-5 Northbound On-Ramp
1,292
0
7th Ave
0
158
0 0 0 0 0
36
Cherry St
0
19
414
0
0
0
433
125
36
0
488
38
92
0
33
618
1
Cherry St
23
0 0 390 101 33
7th Ave
0
0
524
N
HV %: PHF
EB 0.2% 0.98
WB 0.9% 0.89
NB 1.0% 0.88
SB - -
SEB - -
TOTAL 0.6% 0.93

Two-Hour Count Summaries

Interval Start	Cherry St Eastbound					Cherry St Westbound					7th Ave Northbound					7th Ave Southbound					I-5 Northbound On-Ramp Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	126	10	17	0	0	0	0	97	5	0	0	91	15	4	0	0	0	0	0	0	0	0	0	0	365	0
4:15 PM	**0**	**127**	**12**	**18**	**0**	**0**	**0**	**0**	**109**	**1**	**0**	**0**	**88**	**17**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**377**	0
4:30 PM	**0**	**116**	**10**	**30**	**0**	**0**	**0**	**0**	**105**	**6**	**0**	**0**	**105**	**16**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**399**	0
4:45 PM	**0**	**127**	**4**	**21**	**0**	**0**	**0**	**0**	**115**	**6**	**0**	**0**	**109**	**32**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**422**	1,563
5:00 PM	**0**	**118**	**12**	**23**	**0**	**0**	**0**	**0**	**85**	**6**	**0**	**0**	**88**	**36**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**377**	**1,575**
5:15 PM	0	128	12	26	0	0	0	0	81	1	0	0	87	32	7	0	0	0	0	0	0	0	0	0	0	374	1,572
5:30 PM	0	131	6	25	0	0	0	0	91	0	0	0	95	34	6	0	0	0	0	0	0	0	0	0	0	388	1,561
5:45 PM	0	89	7	23	0	0	0	0	95	1	0	0	112	21	5	0	0	0	0	0	0	0	0	0	0	353	1,492
Count Total	0	962	73	183	0	0	0	0	778	26	0	0	775	203	55	0	0	0	0	0	0	0	0	0	0	3,055	0
Peak Hour All	**0**	**488**	**38**	**92**	**0**	**0**	**0**	**0**	**414**	**19**	**0**	**0**	**390**	**101**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,575**	**0**
Peak Hour HV	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**1%**	**-**	**-**	**-**	**-**	**1%**	**0%**	**-**	**-**	**1%**	**0%**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	SEB	Total	EB	WB	NB	SB	SEB	Total	East	West	North	South	Northwest	Total
4:00 PM	1	1	0	0	0	*2*	0	0	0	0	0	*0*	8	9	8	10	1	*36*
4:15 PM	**0**	**1**	**2**	**0**	**0**	***3***	**1**	**0**	**0**	**0**	**0**	***1***	**9**	**11**	**9**	**4**	**2**	***35***
4:30 PM	**0**	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	**0**	***0***	**6**	**10**	**6**	**4**	**1**	***27***
4:45 PM	**1**	**2**	**0**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	***0***	**5**	**7**	**5**	**7**	**2**	***26***
5:00 PM	**0**	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	***0***	**16**	**5**	**16**	**8**	**4**	***49***
5:15 PM	1	0	0	0	0	*1*	0	0	0	0	0	*0*	7	8	7	3	3	*28*
5:30 PM	0	1	2	0	0	*3*	0	0	0	0	0	*0*	8	7	8	7	5	*35*
5:45 PM	0	0	1	0	0	*1*	0	0	0	0	0	*0*	5	4	5	7	0	*21*
Count Total	3	6	8	0	0	*17*	1	0	0	0	0	*1*	64	61	64	50	18	*257*
Peak Hr	**1**	**4**	**5**	**0**	**0**	***10***	**1**	**0**	**0**	**0**	**0**	***1***	**36**	**33**	**36**	**23**	**9**	*137*

Two-Hour Count Summaries - Heavy Vehicles

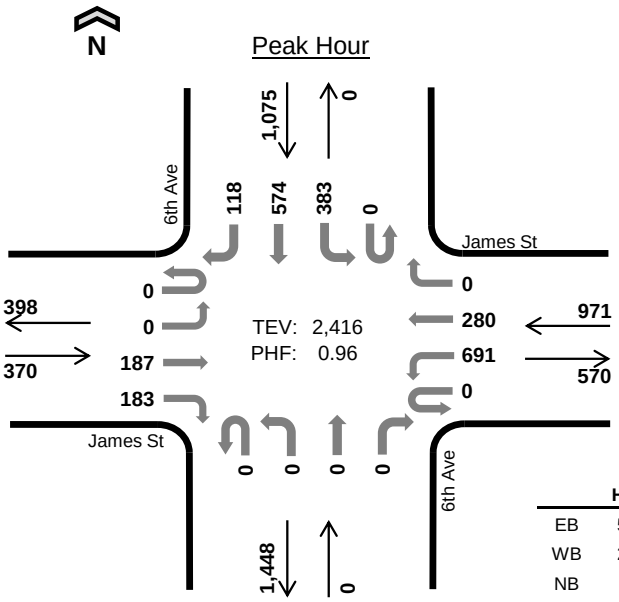
Interval Start	Cherry St					Cherry St					7th Ave					7th Ave					n/a					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Southeastbound						
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	9
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**10**
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8
5:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	10
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	8
Count Total	0	1	0	2	0	0	0	0	6	0	0	0	6	2	0	0	0	0	0	0	0	0	0	0	0	17	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	10	**0**

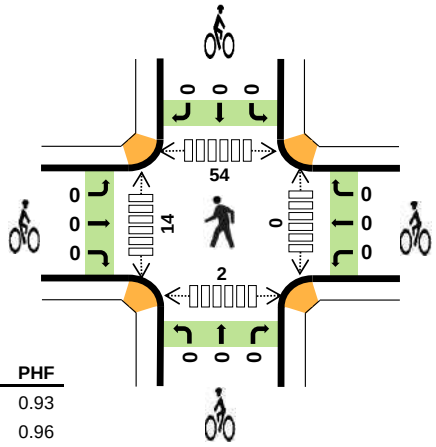
Two-Hour Count Summaries - Bikes

Interval Start	Cherry St					Cherry St					7th Ave					7th Ave					n/a					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Southeastbound						
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1	**0**

6th Ave
James St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	5.7%	0.93
WB	2.5%	0.96
NB	-	-
SB	2.4%	0.97
TOTAL	2.9%	0.96

Two-Hour Count Summaries

Interval Start	James St Eastbound				James St Westbound				6th Ave Northbound				6th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	39	16	0	152	62	0	0	0	0	0	0	79	134	13	495	0
7:15 AM	0	0	29	30	0	171	47	0	0	0	0	0	0	101	123	30	531	0
7:30 AM	0	0	40	35	0	191	33	0	0	0	0	0	0	92	148	20	559	0
7:45 AM	**0**	**0**	**45**	**41**	**0**	**189**	**61**	**0**	**0**	**0**	**0**	**0**	**0**	**108**	**145**	**19**	**608**	2,193
8:00 AM	**0**	**0**	**44**	**50**	**0**	**181**	**73**	**0**	**0**	**0**	**0**	**0**	**0**	**102**	**150**	**26**	**626**	2,324
8:15 AM	**0**	**0**	**39**	**52**	**0**	**159**	**69**	**0**	**0**	**0**	**0**	**0**	**0**	**92**	**134**	**44**	**589**	2,382
8:30 AM	**0**	**0**	**59**	**40**	**0**	**162**	**77**	**0**	**0**	**0**	**0**	**0**	**0**	**81**	**145**	**29**	**593**	**2,416**
8:45 AM	0	0	48	33	0	165	73	0	0	0	0	0	0	84	132	19	554	2,362
Count Total	0	0	343	297	0	1,370	495	0	0	0	0	0	0	739	1,111	200	4,555	0
Peak Hour All	**0**	**0**	**187**	**183**	**0**	**691**	**280**	**0**	**0**	**0**	**0**	**0**	**0**	**383**	**574**	**118**	**2,416**	**0**
Peak Hour HV	**0**	**0**	**15**	**6**	**0**	**13**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**16**	**3**	**71**	**0**
Peak Hour HV%	**-**	**-**	**8%**	**3%**	**-**	**2%**	**4%**	**-**	**-**	**-**	**-**	**-**	**-**	**2%**	**3%**	**3%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	8	0	1	*12*	0	0	0	0	*0*	0	0	9	3	*12*
7:15 AM	7	3	0	6	*16*	0	0	0	0	*0*	0	4	14	0	*18*
7:30 AM	4	6	0	5	*15*	0	0	0	0	*0*	0	2	9	0	*11*
7:45 AM	**8**	**7**	**0**	**7**	***22***	**0**	**0**	**0**	**0**	***0***	**0**	**5**	**12**	**1**	*18*
8:00 AM	**4**	**6**	**0**	**8**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**16**	**0**	*20*
8:15 AM	**4**	**1**	**0**	**5**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**13**	**1**	*18*
8:30 AM	**5**	**10**	**0**	**6**	***21***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**13**	**0**	***14***
8:45 AM	3	9	0	2	*14*	0	0	0	0	*0*	0	3	12	0	*15*
Count Total	38	50	0	40	*128*	0	0	0	0	*0*	0	23	98	5	*126*
Peak Hour	**21**	**24**	**0**	**26**	***71***	**0**	**0**	**0**	**0**	***0***	**0**	**14**	**54**	**2**	***70***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound				James St Westbound				6th Ave Northbound				6th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	3	0	0	4	4	0	0	0	0	0	0	0	1	0	12	0
7:15 AM	0	0	5	2	0	2	1	0	0	0	0	0	0	2	3	1	16	0
7:30 AM	0	0	2	2	0	4	2	0	0	0	0	0	0	3	2	0	15	0
7:45 AM	**0**	**0**	**5**	**3**	**0**	**4**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**1**	**22**	65
8:00 AM	**0**	**0**	**3**	**1**	**0**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**4**	**1**	**18**	71
8:15 AM	**0**	**0**	**2**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**0**	**10**	65
8:30 AM	**0**	**0**	**5**	**0**	**0**	**6**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**1**	**21**	**71**
8:45 AM	0	0	3	0	0	7	2	0	0	0	0	0	0	1	0	1	14	63
Count Total	0	0	28	10	0	30	20	0	0	0	0	0	0	13	22	5	128	0
Peak Hour	**0**	**0**	**15**	**6**	**0**	**13**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**16**	**3**	**71**	**0**

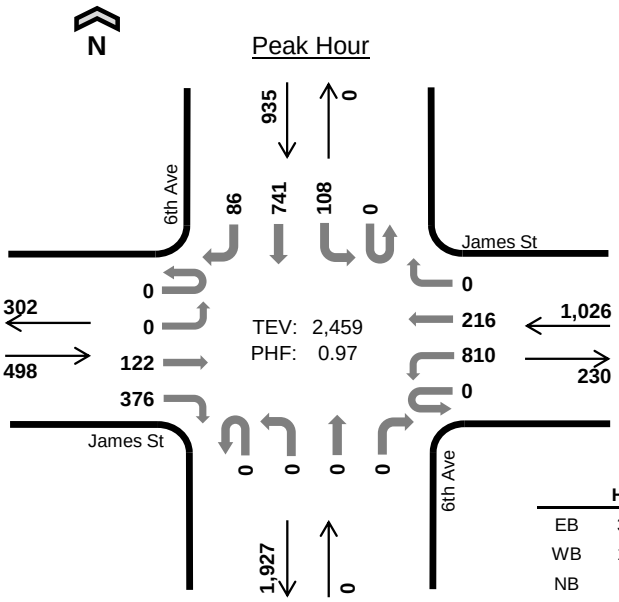
Two-Hour Count Summaries - Bikes

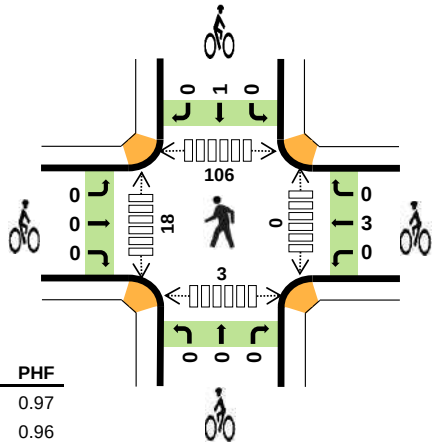
Interval Start	James St Eastbound			James St Westbound			6th Ave Northbound			6th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

6th Ave
James St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	3.2%	0.97
WB	1.9%	0.96
NB	-	-
SB	0.6%	0.92
TOTAL	1.7%	0.97

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				6th Ave Northbound				6th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	26	105	0	201	49	0	0	0	0	0	0	24	194	19	618	0
4:15 PM		0	0	23	95	0	207	47	0	0	0	0	0	0	11	193	13	589	0
4:30 PM		**0**	**0**	**31**	**97**	**0**	**206**	**58**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**184**	**18**	**629**	0
4:45 PM		**0**	**0**	**30**	**93**	**0**	**214**	**54**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**178**	**24**	**619**	2,455
5:00 PM		**0**	**0**	**31**	**89**	**0**	**189**	**53**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**169**	**26**	**579**	2,416
5:15 PM		**0**	**0**	**30**	**97**	**0**	**201**	**51**	**0**	**0**	**0**	**0**	**0**	**0**	**25**	**210**	**18**	**632**	**2,459**
5:30 PM		0	0	28	89	0	189	66	0	0	0	0	0	0	35	207	14	628	2,458
5:45 PM		0	0	28	88	0	214	39	0	0	0	0	0	0	41	164	17	591	2,430
Count Total		0	0	227	753	0	1,621	417	0	0	0	0	0	0	219	1,499	149	4,885	0
Peak Hour	**All**	**0**	**0**	**122**	**376**	**0**	**810**	**216**	**0**	**0**	**0**	**0**	**0**	**0**	**108**	**741**	**86**	**2,459**	**0**
	HV	**0**	**0**	**8**	**8**	**0**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**42**	**0**
	HV%	**-**	**-**	**7%**	**2%**	**-**	**1%**	**5%**	**-**	**-**	**-**	**-**	**-**	**-**	**3%**	**0%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	8	0	5	*16*	0	0	0	1	*1*	0	4	32	1	*37*
4:15 PM	2	6	0	3	*11*	0	0	0	0	*0*	0	4	21	2	*27*
4:30 PM	**3**	**5**	**0**	**4**	***12***	**0**	**0**	**0**	**1**	***1***	**0**	**4**	**36**	**1**	*41*
4:45 PM	**4**	**5**	**0**	**1**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**6**	**21**	**0**	*27*
5:00 PM	**3**	**7**	**0**	**0**	***10***	**0**	**1**	**0**	**0**	***1***	**0**	**2**	**28**	**0**	*30*
5:15 PM	**6**	**3**	**0**	**1**	***10***	**0**	**2**	**0**	**0**	***2***	**0**	**6**	**21**	**2**	***29***
5:30 PM	2	9	0	1	*12*	0	0	0	0	*0*	0	6	10	3	*19*
5:45 PM	4	6	0	2	*12*	0	0	0	0	*0*	1	6	4	2	*13*
Count Total	27	49	0	17	*93*	0	3	0	2	*5*	1	38	173	11	*223*
Peak Hour	**16**	**20**	**0**	**6**	***42***	**0**	**3**	**0**	**1**	***4***	**0**	**18**	**106**	**3**	***127***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound				James St Westbound				6th Ave Northbound				6th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	0	0	7	1	0	0	0	0	0	0	1	4	0	16	0
4:15 PM	0	0	1	1	0	2	4	0	0	0	0	0	0	1	1	1	11	0
4:30 PM	**0**	**0**	**2**	**1**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**12**	0
4:45 PM	**0**	**0**	**3**	**1**	**0**	**2**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**10**	49
5:00 PM	**0**	**0**	**1**	**2**	**0**	**4**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	43
5:15 PM	**0**	**0**	**2**	**4**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**10**	**42**
5:30 PM	0	0	2	0	0	6	3	0	0	0	0	0	0	1	0	0	12	42
5:45 PM	0	0	3	1	0	4	2	0	0	0	0	0	0	0	2	0	12	44
Count Total	0	0	17	10	0	29	20	0	0	0	0	0	0	6	10	1	93	0
Peak Hour	**0**	**0**	**8**	**8**	**0**	**10**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**42**	**0**

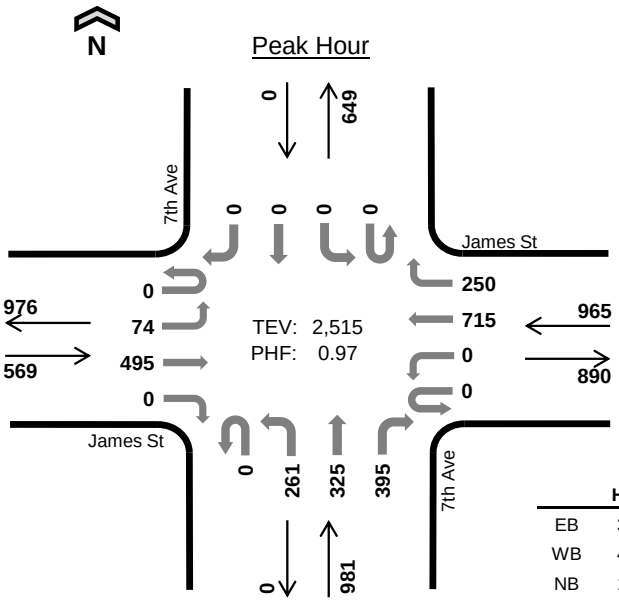
Two-Hour Count Summaries - Bikes

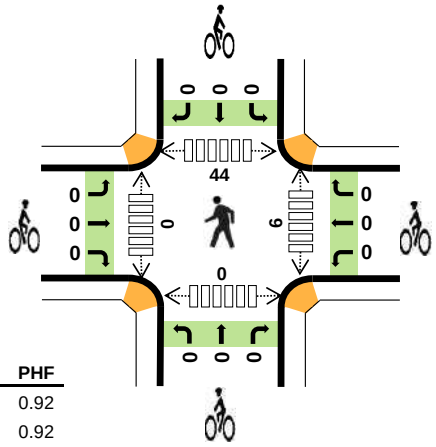
Interval Start	James St Eastbound			James St Westbound			6th Ave Northbound			6th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:00 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	2
5:15 PM	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**4**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Count Total	0	0	0	0	3	0	0	0	0	0	1	1	5	0
Peak Hour	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

7th Ave
James St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	3.9%	0.92
WB	4.1%	0.92
NB	1.3%	0.93
SB	-	-
TOTAL	3.0%	0.97

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				7th Ave Northbound				7th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	11	111	0	0	0	153	55	0	56	83	138	0	0	0	0	607	0
7:15 AM		0	11	115	0	0	0	170	59	0	46	87	127	0	0	0	0	615	0
7:30 AM		0	13	121	0	0	0	191	76	0	34	73	102	0	0	0	0	610	0
7:45 AM		**0**	**14**	**140**	**0**	**0**	**0**	**190**	**73**	**0**	**64**	**68**	**102**	**0**	**0**	**0**	**0**	**651**	2,483
8:00 AM		**0**	**16**	**128**	**0**	**0**	**0**	**188**	**53**	**0**	**68**	**77**	**85**	**0**	**0**	**0**	**0**	**615**	2,491
8:15 AM		**0**	**16**	**116**	**0**	**0**	**0**	**161**	**67**	**0**	**67**	**89**	**98**	**0**	**0**	**0**	**0**	**614**	2,490
8:30 AM		**0**	**28**	**111**	**0**	**0**	**0**	**176**	**57**	**0**	**62**	**91**	**110**	**0**	**0**	**0**	**0**	**635**	**2,515**
8:45 AM		0	14	114	0	0	0	179	57	0	57	93	101	0	0	0	0	615	2,479
Count Total		0	123	956	0	0	0	1,408	497	0	454	661	863	0	0	0	0	4,962	0
Peak Hour	**All**	**0**	**74**	**495**	**0**	**0**	**0**	**715**	**250**	**0**	**261**	**325**	**395**	**0**	**0**	**0**	**0**	**2,515**	**0**
	HV	**0**	**2**	**20**	**0**	**0**	**0**	**22**	**18**	**0**	**4**	**2**	**7**	**0**	**0**	**0**	**0**	**75**	**0**
	HV%	**-**	**3%**	**4%**	**-**	**-**	**-**	**3%**	**7%**	**-**	**2%**	**1%**	**2%**	**-**	**-**	**-**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	5	5	0	*13*	0	0	0	0	*0*	3	0	12	0	*15*
7:15 AM	7	4	4	0	*15*	0	0	0	0	*0*	1	0	12	0	*13*
7:30 AM	5	6	2	0	*13*	0	0	0	0	*0*	3	0	14	0	*17*
7:45 AM	**7**	**10**	**3**	**0**	***20***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**7**	**0**	*7*
8:00 AM	**6**	**7**	**3**	**0**	***16***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**16**	**0**	*19*
8:15 AM	**3**	**7**	**1**	**0**	***11***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**12**	**0**	*15*
8:30 AM	**6**	**16**	**6**	**0**	***28***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**9**	**0**	***9***
8:45 AM	4	11	6	0	*21*	0	0	0	0	*0*	2	0	10	0	*12*
Count Total	41	66	30	0	*137*	0	0	0	0	*0*	15	0	92	0	*107*
Peak Hour	**22**	**40**	**13**	**0**	***75***	**0**	**0**	**0**	**0**	***0***	**6**	**0**	**44**	**0**	***50***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound				James St Westbound				7th Ave Northbound				7th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	3	0	0	0	4	1	0	2	2	1	0	0	0	0	13	0
7:15 AM	0	1	6	0	0	0	3	1	0	0	1	3	0	0	0	0	15	0
7:30 AM	0	0	5	0	0	0	5	1	0	1	1	0	0	0	0	0	13	0
7:45 AM	**0**	**1**	**6**	**0**	**0**	**0**	**6**	**4**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**20**	61
8:00 AM	**0**	**0**	**6**	**0**	**0**	**0**	**5**	**2**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**16**	64
8:15 AM	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**5**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**11**	60
8:30 AM	**0**	**1**	**5**	**0**	**0**	**0**	**9**	**7**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**28**	**75**
8:45 AM	0	0	4	0	0	0	8	3	0	1	1	4	0	0	0	0	21	76
Count Total	0	3	38	0	0	0	42	24	0	8	7	15	0	0	0	0	137	0
Peak Hour	**0**	**2**	**20**	**0**	**0**	**0**	**22**	**18**	**0**	**4**	**2**	**7**	**0**	**0**	**0**	**0**	**75**	**0**

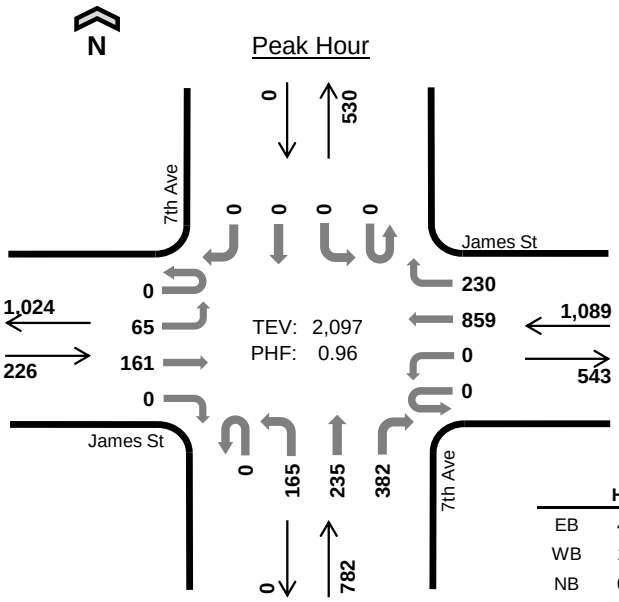
Two-Hour Count Summaries - Bikes

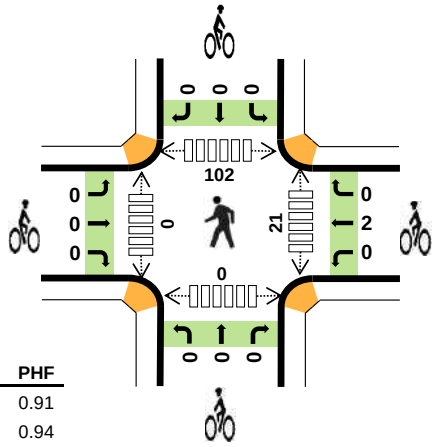
Interval Start	James St Eastbound			James St Westbound			7th Ave Northbound			7th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

7th Ave
James St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	4.9%	0.91
WB	1.8%	0.94
NB	0.8%	0.94
SB	-	-
TOTAL	1.8%	0.96

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				7th Ave Northbound				7th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	14	41	0	0	0	205	47	0	35	49	88	0	0	0	0	479	0
4:15 PM		0	10	25	0	0	0	225	50	0	40	47	61	0	0	0	0	458	0
4:30 PM		**0**	**21**	**41**	**0**	**0**	**0**	**226**	**64**	**0**	**38**	**45**	**106**	**0**	**0**	**0**	**0**	**541**	0
4:45 PM		**0**	**15**	**41**	**0**	**0**	**0**	**227**	**57**	**0**	**41**	**73**	**90**	**0**	**0**	**0**	**0**	**544**	2,022
5:00 PM		**0**	**18**	**36**	**0**	**0**	**0**	**194**	**56**	**0**	**45**	**59**	**103**	**0**	**0**	**0**	**0**	**511**	2,054
5:15 PM		**0**	**11**	**43**	**0**	**0**	**0**	**212**	**53**	**0**	**41**	**58**	**83**	**0**	**0**	**0**	**0**	**501**	**2,097**
5:30 PM		0	7	55	0	0	0	215	68	0	43	52	92	0	0	0	0	532	2,088
5:45 PM		0	11	59	0	0	0	224	78	0	26	49	87	0	0	0	0	534	2,078
Count Total		0	107	341	0	0	0	1,728	473	0	309	432	710	0	0	0	0	4,100	0
Peak Hour	**All**	**0**	**65**	**161**	**0**	**0**	**0**	**859**	**230**	**0**	**165**	**235**	**382**	**0**	**0**	**0**	**0**	**2,097**	**0**
	HV	**0**	**0**	**11**	**0**	**0**	**0**	**18**	**2**	**0**	**3**	**1**	**2**	**0**	**0**	**0**	**0**	**37**	**0**
	HV%	**-**	**0%**	**7%**	**-**	**-**	**-**	**2%**	**1%**	**-**	**2%**	**0%**	**1%**	**-**	**-**	**-**	**-**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	7	5	0	*16*	0	0	0	0	*0*	3	0	37	0	*40*
4:15 PM	2	7	0	0	*9*	0	0	0	0	*0*	4	0	15	0	*19*
4:30 PM	**3**	**6**	**1**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**5**	**0**	**34**	**0**	*39*
4:45 PM	**5**	**4**	**0**	**0**	***9***	**0**	**0**	**0**	**0**	***0***	**5**	**0**	**23**	**0**	*28*
5:00 PM	**1**	**6**	**3**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**5**	**0**	**24**	**0**	*29*
5:15 PM	**2**	**4**	**2**	**0**	***8***	**0**	**2**	**0**	**0**	***2***	**6**	**0**	**21**	**0**	***27***
5:30 PM	3	7	4	0	*14*	0	0	0	0	*0*	3	0	9	0	*12*
5:45 PM	3	7	0	0	*10*	0	0	0	0	*0*	0	0	3	0	*3*
Count Total	23	48	15	0	*86*	0	2	0	0	*2*	31	0	166	0	*197*
Peak Hour	**11**	**20**	**6**	**0**	***37***	**0**	**2**	**0**	**0**	***2***	**21**	**0**	**102**	**0**	***123***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound				James St Westbound				7th Ave Northbound				7th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	4	0	0	0	7	0	0	1	0	4	0	0	0	0	16	0
4:15 PM	0	0	2	0	0	0	6	1	0	0	0	0	0	0	0	0	9	0
4:30 PM	**0**	**0**	**3**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**10**	0
4:45 PM	**0**	**0**	**5**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	44
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**1**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**10**	38
5:15 PM	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**8**	**37**
5:30 PM	0	0	3	0	0	0	7	0	0	1	2	1	0	0	0	0	14	41
5:45 PM	0	0	3	0	0	0	6	1	0	0	0	0	0	0	0	0	10	42
Count Total	0	0	23	0	0	0	44	4	0	5	3	7	0	0	0	0	86	0
Peak Hour	**0**	**0**	**11**	**0**	**0**	**0**	**18**	**2**	**0**	**3**	**1**	**2**	**0**	**0**	**0**	**0**	**37**	**0**

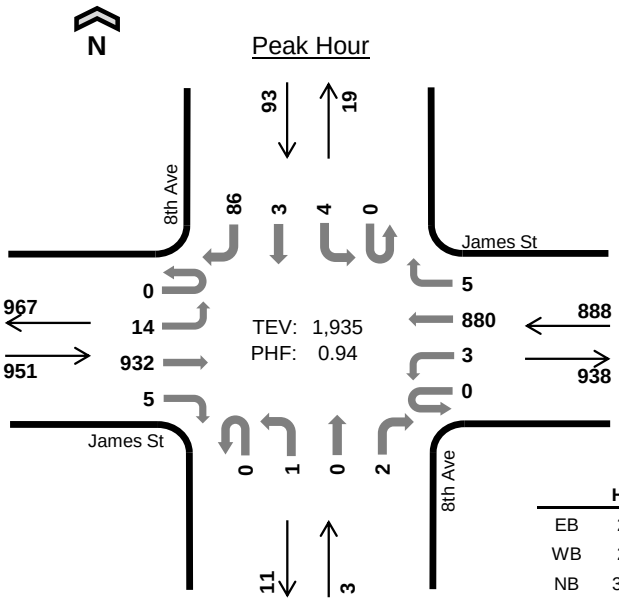
Two-Hour Count Summaries - Bikes

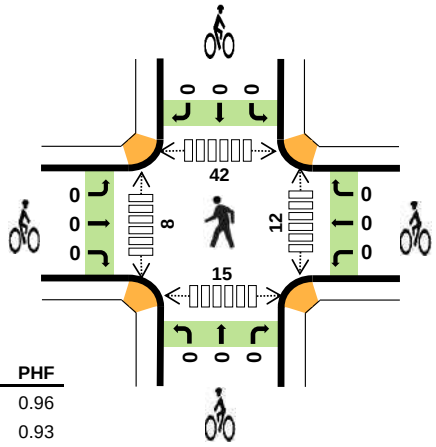
Interval Start	James St Eastbound			James St Westbound			7th Ave Northbound			7th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	0	2	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave
James St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM





	HV %:	PHF
EB	2.4%	0.96
WB	2.7%	0.93
NB	33.3%	0.38
SB	1.1%	0.73
TOTAL	2.5%	0.94

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				8th Ave Northbound				8th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		**0**	**4**	**241**	**2**	**0**	**2**	**204**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**9**	**464**	0
7:15 AM		**0**	**3**	**239**	**2**	**0**	**0**	**206**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**20**	**473**	0
7:30 AM		**0**	**5**	**207**	**0**	**0**	**0**	**238**	**2**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**32**	**486**	0
7:45 AM		**0**	**2**	**245**	**1**	**0**	**1**	**232**	**3**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**25**	**512**	**1,935**
8:00 AM		0	5	204	3	0	1	215	1	0	1	1	2	0	3	0	18	454	1,925
8:15 AM		0	2	213	1	0	0	211	3	0	1	0	1	0	0	0	17	449	1,901
8:30 AM		0	3	213	0	0	0	219	3	0	0	0	0	0	3	1	15	457	1,872
8:45 AM		0	6	214	1	0	0	224	4	0	0	1	0	0	0	0	19	469	1,829
Count Total		0	30	1,776	10	0	4	1,749	16	0	3	2	5	0	10	4	155	3,764	0
Peak Hour	**All**	**0**	**14**	**932**	**5**	**0**	**3**	**880**	**5**	**0**	**1**	**0**	**2**	**0**	**4**	**3**	**86**	**1,935**	**0**
	HV	**0**	**0**	**22**	**1**	**0**	**0**	**24**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**49**	**0**
	HV%	**-**	**0%**	**2%**	**20%**	**-**	**0%**	**3%**	**0%**	**-**	**0%**	**-**	**50%**	**-**	**0%**	**0%**	**1%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**3**	**6**	**0**	**0**	***9***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**13**	**6**	*21*
7:15 AM	**8**	**4**	**1**	**0**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**12**	**3**	*16*
7:30 AM	**5**	**5**	**0**	**1**	***11***	**0**	**0**	**0**	**0**	***0***	**5**	**3**	**12**	**4**	*24*
7:45 AM	**7**	**9**	**0**	**0**	***16***	**0**	**0**	**0**	**0**	***0***	**5**	**4**	**5**	**2**	***16***
8:00 AM	8	7	0	0	*15*	0	0	0	0	*0*	1	0	12	4	*17*
8:15 AM	4	7	0	0	*11*	0	0	0	0	*0*	4	2	15	2	*23*
8:30 AM	9	16	0	0	*25*	0	0	0	0	*0*	2	1	9	1	*13*
8:45 AM	9	11	0	0	*20*	0	0	0	0	*0*	2	4	9	6	*21*
Count Total	53	65	1	1	*120*	0	0	0	0	*0*	21	15	87	28	*151*
Peak Hour	**23**	**24**	**1**	**1**	***49***	**0**	**0**	**0**	**0**	***0***	**12**	**8**	**42**	**15**	***77***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound				James St Westbound				8th Ave Northbound				8th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**2**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	0
7:15 AM	**0**	**0**	**8**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**13**	0
7:30 AM	**0**	**0**	**5**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**11**	0
7:45 AM	**0**	**0**	**7**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**49**
8:00 AM	0	0	8	0	0	0	7	0	0	0	0	0	0	0	0	0	15	55
8:15 AM	0	0	4	0	0	0	7	0	0	0	0	0	0	0	0	0	11	53
8:30 AM	0	0	9	0	0	0	16	0	0	0	0	0	0	0	0	0	25	67
8:45 AM	0	0	9	0	0	0	11	0	0	0	0	0	0	0	0	0	20	71
Count Total	0	0	52	1	0	0	65	0	0	0	0	1	0	0	0	1	120	0
Peak Hour	**0**	**0**	**22**	**1**	**0**	**0**	**24**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**49**	**0**

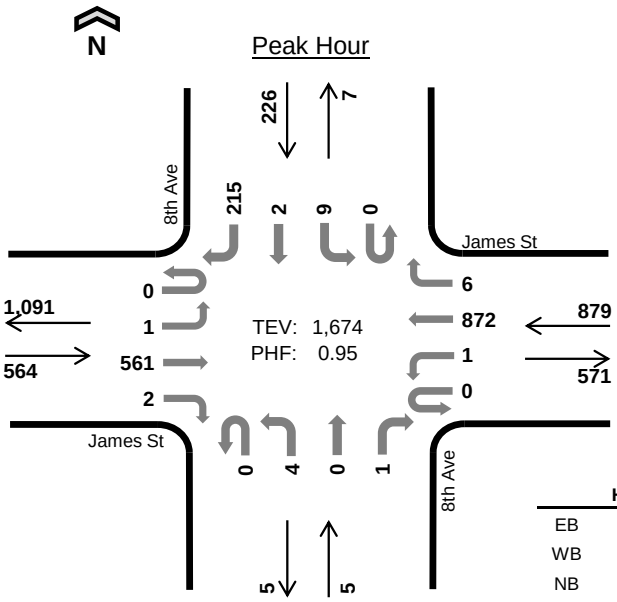
Two-Hour Count Summaries - Bikes

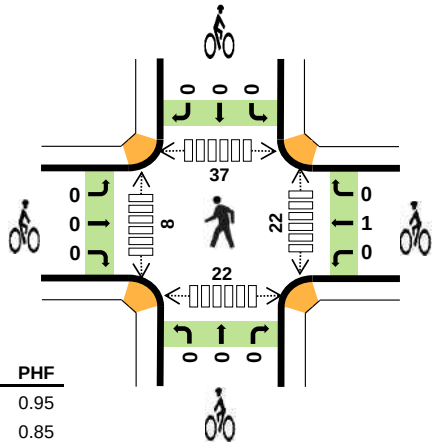
Interval Start	James St Eastbound			James St Westbound			8th Ave Northbound			8th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave
James St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	2.0%	0.95
WB	2.5%	0.85
NB	0.0%	0.42
SB	0.4%	0.84
TOTAL	2.0%	0.95

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				8th Ave Northbound				8th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	2	122	1	0	0	182	1	0	1	1	2	0	3	0	78	393	0
4:15 PM		0	2	87	0	0	0	205	0	0	2	1	0	0	1	0	64	362	0
4:30 PM		0	0	144	0	0	0	214	0	0	4	1	0	0	2	0	70	435	0
4:45 PM		0	1	127	1	0	0	217	0	0	3	0	0	0	2	0	67	418	1,608
5:00 PM		**0**	**0**	**144**	**1**	**0**	**0**	**184**	**3**	**0**	**3**	**0**	**0**	**0**	**2**	**2**	**63**	**402**	1,617
5:15 PM		**0**	**0**	**125**	**0**	**0**	**1**	**215**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**54**	**399**	1,654
5:30 PM		**0**	**0**	**149**	**0**	**0**	**0**	**214**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**63**	**431**	1,650
5:45 PM		**0**	**1**	**143**	**1**	**0**	**0**	**259**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**35**	**442**	**1,674**
Count Total		0	6	1,041	4	0	1	1,690	7	0	14	3	3	0	17	2	494	3,282	0
Peak Hour	**All**	**0**	**1**	**561**	**2**	**0**	**1**	**872**	**6**	**0**	**4**	**0**	**1**	**0**	**9**	**2**	**215**	**1,674**	**0**
	HV	**0**	**0**	**11**	**0**	**0**	**0**	**22**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**34**	**0**
	HV%	**-**	**0%**	**2%**	**0%**	**-**	**0%**	**3%**	**0%**	**-**	**0%**	**-**	**0%**	**-**	**0%**	**0%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	7	6	0	2	*15*	0	0	0	0	*0*	14	5	35	8	*62*
4:15 PM	3	7	0	1	*11*	0	0	0	0	*0*	2	4	12	7	*25*
4:30 PM	3	5	0	0	*8*	0	0	0	0	*0*	11	3	31	9	*54*
4:45 PM	6	4	0	1	*11*	0	0	0	0	*0*	5	1	17	5	*28*
5:00 PM	**1**	**5**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**4**	**2**	**11**	**7**	*24*
5:15 PM	**3**	**3**	**0**	**1**	***7***	**0**	**1**	**0**	**0**	***1***	**13**	**3**	**20**	**9**	*45*
5:30 PM	**4**	**6**	**0**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**3**	**3**	**3**	**6**	*15*
5:45 PM	**3**	**8**	**0**	**0**	***11***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**3**	**0**	***5***
Count Total	30	44	0	5	*79*	0	1	0	0	*1*	54	21	132	51	*258*
Peak Hour	**11**	**22**	**0**	**1**	***34***	**0**	**1**	**0**	**0**	***1***	**22**	**8**	**37**	**22**	***89***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound				James St Westbound				8th Ave Northbound				8th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	6	0	0	0	6	0	0	0	0	0	0	1	0	1	15	0
4:15 PM	0	0	3	0	0	0	7	0	0	0	0	0	0	0	0	1	11	0
4:30 PM	0	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	8	0
4:45 PM	0	0	6	0	0	0	4	0	0	0	0	0	0	0	0	1	11	45
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	36
5:15 PM	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**7**	32
5:30 PM	**0**	**0**	**4**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	34
5:45 PM	**0**	**0**	**3**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**34**
Count Total	0	1	29	0	0	0	44	0	0	0	0	0	0	1	0	4	79	0
Peak Hour	**0**	**0**	**11**	**0**	**0**	**0**	**22**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**34**	**0**

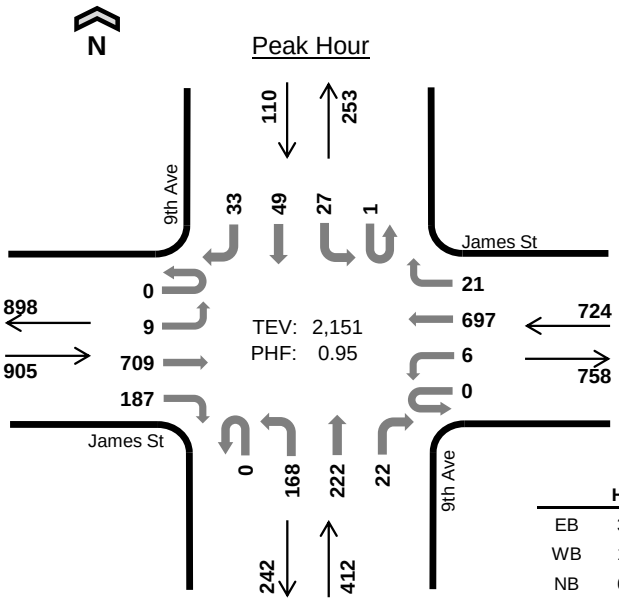
Two-Hour Count Summaries - Bikes

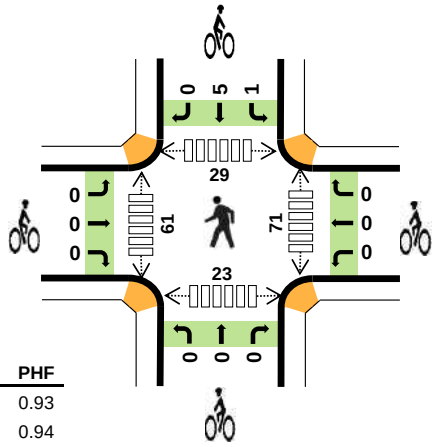
Interval Start	James St Eastbound			James St Westbound			8th Ave Northbound			8th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Count Total	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

9th Ave
James St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	3.1%	0.93
WB	1.8%	0.94
NB	6.3%	0.84
SB	10.0%	0.76
TOTAL	3.6%	0.95

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	4	180	64	0	2	171	3	0	32	32	4	1	2	7	8	510	0
7:15 AM		**0**	**4**	**194**	**41**	**0**	**2**	**161**	**3**	**0**	**38**	**44**	**4**	**0**	**5**	**8**	**4**	**508**	0
7:30 AM		**0**	**2**	**169**	**38**	**0**	**1**	**186**	**6**	**0**	**47**	**73**	**3**	**0**	**10**	**15**	**11**	**561**	0
7:45 AM		**0**	**1**	**182**	**61**	**0**	**1**	**179**	**9**	**0**	**42**	**55**	**7**	**1**	**6**	**13**	**11**	**568**	2,147
8:00 AM		**0**	**2**	**164**	**47**	**0**	**2**	**171**	**3**	**0**	**41**	**50**	**8**	**0**	**6**	**13**	**7**	**514**	**2,151**
8:15 AM		0	2	172	37	0	2	178	7	0	34	29	1	0	10	5	6	483	2,126
8:30 AM		0	6	170	40	0	2	172	4	0	31	29	3	0	2	11	20	490	2,055
8:45 AM		0	3	176	39	0	2	179	3	0	31	50	4	0	1	18	14	520	2,007
Count Total		0	24	1,407	367	0	14	1,397	38	0	296	362	34	2	42	90	81	4,154	0
Peak Hour	**All**	**0**	**9**	**709**	**187**	**0**	**6**	**697**	**21**	**0**	**168**	**222**	**22**	**1**	**27**	**49**	**33**	**2,151**	**0**
	HV	**0**	**0**	**17**	**11**	**0**	**0**	**13**	**0**	**0**	**12**	**13**	**1**	**0**	**1**	**10**	**0**	**78**	**0**
	HV%	**-**	**0%**	**2%**	**6%**	**-**	**0%**	**2%**	**0%**	**-**	**7%**	**6%**	**5%**	**0%**	**4%**	**20%**	**0%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	3	7	2	*15*	0	0	0	0	*0*	12	12	5	6	*35*
7:15 AM	**10**	**3**	**4**	**2**	***19***	**0**	**0**	**0**	**1**	***1***	**10**	**15**	**6**	**3**	*34*
7:30 AM	**4**	**2**	**7**	**5**	***18***	**0**	**0**	**0**	**0**	***0***	**26**	**20**	**5**	**9**	*60*
7:45 AM	**7**	**5**	**8**	**3**	***23***	**0**	**0**	**0**	**3**	***3***	**12**	**11**	**5**	**3**	*31*
8:00 AM	**7**	**3**	**7**	**1**	***18***	**0**	**0**	**0**	**2**	***2***	**23**	**15**	**13**	**8**	***59***
8:15 AM	3	6	3	4	*16*	0	0	2	1	*3*	8	20	11	12	*51*
8:30 AM	10	10	8	2	*30*	0	0	1	0	*1*	21	11	13	7	*52*
8:45 AM	9	9	5	4	*27*	0	0	2	0	*2*	24	18	10	9	*61*
Count Total	53	41	49	23	*166*	0	0	5	7	*12*	136	122	68	57	*383*
Peak Hour	**28**	**13**	**26**	**11**	***78***	**0**	**0**	**0**	**6**	***6***	**71**	**61**	**29**	**23**	***184***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound				James St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	1	2	0	0	3	0	0	3	3	1	0	0	2	0	15	0
7:15 AM	**0**	**0**	**6**	**4**	**0**	**0**	**3**	**0**	**0**	**1**	**2**	**1**	**0**	**0**	**2**	**0**	**19**	0
7:30 AM	**0**	**0**	**1**	**3**	**0**	**0**	**2**	**0**	**0**	**3**	**4**	**0**	**0**	**1**	**4**	**0**	**18**	0
7:45 AM	**0**	**0**	**5**	**2**	**0**	**0**	**5**	**0**	**0**	**4**	**4**	**0**	**0**	**0**	**3**	**0**	**23**	75
8:00 AM	**0**	**0**	**5**	**2**	**0**	**0**	**3**	**0**	**0**	**4**	**3**	**0**	**0**	**0**	**1**	**0**	**18**	**78**
8:15 AM	0	0	1	2	0	0	6	0	0	1	2	0	0	1	3	0	16	75
8:30 AM	0	1	5	4	0	0	10	0	0	5	3	0	0	0	1	1	30	87
8:45 AM	0	0	5	4	0	0	9	0	0	2	3	0	0	0	4	0	27	91
Count Total	0	1	29	23	0	0	41	0	0	23	24	2	0	2	20	1	166	0
Peak Hour	**0**	**0**	**17**	**11**	**0**	**0**	**13**	**0**	**0**	**12**	**13**	**1**	**0**	**1**	**10**	**0**	**78**	**0**

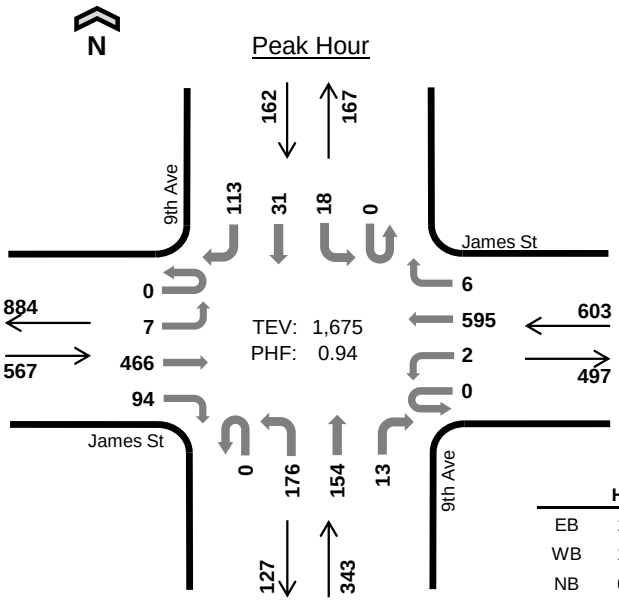
Two-Hour Count Summaries - Bikes

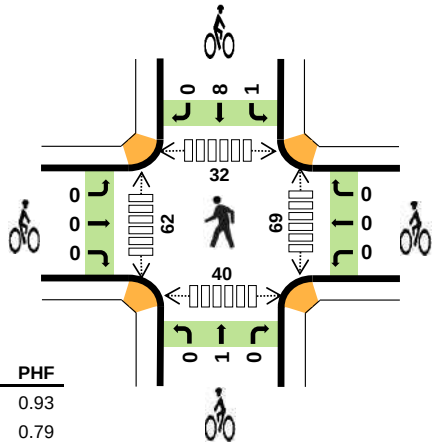
Interval Start	James St Eastbound			James St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	4
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**2**	**6**
8:15 AM	0	0	0	0	0	0	0	2	0	0	1	0	3	8
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	9
8:45 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	8
Count Total	0	0	0	0	0	0	0	5	0	1	6	0	12	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**6**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

9th Ave
James St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	1.9%	0.93
WB	1.7%	0.79
NB	6.7%	0.81
SB	3.1%	0.92
TOTAL	2.9%	0.94

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	1	104	24	0	0	118	0	0	47	37	3	0	0	14	21	369	0
4:15 PM		0	0	70	21	0	2	140	1	0	40	48	1	0	3	12	21	359	0
4:30 PM		0	1	118	26	0	2	126	1	0	47	60	1	0	6	10	42	440	0
4:45 PM		0	1	103	24	0	1	135	2	0	48	45	2	0	8	14	26	409	1,577
5:00 PM		**0**	**2**	**117**	**26**	**0**	**2**	**132**	**2**	**0**	**42**	**39**	**4**	**0**	**9**	**10**	**20**	**405**	1,613
5:15 PM		**0**	**3**	**105**	**23**	**0**	**0**	**131**	**0**	**0**	**50**	**30**	**1**	**0**	**1**	**6**	**31**	**381**	1,635
5:30 PM		**0**	**1**	**127**	**25**	**0**	**0**	**145**	**1**	**0**	**46**	**53**	**7**	**0**	**2**	**9**	**30**	**446**	1,641
5:45 PM		**0**	**1**	**117**	**20**	**0**	**0**	**187**	**3**	**0**	**38**	**32**	**1**	**0**	**6**	**6**	**32**	**443**	**1,675**
Count Total		0	10	861	189	0	7	1,114	10	0	358	344	20	0	35	81	223	3,252	0
Peak Hour	**All**	**0**	**7**	**466**	**94**	**0**	**2**	**595**	**6**	**0**	**176**	**154**	**13**	**0**	**18**	**31**	**113**	**1,675**	**0**
	HV	**0**	**0**	**1**	**10**	**0**	**0**	**10**	**0**	**0**	**12**	**11**	**0**	**0**	**0**	**5**	**0**	**49**	**0**
	HV%	**-**	**0%**	**0%**	**11%**	**-**	**0%**	**2%**	**0%**	**-**	**7%**	**7%**	**0%**	**-**	**0%**	**16%**	**0%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	6	2	6	3	*17*	0	0	0	1	*1*	31	34	11	14	*90*
4:15 PM	4	4	8	3	*19*	0	0	2	1	*3*	19	30	11	11	*71*
4:30 PM	3	2	8	2	*15*	0	0	0	0	*0*	30	32	13	13	*88*
4:45 PM	6	2	7	1	*16*	0	0	1	2	*3*	23	20	15	9	*67*
5:00 PM	**1**	**2**	**4**	**1**	***8***	**0**	**0**	**0**	**2**	***2***	**19**	**23**	**11**	**8**	*61*
5:15 PM	**3**	**0**	**6**	**1**	***10***	**0**	**0**	**0**	**1**	***1***	**19**	**16**	**9**	**15**	*59*
5:30 PM	**3**	**4**	**6**	**1**	***14***	**0**	**0**	**1**	**4**	***5***	**17**	**16**	**9**	**12**	*54*
5:45 PM	**4**	**4**	**7**	**2**	***17***	**0**	**0**	**0**	**2**	***2***	**14**	**7**	**3**	**5**	***29***
Count Total	30	20	52	14	*116*	0	0	4	13	*17*	172	178	82	87	*519*
Peak Hour	**11**	**10**	**23**	**5**	***49***	**0**	**0**	**1**	**9**	***10***	**69**	**62**	**32**	**40**	***203***

Two-Hour Count Summaries - Heavy Vehicles

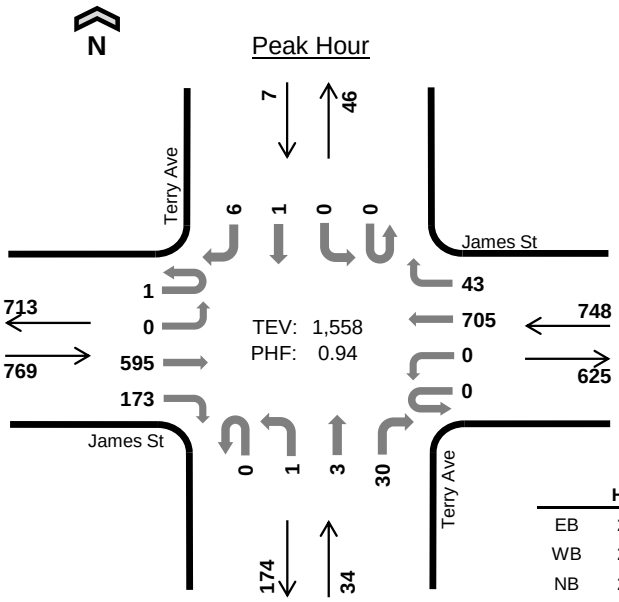
Interval Start	James St Eastbound				James St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	4	2	0	0	2	0	0	4	2	0	0	0	3	0	17	0
4:15 PM	0	0	1	3	0	0	4	0	0	3	5	0	0	2	1	0	19	0
4:30 PM	0	0	1	2	0	0	2	0	0	3	5	0	0	0	2	0	15	0
4:45 PM	0	0	3	3	0	0	2	0	0	2	4	1	0	0	1	0	16	67
5:00 PM	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**1**	**0**	**8**	58
5:15 PM	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**0**	**0**	**0**	**1**	**0**	**10**	49
5:30 PM	**0**	**0**	**0**	**3**	**0**	**0**	**4**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**1**	**0**	**14**	48
5:45 PM	**0**	**0**	**1**	**3**	**0**	**0**	**4**	**0**	**0**	**5**	**2**	**0**	**0**	**0**	**2**	**0**	**17**	**49**
Count Total	0	0	10	20	0	0	20	0	0	24	27	1	0	2	12	0	116	0
Peak Hour	**0**	**0**	**1**	**10**	**0**	**0**	**10**	**0**	**0**	**12**	**11**	**0**	**0**	**0**	**5**	**0**	**49**	**0**

Two-Hour Count Summaries - Bikes

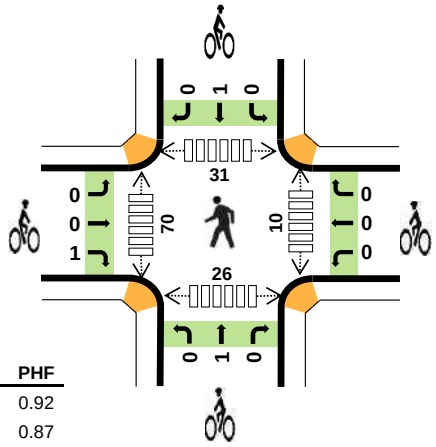
Interval Start	James St Eastbound			James St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:15 PM	0	0	0	0	0	0	0	2	0	0	1	0	3	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	2	0	3	7
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	8
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	6
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**5**	11
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**2**	**10**
Count Total	0	0	0	0	0	0	0	4	0	1	12	0	17	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**8**	**0**	**10**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Terry Ave
James St



Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



	HV %:	PHF
EB	2.2%	0.92
WB	2.5%	0.87
NB	2.9%	0.45
SB	0.0%	0.58
TOTAL	2.4%	0.94

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				Terry Ave Northbound				Terry Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		**0**	**0**	**139**	**47**	**0**	**0**	**169**	**9**	**0**	**0**	**0**	**6**	**0**	**0**	**1**	**2**	**373**	0
7:15 AM		**0**	**0**	**160**	**49**	**0**	**0**	**157**	**11**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**2**	**383**	0
7:30 AM		**0**	**0**	**150**	**32**	**0**	**0**	**205**	**9**	**0**	**0**	**1**	**18**	**0**	**0**	**0**	**1**	**416**	0
7:45 AM		**1**	**0**	**146**	**45**	**0**	**0**	**174**	**14**	**0**	**1**	**1**	**3**	**0**	**0**	**0**	**1**	**386**	**1,558**
8:00 AM		0	0	151	36	0	0	164	9	0	0	0	3	0	0	0	5	368	1,553
8:15 AM		0	0	143	34	0	0	180	8	0	0	0	8	0	0	1	8	382	1,552
8:30 AM		0	0	127	37	0	0	172	13	0	0	0	5	0	0	0	3	357	1,493
8:45 AM		0	0	154	33	0	0	177	11	0	1	1	6	0	0	0	3	386	1,493
Count Total		1	0	1,170	313	0	0	1,398	84	0	2	4	52	0	0	2	25	3,051	0
Peak Hour	**All**	**1**	**0**	**595**	**173**	**0**	**0**	**705**	**43**	**0**	**1**	**3**	**30**	**0**	**0**	**1**	**6**	**1,558**	**0**
	HV	**0**	**0**	**15**	**2**	**0**	**0**	**16**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**37**	**0**
	HV%	**0%**	**-**	**3%**	**1%**	**-**	**-**	**2%**	**7%**	**-**	**0%**	**0%**	**3%**	**-**	**-**	**0%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**2**	**5**	**1**	**0**	***8***	**0**	**0**	**1**	**0**	***1***	**1**	**10**	**3**	**8**	*22*
7:15 AM	**7**	**3**	**0**	**0**	***10***	**0**	**0**	**0**	**1**	***1***	**2**	**12**	**5**	**2**	*21*
7:30 AM	**4**	**5**	**0**	**0**	***9***	**0**	**0**	**0**	**0**	***0***	**1**	**26**	**17**	**11**	*55*
7:45 AM	**4**	**6**	**0**	**0**	***10***	**1**	**0**	**0**	**0**	***1***	**6**	**22**	**6**	**5**	***39***
8:00 AM	5	2	1	0	*8*	1	1	0	0	*2*	0	16	12	7	*35*
8:15 AM	2	6	0	1	*9*	0	0	0	1	*1*	1	21	12	17	*51*
8:30 AM	5	9	0	0	*14*	1	0	0	0	*1*	2	15	11	10	*38*
8:45 AM	4	9	0	0	*13*	0	0	0	1	*1*	0	14	5	11	*30*
Count Total	33	45	2	1	*81*	3	1	1	3	*8*	13	136	71	71	*291*
Peak Hour	**17**	**19**	**1**	**0**	***37***	**1**	**0**	**1**	**1**	***3***	**10**	**70**	**31**	**26**	***137***

Two-Hour Count Summaries - Heavy Vehicles

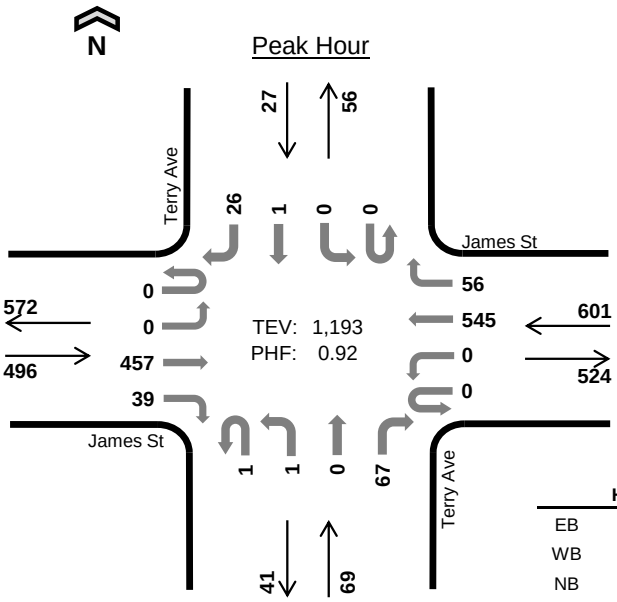
Interval Start	James St Eastbound				James St Westbound				Terry Ave Northbound				Terry Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**1**	**1**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**8**	0
7:15 AM	**0**	**0**	**7**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	0
7:30 AM	**0**	**0**	**4**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	0
7:45 AM	**0**	**0**	**3**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**37**
8:00 AM	0	0	5	0	0	0	2	0	0	0	0	1	0	0	0	0	8	37
8:15 AM	0	0	2	0	0	0	5	1	0	0	0	0	0	0	0	1	9	36
8:30 AM	0	0	5	0	0	0	9	0	0	0	0	0	0	0	0	0	14	41
8:45 AM	0	0	3	1	0	0	8	1	0	0	0	0	0	0	0	0	13	44
Count Total	0	0	30	3	0	0	40	5	0	0	0	2	0	0	0	1	81	0
Peak Hour	**0**	**0**	**15**	**2**	**0**	**0**	**16**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**37**	**0**

Two-Hour Count Summaries - Bikes

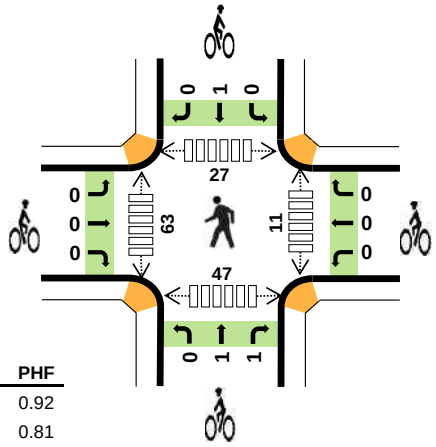
Interval Start	James St Eastbound			James St Westbound			Terry Ave Northbound			Terry Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**
8:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	2	4
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	4
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	5
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	5
Count Total	0	0	3	1	0	0	0	1	0	0	3	0	8	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**3**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Terry Ave
James St



Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	0.2%	0.92
WB	1.8%	0.81
NB	1.4%	0.69
SB	0.0%	0.61
TOTAL	1.1%	0.92

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				Terry Ave Northbound				Terry Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	91	16	0	0	106	8	0	0	2	16	0	0	0	4	243	0
4:15 PM		0	0	67	8	0	0	135	11	0	0	0	21	0	0	1	6	249	0
4:30 PM		0	0	108	14	0	0	110	10	0	0	0	15	0	0	1	13	271	0
4:45 PM		0	0	102	8	0	0	136	7	0	0	0	16	0	0	0	5	274	1,037
5:00 PM		**0**	**0**	**120**	**11**	**0**	**0**	**122**	**12**	**1**	**0**	**0**	**16**	**0**	**0**	**1**	**10**	**293**	1,087
5:15 PM		**0**	**0**	**97**	**11**	**0**	**0**	**119**	**10**	**0**	**0**	**0**	**25**	**0**	**0**	**0**	**6**	**268**	1,106
5:30 PM		**0**	**0**	**127**	**8**	**0**	**0**	**136**	**16**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**5**	**308**	1,143
5:45 PM		**0**	**0**	**113**	**9**	**0**	**0**	**168**	**18**	**0**	**1**	**0**	**10**	**0**	**0**	**0**	**5**	**324**	**1,193**
Count Total		0	0	825	85	0	0	1,032	92	1	1	2	135	0	0	3	54	2,230	0
Peak Hour	**All**	**0**	**0**	**457**	**39**	**0**	**0**	**545**	**56**	**1**	**1**	**0**	**67**	**0**	**0**	**1**	**26**	**1,193**	**0**
	HV	**0**	**0**	**1**	**0**	**0**	**0**	**10**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**13**	**0**
	HV%	**-**	**-**	**0%**	**0%**	**-**	**-**	**2%**	**2%**	**0%**	**0%**	**-**	**1%**	**-**	**-**	**0%**	**0%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	2	0	0	*7*	0	0	1	0	*1*	4	31	19	9	*63*
4:15 PM	2	3	0	0	*5*	0	0	0	0	*0*	1	14	12	10	*37*
4:30 PM	1	2	0	0	*3*	0	0	0	0	*0*	7	21	9	15	*52*
4:45 PM	4	4	0	0	*8*	0	0	0	1	*1*	4	15	6	7	*32*
5:00 PM	**0**	**2**	**1**	**0**	***3***	**0**	**0**	**1**	**0**	***1***	**2**	**24**	**10**	**22**	*58*
5:15 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**1**	***1***	**4**	**17**	**12**	**9**	*42*
5:30 PM	**0**	**4**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**5**	**13**	**4**	**7**	*29*
5:45 PM	**1**	**4**	**0**	**0**	***5***	**0**	**0**	**1**	**0**	***1***	**0**	**9**	**1**	**9**	***19***
Count Total	13	22	1	0	*36*	0	0	3	2	*5*	27	144	73	88	*332*
Peak Hour	**1**	**11**	**1**	**0**	***13***	**0**	**0**	**2**	**1**	***3***	**11**	**63**	**27**	**47**	***148***

Two-Hour Count Summaries - Heavy Vehicles

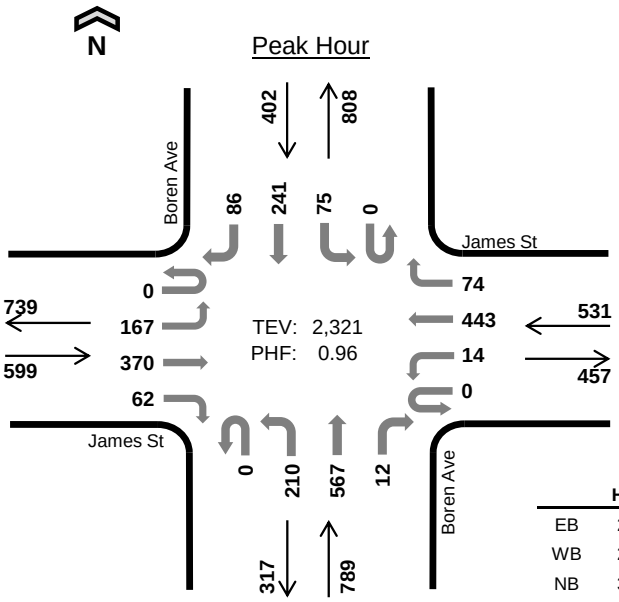
Interval Start	James St Eastbound				James St Westbound				Terry Ave Northbound				Terry Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	7	0
4:15 PM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5	0
4:30 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0
4:45 PM	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	8	23
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	19
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	15
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	16
5:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**13**
Count Total	0	0	13	0	0	0	21	1	0	0	0	1	0	0	0	0	36	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**10**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**13**	**0**

Two-Hour Count Summaries - Bikes

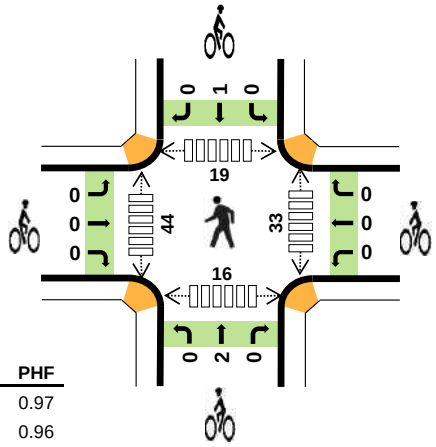
Interval Start	James St Eastbound			James St Westbound			Terry Ave Northbound			Terry Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	3
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**3**
Count Total	0	0	0	0	0	0	0	2	1	0	2	0	5	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**3**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Boren Ave
James St



Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	2.5%	0.97
WB	2.6%	0.96
NB	3.4%	0.95
SB	5.2%	0.83
TOTAL	3.3%	0.96

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				Boren Ave Northbound				Boren Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	56	65	24	0	5	122	12	0	59	92	1	0	20	43	10	509	0
7:15 AM		0	64	63	25	0	4	99	19	0	41	103	1	0	18	46	14	497	0
7:30 AM		0	47	86	29	0	8	149	13	0	64	137	1	0	22	48	14	618	0
7:45 AM		1	47	87	17	0	6	122	10	0	40	140	4	0	20	54	7	555	2,179
8:00 AM		**0**	**42**	**91**	**16**	**0**	**3**	**109**	**19**	**0**	**60**	**127**	**3**	**0**	**15**	**56**	**17**	**558**	2,228
8:15 AM		**0**	**41**	**93**	**15**	**0**	**2**	**108**	**28**	**0**	**52**	**130**	**3**	**0**	**27**	**60**	**14**	**573**	2,304
8:30 AM		**0**	**38**	**87**	**22**	**0**	**3**	**119**	**16**	**0**	**58**	**146**	**2**	**0**	**14**	**56**	**22**	**583**	2,269
8:45 AM		**0**	**46**	**99**	**9**	**0**	**6**	**107**	**11**	**0**	**40**	**164**	**4**	**0**	**19**	**69**	**33**	**607**	**2,321**
Count Total		1	381	671	157	0	37	935	128	0	414	1,039	19	0	155	432	131	4,500	0
Peak Hour	**All**	**0**	**167**	**370**	**62**	**0**	**14**	**443**	**74**	**0**	**210**	**567**	**12**	**0**	**75**	**241**	**86**	**2,321**	**0**
	HV	**0**	**3**	**11**	**1**	**0**	**0**	**14**	**0**	**0**	**10**	**16**	**1**	**0**	**2**	**16**	**3**	**77**	**0**
	HV%	**-**	**2%**	**3%**	**2%**	**-**	**0%**	**3%**	**0%**	**-**	**5%**	**3%**	**8%**	**-**	**3%**	**7%**	**3%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	1	7	2	*13*	0	0	1	0	*1*	3	11	3	5	*22*
7:15 AM	6	4	4	5	*19*	0	0	0	0	*0*	0	10	6	0	*16*
7:30 AM	4	2	8	4	*18*	0	0	0	0	*0*	4	10	8	4	*26*
7:45 AM	3	3	7	5	*18*	0	0	0	0	*0*	10	16	7	5	*38*
8:00 AM	**6**	**1**	**5**	**4**	***16***	**0**	**0**	**2**	**1**	***3***	**8**	**11**	**0**	**5**	*24*
8:15 AM	**2**	**2**	**10**	**6**	***20***	**0**	**0**	**0**	**0**	***0***	**13**	**13**	**8**	**6**	*40*
8:30 AM	**5**	**5**	**9**	**4**	***23***	**0**	**0**	**0**	**0**	***0***	**9**	**10**	**6**	**3**	*28*
8:45 AM	**2**	**6**	**3**	**7**	***18***	**0**	**0**	**0**	**0**	***0***	**3**	**10**	**5**	**2**	***20***
Count Total	31	24	53	37	*145*	0	0	3	1	*4*	50	91	43	30	*214*
Peak Hour	**15**	**14**	**27**	**21**	***77***	**0**	**0**	**2**	**1**	***3***	**33**	**44**	**19**	**16**	***112***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound				James St Westbound				Boren Ave Northbound				Boren Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	1	0	0	0	1	0	0	3	4	0	0	0	2	0	13	0
7:15 AM	0	2	3	1	0	1	3	0	0	0	4	0	0	2	2	1	19	0
7:30 AM	0	1	2	1	0	0	1	1	0	3	5	0	0	0	3	1	18	0
7:45 AM	0	1	1	1	0	0	3	0	0	3	4	0	0	1	4	0	18	68
8:00 AM	**0**	**0**	**6**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	**1**	**2**	**1**	**16**	71
8:15 AM	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	**6**	**0**	**0**	**1**	**5**	**0**	**20**	72
8:30 AM	**0**	**3**	**2**	**0**	**0**	**0**	**5**	**0**	**0**	**5**	**3**	**1**	**0**	**0**	**4**	**0**	**23**	77
8:45 AM	**0**	**0**	**1**	**1**	**0**	**0**	**6**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**5**	**2**	**18**	**77**
Count Total	0	9	18	4	0	1	22	1	0	19	33	1	0	5	27	5	145	0
Peak Hour	**0**	**3**	**11**	**1**	**0**	**0**	**14**	**0**	**0**	**10**	**16**	**1**	**0**	**2**	**16**	**3**	**77**	**0**

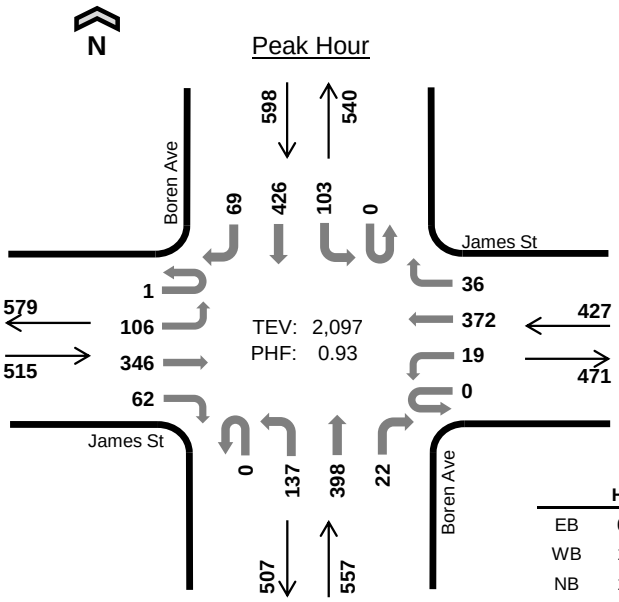
Two-Hour Count Summaries - Bikes

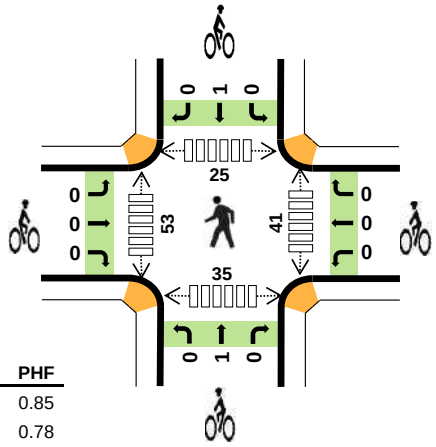
Interval Start	James St Eastbound			James St Westbound			Boren Ave Northbound			Boren Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**3**	3
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
Count Total	0	0	0	0	0	0	0	3	0	0	1	0	4	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**3**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Boren Ave
James St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	0.6%	0.85
WB	1.6%	0.78
NB	1.6%	0.87
SB	2.2%	0.91
TOTAL	1.5%	0.93

Two-Hour Count Summaries

Interval Start		James St Eastbound				James St Westbound				Boren Ave Northbound				Boren Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	20	69	17	0	10	67	7	0	31	123	6	0	17	90	22	479	0
4:15 PM		1	17	52	15	0	12	83	8	0	33	104	6	0	18	93	26	468	0
4:30 PM		0	21	92	14	0	9	84	7	0	25	90	6	0	28	115	21	512	0
4:45 PM		0	21	79	21	0	10	83	10	0	36	121	4	0	13	102	17	517	1,976
5:00 PM		**1**	**26**	**86**	**23**	**0**	**8**	**80**	**6**	**0**	**37**	**96**	**11**	**0**	**23**	**102**	**13**	**512**	2,009
5:15 PM		**0**	**25**	**67**	**13**	**0**	**1**	**67**	**6**	**0**	**32**	**126**	**2**	**0**	**15**	**100**	**21**	**475**	2,016
5:30 PM		**0**	**29**	**109**	**13**	**0**	**5**	**111**	**7**	**0**	**32**	**88**	**6**	**0**	**32**	**116**	**16**	**564**	2,068
5:45 PM		**0**	**26**	**84**	**13**	**0**	**5**	**114**	**17**	**0**	**36**	**88**	**3**	**0**	**33**	**108**	**19**	**546**	**2,097**
Count Total		2	185	638	129	0	60	689	68	0	262	836	44	0	179	826	155	4,073	0
Peak Hour	**All**	**1**	**106**	**346**	**62**	**0**	**19**	**372**	**36**	**0**	**137**	**398**	**22**	**0**	**103**	**426**	**69**	**2,097**	**0**
	HV	**0**	**1**	**2**	**0**	**0**	**1**	**6**	**0**	**0**	**2**	**7**	**0**	**0**	**0**	**8**	**5**	**32**	**0**
	HV%	**0%**	**1%**	**1%**	**0%**	**-**	**5%**	**2%**	**0%**	**-**	**1%**	**2%**	**0%**	**-**	**0%**	**2%**	**7%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	2	3	2	*11*	0	0	0	0	*0*	9	24	12	4	*49*
4:15 PM	3	1	1	2	*7*	0	0	0	0	*0*	9	4	6	6	*25*
4:30 PM	1	0	2	5	*8*	0	0	0	0	*0*	4	14	10	12	*40*
4:45 PM	4	3	3	2	*12*	0	0	0	0	*0*	5	12	10	7	*34*
5:00 PM	**0**	**1**	**2**	**4**	***7***	**0**	**0**	**0**	**1**	***1***	**9**	**17**	**9**	**14**	*49*
5:15 PM	**1**	**0**	**5**	**2**	***8***	**0**	**0**	**1**	**0**	***1***	**11**	**7**	**6**	**7**	*31*
5:30 PM	**1**	**4**	**0**	**2**	***7***	**0**	**0**	**0**	**0**	***0***	**12**	**13**	**2**	**3**	*30*
5:45 PM	**1**	**2**	**2**	**5**	***10***	**0**	**0**	**0**	**0**	***0***	**9**	**16**	**8**	**11**	***44***
Count Total	15	13	18	24	*70*	0	0	1	1	*2*	68	107	63	64	*302*
Peak Hour	**3**	**7**	**9**	**13**	***32***	**0**	**0**	**1**	**1**	***2***	**41**	**53**	**25**	**35**	***154***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound				James St Westbound				Boren Ave Northbound				Boren Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	1	1	0	1	1	0	0	1	1	1	0	0	1	1	11	0
4:15 PM	0	0	3	0	0	0	1	0	0	0	1	0	0	0	2	0	7	0
4:30 PM	0	1	0	0	0	0	0	0	0	1	0	1	0	2	2	1	8	0
4:45 PM	0	1	2	1	0	0	3	0	0	0	3	0	0	0	2	0	12	38
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**3**	**1**	**7**	34
5:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**2**	**0**	**8**	35
5:30 PM	**0**	**0**	**1**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**7**	34
5:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**3**	**10**	**32**
Count Total	0	5	8	2	0	2	11	0	0	4	12	2	0	2	15	7	70	0
Peak Hour	**0**	**1**	**2**	**0**	**0**	**1**	**6**	**0**	**0**	**2**	**7**	**0**	**0**	**0**	**8**	**5**	**32**	**0**

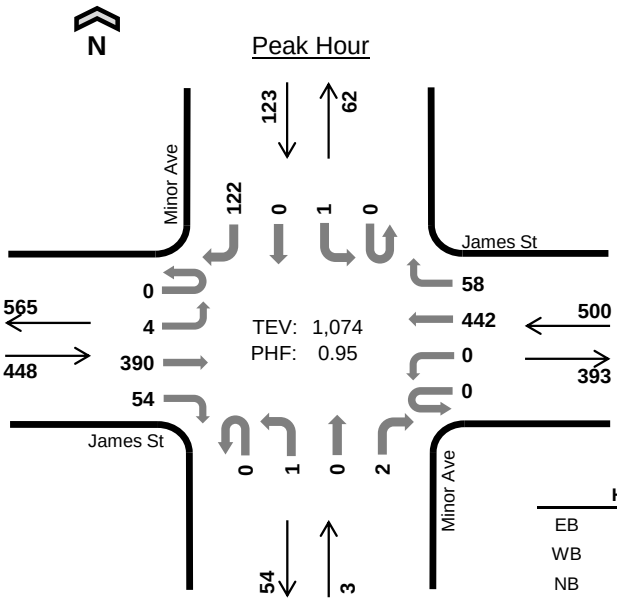
Two-Hour Count Summaries - Bikes

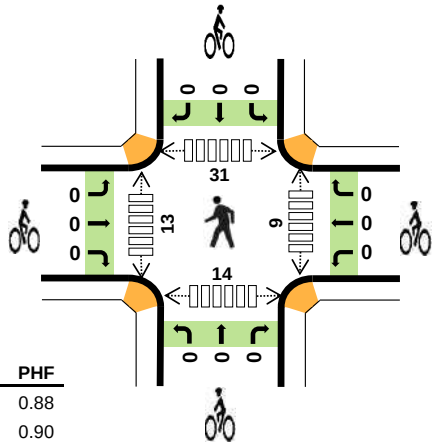
Interval Start	James St Eastbound			James St Westbound			Boren Ave Northbound			Boren Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Count Total	0	0	0	0	0	0	0	1	0	0	1	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Minor Ave
James St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	2.9%	0.88
WB	1.8%	0.90
NB	0.0%	0.75
SB	0.0%	0.54
TOTAL	2.0%	0.95

Two-Hour Count Summaries

Interval Start	James St Eastbound				James St Westbound				Minor Ave Northbound				Minor Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	6	70	14	0	0	94	9	0	0	1	0	0	0	0	33	227	0
7:15 AM	0	2	77	10	0	0	112	10	0	0	0	3	0	0	1	35	250	0
7:30 AM	**0**	**2**	**89**	**8**	**0**	**0**	**109**	**4**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**57**	**270**	0
7:45 AM	**0**	**1**	**98**	**14**	**0**	**0**	**100**	**23**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**31**	**269**	1,016
8:00 AM	**0**	**0**	**94**	**15**	**0**	**0**	**110**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**251**	1,040
8:15 AM	**0**	**1**	**109**	**17**	**0**	**0**	**123**	**16**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**17**	**284**	**1,074**
8:30 AM	0	1	76	15	0	1	123	14	0	0	0	1	0	1	1	7	240	1,044
8:45 AM	0	3	109	13	0	0	114	12	0	0	0	2	0	0	0	19	272	1,047
Count Total	0	16	722	106	0	1	885	103	0	1	1	8	0	2	2	216	2,063	0
Peak Hour All	**0**	**4**	**390**	**54**	**0**	**0**	**442**	**58**	**0**	**1**	**0**	**2**	**0**	**1**	**0**	**122**	**1,074**	**0**
Peak Hour HV	**0**	**0**	**13**	**0**	**0**	**0**	**8**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**0**
Peak Hour HV%	**-**	**0%**	**3%**	**0%**	**-**	**-**	**2%**	**2%**	**-**	**0%**	**-**	**0%**	**-**	**0%**	**-**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	1	0	0	*2*	0	0	0	0	*0*	0	2	7	1	*10*
7:15 AM	5	3	0	1	*9*	0	0	0	0	*0*	3	3	5	4	*15*
7:30 AM	**0**	**2**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**1**	**5**	**11**	**2**	*19*
7:45 AM	**2**	**4**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**2**	**3**	**8**	**6**	*19*
8:00 AM	**8**	**1**	**0**	**0**	***9***	**0**	**0**	**0**	**0**	***0***	**2**	**2**	**4**	**2**	*10*
8:15 AM	**3**	**2**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**4**	**3**	**8**	**4**	***19***
8:30 AM	3	5	0	0	*8*	0	0	0	1	*1*	1	2	3	1	*7*
8:45 AM	2	6	0	0	*8*	0	0	0	0	*0*	2	6	8	6	*22*
Count Total	24	24	0	1	*49*	0	0	0	1	*1*	15	26	54	26	*121*
Peak Hour	**13**	**9**	**0**	**0**	***22***	**0**	**0**	**0**	**0**	***0***	**9**	**13**	**31**	**14**	***67***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound				James St Westbound				Minor Ave Northbound				Minor Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	1	9	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
7:45 AM	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	19
8:00 AM	**0**	**0**	**8**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	26
8:15 AM	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**22**
8:30 AM	0	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	8	28
8:45 AM	0	0	2	0	0	0	6	0	0	0	0	0	0	0	0	0	8	30
Count Total	0	0	24	0	0	0	23	1	0	0	0	0	0	0	0	1	49	0
Peak Hour	**0**	**0**	**13**	**0**	**0**	**0**	**8**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**0**

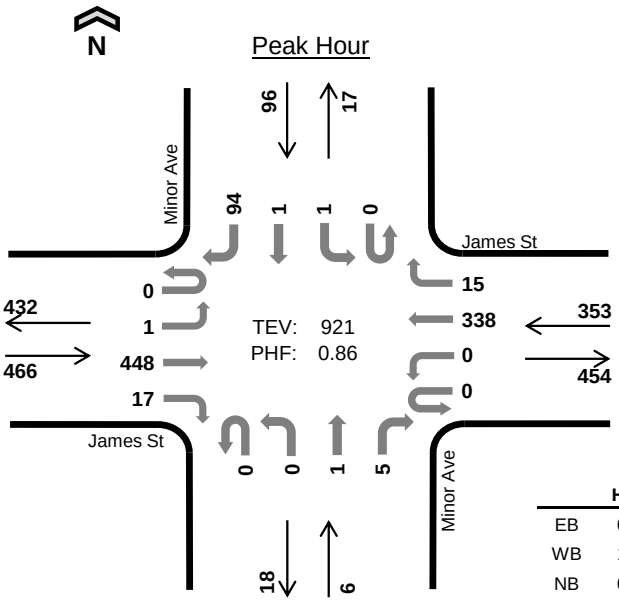
Two-Hour Count Summaries - Bikes

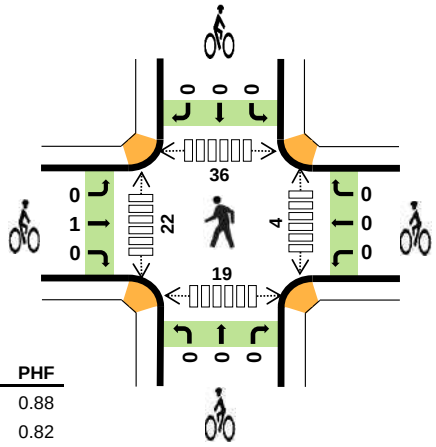
Interval Start	James St Eastbound			James St Westbound			Minor Ave Northbound			Minor Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Minor Ave
James St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	0.4%	0.88
WB	1.4%	0.82
NB	0.0%	0.50
SB	1.0%	0.77
TOTAL	0.9%	0.86

Two-Hour Count Summaries

Interval Start	James St Eastbound				James St Westbound				Minor Ave Northbound				Minor Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	87	7	0	0	68	5	0	0	0	2	0	0	0	17	187	0
4:15 PM	0	0	76	6	0	1	75	8	0	1	0	2	0	0	0	29	198	0
4:30 PM	0	0	111	4	0	0	72	11	0	0	0	4	0	0	0	26	228	0
4:45 PM	0	0	101	5	0	0	64	1	0	1	0	1	0	0	0	30	203	816
5:00 PM	**0**	**0**	**101**	**7**	**0**	**0**	**74**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**28**	**215**	844
5:15 PM	**0**	**0**	**92**	**5**	**0**	**0**	**62**	**4**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**15**	**179**	825
5:30 PM	**0**	**0**	**127**	**5**	**0**	**0**	**96**	**7**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**30**	**268**	865
5:45 PM	**0**	**1**	**128**	**0**	**0**	**0**	**106**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**21**	**259**	**921**
Count Total	0	2	823	39	0	1	617	40	0	2	1	14	0	1	1	196	1,737	0
Peak Hour All	**0**	**1**	**448**	**17**	**0**	**0**	**338**	**15**	**0**	**0**	**1**	**5**	**0**	**1**	**1**	**94**	**921**	**0**
Peak Hour HV	**0**	**0**	**2**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**8**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**0%**	**-**	**-**	**1%**	**0%**	**-**	**-**	**0%**	**0%**	**-**	**0%**	**0%**	**1%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	1	0	1	*4*	0	0	0	0	*0*	0	8	13	9	*30*
4:15 PM	3	2	0	0	*5*	0	0	0	0	*0*	0	2	10	3	*15*
4:30 PM	3	1	1	0	*5*	0	0	0	0	*0*	1	3	8	2	*14*
4:45 PM	2	1	0	1	*4*	0	0	0	0	*0*	1	6	5	10	*22*
5:00 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**3**	**8**	**12**	**9**	*32*
5:15 PM	**0**	**2**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**9**	**4**	*15*
5:30 PM	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**1**	**8**	**3**	**2**	*14*
5:45 PM	**1**	**0**	**0**	**1**	***2***	**1**	**0**	**0**	**0**	***1***	**0**	**4**	**12**	**4**	***20***
Count Total	12	10	1	3	*26*	1	0	0	0	*1*	6	41	72	43	*162*
Peak Hour	**2**	**5**	**0**	**1**	***8***	**1**	**0**	**0**	**0**	***1***	**4**	**22**	**36**	**19**	***81***

Two-Hour Count Summaries - Heavy Vehicles

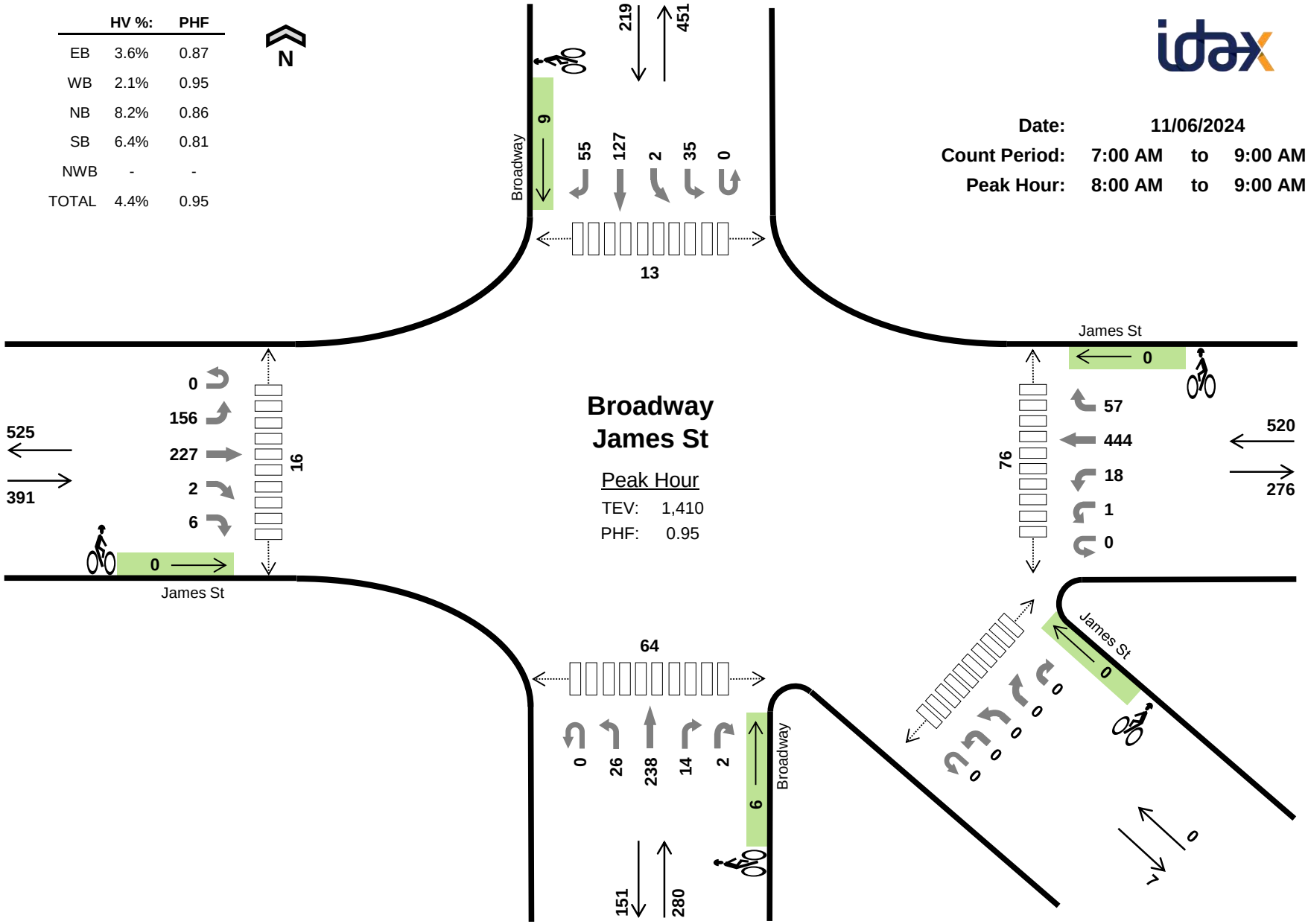
Interval Start	James St Eastbound				James St Westbound				Minor Ave Northbound				Minor Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	1	4	0
4:15 PM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	5	0
4:30 PM	0	0	3	0	0	0	1	0	0	0	0	1	0	0	0	0	5	0
4:45 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	4	18
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	15
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	12
5:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	10
5:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**8**
Count Total	0	0	11	1	0	0	10	0	0	0	0	1	0	0	0	3	26	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**8**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	James St Eastbound			James St Westbound			Minor Ave Northbound			Minor Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
Count Total	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

	HV %:	PHF
EB	3.6%	0.87
WB	2.1%	0.95
NB	8.2%	0.86
SB	6.4%	0.81
NWB	-	-
TOTAL	4.4%	0.95



Broadway
James St

Peak Hour
TEV: 1,410
PHF: 0.95

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Two-Hour Count Summaries

Interval Start		James St Eastbound					James St Westbound					Broadway Northbound					Broadway Southbound					James St Northwestbound					15-min Total	Rolling One Hour
		UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
7:00 AM		0	24	44	0	1	0	0	2	87	6	0	7	53	1	1	0	5	1	21	7	0	0	0	0	0	260	0
7:15 AM		0	34	44	1	0	0	0	3	95	10	0	12	50	3	0	0	3	0	21	13	0	0	0	0	0	289	0
7:30 AM		0	42	50	1	1	0	1	2	94	8	0	9	60	5	0	0	3	0	33	17	0	0	0	0	0	326	0
7:45 AM		0	40	56	1	0	0	0	7	93	11	0	14	62	3	1	0	6	1	32	14	0	0	0	0	0	341	1,216
8:00 AM		**0**	**42**	**47**	**2**	**0**	**0**	**1**	**4**	**117**	**15**	**0**	**7**	**61**	**2**	**0**	**0**	**11**	**0**	**29**	**2**	**0**	**0**	**0**	**0**	**0**	**340**	1,296
8:15 AM		**0**	**31**	**76**	**0**	**3**	**0**	**0**	**4**	**118**	**15**	**0**	**4**	**57**	**4**	**1**	**0**	**7**	**0**	**37**	**15**	**0**	**0**	**0**	**0**	**0**	**372**	1,379
8:30 AM		**0**	**33**	**43**	**0**	**1**	**0**	**0**	**3**	**118**	**8**	**0**	**9**	**66**	**6**	**0**	**0**	**7**	**1**	**28**	**14**	**0**	**0**	**0**	**0**	**0**	**337**	1,390
8:45 AM		**0**	**50**	**61**	**0**	**2**	**0**	**0**	**7**	**91**	**19**	**0**	**6**	**54**	**2**	**1**	**0**	**10**	**1**	**33**	**24**	**0**	**0**	**0**	**0**	**0**	**361**	**1,410**
Count Total		0	296	421	5	8	0	2	32	813	92	0	68	463	26	4	0	52	4	234	106	0	0	0	0	0	2,626	0
Peak Hour	**All**	**0**	**156**	**227**	**2**	**6**	**0**	**1**	**18**	**444**	**57**	**0**	**26**	**238**	**14**	**2**	**0**	**35**	**2**	**127**	**55**	**0**	**0**	**0**	**0**	**0**	**1,410**	**0**
	HV	**0**	**3**	**11**	**0**	**0**	**0**	**0**	**0**	**10**	**1**	**0**	**2**	**19**	**1**	**1**	**0**	**2**	**0**	**10**	**2**	**0**	**0**	**0**	**0**	**0**	**62**	**0**
	HV%	**-**	**2%**	**5%**	**0%**	**0%**	**-**	**0%**	**0%**	**2%**	**2%**	**-**	**8%**	**8%**	**7%**	**50%**	**-**	**6%**	**0%**	**8%**	**4%**	**-**	**-**	**-**	**-**	**-**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NWB	Total	EB	WB	NB	SB	NWB	Total	East	West	North	South	Southeast	Total
7:00 AM	1	1	4	1	0	*7*	0	0	3	2	0	*5*	5	3	5	12	3	*28*
7:15 AM	5	4	3	0	0	*12*	0	0	4	1	0	*5*	12	1	4	5	3	*25*
7:30 AM	2	2	5	3	0	*12*	0	0	3	1	0	*4*	19	1	5	10	2	*37*
7:45 AM	2	2	7	2	0	*13*	0	0	4	1	0	*5*	23	2	8	19	9	*61*
8:00 AM	**6**	**1**	**4**	**2**	**0**	***13***	**0**	**0**	**1**	**1**	**0**	***2***	**21**	**3**	**1**	**16**	**9**	***50***
8:15 AM	**4**	**2**	**5**	**4**	**0**	***15***	**0**	**0**	**2**	**3**	**0**	***5***	**20**	**4**	**6**	**16**	**5**	***51***
8:30 AM	**3**	**4**	**10**	**2**	**0**	***19***	**0**	**0**	**2**	**2**	**0**	***4***	**12**	**6**	**3**	**18**	**4**	***43***
8:45 AM	**1**	**4**	**4**	**6**	**0**	***15***	**0**	**0**	**1**	**3**	**0**	***4***	**23**	**3**	**3**	**14**	**7**	***50***
Count Total	24	20	42	20	0	*106*	0	0	20	14	0	*34*	135	23	35	110	42	*345*
Peak Hr	**14**	**11**	**23**	**14**	**0**	***62***	**0**	**0**	**6**	**9**	**0**	***15***	**76**	**16**	**13**	**64**	**25**	*194*

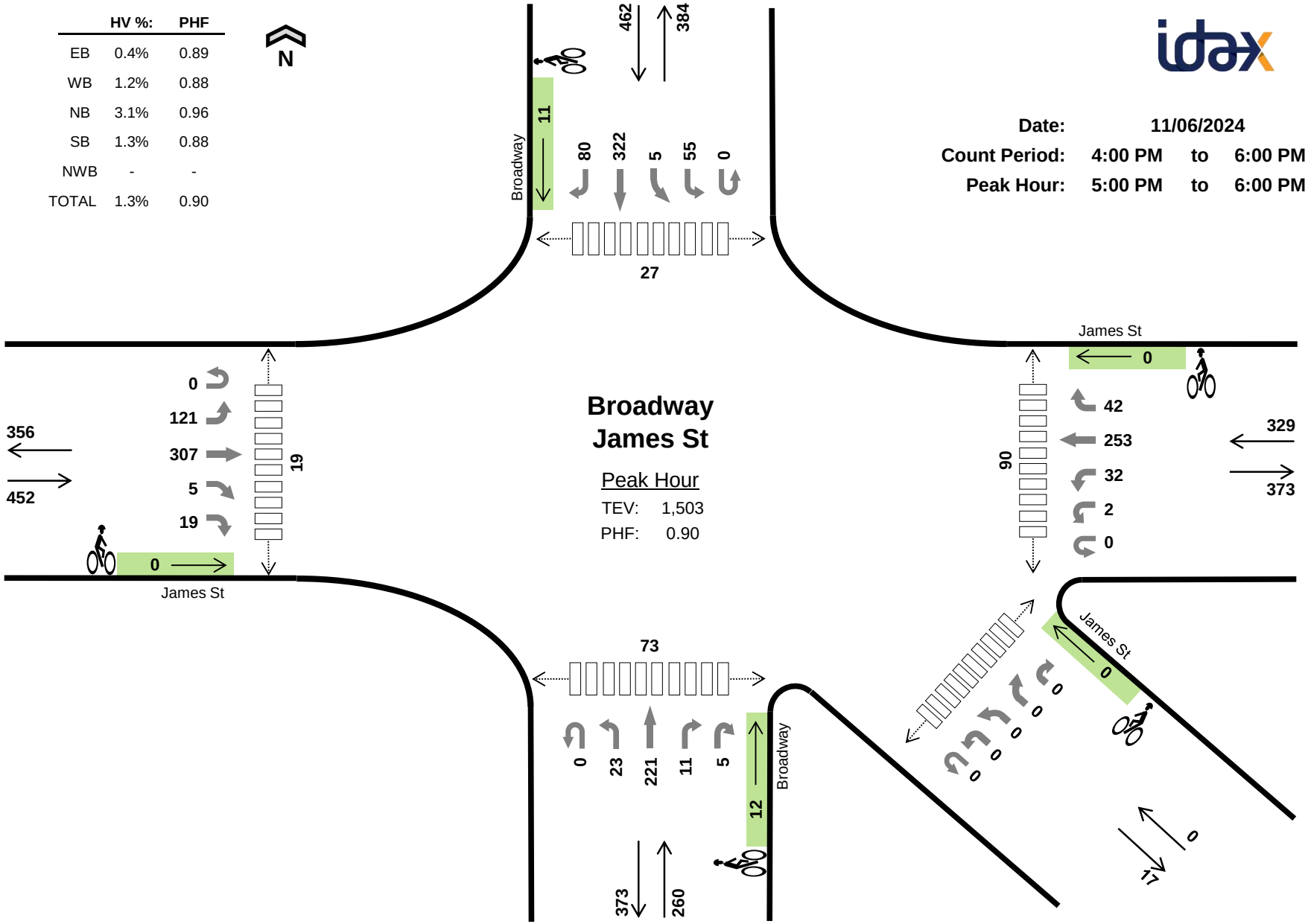
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	James St Eastbound					James St Westbound					Broadway Northbound					Broadway Southbound					James St Northwestbound					15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	1	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	7	0
7:15 AM	0	0	5	0	0	0	0	1	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	12	0
7:30 AM	0	1	1	0	0	0	0	0	2	0	0	0	5	0	0	0	1	0	1	1	0	0	0	0	0	12	0
7:45 AM	0	0	2	0	0	0	0	0	2	0	0	1	6	0	0	0	0	0	2	0	0	0	0	0	0	13	44
8:00 AM	**0**	**1**	**5**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	50
8:15 AM	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	53
8:30 AM	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**8**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	60
8:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**1**	**0**	**2**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**15**	**62**
Count Total	0	4	20	0	0	0	0	1	18	1	0	3	37	1	1	0	3	0	14	3	0	0	0	0	0	106	0
Peak Hour	**0**	**3**	**11**	**0**	**0**	**0**	**0**	**0**	**10**	**1**	**0**	**2**	**19**	**1**	**1**	**0**	**2**	**0**	**10**	**2**	**0**	**0**	**0**	**0**	**0**	62	**0**

Two-Hour Count Summaries - Bikes

Interval Start	James St Eastbound					James St Westbound					Broadway Northbound					Broadway Southbound					James St Northwestbound					15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	0	5	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	5	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	4	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	5	19
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	16
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	16
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	16
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**15**
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	14	0	0	0	0	0	0	34	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	15	**0**

	HV %:	PHF
EB	0.4%	0.89
WB	1.2%	0.88
NB	3.1%	0.96
SB	1.3%	0.88
NWB	-	-
TOTAL	1.3%	0.90



Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Two-Hour Count Summaries

Interval Start		James St Eastbound					James St Westbound					Broadway Northbound					Broadway Southbound					James St Northwestbound					15-min Total	Rolling One Hour
		UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
4:00 PM		0	33	60	0	1	0	0	8	45	11	0	2	42	2	2	0	16	1	81	23	0	0	0	0	0	327	0
4:15 PM		0	25	52	0	2	0	0	10	57	12	0	4	51	2	0	0	11	1	80	23	0	0	0	0	0	330	0
4:30 PM		0	35	69	2	3	0	0	7	61	11	0	3	61	3	1	0	15	0	86	18	0	0	0	0	0	375	0
4:45 PM		0	25	75	1	5	0	0	6	47	11	0	2	41	2	0	0	19	0	76	15	0	0	0	0	0	325	1,357
5:00 PM		**0**	**24**	**75**	**2**	**7**	**0**	**0**	**5**	**59**	**11**	**0**	**9**	**55**	**0**	**0**	**0**	**11**	**0**	**90**	**16**	**0**	**0**	**0**	**0**	**0**	**364**	1,394
5:15 PM		**0**	**28**	**60**	**0**	**4**	**0**	**0**	**12**	**43**	**13**	**0**	**3**	**53**	**5**	**1**	**0**	**10**	**3**	**76**	**18**	**0**	**0**	**0**	**0**	**0**	**329**	1,393
5:30 PM		**0**	**36**	**83**	**0**	**6**	**0**	**1**	**8**	**72**	**12**	**0**	**6**	**56**	**3**	**3**	**0**	**21**	**1**	**87**	**22**	**0**	**0**	**0**	**0**	**0**	**417**	1,435
5:45 PM		**0**	**33**	**89**	**3**	**2**	**0**	**1**	**7**	**79**	**6**	**0**	**5**	**57**	**3**	**1**	**0**	**13**	**1**	**69**	**24**	**0**	**0**	**0**	**0**	**0**	**393**	**1,503**
Count Total		0	239	563	8	30	0	2	63	463	87	0	34	416	20	8	0	116	7	645	159	0	0	0	0	0	2,860	0
Peak Hour	**All**	**0**	**121**	**307**	**5**	**19**	**0**	**2**	**32**	**253**	**42**	**0**	**23**	**221**	**11**	**5**	**0**	**55**	**5**	**322**	**80**	**0**	**0**	**0**	**0**	**0**	**1,503**	**0**
	HV	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**20**	**0**
	HV%	**-**	**0%**	**1%**	**0%**	**0%**	**-**	**0%**	**0%**	**2%**	**0%**	**-**	**0%**	**4%**	**0%**	**0%**	**-**	**0%**	**0%**	**2%**	**1%**	**-**	**-**	**-**	**-**	**-**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NWB	Total	EB	WB	NB	SB	NWB	Total	East	West	North	South	Southeast	Total
4:00 PM	1	1	2	5	0	*9*	0	0	6	1	0	*7*	26	4	6	26	13	*75*
4:15 PM	3	2	5	0	0	*10*	0	0	5	1	0	*6*	24	9	7	10	6	*56*
4:30 PM	4	1	1	3	0	*9*	0	0	4	4	0	*8*	23	4	3	32	8	*70*
4:45 PM	2	1	1	2	0	*6*	0	0	3	5	0	*8*	16	3	7	14	8	*48*
5:00 PM	**0**	**0**	**3**	**2**	**0**	***5***	**0**	**0**	**6**	**3**	**0**	***9***	**26**	**6**	**7**	**26**	**10**	***75***
5:15 PM	**0**	**1**	**1**	**1**	**0**	***3***	**0**	**0**	**3**	**3**	**0**	***6***	**20**	**4**	**12**	**19**	**5**	***60***
5:30 PM	**1**	**3**	**3**	**2**	**0**	***9***	**0**	**0**	**2**	**1**	**0**	***3***	**22**	**1**	**2**	**13**	**5**	***43***
5:45 PM	**1**	**0**	**1**	**1**	**0**	***3***	**0**	**0**	**1**	**4**	**0**	***5***	**22**	**8**	**6**	**15**	**8**	***59***
Count Total	12	9	17	16	0	*54*	0	0	30	22	0	*52*	179	39	50	155	63	*486*
Peak Hr	**2**	**4**	**8**	**6**	**0**	***20***	**0**	**0**	**12**	**11**	**0**	***23***	**90**	**19**	**27**	**73**	**28**	*237*

project.manager.wa@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

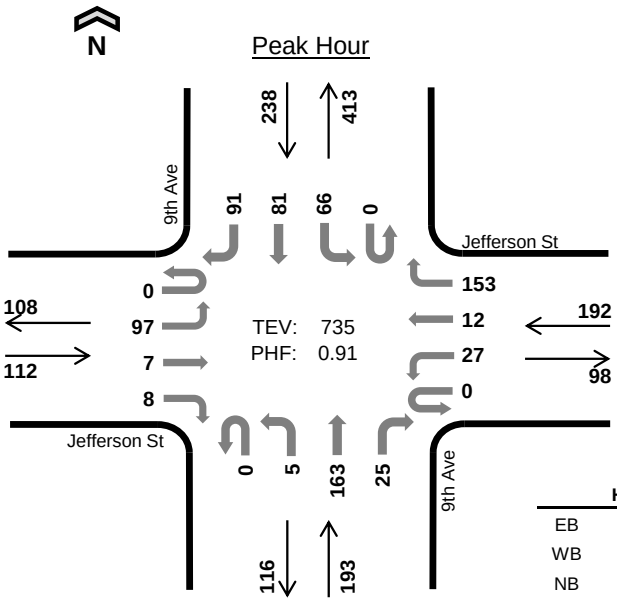
Interval Start	James St Eastbound					James St Westbound					Broadway Northbound					Broadway Southbound					James St Northwestbound					15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	1	0	0	0	0	0	1	0	0	0	2	0	0	0	1	0	4	0	0	0	0	0	0	9	0
4:15 PM	0	1	2	0	0	0	0	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	10	0
4:30 PM	0	2	2	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	2	0	0	0	0	0	0	9	0
4:45 PM	0	1	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	6	34
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	30
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	23
5:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	23
5:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**20**
Count Total	0	4	8	0	0	0	0	0	9	0	0	0	17	0	0	0	2	0	13	1	0	0	0	0	0	54	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	20	**0**

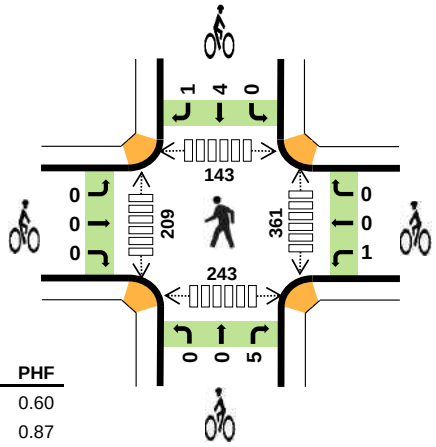
Two-Hour Count Summaries - Bikes

Interval Start	James St Eastbound					James St Westbound					Broadway Northbound					Broadway Southbound					James St Northwestbound					15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	1	0	0	0	0	0	0	7	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0	6	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	0	0	0	8	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	5	0	0	0	0	0	0	8	29
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	31
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	31
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	26
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**23**
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	0	0	0	22	0	0	0	0	0	0	52	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	23	**0**

9th Ave
Jefferson St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	3.6%	0.60
WB	7.3%	0.87
NB	7.8%	0.85
SB	8.8%	0.78
TOTAL	7.3%	0.91

Two-Hour Count Summaries

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	13	0	2	0	8	1	26	0	0	26	9	0	19	35	22	161	0
7:15 AM	**0**	**20**	**1**	**2**	**0**	**7**	**1**	**39**	**0**	**2**	**37**	**5**	**0**	**9**	**22**	**17**	**162**	0
7:30 AM	**0**	**42**	**2**	**3**	**0**	**4**	**2**	**42**	**0**	**1**	**41**	**4**	**0**	**13**	**16**	**23**	**193**	0
7:45 AM	**0**	**21**	**3**	**1**	**0**	**11**	**6**	**38**	**0**	**1**	**37**	**8**	**0**	**23**	**19**	**34**	**202**	718
8:00 AM	**0**	**14**	**1**	**2**	**0**	**5**	**3**	**34**	**0**	**1**	**48**	**8**	**0**	**21**	**24**	**17**	**178**	**735**
8:15 AM	0	10	5	1	0	8	3	27	0	0	29	7	0	9	18	21	138	711
8:30 AM	0	11	3	2	0	4	2	28	0	1	23	8	0	14	18	18	132	650
8:45 AM	0	9	3	1	0	8	13	38	0	2	41	10	0	19	18	23	185	633
Count Total	0	140	18	14	0	55	31	272	0	8	282	59	0	127	170	175	1,351	0
Peak Hour All	**0**	**97**	**7**	**8**	**0**	**27**	**12**	**153**	**0**	**5**	**163**	**25**	**0**	**66**	**81**	**91**	**735**	**0**
Peak Hour HV	**0**	**1**	**1**	**2**	**0**	**3**	**0**	**11**	**0**	**0**	**14**	**1**	**0**	**10**	**10**	**1**	**54**	**0**
Peak Hour HV%	**-**	**1%**	**14%**	**25%**	**-**	**11%**	**0%**	**7%**	**-**	**0%**	**9%**	**4%**	**-**	**15%**	**12%**	**1%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	4	4	4	*14*	0	1	0	0	*1*	48	50	25	64	*187*
7:15 AM	**0**	**1**	**4**	**5**	***10***	**0**	**0**	**0**	**0**	***0***	**68**	**74**	**37**	**68**	*247*
7:30 AM	**1**	**4**	**2**	**7**	***14***	**0**	**0**	**0**	**1**	***1***	**113**	**57**	**39**	**74**	*283*
7:45 AM	**1**	**6**	**4**	**6**	***17***	**0**	**0**	**3**	**3**	***6***	**81**	**48**	**24**	**49**	*202*
8:00 AM	**2**	**3**	**5**	**3**	***13***	**0**	**1**	**2**	**1**	***4***	**99**	**30**	**43**	**52**	***224***
8:15 AM	0	3	2	5	*10*	0	0	1	1	*2*	68	41	24	42	*175*
8:30 AM	4	4	3	5	*16*	0	1	2	0	*3*	73	52	25	40	*190*
8:45 AM	1	4	3	8	*16*	0	4	3	0	*7*	89	44	38	65	*236*
Count Total	11	29	27	43	*110*	0	7	11	6	*24*	639	396	255	454	*1,744*
Peak Hour	**4**	**14**	**15**	**21**	***54***	**0**	**1**	**5**	**5**	***11***	**361**	**209**	**143**	**243**	***956***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	1	0	1	0	3	0	0	2	2	0	3	1	0	14	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**3**	**2**	**0**	**10**	0
7:30 AM	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**2**	**0**	**0**	**2**	**4**	**1**	**14**	0
7:45 AM	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**4**	**0**	**0**	**4**	**0**	**0**	**3**	**3**	**0**	**17**	55
8:00 AM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**4**	**1**	**0**	**2**	**1**	**0**	**13**	**54**
8:15 AM	0	0	0	0	0	1	0	2	0	0	2	0	0	2	3	0	10	54
8:30 AM	0	2	1	1	0	1	0	3	0	0	3	0	0	2	3	0	16	56
8:45 AM	0	0	1	0	0	2	0	2	0	0	3	0	0	4	4	0	16	55
Count Total	0	4	3	4	0	8	0	21	0	0	24	3	0	21	21	1	110	0
Peak Hour	**0**	**1**	**1**	**2**	**0**	**3**	**0**	**11**	**0**	**0**	**14**	**1**	**0**	**10**	**10**	**1**	**54**	**0**

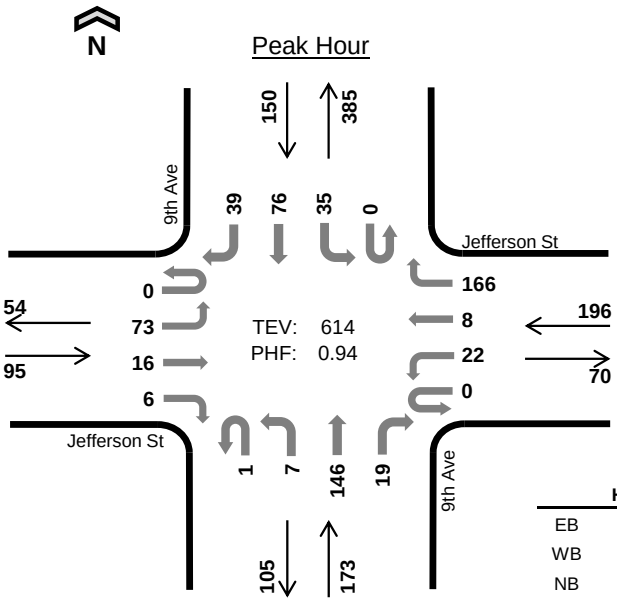
Two-Hour Count Summaries - Bikes

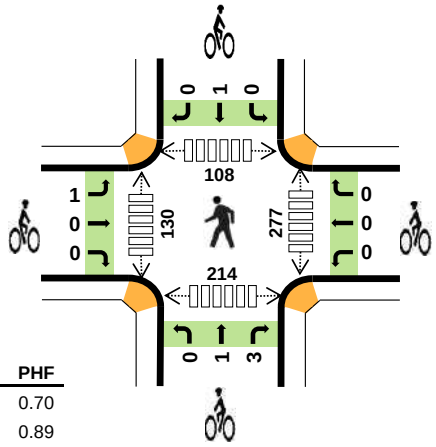
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	1	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**2**	**1**	**6**	8
8:00 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**4**	**11**
8:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	2	13
8:30 AM	0	0	0	1	0	0	0	1	1	0	0	0	3	15
8:45 AM	0	0	0	4	0	0	0	3	0	0	0	0	7	16
Count Total	0	0	0	7	0	0	0	5	6	1	4	1	24	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**5**	**0**	**4**	**1**	**11**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

9th Ave
Jefferson St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	0.0%	0.70
WB	9.2%	0.89
NB	7.5%	0.92
SB	9.3%	0.94
TOTAL	7.3%	0.94

Two-Hour Count Summaries

Interval Start		Jefferson St Eastbound				Jefferson St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	17	6	2	0	3	2	36	0	2	31	5	0	12	19	8	143	0
4:15 PM		**0**	**18**	**2**	**0**	**0**	**2**	**2**	**37**	**0**	**1**	**37**	**8**	**0**	**12**	**16**	**7**	**142**	0
4:30 PM		**0**	**23**	**9**	**2**	**0**	**5**	**3**	**40**	**0**	**1**	**40**	**3**	**0**	**6**	**17**	**14**	**163**	0
4:45 PM		**0**	**18**	**0**	**2**	**0**	**4**	**1**	**47**	**1**	**3**	**38**	**5**	**0**	**11**	**23**	**6**	**159**	607
5:00 PM		**0**	**14**	**5**	**2**	**0**	**11**	**2**	**42**	**0**	**2**	**31**	**3**	**0**	**6**	**20**	**12**	**150**	**614**
5:15 PM		0	15	2	0	0	3	1	36	0	1	28	5	0	10	15	4	120	592
5:30 PM		0	10	4	2	0	4	1	47	0	1	50	7	0	8	15	11	160	589
5:45 PM		0	12	0	3	0	3	2	29	0	0	25	7	0	6	16	2	105	535
Count Total		0	127	28	13	0	35	14	314	1	11	280	43	0	71	141	64	1,142	0
Peak Hour	**All**	**0**	**73**	**16**	**6**	**0**	**22**	**8**	**166**	**1**	**7**	**146**	**19**	**0**	**35**	**76**	**39**	**614**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**15**	**0**	**0**	**12**	**1**	**0**	**8**	**6**	**0**	**45**	**0**
	HV%	**-**	**0%**	**0%**	**0%**	**-**	**9%**	**13%**	**9%**	**0%**	**0%**	**8%**	**5%**	**-**	**23%**	**8%**	**0%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	4	1	6	*13*	0	0	0	1	*1*	92	44	34	60	*230*
4:15 PM	**0**	**5**	**5**	**4**	***14***	**1**	**0**	**0**	**0**	***1***	**89**	**34**	**19**	**63**	*205*
4:30 PM	**0**	**5**	**4**	**3**	***12***	**0**	**0**	**1**	**0**	***1***	**74**	**39**	**43**	**42**	*198*
4:45 PM	**0**	**4**	**3**	**5**	***12***	**0**	**0**	**0**	**1**	***1***	**57**	**26**	**27**	**52**	*162*
5:00 PM	**0**	**4**	**1**	**2**	***7***	**0**	**0**	**3**	**0**	***3***	**57**	**31**	**19**	**57**	***164***
5:15 PM	0	4	2	3	*9*	0	0	1	0	*1*	56	45	23	48	*172*
5:30 PM	0	2	5	5	*12*	1	0	2	5	*8*	40	37	25	37	*139*
5:45 PM	0	5	2	4	*11*	0	0	2	1	*3*	27	20	14	26	*87*
Count Total	2	33	23	32	*90*	2	0	9	8	*19*	492	276	204	385	*1,357*
Peak Hour	**0**	**18**	**13**	**14**	***45***	**1**	**0**	**4**	**1**	***6***	**277**	**130**	**108**	**214**	***729***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	0	0	0	0	0	4	0	0	1	0	0	2	4	0	13	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**0**	**0**	**4**	**1**	**0**	**2**	**2**	**0**	**14**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**0**	**0**	**4**	**0**	**0**	**2**	**1**	**0**	**12**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**3**	**0**	**0**	**3**	**2**	**0**	**12**	51
5:00 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**7**	**45**
5:15 PM	0	0	0	0	0	0	0	4	0	0	2	0	0	2	1	0	9	40
5:30 PM	0	0	0	0	0	0	0	2	0	0	4	1	0	2	3	0	12	40
5:45 PM	0	0	0	0	0	1	0	4	0	0	2	0	0	2	2	0	11	39
Count Total	0	2	0	0	0	3	1	29	0	0	21	2	0	16	16	0	90	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**15**	**0**	**0**	**12**	**1**	**0**	**8**	**6**	**0**	**45**	**0**

Two-Hour Count Summaries - Bikes

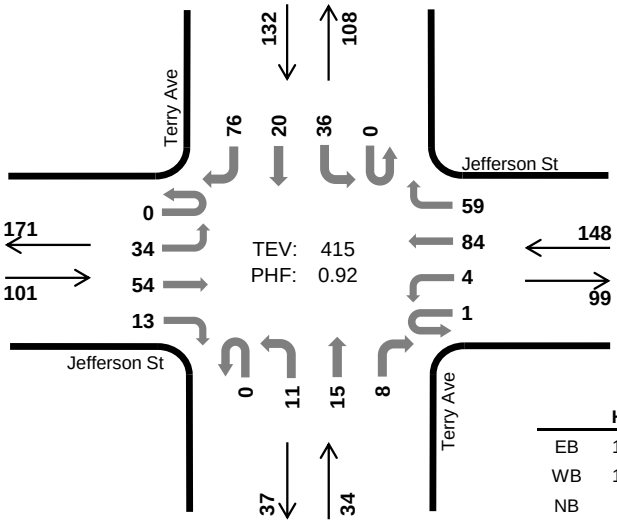
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:15 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	4
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**3**	**6**
5:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	6
5:30 PM	1	0	0	0	0	0	0	0	2	0	5	0	8	13
5:45 PM	0	0	0	0	0	0	0	0	2	0	1	0	3	15
Count Total	2	0	0	0	0	0	0	1	8	0	8	0	19	0
Peak Hour	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**1**	**0**	**6**	**0**

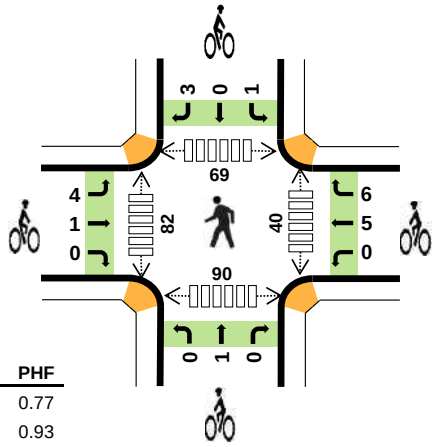
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Terry Ave
Jefferson St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM

Peak Hour





	HV %:	PHF
EB	10.9%	0.77
WB	10.8%	0.93
NB	5.9%	0.85
SB	0.8%	0.75
TOTAL	7.2%	0.92

Two-Hour Count Summaries

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Terry Ave Northbound				Terry Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	6	17	3	0	1	19	8	0	4	1	3	0	9	7	16	94	0
7:15 AM	0	2	10	2	0	0	22	4	0	7	3	1	0	12	3	18	84	0
7:30 AM	**0**	**5**	**10**	**2**	**0**	**1**	**22**	**17**	**0**	**3**	**5**	**2**	**0**	**16**	**5**	**23**	**111**	0
7:45 AM	**0**	**9**	**13**	**8**	**0**	**1**	**20**	**16**	**0**	**4**	**3**	**3**	**0**	**7**	**4**	**25**	**113**	402
8:00 AM	**0**	**9**	**22**	**2**	**0**	**2**	**18**	**14**	**0**	**2**	**2**	**1**	**0**	**8**	**3**	**16**	**99**	407
8:15 AM	**0**	**11**	**9**	**1**	**1**	**0**	**24**	**12**	**0**	**2**	**5**	**2**	**0**	**5**	**8**	**12**	**92**	**415**
8:30 AM	1	13	9	3	0	1	17	6	0	2	1	2	0	5	5	9	74	378
8:45 AM	1	13	16	3	0	2	35	11	0	8	8	6	0	6	7	19	135	400
Count Total	2	68	106	24	1	8	177	88	0	32	28	20	0	68	42	138	802	0
Peak Hour All	**0**	**34**	**54**	**13**	**1**	**4**	**84**	**59**	**0**	**11**	**15**	**8**	**0**	**36**	**20**	**76**	**415**	**0**
Peak Hour HV	**0**	**1**	**10**	**0**	**0**	**1**	**15**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**30**	**0**
Peak Hour HV%	**-**	**3%**	**19%**	**0%**	**0%**	**25%**	**18%**	**0%**	**-**	**0%**	**0%**	**25%**	**-**	**0%**	**0%**	**1%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	3	0	1	*8*	1	1	1	0	*3*	9	10	15	31	*65*
7:15 AM	3	1	1	0	*5*	0	3	2	0	*5*	9	13	18	18	*58*
7:30 AM	**2**	**5**	**0**	**0**	***7***	**0**	**4**	**1**	**0**	***5***	**6**	**23**	**12**	**26**	*67*
7:45 AM	**4**	**4**	**0**	**0**	***8***	**2**	**4**	**0**	**3**	***9***	**16**	**21**	**20**	**21**	*78*
8:00 AM	**3**	**3**	**1**	**1**	***8***	**2**	**2**	**0**	**0**	***4***	**8**	**17**	**21**	**23**	*69*
8:15 AM	**2**	**4**	**1**	**0**	***7***	**1**	**1**	**0**	**1**	***3***	**10**	**21**	**16**	**20**	***67***
8:30 AM	3	2	1	0	*6*	1	2	0	0	*3*	6	10	19	22	*57*
8:45 AM	6	5	1	1	*13*	0	6	0	1	*7*	19	10	20	18	*67*
Count Total	27	27	5	3	*62*	7	23	4	5	*39*	83	125	141	179	*528*
Peak Hour	**11**	**16**	**2**	**1**	***30***	**5**	**11**	**1**	**4**	***21***	**40**	**82**	**69**	**90**	***281***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Terry Ave Northbound				Terry Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	4	0	0	0	3	0	0	0	0	0	0	0	1	0	8	0
7:15 AM	0	0	3	0	0	0	1	0	0	1	0	0	0	0	0	0	5	0
7:30 AM	**0**	**0**	**2**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	0
7:45 AM	**0**	**0**	**4**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	28
8:00 AM	**0**	**1**	**2**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**8**	28
8:15 AM	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**7**	**30**
8:30 AM	0	0	3	0	0	0	2	0	0	1	0	0	0	0	0	0	6	29
8:45 AM	0	1	4	1	0	0	4	1	0	0	1	0	0	0	1	0	13	34
Count Total	0	2	24	1	0	1	25	1	0	2	1	2	0	0	2	1	62	0
Peak Hour	**0**	**1**	**10**	**0**	**0**	**1**	**15**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**30**	**0**

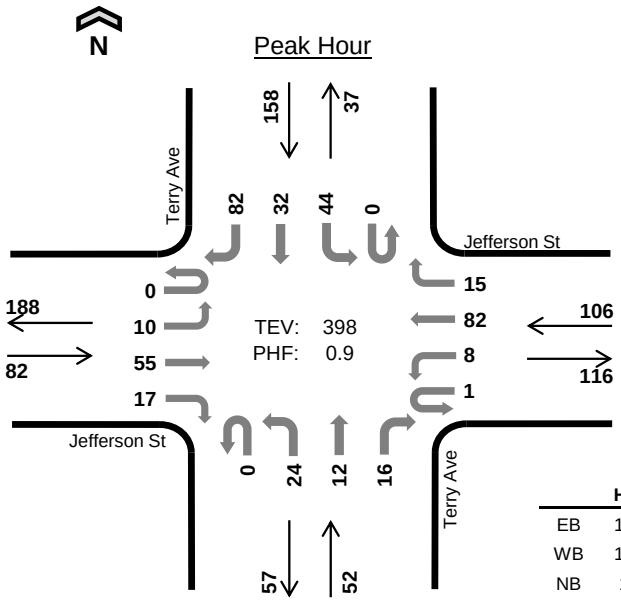
Two-Hour Count Summaries - Bikes

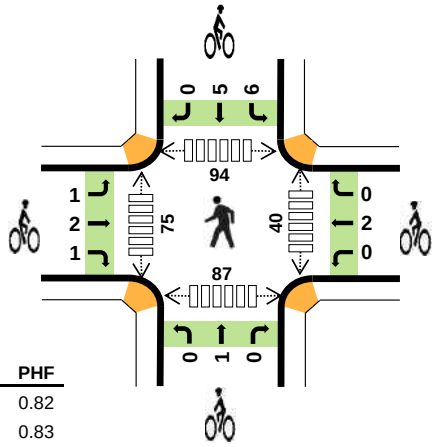
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Terry Ave Northbound			Terry Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	1	0	0	1	0	0	0	0	3	0
7:15 AM	0	0	0	0	1	2	0	2	0	0	0	0	5	0
7:30 AM	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**5**	0
7:45 AM	**1**	**1**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**9**	22
8:00 AM	**2**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	23
8:15 AM	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**21**
8:30 AM	0	1	0	0	1	1	0	0	0	0	0	0	3	19
8:45 AM	0	0	0	0	3	3	0	0	0	0	0	1	7	17
Count Total	4	3	0	0	11	12	0	4	0	1	0	4	39	0
Peak Hour	**4**	**1**	**0**	**0**	**5**	**6**	**0**	**1**	**0**	**1**	**0**	**3**	**21**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Terry Ave
Jefferson St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	12.2%	0.82
WB	18.9%	0.83
NB	1.9%	0.76
SB	0.0%	0.84
TOTAL	7.8%	0.90

Two-Hour Count Summaries

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Terry Ave Northbound				Terry Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**3**	**17**	**5**	**0**	**1**	**17**	**4**	**0**	**8**	**4**	**5**	**0**	**15**	**8**	**24**	**111**	0
4:15 PM	**0**	**2**	**13**	**6**	**0**	**3**	**15**	**2**	**0**	**4**	**3**	**4**	**0**	**9**	**9**	**20**	**90**	0
4:30 PM	**0**	**3**	**13**	**1**	**0**	**3**	**22**	**7**	**0**	**8**	**2**	**5**	**0**	**11**	**7**	**20**	**102**	0
4:45 PM	**0**	**2**	**12**	**5**	**1**	**1**	**28**	**2**	**0**	**4**	**3**	**2**	**0**	**9**	**8**	**18**	**95**	**398**
5:00 PM	0	3	11	1	0	3	20	2	0	8	7	0	0	14	4	28	101	388
5:15 PM	0	4	10	3	0	4	17	3	0	10	2	3	0	13	3	15	87	385
5:30 PM	1	1	16	2	0	5	16	7	0	7	2	3	1	8	2	20	91	374
5:45 PM	0	1	7	4	0	2	18	5	0	2	2	1	0	5	2	7	56	335
Count Total	1	19	99	27	1	22	153	32	0	51	25	23	1	84	43	152	733	0
Peak Hour All	**0**	**10**	**55**	**17**	**1**	**8**	**82**	**15**	**0**	**24**	**12**	**16**	**0**	**44**	**32**	**82**	**398**	**0**
Peak Hour HV	**0**	**0**	**10**	**0**	**0**	**1**	**19**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**31**	**0**
Peak Hour HV%	**-**	**0%**	**18%**	**0%**	**0%**	**13%**	**23%**	**0%**	**-**	**0%**	**0%**	**6%**	**-**	**0%**	**0%**	**0%**	**8%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**2**	**5**	**0**	**0**	***7***	**0**	**1**	**0**	**0**	***1***	**10**	**23**	**22**	**27**	*82*
4:15 PM	**3**	**5**	**1**	**0**	***9***	**1**	**0**	**0**	**2**	***3***	**5**	**15**	**26**	**12**	*58*
4:30 PM	**2**	**6**	**0**	**0**	***8***	**3**	**0**	**1**	**4**	***8***	**14**	**17**	**19**	**21**	*71*
4:45 PM	**3**	**4**	**0**	**0**	***7***	**0**	**1**	**0**	**5**	***6***	**11**	**20**	**27**	**27**	***85***
5:00 PM	1	4	1	0	*6*	2	0	0	5	*7*	12	21	21	31	*85*
5:15 PM	2	5	0	0	*7*	2	0	2	5	*9*	11	10	26	19	*66*
5:30 PM	3	3	0	0	*6*	3	0	0	4	*7*	7	12	15	30	*64*
5:45 PM	2	3	0	0	*5*	3	1	0	0	*4*	7	15	17	20	*59*
Count Total	18	35	2	0	*55*	14	3	3	25	*45*	77	133	173	187	*570*
Peak Hour	**10**	**20**	**1**	**0**	***31***	**4**	**2**	**1**	**11**	***18***	**40**	**75**	**94**	**87**	***296***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Terry Ave Northbound				Terry Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	0
4:15 PM	**0**	**0**	**3**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**9**	0
4:30 PM	**0**	**0**	**2**	**0**	**0**	**1**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	0
4:45 PM	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**31**
5:00 PM	0	0	1	0	0	0	4	0	0	0	1	0	0	0	0	0	6	30
5:15 PM	0	0	2	0	0	1	4	0	0	0	0	0	0	0	0	0	7	28
5:30 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	6	26
5:45 PM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5	24
Count Total	0	0	18	0	0	2	33	0	0	0	1	1	0	0	0	0	55	0
Peak Hour	**0**	**0**	**10**	**0**	**0**	**1**	**19**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**31**	**0**

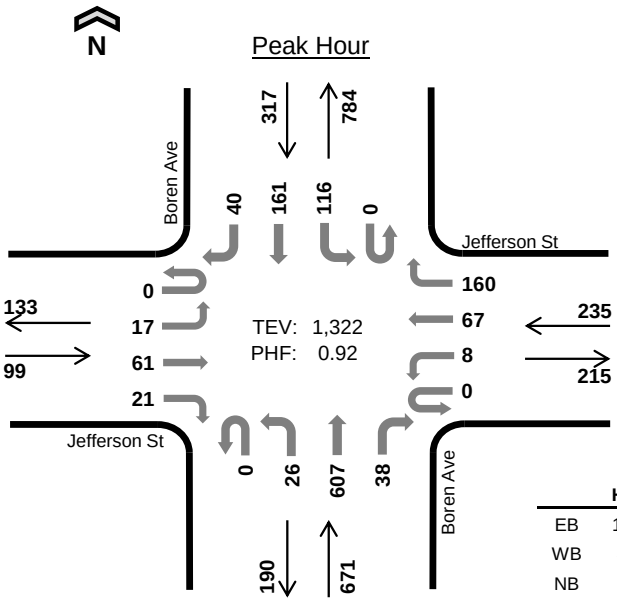
Two-Hour Count Summaries - Bikes

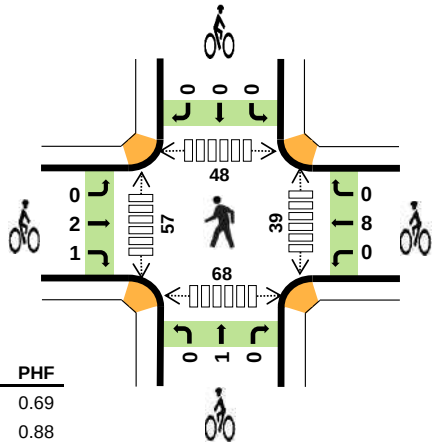
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Terry Ave Northbound			Terry Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:15 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**3**	0
4:30 PM	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**1**	**0**	**8**	0
4:45 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**6**	**18**
5:00 PM	0	2	0	0	0	0	0	0	0	3	2	0	7	24
5:15 PM	0	2	0	0	0	0	0	2	0	3	2	0	9	30
5:30 PM	0	3	0	0	0	0	0	0	0	3	1	0	7	29
5:45 PM	0	2	1	1	0	0	0	0	0	0	0	0	4	27
Count Total	1	11	2	1	2	0	0	3	0	15	10	0	45	0
Peak Hour	**1**	**2**	**1**	**0**	**2**	**0**	**0**	**1**	**0**	**6**	**5**	**0**	**18**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Boren Ave
Jefferson St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	13.1%	0.69
WB	4.7%	0.88
NB	3.9%	0.92
SB	5.4%	0.94
TOTAL	5.1%	0.92

Two-Hour Count Summaries

Interval Start		Jefferson St Eastbound				Jefferson St Westbound				Boren Ave Northbound				Boren Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	2	20	6	0	0	16	19	0	6	133	6	0	29	40	3	280	0
7:15 AM		0	0	16	7	0	0	5	35	0	5	115	8	0	31	34	6	262	0
7:30 AM		0	10	10	7	0	1	7	29	0	14	153	5	0	33	46	10	325	0
7:45 AM		0	5	16	5	0	0	12	33	0	8	144	10	0	19	42	13	307	1,174
8:00 AM		**0**	**9**	**17**	**10**	**0**	**3**	**16**	**48**	**0**	**8**	**137**	**9**	**0**	**25**	**43**	**8**	**333**	1,227
8:15 AM		**0**	**1**	**13**	**5**	**0**	**1**	**15**	**40**	**0**	**4**	**143**	**6**	**0**	**25**	**37**	**13**	**303**	1,268
8:30 AM		**0**	**2**	**12**	**3**	**0**	**3**	**11**	**34**	**0**	**3**	**170**	**8**	**0**	**41**	**31**	**10**	**328**	1,271
8:45 AM		**0**	**5**	**19**	**3**	**0**	**1**	**25**	**38**	**0**	**11**	**157**	**15**	**0**	**25**	**50**	**9**	**358**	**1,322**
Count Total		0	34	123	46	0	9	107	276	0	59	1,152	67	0	228	323	72	2,496	0
Peak Hour	**All**	**0**	**17**	**61**	**21**	**0**	**8**	**67**	**160**	**0**	**26**	**607**	**38**	**0**	**116**	**161**	**40**	**1,322**	**0**
	HV	**0**	**1**	**11**	**1**	**0**	**1**	**8**	**2**	**0**	**1**	**23**	**2**	**0**	**8**	**4**	**5**	**67**	**0**
	HV%	**-**	**6%**	**18%**	**5%**	**-**	**13%**	**12%**	**1%**	**-**	**4%**	**4%**	**5%**	**-**	**7%**	**2%**	**13%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	5	3	7	2	*17*	0	1	1	0	*2*	4	13	7	20	*44*
7:15 AM	3	1	4	4	*12*	0	3	0	0	*3*	1	13	8	22	*44*
7:30 AM	2	4	9	4	*19*	0	4	0	0	*4*	9	5	16	20	*50*
7:45 AM	4	5	5	5	*19*	0	5	1	0	*6*	0	9	18	19	*46*
8:00 AM	**1**	**5**	**5**	**2**	***13***	**0**	**1**	**1**	**0**	***2***	**9**	**16**	**7**	**27**	*59*
8:15 AM	**5**	**3**	**9**	**5**	***22***	**1**	**1**	**0**	**0**	***2***	**10**	**9**	**15**	**14**	*48*
8:30 AM	**3**	**1**	**8**	**4**	***16***	**2**	**1**	**0**	**0**	***3***	**9**	**15**	**11**	**13**	*48*
8:45 AM	**4**	**2**	**4**	**6**	***16***	**0**	**5**	**0**	**0**	***5***	**11**	**17**	**15**	**14**	***57***
Count Total	27	24	51	32	*134*	3	21	3	0	*27*	53	97	97	149	*396*
Peak Hour	**13**	**11**	**26**	**17**	***67***	**3**	**8**	**1**	**0**	***12***	**39**	**57**	**48**	**68**	***212***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Boren Ave Northbound				Boren Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	4	1	0	0	3	0	0	0	7	0	0	1	1	0	17	0
7:15 AM	0	0	3	0	0	0	1	0	0	0	4	0	0	1	3	0	12	0
7:30 AM	0	0	2	0	0	0	2	2	0	2	7	0	0	2	1	1	19	0
7:45 AM	0	1	3	0	0	0	4	1	0	0	5	0	0	1	4	0	19	67
8:00 AM	**0**	**0**	**1**	**0**	**0**	**1**	**2**	**2**	**0**	**1**	**4**	**0**	**0**	**2**	**0**	**0**	**13**	63
8:15 AM	**0**	**0**	**4**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**9**	**0**	**0**	**2**	**2**	**1**	**22**	73
8:30 AM	**0**	**1**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**8**	**0**	**0**	**2**	**1**	**1**	**16**	70
8:45 AM	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**2**	**0**	**2**	**1**	**3**	**16**	**67**
Count Total	0	2	23	2	0	1	18	5	0	3	46	2	0	13	13	6	134	0
Peak Hour	**0**	**1**	**11**	**1**	**0**	**1**	**8**	**2**	**0**	**1**	**23**	**2**	**0**	**8**	**4**	**5**	**67**	**0**

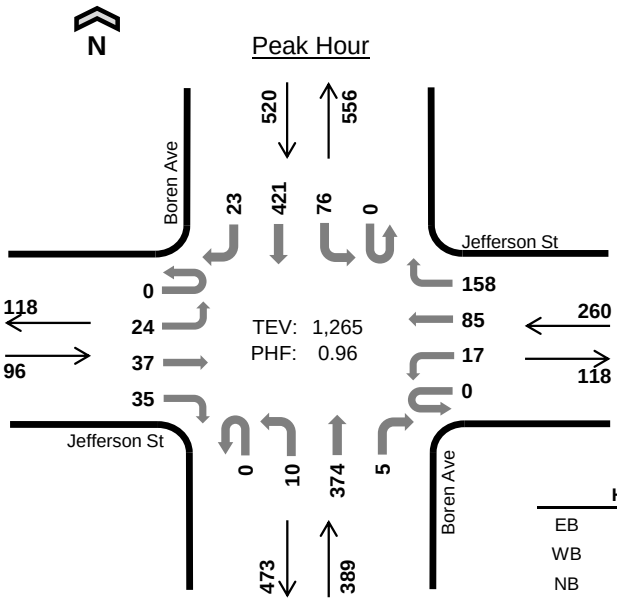
Two-Hour Count Summaries - Bikes

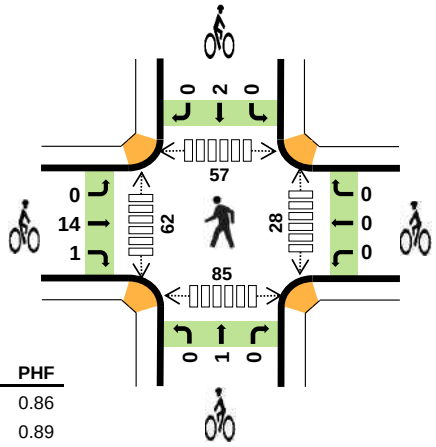
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Boren Ave Northbound			Boren Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	1	0	0	1	0	0	0	0	2	0
7:15 AM	0	0	0	0	3	0	0	0	0	0	0	0	3	0
7:30 AM	0	0	0	0	4	0	0	0	0	0	0	0	4	0
7:45 AM	0	0	0	0	5	0	0	1	0	0	0	0	6	15
8:00 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	15
8:15 AM	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	14
8:30 AM	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	13
8:45 AM	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**12**
Count Total	0	2	1	0	21	0	0	3	0	0	0	0	27	0
Peak Hour	**0**	**2**	**1**	**0**	**8**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**12**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Boren Ave
Jefferson St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	7.3%	0.86
WB	7.3%	0.89
NB	3.1%	0.91
SB	2.1%	0.93
TOTAL	3.9%	0.96

Two-Hour Count Summaries

Interval Start		Jefferson St Eastbound				Jefferson St Westbound				Boren Ave Northbound				Boren Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	9	14	15	0	1	13	37	0	0	102	1	0	18	89	6	305	0
4:15 PM		0	12	10	9	0	4	13	34	0	2	90	4	0	15	102	5	300	0
4:30 PM		**0**	**7**	**10**	**11**	**0**	**4**	**23**	**38**	**0**	**1**	**83**	**1**	**0**	**18**	**111**	**11**	**318**	0
4:45 PM		**0**	**4**	**8**	**4**	**0**	**3**	**23**	**37**	**0**	**1**	**101**	**0**	**0**	**18**	**107**	**7**	**313**	1,236
5:00 PM		**0**	**4**	**12**	**11**	**0**	**6**	**20**	**47**	**0**	**2**	**91**	**2**	**0**	**19**	**112**	**2**	**328**	1,259
5:15 PM		**0**	**9**	**7**	**9**	**0**	**4**	**19**	**36**	**0**	**6**	**99**	**2**	**0**	**21**	**91**	**3**	**306**	**1,265**
5:30 PM		0	5	14	8	0	0	19	34	0	4	79	1	0	17	109	10	300	1,247
5:45 PM		0	3	7	7	0	1	16	28	0	1	89	1	0	24	96	7	280	1,214
Count Total		0	53	82	74	0	23	146	291	0	17	734	12	0	150	817	51	2,450	0
Peak Hour	**All**	**0**	**24**	**37**	**35**	**0**	**17**	**85**	**158**	**0**	**10**	**374**	**5**	**0**	**76**	**421**	**23**	**1,265**	**0**
	HV	**0**	**0**	**7**	**0**	**0**	**1**	**17**	**1**	**0**	**1**	**11**	**0**	**0**	**0**	**10**	**1**	**49**	**0**
	HV%	**-**	**0%**	**19%**	**0%**	**-**	**6%**	**20%**	**1%**	**-**	**10%**	**3%**	**0%**	**-**	**0%**	**2%**	**4%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	6	3	2	*13*	0	0	1	0	*1*	5	20	18	23	*66*
4:15 PM	4	4	0	3	*11*	1	0	0	0	*1*	9	18	13	16	*56*
4:30 PM	**2**	**6**	**2**	**3**	***13***	**4**	**0**	**0**	**0**	***4***	**6**	**13**	**20**	**15**	*54*
4:45 PM	**2**	**5**	**2**	**3**	***12***	**4**	**0**	**0**	**1**	***5***	**5**	**14**	**8**	**29**	*56*
5:00 PM	**2**	**4**	**2**	**3**	***11***	**2**	**0**	**0**	**1**	***3***	**9**	**15**	**21**	**19**	*64*
5:15 PM	**1**	**4**	**6**	**2**	***13***	**5**	**0**	**1**	**0**	***6***	**8**	**20**	**8**	**22**	***58***
5:30 PM	4	4	0	2	*10*	5	1	0	0	*6*	9	8	18	28	*63*
5:45 PM	2	1	2	2	*7*	2	0	0	0	*2*	8	16	10	12	*46*
Count Total	19	34	17	20	*90*	23	1	2	2	*28*	59	124	116	164	*463*
Peak Hour	**7**	**19**	**12**	**11**	***49***	**15**	**0**	**1**	**2**	***18***	**28**	**62**	**57**	**85**	***232***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Boren Ave Northbound				Boren Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	2	0	0	0	5	1	0	0	3	0	0	0	2	0	13	0
4:15 PM	0	1	2	1	0	0	4	0	0	0	0	0	0	0	2	1	11	0
4:30 PM	**0**	**0**	**2**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**1**	**13**	0
4:45 PM	**0**	**0**	**2**	**0**	**0**	**1**	**4**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**12**	49
5:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**11**	47
5:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**5**	**0**	**0**	**0**	**2**	**0**	**13**	**49**
5:30 PM	0	0	4	0	0	0	4	0	0	0	0	0	0	0	2	0	10	46
5:45 PM	0	0	2	0	0	0	1	0	0	0	2	0	0	0	1	1	7	41
Count Total	0	1	17	1	0	1	31	2	0	1	16	0	0	0	17	3	90	0
Peak Hour	**0**	**0**	**7**	**0**	**0**	**1**	**17**	**1**	**0**	**1**	**11**	**0**	**0**	**0**	**10**	**1**	**49**	**0**

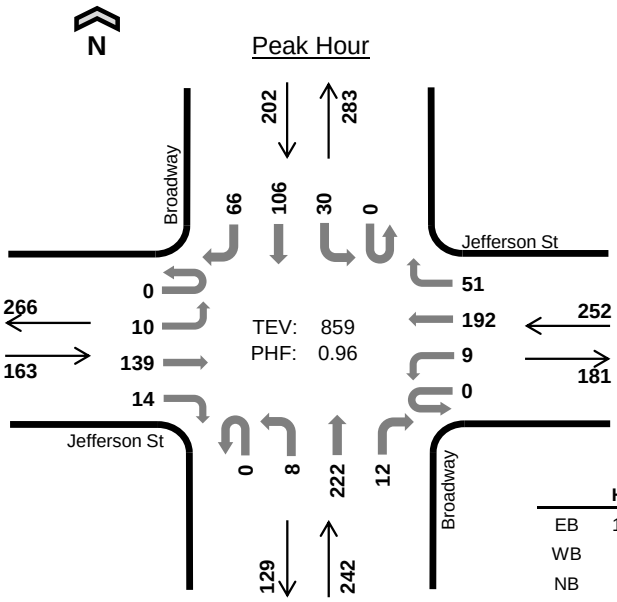
Two-Hour Count Summaries - Bikes

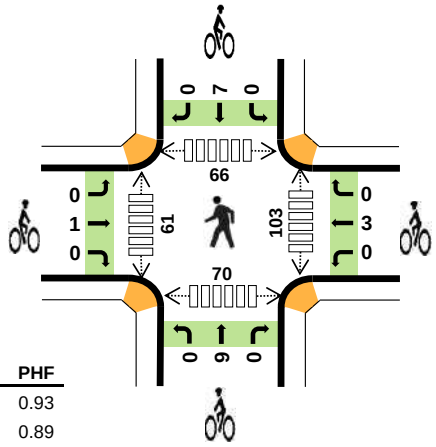
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Boren Ave Northbound			Boren Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	0
4:45 PM	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**5**	11
5:00 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	13
5:15 PM	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	**18**
5:30 PM	0	5	0	0	1	0	0	0	0	0	0	0	6	20
5:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2	17
Count Total	0	22	1	0	1	0	0	1	1	0	2	0	28	0
Peak Hour	**0**	**14**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**18**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Jefferson St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	12.9%	0.93
WB	3.6%	0.89
NB	8.3%	0.80
SB	5.0%	0.90
TOTAL	7.0%	0.96

Two-Hour Count Summaries

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	19	2	0	2	25	8	0	2	52	4	0	1	12	19	147	0
7:15 AM	0	1	22	0	0	1	43	9	0	2	52	0	0	4	10	6	150	0
7:30 AM	0	1	29	3	0	0	35	11	0	0	61	3	0	2	24	9	178	0
7:45 AM	0	3	22	2	0	2	43	11	0	1	67	9	0	6	26	16	208	683
8:00 AM	**0**	**3**	**30**	**4**	**0**	**2**	**51**	**13**	**0**	**1**	**52**	**1**	**0**	**7**	**24**	**15**	**203**	739
8:15 AM	**0**	**2**	**34**	**2**	**0**	**2**	**45**	**14**	**0**	**3**	**52**	**1**	**0**	**8**	**34**	**14**	**211**	800
8:30 AM	**0**	**1**	**40**	**3**	**0**	**1**	**44**	**9**	**0**	**3**	**67**	**6**	**0**	**6**	**21**	**20**	**221**	843
8:45 AM	**0**	**4**	**35**	**5**	**0**	**4**	**52**	**15**	**0**	**1**	**51**	**4**	**0**	**9**	**27**	**17**	**224**	**859**
Count Total	0	16	231	21	0	14	338	90	0	13	454	28	0	43	178	116	1,542	0
Peak Hour All	**0**	**10**	**139**	**14**	**0**	**9**	**192**	**51**	**0**	**8**	**222**	**12**	**0**	**30**	**106**	**66**	**859**	**0**
Peak Hour HV	**0**	**2**	**19**	**0**	**0**	**0**	**8**	**1**	**0**	**0**	**20**	**0**	**0**	**1**	**8**	**1**	**60**	**0**
Peak Hour HV%	**-**	**20%**	**14%**	**0%**	**-**	**0%**	**4%**	**2%**	**-**	**0%**	**9%**	**0%**	**-**	**3%**	**8%**	**2%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	5	4	3	1	*13*	0	1	5	1	*7*	18	7	7	13	*45*
7:15 AM	4	5	2	1	*12*	0	2	2	0	*4*	17	4	18	14	*53*
7:30 AM	4	3	5	1	*13*	0	5	2	3	*10*	17	6	15	14	*52*
7:45 AM	3	5	6	2	*16*	0	0	2	0	*2*	24	4	18	11	*57*
8:00 AM	**4**	**3**	**4**	**2**	***13***	**0**	**0**	**3**	**2**	***5***	**26**	**19**	**14**	**17**	*76*
8:15 AM	**6**	**2**	**4**	**3**	***15***	**0**	**0**	**4**	**2**	***6***	**40**	**15**	**23**	**24**	*102*
8:30 AM	**5**	**2**	**8**	**3**	***18***	**1**	**2**	**2**	**1**	***6***	**17**	**12**	**15**	**14**	*58*
8:45 AM	**6**	**2**	**4**	**2**	***14***	**0**	**1**	**0**	**2**	***3***	**20**	**15**	**14**	**15**	***64***
Count Total	37	26	36	15	*114*	1	11	20	11	*43*	179	82	124	122	*507*
Peak Hour	**21**	**9**	**20**	**10**	***60***	**1**	**3**	**9**	**7**	***20***	**103**	**61**	**66**	**70**	***300***

Two-Hour Count Summaries - Heavy Vehicles

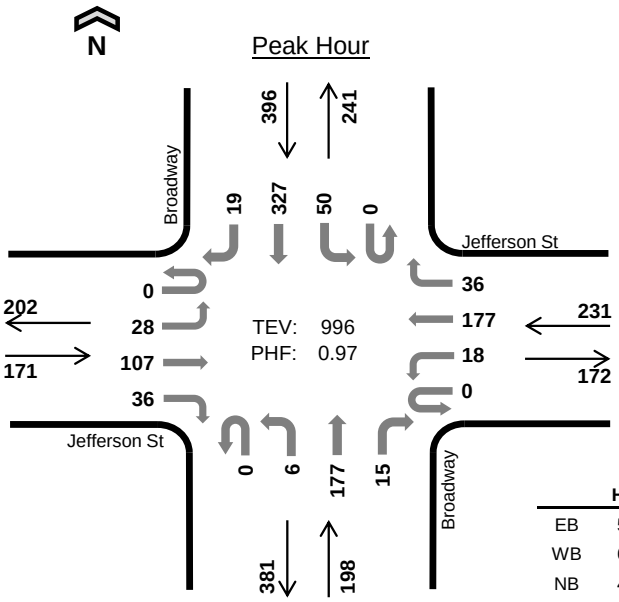
Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	5	0	0	0	3	1	0	0	3	0	0	0	1	0	13	0
7:15 AM	0	0	4	0	0	1	3	1	0	0	2	0	0	0	1	0	12	0
7:30 AM	0	0	4	0	0	0	3	0	0	0	5	0	0	0	0	1	13	0
7:45 AM	0	0	3	0	0	0	4	1	0	0	6	0	0	0	2	0	16	54
8:00 AM	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**1**	**13**	54
8:15 AM	**0**	**1**	**5**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**2**	**0**	**15**	57
8:30 AM	**0**	**0**	**5**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**8**	**0**	**0**	**0**	**3**	**0**	**18**	62
8:45 AM	**0**	**1**	**5**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**0**	**14**	**60**
Count Total	0	2	35	0	0	1	21	4	0	0	36	0	0	1	12	2	114	0
Peak Hour	**0**	**2**	**19**	**0**	**0**	**0**	**8**	**1**	**0**	**0**	**20**	**0**	**0**	**1**	**8**	**1**	**60**	**0**

Two-Hour Count Summaries - Bikes

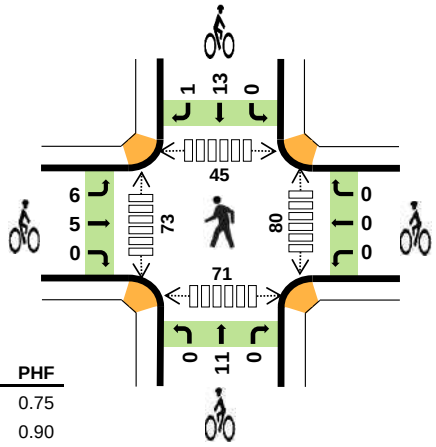
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	1	0	0	5	0	0	1	0	7	0
7:15 AM	0	0	0	0	2	0	0	2	0	0	0	0	4	0
7:30 AM	0	0	0	0	3	2	0	2	0	0	2	1	10	0
7:45 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	23
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**2**	**0**	**5**	21
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**2**	**0**	**6**	23
8:30 AM	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**6**	19
8:45 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**20**
Count Total	0	1	0	0	9	2	0	20	0	0	10	1	43	0
Peak Hour	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**9**	**0**	**0**	**7**	**0**	**20**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Jefferson St



Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	5.3%	0.75
WB	6.9%	0.90
NB	4.0%	0.83
SB	1.5%	0.96
TOTAL	3.9%	0.97

Two-Hour Count Summaries

Interval Start		Jefferson St Eastbound				Jefferson St Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	6	35	10	0	4	37	9	0	1	30	3	0	15	79	4	233	0
4:15 PM		0	4	22	4	0	5	33	10	0	1	47	6	0	8	92	10	242	0
4:30 PM		0	7	32	7	0	1	42	8	0	0	47	4	0	10	75	7	240	0
4:45 PM		**0**	**5**	**19**	**10**	**0**	**4**	**53**	**7**	**0**	**0**	**36**	**3**	**0**	**15**	**77**	**5**	**234**	949
5:00 PM		**0**	**10**	**36**	**11**	**0**	**3**	**45**	**8**	**0**	**4**	**38**	**2**	**0**	**10**	**84**	**5**	**256**	972
5:15 PM		**0**	**9**	**28**	**6**	**0**	**3**	**36**	**9**	**0**	**1**	**50**	**4**	**0**	**14**	**85**	**4**	**249**	979
5:30 PM		**0**	**4**	**24**	**9**	**0**	**8**	**43**	**12**	**0**	**1**	**53**	**6**	**0**	**11**	**81**	**5**	**257**	**996**
5:45 PM		0	5	29	2	0	4	36	8	0	1	59	6	0	6	73	3	232	994
Count Total		0	50	225	59	0	32	325	71	0	9	360	34	0	89	646	43	1,943	0
Peak Hour	**All**	**0**	**28**	**107**	**36**	**0**	**18**	**177**	**36**	**0**	**6**	**177**	**15**	**0**	**50**	**327**	**19**	**996**	**0**
	HV	**0**	**0**	**9**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**6**	**0**	**39**	**0**
	HV%	**-**	**0%**	**8%**	**0%**	**-**	**0%**	**9%**	**0%**	**-**	**0%**	**5%**	**0%**	**-**	**0%**	**2%**	**0%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	7	2	5	*17*	2	0	5	1	*8*	26	19	19	13	*77*
4:15 PM	2	5	3	1	*11*	1	0	5	4	*10*	30	16	10	12	*68*
4:30 PM	2	5	2	1	*10*	1	0	3	4	*8*	26	35	17	18	*96*
4:45 PM	**1**	**5**	**1**	**2**	***9***	**1**	**0**	**3**	**5**	***9***	**18**	**20**	**11**	**14**	*63*
5:00 PM	**4**	**3**	**3**	**2**	***12***	**1**	**0**	**3**	**2**	***6***	**22**	**21**	**12**	**25**	*80*
5:15 PM	**1**	**4**	**1**	**1**	***7***	**4**	**0**	**2**	**3**	***9***	**22**	**21**	**8**	**16**	*67*
5:30 PM	**3**	**4**	**3**	**1**	***11***	**5**	**0**	**3**	**4**	***12***	**18**	**11**	**14**	**16**	***59***
5:45 PM	2	1	1	0	*4*	1	0	1	2	*4*	20	13	12	8	*53*
Count Total	18	34	16	13	*81*	16	0	25	25	*66*	182	156	103	122	*563*
Peak Hour	**9**	**16**	**8**	**6**	***39***	**11**	**0**	**11**	**14**	***36***	**80**	**73**	**45**	**71**	***269***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	0	0	0	6	1	0	0	2	0	0	0	5	0	17	0
4:15 PM	0	0	2	0	0	0	5	0	0	0	3	0	0	0	1	0	11	0
4:30 PM	0	0	2	0	0	0	5	0	0	0	2	0	0	0	1	0	10	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**9**	47
5:00 PM	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**12**	42
5:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**7**	38
5:30 PM	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**11**	**39**
5:45 PM	0	0	2	0	0	0	1	0	0	0	1	0	0	0	0	0	4	34
Count Total	0	0	18	0	0	0	33	1	0	0	16	0	0	0	13	0	81	0
Peak Hour	**0**	**0**	**9**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**6**	**0**	**39**	**0**

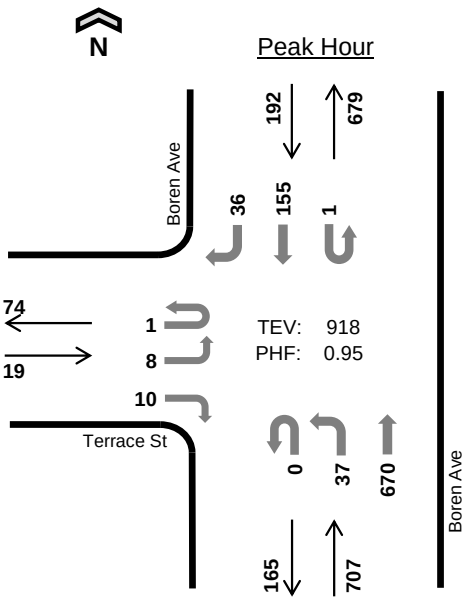
Two-Hour Count Summaries - Bikes

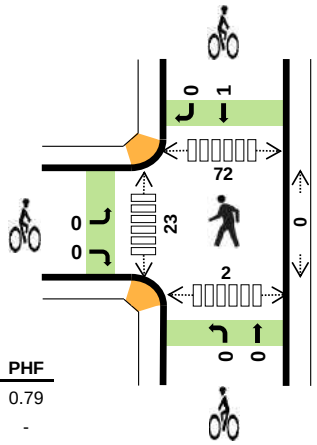
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	2	0	0	0	0	0	5	0	0	1	0	8	0
4:15 PM	0	1	0	0	0	0	0	5	0	0	4	0	10	0
4:30 PM	1	0	0	0	0	0	0	3	0	0	3	1	8	0
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**4**	**1**	**9**	35
5:00 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**2**	**0**	**6**	33
5:15 PM	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**3**	**0**	**9**	32
5:30 PM	**2**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**4**	**0**	**12**	**36**
5:45 PM	0	1	0	0	0	0	0	1	0	0	2	0	4	31
Count Total	7	9	0	0	0	0	0	25	0	0	23	2	66	0
Peak Hour	**6**	**5**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**13**	**1**	**36**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Boren Ave
Terrace St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	5.3%	0.79
WB	-	-
NB	3.8%	0.92
SB	3.1%	0.86
TOTAL	3.7%	0.95

Two-Hour Count Summaries

Interval Start		Terrace St Eastbound				0 Westbound				Boren Ave Northbound				Boren Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	0	0	0	0	0	0	6	151	0	0	0	38	9	204	0
7:15 AM		0	1	0	1	0	0	0	0	0	11	131	0	0	0	32	11	187	0
7:30 AM		0	0	0	5	0	0	0	0	0	9	167	0	0	0	51	7	239	0
7:45 AM		0	1	0	4	0	0	0	0	0	13	152	0	0	0	31	15	216	846
8:00 AM		**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**11**	**163**	**0**	**0**	**0**	**40**	**16**	**234**	876
8:15 AM		**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**7**	**149**	**0**	**0**	**0**	**33**	**10**	**204**	893
8:30 AM		**1**	**1**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**12**	**181**	**0**	**1**	**0**	**34**	**4**	**238**	892
8:45 AM		**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**7**	**177**	**0**	**0**	**0**	**48**	**6**	**242**	**918**
Count Total		1	10	0	20	0	0	0	0	0	76	1,271	0	1	0	307	78	1,764	0
Peak Hour	**All**	**1**	**8**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**37**	**670**	**0**	**1**	**0**	**155**	**36**	**918**	**0**
	HV	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**26**	**0**	**0**	**0**	**5**	**1**	**34**	**0**
	HV%	**0%**	**0%**	**-**	**10%**	**-**	**-**	**-**	**-**	**-**	**3%**	**4%**	**-**	**0%**	**-**	**3%**	**3%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	7	2	*9*	0	0	1	0	*1*	0	3	17	0	*20*
7:15 AM	0	0	4	3	*7*	0	0	0	0	*0*	0	8	24	0	*32*
7:30 AM	0	0	9	1	*10*	0	0	0	0	*0*	0	2	14	0	*16*
7:45 AM	0	0	5	4	*9*	0	0	1	0	*1*	0	4	22	1	*27*
8:00 AM	**1**	**0**	**5**	**1**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**20**	**2**	*25*
8:15 AM	**0**	**0**	**9**	**3**	***12***	**0**	**0**	**0**	**1**	***1***	**0**	**5**	**0**	**0**	*5*
8:30 AM	**0**	**0**	**9**	**1**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**8**	**19**	**0**	*27*
8:45 AM	**0**	**0**	**4**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**7**	**33**	**0**	***40***
Count Total	1	0	52	16	*69*	0	0	2	1	*3*	0	40	149	3	*192*
Peak Hr	**1**	**0**	**27**	**6**	***34***	**0**	**0**	**0**	**1**	***1***	**0**	**23**	**72**	**2**	***97***

Two-Hour Count Summaries - Heavy Vehicles

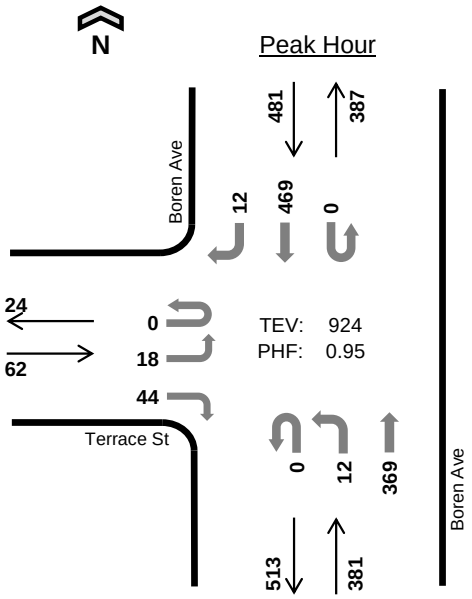
Interval Start	Terrace St				0				Boren Ave				Boren Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	2	0	9	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	7	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	1	0	10	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9	35
8:00 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**7**	33
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**3**	**0**	**12**	38
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**8**	**0**	**0**	**0**	**1**	**0**	**10**	38
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**5**	**34**
Count Total	0	0	0	1	0	0	0	0	0	1	51	0	0	0	15	1	69	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**26**	**0**	**0**	**0**	**5**	**1**	**34**	**0**

Two-Hour Count Summaries - Bikes

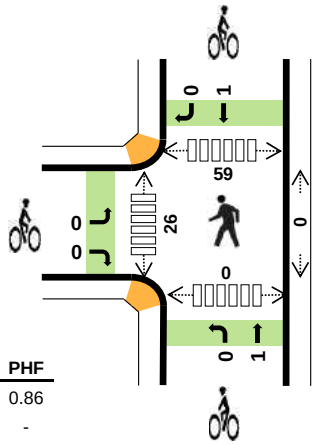
Interval Start	Terrace St			0			Boren Ave			Boren Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	2
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Count Total	0	0	0	0	0	0	0	2	0	0	1	0	3	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Boren Ave
Terrace St



Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	0.0%	0.86
WB	-	-
NB	2.6%	0.94
SB	2.3%	0.90
TOTAL	2.3%	0.95

Two-Hour Count Summaries

Interval Start		Terrace St Eastbound				0 Westbound				Boren Ave Northbound				Boren Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	3	0	11	0	0	0	0	0	0	95	0	0	0	100	4	213	0
4:15 PM		0	5	0	14	0	0	0	0	0	1	89	0	0	0	107	2	218	0
4:30 PM		0	6	0	11	0	0	0	0	0	1	85	0	0	0	125	0	228	0
4:45 PM		**0**	**4**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**6**	**92**	**0**	**0**	**0**	**114**	**3**	**227**	886
5:00 PM		**0**	**4**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**3**	**90**	**0**	**0**	**0**	**132**	**1**	**242**	915
5:15 PM		**0**	**6**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**3**	**98**	**0**	**0**	**0**	**100**	**6**	**225**	922
5:30 PM		**0**	**4**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**89**	**0**	**0**	**0**	**123**	**2**	**230**	**924**
5:45 PM		0	8	0	6	0	0	0	0	0	2	81	0	0	0	92	4	193	890
Count Total		0	40	0	86	0	0	0	0	0	16	719	0	0	0	893	22	1,776	0
Peak Hour	**All**	**0**	**18**	**0**	**44**	**0**	**0**	**0**	**0**	**0**	**12**	**369**	**0**	**0**	**0**	**469**	**12**	**924**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**11**	**0**	**21**	**0**
	HV%	**-**	**0%**	**-**	**0%**	**-**	**-**	**-**	**-**	**-**	**0%**	**3%**	**-**	**-**	**-**	**2%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	0	3	3	*6*	0	0	0	0	*0*	0	13	26	0	*39*
4:15 PM	0	0	0	3	*3*	0	0	0	0	*0*	0	5	11	0	*16*
4:30 PM	0	0	2	1	*3*	0	0	0	1	*1*	0	7	19	0	*26*
4:45 PM	**0**	**0**	**2**	**4**	***6***	**0**	**0**	**0**	**1**	***1***	**0**	**6**	**17**	**0**	*23*
5:00 PM	**0**	**0**	**2**	**3**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**10**	**18**	**0**	*28*
5:15 PM	**0**	**0**	**6**	**2**	***8***	**0**	**0**	**1**	**0**	***1***	**0**	**6**	**14**	**0**	*20*
5:30 PM	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**10**	**0**	***14***
5:45 PM	0	0	2	1	*3*	0	0	0	0	*0*	0	4	8	0	*12*
Count Total	0	0	17	19	*36*	0	0	1	2	*3*	0	55	123	0	*178*
Peak Hr	**0**	**0**	**10**	**11**	***21***	**0**	**0**	**1**	**1**	***2***	**0**	**26**	**59**	**0**	***85***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Terrace St				0				Boren Ave				Boren Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**6**	18
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**5**	17
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**2**	**0**	**8**	22
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**21**
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	18
Count Total	0	0	0	0	0	0	0	0	0	0	17	0	0	0	19	0	36	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**11**	**0**	**21**	**0**

Two-Hour Count Summaries - Bikes

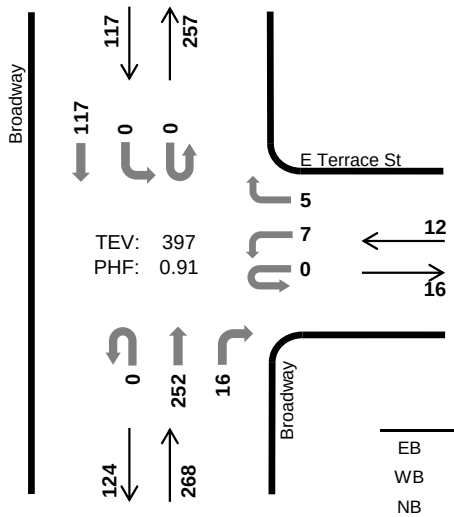
Interval Start	Terrace St			0			Boren Ave			Boren Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	3
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	1	0	0	2	0	3	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

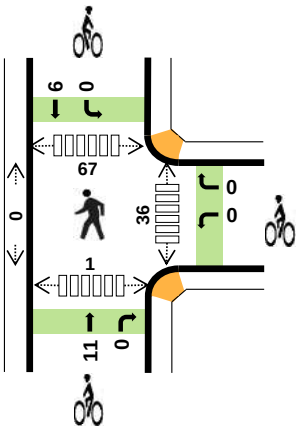
Broadway
E Terrace St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM

Peak Hour



	HV %:	PHF
EB	-	-
WB	8.3%	1.00
NB	7.8%	0.85
SB	6.0%	0.84
TOTAL	7.3%	0.91



Two-Hour Count Summaries

Interval Start	0 Eastbound				E Terrace St Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	2	0	1	0	0	56	5	0	1	14	0	79	0
7:15 AM	0	0	0	0	0	0	0	6	0	0	53	2	1	0	21	0	83	0
7:30 AM	0	0	0	0	0	2	0	1	0	0	62	3	0	1	25	0	94	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**75**	**4**	**0**	**0**	**27**	**0**	**109**	365
8:00 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**54**	**5**	**0**	**0**	**31**	**0**	**93**	379
8:15 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**53**	**4**	**0**	**0**	**35**	**0**	**95**	391
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**70**	**3**	**0**	**0**	**24**	**0**	**100**	**397**
8:45 AM	0	0	0	0	0	0	0	1	0	0	59	4	0	0	31	0	95	383
Count Total	0	0	0	0	0	11	0	14	0	0	482	30	1	2	208	0	748	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**5**	**0**	**0**	**252**	**16**	**0**	**0**	**117**	**0**	**397**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**21**	**0**	**0**	**0**	**7**	**0**	**29**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**20%**	**-**	**-**	**8%**	**0%**	**-**	**-**	**6%**	**-**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	3	1	*4*	0	0	7	1	*8*	7	0	2	0	*9*
7:15 AM	0	0	2	2	*4*	0	0	1	0	*1*	5	0	8	0	*13*
7:30 AM	0	0	5	1	*6*	0	0	1	1	*2*	7	0	14	0	*21*
7:45 AM	**0**	**0**	**6**	**2**	***8***	**0**	**0**	**3**	**1**	***4***	**11**	**0**	**14**	**0**	*25*
8:00 AM	**0**	**0**	**4**	**1**	***5***	**0**	**0**	**3**	**1**	***4***	**6**	**0**	**15**	**0**	*21*
8:15 AM	**0**	**0**	**4**	**2**	***6***	**0**	**0**	**4**	**2**	***6***	**11**	**0**	**23**	**1**	*35*
8:30 AM	**0**	**1**	**7**	**2**	***10***	**0**	**0**	**1**	**2**	***3***	**8**	**0**	**15**	**0**	***23***
8:45 AM	0	0	4	2	*6*	0	0	2	2	*4*	16	0	22	0	*38*
Count Total	0	1	35	13	*49*	0	0	22	10	*32*	71	0	113	1	*185*
Peak Hr	**0**	**1**	**21**	**7**	***29***	**0**	**0**	**11**	**6**	***17***	**36**	**0**	**67**	**1**	***104***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	0				E Terrace St				Broadway				Broadway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0	6	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**2**	**0**	**8**	22
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**5**	23
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**0**	**6**	25
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**7**	**0**	**0**	**0**	**2**	**0**	**10**	**29**
8:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	6	27
Count Total	0	0	0	0	0	0	0	1	0	0	35	0	0	0	13	0	49	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**21**	**0**	**0**	**0**	**7**	**0**	**29**	**0**

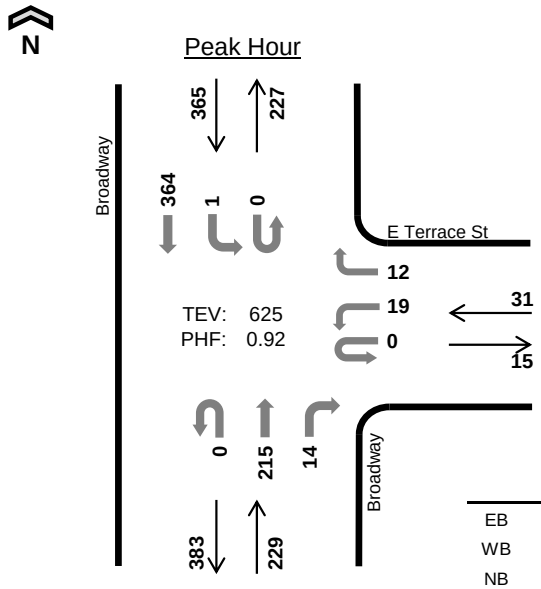
Two-Hour Count Summaries - Bikes

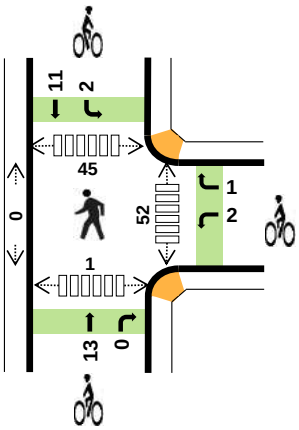
Interval Start	0			E Terrace St			Broadway			Broadway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	7	0	0	1	0	8	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	1	0	2	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**4**	15
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**4**	11
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**2**	**0**	**6**	16
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**3**	**17**
8:45 AM	0	0	0	0	0	0	0	2	0	1	1	0	4	17
Count Total	0	0	0	0	0	0	0	22	0	1	9	0	32	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**6**	**0**	**17**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
E Terrace St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	-	-
WB	0.0%	0.60
NB	3.1%	0.91
SB	1.1%	0.92
TOTAL	1.8%	0.92

Two-Hour Count Summaries

Interval Start		0 Eastbound				E Terrace St Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	0	0	9	0	6	0	0	34	5	0	0	92	0	146	0
4:15 PM		0	0	0	0	0	4	0	1	0	0	45	5	0	0	100	0	155	0
4:30 PM		0	0	0	0	0	7	0	3	0	0	52	4	0	0	85	0	151	0
4:45 PM		0	0	0	0	0	6	0	0	0	0	38	5	0	0	92	0	141	593
5:00 PM		**0**	**0**	**0**	**0**	**0**	**11**	**0**	**2**	**0**	**0**	**44**	**5**	**0**	**1**	**98**	**0**	**161**	608
5:15 PM		**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**51**	**3**	**0**	**0**	**93**	**0**	**150**	603
5:30 PM		**0**	**0**	**0**	**0**	**0**	**6**	**0**	**6**	**0**	**0**	**61**	**2**	**0**	**0**	**95**	**0**	**170**	622
5:45 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**59**	**4**	**0**	**0**	**78**	**0**	**144**	**625**
Count Total		0	0	0	0	0	45	0	22	0	0	384	33	0	1	733	0	1,218	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**19**	**0**	**12**	**0**	**0**	**215**	**14**	**0**	**1**	**364**	**0**	**625**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**4**	**0**	**11**	**0**
	HV%	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**0%**	**-**	**-**	**3%**	**0%**	**-**	**0%**	**1%**	**-**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	2	5	*7*	0	0	4	1	*5*	12	0	12	0	*24*
4:15 PM	0	0	4	1	*5*	0	1	7	4	*12*	8	0	14	1	*23*
4:30 PM	0	0	1	0	*1*	0	0	2	3	*5*	23	0	21	1	*45*
4:45 PM	0	0	2	3	*5*	0	0	1	5	*6*	9	0	10	0	*19*
5:00 PM	**0**	**0**	**2**	**2**	***4***	**0**	**1**	**5**	**3**	***9***	**12**	**0**	**14**	**0**	*26*
5:15 PM	**0**	**0**	**1**	**1**	***2***	**0**	**1**	**4**	**3**	***8***	**16**	**0**	**11**	**1**	*28*
5:30 PM	**0**	**0**	**2**	**1**	***3***	**0**	**1**	**1**	**4**	***6***	**8**	**0**	**10**	**0**	*18*
5:45 PM	**0**	**0**	**2**	**0**	***2***	**0**	**0**	**3**	**3**	***6***	**16**	**0**	**10**	**0**	***26***
Count Total	0	0	16	13	*29*	0	4	27	26	*57*	104	0	102	3	*209*
Peak Hr	**0**	**0**	**7**	**4**	***11***	**0**	**3**	**13**	**13**	***29***	**52**	**0**	**45**	**1**	***98***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	0				E Terrace St				Broadway				Broadway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	7	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	5	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	5	18
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**4**	15
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**2**	12
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**3**	14
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**11**
Count Total	0	0	0	0	0	0	0	0	0	0	16	0	0	0	13	0	29	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**4**	**0**	**11**	**0**

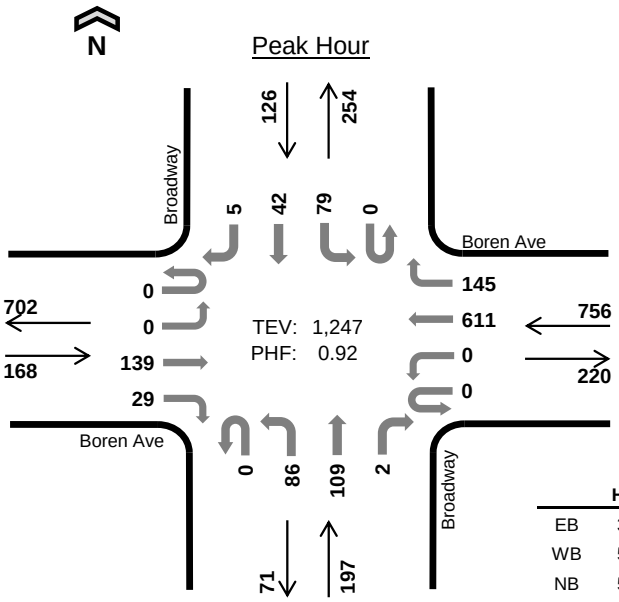
Two-Hour Count Summaries - Bikes

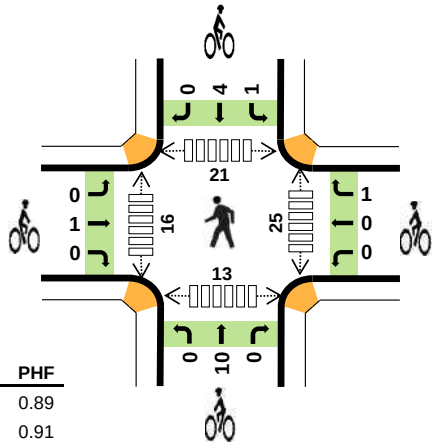
Interval Start	0			E Terrace St			Broadway			Broadway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	4	0	0	1	0	5	0
4:15 PM	0	0	0	1	0	0	0	7	0	0	4	0	12	0
4:30 PM	0	0	0	0	0	0	0	2	0	0	3	0	5	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	5	0	6	28
5:00 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**0**	**3**	**0**	**9**	32
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**0**	**0**	**3**	**0**	**8**	28
5:30 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**3**	**0**	**6**	29
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**2**	**0**	**6**	**29**
Count Total	0	0	0	3	0	1	0	27	0	2	24	0	57	0
Peak Hour	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**13**	**0**	**2**	**11**	**0**	**29**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Boren Ave

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	3.6%	0.89
WB	5.0%	0.91
NB	5.1%	0.78
SB	5.6%	0.81
TOTAL	4.9%	0.92

Two-Hour Count Summaries

Interval Start		Boren Ave Eastbound				Boren Ave Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	34	5	0	0	142	31	1	18	30	0	0	9	4	3	277	0
7:15 AM		0	0	28	3	0	0	133	33	0	16	24	0	0	14	5	0	256	0
7:30 AM		0	0	49	6	0	0	153	32	0	20	31	1	0	22	5	0	319	0
7:45 AM		0	0	26	7	0	0	132	42	0	24	37	0	0	21	11	2	302	1,154
8:00 AM		**0**	**0**	**37**	**9**	**0**	**0**	**160**	**31**	**0**	**15**	**26**	**0**	**0**	**16**	**14**	**0**	**308**	1,185
8:15 AM		**0**	**0**	**23**	**8**	**0**	**0**	**131**	**32**	**0**	**19**	**25**	**1**	**0**	**26**	**12**	**1**	**278**	1,207
8:30 AM		**0**	**0**	**41**	**3**	**0**	**0**	**168**	**40**	**0**	**28**	**35**	**0**	**0**	**18**	**6**	**1**	**340**	1,228
8:45 AM		**0**	**0**	**38**	**9**	**0**	**0**	**152**	**42**	**0**	**24**	**23**	**1**	**0**	**19**	**10**	**3**	**321**	**1,247**
Count Total		0	0	276	50	0	0	1,171	283	1	164	231	3	0	145	67	10	2,401	0
Peak Hour	**All**	**0**	**0**	**139**	**29**	**0**	**0**	**611**	**145**	**0**	**86**	**109**	**2**	**0**	**79**	**42**	**5**	**1,247**	**0**
	HV	**0**	**0**	**2**	**4**	**0**	**0**	**25**	**13**	**0**	**3**	**6**	**1**	**0**	**4**	**3**	**0**	**61**	**0**
	HV%	**-**	**-**	**1%**	**14%**	**-**	**-**	**4%**	**9%**	**-**	**3%**	**6%**	**50%**	**-**	**5%**	**7%**	**0%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	7	3	1	*13*	0	0	6	1	*7*	4	1	4	0	*9*
7:15 AM	3	5	1	2	*11*	0	0	3	0	*3*	6	5	3	5	*19*
7:30 AM	1	8	6	1	*16*	0	0	2	2	*4*	6	5	5	1	*17*
7:45 AM	4	6	4	2	*16*	0	2	1	0	*3*	8	1	7	5	*21*
8:00 AM	**1**	**8**	**2**	**1**	***12***	**0**	**1**	**3**	**1**	***5***	**1**	**4**	**8**	**3**	*16*
8:15 AM	**2**	**10**	**2**	**2**	***16***	**1**	**0**	**3**	**3**	***7***	**5**	**4**	**6**	**3**	*18*
8:30 AM	**1**	**13**	**4**	**2**	***20***	**0**	**0**	**4**	**0**	***4***	**8**	**5**	**4**	**3**	*20*
8:45 AM	**2**	**7**	**2**	**2**	***13***	**0**	**0**	**0**	**1**	***1***	**11**	**3**	**3**	**4**	***21***
Count Total	16	64	24	13	*117*	1	3	22	8	*34*	49	28	40	24	*141*
Peak Hour	**6**	**38**	**10**	**7**	***61***	**1**	**1**	**10**	**5**	***17***	**25**	**16**	**21**	**13**	***75***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Boren Ave Eastbound				Boren Ave Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	7	0	0	0	3	0	0	0	1	0	13	0
7:15 AM	0	0	3	0	0	0	4	1	0	0	1	0	0	1	1	0	11	0
7:30 AM	0	0	1	0	0	0	5	3	0	4	2	0	0	0	1	0	16	0
7:45 AM	0	0	2	2	0	0	4	2	0	0	4	0	0	1	1	0	16	56
8:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**6**	**2**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**12**	55
8:15 AM	**0**	**0**	**0**	**2**	**0**	**0**	**8**	**2**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**16**	60
8:30 AM	**0**	**0**	**0**	**1**	**0**	**0**	**7**	**6**	**0**	**3**	**1**	**0**	**0**	**0**	**2**	**0**	**20**	64
8:45 AM	**0**	**0**	**1**	**1**	**0**	**0**	**4**	**3**	**0**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**13**	**61**
Count Total	0	0	10	6	0	0	45	19	0	7	16	1	0	6	7	0	117	0
Peak Hour	**0**	**0**	**2**	**4**	**0**	**0**	**25**	**13**	**0**	**3**	**6**	**1**	**0**	**4**	**3**	**0**	**61**	**0**

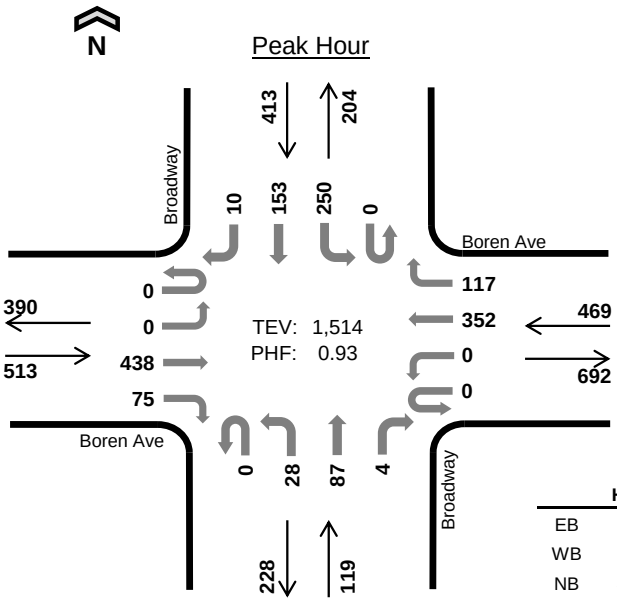
Two-Hour Count Summaries - Bikes

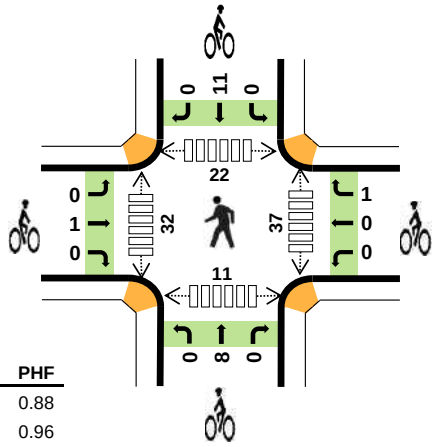
Interval Start	Boren Ave Eastbound			Boren Ave Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	1	5	0	1	0	0	7	0
7:15 AM	0	0	0	0	0	0	1	2	0	0	0	0	3	0
7:30 AM	0	0	0	0	0	0	0	2	0	1	1	0	4	0
7:45 AM	0	0	0	0	1	1	0	1	0	0	0	0	3	17
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**1**	**0**	**5**	15
8:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**2**	**0**	**7**	19
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	19
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**17**
Count Total	0	1	0	0	1	2	2	20	0	3	5	0	34	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**10**	**0**	**1**	**4**	**0**	**17**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Boren Ave

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	1.9%	0.88
WB	2.8%	0.96
NB	4.2%	0.88
SB	1.7%	0.91
TOTAL	2.3%	0.93

Two-Hour Count Summaries

Interval Start		Boren Ave Eastbound				Boren Ave Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	95	17	0	0	82	24	0	10	16	0	0	60	44	1	349	0
4:15 PM		0	0	99	24	0	0	78	31	0	6	22	0	0	51	39	2	352	0
4:30 PM		0	0	122	14	0	0	77	32	0	8	25	0	0	67	26	2	373	0
4:45 PM		**0**	**0**	**97**	**25**	**0**	**0**	**87**	**23**	**0**	**9**	**20**	**1**	**0**	**63**	**34**	**4**	**363**	1,437
5:00 PM		**0**	**0**	**119**	**26**	**0**	**0**	**89**	**33**	**0**	**7**	**17**	**1**	**0**	**65**	**44**	**4**	**405**	1,493
5:15 PM		**0**	**0**	**104**	**9**	**0**	**0**	**89**	**28**	**0**	**5**	**25**	**0**	**0**	**57**	**31**	**1**	**349**	1,490
5:30 PM		**0**	**0**	**118**	**15**	**0**	**0**	**87**	**33**	**0**	**7**	**25**	**2**	**0**	**65**	**44**	**1**	**397**	**1,514**
5:45 PM		0	0	85	9	0	0	69	32	0	8	33	0	0	51	24	0	311	1,462
Count Total		0	0	839	139	0	0	658	236	0	60	183	4	0	479	286	15	2,899	0
Peak Hour	**All**	**0**	**0**	**438**	**75**	**0**	**0**	**352**	**117**	**0**	**28**	**87**	**4**	**0**	**250**	**153**	**10**	**1,514**	**0**
	HV	**0**	**0**	**8**	**2**	**0**	**0**	**11**	**2**	**0**	**0**	**5**	**0**	**0**	**3**	**4**	**0**	**35**	**0**
	HV%	**-**	**-**	**2%**	**3%**	**-**	**-**	**3%**	**2%**	**-**	**0%**	**6%**	**0%**	**-**	**1%**	**3%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	3	2	4	*12*	0	0	4	2	*6*	8	8	5	5	*26*
4:15 PM	3	3	1	1	*8*	0	1	6	4	*11*	10	8	6	2	*26*
4:30 PM	2	1	2	0	*5*	1	0	2	5	*8*	8	10	10	5	*33*
4:45 PM	**3**	**3**	**1**	**3**	***10***	**1**	**0**	**2**	**3**	***6***	**6**	**8**	**7**	**2**	*23*
5:00 PM	**3**	**3**	**2**	**2**	***10***	**0**	**1**	**3**	**4**	***8***	**3**	**9**	**5**	**1**	*18*
5:15 PM	**2**	**5**	**1**	**1**	***9***	**0**	**0**	**2**	**4**	***6***	**21**	**8**	**5**	**8**	*42*
5:30 PM	**2**	**2**	**1**	**1**	***6***	**0**	**0**	**1**	**0**	***1***	**7**	**7**	**5**	**0**	***19***
5:45 PM	1	1	2	1	*5*	0	0	3	4	*7*	8	7	8	3	*26*
Count Total	19	21	12	13	*65*	2	2	23	26	*53*	71	65	51	26	*213*
Peak Hour	**10**	**13**	**5**	**7**	***35***	**1**	**1**	**8**	**11**	***21***	**37**	**32**	**22**	**11**	***102***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Boren Ave Eastbound				Boren Ave Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	2	1	0	0	3	0	0	0	2	0	0	2	2	0	12	0
4:15 PM	0	0	2	1	0	0	0	3	0	0	1	0	0	1	0	0	8	0
4:30 PM	0	0	1	1	0	0	1	0	0	1	1	0	0	0	0	0	5	0
4:45 PM	**0**	**0**	**2**	**1**	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**0**	**0**	**2**	**1**	**0**	**10**	35
5:00 PM	**0**	**0**	**2**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**10**	33
5:15 PM	**0**	**0**	**2**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**9**	34
5:30 PM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**6**	**35**
5:45 PM	0	0	0	1	0	0	1	0	0	0	2	0	0	1	0	0	5	30
Count Total	0	0	13	6	0	0	16	5	0	1	11	0	0	7	6	0	65	0
Peak Hour	**0**	**0**	**8**	**2**	**0**	**0**	**11**	**2**	**0**	**0**	**5**	**0**	**0**	**3**	**4**	**0**	**35**	**0**

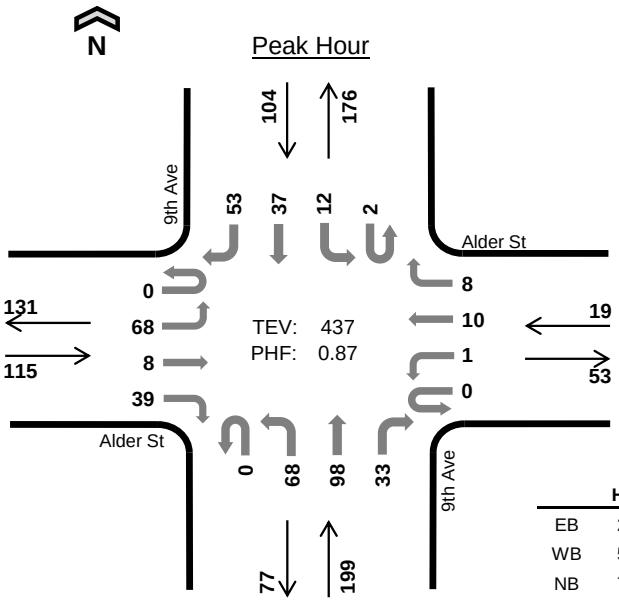
Two-Hour Count Summaries - Bikes

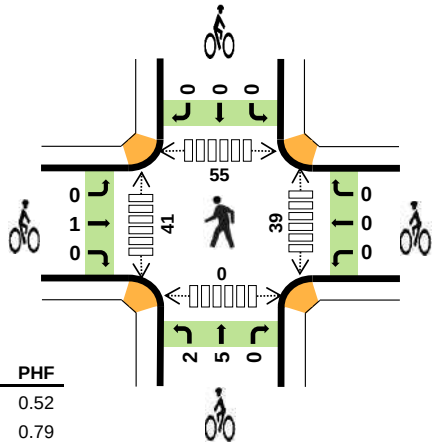
Interval Start	Boren Ave Eastbound			Boren Ave Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	4	0	0	2	0	6	0
4:15 PM	0	0	0	0	1	0	0	6	0	0	4	0	11	0
4:30 PM	0	1	0	0	0	0	0	2	0	0	5	0	8	0
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**3**	**0**	**6**	31
5:00 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**4**	**0**	**8**	33
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	**0**	**6**	28
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**21**
5:45 PM	0	0	0	0	0	0	0	3	0	1	3	0	7	22
Count Total	0	2	0	0	1	1	0	23	0	1	25	0	53	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**8**	**0**	**0**	**11**	**0**	**21**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

9th Ave
Alder St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	2.6%	0.52
WB	5.3%	0.79
NB	7.0%	0.87
SB	10.6%	0.96
TOTAL	6.6%	0.87

Two-Hour Count Summaries

Interval Start		Alder St Eastbound				Alder St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	7	1	5	0	0	1	2	0	12	19	11	0	7	11	21	97	0
7:15 AM		**0**	**17**	**1**	**7**	**0**	**1**	**1**	**3**	**0**	**15**	**22**	**11**	**1**	**2**	**4**	**16**	**101**	0
7:30 AM		**0**	**27**	**5**	**23**	**0**	**0**	**1**	**1**	**0**	**15**	**17**	**9**	**0**	**5**	**10**	**12**	**125**	0
7:45 AM		**0**	**10**	**1**	**7**	**0**	**0**	**4**	**2**	**0**	**21**	**30**	**6**	**0**	**3**	**14**	**10**	**108**	431
8:00 AM		**0**	**14**	**1**	**2**	**0**	**0**	**4**	**2**	**0**	**17**	**29**	**7**	**1**	**2**	**9**	**15**	**103**	**437**
8:15 AM		0	8	3	0	0	1	4	1	0	16	23	1	1	3	12	7	80	416
8:30 AM		0	4	0	2	0	0	6	3	0	12	23	3	0	2	5	14	74	365
8:45 AM		0	9	2	4	0	2	7	1	0	15	40	3	1	5	11	7	107	364
Count Total		0	96	14	50	0	4	28	15	0	123	203	51	4	29	76	102	795	0
Peak Hour	**All**	**0**	**68**	**8**	**39**	**0**	**1**	**10**	**8**	**0**	**68**	**98**	**33**	**2**	**12**	**37**	**53**	**437**	**0**
	HV	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**2**	**9**	**3**	**0**	**1**	**6**	**4**	**29**	**0**
	HV%	**-**	**3%**	**0%**	**3%**	**-**	**0%**	**0%**	**13%**	**-**	**3%**	**9%**	**9%**	**0%**	**8%**	**16%**	**8%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	3	3	*6*	0	0	0	0	*0*	2	8	14	0	*24*
7:15 AM	**1**	**0**	**3**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**8**	**12**	**16**	**0**	*36*
7:30 AM	**1**	**0**	**2**	**4**	***7***	**0**	**0**	**0**	**0**	***0***	**6**	**12**	**15**	**0**	*33*
7:45 AM	**0**	**1**	**4**	**3**	***8***	**1**	**0**	**6**	**0**	***7***	**15**	**12**	**14**	**0**	*41*
8:00 AM	**1**	**0**	**5**	**2**	***8***	**0**	**0**	**1**	**0**	***1***	**10**	**5**	**10**	**0**	***25***
8:15 AM	0	0	3	3	*6*	0	0	0	0	*0*	5	9	9	0	*23*
8:30 AM	0	1	4	4	*9*	1	0	1	0	*2*	11	6	4	0	*21*
8:45 AM	2	2	5	5	*14*	0	0	4	0	*4*	7	12	9	0	*28*
Count Total	5	4	29	26	*64*	2	0	12	0	*14*	64	76	91	0	*231*
Peak Hour	**3**	**1**	**14**	**11**	***29***	**1**	**0**	**7**	**0**	***8***	**39**	**41**	**55**	**0**	***135***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Alder St Eastbound				Alder St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	2	1	6	0
7:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**1**	**6**	0
7:30 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**2**	**1**	**7**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**3**	**0**	**0**	**0**	**2**	**1**	**8**	27
8:00 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**1**	**0**	**0**	**1**	**1**	**8**	**29**
8:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	1	6	29
8:30 AM	0	0	0	0	0	0	0	1	0	2	1	1	0	1	2	1	9	31
8:45 AM	0	1	1	0	0	1	0	1	0	1	3	1	0	0	4	1	14	37
Count Total	0	3	1	1	0	1	0	3	0	6	18	5	0	2	16	8	64	0
Peak Hour	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**2**	**9**	**3**	**0**	**1**	**6**	**4**	**29**	**0**

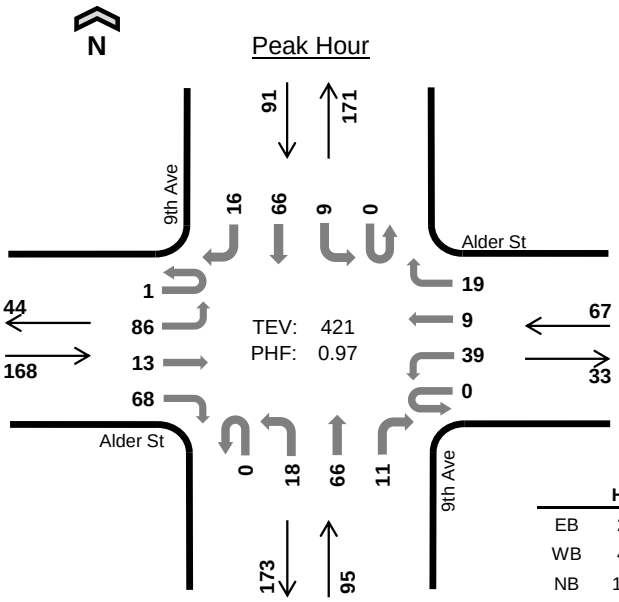
Two-Hour Count Summaries - Bikes

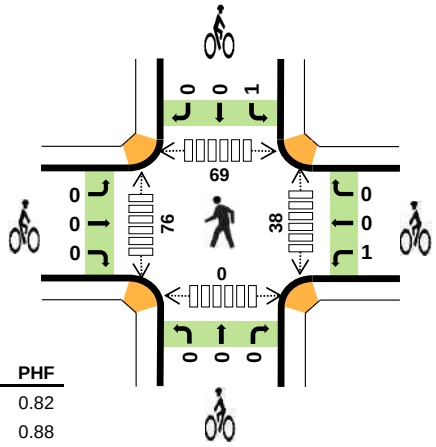
Interval Start	Alder St Eastbound			Alder St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**4**	**0**	**0**	**0**	**0**	**7**	7
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**8**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	8
8:30 AM	1	0	0	0	0	0	1	0	0	0	0	0	2	10
8:45 AM	0	0	0	0	0	0	1	3	0	0	0	0	4	7
Count Total	1	1	0	0	0	0	4	8	0	0	0	0	14	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**5**	**0**	**0**	**0**	**0**	**8**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

9th Ave
Alder St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	2.4%	0.82
WB	4.5%	0.88
NB	10.5%	0.77
SB	9.9%	0.78
TOTAL	6.2%	0.97

Two-Hour Count Summaries

Interval Start		Alder St Eastbound				Alder St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		1	19	4	19	0	10	1	7	0	4	9	3	0	5	14	10	106	0
4:15 PM		**0**	**17**	**4**	**18**	**0**	**11**	**2**	**3**	**0**	**7**	**20**	**4**	**0**	**2**	**13**	**4**	**105**	0
4:30 PM		**0**	**22**	**2**	**27**	**0**	**7**	**3**	**6**	**0**	**5**	**15**	**4**	**0**	**2**	**13**	**2**	**108**	0
4:45 PM		**1**	**26**	**3**	**10**	**0**	**9**	**1**	**6**	**0**	**3**	**12**	**2**	**0**	**1**	**20**	**5**	**99**	418
5:00 PM		**0**	**21**	**4**	**13**	**0**	**12**	**3**	**4**	**0**	**3**	**19**	**1**	**0**	**4**	**20**	**5**	**109**	**421**
5:15 PM		0	11	8	18	0	6	5	8	0	1	22	0	0	5	12	4	100	416
5:30 PM		0	24	6	18	0	6	2	5	0	7	12	3	0	2	14	5	104	412
5:45 PM		0	13	0	4	0	5	1	5	0	3	15	2	0	1	14	8	71	384
Count Total		2	153	31	127	0	66	18	44	0	33	124	19	0	22	120	43	802	0
Peak Hour	**All**	**1**	**86**	**13**	**68**	**0**	**39**	**9**	**19**	**0**	**18**	**66**	**11**	**0**	**9**	**66**	**16**	**421**	**0**
	HV	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**7**	**3**	**0**	**0**	**8**	**1**	**26**	**0**
	HV%	**0%**	**3%**	**0%**	**1%**	**-**	**0%**	**0%**	**16%**	**-**	**0%**	**11%**	**27%**	**-**	**0%**	**12%**	**6%**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	1	3	3	*8*	1	0	0	0	*1*	12	14	16	0	*42*
4:15 PM	**0**	**0**	**4**	**4**	***8***	**0**	**1**	**0**	**0**	***1***	**9**	**26**	**16**	**0**	*51*
4:30 PM	**2**	**1**	**4**	**1**	***8***	**0**	**0**	**0**	**0**	***0***	**11**	**18**	**32**	**0**	*61*
4:45 PM	**1**	**1**	**1**	**3**	***6***	**0**	**0**	**0**	**0**	***0***	**8**	**16**	**9**	**0**	*33*
5:00 PM	**1**	**1**	**1**	**1**	***4***	**0**	**0**	**0**	**1**	***1***	**10**	**16**	**12**	**0**	***38***
5:15 PM	2	0	3	0	*5*	0	0	0	0	*0*	8	16	7	0	*31*
5:30 PM	0	1	3	2	*6*	0	0	0	4	*4*	4	10	7	0	*21*
5:45 PM	1	1	1	3	*6*	0	0	0	1	*1*	0	10	7	0	*17*
Count Total	8	6	20	17	*51*	1	1	0	6	*8*	62	126	106	0	*294*
Peak Hour	**4**	**3**	**10**	**9**	***26***	**0**	**1**	**0**	**1**	***2***	**38**	**76**	**69**	**0**	***183***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Alder St Eastbound				Alder St Westbound				9th Ave Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	1	0	1	0	0	0	1	2	0	0	0	3	0	8	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**3**	**1**	**8**	0
4:30 PM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**0**	**0**	**1**	**0**	**8**	0
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**6**	30
5:00 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**4**	**26**
5:15 PM	0	1	0	1	0	0	0	0	0	0	3	0	0	0	0	0	5	23
5:30 PM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	6	21
5:45 PM	0	1	0	0	0	0	0	1	0	0	1	0	0	0	3	0	6	21
Count Total	0	5	0	3	0	1	0	5	0	2	15	3	0	0	16	1	51	0
Peak Hour	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**7**	**3**	**0**	**0**	**8**	**1**	**26**	**0**

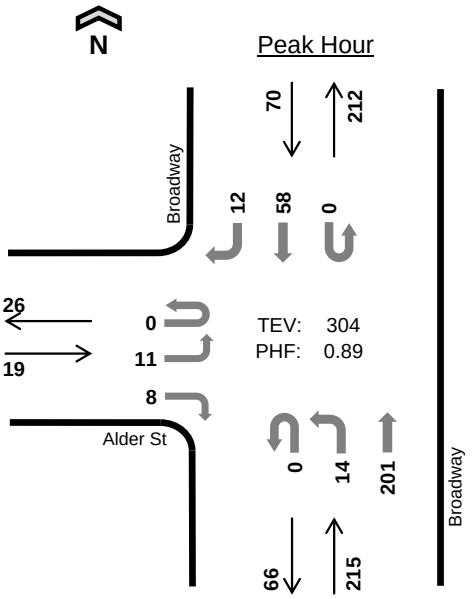
Two-Hour Count Summaries - Bikes

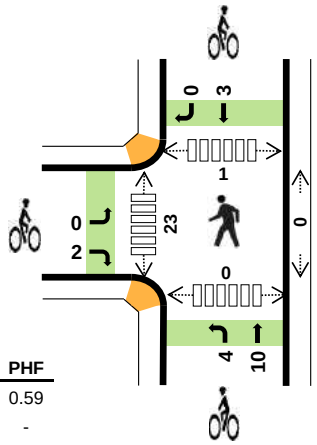
Interval Start	Alder St Eastbound			Alder St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**2**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	1	3	0	4	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	6
Count Total	0	0	1	1	0	0	0	0	0	2	4	0	8	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Alder St

Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	15.8%	0.59
WB	-	-
NB	6.0%	0.80
SB	11.4%	0.76
TOTAL	7.9%	0.89

Two-Hour Count Summaries

Interval Start	Alder St Eastbound				0 Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	0	7	0	0	0	0	0	1	46	0	0	0	7	2	65	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	38	0	0	0	6	2	46	0
7:30 AM	0	7	0	6	0	0	0	0	0	6	44	0	0	0	10	1	74	0
7:45 AM	**0**	**3**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**2**	**57**	**0**	**0**	**0**	**14**	**4**	**85**	270
8:00 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**41**	**0**	**0**	**0**	**20**	**3**	**69**	274
8:15 AM	**0**	**5**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**40**	**0**	**0**	**0**	**17**	**3**	**71**	299
8:30 AM	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**63**	**0**	**0**	**0**	**7**	**2**	**79**	**304**
8:45 AM	0	3	0	1	0	0	0	0	0	2	45	0	0	0	15	4	70	289
Count Total	0	23	0	22	0	0	0	0	0	23	374	0	0	0	96	21	559	0
Peak Hour All	**0**	**11**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**14**	**201**	**0**	**0**	**0**	**58**	**12**	**304**	**0**
Peak Hour HV	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**11**	**0**	**0**	**0**	**6**	**2**	**24**	**0**
Peak Hour HV%	**-**	**18%**	**-**	**13%**	**-**	**-**	**-**	**-**	**-**	**14%**	**5%**	**-**	**-**	**-**	**10%**	**17%**	**8%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	3	1	*4*	0	0	9	1	*10*	0	4	0	1	*5*
7:15 AM	0	0	1	1	*2*	0	0	3	0	*3*	0	12	2	5	*19*
7:30 AM	2	0	4	1	*7*	0	0	1	1	*2*	0	11	1	0	*12*
7:45 AM	**1**	**0**	**3**	**3**	***7***	**1**	**0**	**1**	**0**	***2***	**0**	**4**	**0**	**0**	*4*
8:00 AM	**1**	**0**	**3**	**0**	***4***	**0**	**0**	**5**	**1**	***6***	**0**	**5**	**1**	**0**	*6*
8:15 AM	**0**	**0**	**2**	**2**	***4***	**1**	**0**	**4**	**2**	***7***	**0**	**6**	**0**	**0**	*6*
8:30 AM	**1**	**0**	**5**	**3**	***9***	**0**	**0**	**4**	**0**	***4***	**0**	**8**	**0**	**0**	***8***
8:45 AM	1	0	3	2	*6*	0	0	3	1	*4*	0	8	1	1	*10*
Count Total	6	0	24	13	*43*	2	0	30	6	*38*	0	58	5	7	*70*
Peak Hr	**3**	**0**	**13**	**8**	***24***	**2**	**0**	**14**	**3**	***19***	**0**	**23**	**1**	**0**	***24***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Alder St Eastbound				0 Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0
7:30 AM	0	1	0	1	0	0	0	0	0	0	4	0	0	0	1	0	7	0
7:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**1**	**7**	20
8:00 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	20
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**4**	22
8:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**0**	**0**	**0**	**2**	**1**	**9**	**24**
8:45 AM	0	0	0	1	0	0	0	0	0	1	2	0	0	0	2	0	6	23
Count Total	0	3	0	3	0	0	0	0	0	3	21	0	0	0	11	2	43	0
Peak Hour	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**11**	**0**	**0**	**0**	**6**	**2**	**24**	**0**

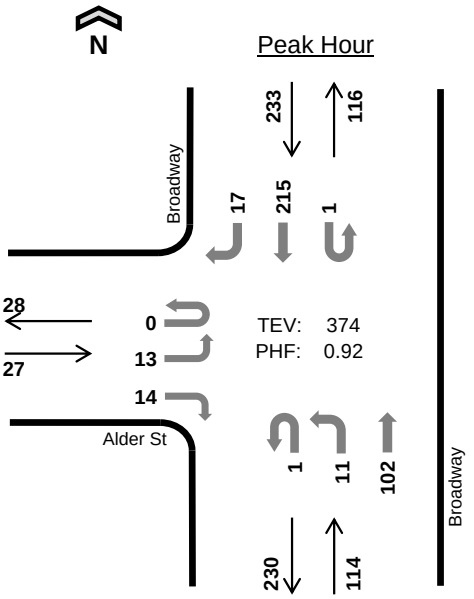
Two-Hour Count Summaries - Bikes

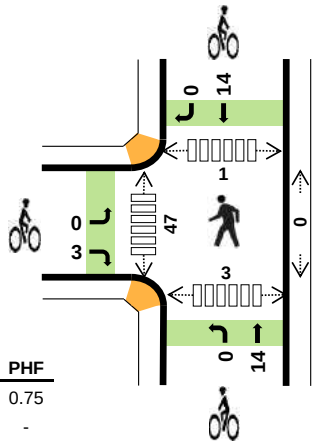
Interval Start	Alder St Eastbound			0 Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	1	8	0	0	1	0	10	0
7:15 AM	0	0	0	0	0	0	1	2	0	0	0	0	3	0
7:30 AM	0	0	0	0	0	0	1	0	0	0	1	0	2	0
7:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	17
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**0**	**1**	**0**	**6**	13
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**2**	**0**	**7**	17
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**4**	**19**
8:45 AM	0	0	0	0	0	0	0	3	0	0	1	0	4	21
Count Total	0	0	2	0	0	0	7	23	0	0	6	0	38	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**10**	**0**	**0**	**3**	**0**	**19**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Alder St

Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	3.7%	0.75
WB	-	-
NB	6.1%	0.86
SB	3.0%	0.86
TOTAL	4.0%	0.92

Two-Hour Count Summaries

Interval Start		Alder St Eastbound				0 Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	3	0	4	0	0	0	0	0	5	23	0	0	0	58	2	95	0
4:15 PM		**0**	**4**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**23**	**0**	**0**	**0**	**61**	**5**	**98**	0
4:30 PM		**0**	**4**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**5**	**28**	**0**	**0**	**0**	**38**	**2**	**80**	0
4:45 PM		**0**	**3**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**2**	**26**	**0**	**0**	**0**	**54**	**5**	**94**	367
5:00 PM		**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**4**	**25**	**0**	**1**	**0**	**62**	**5**	**102**	**374**
5:15 PM		0	1	0	7	0	0	0	0	0	3	27	0	0	0	39	3	80	356
5:30 PM		0	6	0	3	0	0	0	0	0	0	30	0	0	0	52	5	96	372
5:45 PM		0	2	0	1	0	0	0	0	0	1	37	0	0	0	33	2	76	354
Count Total		0	25	0	29	0	0	0	0	1	20	219	0	1	0	397	29	721	0
Peak Hour	**All**	**0**	**13**	**0**	**14**	**0**	**0**	**0**	**0**	**1**	**11**	**102**	**0**	**1**	**0**	**215**	**17**	**374**	**0**
	HV	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**6**	**0**	**0**	**0**	**5**	**2**	**15**	**0**
	HV%	**-**	**0%**	**-**	**7%**	**-**	**-**	**-**	**-**	**0%**	**9%**	**6%**	**-**	**0%**	**-**	**2%**	**12%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	2	3	*5*	0	0	4	2	*6*	0	13	2	1	*16*
4:15 PM	**1**	**0**	**1**	**1**	***3***	**0**	**0**	**6**	**5**	***11***	**0**	**11**	**0**	**0**	*11*
4:30 PM	**0**	**0**	**2**	**1**	***3***	**1**	**0**	**6**	**2**	***9***	**0**	**8**	**0**	**0**	*8*
4:45 PM	**0**	**0**	**1**	**2**	***3***	**0**	**0**	**1**	**4**	***5***	**0**	**15**	**0**	**1**	*16*
5:00 PM	**0**	**0**	**3**	**3**	***6***	**2**	**0**	**1**	**3**	***6***	**0**	**13**	**1**	**2**	***16***
5:15 PM	1	0	1	0	*2*	2	0	1	5	*8*	0	9	0	1	*10*
5:30 PM	0	0	1	1	*2*	0	0	2	1	*3*	0	14	3	1	*18*
5:45 PM	0	0	2	1	*3*	0	0	1	2	*3*	0	4	0	0	*4*
Count Total	2	0	13	12	*27*	5	0	22	24	*51*	0	87	6	6	*99*
Peak Hr	**1**	**0**	**7**	**7**	***15***	**3**	**0**	**14**	**14**	***31***	**0**	**47**	**1**	**3**	***51***

Two-Hour Count Summaries - Heavy Vehicles

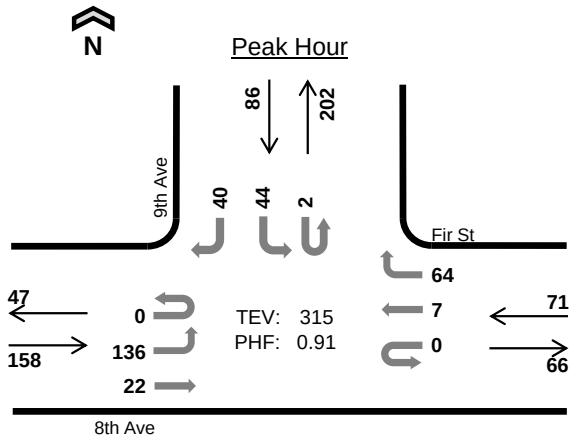
Interval Start	Alder St				0				Broadway				Broadway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	5	0
4:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**3**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**3**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**3**	14
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**2**	**1**	**6**	**15**
5:15 PM	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	2	14
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	13
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	3	13
Count Total	0	0	0	2	0	0	0	0	0	1	12	0	0	0	9	3	27	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**6**	**0**	**0**	**0**	**5**	**2**	**15**	**0**

Two-Hour Count Summaries - Bikes

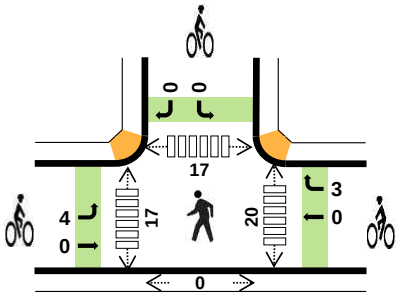
Interval Start	Alder St			0			Broadway			Broadway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	4	0	0	2	0	6	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**5**	**0**	**11**	0
4:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**2**	**0**	**9**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**5**	31
5:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**6**	**31**
5:15 PM	0	0	2	0	0	0	1	0	0	0	5	0	8	28
5:30 PM	0	0	0	0	0	0	0	2	0	0	1	0	3	22
5:45 PM	0	0	0	0	0	0	0	1	0	0	2	0	3	20
Count Total	0	0	5	0	0	0	1	21	0	0	24	0	51	0
Peak Hour	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**14**	**0**	**31**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

9th Ave
Fir St



Date: 11/06/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	5.1%	0.88
WB	12.7%	0.89
NB	-	-
SB	8.1%	0.60
TOTAL	7.6%	0.91

Two-Hour Count Summaries

Interval Start		8th Ave Eastbound				Fir St Westbound				0 Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	30	2	0	0	0	1	12	0	0	0	0	0	8	0	9	62	0
7:15 AM		**0**	**35**	**3**	**0**	**0**	**0**	**1**	**12**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**4**	**64**	0
7:30 AM		**0**	**28**	**5**	**0**	**0**	**0**	**2**	**16**	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**21**	**87**	0
7:45 AM		**0**	**34**	**8**	**0**	**0**	**0**	**1**	**19**	**0**	**0**	**0**	**0**	**1**	**8**	**0**	**10**	**81**	294
8:00 AM		**0**	**39**	**6**	**0**	**0**	**0**	**3**	**17**	**0**	**0**	**0**	**0**	**1**	**12**	**0**	**5**	**83**	**315**
8:15 AM		0	29	4	0	0	0	1	12	0	0	0	0	0	6	0	7	59	310
8:30 AM		0	27	8	0	0	0	1	8	0	0	0	0	0	5	0	4	53	276
8:45 AM		0	37	4	0	0	0	2	24	0	0	0	0	0	8	0	9	84	279
Count Total		0	259	40	0	0	0	12	120	0	0	0	0	2	71	0	69	573	0
Peak Hour	**All**	**0**	**136**	**22**	**0**	**0**	**0**	**7**	**64**	**0**	**0**	**0**	**0**	**2**	**44**	**0**	**40**	**315**	**0**
	HV	**0**	**7**	**1**	**0**	**0**	**0**	**2**	**7**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**6**	**24**	**0**
	HV%	**-**	**5%**	**5%**	**-**	**-**	**-**	**29%**	**11%**	**-**	**-**	**-**	**-**	**0%**	**2%**	**-**	**15%**	**8%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	2	0	2	*5*	0	0	0	0	*0*	5	7	2	0	*14*
7:15 AM	**1**	**3**	**0**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**4**	**7**	**1**	**0**	*12*
7:30 AM	**1**	**2**	**0**	**3**	***6***	**0**	**0**	**0**	**0**	***0***	**5**	**4**	**9**	**0**	*18*
7:45 AM	**3**	**1**	**0**	**2**	***6***	**3**	**3**	**0**	**0**	***6***	**6**	**2**	**6**	**0**	*14*
8:00 AM	**3**	**3**	**0**	**1**	***7***	**1**	**0**	**0**	**0**	***1***	**5**	**4**	**1**	**0**	***10***
8:15 AM	2	2	0	2	*6*	0	0	0	0	*0*	1	5	1	0	*7*
8:30 AM	0	4	0	2	*6*	0	2	0	0	*2*	5	2	2	0	*9*
8:45 AM	4	3	0	5	*12*	0	3	0	0	*3*	9	8	1	0	*18*
Count Total	15	20	0	18	*53*	4	8	0	0	*12*	40	39	23	0	*102*
Peak Hr	**8**	**9**	**0**	**7**	***24***	**4**	**3**	**0**	**0**	***7***	**20**	**17**	**17**	**0**	***54***

Two-Hour Count Summaries - Heavy Vehicles

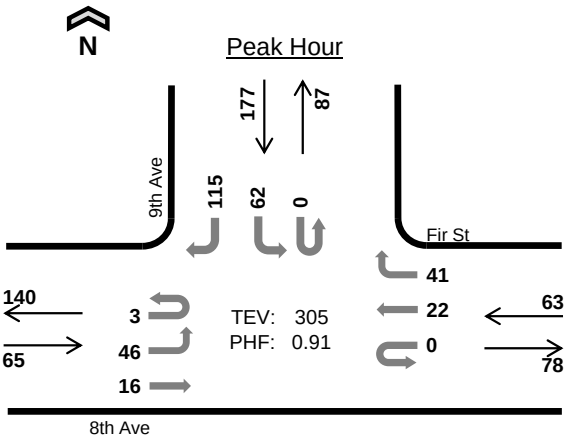
Interval Start	8th Ave Eastbound				Fir St Westbound				0 Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	2	5	0
7:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	0
7:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**6**	0
7:45 AM	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**6**	22
8:00 AM	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**7**	**24**
8:15 AM	0	1	1	0	0	0	0	2	0	0	0	0	0	0	0	2	6	25
8:30 AM	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	2	6	25
8:45 AM	0	3	1	0	0	0	1	2	0	0	0	0	0	1	0	4	12	31
Count Total	0	12	3	0	0	0	4	16	0	0	0	0	0	2	0	16	53	0
Peak Hour	**0**	**7**	**1**	**0**	**0**	**0**	**2**	**7**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**6**	**24**	**0**

Two-Hour Count Summaries - Bikes

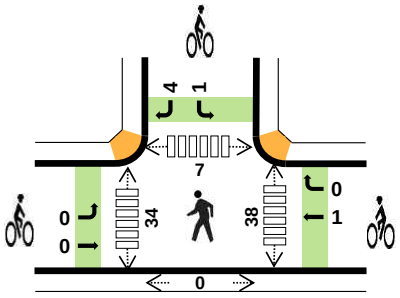
Interval Start	8th Ave Eastbound			Fir St Westbound			0 Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**3**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	6
8:00 AM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**7**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	7
8:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	2	9
8:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	3	6
Count Total	4	0	0	0	0	8	0	0	0	0	0	0	12	0
Peak Hour	**4**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

9th Ave
Fir St



Date: 11/06/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM



	HV %:	PHF
EB	4.6%	0.81
WB	11.1%	0.68
NB	-	-
SB	6.2%	0.89
TOTAL	6.9%	0.91

Two-Hour Count Summaries

Interval Start		8th Ave Eastbound				Fir St Westbound				0 Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	12	5	0	1	0	13	5	0	0	0	0	0	12	0	31	79	0
4:15 PM		**2**	**13**	**1**	**0**	**0**	**0**	**7**	**16**	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**28**	**80**	0
4:30 PM		**0**	**10**	**3**	**0**	**0**	**0**	**4**	**9**	**0**	**0**	**0**	**0**	**0**	**21**	**0**	**29**	**76**	0
4:45 PM		**1**	**11**	**8**	**0**	**0**	**0**	**3**	**6**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**19**	**65**	300
5:00 PM		**0**	**12**	**4**	**0**	**0**	**0**	**8**	**10**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**39**	**84**	**305**
5:15 PM		0	16	4	0	0	0	7	9	0	0	0	0	1	17	0	17	71	296
5:30 PM		0	8	7	0	0	0	5	13	0	0	0	0	1	8	0	31	73	293
5:45 PM		0	12	3	0	0	0	3	10	0	0	0	0	2	4	0	19	53	281
Count Total		3	94	35	0	1	0	50	78	0	0	0	0	4	103	0	213	581	0
Peak Hour	**All**	**3**	**46**	**16**	**0**	**0**	**0**	**22**	**41**	**0**	**0**	**0**	**0**	**0**	**62**	**0**	**115**	**305**	**0**
	HV	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**7**	**21**	**0**
	HV%	**0%**	**4%**	**6%**	**-**	**-**	**-**	**0%**	**17%**	**-**	**-**	**-**	**-**	**-**	**6%**	**-**	**6%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	1	0	4	*7*	0	0	0	2	*2*	9	10	3	0	*22*
4:15 PM	**1**	**3**	**0**	**3**	***7***	**0**	**1**	**0**	**3**	***4***	**4**	**7**	**3**	**0**	*14*
4:30 PM	**1**	**2**	**0**	**3**	***6***	**0**	**0**	**0**	**2**	***2***	**6**	**13**	**2**	**0**	*21*
4:45 PM	**1**	**1**	**0**	**4**	***6***	**0**	**0**	**0**	**0**	***0***	**13**	**10**	**0**	**0**	*23*
5:00 PM	**0**	**1**	**0**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**15**	**4**	**2**	**0**	***21***
5:15 PM	1	2	0	0	*3*	0	0	0	0	*0*	11	14	0	0	*25*
5:30 PM	1	2	0	3	*6*	0	0	0	5	*5*	4	6	0	0	*10*
5:45 PM	1	0	0	3	*4*	0	0	0	1	*1*	7	8	4	0	*19*
Count Total	8	12	0	21	*41*	0	1	0	13	*14*	69	72	14	0	*155*
Peak Hr	**3**	**7**	**0**	**11**	***21***	**0**	**1**	**0**	**5**	***6***	**38**	**34**	**7**	**0**	***79***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	8th Ave				Fir St				0				9th Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	4	7	0
4:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**7**	0
4:30 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**6**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**6**	26
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**21**
5:15 PM	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3	17
5:30 PM	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	3	6	17
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	15
Count Total	0	7	1	0	0	0	0	12	0	0	0	0	0	4	0	17	41	0
Peak Hour	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**7**	**21**	**0**

Two-Hour Count Summaries - Bikes

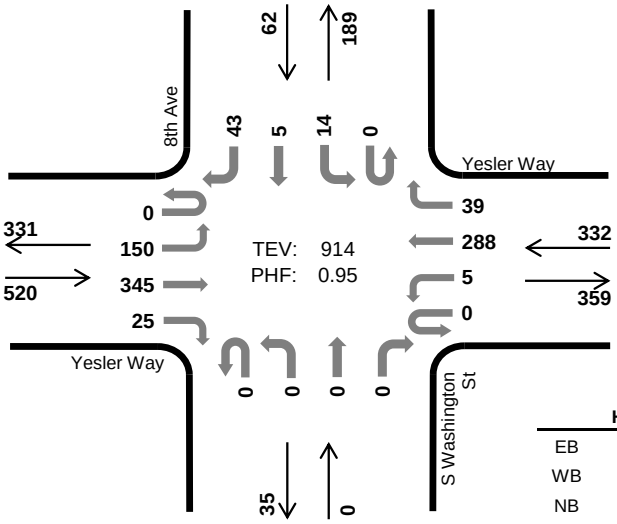
Interval Start	8th Ave			Fir St			0			9th Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	2	0
4:15 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**4**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	8
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	4	0	1	5	5
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	6
Count Total	0	0	0	0	1	0	0	0	0	7	0	6	14	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**6**	**0**

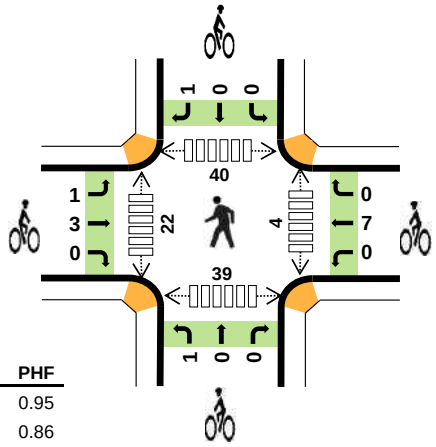
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave
Yesler Way

Date: 01/29/2025
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM

Peak Hour





	HV %:	PHF
EB	2.9%	0.95
WB	3.6%	0.86
NB	-	-
SB	9.7%	0.62
TOTAL	3.6%	0.95

Two-Hour Count Summaries

Interval Start		Yesler Way Eastbound				Yesler Way Westbound				S Washington St Northbound				8th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	32	74	8	0	2	26	6	0	1	0	1	0	2	2	5	159	0
7:15 AM		1	31	85	2	0	6	33	4	0	0	0	1	0	4	0	7	174	0
7:30 AM		**0**	**27**	**89**	**3**	**0**	**2**	**78**	**8**	**0**	**0**	**0**	**0**	**0**	**5**	**2**	**18**	**232**	0
7:45 AM		**0**	**42**	**84**	**5**	**0**	**1**	**61**	**10**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**7**	**213**	778
8:00 AM		**0**	**38**	**88**	**7**	**0**	**0**	**65**	**11**	**0**	**0**	**0**	**0**	**0**	**6**	**2**	**11**	**228**	847
8:15 AM		**0**	**43**	**84**	**10**	**0**	**2**	**84**	**10**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**7**	**241**	**914**
8:30 AM		1	27	88	3	0	2	59	11	0	0	0	0	0	7	0	3	201	883
8:45 AM		0	33	88	3	1	2	60	9	0	0	0	0	0	6	1	7	210	880
Count Total		2	273	680	41	1	17	466	69	0	1	0	2	0	33	8	65	1,658	0
Peak Hour	**All**	**0**	**150**	**345**	**25**	**0**	**5**	**288**	**39**	**0**	**0**	**0**	**0**	**0**	**14**	**5**	**43**	**914**	**0**
	HV	**0**	**2**	**10**	**3**	**0**	**1**	**10**	**1**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**1**	**33**	**0**
	HV%	**-**	**1%**	**3%**	**12%**	**-**	**20%**	**3%**	**3%**	**-**	**-**	**-**	**-**	**-**	**36%**	**0%**	**2%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	5	2	0	4	*11*	0	0	0	0	*0*	1	6	8	3	*18*
7:15 AM	4	3	0	1	*8*	1	0	0	0	*1*	1	1	12	6	*20*
7:30 AM	**2**	**2**	**0**	**2**	***6***	**1**	**0**	**0**	**0**	***1***	**0**	**2**	**4**	**5**	*11*
7:45 AM	**1**	**3**	**0**	**1**	***5***	**1**	**6**	**0**	**1**	***8***	**2**	**4**	**14**	**9**	*29*
8:00 AM	**6**	**1**	**0**	**2**	***9***	**0**	**1**	**0**	**0**	***1***	**1**	**8**	**14**	**13**	*36*
8:15 AM	**6**	**6**	**0**	**1**	***13***	**2**	**0**	**1**	**0**	***3***	**1**	**8**	**8**	**12**	***29***
8:30 AM	5	4	0	1	*10*	0	2	0	0	*2*	2	9	11	9	*31*
8:45 AM	7	2	0	3	*12*	2	3	0	0	*5*	2	4	6	6	*18*
Count Total	36	23	0	15	*74*	7	12	1	1	*21*	10	42	77	63	*192*
Peak Hour	**15**	**12**	**0**	**6**	***33***	**4**	**7**	**1**	**1**	***13***	**4**	**22**	**40**	**39**	***105***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Yesler Way Eastbound				Yesler Way Westbound				S Washington St Northbound				8th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	2	1	0	1	1	0	0	0	0	0	0	2	0	2	11	0
7:15 AM	0	2	2	0	0	1	1	1	0	0	0	0	0	1	0	0	8	0
7:30 AM	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**6**	0
7:45 AM	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	30
8:00 AM	**0**	**1**	**4**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**9**	28
8:15 AM	**0**	**1**	**4**	**1**	**0**	**1**	**4**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**13**	**33**
8:30 AM	0	3	2	0	0	1	2	1	0	0	0	0	0	1	0	0	10	37
8:45 AM	0	4	3	0	0	1	1	0	0	0	0	0	0	2	0	1	12	44
Count Total	0	13	19	4	0	5	15	3	0	0	0	0	0	11	0	4	74	0
Peak Hour	**0**	**2**	**10**	**3**	**0**	**1**	**10**	**1**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**1**	**33**	**0**

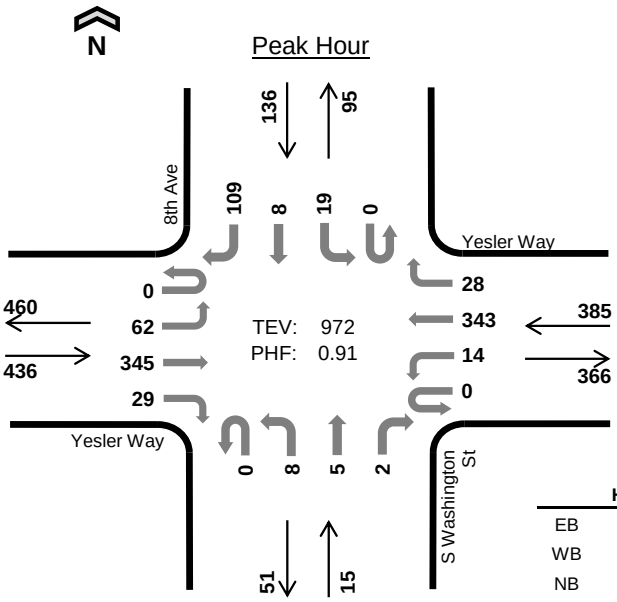
Two-Hour Count Summaries - Bikes

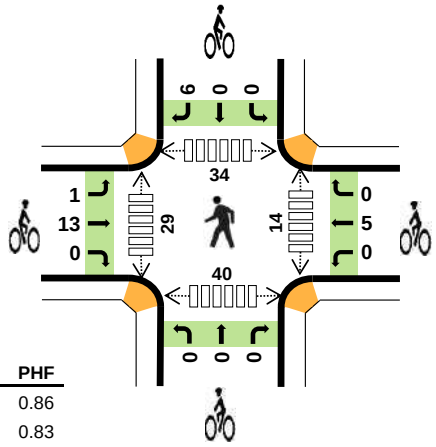
Interval Start	Yesler Way Eastbound			Yesler Way Westbound			S Washington St Northbound			8th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**8**	10
8:00 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	11
8:15 AM	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**13**
8:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	2	14
8:45 AM	1	1	0	0	3	0	0	0	0	0	0	0	5	11
Count Total	2	5	0	0	12	0	1	0	0	0	0	1	21	0
Peak Hour	**1**	**3**	**0**	**0**	**7**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**13**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

8th Ave
Yesler Way

Date: 01/29/2025
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	0.9%	0.86
WB	1.8%	0.83
NB	0.0%	0.47
SB	5.9%	0.77
TOTAL	2.0%	0.91

Two-Hour Count Summaries

Interval Start		Yesler Way Eastbound				Yesler Way Westbound				S Washington St Northbound				8th Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	10	64	3	0	1	76	6	0	1	1	1	0	2	1	20	186	0
4:15 PM		0	14	73	3	0	1	73	8	0	0	1	0	0	3	3	22	201	0
4:30 PM		0	15	78	7	0	1	85	11	0	4	0	0	0	9	3	28	241	0
4:45 PM		**0**	**20**	**70**	**8**	**0**	**1**	**105**	**10**	**0**	**2**	**1**	**0**	**0**	**5**	**1**	**23**	**246**	874
5:00 PM		**0**	**7**	**82**	**9**	**0**	**1**	**76**	**6**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**28**	**214**	902
5:15 PM		**0**	**19**	**88**	**6**	**0**	**5**	**94**	**7**	**0**	**3**	**1**	**0**	**0**	**3**	**5**	**36**	**267**	968
5:30 PM		**0**	**16**	**105**	**6**	**0**	**7**	**68**	**5**	**0**	**3**	**3**	**2**	**0**	**7**	**1**	**22**	**245**	**972**
5:45 PM		0	9	97	14	0	3	53	6	0	1	1	4	0	3	1	8	200	926
Count Total		0	110	657	56	0	20	630	59	0	14	8	7	0	36	16	187	1,800	0
Peak Hour	**All**	**0**	**62**	**345**	**29**	**0**	**14**	**343**	**28**	**0**	**8**	**5**	**2**	**0**	**19**	**8**	**109**	**972**	**0**
	HV	**0**	**3**	**1**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**2**	**19**	**0**
	HV%	**-**	**5%**	**0%**	**0%**	**-**	**0%**	**2%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**26%**	**13%**	**2%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	1	0	2	*5*	1	0	0	2	*3*	1	7	14	16	*38*
4:15 PM	0	0	0	2	*2*	0	1	0	1	*2*	3	11	8	10	*32*
4:30 PM	3	1	0	2	*6*	1	3	0	2	*6*	3	8	9	7	*27*
4:45 PM	**1**	**0**	**0**	**3**	***4***	**1**	**1**	**0**	**0**	***2***	**2**	**10**	**4**	**15**	*31*
5:00 PM	**2**	**3**	**0**	**0**	***5***	**2**	**2**	**0**	**1**	***5***	**6**	**9**	**9**	**12**	*36*
5:15 PM	**1**	**2**	**0**	**3**	***6***	**7**	**2**	**0**	**4**	***13***	**4**	**4**	**14**	**4**	*26*
5:30 PM	**0**	**2**	**0**	**2**	***4***	**4**	**0**	**0**	**1**	***5***	**2**	**6**	**7**	**9**	***24***
5:45 PM	3	0	0	2	*5*	2	0	0	0	*2*	4	4	8	7	*23*
Count Total	12	9	0	16	*37*	18	9	0	11	*38*	25	59	73	80	*237*
Peak Hour	**4**	**7**	**0**	**8**	***19***	**14**	**5**	**0**	**6**	***25***	**14**	**29**	**34**	**40**	***117***

Two-Hour Count Summaries - Heavy Vehicles

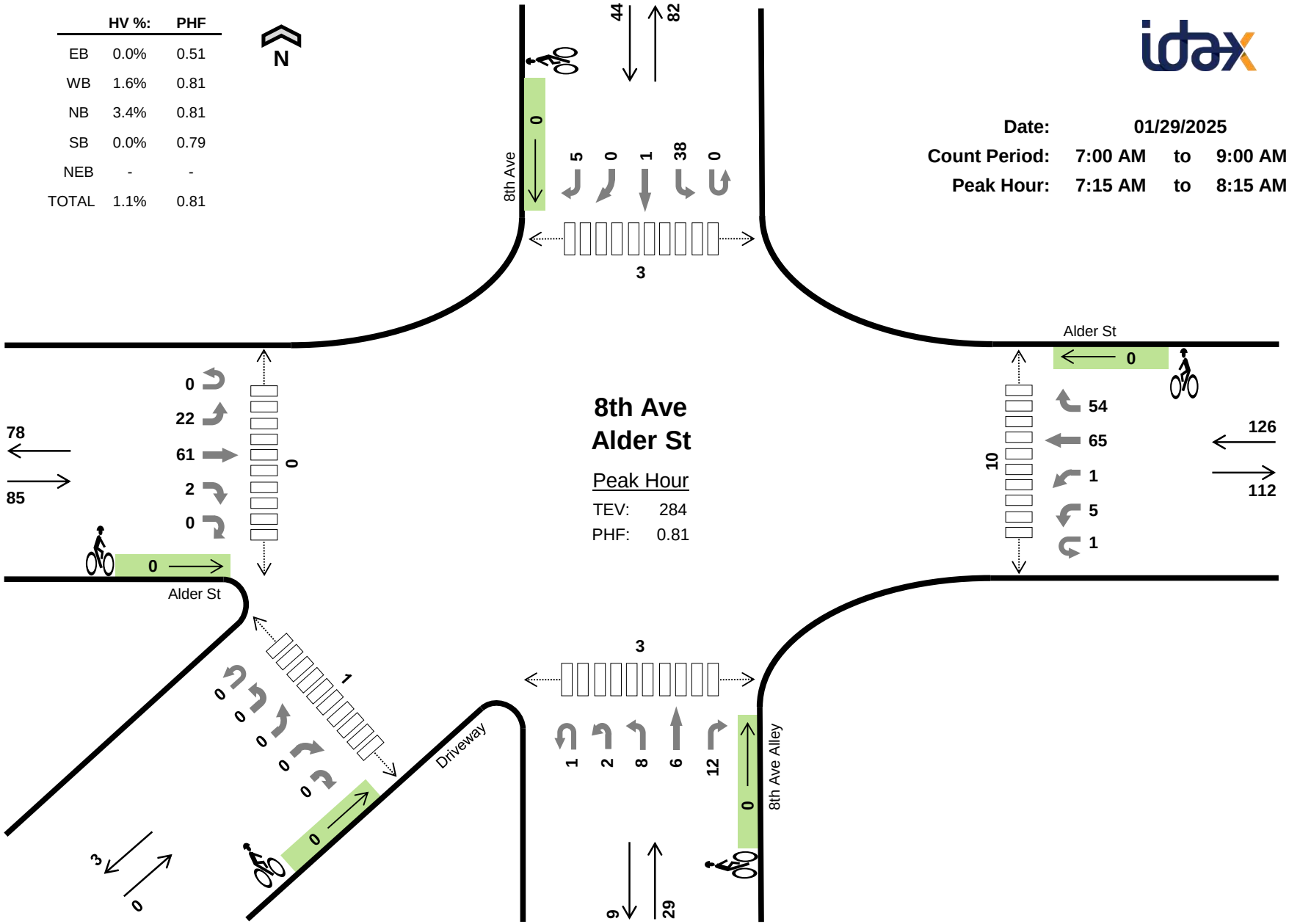
Interval Start	Yesler Way Eastbound				Yesler Way Westbound				S Washington St Northbound				8th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	1	0	0	0	1	0	0	0	0	0	0	1	0	1	5	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0
4:30 PM	0	1	2	0	0	0	1	0	0	0	0	0	0	2	0	0	6	0
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**4**	17
5:00 PM	**0**	**1**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	17
5:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**6**	21
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**4**	**19**
5:45 PM	0	2	1	0	0	0	0	0	0	0	0	0	0	2	0	0	5	20
Count Total	0	7	5	0	0	0	9	0	0	0	0	0	0	10	2	4	37	0
Peak Hour	**0**	**3**	**1**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**2**	**19**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Yesler Way Eastbound			Yesler Way Westbound			S Washington St Northbound			8th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	2	3	0
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	1	2	0
4:30 PM	0	1	0	0	3	0	0	0	0	0	0	2	6	0
4:45 PM	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	13
5:00 PM	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	15
5:15 PM	**1**	**6**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**13**	26
5:30 PM	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**25**
5:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2	25
Count Total	1	17	0	0	9	0	0	0	0	0	0	11	38	0
Peak Hour	**1**	**13**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**25**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

	HV %:	PHF
EB	0.0%	0.51
WB	1.6%	0.81
NB	3.4%	0.81
SB	0.0%	0.79
NEB	-	-
TOTAL	1.1%	0.81



project.manager.wa@idaxdata.com

Two-Hour Count Summaries

Interval Start		Alder St Eastbound					Alder St Westbound					8th Ave Alley Northbound					8th Ave Southbound					Driveway Northeastbound					15-min Total	Rolling One Hour
		UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
7:00 AM		0	2	5	0	0	2	3	0	10	14	1	0	1	1	3	0	4	0	0	3	0	0	0	0	0	49	0
7:15 AM		**0**	**4**	**13**	**1**	**0**	**1**	**1**	**1**	**11**	**10**	**1**	**1**	**3**	**0**	**2**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**59**	0
7:30 AM		**0**	**11**	**31**	**0**	**0**	**0**	**0**	**0**	**12**	**12**	**0**	**1**	**1**	**2**	**4**	**0**	**12**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**88**	0
7:45 AM		**0**	**5**	**9**	**1**	**0**	**0**	**3**	**0**	**18**	**18**	**0**	**0**	**4**	**1**	**4**	**0**	**11**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**76**	272
8:00 AM		**0**	**2**	**8**	**0**	**0**	**0**	**1**	**0**	**24**	**14**	**0**	**0**	**0**	**3**	**2**	**0**	**5**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**61**	**284**
8:15 AM		0	0	4	0	0	0	3	0	22	16	0	0	0	1	0	0	6	0	0	3	0	0	0	0	0	55	280
8:30 AM		0	1	5	0	0	1	0	0	15	12	0	0	1	0	2	0	4	0	0	4	0	0	0	0	0	45	237
8:45 AM		0	1	2	0	0	1	3	0	13	20	0	0	1	1	3	0	12	0	0	5	0	0	0	0	0	62	223
Count Total		0	26	77	2	0	5	14	1	125	116	2	2	11	9	20	0	64	1	0	20	0	0	0	0	0	495	0
Peak Hour	**All**	**0**	**22**	**61**	**2**	**0**	**1**	**5**	**1**	**65**	**54**	**1**	**2**	**8**	**6**	**12**	**0**	**38**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**284**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**
	HV%	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**20%**	**0%**	**0%**	**2%**	**0%**	**0%**	**0%**	**17%**	**0%**	**-**	**0%**	**0%**	**-**	**0%**	**-**	**-**	**-**	**-**	**-**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NEB	Total	EB	WB	NB	SB	NEB	Total	East	West	North	South	Southwest	Total
7:00 AM	0	1	1	0	0	*2*	0	0	0	0	0	*0*	4	0	3	0	0	*7*
7:15 AM	**0**	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	**0**	***0***	**6**	**0**	**3**	**1**	**0**	***10***
7:30 AM	**0**	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**0**	**1**	**1**	***5***
7:45 AM	**0**	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**1**	**0**	***2***
8:00 AM	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***
8:15 AM	0	1	0	1	0	*2*	0	0	0	0	0	*0*	1	0	3	1	0	*5*
8:30 AM	0	1	0	0	0	*1*	0	1	0	0	0	*1*	1	0	6	2	1	*10*
8:45 AM	0	0	1	0	0	*1*	0	0	1	0	0	*1*	5	0	4	1	1	*11*
Count Total	0	5	3	1	0	*9*	0	1	1	0	0	*2*	21	0	19	7	3	*50*
Peak Hr	**0**	**2**	**1**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	***0***	**10**	**0**	**3**	**3**	**1**	*17*

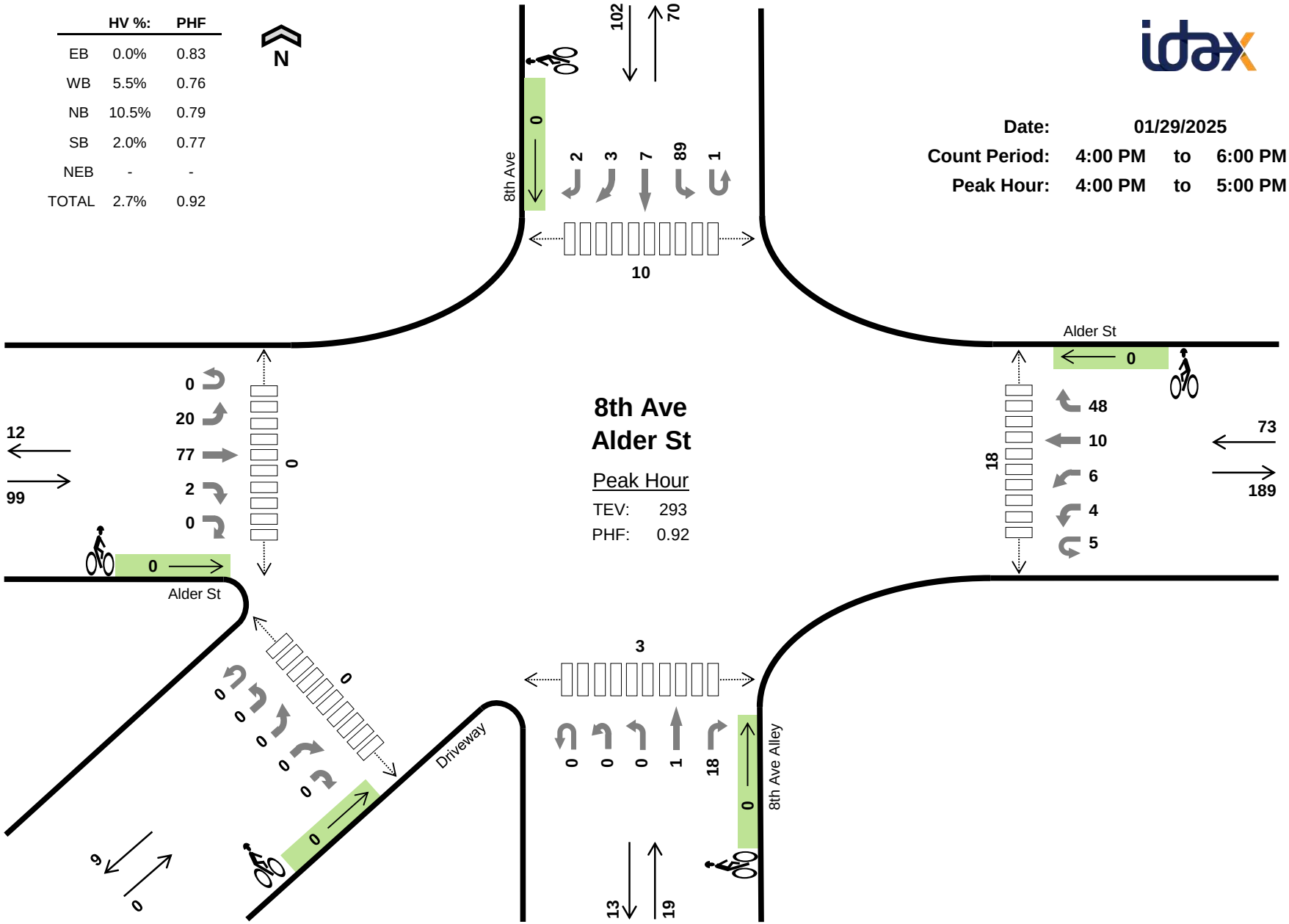
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Alder St					Alder St					8th Ave Alley					8th Ave					Driveway					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northeastbound						
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	5
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	4
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	4
Count Total	0	0	0	0	0	0	1	0	0	4	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	9	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Alder St					Alder St					8th Ave Alley					8th Ave					Driveway					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northeastbound						
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Count Total	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	**0**

	HV %:	PHF
EB	0.0%	0.83
WB	5.5%	0.76
NB	10.5%	0.79
SB	2.0%	0.77
NEB	-	-
TOTAL	2.7%	0.92



project.manager.wa@idaxdata.com

Two-Hour Count Summaries

Interval Start	Alder St Eastbound					Alder St Westbound					8th Ave Alley Northbound					8th Ave Southbound					Driveway Northeastbound					15-min Total	Rolling One Hour
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
4:00 PM	**0**	**6**	**14**	**1**	**0**	**1**	**2**	**1**	**2**	**13**	**0**	**0**	**0**	**1**	**5**	**1**	**23**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**71**	0
4:15 PM	**0**	**6**	**13**	**1**	**0**	**2**	**2**	**2**	**1**	**12**	**0**	**0**	**0**	**0**	**3**	**0**	**27**	**3**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**75**	0
4:30 PM	**0**	**5**	**25**	**0**	**0**	**1**	**0**	**1**	**6**	**16**	**0**	**0**	**0**	**0**	**5**	**0**	**19**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**80**	0
4:45 PM	**0**	**3**	**25**	**0**	**0**	**1**	**0**	**2**	**1**	**7**	**0**	**0**	**0**	**0**	**5**	**0**	**20**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**67**	**293**
5:00 PM	0	7	20	0	1	1	1	2	1	8	0	0	0	2	7	0	9	2	0	1	0	0	0	0	0	62	284
5:15 PM	0	4	21	0	0	0	3	4	0	8	0	0	0	0	5	0	21	0	0	0	0	0	0	0	0	66	275
5:30 PM	0	5	20	0	0	0	0	1	2	3	0	0	0	0	7	0	11	0	0	0	0	0	0	0	0	49	244
5:45 PM	0	3	11	1	0	0	0	4	5	6	0	0	0	1	3	0	10	0	0	0	0	0	0	0	0	44	221
Count Total	0	39	149	3	1	6	8	17	18	73	0	0	0	4	40	1	140	9	3	3	0	0	0	0	0	514	0
Peak Hour All	**0**	**20**	**77**	**2**	**0**	**5**	**4**	**6**	**10**	**48**	**0**	**0**	**0**	**1**	**18**	**1**	**89**	**7**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**293**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**17%**	**0%**	**6%**	**-**	**-**	**-**	**0%**	**11%**	**0%**	**1%**	**14%**	**0%**	**0%**	**-**	**-**	**-**	**-**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NEB	Total	EB	WB	NB	SB	NEB	Total	East	West	North	South	Southwest	Total
4:00 PM	**0**	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	***0***	**5**	**0**	**1**	**0**	**0**	***6***
4:15 PM	**0**	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	**0**	***0***	**6**	**0**	**0**	**0**	**0**	***6***
4:30 PM	**0**	**2**	**0**	**1**	**0**	***3***	**0**	**0**	**0**	**0**	**0**	***0***	**5**	**0**	**3**	**3**	**0**	***11***
4:45 PM	**0**	**1**	**0**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**6**	**0**	**0**	***8***
5:00 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	2	0	2	0	0	*4*
5:15 PM	0	1	1	2	0	*4*	0	0	0	0	0	*0*	4	0	2	0	0	*6*
5:30 PM	0	0	0	1	0	*1*	0	0	0	1	0	*1*	1	1	0	1	0	*3*
5:45 PM	0	1	1	3	0	*5*	0	0	0	0	0	*0*	0	0	1	1	0	*2*
Count Total	0	7	4	8	0	*19*	0	0	0	2	0	*2*	25	1	15	5	0	*46*
Peak Hr	**0**	**4**	**2**	**2**	**0**	***8***	**0**	**0**	**0**	**0**	**0**	***0***	**18**	**0**	**10**	**3**	**0**	*31*

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Alder St					Alder St					8th Ave Alley					8th Ave					Driveway					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northeastbound						
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**8**
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	4	10
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	8
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	5	11
Count Total	0	0	0	0	0	0	0	4	0	3	0	0	0	0	4	0	7	1	0	0	0	0	0	0	0	19	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	8	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Alder St					Alder St					8th Ave Alley					8th Ave					Driveway					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northeastbound						
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	**0**

Appendix E LOS Definitions

Highway Capacity Manual 7th Edition

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* 7th Edition (Transportation Research Board, 2022).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F[1]	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 7th Edition*, Transportation Research Board, 2022, respectively.
1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop controlled. All-way stop controlled intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F[1]	>50

Source: *Highway Capacity Manual 7th Edition*, Transportation Research Board, 2022, respectively.
1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Highway Capacity Manual, 2000

Signalized intersection level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

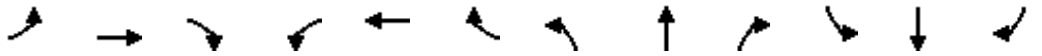
Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

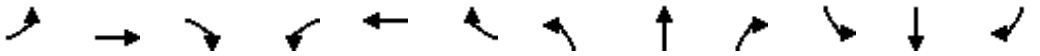
Appendix F LOS Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	370	180	0	0	0	0	0	0	260	905	0
Future Volume (veh/h)	0	370	180	0	0	0	0	0	0	260	905	0
Initial Q (Qb), veh	0	0	0							0	0	0
Lane Width Adj.	1.00	1.00	1.00							1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1856	1856							1870	1870	0
Adj Flow Rate, veh/h	0	381	186							268	933	0
Peak Hour Factor	0.97	0.97	0.97							0.97	0.97	0.97
Percent Heavy Veh, %	0	3	3							2	2	0
Cap, veh/h	0	1351	581							601	2094	0
Arrive On Green	0.00	0.38	0.38							0.52	0.52	0.00
Sat Flow, veh/h	0	3618	1517							1163	4221	0
Grp Volume(v), veh/h	0	381	186							418	783	0
Grp Sat Flow(s),veh/h/ln	0	1763	1517							1812	1702	0
Q Serve(g_s), s	0.0	6.7	7.8							13.0	13.0	0.0
Cycle Q Clear(g_c), s	0.0	6.7	7.8							13.0	13.0	0.0
Prop In Lane	0.00		1.00							0.64		0.00
Lane Grp Cap(c), veh/h	0	1351	581							936	1759	0
V/C Ratio(X)	0.00	0.28	0.32							0.45	0.45	0.00
Avail Cap(c_a), veh/h	0	1351	581							936	1759	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	19.2	19.5							13.7	13.7	0.0
Incr Delay (d2), s/veh	0.0	0.5	1.4							1.5	0.8	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.8	2.9							5.5	5.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	19.7	21.0							15.2	14.5	0.0
LnGrp LOS		B	C							B	B	
Approach Vol, veh/h		567									1201	
Approach Delay, s/veh		20.1									14.7	
Approach LOS		C									B	

Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						39.0		51.0				
Change Period (Y+Rc), s						4.5		4.5				
Max Green Setting (Gmax), s						34.5		46.5				
Max Q Clear Time (g_c+I1), s						9.8		15.0				
Green Ext Time (p_c), s						0.5		1.9				

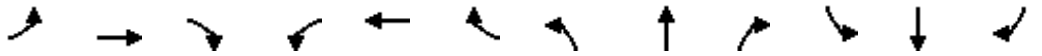
Intersection Summary			
HCM 7th Control Delay, s/veh		16.5	
HCM 7th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	155	0	0	0	200	0	585	45	0	0	0
Future Volume (veh/h)	185	155	0	0	0	200	0	585	45	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	0.98		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1856	1856	0	1870	1870			
Adj Flow Rate, veh/h	201	168	0	0	0	217	0	636	49			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	3	3	0	2	2			
Cap, veh/h	265	194	0	0	0	566	0	0	0			
Arrive On Green	0.37	0.37	0.00	0.00	0.00	0.37	0.00	0.00	0.00			
Sat Flow, veh/h	546	519	0	0	0	1518		0				
Grp Volume(v), veh/h	369	0	0	0	0	217		0.0				
Grp Sat Flow(s),veh/h/ln	1064	0	0	0	0	1518						
Q Serve(g_s), s	21.7	0.0	0.0	0.0	0.0	9.4						
Cycle Q Clear(g_c), s	31.1	0.0	0.0	0.0	0.0	9.4						
Prop In Lane	0.54		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	459	0	0	0	0	566						
V/C Ratio(X)	0.80	0.00	0.00	0.00	0.00	0.38						
Avail Cap(c_a), veh/h	481	0	0	0	0	590						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00						
Uniform Delay (d), s/veh	30.8	0.0	0.0	0.0	0.0	20.6						
Incr Delay (d2), s/veh	9.3	0.0	0.0	0.0	0.0	0.4						
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	8.8	0.0	0.0	0.0	0.0	3.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.0	0.0	0.0	0.0	0.0	21.1						
LnGrp LOS	D					C						
Approach Vol, veh/h		369			217							
Approach Delay, s/veh		40.0			21.1							
Approach LOS		D			C							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				38.6				38.6				
Change Period (Y+Rc), s				5.0				5.0				
Max Green Setting (Gmax), s				35.0				35.0				
Max Q Clear Time (g_c+I1), s				33.1				11.4				
Green Ext Time (p_c), s				0.5				1.5				

Intersection Summary												
HCM 7th Control Delay, s/veh			33.0									
HCM 7th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	185	185	690	280	0	0	0	0	385	575	120
Future Volume (veh/h)	0	185	185	690	280	0	0	0	0	385	575	120
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1811	1856	1856	0				1870	1870	1870
Adj Flow Rate, veh/h	0	193	0	719	292	0				401	599	125
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	6	6	3	3	0				2	2	2
Cap, veh/h	0	861		1137	1173	0				468	933	409
Arrive On Green	0.00	0.25	0.00	0.11	0.21	0.00				0.09	0.09	0.09
Sat Flow, veh/h	0	3532	1535	3428	1856	0				1781	3554	1560
Grp Volume(v), veh/h	0	193	0	719	292	0				401	599	125
Grp Sat Flow(s),veh/h/ln	0	1721	1535	1714	1856	0				1781	1777	1560
Q Serve(g_s), s	0.0	4.0	0.0	18.1	11.8	0.0				20.0	14.7	6.8
Cycle Q Clear(g_c), s	0.0	4.0	0.0	18.1	11.8	0.0				20.0	14.7	6.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	861		1137	1173	0				468	933	409
V/C Ratio(X)	0.00	0.22		0.63	0.25	0.00				0.86	0.64	0.31
Avail Cap(c_a), veh/h	0	861		1137	1173	0				653	1303	572
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	0.00	0.79	0.79	0.00				0.89	0.89	0.89
Uniform Delay (d), s/veh	0.0	26.8	0.0	34.8	17.8	0.0				39.4	37.0	33.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.7	0.4	0.0				5.5	0.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.6	0.0	8.4	6.0	0.0				10.2	7.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	26.9	0.0	35.5	18.2	0.0				44.9	37.3	33.5
LnGrp LOS		C		D	B					D	D	C
Approach Vol, veh/h		193			1011						1125	
Approach Delay, s/veh		26.9			30.5						39.6	
Approach LOS		C			C						D	

Timer - Assigned Phs	2	3	4				8					
Phs Duration (G+Y+Rc), s	28.6	34.4	27.0				61.4					
Change Period (Y+Rc), s	5.0	4.5	4.5				4.5					
Max Green Setting (Gmax), s	33.0	25.5	17.5				47.5					
Max Q Clear Time (g_c+I1), s	22.0	20.1	6.0				13.8					
Green Ext Time (p_c), s	1.6	0.4	0.4				0.7					

Intersection Summary	
HCM 7th Control Delay, s/veh	34.6
HCM 7th LOS	C

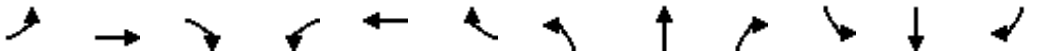
Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	495	0	0	715	250	260	325	395	0	0	0
Future Volume (veh/h)	75	495	0	0	715	250	260	325	395	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1841	1841	0	0	1841	1841	1885	1885	1885			
Adj Flow Rate, veh/h	77	510	0	0	737	258	268	335	407			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	4	4	0	0	4	4	1	1	1			
Cap, veh/h	98	2154	0	0	1285	450	510	536	451			
Arrive On Green	0.06	0.62	0.00	0.00	0.51	0.51	0.28	0.28	0.28			
Sat Flow, veh/h	1753	3589	0	0	2613	882	1795	1885	1587			
Grp Volume(v), veh/h	77	510	0	0	511	484	268	335	407			
Grp Sat Flow(s),veh/h/ln	1753	1749	0	0	1749	1654	1795	1885	1587			
Q Serve(g_s), s	3.9	5.9	0.0	0.0	18.2	18.2	11.3	13.9	22.2			
Cycle Q Clear(g_c), s	3.9	5.9	0.0	0.0	18.2	18.2	11.3	13.9	22.2			
Prop In Lane	1.00		0.00	0.00		0.53	1.00		1.00			
Lane Grp Cap(c), veh/h	98	2154	0	0	891	843	510	536	451			
V/C Ratio(X)	0.78	0.24	0.00	0.00	0.57	0.57	0.53	0.63	0.90			
Avail Cap(c_a), veh/h	166	2154	0	0	891	843	588	618	520			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.75	0.75	0.00	0.00	0.91	0.91	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.9	7.8	0.0	0.0	15.3	15.3	27.1	28.0	31.0			
Incr Delay (d2), s/veh	3.8	0.2	0.0	0.0	2.4	2.6	0.3	0.9	16.1			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	2.1	0.0	0.0	7.5	7.2	4.6	6.1	10.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.7	8.0	0.0	0.0	17.7	17.9	27.4	28.9	47.1			
LnGrp LOS	D	A			B	B	C	C	D			
Approach Vol, veh/h		587			995			1010				
Approach Delay, s/veh		12.9			17.8			35.9				
Approach LOS		B			B			D				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		30.1		59.9			9.6	50.4				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		29.5		51.5			8.5	38.5				
Max Q Clear Time (g_c+I1), s		24.2		7.9			5.9	20.2				
Green Ext Time (p_c), s		1.4		2.7			0.0	4.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			23.7									
HCM 7th LOS			C									



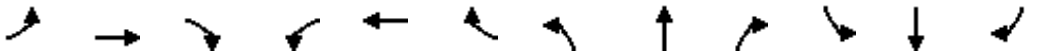
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	930	5	3	880	5	1	0	2	4	3	85
Future Volume (veh/h)	15	930	5	3	880	5	1	0	2	4	3	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.96	0.96		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1411	1411	1411	1885	1885	1885
Adj Flow Rate, veh/h	16	989	5	3	936	5	1	0	2	4	3	90
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	33	33	33	1	1	1
Cap, veh/h	57	2593	13	41	2616	14	77	15	78	44	8	139
Arrive On Green	0.74	0.74	0.74	0.74	0.74	0.74	0.10	0.00	0.10	0.10	0.10	0.10
Sat Flow, veh/h	21	3484	17	2	3515	19	248	155	805	26	86	1439
Grp Volume(v), veh/h	523	0	487	494	0	450	3	0	0	97	0	0
Grp Sat Flow(s),veh/h/ln	1824	0	1698	1851	0	1685	1208	0	0	1551	0	0
Q Serve(g_s), s	0.0	0.0	9.3	0.0	0.0	8.5	0.0	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	9.0	0.0	9.3	8.5	0.0	8.5	0.2	0.0	0.0	5.5	0.0	0.0
Prop In Lane	0.03		0.01	0.01		0.01	0.33		0.67	0.04		0.93
Lane Grp Cap(c), veh/h	1399	0	1264	1418	0	1254	169	0	0	191	0	0
V/C Ratio(X)	0.37	0.00	0.39	0.35	0.00	0.36	0.02	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	1399	0	1264	1418	0	1254	291	0	0	397	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.00	0.92	0.82	0.00	0.82	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.1	0.0	4.2	4.1	0.0	4.1	37.2	0.0	0.0	39.6	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.8	0.6	0.0	0.7	0.0	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	2.9	2.8	0.0	2.6	0.1	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	4.8	0.0	5.0	4.6	0.0	4.7	37.3	0.0	0.0	40.4	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		1010			944			3			97	
Approach Delay, s/veh		4.9			4.7			37.3			40.4	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	75.2	15.8	75.2	15.8
Change Period (Y+Rc), s	7.5	7.0	* 7.5	* 7
Max Green Setting (Gmax), s	57.5	19.0	* 61	* 21
Max Q Clear Time (g_c+I1), s	11.3	2.2	10.5	7.5
Green Ext Time (p_c), s	5.4	0.0	4.9	0.3

Intersection Summary	
HCM 7th Control Delay, s/veh	6.5
HCM 7th LOS	A

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	710	185	5	695	20	170	220	20	30	50	35
Future Volume (veh/h)	10	710	185	5	695	20	170	220	20	30	50	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.94	0.92		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1811	1811	1811	1752	1752	1752
Adj Flow Rate, veh/h	11	747	195	5	732	21	179	232	21	32	53	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	2	2	2	6	6	6	10	10	10
Cap, veh/h	46	1219	315	42	1569	45	212	610	55	99	145	84
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.12	0.37	0.37	0.20	0.20	0.20
Sat Flow, veh/h	13	2668	690	5	3436	98	1725	1627	147	248	732	427
Grp Volume(v), veh/h	519	0	434	398	0	360	179	0	253	122	0	0
Grp Sat Flow(s),veh/h/ln	1834	0	1538	1859	0	1681	1725	0	1774	1407	0	0
Q Serve(g_s), s	0.0	0.0	19.7	0.0	0.0	13.6	9.3	0.0	9.6	1.1	0.0	0.0
Cycle Q Clear(g_c), s	19.4	0.0	19.7	13.5	0.0	13.6	9.3	0.0	9.6	6.3	0.0	0.0
Prop In Lane	0.02		0.45	0.01		0.06	1.00		0.08	0.26		0.30
Lane Grp Cap(c), veh/h	878	0	702	889	0	768	212	0	665	327	0	0
V/C Ratio(X)	0.59	0.00	0.62	0.45	0.00	0.47	0.85	0.00	0.38	0.37	0.00	0.00
Avail Cap(c_a), veh/h	878	0	702	889	0	768	262	0	713	354	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.00	0.87	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.8	0.0	18.9	17.3	0.0	17.3	39.5	0.0	21.0	32.1	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.0	3.5	1.6	0.0	2.1	15.7	0.0	0.1	0.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	7.5	6.1	0.0	5.6	4.9	0.0	4.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.4	0.0	22.5	18.9	0.0	19.3	55.2	0.0	21.1	32.3	0.0	0.0
LnGrp LOS	C		C	B		B	E		C	C		
Approach Vol, veh/h		953			758			432			122	
Approach Delay, s/veh		21.9			19.1			35.2			32.3	
Approach LOS		C			B			D			C	

Timer - Assigned Phs	2	4	6	7	8
Phs Duration (G+Y+Rc), s	49.5	42.5	49.5	16.3	26.2
Change Period (Y+Rc), s	7.5	8.0	* 7.5	5.0	8.0
Max Green Setting (Gmax), s	37.5	37.0	* 41	14.0	20.0
Max Q Clear Time (g_c+I1), s	21.7	11.6	15.6	11.3	8.3
Green Ext Time (p_c), s	1.3	1.0	0.9	0.1	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	24.1
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

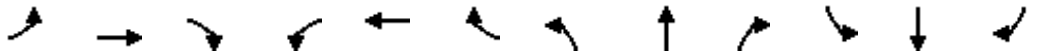
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	595	175	0	705	45	0	0	30	0	0	5
Future Vol, veh/h	0	595	175	0	705	45	0	0	30	0	0	5
Conflicting Peds, #/hr	101	0	96	36	0	41	96	0	36	41	0	101
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	3	3	3	3	3	3	0	0	0
Mvmt Flow	0	633	186	0	750	48	0	0	32	0	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	542	-	-	541
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	482	0	0	491
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	423	-	-	426
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	14.2	13.56
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	423	-	-	-	-	426
HCM Lane V/C Ratio	0.075	-	-	-	-	0.012
HCM Ctrl Dly (s/v)	14.2	-	-	-	-	13.6
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	370	60	15	445	75	210	565	10	75	240	85
Future Volume (veh/h)	165	370	60	15	445	75	210	565	10	75	240	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	172	385	63	16	464	78	219	589	10	78	250	89
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	199	830	135	30	538	90	244	1137	19	297	925	318
Arrive On Green	0.11	0.27	0.27	0.02	0.18	0.18	0.28	0.64	0.64	0.17	0.37	0.37
Sat Flow, veh/h	1767	3027	491	1767	3006	502	1767	3543	60	1739	2496	859
Grp Volume(v), veh/h	172	223	225	16	271	271	219	293	306	78	171	168
Grp Sat Flow(s),veh/h/ln	1767	1763	1755	1767	1763	1746	1767	1763	1841	1739	1735	1621
Q Serve(g_s), s	11.5	12.6	12.8	1.1	17.9	18.1	14.3	10.7	10.7	4.7	8.3	8.7
Cycle Q Clear(g_c), s	11.5	12.6	12.8	1.1	17.9	18.1	14.3	10.7	10.7	4.7	8.3	8.7
Prop In Lane	1.00		0.28	1.00		0.29	1.00		0.03	1.00		0.53
Lane Grp Cap(c), veh/h	199	483	481	30	315	312	244	566	591	297	643	601
V/C Ratio(X)	0.86	0.46	0.47	0.53	0.86	0.87	0.90	0.52	0.52	0.26	0.27	0.28
Avail Cap(c_a), veh/h	258	492	490	155	389	386	405	566	591	297	643	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	36.2	36.3	58.5	47.8	47.9	42.6	16.5	16.5	43.2	26.4	26.5
Incr Delay (d2), s/veh	17.3	0.3	0.3	5.1	12.7	14.1	8.2	3.2	3.1	0.2	1.0	1.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	5.5	5.6	0.5	9.0	9.2	6.0	3.9	4.0	2.1	3.7	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.6	36.4	36.5	63.6	60.6	62.0	50.8	19.7	19.6	43.3	27.4	27.7
LnGrp LOS	E	D	D	E	E	E	D	B	B	D	C	C
Approach Vol, veh/h		620			558			818			417	
Approach Delay, s/veh		45.7			61.3			28.0			30.5	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.1	52.0	18.0	28.0	28.0	46.0	6.6	39.4
Change Period (Y+Rc), s	5.5	7.5	4.5	6.5	7.5	* 7.5	4.5	6.5
Max Green Setting (Gmax), s	27.5	24.5	17.5	26.5	13.5	* 39	10.5	33.5
Max Q Clear Time (g_c+I1), s	16.3	10.7	13.5	20.1	6.7	12.7	3.1	14.8
Green Ext Time (p_c), s	0.2	1.2	0.1	1.3	0.0	2.6	0.0	1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	40.7
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

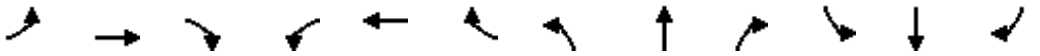
Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↳			↑↑↳				↱			↱
Traffic Vol, veh/h	0	395	55	0	440	60	0	0	2	0	0	120
Future Vol, veh/h	0	395	55	0	440	60	0	0	2	0	0	120
Conflicting Peds, #/hr	44	0	27	23	0	40	27	0	23	40	0	44
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	416	58	0	463	63	0	0	2	0	0	126

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	287	-	-	347
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	716	0	0	655
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	682	-	-	603
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	10.29	12.54
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	682	-	-	-	-	603
HCM Lane V/C Ratio	0.003	-	-	-	-	0.209
HCM Ctrl Dly (s/v)	10.3	-	-	-	-	12.5
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	225	10	20	445	55	25	240	15	35	125	55
Future Volume (vph)	155	225	10	20	445	55	25	240	15	35	125	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.98		1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3370			3410		1671	1729		1703	1792	1460
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3370			3410		1671	1729		1703	1792	1460
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	163	237	11	21	468	58	26	253	16	37	132	58
RTOR Reduction (vph)	0	2	0	0	0	0	0	1	0	0	0	27
Lane Group Flow (vph)	0	409	0	0	547	0	26	268	0	37	132	31
Confl. Peds. (#/hr)	29		80	140		89	80		140	89		29
Confl. Bikes (#/hr)									6			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	8%	8%	8%	6%	6%	6%
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases												6
Actuated Green, G (s)		18.7			24.2		4.5	40.0		4.9	45.6	64.3
Effective Green, g (s)		18.7			24.2		4.5	40.0		4.9	45.6	64.3
Actuated g/C Ratio		0.15			0.20		0.04	0.33		0.04	0.38	0.53
Clearance Time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		520			682		62	571		68	675	775
v/s Ratio Prot		c0.12			c0.16		0.02	c0.15		c0.02	c0.07	0.01
v/s Ratio Perm												0.01
v/c Ratio		0.79			0.80		0.42	0.47		0.54	0.20	0.04
Uniform Delay, d1		49.2			46.1		57.0	32.1		57.0	25.4	13.6
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		7.1			6.4		1.7	2.7		4.7	0.6	0.0
Delay (s)		56.4			52.5		58.6	34.8		61.6	26.0	13.6
Level of Service		E			D		E	C		E	C	B
Approach Delay (s/veh)		56.4			52.5			36.9			28.6	
Approach LOS		E			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	46.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	121.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	95	5	10	25	10	155	5	165	25	65	80	90
Future Vol, veh/h	95	5	10	25	10	155	5	165	25	65	80	90
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	104	5	11	27	11	170	5	181	27	71	88	99
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10	10.1	10.6	11
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	86%	13%	28%
Vol Thru, %	85%	5%	5%	34%
Vol Right, %	13%	9%	82%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	195	110	190	235
LT Vol	5	95	25	65
Through Vol	165	5	10	80
RT Vol	25	10	155	90
Lane Flow Rate	214	121	209	258
Geometry Grp	1	1	1	1
Degree of Util (X)	0.312	0.19	0.29	0.365
Departure Headway (Hd)	5.239	5.661	5.003	5.095
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	686	633	718	708
Service Time	3.267	3.696	3.034	3.123
HCM Lane V/C Ratio	0.312	0.191	0.291	0.364
HCM Control Delay, s/veh	10.6	10	10.1	11
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.3	0.7	1.2	1.7

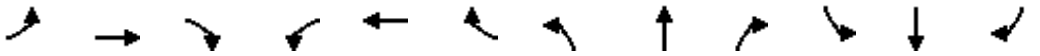
Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	35	55	15	5	85	60	10	15	10	35	20	75
Future Vol, veh/h	35	55	15	5	85	60	10	15	10	35	20	75
Conflicting Peds, #/hr	151	0	172	130	0	109	172	0	130	109	0	151
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	11	11	11	11	11	11	6	6	6	1	1	1
Mvmt Flow	38	60	16	5	92	65	11	16	11	38	22	82

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	309	0	0	248	0	0	602	636	370	561	611	448
Stage 1	-	-	-	-	-	-	316	316	-	287	287	-
Stage 2	-	-	-	-	-	-	286	319	-	274	324	-
Critical Hdwy	4.21	-	-	4.21	-	-	7.16	6.56	6.26	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.11	5.51	-
Follow-up Hdwy	2.299	-	-	2.299	-	-	3.554	4.054	3.354	3.509	4.009	3.309
Pot Cap-1 Maneuver	1203	-	-	1267	-	-	406	391	667	440	410	613
Stage 1	-	-	-	-	-	-	687	648	-	723	676	-
Stage 2	-	-	-	-	-	-	713	646	-	734	651	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1030	-	-	1059	-	-	204	267	489	290	281	439
Mov Cap-2 Maneuver	-	-	-	-	-	-	204	267	-	290	281	-
Stage 1	-	-	-	-	-	-	552	521	-	615	576	-
Stage 2	-	-	-	-	-	-	464	550	-	586	524	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.88	0.28	19.94	21.43
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	279	575	-	-	55	-	-	358
HCM Lane V/C Ratio	0.136	0.037	-	-	0.005	-	-	0.394
HCM Ctrl Dly (s/v)	19.9	8.6	0	-	8.4	0	-	21.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	1.8



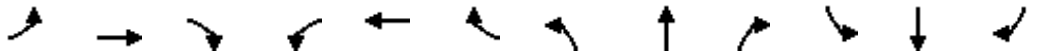
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	60	20	10	65	160	25	605	40	115	160	40
Future Volume (veh/h)	15	60	20	10	65	160	25	605	40	115	160	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.88	0.93		0.88	0.97		0.94	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1826	1826	1826	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	16	65	22	11	71	174	27	658	43	125	174	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	13	13	5	5	5	4	4	4	5	5	5
Cap, veh/h	58	194	59	37	85	192	93	2180	141	494	911	228
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.70	0.70	0.70	1.00	1.00	1.00
Sat Flow, veh/h	124	1009	308	28	441	996	87	3118	201	623	1303	326
Grp Volume(v), veh/h	103	0	0	256	0	0	381	0	347	133	0	209
Grp Sat Flow(s),veh/h/ln	1440	0	0	1466	0	0	1783	0	1624	666	0	1586
Q Serve(g_s), s	0.0	0.0	0.0	7.9	0.0	0.0	0.0	0.0	9.8	3.3	0.0	0.0
Cycle Q Clear(g_c), s	6.7	0.0	0.0	20.5	0.0	0.0	9.4	0.0	9.8	13.1	0.0	0.0
Prop In Lane	0.16		0.21	0.04		0.68	0.07		0.12	0.94		0.21
Lane Grp Cap(c), veh/h	312	0	0	313	0	0	1279	0	1135	524	0	1109
V/C Ratio(X)	0.33	0.00	0.00	0.82	0.00	0.00	0.30	0.00	0.31	0.25	0.00	0.19
Avail Cap(c_a), veh/h	438	0	0	463	0	0	1279	0	1135	524	0	1109
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.65	0.00	0.00	1.00	0.00	1.00	0.96	0.00	0.96
Uniform Delay (d), s/veh	41.8	0.0	0.0	47.4	0.0	0.0	6.8	0.0	6.9	0.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.8	0.0	0.0	0.6	0.0	0.7	1.1	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	7.8	0.0	0.0	3.8	0.0	3.5	0.2	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.1	0.0	0.0	50.2	0.0	0.0	7.4	0.0	7.6	1.9	0.0	0.4
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		103			256			728			342	
Approach Delay, s/veh		42.1			50.2			7.5			0.9	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	90.4	29.6	90.4	29.6
Change Period (Y+Rc), s	6.5	6.5	* 6.5	* 6.5
Max Green Setting (Gmax), s	73.5	33.5	* 76	* 36
Max Q Clear Time (g_c+I1), s	11.8	8.7	15.1	22.5
Green Ext Time (p_c), s	0.9	0.2	0.8	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	16.1
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	140	15	10	190	50	10	220	10	30	105	65
Future Volume (vph)	10	140	15	10	190	50	10	220	10	30	105	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.96		1.00	0.99		1.00	0.91	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.99			0.97		1.00	0.99		1.00	0.94	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1614			1693		1671	1735		1719	1545	
Flt Permitted		0.95			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1545			1673		1671	1735		1719	1545	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	10	146	16	10	198	52	10	229	10	31	109	68
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	172	0	0	260	0	10	238	0	31	165	0
Confl. Peds. (#/hr)	66		70	70		66	61		103	103		61
Confl. Bikes (#/hr)			1			3			9			7
Heavy Vehicles (%)	13%	13%	13%	4%	4%	4%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		23.9			25.9		1.3	36.3		4.7	74.3	
Effective Green, g (s)		23.9			25.9		1.3	36.3		4.7	74.3	
Actuated g/C Ratio		0.20			0.22		0.01	0.30		0.04	0.62	
Clearance Time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		307			361		18	524		67	956	
v/s Ratio Prot							0.01	c0.14		c0.02	c0.11	
v/s Ratio Perm		0.11			c0.16							
v/c Ratio		0.56			0.72		0.56	0.45		0.46	0.17	
Uniform Delay, d1		43.3			43.7		59.1	33.8		56.4	9.7	
Progression Factor		0.89			1.00		1.26	0.74		1.00	1.00	
Incremental Delay, d2		2.3			6.9		19.0	2.8		1.8	0.4	
Delay (s)		41.0			50.6		93.3	27.9		58.3	10.1	
Level of Service		D			D		F	C		E	B	
Approach Delay (s/veh)		41.0			50.6			30.5			17.3	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	10	35	670	156	35
Future Vol, veh/h	11	10	35	670	156	35
Conflicting Peds, #/hr	95	25	25	0	0	95
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	4	4	3	3
Mvmt Flow	12	11	37	705	164	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	799	221	296	0	-	0
Stage 1	278	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Critical Hdwy	6.9	7	4.18	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.35	2.24	-	-	-
Pot Cap-1 Maneuver	317	774	1248	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	552	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	252	687	1135	-	-	-
Mov Cap-2 Maneuver	252	-	-	-	-	-
Stage 1	642	-	-	-	-	-
Stage 2	502	-	-	-	-	-

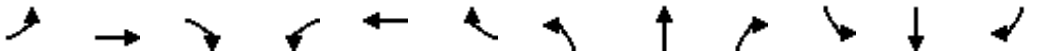
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	15.64	0.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	179	-	360	-	-
HCM Lane V/C Ratio	0.032	-	0.061	-	-
HCM Ctrl Dly (s/v)	8.3	0.3	15.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	250	15	0	115
Future Volume (vph)	5	5	250	15	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.90		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.93		0.99			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	1440		1742			3406
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	1440		1742			3406
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	5	5	275	16	0	126
RTOR Reduction (vph)	4	0	2	0	0	0
Lane Group Flow (vph)	6	0	289	0	0	126
Confl. Peds. (#/hr)	1	67		36	36	
Confl. Bikes (#/hr)				11		
Heavy Vehicles (%)	8%	8%	8%	8%	6%	6%
Turn Type	Prot		NA			NA
Protected Phases	4		2			6
Permitted Phases						
Actuated Green, G (s)	20.0		78.0			88.5
Effective Green, g (s)	20.0		78.0			88.5
Actuated g/C Ratio	0.17		0.65			0.74
Clearance Time (s)	6.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	240		1132			2511
v/s Ratio Prot	c0.00		c0.17			c0.04
v/s Ratio Perm						
v/c Ratio	0.02		0.26			0.05
Uniform Delay, d1	41.8		8.8			4.3
Progression Factor	1.00		1.00			1.21
Incremental Delay, d2	0.0		0.5			0.0
Delay (s)	41.9		9.4			5.2
Level of Service	D		A			A
Approach Delay (s/veh)	41.9		9.4			5.2
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	140	30	0	610	145	85	110	2	80	40	5
Future Volume (veh/h)	0	140	30	0	610	145	85	110	2	80	40	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.96		0.94	0.97		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1841	1841	0	1826	1826	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	0	152	33	0	663	158	92	120	2	87	43	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	4	4	0	5	5	5	5	5	6	6	6
Cap, veh/h	0	2022	427	0	1952	465	267	332	6	211	293	34
Arrive On Green	0.00	0.71	0.71	0.00	0.71	0.71	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	0	2949	603	0	2849	656	1278	1788	30	1194	1581	184
Grp Volume(v), veh/h	0	91	94	0	417	404	92	0	122	87	0	48
Grp Sat Flow(s),veh/h/ln	0	1749	1711	0	1735	1680	1278	0	1818	1194	0	1765
Q Serve(g_s), s	0.0	2.0	2.1	0.0	11.3	11.3	7.9	0.0	7.1	8.4	0.0	2.8
Cycle Q Clear(g_c), s	0.0	2.0	2.1	0.0	11.3	11.3	10.7	0.0	7.1	15.5	0.0	2.8
Prop In Lane	0.00		0.35	0.00		0.39	1.00		0.02	1.00		0.10
Lane Grp Cap(c), veh/h	0	1238	1211	0	1228	1189	267	0	337	211	0	328
V/C Ratio(X)	0.00	0.07	0.08	0.00	0.34	0.34	0.34	0.00	0.36	0.41	0.00	0.15
Avail Cap(c_a), veh/h	0	1238	1211	0	1228	1189	355	0	462	302	0	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.5	5.5	0.0	6.9	6.9	46.1	0.0	43.4	50.1	0.0	41.6
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	0.8	0.8	1.6	0.0	1.4	0.5	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.8	0.0	4.2	4.1	2.7	0.0	3.4	2.6	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	5.6	5.6	0.0	7.6	7.6	47.7	0.0	44.8	50.6	0.0	41.7
LnGrp LOS		A	A		A	A	D		D	D		D
Approach Vol, veh/h		185			821			214			135	
Approach Delay, s/veh		5.6			7.6			46.0			47.4	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	91.9	30.1	91.9	30.1
Change Period (Y+Rc), s	5.5	7.5	5.5	7.5
Max Green Setting (Gmax), s	38.5	31.0	38.5	32.0
Max Q Clear Time (g_c+I1), s	4.1	12.7	13.3	17.5
Green Ext Time (p_c), s	0.2	1.7	1.1	0.3

Intersection Summary	
HCM 7th Control Delay, s/veh	17.4
HCM 7th LOS	B

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	10	40	1	10	10	70	100	35	12	35	55
Future Vol, veh/h	70	10	40	1	10	10	70	100	35	12	35	55
Conflicting Peds, #/hr	96	0	41	39	0	94	41	0	39	94	0	96
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	80	11	46	1	11	11	80	115	40	14	40	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	573	606	209	505	617	325	199	0	0	249	0	0
Stage 1	195	195	-	390	390	-	-	-	-	-	-	-
Stage 2	378	410	-	115	227	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.15	6.55	6.25	4.17	-	-	4.21	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.545	4.045	3.345	2.263	-	-	2.299	-	-
Pot Cap-1 Maneuver	429	410	829	473	402	709	1343	-	-	1266	-	-
Stage 1	804	737	-	628	603	-	-	-	-	-	-	-
Stage 2	642	594	-	883	711	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	307	311	724	343	304	587	1221	-	-	1152	-	-
Mov Cap-2 Maneuver	307	311	-	343	304	-	-	-	-	-	-	-
Stage 1	721	661	-	530	509	-	-	-	-	-	-	-
Stage 2	518	501	-	771	637	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	19.77	14.64	2.79	0.96
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	584	-	-	380	397	189	-	-
HCM Lane V/C Ratio	0.066	-	-	0.363	0.061	0.012	-	-
HCM Ctrl Dly (s/v)	8.2	0	-	19.8	14.6	8.2	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.6	0.2	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	10	15	200	60	10
Future Vol, veh/h	10	10	15	200	60	10
Conflicting Peds, #/hr	24	23	23	0	0	24
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	16	16	6	6	11	11
Mvmt Flow	11	11	17	225	67	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	379	120	103	0	-	0
Stage 1	97	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Critical Hdwy	6.56	6.36	4.16	-	-	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	2.254	-	-	-
Pot Cap-1 Maneuver	596	895	1465	-	-	-
Stage 1	893	-	-	-	-	-
Stage 2	734	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	562	855	1431	-	-	-
Mov Cap-2 Maneuver	562	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	718	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.49	0.53	0
HCM LOS	B		

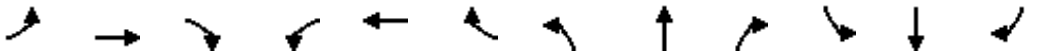
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1431	-	679	-	-
HCM Lane V/C Ratio	0.012	-	0.033	-	-
HCM Ctrl Dly (s/v)	7.5	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	135	20	5	65	47	40
Future Vol, veh/h	135	20	5	65	47	40
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	148	22	5	71	52	44
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.6	7.3	8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	87%	0%	54%
Vol Thru, %	13%	7%	0%
Vol Right, %	0%	93%	46%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	155	70	87
LT Vol	135	0	47
Through Vol	20	5	0
RT Vol	0	65	40
Lane Flow Rate	170	77	96
Geometry Grp	1	1	1
Degree of Util (X)	0.208	0.085	0.118
Departure Headway (Hd)	4.386	3.971	4.425
Convergence, Y/N	Yes	Yes	Yes
Cap	809	906	815
Service Time	2.468	1.979	2.428
HCM Lane V/C Ratio	0.21	0.085	0.118
HCM Control Delay, s/veh	8.6	7.3	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	0.3	0.4



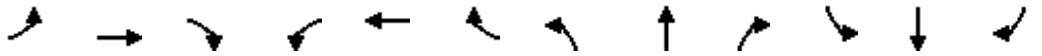
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	345	25	5	290	40	0	0	0	15	5	45
Future Volume (veh/h)	150	345	25	5	290	40	0	0	0	15	5	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.93	1.00		1.00	0.95		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	158	363	26	5	305	42	0	0	0	16	5	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	567	696	50	538	641	88	0	410	0	641	30	282
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.00	0.00	0.00	0.22	0.22	0.22
Sat Flow, veh/h	1000	1701	122	957	1566	216	0	1900	0	1583	139	1309
Grp Volume(v), veh/h	158	0	389	5	0	347	0	0	0	16	0	52
Grp Sat Flow(s),veh/h/ln	1000	0	1823	957	0	1782	0	1900	0	1583	0	1448
Q Serve(g_s), s	3.3	0.0	3.8	0.1	0.0	3.4	0.0	0.0	0.0	0.2	0.0	0.7
Cycle Q Clear(g_c), s	6.7	0.0	3.8	3.9	0.0	3.4	0.0	0.0	0.0	0.2	0.0	0.7
Prop In Lane	1.00		0.07	1.00		0.12	0.00		0.00	1.00		0.90
Lane Grp Cap(c), veh/h	567	0	746	538	0	729	0	410	0	641	0	312
V/C Ratio(X)	0.28	0.00	0.52	0.01	0.00	0.48	0.00	0.00	0.00	0.02	0.00	0.17
Avail Cap(c_a), veh/h	1220	0	1936	1163	0	1893	0	1227	0	1322	0	935
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.7	0.0	5.3	6.8	0.0	5.2	0.0	0.0	0.0	7.5	0.0	7.7
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.8	0.0	5.5	6.8	0.0	5.4	0.0	0.0	0.0	7.5	0.0	7.8
LnGrp LOS	A		A	A		A				A		A
Approach Vol, veh/h		547			352			0			68	
Approach Delay, s/veh		6.2			5.4			0.0			7.7	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.3		9.7		14.3		9.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		5.9		0.0		8.7		2.7				
Green Ext Time (p_c), s		0.4		0.0		0.5		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			6.0									
HCM 7th LOS			A									

Notes

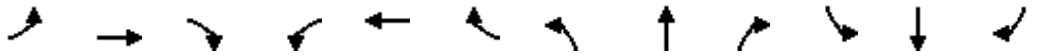
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	440	225	0	0	0	0	0	0	195	650	0
Future Volume (veh/h)	0	440	225	0	0	0	0	0	0	195	650	0
Initial Q (Qb), veh	0	0	0							0	0	0
Lane Width Adj.	1.00	1.00	1.00							1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1900	1900							1900	1900	0
Adj Flow Rate, veh/h	0	478	245							212	707	0
Peak Hour Factor	0.92	0.92	0.92							0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0							0	0	0
Cap, veh/h	0	1986	868							426	1428	0
Arrive On Green	0.00	0.55	0.55							0.35	0.35	0.00
Sat Flow, veh/h	0	3705	1579							1218	4250	0
Grp Volume(v), veh/h	0	478	245							320	599	0
Grp Sat Flow(s),veh/h/ln	0	1805	1579							1839	1729	0
Q Serve(g_s), s	0.0	6.2	7.4							12.3	12.3	0.0
Cycle Q Clear(g_c), s	0.0	6.2	7.4							12.3	12.3	0.0
Prop In Lane	0.00		1.00							0.66		0.00
Lane Grp Cap(c), veh/h	0	1986	868							644	1210	0
V/C Ratio(X)	0.00	0.24	0.28							0.50	0.49	0.00
Avail Cap(c_a), veh/h	0	1986	868							644	1210	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	10.5	10.8							23.0	23.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.8							2.7	1.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.4	2.7							5.8	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.8	11.6							25.7	24.4	0.0
LnGrp LOS		B	B							C	C	
Approach Vol, veh/h		723									919	
Approach Delay, s/veh		11.1									24.9	
Approach LOS		B									C	

Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						54.0		36.0				
Change Period (Y+Rc), s						4.5		4.5				
Max Green Setting (Gmax), s						49.5		31.5				
Max Q Clear Time (g_c+I1), s						9.4		14.3				
Green Ext Time (p_c), s						0.7		1.4				

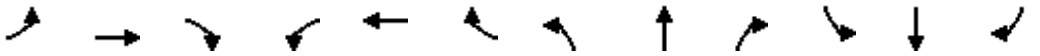
Intersection Summary												
HCM 7th Control Delay, s/veh			18.8									
HCM 7th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	90	0	0	0	435	0	490	35	0	0	0
Future Volume (veh/h)	40	90	0	0	0	435	0	490	35	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	0.98		1.00	1.00		0.93	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1885	1885	0	1885	1885			
Adj Flow Rate, veh/h	43	97	0	0	0	468	0	527	38			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	0	0	0	0	1	1	0	1	1			
Cap, veh/h	99	186	0	0	0	516	0	0	0			
Arrive On Green	0.35	0.35	0.00	0.00	0.00	0.35	0.00	0.00	0.00			
Sat Flow, veh/h	60	539	0	0	0	1494		0				
Grp Volume(v), veh/h	140	0	0	0	0	468		0.0				
Grp Sat Flow(s),veh/h/ln	599	0	0	0	0	1494						
Q Serve(g_s), s	1.5	0.0	0.0	0.0	0.0	17.9						
Cycle Q Clear(g_c), s	19.4	0.0	0.0	0.0	0.0	17.9						
Prop In Lane	0.31		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	286	0	0	0	0	516						
V/C Ratio(X)	0.49	0.00	0.00	0.00	0.00	0.91						
Avail Cap(c_a), veh/h	316	0	0	0	0	548						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00						
Uniform Delay (d), s/veh	15.5	0.0	0.0	0.0	0.0	18.7						
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	18.2						
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	0.0	0.0	8.2						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	16.8	0.0	0.0	0.0	0.0	36.9						
LnGrp LOS	B					D						
Approach Vol, veh/h		140			468							
Approach Delay, s/veh		16.8			36.9							
Approach LOS		B			D							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				25.7				25.7				
Change Period (Y+Rc), s				5.0				5.0				
Max Green Setting (Gmax), s				22.0				22.0				
Max Q Clear Time (g_c+I1), s				21.4				19.9				
Green Ext Time (p_c), s				0.0				0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			32.3									
HCM 7th LOS			C									



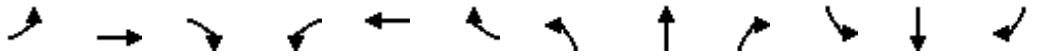
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	120	375	810	215	0	0	0	0	110	740	85
Future Volume (veh/h)	0	120	375	810	215	0	0	0	0	110	740	85
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1870	1870	0				1885	1885	1885
Adj Flow Rate, veh/h	0	124	0	835	222	0				113	763	88
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	3	3	2	2	0				1	1	1
Cap, veh/h	0	987		1089	1207	0				447	893	385
Arrive On Green	0.00	0.28	0.00	0.10	0.21	0.00				0.08	0.08	0.08
Sat Flow, veh/h	0	3618	1572	3456	1870	0				1795	3582	1543
Grp Volume(v), veh/h	0	124	0	835	222	0				113	763	88
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1728	1870	0				1795	1791	1543
Q Serve(g_s), s	0.0	2.4	0.0	21.2	8.8	0.0				5.3	18.9	4.8
Cycle Q Clear(g_c), s	0.0	2.4	0.0	21.2	8.8	0.0				5.3	18.9	4.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	987		1089	1207	0				447	893	385
V/C Ratio(X)	0.00	0.13		0.77	0.18	0.00				0.25	0.85	0.23
Avail Cap(c_a), veh/h	0	987		1286	1207	0				539	1075	463
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	0.00	0.80	0.80	0.00				0.88	0.88	0.88
Uniform Delay (d), s/veh	0.0	24.2	0.0	37.1	16.0	0.0				33.4	39.7	33.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.5	0.3	0.0				0.1	4.6	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	0.0	10.0	4.2	0.0				2.4	9.6	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	24.2	0.0	38.6	16.3	0.0				33.5	44.2	33.3
LnGrp LOS		C		D	B					C	D	C
Approach Vol, veh/h		124			1057						964	
Approach Delay, s/veh		24.2			33.9						42.0	
Approach LOS		C			C						D	

Timer - Assigned Phs	2	3	4				8					
Phs Duration (G+Y+Rc), s	27.4	32.9	29.7				62.6					
Change Period (Y+Rc), s	5.0	4.5	4.5				4.5					
Max Green Setting (Gmax), s	27.0	33.5	15.5				53.5					
Max Q Clear Time (g_c+I1), s	20.9	23.2	4.4				10.8					
Green Ext Time (p_c), s	1.5	0.6	0.2				0.5					

Intersection Summary	
HCM 7th Control Delay, s/veh	37.0
HCM 7th LOS	D

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	160	0	0	860	230	165	235	380	0	0	0
Future Volume (veh/h)	65	160	0	0	860	230	165	235	380	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		0.97			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	68	167	0	0	896	240	172	245	396			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	5	5	0	0	2	2	1	1	1			
Cap, veh/h	87	2371	0	0	1591	425	389	408	336			
Arrive On Green	0.05	0.68	0.00	0.00	1.00	1.00	0.22	0.22	0.22			
Sat Flow, veh/h	1739	3561	0	0	2821	729	1795	1885	1551			
Grp Volume(v), veh/h	68	167	0	0	583	553	172	245	396			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1777	1680	1795	1885	1551			
Q Serve(g_s), s	3.5	1.4	0.0	0.0	0.0	0.0	7.5	10.5	19.5			
Cycle Q Clear(g_c), s	3.5	1.4	0.0	0.0	0.0	0.0	7.5	10.5	19.5			
Prop In Lane	1.00		0.00	0.00		0.43	1.00		1.00			
Lane Grp Cap(c), veh/h	87	2371	0	0	1036	980	389	408	336			
V/C Ratio(X)	0.78	0.07	0.00	0.00	0.56	0.56	0.44	0.60	1.18			
Avail Cap(c_a), veh/h	280	2371	0	0	1036	980	389	408	336			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.98	0.98	0.00	0.00	0.91	0.91	1.00	1.00	1.00			
Uniform Delay (d), s/veh	42.3	4.7	0.0	0.0	0.0	0.0	30.5	31.7	35.2			
Incr Delay (d2), s/veh	5.5	0.1	0.0	0.0	2.0	2.1	0.3	1.7	106.8			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	0.5	0.0	0.0	0.6	0.6	3.1	4.8	16.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	47.7	4.8	0.0	0.0	2.0	2.1	30.8	33.5	142.1			
LnGrp LOS	D	A			A	A	C	C	F			
Approach Vol, veh/h		235			1136			813				
Approach Delay, s/veh		17.2			2.1			85.8				
Approach LOS		B			A			F				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		24.0		66.0			9.0	57.0				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		19.5		61.5			14.5	42.5				
Max Q Clear Time (g_c+I1), s		21.5		3.4			5.5	2.0				
Green Ext Time (p_c), s		0.0		0.8			0.0	6.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			34.9									
HCM 7th LOS			C									

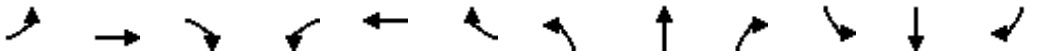
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	560	2	1	870	5	4	0	1	10	2	215
Future Volume (veh/h)	1	560	2	1	870	5	4	0	1	10	2	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.95	0.98		0.96	0.97		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1	589	2	1	916	5	4	0	1	11	2	226
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	3	3	0	0	0	0	0	0
Cap, veh/h	40	2317	8	40	2293	13	185	8	30	48	10	276
Arrive On Green	1.00	1.00	1.00	0.65	0.65	0.65	0.19	0.00	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1	3556	12	0	3519	19	605	43	162	31	54	1475
Grp Volume(v), veh/h	310	0	282	483	0	439	5	0	0	239	0	0
Grp Sat Flow(s),veh/h/ln	1869	0	1699	1855	0	1684	810	0	0	1560	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	11.0	0.0	0.0	0.0	3.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	11.0	0.0	11.0	0.2	0.0	0.0	13.2	0.0	0.0
Prop In Lane	0.00		0.01	0.00		0.01	0.80		0.20	0.05		0.95
Lane Grp Cap(c), veh/h	1258	0	1107	1249	0	1097	224	0	0	334	0	0
V/C Ratio(X)	0.25	0.00	0.25	0.39	0.00	0.40	0.02	0.00	0.00	0.72	0.00	0.00
Avail Cap(c_a), veh/h	1258	0	1107	1249	0	1097	401	0	0	611	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.00	0.87	0.86	0.00	0.86	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	7.4	0.0	7.4	29.8	0.0	0.0	35.1	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.5	0.8	0.0	0.9	0.0	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	4.2	0.0	3.9	0.1	0.0	0.0	5.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.4	0.0	0.5	8.2	0.0	8.3	29.8	0.0	0.0	36.1	0.0	0.0
LnGrp LOS	A		A	A		A	C			D		
Approach Vol, veh/h		592			922			5			239	
Approach Delay, s/veh		0.4			8.2			29.8			36.1	
Approach LOS		A			A			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	66.1	23.9	66.1	23.9
Change Period (Y+Rc), s	7.5	7.0	* 7.5	* 7
Max Green Setting (Gmax), s	45.5	30.0	* 49	* 33
Max Q Clear Time (g_c+I1), s	2.0	2.2	13.0	15.2
Green Ext Time (p_c), s	2.7	0.0	4.6	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	9.5
HCM 7th LOS	A

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	465	95	2	595	5	175	155	15	20	30	115
Future Volume (veh/h)	5	465	95	2	595	5	175	155	15	20	30	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.95	0.99		0.95	1.00		0.94	0.92		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1796	1796	1796	1856	1856	1856
Adj Flow Rate, veh/h	5	495	101	2	633	5	186	165	16	21	32	122
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	7	7	7	3	3	3
Cap, veh/h	43	1259	253	41	1561	12	220	621	60	63	71	207
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.13	0.39	0.39	0.20	0.20	0.20
Sat Flow, veh/h	7	2849	573	2	3534	28	1711	1600	155	92	347	1010
Grp Volume(v), veh/h	325	0	276	336	0	304	186	0	181	175	0	0
Grp Sat Flow(s),veh/h/ln	1861	0	1567	1868	0	1695	1711	0	1756	1449	0	0
Q Serve(g_s), s	0.0	0.0	10.9	0.0	0.0	11.1	9.7	0.0	6.4	1.2	0.0	0.0
Cycle Q Clear(g_c), s	10.7	0.0	10.9	11.1	0.0	11.1	9.7	0.0	6.4	9.6	0.0	0.0
Prop In Lane	0.02		0.37	0.01		0.02	1.00		0.09	0.12		0.70
Lane Grp Cap(c), veh/h	862	0	692	865	0	749	220	0	681	341	0	0
V/C Ratio(X)	0.38	0.00	0.40	0.39	0.00	0.41	0.85	0.00	0.27	0.51	0.00	0.00
Avail Cap(c_a), veh/h	862	0	692	865	0	749	301	0	772	362	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.00	0.97	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.2	0.0	17.2	17.3	0.0	17.3	38.8	0.0	19.0	32.6	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.0	1.7	1.3	0.0	1.6	11.6	0.0	0.1	0.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	4.2	5.0	0.0	4.6	4.8	0.0	2.6	3.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.4	0.0	18.9	18.6	0.0	18.9	50.4	0.0	19.1	33.0	0.0	0.0
LnGrp LOS	B		B	B		B	D		B	C		
Approach Vol, veh/h		601			640			367			175	
Approach Delay, s/veh		18.6			18.7			35.0			33.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	2	4	6	7	8
Phs Duration (G+Y+Rc), s	47.7	43.3	47.7	16.7	26.6
Change Period (Y+Rc), s	7.5	8.0	* 7.5	5.0	8.0
Max Green Setting (Gmax), s	34.5	40.0	* 38	16.0	20.0
Max Q Clear Time (g_c+I1), s	12.9	8.4	13.1	11.7	11.6
Green Ext Time (p_c), s	0.8	0.7	0.8	0.1	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	23.4
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

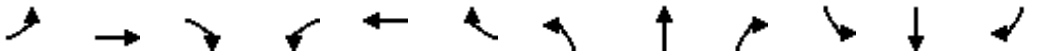
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	455	40	0	545	55	0	0	65	0	0	25
Future Vol, veh/h	0	455	40	0	545	55	0	0	65	0	0	25
Conflicting Peds, #/hr	90	0	110	58	0	38	110	0	58	38	0	90
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	495	43	0	592	60	0	0	71	0	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	437	-	-	454
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.92	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.31	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	570	0	0	559
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	482	-	-	492
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	13.74	12.74
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	482	-	-	-	-	492
HCM Lane V/C Ratio	0.147	-	-	-	-	0.055
HCM Ctrl Dly (s/v)	13.7	-	-	-	-	12.7
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0.5	-	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	345	60	20	370	35	135	400	20	105	425	70
Future Volume (veh/h)	105	345	60	20	370	35	135	400	20	105	425	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.93	1.00		0.94	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	371	65	22	398	38	145	430	22	113	457	75
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	654	113	39	524	50	172	1157	59	370	1413	230
Arrive On Green	0.08	0.22	0.22	0.02	0.16	0.16	0.13	0.45	0.45	0.21	0.47	0.47
Sat Flow, veh/h	1795	3026	524	1781	3257	309	1781	3428	175	1781	3036	494
Grp Volume(v), veh/h	113	218	218	22	216	220	145	222	230	113	266	266
Grp Sat Flow(s),veh/h/ln	1795	1791	1759	1781	1777	1789	1781	1777	1826	1781	1777	1753
Q Serve(g_s), s	7.4	13.0	13.3	1.5	13.9	14.1	9.5	9.9	10.0	6.4	11.3	11.5
Cycle Q Clear(g_c), s	7.4	13.0	13.3	1.5	13.9	14.1	9.5	9.9	10.0	6.4	11.3	11.5
Prop In Lane	1.00		0.30	1.00		0.17	1.00		0.10	1.00		0.28
Lane Grp Cap(c), veh/h	138	387	380	39	286	288	172	600	616	370	827	816
V/C Ratio(X)	0.82	0.56	0.57	0.57	0.76	0.77	0.84	0.37	0.37	0.31	0.32	0.33
Avail Cap(c_a), veh/h	172	440	433	186	452	455	408	600	616	370	827	816
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	42.0	42.1	58.1	48.1	48.2	51.4	24.6	24.7	40.2	20.2	20.2
Incr Delay (d2), s/veh	17.6	0.5	0.6	4.8	1.5	1.6	4.1	1.7	1.7	0.2	1.0	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	5.9	5.9	0.7	6.3	6.5	4.4	4.3	4.4	2.9	5.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	72.2	42.4	42.6	63.0	49.6	49.8	55.5	26.4	26.4	40.4	21.2	21.3
LnGrp LOS	E	D	D	E	D	D	E	C	C	D	C	C
Approach Vol, veh/h		549			458			597			645	
Approach Delay, s/veh		48.6			50.4			33.5			24.6	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.1	63.3	13.7	25.8	32.5	48.0	7.1	32.4
Change Period (Y+Rc), s	5.5	7.5	4.5	6.5	7.5	* 7.5	4.5	6.5
Max Green Setting (Gmax), s	27.5	26.5	11.5	30.5	13.5	* 41	12.5	29.5
Max Q Clear Time (g_c+I1), s	11.5	13.5	9.4	16.1	8.4	12.0	3.5	15.3
Green Ext Time (p_c), s	0.2	1.9	0.0	1.6	0.1	1.9	0.0	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	38.1
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

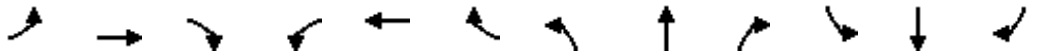
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	450	15	0	340	15	0	0	5	0	0	95
Future Vol, veh/h	0	450	15	0	340	15	0	0	5	0	0	95
Conflicting Peds, #/hr	58	0	41	23	0	40	41	0	23	40	0	58
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	1	1	1
Mvmt Flow	0	523	17	0	395	17	0	0	6	0	0	110

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	334	-	-	304
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	667	0	0	695
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	627	-	-	631
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	10.79	11.91
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	627	-	-	-	-	631
HCM Lane V/C Ratio	0.009	-	-	-	-	0.175
HCM Ctrl Dly (s/v)	10.8	-	-	-	-	11.9
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	305	25	35	255	40	25	220	15	60	320	80
Future Volume (vph)	120	305	25	35	255	40	25	220	15	60	320	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.97		1.00	0.99		1.00	1.00	0.94
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.99			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3483			3392		1752	1807		1787	1881	1504
Flt Permitted		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3483			3392		1752	1807		1787	1881	1504
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	133	339	28	39	283	44	28	244	17	67	356	89
RTOR Reduction (vph)	0	3	0	0	0	0	0	2	0	0	0	37
Lane Group Flow (vph)	0	497	0	0	366	0	28	259	0	67	356	52
Confl. Peds. (#/hr)	46		92	163		117	92		163	117		46
Confl. Bikes (#/hr)									12			11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases												6
Actuated Green, G (s)		22.1			17.5		4.5	38.8		7.6	48.9	71.0
Effective Green, g (s)		22.1			17.5		4.5	38.8		7.6	48.9	71.0
Actuated g/C Ratio		0.18			0.14		0.04	0.32		0.06	0.40	0.59
Clearance Time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		636			490		65	579		112	760	882
v/s Ratio Prot		c0.14			c0.11		0.02	0.14		c0.04	c0.19	0.01
v/s Ratio Perm												0.02
v/c Ratio		0.78			0.75		0.43	0.45		0.60	0.47	0.06
Uniform Delay, d1		47.1			49.6		57.0	32.6		55.2	26.5	10.7
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.7			5.4		1.7	2.5		5.6	2.1	0.0
Delay (s)		52.9			55.0		58.7	35.1		60.8	28.6	10.7
Level of Service		D			E		E	D		E	C	B
Approach Delay (s/veh)		52.9			55.0			37.4			29.7	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	43.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	121.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	15	5	20	10	165	6	145	20	35	75	40
Future Vol, veh/h	75	15	5	20	10	165	6	145	20	35	75	40
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	80	16	5	21	11	176	6	154	21	37	80	43
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.1	9.2	9.6	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	79%	10%	23%
Vol Thru, %	85%	16%	5%	50%
Vol Right, %	12%	5%	85%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	171	95	195	150
LT Vol	6	75	20	35
Through Vol	145	15	10	75
RT Vol	20	5	165	40
Lane Flow Rate	182	101	207	160
Geometry Grp	1	1	1	1
Degree of Util (X)	0.248	0.144	0.261	0.217
Departure Headway (Hd)	4.903	5.116	4.534	4.899
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	728	695	786	728
Service Time	2.968	3.186	2.593	2.967
HCM Lane V/C Ratio	0.25	0.145	0.263	0.22
HCM Control Delay, s/veh	9.6	9.1	9.2	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.5	1	0.8

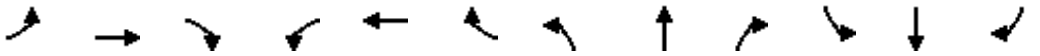
Intersection	
Int Delay, s/veh	12.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	55	15	11	80	15	25	10	15	45	30	80
Future Vol, veh/h	10	55	15	11	80	15	25	10	15	45	30	80
Conflicting Peds, #/hr	169	0	162	127	0	134	162	0	127	134	0	169
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	12	12	12	19	19	19	2	2	2	0	0	0
Mvmt Flow	11	61	17	12	89	17	28	11	17	50	33	89

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	275	0	0	240	0	0	553	553	365	514	553	435
Stage 1	-	-	-	-	-	-	254	254	-	291	291	-
Stage 2	-	-	-	-	-	-	299	299	-	223	262	-
Critical Hdwy	4.22	-	-	4.29	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.308	-	-	2.371	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1233	-	-	1233	-	-	444	441	680	475	444	625
Stage 1	-	-	-	-	-	-	751	697	-	722	676	-
Stage 2	-	-	-	-	-	-	710	666	-	784	695	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1035	-	-	1043	-	-	219	306	501	316	308	440
Mov Cap-2 Maneuver	-	-	-	-	-	-	219	306	-	316	308	-
Stage 1	-	-	-	-	-	-	628	583	-	598	560	-
Stage 2	-	-	-	-	-	-	441	552	-	641	581	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.06	0.88	20.79	23.13
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	283	216	-	-	181	-	-	368
HCM Lane V/C Ratio	0.196	0.011	-	-	0.012	-	-	0.468
HCM Ctrl Dly (s/v)	20.8	8.5	0	-	8.5	0	-	23.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	2.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	35	35	15	85	160	10	375	5	75	420	25
Future Volume (veh/h)	25	35	35	15	85	160	10	375	5	75	420	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.85	0.92		0.88	1.00		0.94	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	26	36	36	16	89	167	10	391	5	78	438	26
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	2	2	2
Cap, veh/h	82	106	87	41	106	184	65	2330	30	320	1775	106
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.69	0.69	0.69	0.23	0.23	0.23
Sat Flow, veh/h	215	518	426	44	520	897	48	3392	43	410	2583	155
Grp Volume(v), veh/h	98	0	0	272	0	0	211	0	195	262	0	280
Grp Sat Flow(s),veh/h/ln	1158	0	0	1461	0	0	1806	0	1677	1486	0	1661
Q Serve(g_s), s	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	4.9	11.5	0.0	16.5
Cycle Q Clear(g_c), s	6.9	0.0	0.0	21.8	0.0	0.0	4.8	0.0	4.9	16.5	0.0	16.5
Prop In Lane	0.27		0.37	0.06		0.61	0.05		0.03	0.30		0.09
Lane Grp Cap(c), veh/h	275	0	0	331	0	0	1272	0	1152	1060	0	1141
V/C Ratio(X)	0.36	0.00	0.00	0.82	0.00	0.00	0.17	0.00	0.17	0.25	0.00	0.24
Avail Cap(c_a), veh/h	490	0	0	583	0	0	1272	0	1152	1060	0	1141
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	0.00	0.67	0.00	0.00	1.00	0.00	1.00	0.94	0.00	0.94
Uniform Delay (d), s/veh	40.5	0.0	0.0	46.5	0.0	0.0	6.6	0.0	6.7	20.6	0.0	20.9
Incr Delay (d2), s/veh	0.3	0.0	0.0	1.3	0.0	0.0	0.3	0.0	0.3	0.5	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	8.1	0.0	0.0	1.9	0.0	1.8	7.1	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.8	0.0	0.0	47.9	0.0	0.0	6.9	0.0	7.0	21.1	0.0	21.4
LnGrp LOS	D			D			A		A	C		C
Approach Vol, veh/h		98			272			406			542	
Approach Delay, s/veh		40.8			47.9			6.9			21.3	
Approach LOS		D			D			A			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	88.9	31.1	88.9	31.1
Change Period (Y+Rc), s	6.5	6.5	* 6.5	* 6.5
Max Green Setting (Gmax), s	63.5	43.5	* 66	* 46
Max Q Clear Time (g_c+I1), s	6.9	8.9	18.5	23.8
Green Ext Time (p_c), s	0.5	0.3	0.8	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	23.8
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	105	35	20	175	35	5	175	15	50	325	20
Future Volume (vph)	30	105	35	20	175	35	5	175	15	50	325	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.95			0.98		1.00	0.99		1.00	0.98	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1647			1678		1736	1788		1770	1815	
Flt Permitted		0.77			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1272			1623		1736	1788		1770	1815	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	108	36	21	180	36	5	180	15	52	335	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	175	0	0	237	0	5	192	0	52	355	0
Confl. Peds. (#/hr)	45		71	71		45	73		80	80		73
Confl. Bikes (#/hr)			11						11			14
Heavy Vehicles (%)	5%	5%	5%	7%	7%	7%	4%	4%	4%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		23.1			25.1		1.2	43.4		7.0	75.2	
Effective Green, g (s)		23.1			25.1		1.2	43.4		7.0	75.2	
Actuated g/C Ratio		0.19			0.21		0.01	0.36		0.06	0.63	
Clearance Time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		244			339		17	646		103	1137	
v/s Ratio Prot							0.00	0.11		c0.03	c0.20	
v/s Ratio Perm		0.14			c0.15							
v/c Ratio		0.72			0.70		0.29	0.30		0.50	0.31	
Uniform Delay, d1		45.4			44.0		59.0	27.4		54.8	10.4	
Progression Factor		1.23			1.00		1.10	0.69		1.00	1.00	
Incremental Delay, d2		9.6			6.2		3.4	1.2		1.4	0.7	
Delay (s)		65.6			50.1		68.5	20.0		56.2	11.1	
Level of Service		E			D		E	C		E	B	
Approach Delay (s/veh)		65.6			50.1			21.2			16.9	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	45	10	370	470	10
Future Vol, veh/h	20	45	10	370	470	10
Conflicting Peds, #/hr	85	26	26	0	0	85
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	21	47	11	389	495	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	886	364	590	0	-	0
Stage 1	585	-	-	-	-	-
Stage 2	301	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.16	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	288	639	974	-	-	-
Stage 1	526	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	240	573	896	-	-	-
Mov Cap-2 Maneuver	240	-	-	-	-	-
Stage 1	477	-	-	-	-	-
Stage 2	672	-	-	-	-	-

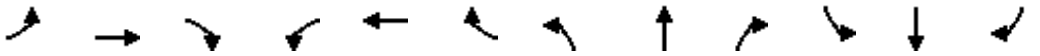
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	15.8	0.35	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	95	-	401	-	-
HCM Lane V/C Ratio	0.012	-	0.17	-	-
HCM Ctrl Dly (s/v)	9.1	0.1	15.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	10	215	15	1	365
Future Volume (vph)	20	10	215	15	1	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.95		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.96		0.99			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	1667		1822			3574
Flt Permitted	0.97		1.00			0.95
Satd. Flow (perm)	1667		1822			3412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	11	234	16	1	397
RTOR Reduction (vph)	9	0	2	0	0	0
Lane Group Flow (vph)	24	0	248	0	0	398
Confl. Peds. (#/hr)	1	45		52	52	
Confl. Bikes (#/hr)		3		13		
Heavy Vehicles (%)	0%	0%	3%	3%	1%	1%
Turn Type	Prot		NA		Perm	NA
Protected Phases	4		2			6
Permitted Phases					6	
Actuated Green, G (s)	20.0		76.0			88.5
Effective Green, g (s)	20.0		76.0			88.5
Actuated g/C Ratio	0.17		0.63			0.74
Clearance Time (s)	6.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	277		1153			2516
v/s Ratio Prot	c0.01		c0.14			
v/s Ratio Perm						c0.12
v/c Ratio	0.09		0.21			0.16
Uniform Delay, d1	42.3		9.3			4.7
Progression Factor	1.00		1.00			0.86
Incremental Delay, d2	0.0		0.4			0.1
Delay (s)	42.3		9.8			4.2
Level of Service	D		A			A
Approach Delay (s/veh)	42.3		9.8			4.2
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	440	75	0	350	115	30	85	4	250	155	10
Future Volume (veh/h)	0	440	75	0	350	115	30	85	4	250	155	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.97		0.94	0.97		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1856	1856	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	0	473	81	0	376	124	32	91	4	269	167	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	0	3	3	4	4	4	2	2	2
Cap, veh/h	0	1907	325	0	1634	530	271	458	20	338	453	30
Arrive On Green	0.00	0.63	0.63	0.00	0.63	0.63	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	0	3116	514	0	2682	840	1154	1744	77	1257	1727	114
Grp Volume(v), veh/h	0	277	277	0	254	246	32	0	95	269	0	178
Grp Sat Flow(s),veh/h/ln	0	1777	1760	0	1763	1666	1154	0	1821	1257	0	1841
Q Serve(g_s), s	0.0	8.3	8.4	0.0	7.6	7.8	2.8	0.0	5.0	25.9	0.0	9.6
Cycle Q Clear(g_c), s	0.0	8.3	8.4	0.0	7.6	7.8	12.5	0.0	5.0	30.8	0.0	9.6
Prop In Lane	0.00		0.29	0.00		0.50	1.00		0.04	1.00		0.06
Lane Grp Cap(c), veh/h	0	1121	1111	0	1113	1051	271	0	478	338	0	483
V/C Ratio(X)	0.00	0.25	0.25	0.00	0.23	0.23	0.12	0.00	0.20	0.80	0.00	0.37
Avail Cap(c_a), veh/h	0	1121	1111	0	1113	1051	271	0	478	338	0	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	0.0	9.8	9.9	0.0	9.7	9.7	41.8	0.0	35.0	47.0	0.0	36.8
Incr Delay (d2), s/veh	0.0	0.5	0.5	0.0	0.5	0.5	0.4	0.0	0.4	11.5	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.4	3.4	0.0	3.1	3.0	0.9	0.0	2.3	9.2	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.4	10.4	0.0	10.2	10.3	42.3	0.0	35.5	58.5	0.0	36.9
LnGrp LOS		B	B		B	B	D		D	E		D
Approach Vol, veh/h		554			500			127			447	
Approach Delay, s/veh		10.4			10.2			37.2			49.9	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	82.5	39.5	82.5	39.5
Change Period (Y+Rc), s	5.5	7.5	5.5	7.5
Max Green Setting (Gmax), s	38.5	31.0	38.5	32.0
Max Q Clear Time (g_c+I1), s	10.4	14.5	9.8	32.8
Green Ext Time (p_c), s	0.7	0.9	0.6	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	23.3
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	86	15	70	40	10	20	20	65	10	10	65	15
Future Vol, veh/h	86	15	70	40	10	20	20	65	10	10	65	15
Conflicting Peds, #/hr	145	0	76	38	0	107	76	0	38	107	0	145
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	89	15	72	41	10	21	21	67	10	10	67	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	499	466	296	392	468	324	227	0	0	184	0	0
Stage 1	240	240	-	220	220	-	-	-	-	-	-	-
Stage 2	258	226	-	171	248	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.15	6.55	6.25	4.21	-	-	4.2	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.545	4.045	3.345	2.299	-	-	2.29	-	-
Pot Cap-1 Maneuver	482	494	744	562	488	710	1289	-	-	1344	-	-
Stage 1	763	707	-	775	715	-	-	-	-	-	-	-
Stage 2	746	717	-	824	696	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	326	372	595	384	367	550	1111	-	-	1207	-	-
Mov Cap-2 Maneuver	326	372	-	384	367	-	-	-	-	-	-	-
Stage 1	652	604	-	683	630	-	-	-	-	-	-	-
Stage 2	597	632	-	648	594	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	20.55	15.43	1.75	0.89
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	369	-	-	405	417	193	-	-
HCM Lane V/C Ratio	0.019	-	-	0.435	0.173	0.009	-	-
HCM Ctrl Dly (s/v)	8.3	0	-	20.6	15.4	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.1	0.6	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	15	11	100	216	15
Future Vol, veh/h	15	15	11	100	216	15
Conflicting Peds, #/hr	48	50	50	0	0	48
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	6	6	3	3
Mvmt Flow	16	16	12	109	235	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	474	343	301	0	-	0
Stage 1	293	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.16	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.254	-	-	-
Pot Cap-1 Maneuver	546	695	1237	-	-	-
Stage 1	753	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	491	631	1179	-	-	-
Mov Cap-2 Maneuver	491	-	-	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	807	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.93	0.8	0
HCM LOS	B		

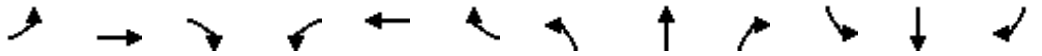
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1179	-	552	-	-
HCM Lane V/C Ratio	0.01	-	0.059	-	-
HCM Ctrl Dly (s/v)	8.1	-	11.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	48	15	20	40	60	115
Future Vol, veh/h	48	15	20	40	60	115
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	53	16	22	44	66	126
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.1	7.5	8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	76%	0%	34%
Vol Thru, %	24%	33%	0%
Vol Right, %	0%	67%	66%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	63	60	175
LT Vol	48	0	60
Through Vol	15	20	0
RT Vol	0	40	115
Lane Flow Rate	69	66	192
Geometry Grp	1	1	1
Degree of Util (X)	0.087	0.075	0.209
Departure Headway (Hd)	4.529	4.08	3.91
Convergence, Y/N	Yes	Yes	Yes
Cap	780	862	906
Service Time	2.62	2.178	1.988
HCM Lane V/C Ratio	0.088	0.077	0.212
HCM Control Delay, s/veh	8.1	7.5	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.3	0.2	0.8



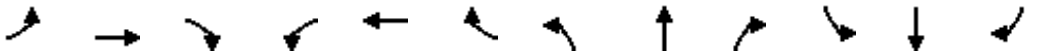
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	345	30	15	345	30	10	5	2	20	10	110
Future Volume (veh/h)	60	345	30	15	345	30	10	5	2	20	10	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.91	0.98		0.92	0.97		0.97	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	66	379	33	16	379	33	11	5	2	22	11	121
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	418	607	53	419	603	52	426	174	49	702	40	437
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	959	1694	148	951	1683	147	682	535	152	1310	122	1347
Grp Volume(v), veh/h	66	0	412	16	0	412	18	0	0	22	0	132
Grp Sat Flow(s),veh/h/ln	959	0	1842	951	0	1829	1368	0	0	1310	0	1470
Q Serve(g_s), s	1.7	0.0	5.2	0.4	0.0	5.3	0.0	0.0	0.0	0.0	0.0	1.9
Cycle Q Clear(g_c), s	7.0	0.0	5.2	5.7	0.0	5.3	1.9	0.0	0.0	0.3	0.0	1.9
Prop In Lane	1.00		0.08	1.00		0.08	0.61		0.11	1.00		0.92
Lane Grp Cap(c), veh/h	418	0	660	419	0	655	648	0	0	702	0	477
V/C Ratio(X)	0.16	0.00	0.62	0.04	0.00	0.63	0.03	0.00	0.00	0.03	0.00	0.28
Avail Cap(c_a), veh/h	936	0	1654	932	0	1643	959	0	0	992	0	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.5	0.0	7.5	9.9	0.0	7.5	6.5	0.0	0.0	6.6	0.0	7.1
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.2	0.1	0.0	1.2	0.0	0.0	0.0	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.5	0.0	7.9	9.9	0.0	7.9	6.6	0.0	0.0	6.6	0.0	7.2
LnGrp LOS	B		A	A		A	A			A		A
Approach Vol, veh/h		478			428			18			154	
Approach Delay, s/veh		8.3			8.0			6.6			7.1	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.7		13.7		14.7		13.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		7.7		3.9		9.0		3.9				
Green Ext Time (p_c), s		0.4		0.0		0.5		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			8.0									
HCM 7th LOS			A									

Notes

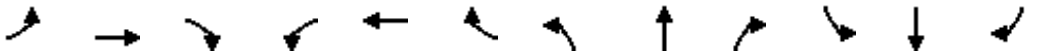
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	480	235	0	0	0	0	0	0	305	1145	0
Future Volume (veh/h)	0	480	235	0	0	0	0	0	0	305	1145	0
Initial Q (Qb), veh	0	0	0							0	0	0
Lane Width Adj.	1.00	1.00	1.00							1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1856	1856							1870	1870	0
Adj Flow Rate, veh/h	0	495	242							314	1180	0
Peak Hour Factor	0.97	0.97	0.97							0.97	0.97	0.97
Percent Heavy Veh, %	0	3	3							2	2	0
Cap, veh/h	0	1351	581							567	2130	0
Arrive On Green	0.00	0.38	0.38							0.52	0.52	0.00
Sat Flow, veh/h	0	3618	1517							1097	4291	0
Grp Volume(v), veh/h	0	495	242							520	974	0
Grp Sat Flow(s),veh/h/ln	0	1763	1517							1816	1702	0
Q Serve(g_s), s	0.0	9.1	10.5							17.4	17.4	0.0
Cycle Q Clear(g_c), s	0.0	9.1	10.5							17.4	17.4	0.0
Prop In Lane	0.00		1.00							0.60		0.00
Lane Grp Cap(c), veh/h	0	1351	581							938	1759	0
V/C Ratio(X)	0.00	0.37	0.42							0.55	0.55	0.00
Avail Cap(c_a), veh/h	0	1351	581							938	1759	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	19.9	20.4							14.7	14.7	0.0
Incr Delay (d2), s/veh	0.0	0.8	2.2							2.4	1.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.8	4.0							7.5	6.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.7	22.5							17.1	16.0	0.0
LnGrp LOS		C	C							B	B	
Approach Vol, veh/h		737									1494	
Approach Delay, s/veh		21.3									16.4	
Approach LOS		C									B	

Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						39.0		51.0				
Change Period (Y+Rc), s						4.5		4.5				
Max Green Setting (Gmax), s						34.5		46.5				
Max Q Clear Time (g_c+I1), s						12.5		19.4				
Green Ext Time (p_c), s						0.7		2.6				

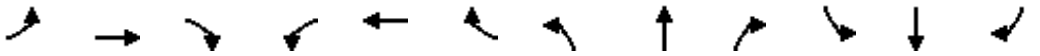
Intersection Summary												
HCM 7th Control Delay, s/veh			18.0									
HCM 7th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	210	0	0	0	275	0	660	55	0	0	0
Future Volume (veh/h)	210	210	0	0	0	275	0	660	55	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1856	1856	0	1870	1870			
Adj Flow Rate, veh/h	228	228	0	0	0	299	0	717	60			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	3	3	0	2	2			
Cap, veh/h	297	264	0	0	0	728	0	0	0			
Arrive On Green	0.48	0.48	0.00	0.00	0.00	0.48	0.00	0.00	0.00			
Sat Flow, veh/h	499	555	0	0	0	1530		0				
Grp Volume(v), veh/h	456	0	0	0	0	299		0.0				
Grp Sat Flow(s),veh/h/ln	1054	0	0	0	0	1530						
Q Serve(g_s), s	26.9	0.0	0.0	0.0	0.0	11.5						
Cycle Q Clear(g_c), s	38.3	0.0	0.0	0.0	0.0	11.5						
Prop In Lane	0.50		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	561	0	0	0	0	728						
V/C Ratio(X)	0.81	0.00	0.00	0.00	0.00	0.41						
Avail Cap(c_a), veh/h	685	0	0	0	0	867						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00						
Uniform Delay (d), s/veh	26.4	0.0	0.0	0.0	0.0	15.4						
Incr Delay (d2), s/veh	6.2	0.0	0.0	0.0	0.0	0.4						
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	10.0	0.0	0.0	0.0	0.0	4.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.6	0.0	0.0	0.0	0.0	15.7						
LnGrp LOS	C					B						
Approach Vol, veh/h		456			299							
Approach Delay, s/veh		32.6			15.7							
Approach LOS		C			B							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				47.8				47.8				
Change Period (Y+Rc), s				5.0				5.0				
Max Green Setting (Gmax), s				51.0				51.0				
Max Q Clear Time (g_c+I1), s				40.3				13.5				
Green Ext Time (p_c), s				2.5				2.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			25.9									
HCM 7th LOS			C									



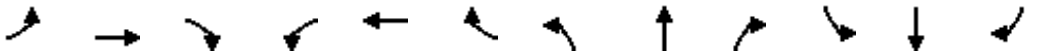
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	220	210	825	385	0	0	0	0	505	715	155
Future Volume (veh/h)	0	220	210	825	385	0	0	0	0	505	715	155
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1811	1856	1856	0				1870	1870	1870
Adj Flow Rate, veh/h	0	229	0	859	401	0				526	745	161
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	6	6	3	3	0				2	2	2
Cap, veh/h	0	715		1052	1047	0				588	1173	516
Arrive On Green	0.00	0.21	0.00	0.10	0.19	0.00				0.11	0.11	0.11
Sat Flow, veh/h	0	3532	1535	3428	1856	0				1781	3554	1565
Grp Volume(v), veh/h	0	229	0	859	401	0				526	745	161
Grp Sat Flow(s),veh/h/ln	0	1721	1535	1714	1856	0				1781	1777	1565
Q Serve(g_s), s	0.0	5.1	0.0	22.1	17.0	0.0				26.2	18.1	8.5
Cycle Q Clear(g_c), s	0.0	5.1	0.0	22.1	17.0	0.0				26.2	18.1	8.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	715		1052	1047	0				588	1173	516
V/C Ratio(X)	0.00	0.32		0.82	0.38	0.00				0.89	0.64	0.31
Avail Cap(c_a), veh/h	0	715		1052	1047	0				653	1303	574
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	0.00	0.63	0.63	0.00				0.81	0.81	0.81
Uniform Delay (d), s/veh	0.0	30.3	0.0	38.0	22.9	0.0				38.6	34.9	30.7
Incr Delay (d2), s/veh	0.0	0.1	0.0	3.1	0.7	0.0				11.0	0.5	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.1	0.0	10.6	8.6	0.0				14.3	8.6	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	30.4	0.0	41.0	23.6	0.0				49.6	35.4	30.8
LnGrp LOS		C		D	C					D	D	C
Approach Vol, veh/h		229			1260						1432	
Approach Delay, s/veh		30.4			35.5						40.1	
Approach LOS		C			D						D	

Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		34.7	32.1	23.2				55.3				
Change Period (Y+Rc), s		5.0	4.5	4.5				4.5				
Max Green Setting (Gmax), s		33.0	25.5	17.5				47.5				
Max Q Clear Time (g_c+I1), s		28.2	24.1	7.1				19.0				
Green Ext Time (p_c), s		1.5	0.2	0.4				1.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	37.3
HCM 7th LOS	D

Notes

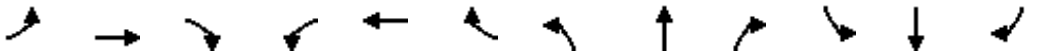
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	640	0	0	875	285	340	365	530	0	0	0
Future Volume (veh/h)	85	640	0	0	875	285	340	365	530	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1841	1841	0	0	1841	1841	1885	1885	1885			
Adj Flow Rate, veh/h	88	660	0	0	902	294	351	376	546			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	4	4	0	0	4	4	1	1	1			
Cap, veh/h	112	1962	0	0	1151	374	608	639	539			
Arrive On Green	0.06	0.56	0.00	0.00	0.45	0.45	0.34	0.34	0.34			
Sat Flow, veh/h	1753	3589	0	0	2665	836	1795	1885	1589			
Grp Volume(v), veh/h	88	660	0	0	612	584	351	376	546			
Grp Sat Flow(s),veh/h/ln	1753	1749	0	0	1749	1660	1795	1885	1589			
Q Serve(g_s), s	4.5	9.2	0.0	0.0	26.8	27.0	14.5	14.8	30.5			
Cycle Q Clear(g_c), s	4.5	9.2	0.0	0.0	26.8	27.0	14.5	14.8	30.5			
Prop In Lane	1.00		0.00	0.00		0.50	1.00		1.00			
Lane Grp Cap(c), veh/h	112	1962	0	0	782	743	608	639	539			
V/C Ratio(X)	0.79	0.34	0.00	0.00	0.78	0.79	0.58	0.59	1.01			
Avail Cap(c_a), veh/h	148	1962	0	0	782	743	608	639	539			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.62	0.62	0.00	0.00	0.85	0.85	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.5	10.7	0.0	0.0	21.2	21.2	24.4	24.6	29.8			
Incr Delay (d2), s/veh	8.5	0.3	0.0	0.0	6.6	7.1	0.9	1.0	42.3			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.2	3.5	0.0	0.0	11.9	11.5	5.9	6.4	17.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.1	11.0	0.0	0.0	27.7	28.3	25.3	25.5	72.0			
LnGrp LOS	D	B			C	C	C	C	F			
Approach Vol, veh/h		748			1196			1273				
Approach Delay, s/veh		15.6			28.0			45.4				
Approach LOS		B			C			D				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		35.0		55.0			10.2	44.8				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		30.5		50.5			7.6	38.4				
Max Q Clear Time (g_c+I1), s		32.5		11.2			6.5	29.0				
Green Ext Time (p_c), s		0.0		3.6			0.0	4.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			32.0									
HCM 7th LOS			C									



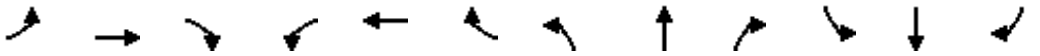
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1215	5	3	1060	5	1	0	2	10	3	105
Future Volume (veh/h)	15	1215	5	3	1060	5	1	0	2	10	3	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1411	1411	1411	1885	1885	1885
Adj Flow Rate, veh/h	16	1293	5	3	1128	5	1	0	2	11	3	112
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	33	33	33	1	1	1
Cap, veh/h	52	2537	10	41	2554	11	84	16	94	51	12	159
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.73	0.11	0.00	0.11	0.11	0.11	0.11
Sat Flow, veh/h	16	3494	13	1	3519	16	272	138	821	69	105	1385
Grp Volume(v), veh/h	682	0	632	595	0	541	3	0	0	126	0	0
Grp Sat Flow(s),veh/h/ln	1825	0	1699	1851	0	1685	1231	0	0	1558	0	0
Q Serve(g_s), s	0.0	0.0	14.8	0.0	0.0	11.8	0.0	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	14.3	0.0	14.8	11.8	0.0	11.8	0.2	0.0	0.0	7.0	0.0	0.0
Prop In Lane	0.02		0.01	0.01		0.01	0.33		0.67	0.09		0.89
Lane Grp Cap(c), veh/h	1365	0	1233	1383	0	1223	194	0	0	222	0	0
V/C Ratio(X)	0.50	0.00	0.51	0.43	0.00	0.44	0.02	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	1365	0	1233	1383	0	1223	295	0	0	400	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.00	0.80	0.70	0.00	0.70	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.4	0.0	5.4	5.0	0.0	5.0	35.7	0.0	0.0	38.8	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	1.2	0.7	0.0	0.8	0.0	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	4.7	4.0	0.0	3.7	0.1	0.0	0.0	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	6.4	0.0	6.7	5.7	0.0	5.8	35.8	0.0	0.0	39.6	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		1314			1136			3			126	
Approach Delay, s/veh		6.5			5.8			35.8			39.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		73.6		17.4		73.6		17.4				
Change Period (Y+Rc), s		7.5		7.0		* 7.5		* 7				
Max Green Setting (Gmax), s		57.5		19.0		* 61		* 21				
Max Q Clear Time (g_c+I1), s		16.8		2.2		13.8		9.0				
Green Ext Time (p_c), s		8.1		0.0		6.4		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			7.9									
HCM 7th LOS			A									

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	840	335	10	810	25	210	250	25	35	70	60
Future Volume (veh/h)	15	840	335	10	810	25	210	250	25	35	70	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.95	0.93		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1811	1811	1811	1752	1752	1752
Adj Flow Rate, veh/h	16	884	353	11	853	26	221	263	26	37	74	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	2	2	2	6	6	6	10	10	10
Cap, veh/h	55	2097	824	54	2989	90	253	653	65	86	145	104
Arrive On Green	0.88	0.88	0.88	0.88	0.88	0.88	0.15	0.40	0.40	0.20	0.20	0.20
Sat Flow, veh/h	16	2376	933	15	3386	102	1725	1613	159	192	711	512
Grp Volume(v), veh/h	685	0	568	463	0	427	221	0	289	174	0	0
Grp Sat Flow(s),veh/h/ln	1823	0	1502	1822	0	1682	1725	0	1772	1415	0	0
Q Serve(g_s), s	0.0	0.0	6.6	0.0	0.0	3.7	11.5	0.0	10.7	3.6	0.0	0.0
Cycle Q Clear(g_c), s	6.3	0.0	6.6	3.6	0.0	3.7	11.5	0.0	10.7	9.8	0.0	0.0
Prop In Lane	0.02		0.62	0.02		0.06	1.00		0.09	0.21		0.36
Lane Grp Cap(c), veh/h	1649	0	1326	1648	0	1484	253	0	717	336	0	0
V/C Ratio(X)	0.42	0.00	0.43	0.28	0.00	0.29	0.87	0.00	0.40	0.52	0.00	0.00
Avail Cap(c_a), veh/h	1649	0	1326	1648	0	1484	262	0	717	354	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.00	0.73	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.0	0.0	1.0	0.8	0.0	0.8	38.4	0.0	19.5	32.9	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.7	0.4	0.0	0.5	24.3	0.0	0.1	0.5	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.6	0.4	0.0	0.4	6.6	0.0	4.4	3.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	1.6	0.0	1.8	1.3	0.0	1.3	62.7	0.0	19.6	33.4	0.0	0.0
LnGrp LOS	A		A	A		A	E		B	C		
Approach Vol, veh/h		1253			890			510			174	
Approach Delay, s/veh		1.7			1.3			38.3			33.4	
Approach LOS		A			A			D			C	

Timer - Assigned Phs	2	4	6	7	8
Phs Duration (G+Y+Rc), s	89.9	45.2	89.9	18.5	26.7
Change Period (Y+Rc), s	7.5	8.0	* 7.5	5.0	8.0
Max Green Setting (Gmax), s	37.5	37.0	* 41	14.0	20.0
Max Q Clear Time (g_c+I1), s	8.6	12.7	5.7	13.5	11.8
Green Ext Time (p_c), s	2.0	1.2	1.2	0.0	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	10.1
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

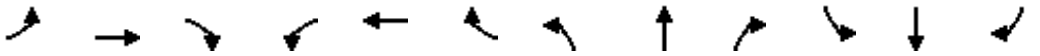
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	715	195	0	825	50	0	0	35	0	0	5
Future Vol, veh/h	0	715	195	0	825	50	0	0	35	0	0	5
Conflicting Peds, #/hr	101	0	96	36	0	41	96	0	36	41	0	101
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	3	3	3	3	3	3	0	0	0
Mvmt Flow	0	761	207	0	878	53	0	0	37	0	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	616	-	-	607
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	431	0	0	444
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	378	-	-	386
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	15.56	14.46
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	378	-	-	-	-	386
HCM Lane V/C Ratio	0.098	-	-	-	-	0.014
HCM Ctrl Dly (s/v)	15.6	-	-	-	-	14.5
HCM Lane LOS	C	-	-	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	425	110	15	505	85	265	645	10	85	275	95
Future Volume (veh/h)	185	425	110	15	505	85	265	645	10	85	275	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	193	443	115	16	526	89	276	672	10	89	286	99
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	220	841	216	30	592	100	299	1140	17	245	776	261
Arrive On Green	0.12	0.30	0.30	0.02	0.20	0.20	0.34	0.64	0.64	0.14	0.31	0.31
Sat Flow, veh/h	1767	2763	711	1767	3004	506	1767	3552	53	1739	2508	843
Grp Volume(v), veh/h	193	281	277	16	308	307	276	333	349	89	195	190
Grp Sat Flow(s),veh/h/ln	1767	1763	1712	1767	1763	1747	1767	1763	1842	1739	1735	1617
Q Serve(g_s), s	12.9	15.8	16.1	1.1	20.4	20.6	18.0	13.1	13.1	5.6	10.5	11.0
Cycle Q Clear(g_c), s	12.9	15.8	16.1	1.1	20.4	20.6	18.0	13.1	13.1	5.6	10.5	11.0
Prop In Lane	1.00		0.42	1.00		0.29	1.00		0.03	1.00		0.52
Lane Grp Cap(c), veh/h	220	536	521	30	347	344	299	566	591	245	537	500
V/C Ratio(X)	0.88	0.52	0.53	0.53	0.89	0.89	0.92	0.59	0.59	0.36	0.36	0.38
Avail Cap(c_a), veh/h	258	536	521	155	389	386	405	566	591	245	537	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	34.6	34.6	58.5	46.9	46.9	38.9	16.9	16.9	46.7	32.3	32.4
Incr Delay (d2), s/veh	22.4	0.5	0.5	5.1	18.2	19.4	18.1	4.1	3.9	0.3	1.9	2.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	6.9	6.9	0.5	10.7	10.8	8.2	4.5	4.7	2.5	4.8	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.1	35.0	35.2	63.6	65.1	66.4	57.0	21.1	20.9	47.0	34.2	34.6
LnGrp LOS	E	D	D	E	E	E	E	C	C	D	C	C
Approach Vol, veh/h		751			631			958			474	
Approach Delay, s/veh		45.1			65.7			31.4			36.8	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.8	44.6	19.4	30.1	24.4	46.0	6.6	43.0
Change Period (Y+Rc), s	5.5	7.5	4.5	6.5	7.5	* 7.5	4.5	6.5
Max Green Setting (Gmax), s	27.5	24.5	17.5	26.5	13.5	* 39	10.5	33.5
Max Q Clear Time (g_c+I1), s	20.0	13.0	14.9	22.6	7.6	15.1	3.1	18.1
Green Ext Time (p_c), s	0.3	1.3	0.1	1.1	0.0	3.0	0.0	2.2

Intersection Summary	
HCM 7th Control Delay, s/veh	43.6
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

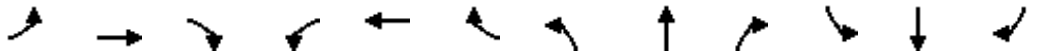
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↳			↑↑↳				↱			↱
Traffic Vol, veh/h	0	455	60	0	500	65	0	0	2	0	0	135
Future Vol, veh/h	0	455	60	0	500	65	0	0	2	0	0	135
Conflicting Peds, #/hr	44	0	27	23	0	40	27	0	23	40	0	44
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	479	63	0	526	68	0	0	2	0	0	142

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	321	-	-	381
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	681	0	0	622
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	649	-	-	574
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	10.57	13.33
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	649	-	-	-	-	574
HCM Lane V/C Ratio	0.003	-	-	-	-	0.248
HCM Ctrl Dly (s/v)	10.6	-	-	-	-	13.3
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	260	10	20	500	60	30	285	15	40	160	65
Future Volume (vph)	175	260	10	20	500	60	30	285	15	40	160	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.98		1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3375			3414		1671	1732		1703	1792	1463
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3375			3414		1671	1732		1703	1792	1463
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	274	11	21	526	63	32	300	16	42	168	68
RTOR Reduction (vph)	0	2	0	0	0	0	0	1	0	0	0	33
Lane Group Flow (vph)	0	467	0	0	610	0	32	315	0	42	168	35
Confl. Peds. (#/hr)	29		80	140		89	80		140	89		29
Confl. Bikes (#/hr)									6			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	8%	8%	8%	6%	6%	6%
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases												6
Actuated Green, G (s)		20.3			26.0		4.8	35.2		6.3	41.9	62.2
Effective Green, g (s)		20.3			26.0		4.8	35.2		6.3	41.9	62.2
Actuated g/C Ratio		0.17			0.21		0.04	0.29		0.05	0.35	0.51
Clearance Time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		566			733		66	503		88	620	752
v/s Ratio Prot		c0.14			c0.18		0.02	c0.18		c0.02	c0.09	0.01
v/s Ratio Perm												0.02
v/c Ratio		0.83			0.83		0.48	0.63		0.48	0.27	0.05
Uniform Delay, d1		48.6			45.4		56.9	37.2		55.7	28.5	14.6
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		9.1			7.7		2.0	5.8		1.5	1.1	0.0
Delay (s)		57.8			53.1		58.9	43.0		57.2	29.6	14.6
Level of Service		E			D		E	D		E	C	B
Approach Delay (s/veh)		57.8			53.1			44.4			30.1	
Approach LOS		E			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	48.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	121.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	16.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	5	10	30	10	175	5	215	30	75	235	100
Future Vol, veh/h	105	5	10	30	10	175	5	215	30	75	235	100
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	115	5	11	33	11	192	5	236	33	82	258	110
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12	12.8	14	21.3
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	88%	14%	18%
Vol Thru, %	86%	4%	5%	57%
Vol Right, %	12%	8%	81%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	250	120	215	410
LT Vol	5	105	30	75
Through Vol	215	5	10	235
RT Vol	30	10	175	100
Lane Flow Rate	275	132	236	451
Geometry Grp	1	1	1	1
Degree of Util (X)	0.457	0.247	0.392	0.709
Departure Headway (Hd)	5.994	6.756	5.976	5.669
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	604	531	602	640
Service Time	4.009	4.807	4.02	3.68
HCM Lane V/C Ratio	0.455	0.249	0.392	0.705
HCM Control Delay, s/veh	14	12	12.8	21.3
HCM Lane LOS	B	B	B	C
HCM 95th-tile Q	2.4	1	1.9	5.8

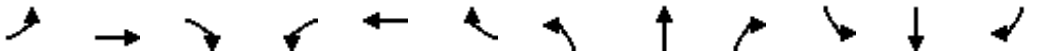
Intersection	
Int Delay, s/veh	9.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	40	65	15	5	95	65	10	15	10	40	20	85
Future Vol, veh/h	40	65	15	5	95	65	10	15	10	40	20	85
Conflicting Peds, #/hr	151	0	172	130	0	109	172	0	130	109	0	151
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	11	11	11	11	11	11	6	6	6	1	1	1
Mvmt Flow	43	71	16	5	103	71	11	16	11	43	22	92

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	325	0	0	259	0	0	635	674	381	596	646	462
Stage 1	-	-	-	-	-	-	338	338	-	300	300	-
Stage 2	-	-	-	-	-	-	297	336	-	296	346	-
Critical Hdwy	4.21	-	-	4.21	-	-	7.16	6.56	6.26	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.11	5.51	-
Follow-up Hdwy	2.299	-	-	2.299	-	-	3.554	4.054	3.354	3.509	4.009	3.309
Pot Cap-1 Maneuver	1186	-	-	1255	-	-	386	371	658	417	391	602
Stage 1	-	-	-	-	-	-	668	634	-	711	667	-
Stage 2	-	-	-	-	-	-	703	635	-	715	637	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1015	-	-	1049	-	-	186	252	482	272	266	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	252	-	272	266	-
Stage 1	-	-	-	-	-	-	534	506	-	605	568	-
Stage 2	-	-	-	-	-	-	442	540	-	566	509	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.9	0.26	21.13	23.84
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	261	578	-	-	50	-	-	346
HCM Lane V/C Ratio	0.146	0.043	-	-	0.005	-	-	0.456
HCM Ctrl Dly (s/v)	21.1	8.7	0	-	8.4	0	-	23.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	2.3



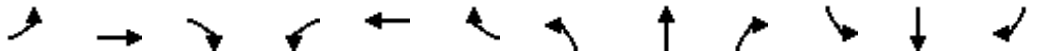
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	70	20	10	75	190	30	710	45	170	185	45
Future Volume (veh/h)	15	70	20	10	75	190	30	710	45	170	185	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.89	0.94		0.89	0.97		0.94	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1826	1826	1826	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	16	76	22	11	82	207	33	772	49	185	201	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	13	13	5	5	5	4	4	4	5	5	5
Cap, veh/h	58	229	60	36	96	225	93	2092	131	424	858	209
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.67	0.67	0.67	1.00	1.00	1.00
Sat Flow, veh/h	109	1040	275	24	435	1022	91	3115	195	543	1278	311
Grp Volume(v), veh/h	114	0	0	300	0	0	447	0	407	185	0	250
Grp Sat Flow(s),veh/h/ln	1424	0	0	1481	0	0	1776	0	1625	543	0	1589
Q Serve(g_s), s	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	13.2	9.7	0.0	0.0
Cycle Q Clear(g_c), s	7.1	0.0	0.0	23.8	0.0	0.0	12.6	0.0	13.2	22.9	0.0	0.0
Prop In Lane	0.14		0.19	0.04		0.69	0.07		0.12	1.00		0.20
Lane Grp Cap(c), veh/h	347	0	0	357	0	0	1225	0	1091	424	0	1067
V/C Ratio(X)	0.33	0.00	0.00	0.84	0.00	0.00	0.36	0.00	0.37	0.44	0.00	0.23
Avail Cap(c_a), veh/h	434	0	0	468	0	0	1225	0	1091	424	0	1067
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	0.00	0.60	0.00	0.00	1.00	0.00	1.00	0.91	0.00	0.91
Uniform Delay (d), s/veh	39.3	0.0	0.0	45.7	0.0	0.0	8.5	0.0	8.6	1.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	5.1	0.0	0.0	0.8	0.0	1.0	2.9	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.0	9.3	0.0	0.0	5.2	0.0	4.8	0.8	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	39.5	0.0	0.0	50.8	0.0	0.0	9.4	0.0	9.6	4.8	0.0	0.5
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		114			300			854			435	
Approach Delay, s/veh		39.5			50.8			9.5			2.3	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	87.1	32.9	87.1	32.9
Change Period (Y+Rc), s	6.5	6.5	* 6.5	* 6.5
Max Green Setting (Gmax), s	73.5	33.5	* 76	* 36
Max Q Clear Time (g_c+I1), s	15.2	9.1	24.9	25.8
Green Ext Time (p_c), s	1.1	0.3	1.4	0.7

Intersection Summary	
HCM 7th Control Delay, s/veh	16.9
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	155	20	15	210	55	15	260	10	35	130	80
Future Volume (vph)	15	155	20	15	210	55	15	260	10	35	130	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.96		1.00	0.99		1.00	0.91	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.99			0.97		1.00	0.99		1.00	0.94	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1603			1692		1671	1738		1719	1548	
Flt Permitted		0.91			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1459			1657		1671	1738		1719	1548	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	16	161	21	16	219	57	16	271	10	36	135	83
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	13	0
Lane Group Flow (vph)	0	198	0	0	292	0	16	280	0	36	205	0
Confl. Peds. (#/hr)	66		70	70		66	61		103	103		61
Confl. Bikes (#/hr)			1			3			9			7
Heavy Vehicles (%)	13%	13%	13%	4%	4%	4%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		25.6			27.6		2.8	36.3		5.0	71.1	
Effective Green, g (s)		25.6			27.6		2.8	36.3		5.0	71.1	
Actuated g/C Ratio		0.21			0.23		0.02	0.30		0.04	0.59	
Clearance Time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		311			381		38	525		71	917	
v/s Ratio Prot							0.01	c0.16		c0.02	c0.13	
v/s Ratio Perm		0.14			c0.18							
v/c Ratio		0.64			0.77		0.42	0.53		0.51	0.22	
Uniform Delay, d1		43.0			43.2		57.8	34.8		56.3	11.5	
Progression Factor		0.91			1.00		1.30	0.73		1.00	1.00	
Incremental Delay, d2		4.0			8.9		2.6	3.7		2.1	0.6	
Delay (s)		43.1			52.1		77.7	29.3		58.4	12.1	
Level of Service		D			D		E	C		E	B	
Approach Delay (s/veh)		43.1			52.1			31.9			18.6	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	10	40	785	180	41
Future Vol, veh/h	11	10	40	785	180	41
Conflicting Peds, #/hr	95	25	25	0	0	95
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	4	4	3	3
Mvmt Flow	12	11	42	826	189	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	898	236	328	0	-	0
Stage 1	306	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Critical Hdwy	6.9	7	4.18	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.35	2.24	-	-	-
Pot Cap-1 Maneuver	273	756	1214	-	-	-
Stage 1	711	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	215	671	1105	-	-	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	461	-	-	-	-	-

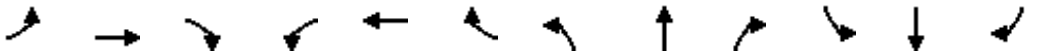
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.18	0.77	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	175	-	318	-	-
HCM Lane V/C Ratio	0.038	-	0.07	-	-
HCM Ctrl Dly (s/v)	8.4	0.4	17.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	300	15	0	145
Future Volume (vph)	5	5	300	15	0	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.90		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.93		0.99			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	1440		1744			3406
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	1440		1744			3406
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	5	5	330	16	0	159
RTOR Reduction (vph)	4	0	1	0	0	0
Lane Group Flow (vph)	6	0	345	0	0	159
Confl. Peds. (#/hr)	1	67		36	36	
Confl. Bikes (#/hr)				11		
Heavy Vehicles (%)	8%	8%	8%	8%	6%	6%
Turn Type	Prot		NA			NA
Protected Phases	4		2			6
Permitted Phases						
Actuated Green, G (s)	20.0		78.0			88.5
Effective Green, g (s)	20.0		78.0			88.5
Actuated g/C Ratio	0.17		0.65			0.74
Clearance Time (s)	6.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	240		1133			2511
v/s Ratio Prot	c0.00		c0.20			c0.05
v/s Ratio Perm						
v/c Ratio	0.02		0.30			0.06
Uniform Delay, d1	41.8		9.2			4.3
Progression Factor	1.00		1.00			1.22
Incremental Delay, d2	0.0		0.7			0.0
Delay (s)	41.9		9.9			5.3
Level of Service	D		A			A
Approach Delay (s/veh)	41.9		9.9			5.3
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	165	35	0	715	175	95	130	2	100	55	5
Future Volume (veh/h)	0	165	35	0	715	175	95	130	2	100	55	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.97		0.94	0.97		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1841	1841	0	1826	1826	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	0	179	38	0	777	190	103	141	2	109	60	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	4	4	0	5	5	5	5	5	6	6	6
Cap, veh/h	0	1974	408	0	1886	461	280	368	5	221	337	28
Arrive On Green	0.00	0.69	0.69	0.00	0.69	0.69	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	0	2960	593	0	2832	670	1264	1794	25	1176	1641	137
Grp Volume(v), veh/h	0	107	110	0	492	475	103	0	143	109	0	65
Grp Sat Flow(s),veh/h/ln	0	1749	1712	0	1735	1676	1264	0	1819	1176	0	1777
Q Serve(g_s), s	0.0	2.5	2.6	0.0	15.1	15.1	8.9	0.0	8.3	10.8	0.0	3.7
Cycle Q Clear(g_c), s	0.0	2.5	2.6	0.0	15.1	15.1	12.6	0.0	8.3	19.0	0.0	3.7
Prop In Lane	0.00		0.35	0.00		0.40	1.00		0.01	1.00		0.08
Lane Grp Cap(c), veh/h	0	1203	1178	0	1194	1154	280	0	373	221	0	365
V/C Ratio(X)	0.00	0.09	0.09	0.00	0.41	0.41	0.37	0.00	0.38	0.49	0.00	0.18
Avail Cap(c_a), veh/h	0	1203	1178	0	1194	1154	342	0	462	288	0	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.3	6.3	0.0	8.3	8.3	45.2	0.0	41.8	50.0	0.0	40.0
Incr Delay (d2), s/veh	0.0	0.1	0.2	0.0	1.1	1.1	1.7	0.0	1.4	0.6	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	1.0	0.0	5.8	5.6	3.0	0.0	3.9	3.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	6.5	6.5	0.0	9.3	9.4	46.9	0.0	43.2	50.7	0.0	40.1
LnGrp LOS		A	A		A	A	D		D	D		D
Approach Vol, veh/h		217			967			246			174	
Approach Delay, s/veh		6.5			9.3			44.7			46.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		89.5		32.5		89.5		32.5				
Change Period (Y+Rc), s		5.5		7.5		5.5		7.5				
Max Green Setting (Gmax), s		38.5		31.0		38.5		32.0				
Max Q Clear Time (g_c+I1), s		4.6		14.6		17.1		21.0				
Green Ext Time (p_c), s		0.3		1.9		1.3		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			18.4									
HCM 7th LOS			B									

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	110	15	50	1	30	10	120	110	40	12	40	210
Future Vol, veh/h	110	15	50	1	30	10	120	110	40	12	40	210
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	126	17	57	1	34	11	138	126	46	14	46	241
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11	9.3	12.2	11
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	63%	2%	5%
Vol Thru, %	41%	9%	73%	15%
Vol Right, %	15%	29%	24%	80%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	270	175	41	262
LT Vol	120	110	1	12
Through Vol	110	15	30	40
RT Vol	40	50	10	210
Lane Flow Rate	310	201	47	301
Geometry Grp	1	1	1	1
Degree of Util (X)	0.444	0.308	0.075	0.401
Departure Headway (Hd)	5.155	5.506	5.752	4.791
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	701	652	622	756
Service Time	3.165	3.542	3.798	2.8
HCM Lane V/C Ratio	0.442	0.308	0.076	0.398
HCM Control Delay, s/veh	12.2	11	9.3	11
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	2.3	1.3	0.2	1.9

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	10	25	230	70	20
Future Vol, veh/h	15	10	25	230	70	20
Conflicting Peds, #/hr	24	23	23	0	0	24
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	16	16	6	6	11	11
Mvmt Flow	17	11	28	258	79	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	452	137	125	0	-	0
Stage 1	114	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Critical Hdwy	6.56	6.36	4.16	-	-	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	2.254	-	-	-
Pot Cap-1 Maneuver	540	876	1437	-	-	-
Stage 1	877	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	505	837	1404	-	-	-
Mov Cap-2 Maneuver	505	-	-	-	-	-
Stage 1	840	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.29	0.75	0
HCM LOS	B		

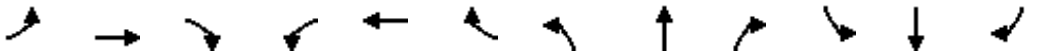
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1404	-	600	-	-
HCM Lane V/C Ratio	0.02	-	0.047	-	-
HCM Ctrl Dly (s/v)	7.6	-	11.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	195	20	5	75	52	50
Future Vol, veh/h	195	20	5	75	52	50
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	214	22	5	82	57	55
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	9.5	7.6	8.4
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	51%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	49%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	215	80	102
LT Vol	195	0	52
Through Vol	20	5	0
RT Vol	0	75	50
Lane Flow Rate	236	88	112
Geometry Grp	1	1	1
Degree of Util (X)	0.298	0.1	0.143
Departure Headway (Hd)	4.539	4.086	4.58
Convergence, Y/N	Yes	Yes	Yes
Cap	796	878	785
Service Time	2.539	2.105	2.6
HCM Lane V/C Ratio	0.296	0.1	0.143
HCM Control Delay, s/veh	9.5	7.6	8.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.3	0.3	0.5



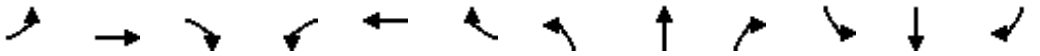
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	420	30	5	335	75	0	0	0	20	5	50
Future Volume (veh/h)	180	420	30	5	335	75	0	0	0	20	5	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.93	1.00		1.00	0.95		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	189	442	32	5	353	79	0	0	0	21	5	53
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	515	779	56	491	658	147	0	428	0	611	28	297
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.00	0.00	0.00	0.23	0.23	0.23
Sat Flow, veh/h	930	1700	123	889	1434	321	0	1900	0	1587	124	1315
Grp Volume(v), veh/h	189	0	474	5	0	432	0	0	0	21	0	58
Grp Sat Flow(s),veh/h/ln	930	0	1823	889	0	1755	0	1900	0	1587	0	1439
Q Serve(g_s), s	5.2	0.0	5.4	0.1	0.0	5.0	0.0	0.0	0.0	0.3	0.0	0.9
Cycle Q Clear(g_c), s	10.2	0.0	5.4	5.5	0.0	5.0	0.0	0.0	0.0	0.3	0.0	0.9
Prop In Lane	1.00		0.07	1.00		0.18	0.00		0.00	1.00		0.91
Lane Grp Cap(c), veh/h	515	0	836	491	0	805	0	428	0	611	0	324
V/C Ratio(X)	0.37	0.00	0.57	0.01	0.00	0.54	0.00	0.00	0.00	0.03	0.00	0.18
Avail Cap(c_a), veh/h	922	0	1633	880	0	1572	0	1034	0	1117	0	784
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.2	0.0	5.6	7.7	0.0	5.5	0.0	0.0	0.0	8.7	0.0	8.9
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.9	0.0	0.0	0.9	0.0	0.0	0.0	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.4	0.0	5.9	7.7	0.0	5.7	0.0	0.0	0.0	8.7	0.0	9.0
LnGrp LOS	A		A	A		A				A		A
Approach Vol, veh/h		663			437			0			79	
Approach Delay, s/veh		6.9			5.8			0.0			8.9	
Approach LOS		A			A						A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	17.6	10.9	17.6	10.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	15.5	25.5	15.5
Max Q Clear Time (g_c+I1), s	7.5	0.0	12.2	2.9
Green Ext Time (p_c), s	0.5	0.0	0.6	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	6.6
HCM 7th LOS	A

Notes

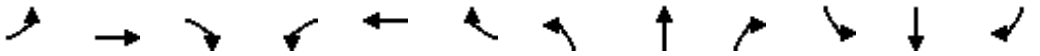
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	540	270	0	0	0	0	0	0	260	815	0
Future Volume (veh/h)	0	540	270	0	0	0	0	0	0	260	815	0
Initial Q (Qb), veh	0	0	0							0	0	0
Lane Width Adj.	1.00	1.00	1.00							1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1900	1900							1900	1900	0
Adj Flow Rate, veh/h	0	587	293							283	886	0
Peak Hour Factor	0.92	0.92	0.92							0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0							0	0	0
Cap, veh/h	0	1986	868							448	1405	0
Arrive On Green	0.00	0.55	0.55							0.35	0.35	0.00
Sat Flow, veh/h	0	3705	1579							1280	4184	0
Grp Volume(v), veh/h	0	587	293							406	763	0
Grp Sat Flow(s),veh/h/ln	0	1805	1579							1836	1729	0
Q Serve(g_s), s	0.0	7.9	9.2							16.6	16.6	0.0
Cycle Q Clear(g_c), s	0.0	7.9	9.2							16.6	16.6	0.0
Prop In Lane	0.00		1.00							0.70		0.00
Lane Grp Cap(c), veh/h	0	1986	868							643	1210	0
V/C Ratio(X)	0.00	0.30	0.34							0.63	0.63	0.00
Avail Cap(c_a), veh/h	0	1986	868							643	1210	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	10.9	11.2							24.4	24.4	0.0
Incr Delay (d2), s/veh	0.0	0.4	1.1							4.7	2.5	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	3.3							7.9	7.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	11.3	12.2							29.1	26.9	0.0
LnGrp LOS		B	B							C	C	
Approach Vol, veh/h		880									1169	
Approach Delay, s/veh		11.6									27.7	
Approach LOS		B									C	

Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						54.0		36.0				
Change Period (Y+Rc), s						4.5		4.5				
Max Green Setting (Gmax), s						49.5		31.5				
Max Q Clear Time (g_c+I1), s						11.2		18.6				
Green Ext Time (p_c), s						0.9		1.7				

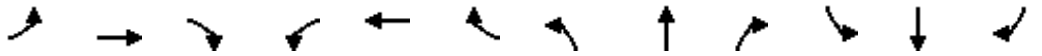
Intersection Summary												
HCM 7th Control Delay, s/veh			20.8									
HCM 7th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	140	0	0	0	555	0	585	45	0	0	0
Future Volume (veh/h)	45	140	0	0	0	555	0	585	45	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1885	1885	0	1885	1885			
Adj Flow Rate, veh/h	48	151	0	0	0	597	0	629	48			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	0	0	0	0	1	1	0	1	1			
Cap, veh/h	104	286	0	0	0	673	0	0	0			
Arrive On Green	0.44	0.44	0.00	0.00	0.00	0.44	0.00	0.00	0.00			
Sat Flow, veh/h	65	643	0	0	0	1517		0				
Grp Volume(v), veh/h	199	0	0	0	0	597		0.0				
Grp Sat Flow(s),veh/h/ln	709	0	0	0	0	1517						
Q Serve(g_s), s	2.5	0.0	0.0	0.0	0.0	21.7						
Cycle Q Clear(g_c), s	24.1	0.0	0.0	0.0	0.0	21.7						
Prop In Lane	0.24		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	389	0	0	0	0	673						
V/C Ratio(X)	0.51	0.00	0.00	0.00	0.00	0.89						
Avail Cap(c_a), veh/h	519	0	0	0	0	809						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00						
Uniform Delay (d), s/veh	12.7	0.0	0.0	0.0	0.0	15.3						
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	0.0	10.3						
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	0.0	0.0	8.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.7	0.0	0.0	0.0	0.0	25.6						
LnGrp LOS	B					C						
Approach Vol, veh/h		199			597							
Approach Delay, s/veh		13.7			25.6							
Approach LOS		B			C							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				31.6				31.6				
Change Period (Y+Rc), s				5.0				5.0				
Max Green Setting (Gmax), s				32.0				32.0				
Max Q Clear Time (g_c+I1), s				26.1				23.7				
Green Ext Time (p_c), s				0.6				3.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			22.6									
HCM 7th LOS			C									



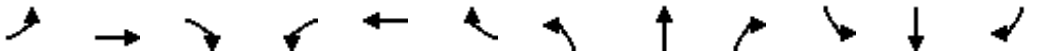
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	150	450	1025	300	0	0	0	0	150	880	125
Future Volume (veh/h)	0	150	450	1025	300	0	0	0	0	150	880	125
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1870	1870	0				1885	1885	1885
Adj Flow Rate, veh/h	0	155	0	1057	309	0				155	907	129
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	3	3	2	2	0				1	1	1
Cap, veh/h	0	819		1136	1143	0				509	1015	439
Arrive On Green	0.00	0.23	0.00	0.55	1.00	0.00				0.09	0.09	0.09
Sat Flow, veh/h	0	3618	1572	3456	1870	0				1795	3582	1547
Grp Volume(v), veh/h	0	155	0	1057	309	0				155	907	129
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1728	1870	0				1795	1791	1547
Q Serve(g_s), s	0.0	3.2	0.0	25.4	0.0	0.0				7.2	22.5	7.0
Cycle Q Clear(g_c), s	0.0	3.2	0.0	25.4	0.0	0.0				7.2	22.5	7.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	819		1136	1143	0				509	1015	439
V/C Ratio(X)	0.00	0.19		0.93	0.27	0.00				0.30	0.89	0.29
Avail Cap(c_a), veh/h	0	819		1286	1143	0				539	1075	464
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	0.00	0.61	0.61	0.00				0.78	0.78	0.78
Uniform Delay (d), s/veh	0.0	27.7	0.0	19.3	0.0	0.0				32.5	39.4	32.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	7.1	0.4	0.0				0.1	7.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.3	0.0	8.5	0.1	0.0				3.4	11.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	27.8	0.0	26.4	0.4	0.0				32.6	46.6	32.5
LnGrp LOS		C		C	A					C	D	C
Approach Vol, veh/h		155			1366						1191	
Approach Delay, s/veh		27.8			20.5						43.3	
Approach LOS		C			C						D	

Timer - Assigned Phs	2	3	4				8					
Phs Duration (G+Y+Rc), s	30.5	34.1	25.4				59.5					
Change Period (Y+Rc), s	5.0	4.5	4.5				4.5					
Max Green Setting (Gmax), s	27.0	33.5	15.5				53.5					
Max Q Clear Time (g_c+I1), s	24.5	27.4	5.2				2.0					
Green Ext Time (p_c), s	1.0	0.7	0.3				0.7					

Intersection Summary	
HCM 7th Control Delay, s/veh	30.9
HCM 7th LOS	C

Notes

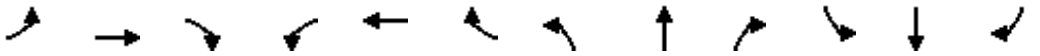
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	220	0	0	1110	290	210	270	465	0	0	0
Future Volume (veh/h)	75	220	0	0	1110	290	210	270	465	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.93	1.00		0.97			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	78	229	0	0	1156	302	219	281	484			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	5	5	0	0	2	2	1	1	1			
Cap, veh/h	99	2294	0	0	1525	392	429	450	372			
Arrive On Green	0.06	0.66	0.00	0.00	1.00	1.00	0.24	0.24	0.24			
Sat Flow, veh/h	1739	3561	0	0	2846	708	1795	1885	1555			
Grp Volume(v), veh/h	78	229	0	0	740	718	219	281	484			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1777	1683	1795	1885	1555			
Q Serve(g_s), s	4.0	2.2	0.0	0.0	0.0	0.0	9.5	12.0	21.5			
Cycle Q Clear(g_c), s	4.0	2.2	0.0	0.0	0.0	0.0	9.5	12.0	21.5			
Prop In Lane	1.00		0.00	0.00		0.42	1.00		1.00			
Lane Grp Cap(c), veh/h	99	2294	0	0	984	932	429	450	372			
V/C Ratio(X)	0.78	0.10	0.00	0.00	0.75	0.77	0.51	0.62	1.30			
Avail Cap(c_a), veh/h	145	2294	0	0	984	932	429	450	372			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.97	0.97	0.00	0.00	0.80	0.80	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.9	5.5	0.0	0.0	0.0	0.0	29.7	30.6	34.3			
Incr Delay (d2), s/veh	8.9	0.1	0.0	0.0	4.3	4.9	0.4	2.0	154.5			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	0.7	0.0	0.0	1.2	1.3	4.0	5.4	23.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.7	5.6	0.0	0.0	4.3	4.9	30.1	32.7	188.8			
LnGrp LOS	D	A			A	A	C	C	F			
Approach Vol, veh/h		307			1458			984				
Approach Delay, s/veh		17.1			4.6			108.9				
Approach LOS		B			A			F				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		26.0		64.0			9.6	54.4				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		21.5		59.5			7.5	47.5				
Max Q Clear Time (g_c+I1), s		23.5		4.2			6.0	2.0				
Green Ext Time (p_c), s		0.0		1.1			0.0	10.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			43.3									
HCM 7th LOS			D									



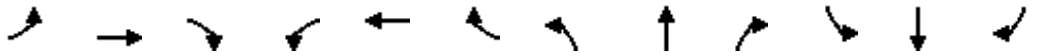
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	705	2	1	1150	10	4	0	1	15	2	245
Future Volume (veh/h)	1	705	2	1	1150	10	4	0	1	15	2	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.95	0.99		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1	742	2	1	1211	11	4	0	1	16	2	258
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	3	3	0	0	0	0	0	0
Cap, veh/h	40	2252	6	40	2217	20	184	8	30	51	12	301
Arrive On Green	1.00	1.00	1.00	0.63	0.63	0.63	0.21	0.00	0.21	0.21	0.21	0.21
Sat Flow, veh/h	0	3559	10	0	3504	32	541	39	145	44	58	1462
Grp Volume(v), veh/h	390	0	355	642	0	581	5	0	0	276	0	0
Grp Sat Flow(s),veh/h/ln	1869	0	1700	1855	0	1681	726	0	0	1564	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	17.5	0.0	0.0	0.0	5.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	17.5	0.0	17.5	0.2	0.0	0.0	15.3	0.0	0.0
Prop In Lane	0.00		0.01	0.00		0.02	0.80		0.20	0.06		0.93
Lane Grp Cap(c), veh/h	1223	0	1076	1214	0	1064	222	0	0	365	0	0
V/C Ratio(X)	0.32	0.00	0.33	0.53	0.00	0.55	0.02	0.00	0.00	0.76	0.00	0.00
Avail Cap(c_a), veh/h	1223	0	1076	1214	0	1064	373	0	0	613	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.00	0.86	0.61	0.00	0.61	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	9.3	0.0	9.3	28.4	0.0	0.0	34.4	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.7	1.0	0.0	1.2	0.0	0.0	0.0	1.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	6.7	0.0	6.2	0.1	0.0	0.0	5.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.6	0.0	0.7	10.3	0.0	10.5	28.5	0.0	0.0	35.6	0.0	0.0
LnGrp LOS	A		A	B		B	C			D		
Approach Vol, veh/h		745			1223			5			276	
Approach Delay, s/veh		0.6			10.4			28.5			35.6	
Approach LOS		A			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.5		25.5		64.5		25.5				
Change Period (Y+Rc), s		7.5		7.0		* 7.5		* 7				
Max Green Setting (Gmax), s		45.5		30.0		* 49		* 33				
Max Q Clear Time (g_c+I1), s		2.0		2.2		19.5		17.3				
Green Ext Time (p_c), s		3.5		0.0		6.7		1.1				

Intersection Summary	
HCM 7th Control Delay, s/veh	10.3
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	560	130	5	715	5	315	215	25	25	35	140
Future Volume (veh/h)	20	560	130	5	715	5	315	215	25	25	35	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.94	0.93		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1796	1796	1796	1856	1856	1856
Adj Flow Rate, veh/h	21	596	138	5	761	5	335	229	27	27	37	149
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	7	7	7	3	3	3
Cap, veh/h	113	3104	710	47	4097	27	301	689	81	67	68	210
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.18	0.44	0.44	0.21	0.21	0.21
Sat Flow, veh/h	61	2673	612	6	3529	23	1711	1565	185	105	326	1004
Grp Volume(v), veh/h	399	0	356	403	0	368	335	0	256	213	0	0
Grp Sat Flow(s),veh/h/ln	1767	0	1579	1860	0	1697	1711	0	1750	1435	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0	8.7	4.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0	8.7	12.3	0.0	0.0
Prop In Lane	0.05		0.39	0.01		0.01	1.00		0.11	0.13		0.70
Lane Grp Cap(c), veh/h	2094	0	1834	2200	0	1971	301	0	770	345	0	0
V/C Ratio(X)	0.19	0.00	0.19	0.18	0.00	0.19	1.11	0.00	0.33	0.62	0.00	0.00
Avail Cap(c_a), veh/h	2094	0	1834	2200	0	1971	301	0	770	360	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.00	0.94	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	37.5	0.0	16.7	33.2	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.2	0.0	0.2	86.0	0.0	0.1	2.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	0.1	0.0	0.1	13.8	0.0	3.5	4.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.2	0.0	0.2	0.2	0.0	0.2	123.5	0.0	16.8	35.3	0.0	0.0
LnGrp LOS	A		A	A		A	F		B	D		
Approach Vol, veh/h		755			771			591			213	
Approach Delay, s/veh		0.2			0.2			77.3			35.3	
Approach LOS		A			A			E			D	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		115.2		48.1		115.2	21.0	27.1				
Change Period (Y+Rc), s		7.5		8.0		* 7.5	5.0	8.0				
Max Green Setting (Gmax), s		34.5		40.0		* 38	16.0	20.0				
Max Q Clear Time (g_c+I1), s		2.0		10.7		2.0	18.0	14.3				
Green Ext Time (p_c), s		1.1		1.1		1.0	0.0	0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			23.0									
HCM 7th LOS			C									

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

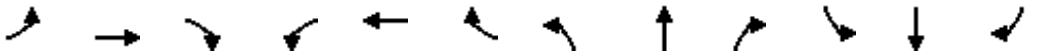
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	555	45	0	665	65	0	0	75	0	0	30
Future Vol, veh/h	0	555	45	0	665	65	0	0	75	0	0	30
Conflicting Peds, #/hr	90	0	110	58	0	38	110	0	58	38	0	90
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	603	49	0	723	71	0	0	82	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	494	-	-	525
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.92	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.31	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	524	0	0	503
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	443	-	-	443
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	14.96	13.77
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	443	-	-	-	-	443
HCM Lane V/C Ratio	0.184	-	-	-	-	0.074
HCM Ctrl Dly (s/v)	15	-	-	-	-	13.8
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0.7	-	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	395	105	20	420	40	195	480	20	120	485	80
Future Volume (veh/h)	115	395	105	20	420	40	195	480	20	120	485	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.94	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	425	113	22	452	43	210	516	22	129	522	86
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	633	166	39	542	51	239	1169	50	349	1260	207
Arrive On Green	0.08	0.23	0.23	0.02	0.17	0.17	0.13	0.34	0.34	0.20	0.42	0.42
Sat Flow, veh/h	1795	2774	729	1781	3259	308	1781	3463	147	1781	3030	497
Grp Volume(v), veh/h	124	273	265	22	245	250	210	264	274	129	305	303
Grp Sat Flow(s),veh/h/ln	1795	1791	1712	1781	1777	1790	1781	1777	1833	1781	1777	1750
Q Serve(g_s), s	8.2	16.6	17.0	1.5	16.0	16.2	13.9	13.9	14.0	7.5	14.5	14.7
Cycle Q Clear(g_c), s	8.2	16.6	17.0	1.5	16.0	16.2	13.9	13.9	14.0	7.5	14.5	14.7
Prop In Lane	1.00		0.43	1.00		0.17	1.00		0.08	1.00		0.28
Lane Grp Cap(c), veh/h	150	409	391	39	296	298	239	600	619	349	739	728
V/C Ratio(X)	0.83	0.67	0.68	0.57	0.83	0.84	0.88	0.44	0.44	0.37	0.41	0.42
Avail Cap(c_a), veh/h	172	440	421	186	452	455	408	600	619	349	739	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.1	42.1	42.3	58.1	48.4	48.4	51.0	30.9	31.0	41.8	24.7	24.8
Incr Delay (d2), s/veh	21.8	2.6	3.1	4.8	4.5	5.0	5.2	2.3	2.2	0.2	1.7	1.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	7.7	7.6	0.7	7.5	7.7	6.6	6.4	6.6	3.4	6.5	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	76.0	44.7	45.3	63.0	52.8	53.4	56.2	33.2	33.2	42.1	26.4	26.5
LnGrp LOS	E	D	D	E	D	D	E	C	C	D	C	C
Approach Vol, veh/h		662			517			748			737	
Approach Delay, s/veh		50.8			53.5			39.7			29.2	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.6	57.4	14.5	26.5	31.0	48.0	7.1	33.9
Change Period (Y+Rc), s	5.5	7.5	4.5	6.5	7.5	* 7.5	4.5	6.5
Max Green Setting (Gmax), s	27.5	26.5	11.5	30.5	13.5	* 41	12.5	29.5
Max Q Clear Time (g_c+I1), s	15.9	16.7	10.2	18.2	9.5	16.0	3.5	19.0
Green Ext Time (p_c), s	0.2	2.0	0.0	1.7	0.1	2.3	0.0	1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	42.2
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

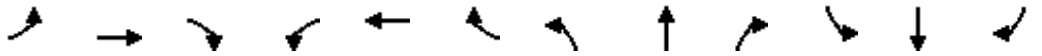
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	515	15	0	390	15	0	0	5	0	0	105
Future Vol, veh/h	0	515	15	0	390	15	0	0	5	0	0	105
Conflicting Peds, #/hr	58	0	41	23	0	40	41	0	23	40	0	58
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	1	1	1
Mvmt Flow	0	599	17	0	453	17	0	0	6	0	0	122

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	372	-	-	333
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	631	0	0	665
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	593	-	-	605
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	11.13	12.46
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	593	-	-	-	-	605
HCM Lane V/C Ratio	0.01	-	-	-	-	0.202
HCM Ctrl Dly (s/v)	11.1	-	-	-	-	12.5
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	350	30	40	295	45	30	265	20	65	375	90
Future Volume (vph)	140	350	30	40	295	45	30	265	20	65	375	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.97		1.00	0.99		1.00	1.00	0.95
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.99			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3480			3395		1752	1802		1787	1881	1511
Flt Permitted		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3480			3395		1752	1802		1787	1881	1511
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	156	389	33	44	328	50	33	294	22	72	417	100
RTOR Reduction (vph)	0	3	0	0	0	0	0	2	0	0	0	39
Lane Group Flow (vph)	0	575	0	0	422	0	33	314	0	72	417	61
Confl. Peds. (#/hr)	46		92	163		117	92		163	117		46
Confl. Bikes (#/hr)									12			11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases												6
Actuated Green, G (s)		25.1			19.6		4.8	33.9		7.4	43.5	68.6
Effective Green, g (s)		25.1			19.6		4.8	33.9		7.4	43.5	68.6
Actuated g/C Ratio		0.21			0.16		0.04	0.28		0.06	0.36	0.57
Clearance Time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		721			549		69	504		109	676	856
v/s Ratio Prot		c0.17			c0.12		0.02	0.17		c0.04	c0.22	0.01
v/s Ratio Perm												0.03
v/c Ratio		0.80			0.77		0.48	0.62		0.66	0.62	0.07
Uniform Delay, d1		45.5			48.5		56.9	38.0		55.6	31.9	11.8
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.7			5.8		1.9	5.7		11.0	4.2	0.0
Delay (s)		51.3			54.3		58.8	43.7		66.6	36.1	11.8
Level of Service		D			D		E	D		E	D	B
Approach Delay (s/veh)		51.3			54.3			45.1			35.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	121.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	85	15	5	20	10	185	6	335	35	40	110	45
Future Vol, veh/h	85	15	5	20	10	185	6	335	35	40	110	45
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	90	16	5	21	11	197	6	356	37	43	117	48
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.6	11.3	15.7	11.3
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	81%	9%	21%
Vol Thru, %	89%	14%	5%	56%
Vol Right, %	9%	5%	86%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	376	105	215	195
LT Vol	6	85	20	40
Through Vol	335	15	10	110
RT Vol	35	5	185	45
Lane Flow Rate	400	112	229	207
Geometry Grp	1	1	1	1
Degree of Util (X)	0.589	0.19	0.344	0.321
Departure Headway (Hd)	5.301	6.108	5.413	5.565
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	680	585	661	643
Service Time	3.348	4.174	3.47	3.623
HCM Lane V/C Ratio	0.588	0.191	0.346	0.322
HCM Control Delay, s/veh	15.7	10.6	11.3	11.3
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.9	0.7	1.5	1.4

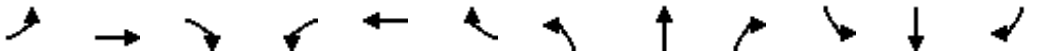
Intersection	
Int Delay, s/veh	13.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	70	15	11	90	15	30	10	15	50	35	90
Future Vol, veh/h	10	70	15	11	90	15	30	10	15	50	35	90
Conflicting Peds, #/hr	169	0	162	127	0	134	162	0	127	134	0	169
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	12	12	12	19	19	19	2	2	2	0	0	0
Mvmt Flow	11	78	17	12	100	17	33	11	17	56	39	100

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	286	0	0	256	0	0	583	580	382	541	580	446
Stage 1	-	-	-	-	-	-	270	270	-	302	302	-
Stage 2	-	-	-	-	-	-	313	310	-	240	279	-
Critical Hdwy	4.22	-	-	4.29	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.308	-	-	2.371	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1221	-	-	1216	-	-	424	425	665	455	428	616
Stage 1	-	-	-	-	-	-	735	686	-	712	668	-
Stage 2	-	-	-	-	-	-	698	659	-	768	684	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1025	-	-	1028	-	-	197	295	491	302	297	434
Mov Cap-2 Maneuver	-	-	-	-	-	-	197	295	-	302	297	-
Stage 1	-	-	-	-	-	-	615	573	-	590	553	-
Stage 2	-	-	-	-	-	-	414	546	-	628	572	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.9	0.81	23.66	26.57
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	253	183	-	-	166	-	-	357
HCM Lane V/C Ratio	0.241	0.011	-	-	0.012	-	-	0.545
HCM Ctrl Dly (s/v)	23.7	8.6	0	-	8.5	0	-	26.6
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	3.1



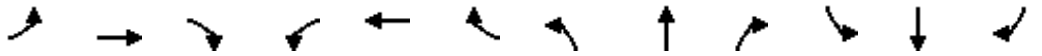
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	50	40	15	95	235	10	440	5	115	485	30
Future Volume (veh/h)	30	50	40	15	95	235	10	440	5	115	485	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.88	0.95		0.90	1.00		0.93	0.99		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	31	52	42	16	99	245	10	458	5	120	505	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	2	2	2
Cap, veh/h	85	133	92	40	115	264	54	2149	23	344	1453	91
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.63	0.63	0.63	0.21	0.21	0.21
Sat Flow, veh/h	181	508	349	33	438	1002	36	3419	37	480	2311	145
Grp Volume(v), veh/h	125	0	0	360	0	0	246	0	227	300	0	356
Grp Sat Flow(s),veh/h/ln	1037	0	0	1472	0	0	1814	0	1679	1272	0	1663
Q Serve(g_s), s	0.0	0.0	0.0	12.9	0.0	0.0	0.0	0.0	7.0	19.3	0.0	21.9
Cycle Q Clear(g_c), s	9.0	0.0	0.0	28.6	0.0	0.0	6.8	0.0	7.0	26.3	0.0	21.9
Prop In Lane	0.25		0.34	0.04		0.68	0.04		0.02	0.40		0.09
Lane Grp Cap(c), veh/h	310	0	0	419	0	0	1171	0	1055	842	0	1046
V/C Ratio(X)	0.40	0.00	0.00	0.86	0.00	0.00	0.21	0.00	0.21	0.36	0.00	0.34
Avail Cap(c_a), veh/h	446	0	0	588	0	0	1171	0	1055	842	0	1046
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	0.00	0.68	0.00	0.00	1.00	0.00	1.00	0.88	0.00	0.88
Uniform Delay (d), s/veh	35.4	0.0	0.0	43.1	0.0	0.0	9.5	0.0	9.6	28.7	0.0	26.3
Incr Delay (d2), s/veh	0.3	0.0	0.0	4.8	0.0	0.0	0.4	0.0	0.5	1.0	0.0	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.0	11.0	0.0	0.0	2.9	0.0	2.7	8.6	0.0	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.7	0.0	0.0	47.8	0.0	0.0	9.9	0.0	10.0	29.8	0.0	27.1
LnGrp LOS	D			D			A		B	C		C
Approach Vol, veh/h		125			360			473			656	
Approach Delay, s/veh		35.7			47.8			10.0			28.3	
Approach LOS		D			D			A			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		81.9		38.1		81.9		38.1				
Change Period (Y+Rc), s		6.5		6.5		* 6.5		* 6.5				
Max Green Setting (Gmax), s		63.5		43.5		* 66		* 46				
Max Q Clear Time (g_c+I1), s		9.0		11.0		28.3		30.6				
Green Ext Time (p_c), s		0.6		0.3		1.0		1.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	27.9
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	120	45	25	195	40	10	205	15	55	375	25
Future Volume (vph)	50	120	45	25	195	40	10	205	15	55	375	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.95			0.98		1.00	0.99		1.00	0.98	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1637			1678		1736	1793		1770	1812	
Flt Permitted		0.67			0.95		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1103			1610		1736	1793		1770	1812	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	124	46	26	201	41	10	211	15	57	387	26
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	222	0	0	268	0	10	224	0	57	411	0
Confl. Peds. (#/hr)	45		71	71		45	73		80	80		73
Confl. Bikes (#/hr)			11						11			14
Heavy Vehicles (%)	5%	5%	5%	7%	7%	7%	4%	4%	4%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		26.5			28.5		1.3	43.4		7.3	71.7	
Effective Green, g (s)		26.5			28.5		1.3	43.4		7.3	71.7	
Actuated g/C Ratio		0.22			0.24		0.01	0.36		0.06	0.60	
Clearance Time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		243			382		18	648		107	1082	
v/s Ratio Prot							0.01	0.12		c0.03	c0.23	
v/s Ratio Perm		c0.20			0.17							
v/c Ratio		0.91			0.70		0.56	0.35		0.53	0.38	
Uniform Delay, d1		45.6			41.9		59.1	27.9		54.7	12.6	
Progression Factor		1.16			1.00		1.20	0.68		1.00	1.00	
Incremental Delay, d2		34.5			5.7		19.1	1.4		2.5	1.0	
Delay (s)		87.6			47.6		89.9	20.5		57.2	13.6	
Level of Service		F			D		F	C		E	B	
Approach Delay (s/veh)		87.6			47.6			23.4			18.9	
Approach LOS		F			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	50	10	435	540	10
Future Vol, veh/h	20	50	10	435	540	10
Conflicting Peds, #/hr	85	26	26	0	0	85
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	21	53	11	458	568	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	994	400	664	0	-	0
Stage 1	659	-	-	-	-	-
Stage 2	335	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.16	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	246	605	914	-	-	-
Stage 1	482	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	204	542	840	-	-	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	646	-	-	-	-	-

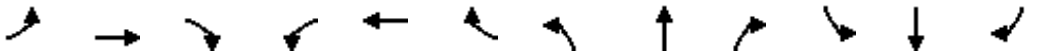
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.2	0.34	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	81	-	368	-	-
HCM Lane V/C Ratio	0.013	-	0.2	-	-
HCM Ctrl Dly (s/v)	9.3	0.1	17.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	10	250	15	1	430
Future Volume (vph)	20	10	250	15	1	430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.95		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.96		0.99			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	1667		1825			3574
Flt Permitted	0.97		1.00			0.95
Satd. Flow (perm)	1667		1825			3413
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	11	272	16	1	467
RTOR Reduction (vph)	9	0	2	0	0	0
Lane Group Flow (vph)	24	0	286	0	0	468
Confl. Peds. (#/hr)	1	45		52	52	
Confl. Bikes (#/hr)		3		13		
Heavy Vehicles (%)	0%	0%	3%	3%	1%	1%
Turn Type	Prot		NA		Perm	NA
Protected Phases	4		2			6
Permitted Phases					6	
Actuated Green, G (s)	20.0		76.0			88.5
Effective Green, g (s)	20.0		76.0			88.5
Actuated g/C Ratio	0.17		0.63			0.74
Clearance Time (s)	6.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	277		1155			2517
v/s Ratio Prot	c0.01		c0.16			
v/s Ratio Perm						c0.14
v/c Ratio	0.09		0.25			0.19
Uniform Delay, d1	42.3		9.6			4.8
Progression Factor	1.00		1.00			0.75
Incremental Delay, d2	0.0		0.5			0.2
Delay (s)	42.3		10.1			3.7
Level of Service	D		B			A
Approach Delay (s/veh)	42.3		10.1			3.7
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	510	85	0	410	135	35	100	5	290	185	10
Future Volume (veh/h)	0	510	85	0	410	135	35	100	5	290	185	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.97		0.94	0.97		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1856	1856	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	0	548	91	0	441	145	38	108	5	312	199	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	0	3	3	4	4	4	2	2	2
Cap, veh/h	0	1917	317	0	1633	531	247	456	21	323	459	25
Arrive On Green	0.00	0.63	0.63	0.00	0.63	0.63	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	0	3130	502	0	2680	841	1123	1740	81	1238	1749	97
Grp Volume(v), veh/h	0	320	319	0	299	287	38	0	113	312	0	210
Grp Sat Flow(s),veh/h/ln	0	1777	1762	0	1763	1665	1123	0	1820	1238	0	1845
Q Serve(g_s), s	0.0	9.9	10.0	0.0	9.2	9.4	3.6	0.0	6.0	26.0	0.0	11.6
Cycle Q Clear(g_c), s	0.0	9.9	10.0	0.0	9.2	9.4	15.1	0.0	6.0	32.0	0.0	11.6
Prop In Lane	0.00		0.29	0.00		0.51	1.00		0.04	1.00		0.05
Lane Grp Cap(c), veh/h	0	1121	1112	0	1113	1051	247	0	477	323	0	484
V/C Ratio(X)	0.00	0.29	0.29	0.00	0.27	0.27	0.15	0.00	0.24	0.96	0.00	0.43
Avail Cap(c_a), veh/h	0	1121	1112	0	1113	1051	247	0	477	323	0	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	0.0	10.1	10.1	0.0	10.0	10.0	43.7	0.0	35.4	50.0	0.0	37.5
Incr Delay (d2), s/veh	0.0	0.6	0.7	0.0	0.6	0.6	0.6	0.0	0.5	40.1	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.0	4.0	0.0	3.7	3.6	1.0	0.0	2.8	13.3	0.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.8	10.8	0.0	10.6	10.7	44.4	0.0	35.9	90.1	0.0	37.7
LnGrp LOS		B	B		B	B	D		D	F		D
Approach Vol, veh/h		639			586			151			522	
Approach Delay, s/veh		10.8			10.6			38.1			69.0	
Approach LOS		B			B			D			E	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.5		39.5		82.5		39.5				
Change Period (Y+Rc), s		5.5		7.5		5.5		7.5				
Max Green Setting (Gmax), s		38.5		31.0		38.5		32.0				
Max Q Clear Time (g_c+I1), s		12.0		17.1		11.4		34.0				
Green Ext Time (p_c), s		0.8		1.1		0.8		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			28.9									
HCM 7th LOS			C									

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	276	20	110	45	20	20	25	75	10	10	75	45
Future Vol, veh/h	276	20	110	45	20	20	25	75	10	10	75	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	285	21	113	46	21	21	26	77	10	10	77	46
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13.2	8.9	9.7	9.6
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	68%	53%	8%
Vol Thru, %	68%	5%	24%	58%
Vol Right, %	9%	27%	24%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	110	406	85	130
LT Vol	25	276	45	10
Through Vol	75	20	20	75
RT Vol	10	110	20	45
Lane Flow Rate	113	419	88	134
Geometry Grp	1	1	1	1
Degree of Util (X)	0.173	0.543	0.124	0.196
Departure Headway (Hd)	5.478	4.67	5.113	5.252
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	648	766	692	675
Service Time	3.574	2.735	3.207	3.344
HCM Lane V/C Ratio	0.174	0.547	0.127	0.199
HCM Control Delay, s/veh	9.7	13.2	8.9	9.6
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.6	3.3	0.4	0.7

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	15	16	120	250	21
Future Vol, veh/h	20	15	16	120	250	21
Conflicting Peds, #/hr	48	50	50	0	0	48
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	6	6	3	3
Mvmt Flow	22	16	17	130	272	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	546	383	345	0	-	0
Stage 1	333	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.16	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.254	-	-	-
Pot Cap-1 Maneuver	495	660	1192	-	-	-
Stage 1	722	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	443	599	1136	-	-	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	780	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.82	0.97	0
HCM LOS	B		

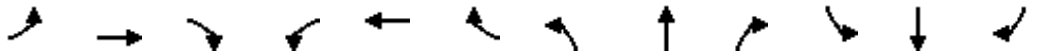
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1136	-	499	-	-
HCM Lane V/C Ratio	0.015	-	0.076	-	-
HCM Ctrl Dly (s/v)	8.2	-	12.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	58	15	20	45	65	160
Future Vol, veh/h	58	15	20	45	65	160
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	64	16	22	49	71	176
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.3	7.7	8.5
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	79%	0%	29%
Vol Thru, %	21%	31%	0%
Vol Right, %	0%	69%	71%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	73	65	225
LT Vol	58	0	65
Through Vol	15	20	0
RT Vol	0	45	160
Lane Flow Rate	80	71	247
Geometry Grp	1	1	1
Degree of Util (X)	0.106	0.085	0.275
Departure Headway (Hd)	4.751	4.294	3.999
Convergence, Y/N	Yes	Yes	Yes
Cap	756	836	905
Service Time	2.769	2.313	1.999
HCM Lane V/C Ratio	0.106	0.085	0.273
HCM Control Delay, s/veh	8.3	7.7	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.1



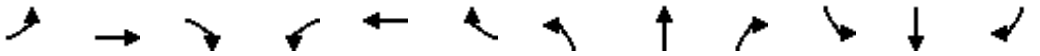
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	425	35	15	390	35	10	5	2	45	10	135
Future Volume (veh/h)	70	425	35	15	390	35	10	5	2	45	10	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	77	467	38	16	429	38	11	5	2	49	11	148
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	380	650	53	355	640	57	398	164	47	696	34	458
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	915	1706	139	878	1680	149	641	485	141	1313	101	1357
Grp Volume(v), veh/h	77	0	505	16	0	467	18	0	0	49	0	159
Grp Sat Flow(s),veh/h/ln	915	0	1845	878	0	1829	1267	0	0	1313	0	1458
Q Serve(g_s), s	2.4	0.0	7.4	0.5	0.0	6.8	0.0	0.0	0.0	0.0	0.0	2.6
Cycle Q Clear(g_c), s	9.2	0.0	7.4	8.0	0.0	6.8	2.6	0.0	0.0	0.6	0.0	2.6
Prop In Lane	1.00		0.08	1.00		0.08	0.61		0.11	1.00		0.93
Lane Grp Cap(c), veh/h	380	0	703	355	0	697	609	0	0	696	0	492
V/C Ratio(X)	0.20	0.00	0.72	0.05	0.00	0.67	0.03	0.00	0.00	0.07	0.00	0.32
Avail Cap(c_a), veh/h	762	0	1473	721	0	1460	814	0	0	891	0	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	8.4	11.8	0.0	8.2	7.1	0.0	0.0	7.2	0.0	7.9
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.9	0.1	0.0	1.7	0.1	0.0	0.0	0.2	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.1	0.0	8.9	11.8	0.0	8.6	7.1	0.0	0.0	7.2	0.0	8.0
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		582			483			18			208	
Approach Delay, s/veh		9.4			8.7			7.1			7.8	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.7		15.3		16.7		15.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		10.0		4.6		11.2		4.6				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.5				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.9
HCM 7th LOS	A

Notes

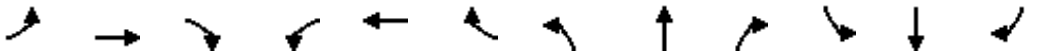
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	521	255	0	0	0	0	0	0	335	1252	0
Future Volume (veh/h)	0	521	255	0	0	0	0	0	0	335	1252	0
Initial Q (Qb), veh	0	0	0							0	0	0
Lane Width Adj.	1.00	1.00	1.00							1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1856	1856							1870	1870	0
Adj Flow Rate, veh/h	0	521	255							335	1252	0
Peak Hour Factor	1.00	1.00	1.00							1.00	1.00	1.00
Percent Heavy Veh, %	0	3	3							2	2	0
Cap, veh/h	0	1351	581							569	2128	0
Arrive On Green	0.00	0.38	0.38							0.52	0.52	0.00
Sat Flow, veh/h	0	3618	1517							1102	4286	0
Grp Volume(v), veh/h	0	521	255							552	1035	0
Grp Sat Flow(s),veh/h/ln	0	1763	1517							1815	1702	0
Q Serve(g_s), s	0.0	9.6	11.2							19.0	19.0	0.0
Cycle Q Clear(g_c), s	0.0	9.6	11.2							19.0	19.0	0.0
Prop In Lane	0.00		1.00							0.61		0.00
Lane Grp Cap(c), veh/h	0	1351	581							938	1759	0
V/C Ratio(X)	0.00	0.39	0.44							0.59	0.59	0.00
Avail Cap(c_a), veh/h	0	1351	581							938	1759	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	20.1	20.6							15.1	15.1	0.0
Incr Delay (d2), s/veh	0.0	0.8	2.4							2.7	1.5	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	7.3	7.7							12.9	11.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.9	23.0							17.8	16.6	0.0
LnGrp LOS		C	C							B	B	
Approach Vol, veh/h		776									1587	
Approach Delay, s/veh		21.6									17.0	
Approach LOS		C									B	

Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						39.0		51.0				
Change Period (Y+Rc), s						4.5		4.5				
Max Green Setting (Gmax), s						34.5		46.5				
Max Q Clear Time (g_c+I1), s						13.2		21.0				
Green Ext Time (p_c), s						0.8		2.8				

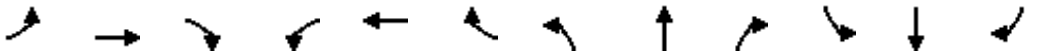
Intersection Summary												
HCM 7th Control Delay, s/veh			18.5									
HCM 7th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	226	0	0	0	301	0	731	60	0	0	0
Future Volume (veh/h)	230	226	0	0	0	301	0	731	60	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1856	1856	0	1870	1870			
Adj Flow Rate, veh/h	230	226	0	0	0	301	0	731	60			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	0	0	3	3	0	2	2			
Cap, veh/h	300	261	0	0	0	731	0	0	0			
Arrive On Green	0.48	0.48	0.00	0.00	0.00	0.48	0.00	0.00	0.00			
Sat Flow, veh/h	501	547	0	0	0	1530		0				
Grp Volume(v), veh/h	456	0	0	0	0	301		0.0				
Grp Sat Flow(s),veh/h/ln	1048	0	0	0	0	1530						
Q Serve(g_s), s	27.0	0.0	0.0	0.0	0.0	11.5						
Cycle Q Clear(g_c), s	38.5	0.0	0.0	0.0	0.0	11.5						
Prop In Lane	0.50		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	561	0	0	0	0	731						
V/C Ratio(X)	0.81	0.00	0.00	0.00	0.00	0.41						
Avail Cap(c_a), veh/h	682	0	0	0	0	867						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00						
Uniform Delay (d), s/veh	26.4	0.0	0.0	0.0	0.0	15.3						
Incr Delay (d2), s/veh	6.2	0.0	0.0	0.0	0.0	0.4						
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	15.2	0.0	0.0	0.0	0.0	7.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.7	0.0	0.0	0.0	0.0	15.7						
LnGrp LOS	C					B						
Approach Vol, veh/h		456			301							
Approach Delay, s/veh		32.7			15.7							
Approach LOS		C			B							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				48.0				48.0				
Change Period (Y+Rc), s				5.0				5.0				
Max Green Setting (Gmax), s				51.0				51.0				
Max Q Clear Time (g_c+I1), s				40.5				13.5				
Green Ext Time (p_c), s				2.5				2.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			25.9									
HCM 7th LOS			C									



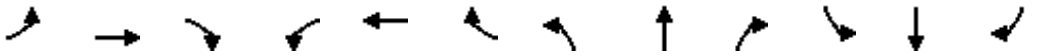
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	240	235	907	420	0	0	0	0	547	780	170
Future Volume (veh/h)	0	240	235	907	420	0	0	0	0	547	780	170
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1811	1856	1856	0				1870	1870	1870
Adj Flow Rate, veh/h	0	240	0	907	420	0				547	780	170
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	6	6	3	3	0				2	2	2
Cap, veh/h	0	684		1048	1029	0				606	1208	532
Arrive On Green	0.00	0.20	0.00	0.20	0.37	0.00				0.11	0.11	0.11
Sat Flow, veh/h	0	3532	1535	3428	1856	0				1781	3554	1565
Grp Volume(v), veh/h	0	240	0	907	420	0				547	780	170
Grp Sat Flow(s),veh/h/ln	0	1721	1535	1714	1856	0				1781	1777	1565
Q Serve(g_s), s	0.0	5.4	0.0	23.0	15.1	0.0				27.3	18.9	9.0
Cycle Q Clear(g_c), s	0.0	5.4	0.0	23.0	15.1	0.0				27.3	18.9	9.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	684		1048	1029	0				606	1208	532
V/C Ratio(X)	0.00	0.35		0.87	0.41	0.00				0.90	0.65	0.32
Avail Cap(c_a), veh/h	0	684		1048	1029	0				653	1303	574
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	0.00	0.49	0.49	0.00				0.78	0.78	0.78
Uniform Delay (d), s/veh	0.0	31.0	0.0	34.0	17.3	0.0				38.5	34.8	30.4
Incr Delay (d2), s/veh	0.0	0.1	0.0	3.8	0.6	0.0				11.9	0.6	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	4.1	0.0	14.3	10.1	0.0				20.6	13.4	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	31.2	0.0	37.8	17.9	0.0				50.4	35.3	30.5
LnGrp LOS		C		D	B					D	D	C
Approach Vol, veh/h		240			1327						1497	
Approach Delay, s/veh		31.2			31.5						40.3	
Approach LOS		C			C						D	

Timer - Assigned Phs	2	3	4					8				
Phs Duration (G+Y+Rc), s	35.6	32.0	22.4					54.4				
Change Period (Y+Rc), s	5.0	4.5	4.5					4.5				
Max Green Setting (Gmax), s	33.0	25.5	17.5					47.5				
Max Q Clear Time (g_c+I1), s	29.3	25.0	7.4					17.1				
Green Ext Time (p_c), s	1.3	0.1	0.5					1.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	35.8
HCM 7th LOS	D

Notes

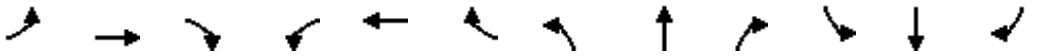
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	697	0	0	962	316	370	405	583	0	0	0
Future Volume (veh/h)	90	697	0	0	962	316	370	405	583	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1841	1841	0	0	1841	1841	1885	1885	1885			
Adj Flow Rate, veh/h	90	697	0	0	962	316	370	405	583			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	4	4	0	0	4	4	1	1	1			
Cap, veh/h	115	1846	0	0	1059	346	668	702	592			
Arrive On Green	0.07	0.53	0.00	0.00	0.41	0.41	0.37	0.37	0.37			
Sat Flow, veh/h	1753	3589	0	0	2660	838	1795	1885	1590			
Grp Volume(v), veh/h	90	697	0	0	653	625	370	405	583			
Grp Sat Flow(s),veh/h/ln	1753	1749	0	0	1749	1657	1795	1885	1590			
Q Serve(g_s), s	4.6	10.6	0.0	0.0	31.5	32.0	14.7	15.5	32.7			
Cycle Q Clear(g_c), s	4.6	10.6	0.0	0.0	31.5	32.0	14.7	15.5	32.7			
Prop In Lane	1.00		0.00	0.00		0.51	1.00		1.00			
Lane Grp Cap(c), veh/h	115	1846	0	0	721	683	668	702	592			
V/C Ratio(X)	0.79	0.38	0.00	0.00	0.91	0.91	0.55	0.58	0.99			
Avail Cap(c_a), veh/h	185	1846	0	0	721	683	668	702	592			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.60	0.60	0.00	0.00	0.83	0.83	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.4	12.5	0.0	0.0	24.8	24.9	22.3	22.6	28.0			
Incr Delay (d2), s/veh	2.7	0.4	0.0	0.0	14.7	16.4	0.6	0.8	33.0			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	3.7	6.6	0.0	0.0	21.4	21.0	9.8	10.7	23.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	44.1	12.9	0.0	0.0	39.5	41.3	22.9	23.4	61.0			
LnGrp LOS	D	B			D	D	C	C	E			
Approach Vol, veh/h		787			1278			1358				
Approach Delay, s/veh		16.5			40.4			39.4				
Approach LOS		B			D			D				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		38.0		52.0			10.4	41.6				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		33.5		47.5			9.5	33.5				
Max Q Clear Time (g_c+I1), s		34.7		12.6			6.6	34.0				
Green Ext Time (p_c), s		0.0		3.8			0.0	0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			34.5									
HCM 7th LOS			C									



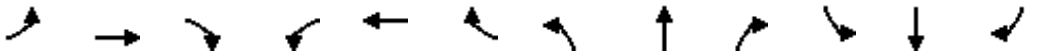
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1330	5	4	1168	5	1	0	2	10	4	115
Future Volume (veh/h)	20	1330	5	4	1168	5	1	0	2	10	4	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1411	1411	1411	1885	1885	1885
Adj Flow Rate, veh/h	20	1330	5	4	1168	5	1	0	2	10	4	115
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	3	3	3	33	33	33	1	1	1
Cap, veh/h	57	2513	9	41	2546	11	85	16	96	49	13	162
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.72	0.12	0.00	0.12	0.12	0.12	0.12
Sat Flow, veh/h	22	3470	13	2	3516	15	274	137	822	59	111	1392
Grp Volume(v), veh/h	700	0	655	616	0	561	3	0	0	129	0	0
Grp Sat Flow(s),veh/h/ln	1806	0	1699	1848	0	1685	1233	0	0	1561	0	0
Q Serve(g_s), s	0.0	0.0	15.7	0.0	0.0	12.5	0.0	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	15.0	0.0	15.7	12.5	0.0	12.5	0.2	0.0	0.0	7.2	0.0	0.0
Prop In Lane	0.03		0.01	0.01		0.01	0.33		0.67	0.08		0.89
Lane Grp Cap(c), veh/h	1349	0	1231	1378	0	1220	196	0	0	224	0	0
V/C Ratio(X)	0.52	0.00	0.53	0.45	0.00	0.46	0.02	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	1349	0	1231	1378	0	1220	296	0	0	401	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.00	0.77	0.65	0.00	0.65	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.5	0.0	5.6	5.2	0.0	5.2	35.6	0.0	0.0	38.7	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	1.3	0.7	0.0	0.8	0.0	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.5	0.0	8.2	6.9	0.0	6.5	0.1	0.0	0.0	5.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	6.6	0.0	6.9	5.9	0.0	6.0	35.6	0.0	0.0	39.5	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		1355			1177			3			129	
Approach Delay, s/veh		6.8			5.9			35.6			39.5	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	73.4	17.6	73.4	17.6
Change Period (Y+Rc), s	7.5	7.0	* 7.5	* 7
Max Green Setting (Gmax), s	57.5	19.0	* 61	* 21
Max Q Clear Time (g_c+I1), s	17.7	2.2	14.5	9.2
Green Ext Time (p_c), s	8.6	0.0	6.7	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	8.0
HCM 7th LOS	A

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	928	357	10	895	25	233	281	25	41	75	65
Future Volume (veh/h)	15	928	357	10	895	25	233	281	25	41	75	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.95	0.93		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1811	1811	1811	1752	1752	1752
Adj Flow Rate, veh/h	15	928	357	10	895	25	233	281	25	41	75	65
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	2	2	2	6	6	6	10	10	10
Cap, veh/h	56	2640	998	55	3725	103	262	670	60	91	141	103
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.15	0.41	0.41	0.20	0.20	0.20
Sat Flow, veh/h	15	2409	911	14	3398	94	1725	1631	145	209	688	503
Grp Volume(v), veh/h	708	0	592	484	0	446	233	0	306	181	0	0
Grp Sat Flow(s),veh/h/ln	1824	0	1510	1823	0	1684	1725	0	1776	1399	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	12.2	0.0	11.3	4.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	12.2	0.0	11.3	10.4	0.0	0.0
Prop In Lane	0.02		0.60	0.02		0.06	1.00		0.08	0.23		0.36
Lane Grp Cap(c), veh/h	2040	0	1655	2038	0	1845	262	0	730	334	0	0
V/C Ratio(X)	0.35	0.00	0.36	0.24	0.00	0.24	0.89	0.00	0.42	0.54	0.00	0.00
Avail Cap(c_a), veh/h	2040	0	1655	2038	0	1845	262	0	730	351	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.70	0.00	0.70	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	38.2	0.0	19.3	33.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.3	0.0	0.3	27.8	0.0	0.1	0.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.0	0.4	0.3	0.0	0.3	11.5	0.0	8.1	6.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.3	0.0	0.4	0.3	0.0	0.3	66.0	0.0	19.4	33.7	0.0	0.0
LnGrp LOS	A		A	A		A	E		B	C		
Approach Vol, veh/h		1300			930			539			181	
Approach Delay, s/veh		0.4			0.3			39.5			33.7	
Approach LOS		A			A			D			C	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		110.2		45.8		110.2	19.0	26.8				
Change Period (Y+Rc), s		7.5		8.0		* 7.5	5.0	8.0				
Max Green Setting (Gmax), s		37.5		37.0		* 41	14.0	20.0				
Max Q Clear Time (g_c+I1), s		2.0		13.3		2.0	14.2	12.4				
Green Ext Time (p_c), s		2.1		1.3		1.3	0.0	0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	9.6
HCM 7th LOS	A

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

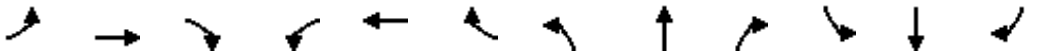
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	787	217	0	910	55	0	0	36	0	0	10
Future Vol, veh/h	0	787	217	0	910	55	0	0	36	0	0	10
Conflicting Peds, #/hr	101	0	96	36	0	41	96	0	36	41	0	101
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	3	3	3	3	3	3	0	0	0
Mvmt Flow	0	787	217	0	910	55	0	0	36	0	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	634	-	-	625
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	419	0	0	433
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	368	-	-	376
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	15.84	14.84
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	368	-	-	-	-	376
HCM Lane V/C Ratio	0.098	-	-	-	-	0.027
HCM Ctrl Dly (s/v)	15.8	-	-	-	-	14.8
HCM Lane LOS	C	-	-	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	466	117	20	555	95	290	710	10	95	300	105
Future Volume (veh/h)	205	466	117	20	555	95	290	710	10	95	300	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.95	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	205	466	117	20	555	95	290	710	10	95	300	105
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	232	880	219	36	615	105	312	1141	16	220	716	244
Arrive On Green	0.13	0.32	0.32	0.02	0.21	0.21	0.35	0.64	0.64	0.13	0.29	0.29
Sat Flow, veh/h	1767	2785	694	1767	2998	511	1767	3556	50	1739	2497	850
Grp Volume(v), veh/h	205	294	289	20	325	325	290	352	368	95	206	199
Grp Sat Flow(s),veh/h/ln	1767	1763	1716	1767	1763	1746	1767	1763	1843	1739	1735	1612
Q Serve(g_s), s	13.7	16.4	16.7	1.3	21.6	21.8	18.9	14.3	14.3	6.1	11.5	12.1
Cycle Q Clear(g_c), s	13.7	16.4	16.7	1.3	21.6	21.8	18.9	14.3	14.3	6.1	11.5	12.1
Prop In Lane	1.00		0.40	1.00		0.29	1.00		0.03	1.00		0.53
Lane Grp Cap(c), veh/h	232	557	542	36	362	358	312	566	591	220	498	462
V/C Ratio(X)	0.89	0.53	0.53	0.56	0.90	0.91	0.93	0.62	0.62	0.43	0.41	0.43
Avail Cap(c_a), veh/h	258	557	542	155	389	386	405	566	591	220	498	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	33.7	33.8	58.3	46.5	46.6	38.1	17.2	17.2	48.5	34.6	34.8
Incr Delay (d2), s/veh	25.1	0.5	0.5	5.0	21.2	22.4	20.2	4.7	4.5	0.5	2.5	2.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.3	11.6	11.5	1.2	17.2	17.3	13.4	8.4	8.6	4.8	9.0	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	76.4	34.2	34.3	63.2	67.7	68.9	58.2	21.9	21.7	49.0	37.1	37.7
LnGrp LOS	E	C	C	E	E	E	E	C	C	D	D	D
Approach Vol, veh/h		788			670			1010			500	
Approach Delay, s/veh		45.2			68.2			32.2			39.6	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.7	41.9	20.2	31.1	22.7	46.0	6.9	44.4
Change Period (Y+Rc), s	5.5	7.5	4.5	6.5	7.5	* 7.5	4.5	6.5
Max Green Setting (Gmax), s	27.5	24.5	17.5	26.5	13.5	* 39	10.5	33.5
Max Q Clear Time (g_c+I1), s	20.9	14.1	15.7	23.8	8.1	16.3	3.3	18.7
Green Ext Time (p_c), s	0.3	1.3	0.1	0.9	0.0	3.1	0.0	2.3

Intersection Summary	
HCM 7th Control Delay, s/veh	45.0
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

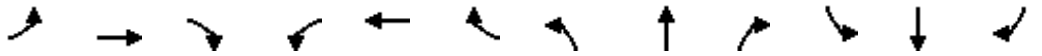
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	501	70	0	550	75	0	0	2	0	0	150
Future Vol, veh/h	0	501	70	0	550	75	0	0	2	0	0	150
Conflicting Peds, #/hr	44	0	27	23	0	40	27	0	23	40	0	44
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	501	70	0	550	75	0	0	2	0	0	150

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	336	-	-	397
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	666	0	0	609
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	635	-	-	561
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	10.69	13.75
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	635	-	-	-	-	561
HCM Lane V/C Ratio	0.003	-	-	-	-	0.267
HCM Ctrl Dly (s/v)	10.7	-	-	-	-	13.7
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	1.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	290	10	25	555	70	30	310	20	45	175	70
Future Volume (vph)	196	290	10	25	555	70	30	310	20	45	175	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		1.00			0.98		1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3379			3408		1671	1726		1703	1792	1464
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3379			3408		1671	1726		1703	1792	1464
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	196	290	10	25	555	70	30	310	20	45	175	70
RTOR Reduction (vph)	0	1	0	0	0	0	0	1	0	0	0	35
Lane Group Flow (vph)	0	495	0	0	650	0	30	329	0	45	175	35
Confl. Peds. (#/hr)	29		80	140		89	80		140	89		29
Confl. Bikes (#/hr)									6			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	8%	8%	8%	6%	6%	6%
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases												6
Actuated Green, G (s)		20.8			27.0		4.7	33.5		6.5	40.5	61.3
Effective Green, g (s)		20.8			27.0		4.7	33.5		6.5	40.5	61.3
Actuated g/C Ratio		0.17			0.22		0.04	0.28		0.05	0.33	0.51
Clearance Time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		580			760		64	477		91	599	741
v/s Ratio Prot		c0.15			c0.19		0.02	c0.19		c0.03	c0.10	0.01
v/s Ratio Perm												0.02
v/c Ratio		0.85			0.86		0.47	0.69		0.49	0.29	0.05
Uniform Delay, d1		48.6			45.1		56.9	39.1		55.7	29.7	15.1
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		11.3			9.0		2.0	7.9		1.5	1.2	0.0
Delay (s)		59.9			54.1		58.9	47.0		57.2	30.9	15.1
Level of Service		E			D		E	D		E	C	B
Approach Delay (s/veh)		59.9			54.1			48.0			31.2	
Approach LOS		E			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	50.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	121.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	116	5	10	30	10	192	5	236	30	80	247	110
Future Vol, veh/h	116	5	10	30	10	192	5	236	30	80	247	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	116	5	10	30	10	192	5	236	30	80	247	110
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.8	12.4	13.5	19.3
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	89%	13%	18%
Vol Thru, %	87%	4%	4%	57%
Vol Right, %	11%	8%	83%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	271	131	232	437
LT Vol	5	116	30	80
Through Vol	236	5	10	247
RT Vol	30	10	192	110
Lane Flow Rate	271	131	232	437
Geometry Grp	1	1	1	1
Degree of Util (X)	0.438	0.243	0.374	0.671
Departure Headway (Hd)	5.823	6.673	5.801	5.525
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	612	541	615	647
Service Time	3.919	4.673	3.9	3.607
HCM Lane V/C Ratio	0.443	0.242	0.377	0.675
HCM Control Delay, s/veh	13.5	11.8	12.4	19.3
HCM Lane LOS	B	B	B	C
HCM 95th-tile Q	2.2	0.9	1.7	5.1

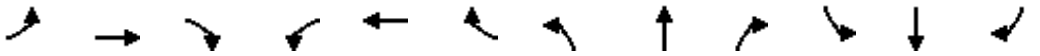
Intersection	
Int Delay, s/veh	10.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	45	70	20	6	105	77	10	20	10	45	25	92
Future Vol, veh/h	45	70	20	6	105	77	10	20	10	45	25	92
Conflicting Peds, #/hr	151	0	172	130	0	109	172	0	130	109	0	151
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	11	11	11	11	11	11	6	6	6	1	1	1
Mvmt Flow	45	70	20	6	105	77	10	20	10	45	25	92

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	333	0	0	262	0	0	644	687	382	607	659	467
Stage 1	-	-	-	-	-	-	342	342	-	307	307	-
Stage 2	-	-	-	-	-	-	302	345	-	300	352	-
Critical Hdwy	4.21	-	-	4.21	-	-	7.16	6.56	6.26	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.11	5.51	-
Follow-up Hdwy	2.299	-	-	2.299	-	-	3.554	4.054	3.354	3.509	4.009	3.309
Pot Cap-1 Maneuver	1178	-	-	1252	-	-	381	365	657	410	385	598
Stage 1	-	-	-	-	-	-	665	631	-	705	663	-
Stage 2	-	-	-	-	-	-	699	629	-	711	633	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1008	-	-	1047	-	-	180	247	481	263	261	428
Mov Cap-2 Maneuver	-	-	-	-	-	-	180	247	-	263	261	-
Stage 1	-	-	-	-	-	-	530	503	-	600	564	-
Stage 2	-	-	-	-	-	-	436	535	-	558	505	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.91	0.27	21.78	25.24
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	254	574	-	-	53	-	-	337
HCM Lane V/C Ratio	0.157	0.045	-	-	0.006	-	-	0.481
HCM Ctrl Dly (s/v)	21.8	8.7	0	-	8.5	0	-	25.2
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	2.5



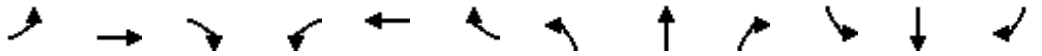
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	75	25	10	81	205	30	780	51	180	206	51
Future Volume (veh/h)	20	75	25	10	81	205	30	780	51	180	206	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.89	0.94		0.89	0.97		0.94	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1826	1826	1826	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	20	75	25	10	81	205	30	780	51	180	206	51
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	13	13	13	5	5	5	4	4	4	5	5	5
Cap, veh/h	64	203	61	36	94	223	85	2108	136	423	858	212
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.67	0.67	0.67	1.00	1.00	1.00
Sat Flow, veh/h	131	933	280	21	434	1025	79	3126	202	538	1273	315
Grp Volume(v), veh/h	120	0	0	296	0	0	451	0	410	180	0	257
Grp Sat Flow(s),veh/h/ln	1344	0	0	1480	0	0	1784	0	1623	538	0	1588
Q Serve(g_s), s	0.0	0.0	0.0	8.5	0.0	0.0	0.0	0.0	13.2	9.4	0.0	0.0
Cycle Q Clear(g_c), s	7.6	0.0	0.0	23.5	0.0	0.0	12.7	0.0	13.2	22.6	0.0	0.0
Prop In Lane	0.17		0.21	0.03		0.69	0.07		0.12	1.00		0.20
Lane Grp Cap(c), veh/h	327	0	0	353	0	0	1235	0	1094	423	0	1071
V/C Ratio(X)	0.37	0.00	0.00	0.84	0.00	0.00	0.37	0.00	0.37	0.43	0.00	0.24
Avail Cap(c_a), veh/h	416	0	0	468	0	0	1235	0	1094	423	0	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	0.00	0.57	0.00	0.00	1.00	0.00	1.00	0.88	0.00	0.88
Uniform Delay (d), s/veh	39.7	0.0	0.0	45.9	0.0	0.0	8.4	0.0	8.5	1.8	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	4.6	0.0	0.0	0.8	0.0	1.0	2.8	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.5	0.0	0.0	12.8	0.0	0.0	8.9	0.0	8.4	1.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.0	0.0	0.0	50.5	0.0	0.0	9.3	0.0	9.5	4.6	0.0	0.5
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		120			296			861			437	
Approach Delay, s/veh		40.0			50.5			9.4			2.2	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	87.4	32.6	87.4	32.6
Change Period (Y+Rc), s	6.5	6.5	* 6.5	* 6.5
Max Green Setting (Gmax), s	73.5	33.5	* 76	* 36
Max Q Clear Time (g_c+I1), s	15.2	9.6	24.6	25.5
Green Ext Time (p_c), s	1.1	0.3	1.4	0.7

Intersection Summary	
HCM 7th Control Delay, s/veh	16.8
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	176	20	15	236	60	15	285	10	35	145	85
Future Volume (vph)	15	176	20	15	236	60	15	285	10	35	145	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.96		1.00	0.99		1.00	0.91	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.99			0.97		1.00	0.99		1.00	0.94	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1612			1695		1671	1739		1719	1555	
Flt Permitted		0.92			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1486			1664		1671	1739		1719	1555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	176	20	15	236	60	15	285	10	35	145	85
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	211	0	0	311	0	15	294	0	35	218	0
Confl. Peds. (#/hr)	66		70	70		66	61		103	103		61
Confl. Bikes (#/hr)			1			3			9			7
Heavy Vehicles (%)	13%	13%	13%	4%	4%	4%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		26.6			28.6		2.7	36.3		4.9	70.2	
Effective Green, g (s)		26.6			28.6		2.7	36.3		4.9	70.2	
Actuated g/C Ratio		0.22			0.24		0.02	0.30		0.04	0.59	
Clearance Time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		329			396		37	526		70	909	
v/s Ratio Prot							0.01	c0.17		c0.02	c0.14	
v/s Ratio Perm		0.14			c0.19							
v/c Ratio		0.64			0.79		0.41	0.56		0.50	0.24	
Uniform Delay, d1		42.4			42.8		57.9	35.1		56.4	12.0	
Progression Factor		0.91			1.00		1.33	0.74		1.00	1.00	
Incremental Delay, d2		4.0			9.8		2.5	4.1		2.0	0.6	
Delay (s)		42.5			52.7		79.3	30.1		58.4	12.6	
Level of Service		D			D		E	C		E	B	
Approach Delay (s/veh)		42.5			52.7			32.4			18.7	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	36.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	10	46	865	201	46
Future Vol, veh/h	12	10	46	865	201	46
Conflicting Peds, #/hr	95	25	25	0	0	95
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	5	5	4	4	3	3
Mvmt Flow	12	10	46	865	201	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	939	244	342	0	-	0
Stage 1	319	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.9	7	4.18	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.35	2.24	-	-	-
Pot Cap-1 Maneuver	257	748	1199	-	-	-
Stage 1	701	-	-	-	-	-
Stage 2	491	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	201	664	1091	-	-	-
Mov Cap-2 Maneuver	201	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	447	-	-	-	-	-

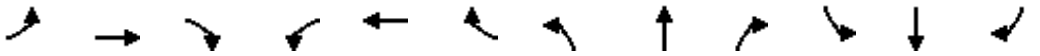
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	18.22	0.83	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	182	-	294	-	-
HCM Lane V/C Ratio	0.042	-	0.075	-	-
HCM Ctrl Dly (s/v)	8.4	0.4	18.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	325	20	0	160
Future Volume (vph)	5	5	325	20	0	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.90		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.93		0.99			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	1440		1741			3406
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	1440		1741			3406
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	5	325	20	0	160
RTOR Reduction (vph)	4	0	2	0	0	0
Lane Group Flow (vph)	6	0	343	0	0	160
Confl. Peds. (#/hr)	1	67		36	36	
Confl. Bikes (#/hr)				11		
Heavy Vehicles (%)	8%	8%	8%	8%	6%	6%
Turn Type	Prot		NA			NA
Protected Phases	4		2			6
Permitted Phases						
Actuated Green, G (s)	20.0		78.0			88.5
Effective Green, g (s)	20.0		78.0			88.5
Actuated g/C Ratio	0.17		0.65			0.74
Clearance Time (s)	6.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	240		1131			2511
v/s Ratio Prot	c0.00		c0.20			c0.05
v/s Ratio Perm						
v/c Ratio	0.02		0.30			0.06
Uniform Delay, d1	41.8		9.2			4.3
Progression Factor	1.00		1.00			1.07
Incremental Delay, d2	0.0		0.7			0.0
Delay (s)	41.9		9.8			4.7
Level of Service	D		A			A
Approach Delay (s/veh)	41.9		9.8			4.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	180	35	0	791	190	105	145	2	110	60	5
Future Volume (veh/h)	0	180	35	0	791	190	105	145	2	110	60	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.97		0.94	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1841	1841	0	1826	1826	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	0	180	35	0	791	190	105	145	2	110	60	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	4	4	0	5	5	5	5	5	6	6	6
Cap, veh/h	0	2001	380	0	1888	454	283	372	5	220	340	28
Arrive On Green	0.00	0.69	0.69	0.00	0.69	0.69	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	0	3008	554	0	2843	661	1265	1795	25	1172	1641	137
Grp Volume(v), veh/h	0	106	109	0	499	482	105	0	147	110	0	65
Grp Sat Flow(s),veh/h/ln	0	1749	1721	0	1735	1678	1265	0	1820	1172	0	1778
Q Serve(g_s), s	0.0	2.5	2.6	0.0	15.4	15.4	9.1	0.0	8.5	10.9	0.0	3.7
Cycle Q Clear(g_c), s	0.0	2.5	2.6	0.0	15.4	15.4	12.8	0.0	8.5	19.4	0.0	3.7
Prop In Lane	0.00		0.32	0.00		0.39	1.00		0.01	1.00		0.08
Lane Grp Cap(c), veh/h	0	1200	1181	0	1190	1152	283	0	377	220	0	368
V/C Ratio(X)	0.00	0.09	0.09	0.00	0.42	0.42	0.37	0.00	0.39	0.50	0.00	0.18
Avail Cap(c_a), veh/h	0	1200	1181	0	1190	1152	342	0	462	285	0	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.4	6.4	0.0	8.4	8.4	45.0	0.0	41.7	50.1	0.0	39.8
Incr Delay (d2), s/veh	0.0	0.1	0.2	0.0	1.1	1.1	1.7	0.0	1.4	0.7	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	1.7	1.8	0.0	9.9	9.7	5.4	0.0	7.2	5.9	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	6.5	6.6	0.0	9.5	9.6	46.8	0.0	43.1	50.7	0.0	39.9
LnGrp LOS		A	A		A	A	D		D	D		D
Approach Vol, veh/h		215			981			252			175	
Approach Delay, s/veh		6.6			9.5			44.6			46.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	89.2	32.8	89.2	32.8
Change Period (Y+Rc), s	5.5	7.5	5.5	7.5
Max Green Setting (Gmax), s	38.5	31.0	38.5	32.0
Max Q Clear Time (g_c+I1), s	4.6	14.8	17.4	21.4
Green Ext Time (p_c), s	0.3	2.0	1.4	0.3

Intersection Summary	
HCM 7th Control Delay, s/veh	18.6
HCM 7th LOS	B

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	116	15	55	1	30	10	130	125	45	12	45	217
Future Vol, veh/h	116	15	55	1	30	10	130	125	45	12	45	217
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	116	15	55	1	30	10	130	125	45	12	45	217
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.4	9	11.5	10.2
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	43%	62%	2%	4%
Vol Thru, %	42%	8%	73%	16%
Vol Right, %	15%	30%	24%	79%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	300	186	41	274
LT Vol	130	116	1	12
Through Vol	125	15	30	45
RT Vol	45	55	10	217
Lane Flow Rate	300	186	41	274
Geometry Grp	1	1	1	1
Degree of Util (X)	0.411	0.273	0.064	0.35
Departure Headway (Hd)	4.932	5.276	5.591	4.595
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	723	673	645	773
Service Time	3.014	3.374	3.591	2.676
HCM Lane V/C Ratio	0.415	0.276	0.064	0.354
HCM Control Delay, s/veh	11.5	10.4	9	10.2
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	2	1.1	0.2	1.6

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	10	30	250	80	20
Future Vol, veh/h	15	10	30	250	80	20
Conflicting Peds, #/hr	24	23	23	0	0	24
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	16	16	6	6	11	11
Mvmt Flow	15	10	30	250	80	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	448	137	124	0	-	0
Stage 1	114	-	-	-	-	-
Stage 2	334	-	-	-	-	-
Critical Hdwy	6.56	6.36	4.16	-	-	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	2.254	-	-	-
Pot Cap-1 Maneuver	543	876	1438	-	-	-
Stage 1	877	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	508	837	1405	-	-	-
Mov Cap-2 Maneuver	508	-	-	-	-	-
Stage 1	839	-	-	-	-	-
Stage 2	679	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.24	0.82	0
HCM LOS	B		

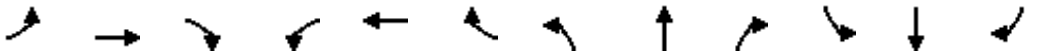
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1405	-	602	-	-
HCM Lane V/C Ratio	0.021	-	0.042	-	-
HCM Ctrl Dly (s/v)	7.6	-	11.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	210	25	5	80	57	55
Future Vol, veh/h	210	25	5	80	57	55
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	210	25	5	80	57	55
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	9.4	7.5	8.3
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	89%	0%	51%
Vol Thru, %	11%	6%	0%
Vol Right, %	0%	94%	49%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	235	85	112
LT Vol	210	0	57
Through Vol	25	5	0
RT Vol	0	80	55
Lane Flow Rate	235	85	112
Geometry Grp	1	1	1
Degree of Util (X)	0.296	0.096	0.142
Departure Headway (Hd)	4.53	4.082	4.571
Convergence, Y/N	Yes	Yes	Yes
Cap	799	880	786
Service Time	2.53	2.099	2.589
HCM Lane V/C Ratio	0.294	0.097	0.142
HCM Control Delay, s/veh	9.4	7.5	8.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.3	0.5



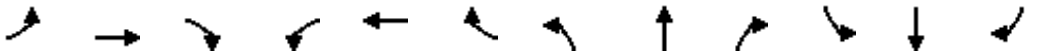
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	460	30	5	370	80	0	0	0	20	5	55
Future Volume (veh/h)	195	460	30	5	370	80	0	0	0	20	5	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.93	1.00		1.00	0.95		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	195	460	30	5	370	80	0	0	0	20	5	55
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	507	803	52	485	677	146	0	427	0	602	27	296
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.00	0.00	0.00	0.22	0.22	0.22
Sat Flow, veh/h	916	1714	112	877	1445	313	0	1900	0	1587	120	1318
Grp Volume(v), veh/h	195	0	490	5	0	450	0	0	0	20	0	60
Grp Sat Flow(s),veh/h/ln	916	0	1826	877	0	1758	0	1900	0	1587	0	1437
Q Serve(g_s), s	5.7	0.0	5.7	0.1	0.0	5.4	0.0	0.0	0.0	0.3	0.0	1.0
Cycle Q Clear(g_c), s	11.0	0.0	5.7	5.8	0.0	5.4	0.0	0.0	0.0	0.3	0.0	1.0
Prop In Lane	1.00		0.06	1.00		0.18	0.00		0.00	1.00		0.92
Lane Grp Cap(c), veh/h	507	0	856	485	0	824	0	427	0	602	0	323
V/C Ratio(X)	0.38	0.00	0.57	0.01	0.00	0.55	0.00	0.00	0.00	0.03	0.00	0.19
Avail Cap(c_a), veh/h	873	0	1586	836	0	1527	0	1003	0	1083	0	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.5	0.0	5.7	7.8	0.0	5.6	0.0	0.0	0.0	8.9	0.0	9.2
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	0.0	1.9	0.0	0.0	1.7	0.0	0.0	0.0	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.7	0.0	5.9	7.8	0.0	5.8	0.0	0.0	0.0	8.9	0.0	9.3
LnGrp LOS	A		A	A		A				A		A
Approach Vol, veh/h		685			455			0			80	
Approach Delay, s/veh		7.0			5.8			0.0			9.2	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.3		11.1		18.3		11.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		7.8		0.0		13.0		3.0				
Green Ext Time (p_c), s		0.5		0.0		0.7		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			6.7									
HCM 7th LOS			A									

Notes

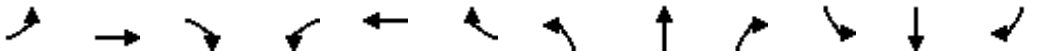
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	595	295	0	0	0	0	0	0	285	891	0
Future Volume (veh/h)	0	595	295	0	0	0	0	0	0	285	891	0
Initial Q (Qb), veh	0	0	0							0	0	0
Lane Width Adj.	1.00	1.00	1.00							1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1900	1900							1900	1900	0
Adj Flow Rate, veh/h	0	595	295							285	891	0
Peak Hour Factor	1.00	1.00	1.00							1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0							0	0	0
Cap, veh/h	0	1986	868							449	1404	0
Arrive On Green	0.00	0.55	0.55							0.35	0.35	0.00
Sat Flow, veh/h	0	3705	1579							1282	4183	0
Grp Volume(v), veh/h	0	595	295							408	768	0
Grp Sat Flow(s),veh/h/ln	0	1805	1579							1836	1729	0
Q Serve(g_s), s	0.0	8.0	9.3							16.7	16.7	0.0
Cycle Q Clear(g_c), s	0.0	8.0	9.3							16.7	16.7	0.0
Prop In Lane	0.00		1.00							0.70		0.00
Lane Grp Cap(c), veh/h	0	1986	868							643	1210	0
V/C Ratio(X)	0.00	0.30	0.34							0.64	0.63	0.00
Avail Cap(c_a), veh/h	0	1986	868							643	1210	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	10.9	11.2							24.4	24.4	0.0
Incr Delay (d2), s/veh	0.0	0.4	1.1							4.7	2.5	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	5.7	6.1							12.6	11.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	11.3	12.3							29.2	27.0	0.0
LnGrp LOS		B	B							C	C	
Approach Vol, veh/h		890									1176	
Approach Delay, s/veh		11.6									27.7	
Approach LOS		B									C	

Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						54.0		36.0				
Change Period (Y+Rc), s						4.5		4.5				
Max Green Setting (Gmax), s						49.5		31.5				
Max Q Clear Time (g_c+I1), s						11.3		18.7				
Green Ext Time (p_c), s						0.9		1.7				

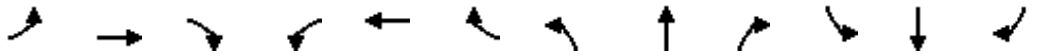
Intersection Summary												
HCM 7th Control Delay, s/veh			20.8									
HCM 7th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	150	0	0	0	606	0	641	50	0	0	0
Future Volume (veh/h)	50	150	0	0	0	606	0	641	50	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1885	1885	0	1885	1885			
Adj Flow Rate, veh/h	50	150	0	0	0	606	0	641	50			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	0	0	0	0	1	1	0	1	1			
Cap, veh/h	103	269	0	0	0	676	0	0	0			
Arrive On Green	0.45	0.45	0.00	0.00	0.00	0.45	0.00	0.00	0.00			
Sat Flow, veh/h	62	603	0	0	0	1517		0				
Grp Volume(v), veh/h	200	0	0	0	0	606		0.0				
Grp Sat Flow(s),veh/h/ln	665	0	0	0	0	1517						
Q Serve(g_s), s	2.6	0.0	0.0	0.0	0.0	22.1						
Cycle Q Clear(g_c), s	24.8	0.0	0.0	0.0	0.0	22.1						
Prop In Lane	0.25		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	372	0	0	0	0	676						
V/C Ratio(X)	0.54	0.00	0.00	0.00	0.00	0.90						
Avail Cap(c_a), veh/h	473	0	0	0	0	784						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00						
Uniform Delay (d), s/veh	12.9	0.0	0.0	0.0	0.0	15.3						
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.0	0.0	11.8						
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	2.9	0.0	0.0	0.0	0.0	13.7						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.1	0.0	0.0	0.0	0.0	27.1						
LnGrp LOS	B					C						
Approach Vol, veh/h		200			606							
Approach Delay, s/veh		14.1			27.1							
Approach LOS		B			C							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				31.7				31.7				
Change Period (Y+Rc), s				5.0				5.0				
Max Green Setting (Gmax), s				31.0				31.0				
Max Q Clear Time (g_c+I1), s				26.8				24.1				
Green Ext Time (p_c), s				0.4				2.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			23.9									
HCM 7th LOS			C									



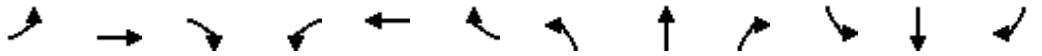
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	165	495	1123	325	0	0	0	0	166	965	135
Future Volume (veh/h)	0	165	495	1123	325	0	0	0	0	166	965	135
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1870	1870	0				1885	1885	1885
Adj Flow Rate, veh/h	0	165	0	1123	325	0				166	965	135
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	3	3	2	2	0				1	1	1
Cap, veh/h	0	738		1178	1123	0				528	1054	456
Arrive On Green	0.00	0.21	0.00	0.57	1.00	0.00				0.10	0.10	0.10
Sat Flow, veh/h	0	3618	1572	3456	1870	0				1795	3582	1549
Grp Volume(v), veh/h	0	165	0	1123	325	0				166	965	135
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1728	1870	0				1795	1791	1549
Q Serve(g_s), s	0.0	3.5	0.0	27.5	0.0	0.0				7.7	24.0	7.3
Cycle Q Clear(g_c), s	0.0	3.5	0.0	27.5	0.0	0.0				7.7	24.0	7.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	738		1178	1123	0				528	1054	456
V/C Ratio(X)	0.00	0.22		0.95	0.29	0.00				0.31	0.92	0.30
Avail Cap(c_a), veh/h	0	738		1286	1123	0				539	1075	465
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	0.00	0.53	0.53	0.00				0.77	0.77	0.77
Uniform Delay (d), s/veh	0.0	29.5	0.0	18.7	0.0	0.0				32.2	39.5	32.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	8.9	0.3	0.0				0.1	9.3	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.7	0.0	12.8	0.2	0.0				6.4	18.0	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	29.6	0.0	27.6	0.3	0.0				32.3	48.8	32.1
LnGrp LOS		C		C	A					C	D	C
Approach Vol, veh/h		165			1448						1266	
Approach Delay, s/veh		29.6			21.5						44.9	
Approach LOS		C			C						D	

Timer - Assigned Phs	2	3	4				8					
Phs Duration (G+Y+Rc), s	31.5	35.2	23.3				58.5					
Change Period (Y+Rc), s	5.0	4.5	4.5				4.5					
Max Green Setting (Gmax), s	27.0	33.5	15.5				53.5					
Max Q Clear Time (g_c+I1), s	26.0	29.5	5.5				2.0					
Green Ext Time (p_c), s	0.5	0.6	0.3				0.8					

Intersection Summary	
HCM 7th Control Delay, s/veh	32.2
HCM 7th LOS	C

Notes

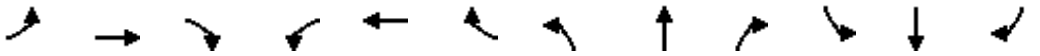
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	241	0	0	1213	316	230	300	507	0	0	0
Future Volume (veh/h)	80	241	0	0	1213	316	230	300	507	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.93	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	80	241	0	0	1213	316	230	300	507			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	5	5	0	0	2	2	1	1	1			
Cap, veh/h	102	2216	0	0	1461	373	469	492	407			
Arrive On Green	0.06	0.64	0.00	0.00	1.00	1.00	0.26	0.26	0.26			
Sat Flow, veh/h	1739	3561	0	0	2850	703	1795	1885	1559			
Grp Volume(v), veh/h	80	241	0	0	773	756	230	300	507			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1777	1682	1795	1885	1559			
Q Serve(g_s), s	4.1	2.4	0.0	0.0	0.0	0.0	9.8	12.6	23.5			
Cycle Q Clear(g_c), s	4.1	2.4	0.0	0.0	0.0	0.0	9.8	12.6	23.5			
Prop In Lane	1.00		0.00	0.00		0.42	1.00		1.00			
Lane Grp Cap(c), veh/h	102	2216	0	0	942	892	469	492	407			
V/C Ratio(X)	0.78	0.11	0.00	0.00	0.82	0.85	0.49	0.61	1.25			
Avail Cap(c_a), veh/h	164	2216	0	0	942	892	469	492	407			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.97	0.97	0.00	0.00	0.78	0.78	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.8	6.3	0.0	0.0	0.0	0.0	28.2	29.2	33.2			
Incr Delay (d2), s/veh	4.8	0.1	0.0	0.0	6.3	7.9	0.3	1.6	129.6			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	3.4	1.5	0.0	0.0	3.0	3.5	7.2	9.5	34.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	46.6	6.4	0.0	0.0	6.3	7.9	28.5	30.8	162.8			
LnGrp LOS	D	A			A	A	C	C	F			
Approach Vol, veh/h		321			1529			1037				
Approach Delay, s/veh		16.4			7.1			94.8				
Approach LOS		B			A			F				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		28.0		62.0			9.8	52.2				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		23.5		57.5			8.5	44.5				
Max Q Clear Time (g_c+I1), s		25.5		4.4			6.1	2.0				
Green Ext Time (p_c), s		0.0		1.2			0.0	11.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			39.6									
HCM 7th LOS			D									



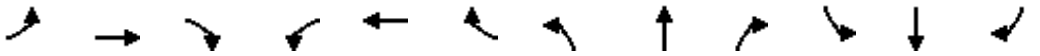
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	773	2	1	1259	10	5	0	1	15	2	270
Future Volume (veh/h)	1	773	2	1	1259	10	5	0	1	15	2	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.95	0.99		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1	773	2	1	1259	10	5	0	1	15	2	270
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	3	3	3	0	0	0	0	0	0
Cap, veh/h	40	2232	6	40	2200	17	186	7	24	50	11	312
Arrive On Green	1.00	1.00	1.00	0.63	0.63	0.63	0.21	0.00	0.21	0.21	0.21	0.21
Sat Flow, veh/h	0	3559	9	0	3509	28	530	32	112	39	54	1472
Grp Volume(v), veh/h	406	0	370	666	0	604	6	0	0	287	0	0
Grp Sat Flow(s),veh/h/ln	1869	0	1700	1855	0	1682	674	0	0	1565	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	18.8	0.0	0.0	0.0	5.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	18.8	0.0	18.8	0.2	0.0	0.0	15.9	0.0	0.0
Prop In Lane	0.00		0.01	0.00		0.02	0.83		0.17	0.05		0.94
Lane Grp Cap(c), veh/h	1212	0	1066	1203	0	1055	216	0	0	374	0	0
V/C Ratio(X)	0.34	0.00	0.35	0.55	0.00	0.57	0.03	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	1212	0	1066	1203	0	1055	358	0	0	614	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	0.63	0.00	0.63	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	9.8	0.0	9.8	28.0	0.0	0.0	34.2	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.8	1.2	0.0	1.4	0.0	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	0.4	10.8	0.0	10.1	0.2	0.0	0.0	10.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.6	0.0	0.8	10.9	0.0	11.2	28.1	0.0	0.0	35.5	0.0	0.0
LnGrp LOS	A		A	B		B	C			D		
Approach Vol, veh/h		776			1270			6			287	
Approach Delay, s/veh		0.7			11.1			28.1			35.5	
Approach LOS		A			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.9		26.1		63.9		26.1				
Change Period (Y+Rc), s		7.5		7.0		* 7.5		* 7				
Max Green Setting (Gmax), s		45.5		30.0		* 49		* 33				
Max Q Clear Time (g_c+I1), s		2.0		2.2		20.8		17.9				
Green Ext Time (p_c), s		3.7		0.0		7.0		1.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	10.7
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	617	141	5	786	5	338	236	25	25	40	155
Future Volume (veh/h)	20	617	141	5	786	5	338	236	25	25	40	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	1.00		0.95	0.93		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1796	1796	1796	1856	1856	1856
Adj Flow Rate, veh/h	20	617	141	5	786	5	338	236	25	25	40	155
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	7	7	7	3	3	3
Cap, veh/h	55	956	216	41	1253	8	373	759	80	62	69	210
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.22	0.48	0.48	0.21	0.21	0.21
Sat Flow, veh/h	39	2693	608	5	3530	22	1711	1586	168	93	333	1014
Grp Volume(v), veh/h	418	0	360	417	0	379	338	0	261	220	0	0
Grp Sat Flow(s),veh/h/ln	1790	0	1550	1861	0	1696	1711	0	1755	1439	0	0
Q Serve(g_s), s	0.3	0.0	18.1	0.0	0.0	17.3	17.9	0.0	8.5	5.1	0.0	0.0
Cycle Q Clear(g_c), s	17.6	0.0	18.1	17.2	0.0	17.3	17.9	0.0	8.5	13.1	0.0	0.0
Prop In Lane	0.05		0.39	0.01		0.01	1.00		0.10	0.11		0.70
Lane Grp Cap(c), veh/h	676	0	550	700	0	602	373	0	839	341	0	0
V/C Ratio(X)	0.62	0.00	0.65	0.60	0.00	0.63	0.91	0.00	0.31	0.65	0.00	0.00
Avail Cap(c_a), veh/h	676	0	550	700	0	602	497	0	924	352	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.00	0.93	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.9	0.0	25.2	24.9	0.0	24.9	35.5	0.0	14.9	34.3	0.0	0.0
Incr Delay (d2), s/veh	3.9	0.0	5.6	3.7	0.0	4.9	14.5	0.0	0.1	2.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.8	0.0	11.7	12.9	0.0	12.2	13.8	0.0	6.0	8.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	28.9	0.0	30.7	28.6	0.0	29.9	49.9	0.0	14.9	37.3	0.0	0.0
LnGrp LOS	C		C	C		C	D		B	D		
Approach Vol, veh/h		778			796			599			220	
Approach Delay, s/veh		29.7			29.2			34.7			37.3	
Approach LOS		C			C			C			D	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		40.5		52.5		40.5	25.3	27.2				
Change Period (Y+Rc), s		7.5		8.0		* 7.5	5.0	8.0				
Max Green Setting (Gmax), s		25.5		49.0		* 29	27.0	20.0				
Max Q Clear Time (g_c+I1), s		20.1		10.5		19.3	19.9	15.1				
Green Ext Time (p_c), s		0.7		1.1		0.9	0.3	0.2				

Intersection Summary		
HCM 7th Control Delay, s/veh	31.5	
HCM 7th LOS	C	

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

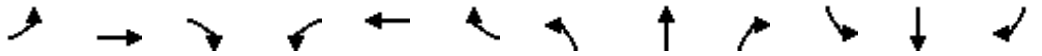
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	611	51	0	725	70	1	0	80	0	0	30
Future Vol, veh/h	0	611	51	0	725	70	1	0	80	0	0	30
Conflicting Peds, #/hr	90	0	110	58	0	38	110	0	58	38	0	90
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	611	51	0	725	70	1	0	80	0	0	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	1219	-	499	-	-	546
Stage 1	-	-	-	-	-	-	747	-	-	-	-	-
Stage 2	-	-	-	-	-	-	473	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	7.52	-	6.92	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.51	-	3.31	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	137	0	520	0	0	487
Stage 1	0	-	-	0	-	-	374	0	-	0	0	-
Stage 2	0	-	-	0	-	-	544	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	102	-	440	-	-	420
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	-	-	-	-	-
Stage 1	-	-	-	-	-	-	334	-	-	-	-	-
Stage 2	-	-	-	-	-	-	452	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	15	14.22
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	440	-	-	-	-	420
HCM Lane V/C Ratio	0.182	-	-	-	-	0.071
HCM Ctrl Dly (s/v)	15	-	-	-	-	14.2
HCM Lane LOS	C	-	-	-	-	B
HCM 95th %tile Q(veh)	0.7	-	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	435	116	25	465	45	210	525	25	130	535	85
Future Volume (veh/h)	130	435	116	25	465	45	210	525	25	130	535	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	1.00		0.94	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	435	116	25	465	45	210	525	25	130	535	85
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	648	171	42	554	53	239	1162	55	336	1245	197
Arrive On Green	0.09	0.23	0.23	0.02	0.17	0.17	0.13	0.34	0.34	0.19	0.41	0.41
Sat Flow, veh/h	1795	2773	731	1781	3253	313	1781	3442	164	1781	3048	482
Grp Volume(v), veh/h	130	279	272	25	253	257	210	270	280	130	311	309
Grp Sat Flow(s),veh/h/ln	1795	1791	1713	1781	1777	1790	1781	1777	1829	1781	1777	1753
Q Serve(g_s), s	8.6	17.0	17.3	1.7	16.5	16.7	13.9	14.3	14.3	7.7	15.0	15.2
Cycle Q Clear(g_c), s	8.6	17.0	17.3	1.7	16.5	16.7	13.9	14.3	14.3	7.7	15.0	15.2
Prop In Lane	1.00		0.43	1.00		0.17	1.00		0.09	1.00		0.27
Lane Grp Cap(c), veh/h	156	419	400	42	303	305	239	600	617	336	726	716
V/C Ratio(X)	0.83	0.67	0.68	0.60	0.84	0.84	0.88	0.45	0.45	0.39	0.43	0.43
Avail Cap(c_a), veh/h	172	440	421	186	452	455	408	600	617	336	726	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	41.7	41.9	58.0	48.2	48.2	51.0	31.1	31.1	42.6	25.4	25.5
Incr Delay (d2), s/veh	24.0	2.8	3.2	4.9	5.4	5.9	5.2	2.4	2.3	0.3	1.8	1.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.6	12.5	12.3	1.5	12.4	12.6	10.7	10.8	11.0	6.2	11.1	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	77.9	44.5	45.1	63.0	53.5	54.1	56.2	33.5	33.4	42.9	27.3	27.4
LnGrp LOS	E	D	D	E	D	D	E	C	C	D	C	C
Approach Vol, veh/h		681			535			760			750	
Approach Delay, s/veh		51.1			54.2			39.7			30.0	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.6	56.5	14.9	26.9	30.1	48.0	7.3	34.5
Change Period (Y+Rc), s	5.5	7.5	4.5	6.5	7.5	* 7.5	4.5	6.5
Max Green Setting (Gmax), s	27.5	26.5	11.5	30.5	13.5	* 41	12.5	29.5
Max Q Clear Time (g_c+I1), s	15.9	17.2	10.6	18.7	9.7	16.3	3.7	19.3
Green Ext Time (p_c), s	0.2	2.0	0.0	1.7	0.1	2.3	0.0	1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	42.8
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

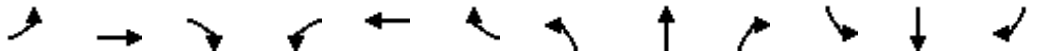
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	565	20	0	430	20	0	0	5	0	0	115
Future Vol, veh/h	0	565	20	0	430	20	0	0	5	0	0	115
Conflicting Peds, #/hr	58	0	41	23	0	40	41	0	23	40	0	58
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	1	1	1
Mvmt Flow	0	565	20	0	430	20	0	0	5	0	0	115

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	357	-	-	323
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	646	0	0	676
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	607	-	-	614
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	10.98	12.21
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	607	-	-	-	-	614
HCM Lane V/C Ratio	0.008	-	-	-	-	0.187
HCM Ctrl Dly (s/v)	11	-	-	-	-	12.2
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	385	30	45	325	50	30	290	20	75	415	100
Future Volume (vph)	150	385	30	45	325	50	30	290	20	75	415	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.97		1.00	0.99		1.00	1.00	0.94
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.99			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3487			3394		1752	1806		1787	1881	1510
Flt Permitted		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3487			3394		1752	1806		1787	1881	1510
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	150	385	30	45	325	50	30	290	20	75	415	100
RTOR Reduction (vph)	0	3	0	0	0	0	0	2	0	0	0	39
Lane Group Flow (vph)	0	562	0	0	420	0	30	308	0	75	415	61
Confl. Peds. (#/hr)	46		92	163		117	92		163	117		46
Confl. Bikes (#/hr)									12			11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases												6
Actuated Green, G (s)		24.5			19.5		4.6	34.4		7.6	44.4	68.9
Effective Green, g (s)		24.5			19.5		4.6	34.4		7.6	44.4	68.9
Actuated g/C Ratio		0.20			0.16		0.04	0.28		0.06	0.37	0.57
Clearance Time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		706			546		66	513		112	690	859
v/s Ratio Prot		c0.16			c0.12		0.02	0.17		c0.04	c0.22	0.01
v/s Ratio Perm												0.03
v/c Ratio		0.80			0.77		0.45	0.60		0.67	0.60	0.07
Uniform Delay, d1		45.9			48.6		57.0	37.4		55.5	31.1	11.7
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.8			5.8		1.8	5.1		11.2	3.9	0.0
Delay (s)		51.7			54.4		58.8	42.5		66.6	35.0	11.7
Level of Service		D			D		E	D		E	C	B
Approach Delay (s/veh)		51.7			54.4			43.9			35.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	45.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	121.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	91	20	5	25	10	207	6	351	35	45	121	50
Future Vol, veh/h	91	20	5	25	10	207	6	351	35	45	121	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	91	20	5	25	10	207	6	351	35	45	121	50
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.8	11.7	15.8	11.6
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	78%	10%	21%
Vol Thru, %	90%	17%	4%	56%
Vol Right, %	9%	4%	86%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	392	116	242	216
LT Vol	6	91	25	45
Through Vol	351	20	10	121
RT Vol	35	5	207	50
Lane Flow Rate	392	116	242	216
Geometry Grp	1	1	1	1
Degree of Util (X)	0.586	0.198	0.366	0.338
Departure Headway (Hd)	5.382	6.157	5.45	5.629
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	670	580	656	637
Service Time	3.43	4.23	3.511	3.685
HCM Lane V/C Ratio	0.585	0.2	0.369	0.339
HCM Control Delay, s/veh	15.8	10.8	11.7	11.6
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.8	0.7	1.7	1.5

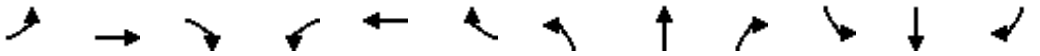
Intersection	
Int Delay, s/veh	13.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	80	20	11	100	20	30	10	20	55	35	102
Future Vol, veh/h	10	80	20	11	100	20	30	10	20	55	35	102
Conflicting Peds, #/hr	169	0	162	127	0	134	162	0	127	134	0	169
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	12	12	12	19	19	19	2	2	2	0	0	0
Mvmt Flow	10	80	20	11	100	20	30	10	20	55	35	102

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	262	0	0	581	583	386	540	583	448
Stage 1	-	-	-	-	-	-	272	272	-	301	301	-
Stage 2	-	-	-	-	-	-	309	311	-	239	282	-
Critical Hdwy	4.22	-	-	4.29	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.308	-	-	2.371	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1218	-	-	1210	-	-	425	424	662	456	427	615
Stage 1	-	-	-	-	-	-	734	685	-	712	669	-
Stage 2	-	-	-	-	-	-	702	658	-	769	681	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1022	-	-	1023	-	-	200	294	488	303	296	433
Mov Cap-2 Maneuver	-	-	-	-	-	-	200	294	-	303	296	-
Stage 1	-	-	-	-	-	-	614	573	-	591	554	-
Stage 2	-	-	-	-	-	-	417	546	-	625	570	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.78	0.72	22.4	26.04
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	266	157	-	-	146	-	-	359
HCM Lane V/C Ratio	0.225	0.01	-	-	0.011	-	-	0.536
HCM Ctrl Dly (s/v)	22.4	8.6	0	-	8.6	0	-	26
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	3



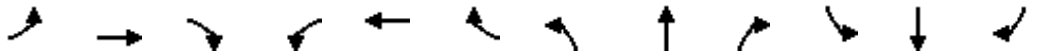
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	55	45	20	105	255	10	485	5	125	536	30
Future Volume (veh/h)	30	55	45	20	105	255	10	485	5	125	536	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.89	0.95		0.91	1.00		0.93	0.99		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	30	55	45	20	105	255	10	485	5	125	536	30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	2	2	2
Cap, veh/h	84	144	101	43	122	273	51	2111	22	330	1423	81
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.62	0.62	0.62	0.20	0.20	0.20
Sat Flow, veh/h	171	523	367	42	444	991	33	3427	35	467	2311	132
Grp Volume(v), veh/h	130	0	0	380	0	0	260	0	240	313	0	378
Grp Sat Flow(s),veh/h/ln	1061	0	0	1477	0	0	1816	0	1679	1243	0	1666
Q Serve(g_s), s	0.0	0.0	0.0	15.1	0.0	0.0	0.0	0.0	7.7	20.9	0.0	23.5
Cycle Q Clear(g_c), s	8.7	0.0	0.0	30.1	0.0	0.0	7.5	0.0	7.7	28.6	0.0	23.5
Prop In Lane	0.23		0.35	0.05		0.67	0.04		0.02	0.40		0.08
Lane Grp Cap(c), veh/h	329	0	0	439	0	0	1150	0	1034	808	0	1027
V/C Ratio(X)	0.39	0.00	0.00	0.87	0.00	0.00	0.23	0.00	0.23	0.39	0.00	0.37
Avail Cap(c_a), veh/h	449	0	0	590	0	0	1150	0	1034	808	0	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	0.00	0.64	0.00	0.00	1.00	0.00	1.00	0.86	0.00	0.86
Uniform Delay (d), s/veh	34.3	0.0	0.0	42.3	0.0	0.0	10.3	0.0	10.3	30.6	0.0	27.7
Incr Delay (d2), s/veh	0.3	0.0	0.0	5.4	0.0	0.0	0.5	0.0	0.5	1.2	0.0	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.5	0.0	0.0	16.1	0.0	0.0	5.8	0.0	5.4	13.7	0.0	15.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.6	0.0	0.0	47.7	0.0	0.0	10.7	0.0	10.8	31.8	0.0	28.6
LnGrp LOS	C			D			B		B	C		C
Approach Vol, veh/h		130			380			500			691	
Approach Delay, s/veh		34.6			47.7			10.8			30.0	
Approach LOS		C			D			B			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	80.4	39.6	80.4	39.6
Change Period (Y+Rc), s	6.5	6.5	* 6.5	* 6.5
Max Green Setting (Gmax), s	63.5	43.5	* 66	* 46
Max Q Clear Time (g_c+I1), s	9.7	10.7	30.6	32.1
Green Ext Time (p_c), s	0.6	0.4	1.1	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	28.7
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	130	50	25	215	45	10	225	20	60	415	30
Future Volume (vph)	50	130	50	25	215	45	10	225	20	60	415	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.95			0.98		1.00	0.99		1.00	0.98	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1635			1679		1736	1786		1770	1808	
Flt Permitted		0.67			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1108			1617		1736	1786		1770	1808	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	130	50	25	215	45	10	225	20	60	415	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	230	0	0	285	0	10	242	0	60	443	0
Confl. Peds. (#/hr)	45		71	71		45	73		80	80		73
Confl. Bikes (#/hr)			11						11			14
Heavy Vehicles (%)	5%	5%	5%	7%	7%	7%	4%	4%	4%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		27.0			29.0		1.3	43.4		7.5	71.2	
Effective Green, g (s)		27.0			29.0		1.3	43.4		7.5	71.2	
Actuated g/C Ratio		0.23			0.24		0.01	0.36		0.06	0.59	
Clearance Time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		249			390		18	645		110	1072	
v/s Ratio Prot							0.01	0.14		c0.03	c0.25	
v/s Ratio Perm		c0.21			0.18							
v/c Ratio		0.92			0.73		0.56	0.38		0.55	0.41	
Uniform Delay, d1		45.5			41.9		59.1	28.3		54.6	13.1	
Progression Factor		1.14			1.00		1.19	0.68		1.00	1.00	
Incremental Delay, d2		36.0			6.9		19.0	1.6		2.9	1.2	
Delay (s)		87.7			48.8		89.1	20.9		57.5	14.3	
Level of Service		F			D		F	C		E	B	
Approach Delay (s/veh)		87.7			48.8			23.6			19.5	
Approach LOS		F			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	56	10	475	595	11
Future Vol, veh/h	25	56	10	475	595	11
Conflicting Peds, #/hr	85	26	26	0	0	85
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	25	56	10	475	595	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1028	414	691	0	-	0
Stage 1	686	-	-	-	-	-
Stage 2	343	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.16	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	233	593	893	-	-	-
Stage 1	467	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	194	531	821	-	-	-
Mov Cap-2 Maneuver	194	-	-	-	-	-
Stage 1	423	-	-	-	-	-
Stage 2	640	-	-	-	-	-

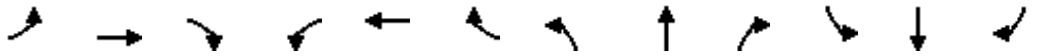
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	18.55	0.32	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	74	-	346	-	-
HCM Lane V/C Ratio	0.012	-	0.234	-	-
HCM Ctrl Dly (s/v)	9.4	0.1	18.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.9	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	10	275	20	1	470
Future Volume (vph)	25	10	275	20	1	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.96		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.96		0.99			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	1687		1820			3574
Flt Permitted	0.97		1.00			0.95
Satd. Flow (perm)	1687		1820			3413
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	10	275	20	1	470
RTOR Reduction (vph)	8	0	2	0	0	0
Lane Group Flow (vph)	27	0	293	0	0	471
Confl. Peds. (#/hr)	1	45		52	52	
Confl. Bikes (#/hr)		3		13		
Heavy Vehicles (%)	0%	0%	3%	3%	1%	1%
Turn Type	Prot		NA		Perm	NA
Protected Phases	4		2			6
Permitted Phases					6	
Actuated Green, G (s)	20.0		76.0			88.5
Effective Green, g (s)	20.0		76.0			88.5
Actuated g/C Ratio	0.17		0.63			0.74
Clearance Time (s)	6.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	281		1152			2517
v/s Ratio Prot	c0.02		c0.16			
v/s Ratio Perm						c0.14
v/c Ratio	0.09		0.25			0.19
Uniform Delay, d1	42.3		9.6			4.8
Progression Factor	1.00		1.00			0.70
Incremental Delay, d2	0.1		0.5			0.2
Delay (s)	42.4		10.1			3.5
Level of Service	D		B			A
Approach Delay (s/veh)	42.4		10.1			3.5
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	560	91	0	455	150	35	110	5	320	200	10
Future Volume (veh/h)	0	560	91	0	455	150	35	110	5	320	200	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.97		0.94	0.97		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1856	1856	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	0	560	91	0	455	150	35	110	5	320	200	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	0	3	3	4	4	4	2	2	2
Cap, veh/h	0	1923	311	0	1631	532	247	457	21	322	462	23
Arrive On Green	0.00	0.63	0.63	0.00	0.63	0.63	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	0	3141	493	0	2677	843	1123	1741	79	1236	1760	88
Grp Volume(v), veh/h	0	326	325	0	309	296	35	0	115	320	0	210
Grp Sat Flow(s),veh/h/ln	0	1777	1764	0	1763	1665	1123	0	1821	1236	0	1848
Q Serve(g_s), s	0.0	10.1	10.2	0.0	9.6	9.7	3.3	0.0	6.1	25.9	0.0	11.5
Cycle Q Clear(g_c), s	0.0	10.1	10.2	0.0	9.6	9.7	14.8	0.0	6.1	32.0	0.0	11.5
Prop In Lane	0.00		0.28	0.00		0.51	1.00		0.04	1.00		0.05
Lane Grp Cap(c), veh/h	0	1121	1113	0	1113	1051	247	0	478	322	0	485
V/C Ratio(X)	0.00	0.29	0.29	0.00	0.28	0.28	0.14	0.00	0.24	0.99	0.00	0.43
Avail Cap(c_a), veh/h	0	1121	1113	0	1113	1051	247	0	478	322	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	0.0	10.2	10.2	0.0	10.1	10.1	43.6	0.0	35.4	50.4	0.0	37.5
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.6	0.7	0.6	0.0	0.6	48.3	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	7.4	7.4	0.0	7.0	6.7	1.7	0.0	5.1	20.5	0.0	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.8	10.8	0.0	10.7	10.8	44.2	0.0	36.0	98.7	0.0	37.7
LnGrp LOS		B	B		B	B	D		D	F		D
Approach Vol, veh/h		651			605			150			530	
Approach Delay, s/veh		10.8			10.7			37.9			74.5	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	82.5	39.5	82.5	39.5
Change Period (Y+Rc), s	5.5	7.5	5.5	7.5
Max Green Setting (Gmax), s	38.5	31.0	38.5	32.0
Max Q Clear Time (g_c+I1), s	12.2	16.8	11.7	34.0
Green Ext Time (p_c), s	0.8	1.1	0.8	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	30.3
HCM 7th LOS	C

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	287	20	120	50	20	25	25	80	10	10	80	46
Future Vol, veh/h	287	20	120	50	20	25	25	80	10	10	80	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	287	20	120	50	20	25	25	80	10	10	80	46
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13.6	9.1	9.9	9.8
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	67%	53%	7%
Vol Thru, %	70%	5%	21%	59%
Vol Right, %	9%	28%	26%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	427	95	136
LT Vol	25	287	50	10
Through Vol	80	20	20	80
RT Vol	10	120	25	46
Lane Flow Rate	115	427	95	136
Geometry Grp	1	1	1	1
Degree of Util (X)	0.18	0.556	0.138	0.204
Departure Headway (Hd)	5.625	4.686	5.227	5.401
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	641	760	689	668
Service Time	3.635	2.77	3.236	3.406
HCM Lane V/C Ratio	0.179	0.562	0.138	0.204
HCM Control Delay, s/veh	9.9	13.6	9.1	9.8
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.7	3.5	0.5	0.8

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	20	16	130	277	20
Future Vol, veh/h	20	20	16	130	277	20
Conflicting Peds, #/hr	48	50	50	0	0	48
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	4	4	6	6	3	3
Mvmt Flow	20	20	16	130	277	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	547	387	347	0	-	0
Stage 1	337	-	-	-	-	-
Stage 2	210	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.16	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.254	-	-	-
Pot Cap-1 Maneuver	495	657	1190	-	-	-
Stage 1	719	-	-	-	-	-
Stage 2	820	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	443	596	1133	-	-	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.69	0.9	0
HCM LOS	B		

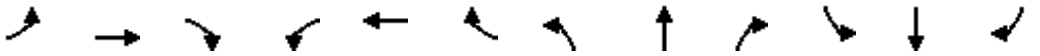
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1133	-	508	-	-
HCM Lane V/C Ratio	0.014	-	0.079	-	-
HCM Ctrl Dly (s/v)	8.2	-	12.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	64	20	25	50	75	175
Future Vol, veh/h	64	20	25	50	75	175
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	64	20	25	50	75	175
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.4	7.8	8.6
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	76%	0%	30%
Vol Thru, %	24%	33%	0%
Vol Right, %	0%	67%	70%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	84	75	250
LT Vol	64	0	75
Through Vol	20	25	0
RT Vol	0	50	175
Lane Flow Rate	84	75	250
Geometry Grp	1	1	1
Degree of Util (X)	0.111	0.09	0.279
Departure Headway (Hd)	4.758	4.325	4.016
Convergence, Y/N	Yes	Yes	Yes
Cap	755	830	898
Service Time	2.775	2.341	2.027
HCM Lane V/C Ratio	0.111	0.09	0.278
HCM Control Delay, s/veh	8.4	7.8	8.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.1



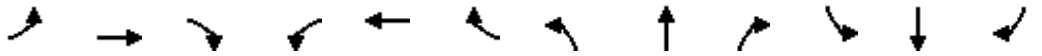
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	465	35	20	430	40	10	5	2	50	10	145
Future Volume (veh/h)	75	465	35	20	430	40	10	5	2	50	10	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	75	465	35	20	430	40	10	5	2	50	10	145
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	378	655	49	360	638	59	391	177	52	695	32	458
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	912	1719	129	882	1672	156	629	526	154	1313	94	1363
Grp Volume(v), veh/h	75	0	500	20	0	470	17	0	0	50	0	155
Grp Sat Flow(s),veh/h/ln	912	0	1848	882	0	1827	1308	0	0	1313	0	1457
Q Serve(g_s), s	2.4	0.0	7.3	0.6	0.0	6.8	0.0	0.0	0.0	0.0	0.0	2.5
Cycle Q Clear(g_c), s	9.2	0.0	7.3	7.9	0.0	6.8	2.5	0.0	0.0	0.7	0.0	2.5
Prop In Lane	1.00		0.07	1.00		0.09	0.59		0.12	1.00		0.94
Lane Grp Cap(c), veh/h	378	0	705	360	0	697	619	0	0	695	0	490
V/C Ratio(X)	0.20	0.00	0.71	0.06	0.00	0.67	0.03	0.00	0.00	0.07	0.00	0.32
Avail Cap(c_a), veh/h	760	0	1478	729	0	1462	829	0	0	892	0	709
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	8.4	11.7	0.0	8.2	7.1	0.0	0.0	7.2	0.0	7.9
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	0.0	3.4	0.2	0.0	3.1	0.1	0.0	0.0	0.3	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.1	0.0	8.9	11.8	0.0	8.6	7.1	0.0	0.0	7.3	0.0	8.0
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		575			490			17			205	
Approach Delay, s/veh		9.3			8.8			7.1			7.8	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.7		15.2		16.7		15.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		9.9		4.5		11.2		4.5				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.5				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.8
HCM 7th LOS	A

Notes

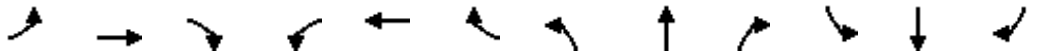
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	492	235	0	0	0	0	0	0	305	1188	0
Future Volume (veh/h)	0	492	235	0	0	0	0	0	0	305	1188	0
Initial Q (Qb), veh	0	0	0							0	0	0
Lane Width Adj.	1.00	1.00	1.00							1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.96							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1856	1856							1870	1870	0
Adj Flow Rate, veh/h	0	507	242							314	1225	0
Peak Hour Factor	0.97	0.97	0.97							0.97	0.97	0.97
Percent Heavy Veh, %	0	3	3							2	2	0
Cap, veh/h	0	1351	581							550	2147	0
Arrive On Green	0.00	0.38	0.38							0.52	0.52	0.00
Sat Flow, veh/h	0	3618	1517							1065	4324	0
Grp Volume(v), veh/h	0	507	242							536	1003	0
Grp Sat Flow(s),veh/h/ln	0	1763	1517							1817	1702	0
Q Serve(g_s), s	0.0	9.3	10.5							18.2	18.2	0.0
Cycle Q Clear(g_c), s	0.0	9.3	10.5							18.2	18.2	0.0
Prop In Lane	0.00		1.00							0.59		0.00
Lane Grp Cap(c), veh/h	0	1351	581							939	1759	0
V/C Ratio(X)	0.00	0.38	0.42							0.57	0.57	0.00
Avail Cap(c_a), veh/h	0	1351	581							939	1759	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	20.0	20.4							14.9	14.9	0.0
Incr Delay (d2), s/veh	0.0	0.8	2.2							2.5	1.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	7.1	7.2							12.4	11.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.8	22.5							17.4	16.3	0.0
LnGrp LOS		C	C							B	B	
Approach Vol, veh/h		749									1539	
Approach Delay, s/veh		21.4									16.7	
Approach LOS		C									B	

Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						39.0		51.0				
Change Period (Y+Rc), s						4.5		4.5				
Max Green Setting (Gmax), s						34.5		46.5				
Max Q Clear Time (g_c+I1), s						12.5		20.2				
Green Ext Time (p_c), s						0.7		2.6				

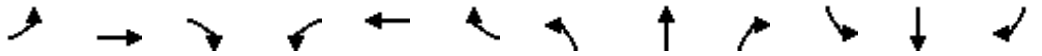
Intersection Summary												
HCM 7th Control Delay, s/veh			18.2									
HCM 7th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	222	0	0	0	293	0	672	55	0	0	0
Future Volume (veh/h)	210	222	0	0	0	293	0	672	55	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1856	1856	0	1870	1870			
Adj Flow Rate, veh/h	228	241	0	0	0	318	0	730	60			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	3	3	0	2	2			
Cap, veh/h	295	277	0	0	0	750	0	0	0			
Arrive On Green	0.49	0.49	0.00	0.00	0.00	0.49	0.00	0.00	0.00			
Sat Flow, veh/h	480	566	0	0	0	1531		0				
Grp Volume(v), veh/h	469	0	0	0	0	318		0.0				
Grp Sat Flow(s),veh/h/ln	1046	0	0	0	0	1531						
Q Serve(g_s), s	27.7	0.0	0.0	0.0	0.0	12.0						
Cycle Q Clear(g_c), s	39.7	0.0	0.0	0.0	0.0	12.0						
Prop In Lane	0.49		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	572	0	0	0	0	750						
V/C Ratio(X)	0.82	0.00	0.00	0.00	0.00	0.42						
Avail Cap(c_a), veh/h	676	0	0	0	0	867						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00						
Uniform Delay (d), s/veh	26.0	0.0	0.0	0.0	0.0	14.8						
Incr Delay (d2), s/veh	6.9	0.0	0.0	0.0	0.0	0.4						
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	15.6	0.0	0.0	0.0	0.0	7.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.9	0.0	0.0	0.0	0.0	15.2						
LnGrp LOS	C					B						
Approach Vol, veh/h		469			318							
Approach Delay, s/veh		32.9			15.2							
Approach LOS		C			B							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				49.1				49.1				
Change Period (Y+Rc), s				5.0				5.0				
Max Green Setting (Gmax), s				51.0				51.0				
Max Q Clear Time (g_c+I1), s				41.7				14.0				
Green Ext Time (p_c), s				2.4				2.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			25.7									
HCM 7th LOS			C									



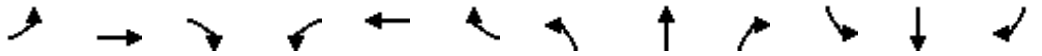
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	223	210	871	393	0	0	0	0	548	715	155
Future Volume (veh/h)	0	223	210	871	393	0	0	0	0	548	715	155
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1811	1811	1856	1856	0				1870	1870	1870
Adj Flow Rate, veh/h	0	232	0	907	409	0				571	745	161
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	6	6	3	3	0				2	2	2
Cap, veh/h	0	669		1030	1011	0				623	1243	548
Arrive On Green	0.00	0.19	0.00	0.10	0.18	0.00				0.12	0.12	0.12
Sat Flow, veh/h	0	3532	1535	3428	1856	0				1781	3554	1566
Grp Volume(v), veh/h	0	232	0	907	409	0				571	745	161
Grp Sat Flow(s),veh/h/ln	0	1721	1535	1714	1856	0				1781	1777	1566
Q Serve(g_s), s	0.0	5.2	0.0	23.5	17.5	0.0				28.5	17.9	8.5
Cycle Q Clear(g_c), s	0.0	5.2	0.0	23.5	17.5	0.0				28.5	17.9	8.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	669		1030	1011	0				623	1243	548
V/C Ratio(X)	0.00	0.35		0.88	0.40	0.00				0.92	0.60	0.29
Avail Cap(c_a), veh/h	0	669		1030	1011	0				653	1303	574
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	0.00	0.55	0.55	0.00				0.79	0.79	0.79
Uniform Delay (d), s/veh	0.0	31.3	0.0	39.0	24.0	0.0				38.5	33.8	29.6
Incr Delay (d2), s/veh	0.0	0.1	0.0	5.1	0.7	0.0				14.0	0.4	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	3.9	0.0	15.6	12.5	0.0				21.8	12.8	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	31.4	0.0	44.0	24.7	0.0				52.5	34.2	29.7
LnGrp LOS		C		D	C					D	C	C
Approach Vol, veh/h		232			1316						1477	
Approach Delay, s/veh		31.4			38.0						40.8	
Approach LOS		C			D						D	

Timer - Assigned Phs	2	3	4				8					
Phs Duration (G+Y+Rc), s	36.5	31.5	22.0				53.5					
Change Period (Y+Rc), s	5.0	4.5	4.5				4.5					
Max Green Setting (Gmax), s	33.0	25.5	17.5				47.5					
Max Q Clear Time (g_c+I1), s	30.5	25.5	7.2				19.5					
Green Ext Time (p_c), s	0.9	0.0	0.4				1.0					

Intersection Summary	
HCM 7th Control Delay, s/veh	38.9
HCM 7th LOS	D

Notes

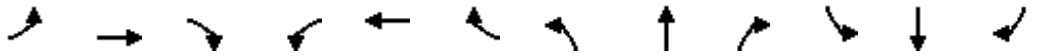
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	686	0	0	929	297	340	365	589	0	0	0
Future Volume (veh/h)	85	686	0	0	929	297	340	365	589	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1841	1841	0	0	1841	1841	1885	1885	1885			
Adj Flow Rate, veh/h	88	707	0	0	958	306	351	376	607			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	4	4	0	0	4	4	1	1	1			
Cap, veh/h	112	1962	0	0	1158	368	608	639	539			
Arrive On Green	0.06	0.56	0.00	0.00	0.45	0.45	0.34	0.34	0.34			
Sat Flow, veh/h	1753	3589	0	0	2682	822	1795	1885	1589			
Grp Volume(v), veh/h	88	707	0	0	645	619	351	376	607			
Grp Sat Flow(s),veh/h/ln	1753	1749	0	0	1749	1663	1795	1885	1589			
Q Serve(g_s), s	4.5	10.0	0.0	0.0	29.1	29.5	14.5	14.8	30.5			
Cycle Q Clear(g_c), s	4.5	10.0	0.0	0.0	29.1	29.5	14.5	14.8	30.5			
Prop In Lane	1.00		0.00	0.00		0.49	1.00		1.00			
Lane Grp Cap(c), veh/h	112	1962	0	0	782	744	608	639	539			
V/C Ratio(X)	0.79	0.36	0.00	0.00	0.82	0.83	0.58	0.59	1.13			
Avail Cap(c_a), veh/h	148	1962	0	0	782	744	608	639	539			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.57	0.57	0.00	0.00	0.82	0.82	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.5	10.9	0.0	0.0	21.8	21.9	24.4	24.6	29.8			
Incr Delay (d2), s/veh	7.9	0.3	0.0	0.0	8.1	8.8	0.9	1.0	78.7			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	3.9	6.2	0.0	0.0	18.5	18.1	9.9	10.5	32.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.4	11.2	0.0	0.0	29.8	30.7	25.3	25.5	108.5			
LnGrp LOS	D	B			C	C	C	C	F			
Approach Vol, veh/h		795			1264			1334				
Approach Delay, s/veh		15.4			30.3			63.2				
Approach LOS		B			C			E				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		35.0		55.0			10.2	44.8				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		30.5		50.5			7.6	38.4				
Max Q Clear Time (g_c+I1), s		32.5		12.0			6.5	31.5				
Green Ext Time (p_c), s		0.0		3.9			0.0	3.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			39.7									
HCM 7th LOS			D									



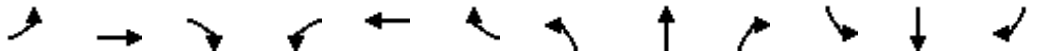
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1320	5	3	1126	5	1	0	2	10	3	105
Future Volume (veh/h)	15	1320	5	3	1126	5	1	0	2	10	3	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1411	1411	1411	1885	1885	1885
Adj Flow Rate, veh/h	16	1404	5	3	1198	5	1	0	2	11	3	112
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	33	33	33	1	1	1
Cap, veh/h	51	2538	9	41	2555	11	84	16	94	51	12	159
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.73	0.11	0.00	0.11	0.11	0.11	0.11
Sat Flow, veh/h	15	3496	12	1	3519	15	272	138	821	69	105	1385
Grp Volume(v), veh/h	740	0	685	631	0	575	3	0	0	126	0	0
Grp Sat Flow(s),veh/h/ln	1824	0	1699	1850	0	1685	1231	0	0	1558	0	0
Q Serve(g_s), s	0.0	0.0	16.9	0.0	0.0	12.9	0.0	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	16.3	0.0	16.9	12.9	0.0	12.9	0.2	0.0	0.0	7.0	0.0	0.0
Prop In Lane	0.02		0.01	0.00		0.01	0.33		0.67	0.09		0.89
Lane Grp Cap(c), veh/h	1365	0	1234	1383	0	1224	194	0	0	222	0	0
V/C Ratio(X)	0.54	0.00	0.56	0.46	0.00	0.47	0.02	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	1365	0	1234	1383	0	1224	295	0	0	400	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.00	0.74	0.52	0.00	0.52	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.7	0.0	5.7	5.2	0.0	5.2	35.7	0.0	0.0	38.8	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	1.3	0.6	0.0	0.7	0.0	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.0	0.0	8.6	6.8	0.0	6.3	0.1	0.0	0.0	5.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	6.8	0.0	7.1	5.7	0.0	5.9	35.8	0.0	0.0	39.6	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		1425			1206			3			126	
Approach Delay, s/veh		6.9			5.8			35.8			39.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		73.6		17.4		73.6		17.4				
Change Period (Y+Rc), s		7.5		7.0		* 7.5		* 7				
Max Green Setting (Gmax), s		57.5		19.0		* 61		* 21				
Max Q Clear Time (g_c+I1), s		18.9		2.2		14.9		9.0				
Green Ext Time (p_c), s		9.3		0.0		7.0		0.4				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.0
HCM 7th LOS	A

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	840	440	13	810	25	276	268	32	35	82	60
Future Volume (veh/h)	15	840	440	13	810	25	276	268	32	35	82	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.95	0.93		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1811	1811	1811	1752	1752	1752
Adj Flow Rate, veh/h	16	884	463	14	853	26	291	282	34	37	86	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	2	2	2	6	6	6	10	10	10
Cap, veh/h	57	2395	1222	69	3673	111	262	648	78	84	156	99
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.15	0.41	0.41	0.20	0.20	0.20
Sat Flow, veh/h	15	2173	1109	26	3332	101	1725	1575	190	181	763	483
Grp Volume(v), veh/h	749	0	614	459	0	434	291	0	316	186	0	0
Grp Sat Flow(s),veh/h/ln	1826	0	1471	1777	0	1682	1725	0	1765	1427	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	11.8	4.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	11.8	10.5	0.0	0.0
Prop In Lane	0.02		0.75	0.03		0.06	1.00		0.11	0.20		0.34
Lane Grp Cap(c), veh/h	2052	0	1622	1999	0	1854	262	0	726	339	0	0
V/C Ratio(X)	0.36	0.00	0.38	0.23	0.00	0.23	1.11	0.00	0.44	0.55	0.00	0.00
Avail Cap(c_a), veh/h	2052	0	1622	1999	0	1854	262	0	726	356	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.00	0.67	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	39.0	0.0	19.4	33.1	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.5	0.3	0.0	0.3	87.8	0.0	0.2	0.8	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.0	0.4	0.3	0.0	0.3	18.9	0.0	8.4	6.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.3	0.0	0.5	0.3	0.0	0.3	126.8	0.0	19.6	33.9	0.0	0.0
LnGrp LOS	A		A	A		A	F		B	C		
Approach Vol, veh/h		1363			893			607			186	
Approach Delay, s/veh		0.4			0.3			71.0			33.9	
Approach LOS		A			A			E			C	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		110.8		45.8		110.8	19.0	26.8				
Change Period (Y+Rc), s		7.5		8.0		* 7.5	5.0	8.0				
Max Green Setting (Gmax), s		37.5		37.0		* 41	14.0	20.0				
Max Q Clear Time (g_c+I1), s		2.0		13.8		2.0	16.0	12.5				
Green Ext Time (p_c), s		2.3		1.3		1.2	0.0	0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			16.5									
HCM 7th LOS			B									

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

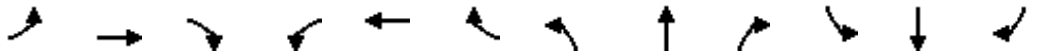
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	722	195	0	828	50	0	0	35	0	0	5
Future Vol, veh/h	0	722	195	0	828	50	0	0	35	0	0	5
Conflicting Peds, #/hr	101	0	96	36	0	41	96	0	36	41	0	101
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	3	3	3	3	3	3	0	0	0
Mvmt Flow	0	768	207	0	881	53	0	0	37	0	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	620	-	-	609
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.96	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.33	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	429	0	0	443
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	376	-	-	385
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	15.62	14.49
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	376	-	-	-	-	385
HCM Lane V/C Ratio	0.099	-	-	-	-	0.014
HCM Ctrl Dly (s/v)	15.6	-	-	-	-	14.5
HCM Lane LOS	C	-	-	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	432	110	15	508	85	265	645	10	85	275	95
Future Volume (veh/h)	185	432	110	15	508	85	265	645	10	85	275	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	193	450	115	16	529	89	276	672	10	89	286	99
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	220	846	214	30	595	100	299	1140	17	244	774	260
Arrive On Green	0.12	0.30	0.30	0.02	0.20	0.20	0.34	0.64	0.64	0.14	0.31	0.31
Sat Flow, veh/h	1767	2773	703	1767	3007	504	1767	3552	53	1739	2508	843
Grp Volume(v), veh/h	193	285	280	16	309	309	276	333	349	89	195	190
Grp Sat Flow(s),veh/h/ln	1767	1763	1713	1767	1763	1747	1767	1763	1842	1739	1735	1617
Q Serve(g_s), s	12.9	16.1	16.3	1.1	20.5	20.7	18.0	13.1	13.1	5.6	10.5	11.0
Cycle Q Clear(g_c), s	12.9	16.1	16.3	1.1	20.5	20.7	18.0	13.1	13.1	5.6	10.5	11.0
Prop In Lane	1.00		0.41	1.00		0.29	1.00		0.03	1.00		0.52
Lane Grp Cap(c), veh/h	220	538	523	30	349	346	299	566	591	244	535	499
V/C Ratio(X)	0.88	0.53	0.54	0.53	0.89	0.89	0.92	0.59	0.59	0.36	0.36	0.38
Avail Cap(c_a), veh/h	258	538	523	155	389	386	405	566	591	244	535	499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	34.6	34.7	58.5	46.8	46.9	38.9	16.9	16.9	46.7	32.3	32.5
Incr Delay (d2), s/veh	22.4	0.5	0.6	5.1	18.5	19.7	18.1	4.1	3.9	0.3	1.9	2.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.5	11.4	11.3	1.0	16.2	16.3	12.7	7.9	8.1	4.4	8.3	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.1	35.1	35.2	63.6	65.3	66.6	57.0	21.1	20.9	47.1	34.2	34.7
LnGrp LOS	E	D	D	E	E	E	E	C	C	D	C	C
Approach Vol, veh/h		758			634			958			474	
Approach Delay, s/veh		45.1			65.9			31.4			36.8	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.8	44.5	19.4	30.2	24.3	46.0	6.6	43.1
Change Period (Y+Rc), s	5.5	7.5	4.5	6.5	7.5	* 7.5	4.5	6.5
Max Green Setting (Gmax), s	27.5	24.5	17.5	26.5	13.5	* 39	10.5	33.5
Max Q Clear Time (g_c+I1), s	20.0	13.0	14.9	22.7	7.6	15.1	3.1	18.3
Green Ext Time (p_c), s	0.3	1.3	0.1	1.1	0.0	3.0	0.0	2.2

Intersection Summary	
HCM 7th Control Delay, s/veh	43.7
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

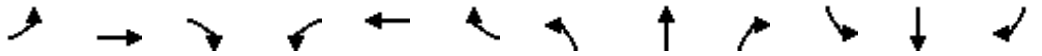
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑				↱			↱
Traffic Vol, veh/h	0	462	60	0	503	65	0	0	2	0	0	135
Future Vol, veh/h	0	462	60	0	503	65	0	0	2	0	0	135
Conflicting Peds, #/hr	44	0	27	23	0	40	27	0	23	40	0	44
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	486	63	0	529	68	0	0	2	0	0	142

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	325	-	-	383
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	677	0	0	621
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	645	-	-	572
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	10.6	13.36
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	645	-	-	-	-	572
HCM Lane V/C Ratio	0.003	-	-	-	-	0.248
HCM Ctrl Dly (s/v)	10.6	-	-	-	-	13.4
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	261	10	20	502	60	30	291	17	40	163	66
Future Volume (vph)	181	261	10	20	502	60	30	291	17	40	163	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.98		1.00	0.99		1.00	1.00	0.96
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		1.00			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3374			3414		1671	1730		1703	1792	1463
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3374			3414		1671	1730		1703	1792	1463
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	191	275	11	21	528	63	32	306	18	42	172	69
RTOR Reduction (vph)	0	2	0	0	0	0	0	1	0	0	0	34
Lane Group Flow (vph)	0	475	0	0	612	0	32	323	0	42	172	35
Confl. Peds. (#/hr)	29		80	140		89	80		140	89		29
Confl. Bikes (#/hr)									6			9
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	8%	8%	8%	6%	6%	6%
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases												6
Actuated Green, G (s)		20.5			26.0		4.8	35.0		6.3	41.7	62.2
Effective Green, g (s)		20.5			26.0		4.8	35.0		6.3	41.7	62.2
Actuated g/C Ratio		0.17			0.21		0.04	0.29		0.05	0.34	0.51
Clearance Time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		571			733		66	500		88	617	752
v/s Ratio Prot		c0.14			c0.18		0.02	c0.19		c0.02	c0.10	0.01
v/s Ratio Perm												0.02
v/c Ratio		0.83			0.83		0.48	0.65		0.48	0.28	0.05
Uniform Delay, d1		48.6			45.4		56.9	37.6		55.7	28.7	14.6
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		9.6			7.8		2.0	6.3		1.5	1.1	0.0
Delay (s)		58.2			53.2		58.9	43.9		57.2	29.9	14.7
Level of Service		E			D		E	D		E	C	B
Approach Delay (s/veh)		58.2			53.2			45.2			30.2	
Approach LOS		E			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	49.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	121.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	36
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	16	10	30	10	175	5	345	30	75	350	105
Future Vol, veh/h	66	16	10	30	10	175	5	345	30	75	350	105
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	73	18	11	33	11	192	5	379	33	82	385	115
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13.2	15.4	25.3	56
HCM LOS	B	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	72%	14%	14%
Vol Thru, %	91%	17%	5%	66%
Vol Right, %	8%	11%	81%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	380	92	215	530
LT Vol	5	66	30	75
Through Vol	345	16	10	350
RT Vol	30	10	175	105
Lane Flow Rate	418	101	236	582
Geometry Grp	1	1	1	1
Degree of Util (X)	0.737	0.223	0.448	0.977
Departure Headway (Hd)	6.351	7.931	6.825	6.037
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	568	455	525	600
Service Time	4.433	5.931	4.916	4.11
HCM Lane V/C Ratio	0.736	0.222	0.45	0.97
HCM Control Delay, s/veh	25.3	13.2	15.4	56
HCM Lane LOS	D	B	C	F
HCM 95th-tile Q	6.3	0.8	2.3	13.9

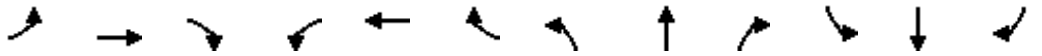
Intersection	
Int Delay, s/veh	9.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	40	76	15	5	95	65	10	15	10	40	20	85
Future Vol, veh/h	40	76	15	5	95	65	10	15	10	40	20	85
Conflicting Peds, #/hr	151	0	172	130	0	109	172	0	130	109	0	151
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	11	11	11	11	11	11	6	6	6	1	1	1
Mvmt Flow	43	83	16	5	103	71	11	16	11	43	22	92

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	325	0	0	271	0	0	647	686	393	608	658	462
Stage 1	-	-	-	-	-	-	350	350	-	300	300	-
Stage 2	-	-	-	-	-	-	297	336	-	308	358	-
Critical Hdwy	4.21	-	-	4.21	-	-	7.16	6.56	6.26	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.56	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.56	-	6.11	5.51	-
Follow-up Hdwy	2.299	-	-	2.299	-	-	3.554	4.054	3.354	3.509	4.009	3.309
Pot Cap-1 Maneuver	1186	-	-	1242	-	-	379	365	647	409	385	602
Stage 1	-	-	-	-	-	-	658	626	-	711	667	-
Stage 2	-	-	-	-	-	-	703	635	-	704	630	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1015	-	-	1039	-	-	182	248	474	267	262	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	182	248	-	267	262	-
Stage 1	-	-	-	-	-	-	526	500	-	605	568	-
Stage 2	-	-	-	-	-	-	442	540	-	557	503	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.66	0.26	21.47	24.17
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	256	532	-	-	50	-	-	342
HCM Lane V/C Ratio	0.148	0.043	-	-	0.005	-	-	0.46
HCM Ctrl Dly (s/v)	21.5	8.7	0	-	8.5	0	-	24.2
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	2.3



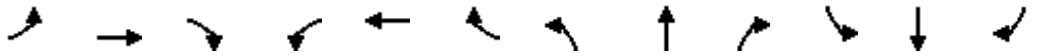
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	81	20	10	75	190	30	710	45	170	185	45
Future Volume (veh/h)	15	81	20	10	75	190	30	710	45	170	185	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.89	0.95		0.89	0.97		0.94	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1707	1707	1707	1826	1826	1826	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	16	88	22	11	82	207	33	772	49	185	201	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	13	13	5	5	5	4	4	4	5	5	5
Cap, veh/h	55	245	56	36	96	225	93	2092	131	424	858	209
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.67	0.67	0.67	1.00	1.00	1.00
Sat Flow, veh/h	97	1115	256	24	435	1022	91	3115	195	543	1278	311
Grp Volume(v), veh/h	126	0	0	300	0	0	447	0	407	185	0	250
Grp Sat Flow(s),veh/h/ln	1469	0	0	1481	0	0	1776	0	1625	543	0	1589
Q Serve(g_s), s	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	13.2	9.7	0.0	0.0
Cycle Q Clear(g_c), s	7.9	0.0	0.0	23.8	0.0	0.0	12.6	0.0	13.2	22.9	0.0	0.0
Prop In Lane	0.13		0.17	0.04		0.69	0.07		0.12	1.00		0.20
Lane Grp Cap(c), veh/h	357	0	0	357	0	0	1225	0	1091	424	0	1067
V/C Ratio(X)	0.35	0.00	0.00	0.84	0.00	0.00	0.36	0.00	0.37	0.44	0.00	0.23
Avail Cap(c_a), veh/h	445	0	0	468	0	0	1225	0	1091	424	0	1067
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	0.00	0.59	0.00	0.00	1.00	0.00	1.00	0.91	0.00	0.91
Uniform Delay (d), s/veh	39.6	0.0	0.0	45.7	0.0	0.0	8.5	0.0	8.6	1.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	5.0	0.0	0.0	0.8	0.0	1.0	2.9	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.8	0.0	0.0	13.1	0.0	0.0	8.9	0.0	8.4	1.5	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	39.8	0.0	0.0	50.7	0.0	0.0	9.4	0.0	9.6	4.8	0.0	0.5
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		126			300			854			435	
Approach Delay, s/veh		39.8			50.7			9.5			2.3	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	87.1	32.9	87.1	32.9
Change Period (Y+Rc), s	6.5	6.5	* 6.5	* 6.5
Max Green Setting (Gmax), s	73.5	33.5	* 76	* 36
Max Q Clear Time (g_c+I1), s	15.2	9.9	24.9	25.8
Green Ext Time (p_c), s	1.1	0.3	1.4	0.7

Intersection Summary	
HCM 7th Control Delay, s/veh	17.1
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	158	20	17	210	55	15	260	10	35	133	80
Future Volume (vph)	23	158	20	17	210	55	15	260	10	35	133	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.96		1.00	0.99		1.00	0.91	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.99			0.97		1.00	0.99		1.00	0.94	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1599			1691		1671	1738		1719	1552	
Flt Permitted		0.83			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1343			1649		1671	1738		1719	1552	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	24	165	21	18	219	57	16	271	10	36	139	83
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	210	0	0	294	0	16	280	0	36	210	0
Confl. Peds. (#/hr)	66		70	70		66	61		103	103		61
Confl. Bikes (#/hr)			1			3			9			7
Heavy Vehicles (%)	13%	13%	13%	4%	4%	4%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		25.8			27.8		2.8	36.2		5.0	70.9	
Effective Green, g (s)		25.8			27.8		2.8	36.2		5.0	70.9	
Actuated g/C Ratio		0.22			0.23		0.02	0.30		0.04	0.59	
Clearance Time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		288			382		38	524		71	916	
v/s Ratio Prot							0.01	c0.16		c0.02	c0.14	
v/s Ratio Perm		0.16			c0.18							
v/c Ratio		0.73			0.77		0.42	0.53		0.51	0.23	
Uniform Delay, d1		43.8			43.1		57.8	34.9		56.3	11.6	
Progression Factor		0.88			1.00		1.30	0.73		1.00	1.00	
Incremental Delay, d2		8.5			9.0		2.6	3.7		2.1	0.6	
Delay (s)		47.3			52.1		78.0	29.3		58.4	12.2	
Level of Service		D			D		E	C		E	B	
Approach Delay (s/veh)		47.3			52.1			32.0			18.6	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	10	40	785	181	40
Future Vol, veh/h	11	10	40	785	181	40
Conflicting Peds, #/hr	95	25	25	0	0	95
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	5	4	4	3	3
Mvmt Flow	12	11	42	826	191	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	899	236	328	0	-	0
Stage 1	307	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Critical Hdwy	6.9	7	4.18	-	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-	-
Follow-up Hdwy	3.55	3.35	2.24	-	-	-
Pot Cap-1 Maneuver	273	756	1214	-	-	-
Stage 1	711	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	215	671	1105	-	-	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	461	-	-	-	-	-

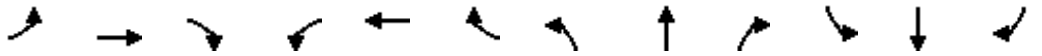
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.19	0.77	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	175	-	318	-	-
HCM Lane V/C Ratio	0.038	-	0.07	-	-
HCM Ctrl Dly (s/v)	8.4	0.4	17.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	300	15	0	150
Future Volume (vph)	5	5	300	15	0	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.90		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.93		0.99			1.00
Flt Protected	0.98		1.00			1.00
Satd. Flow (prot)	1440		1744			3406
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	1440		1744			3406
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	5	5	330	16	0	165
RTOR Reduction (vph)	4	0	1	0	0	0
Lane Group Flow (vph)	6	0	345	0	0	165
Confl. Peds. (#/hr)	1	67		36	36	
Confl. Bikes (#/hr)				11		
Heavy Vehicles (%)	8%	8%	8%	8%	6%	6%
Turn Type	Prot		NA			NA
Protected Phases	4		2			6
Permitted Phases						
Actuated Green, G (s)	20.0		78.0			88.5
Effective Green, g (s)	20.0		78.0			88.5
Actuated g/C Ratio	0.17		0.65			0.74
Clearance Time (s)	6.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	240		1133			2511
v/s Ratio Prot	c0.00		c0.20			c0.05
v/s Ratio Perm						
v/c Ratio	0.02		0.30			0.07
Uniform Delay, d1	41.8		9.2			4.3
Progression Factor	1.00		1.00			1.19
Incremental Delay, d2	0.0		0.7			0.0
Delay (s)	41.9		9.9			5.2
Level of Service	D		A			A
Approach Delay (s/veh)	41.9		9.9			5.2
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	165	35	9	715	175	95	130	2	100	60	5
Future Volume (veh/h)	0	165	35	9	715	175	95	130	2	100	60	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.96	0.97		0.94	0.97		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1841	1841	1826	1826	1826	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	0	179	38	10	777	190	103	141	2	109	65	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	4	4	5	5	5	5	5	5	6	6	6
Cap, veh/h	0	1973	408	38	1840	446	277	368	5	221	339	26
Arrive On Green	0.00	0.69	0.69	0.69	0.69	0.69	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	0	2960	593	12	2674	649	1259	1794	25	1176	1653	127
Grp Volume(v), veh/h	0	107	110	533	0	444	103	0	143	109	0	70
Grp Sat Flow(s),veh/h/ln	0	1749	1712	1818	0	1517	1259	0	1819	1176	0	1780
Q Serve(g_s), s	0.0	2.5	2.6	0.0	0.0	15.8	9.0	0.0	8.3	10.8	0.0	4.0
Cycle Q Clear(g_c), s	0.0	2.5	2.6	15.7	0.0	15.8	13.0	0.0	8.3	19.0	0.0	4.0
Prop In Lane	0.00		0.35	0.02		0.43	1.00		0.01	1.00		0.07
Lane Grp Cap(c), veh/h	0	1203	1178	1281	0	1044	277	0	374	221	0	366
V/C Ratio(X)	0.00	0.09	0.09	0.42	0.00	0.43	0.37	0.00	0.38	0.49	0.00	0.19
Avail Cap(c_a), veh/h	0	1203	1178	1281	0	1044	338	0	462	288	0	467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.3	6.3	8.4	0.0	8.4	45.5	0.0	41.8	50.0	0.0	40.1
Incr Delay (d2), s/veh	0.0	0.1	0.2	1.0	0.0	1.3	1.8	0.0	1.4	0.6	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	1.7	1.8	10.4	0.0	9.1	5.4	0.0	7.0	5.8	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	6.5	6.5	9.4	0.0	9.7	47.2	0.0	43.2	50.6	0.0	40.2
LnGrp LOS		A	A	A		A	D		D	D		D
Approach Vol, veh/h		217			977			246			179	
Approach Delay, s/veh		6.5			9.5			44.9			46.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		89.4		32.6		89.4		32.6				
Change Period (Y+Rc), s		5.5		7.5		5.5		7.5				
Max Green Setting (Gmax), s		38.5		31.0		38.5		32.0				
Max Q Clear Time (g_c+I1), s		4.6		15.0		17.8		21.0				
Green Ext Time (p_c), s		0.3		1.9		1.4		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			18.6									
HCM 7th LOS			B									

Intersection	
Intersection Delay, s/veh	20
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	240	15	65	1	44	10	155	110	40	12	40	325
Future Vol, veh/h	240	15	65	1	44	10	155	110	40	12	40	325
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	276	17	75	1	51	11	178	126	46	14	46	374
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	21.1	11.4	19.2	21
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	51%	75%	2%	3%
Vol Thru, %	36%	5%	80%	11%
Vol Right, %	13%	20%	18%	86%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	305	320	55	377
LT Vol	155	240	1	12
Through Vol	110	15	44	40
RT Vol	40	65	10	325
Lane Flow Rate	351	368	63	433
Geometry Grp	1	1	1	1
Degree of Util (X)	0.618	0.658	0.128	0.695
Departure Headway (Hd)	6.347	6.441	7.273	5.778
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	568	559	491	624
Service Time	4.401	4.491	5.351	3.828
HCM Lane V/C Ratio	0.618	0.658	0.128	0.694
HCM Control Delay, s/veh	19.2	21.1	11.4	21
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	4.2	4.8	0.4	5.5

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	10	25	230	70	34
Future Vol, veh/h	15	10	25	230	70	34
Conflicting Peds, #/hr	24	23	23	0	0	24
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	16	16	6	6	11	11
Mvmt Flow	17	11	28	258	79	38

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	460	145	141	0	-	0
Stage 1	122	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Critical Hdwy	6.56	6.36	4.16	-	-	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.444	2.254	-	-	-
Pot Cap-1 Maneuver	534	867	1418	-	-	-
Stage 1	870	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	500	828	1386	-	-	-
Mov Cap-2 Maneuver	500	-	-	-	-	-
Stage 1	833	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.36	0.75	0
HCM LOS	B		

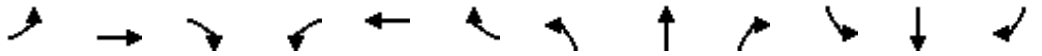
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1386	-	594	-	-
HCM Lane V/C Ratio	0.02	-	0.047	-	-
HCM Ctrl Dly (s/v)	7.7	-	11.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	230	20	5	75	52	65
Future Vol, veh/h	230	20	5	75	52	65
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	253	22	5	82	57	71
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	10	7.7	8.6
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	92%	0%	44%
Vol Thru, %	8%	6%	0%
Vol Right, %	0%	94%	56%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	250	80	117
LT Vol	230	0	52
Through Vol	20	5	0
RT Vol	0	75	65
Lane Flow Rate	275	88	129
Geometry Grp	1	1	1
Degree of Util (X)	0.349	0.102	0.165
Departure Headway (Hd)	4.568	4.173	4.625
Convergence, Y/N	Yes	Yes	Yes
Cap	788	859	777
Service Time	2.588	2.197	2.647
HCM Lane V/C Ratio	0.349	0.102	0.166
HCM Control Delay, s/veh	10	7.7	8.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.6	0.3	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	420	30	5	335	100	0	0	0	33	5	52
Future Volume (veh/h)	190	420	30	5	335	100	0	0	0	33	5	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.93	1.00		1.00	0.95		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	200	442	32	5	353	105	0	0	0	35	5	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	488	806	58	486	634	189	0	458	0	612	29	317
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.00	0.00	0.00	0.24	0.24	0.24
Sat Flow, veh/h	910	1700	123	890	1338	398	0	1900	0	1592	120	1315
Grp Volume(v), veh/h	200	0	474	5	0	458	0	0	0	35	0	60
Grp Sat Flow(s),veh/h/ln	910	0	1823	890	0	1736	0	1900	0	1592	0	1435
Q Serve(g_s), s	6.4	0.0	5.8	0.1	0.0	5.9	0.0	0.0	0.0	0.5	0.0	1.0
Cycle Q Clear(g_c), s	12.3	0.0	5.8	6.0	0.0	5.9	0.0	0.0	0.0	0.5	0.0	1.0
Prop In Lane	1.00		0.07	1.00		0.23	0.00		0.00	1.00		0.92
Lane Grp Cap(c), veh/h	488	0	864	486	0	823	0	458	0	612	0	345
V/C Ratio(X)	0.41	0.00	0.55	0.01	0.00	0.56	0.00	0.00	0.00	0.06	0.00	0.17
Avail Cap(c_a), veh/h	792	0	1474	783	0	1403	0	933	0	1010	0	705
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.3	0.0	5.9	8.0	0.0	5.9	0.0	0.0	0.0	9.3	0.0	9.5
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	0.0	2.1	0.0	0.0	2.0	0.0	0.0	0.0	0.2	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.5	0.0	6.1	8.0	0.0	6.2	0.0	0.0	0.0	9.3	0.0	9.6
LnGrp LOS	B		A	A		A				A		A
Approach Vol, veh/h		674			463			0			95	
Approach Delay, s/veh		7.4			6.2			0.0			9.5	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.5		12.1		19.5		12.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		8.0		0.0		14.3		3.0				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	7.1
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	625	372	5	15	10
Future Vol, veh/h	30	625	372	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	32	665	396	5	16	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	466	0	-	0	1250	528
Stage 1	-	-	-	-	463	-
Stage 2	-	-	-	-	787	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1090	-	-	-	186	540
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	440	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1023	-	-	-	157	476
Mov Cap-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	556	-
Stage 2	-	-	-	-	416	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.4	0	24.16
HCM LOS			C

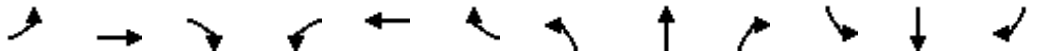
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	82	-	-	-	214
HCM Lane V/C Ratio	0.031	-	-	-	0.124
HCM Ctrl Dly (s/v)	8.6	0	-	-	24.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	165	2	6	199	100	11	5	20	90	1	5
Future Vol, veh/h	20	165	2	6	199	100	11	5	20	90	1	5
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	204	2	7	246	123	14	6	25	111	1	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.9	11.4	8.7	9.8
HCM LOS	A	B	A	A

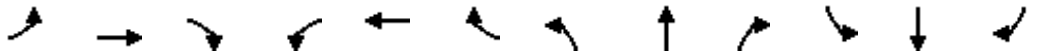
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	11%	2%	94%
Vol Thru, %	14%	88%	65%	1%
Vol Right, %	56%	1%	33%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	187	305	96
LT Vol	11	20	6	90
Through Vol	5	165	199	1
RT Vol	20	2	100	5
Lane Flow Rate	44	231	377	119
Geometry Grp	1	1	1	1
Degree of Util (X)	0.065	0.306	0.465	0.18
Departure Headway (Hd)	5.229	4.767	4.449	5.473
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	677	748	806	649
Service Time	3.323	2.829	2.503	3.556
HCM Lane V/C Ratio	0.065	0.309	0.468	0.183
HCM Control Delay, s/veh	8.7	9.9	11.4	9.8
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	1.3	2.5	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	542	270	0	0	0	0	0	0	260	825	0
Future Volume (veh/h)	0	542	270	0	0	0	0	0	0	260	825	0
Initial Q (Qb), veh	0	0	0							0	0	0
Lane Width Adj.	1.00	1.00	1.00							1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Work Zone On Approach		No									No	
Adj Sat Flow, veh/h/ln	0	1900	1900							1900	1900	0
Adj Flow Rate, veh/h	0	589	293							283	897	0
Peak Hour Factor	0.92	0.92	0.92							0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0							0	0	0
Cap, veh/h	0	1986	868							444	1409	0
Arrive On Green	0.00	0.55	0.55							0.35	0.35	0.00
Sat Flow, veh/h	0	3705	1579							1269	4197	0
Grp Volume(v), veh/h	0	589	293							410	770	0
Grp Sat Flow(s),veh/h/ln	0	1805	1579							1837	1729	0
Q Serve(g_s), s	0.0	7.9	9.2							16.8	16.8	0.0
Cycle Q Clear(g_c), s	0.0	7.9	9.2							16.8	16.8	0.0
Prop In Lane	0.00		1.00							0.69		0.00
Lane Grp Cap(c), veh/h	0	1986	868							643	1210	0
V/C Ratio(X)	0.00	0.30	0.34							0.64	0.64	0.00
Avail Cap(c_a), veh/h	0	1986	868							643	1210	0
HCM Platoon Ratio	1.00	1.00	1.00							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	10.9	11.2							24.5	24.5	0.0
Incr Delay (d2), s/veh	0.0	0.4	1.1							4.8	2.6	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	5.6	6.0							12.7	11.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	11.3	12.2							29.3	27.0	0.0
LnGrp LOS		B	B							C	C	
Approach Vol, veh/h		882									1180	
Approach Delay, s/veh		11.6									27.8	
Approach LOS		B									C	

Timer - Assigned Phs						6		8				
Phs Duration (G+Y+Rc), s						54.0		36.0				
Change Period (Y+Rc), s						4.5		4.5				
Max Green Setting (Gmax), s						49.5		31.5				
Max Q Clear Time (g_c+I1), s						11.2		18.8				
Green Ext Time (p_c), s						0.9		1.7				

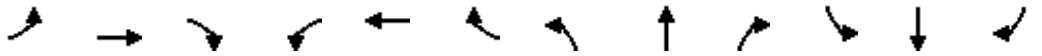
Intersection Summary												
HCM 7th Control Delay, s/veh			20.9									
HCM 7th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	142	0	0	0	586	0	608	45	0	0	0
Future Volume (veh/h)	45	142	0	0	0	586	0	608	45	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1885	1885	0	1885	1885			
Adj Flow Rate, veh/h	48	153	0	0	0	630	0	654	48			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	0	0	0	0	1	1	0	1	1			
Cap, veh/h	102	285	0	0	0	701	0	0	0			
Arrive On Green	0.46	0.46	0.00	0.00	0.00	0.46	0.00	0.00	0.00			
Sat Flow, veh/h	60	618	0	0	0	1520		0				
Grp Volume(v), veh/h	201	0	0	0	0	630		0.0				
Grp Sat Flow(s),veh/h/ln	677	0	0	0	0	1520						
Q Serve(g_s), s	2.7	0.0	0.0	0.0	0.0	22.9						
Cycle Q Clear(g_c), s	25.6	0.0	0.0	0.0	0.0	22.9						
Prop In Lane	0.24		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	387	0	0	0	0	701						
V/C Ratio(X)	0.52	0.00	0.00	0.00	0.00	0.90						
Avail Cap(c_a), veh/h	490	0	0	0	0	811						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00						
Uniform Delay (d), s/veh	12.4	0.0	0.0	0.0	0.0	14.9						
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	11.7						
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	2.8	0.0	0.0	0.0	0.0	14.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.5	0.0	0.0	0.0	0.0	26.6						
LnGrp LOS	B					C						
Approach Vol, veh/h		201			630							
Approach Delay, s/veh		13.5			26.6							
Approach LOS		B			C							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				32.7				32.7				
Change Period (Y+Rc), s				5.0				5.0				
Max Green Setting (Gmax), s				32.0				32.0				
Max Q Clear Time (g_c+I1), s				27.6				24.9				
Green Ext Time (p_c), s				0.5				2.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			23.4									
HCM 7th LOS			C									



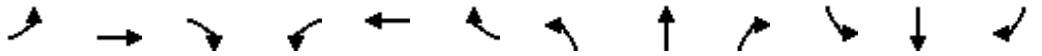
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	152	450	1079	309	0	0	0	0	160	880	125
Future Volume (veh/h)	0	152	450	1079	309	0	0	0	0	160	880	125
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1870	1870	0				1885	1885	1885
Adj Flow Rate, veh/h	0	157	0	1112	319	0				165	907	129
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	3	3	2	2	0				1	1	1
Cap, veh/h	0	768		1186	1143	0				509	1015	439
Arrive On Green	0.00	0.22	0.00	0.57	1.00	0.00				0.09	0.09	0.09
Sat Flow, veh/h	0	3618	1572	3456	1870	0				1795	3582	1547
Grp Volume(v), veh/h	0	157	0	1112	319	0				165	907	129
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1728	1870	0				1795	1791	1547
Q Serve(g_s), s	0.0	3.3	0.0	26.7	0.0	0.0				7.7	22.5	7.0
Cycle Q Clear(g_c), s	0.0	3.3	0.0	26.7	0.0	0.0				7.7	22.5	7.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	768		1186	1143	0				509	1015	439
V/C Ratio(X)	0.00	0.20		0.94	0.28	0.00				0.32	0.89	0.29
Avail Cap(c_a), veh/h	0	768		1286	1143	0				539	1075	464
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	0.00	0.54	0.54	0.00				0.77	0.77	0.77
Uniform Delay (d), s/veh	0.0	28.8	0.0	18.3	0.0	0.0				32.7	39.4	32.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	7.3	0.3	0.0				0.1	7.1	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	2.5	0.0	12.2	0.2	0.0				6.4	16.7	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	28.9	0.0	25.6	0.3	0.0				32.8	46.5	32.5
LnGrp LOS		C		C	A					C	D	C
Approach Vol, veh/h		157			1431						1201	
Approach Delay, s/veh		28.9			20.0						43.2	
Approach LOS		C			B						D	

Timer - Assigned Phs	2	3	4				8					
Phs Duration (G+Y+Rc), s	30.5	35.4	24.1				59.5					
Change Period (Y+Rc), s	5.0	4.5	4.5				4.5					
Max Green Setting (Gmax), s	27.0	33.5	15.5				53.5					
Max Q Clear Time (g_c+I1), s	24.5	28.7	5.3				2.0					
Green Ext Time (p_c), s	1.0	0.7	0.3				0.8					

Intersection Summary	
HCM 7th Control Delay, s/veh	30.5
HCM 7th LOS	C

Notes

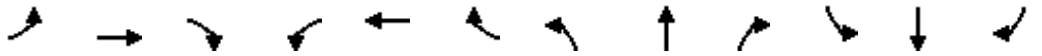
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	232	0	0	1173	313	210	270	480	0	0	0
Future Volume (veh/h)	75	232	0	0	1173	313	210	270	480	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.93	1.00		0.97			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1870	1870	1885	1885	1885			
Adj Flow Rate, veh/h	78	242	0	0	1222	326	219	281	500			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	5	5	0	0	2	2	1	1	1			
Cap, veh/h	99	2294	0	0	1520	396	429	450	372			
Arrive On Green	0.06	0.66	0.00	0.00	1.00	1.00	0.24	0.24	0.24			
Sat Flow, veh/h	1739	3561	0	0	2837	715	1795	1885	1555			
Grp Volume(v), veh/h	78	242	0	0	781	767	219	281	500			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1777	1681	1795	1885	1555			
Q Serve(g_s), s	4.0	2.3	0.0	0.0	0.0	0.0	9.5	12.0	21.5			
Cycle Q Clear(g_c), s	4.0	2.3	0.0	0.0	0.0	0.0	9.5	12.0	21.5			
Prop In Lane	1.00		0.00	0.00		0.43	1.00		1.00			
Lane Grp Cap(c), veh/h	99	2294	0	0	984	931	429	450	372			
V/C Ratio(X)	0.78	0.11	0.00	0.00	0.79	0.82	0.51	0.62	1.35			
Avail Cap(c_a), veh/h	145	2294	0	0	984	931	429	450	372			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.97	0.97	0.00	0.00	0.76	0.76	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.9	5.6	0.0	0.0	0.0	0.0	29.7	30.6	34.3			
Incr Delay (d2), s/veh	8.9	0.1	0.0	0.0	5.1	6.3	0.4	2.0	172.5			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	3.5	1.4	0.0	0.0	2.5	2.9	7.1	9.2	39.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.7	5.6	0.0	0.0	5.1	6.3	30.1	32.7	206.8			
LnGrp LOS	D	A			A	A	C	C	F			
Approach Vol, veh/h		320			1548			1000				
Approach Delay, s/veh		16.6			5.7			119.2				
Approach LOS		B			A			F				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		26.0		64.0			9.6	54.4				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		21.5		59.5			7.5	47.5				
Max Q Clear Time (g_c+I1), s		23.5		4.3			6.0	2.0				
Green Ext Time (p_c), s		0.0		1.2			0.0	11.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			46.5									
HCM 7th LOS			D									



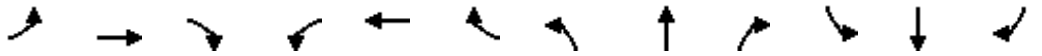
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	732	2	1	1236	10	4	0	1	15	2	245
Future Volume (veh/h)	1	732	2	1	1236	10	4	0	1	15	2	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.95	0.99		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1856	1856	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	1	771	2	1	1301	11	4	0	1	16	2	258
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	3	3	3	0	0	0	0	0	0
Cap, veh/h	40	2252	6	40	2219	19	184	8	30	51	12	301
Arrive On Green	1.00	1.00	1.00	0.63	0.63	0.63	0.21	0.00	0.21	0.21	0.21	0.21
Sat Flow, veh/h	0	3559	9	0	3507	30	541	39	145	44	58	1462
Grp Volume(v), veh/h	405	0	369	689	0	624	5	0	0	276	0	0
Grp Sat Flow(s),veh/h/ln	1869	0	1700	1855	0	1681	726	0	0	1564	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	19.5	0.0	0.0	0.0	5.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	19.5	0.0	19.5	0.2	0.0	0.0	15.3	0.0	0.0
Prop In Lane	0.00		0.01	0.00		0.02	0.80		0.20	0.06		0.93
Lane Grp Cap(c), veh/h	1223	0	1076	1214	0	1064	222	0	0	365	0	0
V/C Ratio(X)	0.33	0.00	0.34	0.57	0.00	0.59	0.02	0.00	0.00	0.76	0.00	0.00
Avail Cap(c_a), veh/h	1223	0	1076	1214	0	1064	373	0	0	613	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	0.36	0.00	0.36	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	9.6	0.0	9.7	28.4	0.0	0.0	34.4	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.7	0.7	0.0	0.9	0.0	0.0	0.0	1.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	0.4	10.0	0.0	9.3	0.2	0.0	0.0	9.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.6	0.0	0.7	10.3	0.0	10.5	28.5	0.0	0.0	35.6	0.0	0.0
LnGrp LOS	A		A	B		B	C			D		
Approach Vol, veh/h		774			1313			5			276	
Approach Delay, s/veh		0.7			10.4			28.5			35.6	
Approach LOS		A			B			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	64.5	25.5	64.5	25.5
Change Period (Y+Rc), s	7.5	7.0	* 7.5	* 7
Max Green Setting (Gmax), s	45.5	30.0	* 49	* 33
Max Q Clear Time (g_c+I1), s	2.0	2.2	21.5	17.3
Green Ext Time (p_c), s	3.7	0.0	7.3	1.1

Intersection Summary	
HCM 7th Control Delay, s/veh	10.2
HCM 7th LOS	B

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	560	157	8	715	5	401	246	30	25	37	140
Future Volume (veh/h)	20	560	157	8	715	5	401	246	30	25	37	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.98	1.00		0.94	0.93		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1796	1796	1796	1856	1856	1856
Adj Flow Rate, veh/h	21	596	167	9	761	5	427	262	32	27	39	149
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	7	7	7	3	3	3
Cap, veh/h	109	3000	830	60	4093	27	301	686	84	66	71	209
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.18	0.44	0.44	0.21	0.21	0.21
Sat Flow, veh/h	58	2565	710	17	3499	23	1711	1558	190	104	336	994
Grp Volume(v), veh/h	417	0	367	403	0	372	427	0	294	215	0	0
Grp Sat Flow(s),veh/h/ln	1773	0	1560	1842	0	1697	1711	0	1748	1434	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0	10.3	4.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0	10.3	12.4	0.0	0.0
Prop In Lane	0.05		0.46	0.02		0.01	1.00		0.11	0.13		0.69
Lane Grp Cap(c), veh/h	2115	0	1824	2194	0	1985	301	0	770	345	0	0
V/C Ratio(X)	0.20	0.00	0.20	0.18	0.00	0.19	1.42	0.00	0.38	0.62	0.00	0.00
Avail Cap(c_a), veh/h	2115	0	1824	2194	0	1985	301	0	770	359	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.00	0.94	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	37.5	0.0	17.1	33.2	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.2	0.0	0.2	207.3	0.0	0.1	2.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	0.2	0.2	0.0	0.2	37.1	0.0	7.4	8.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.2	0.0	0.2	0.2	0.0	0.2	244.8	0.0	17.2	35.4	0.0	0.0
LnGrp LOS	A		A	A		A	F		B	D		
Approach Vol, veh/h		784			775			721			215	
Approach Delay, s/veh		0.2			0.2			152.0			35.4	
Approach LOS		A			A			F			D	

Timer - Assigned Phs	2	4	6	7	8
Phs Duration (G+Y+Rc), s	116.0	48.1	116.0	21.0	27.1
Change Period (Y+Rc), s	7.5	8.0	* 7.5	5.0	8.0
Max Green Setting (Gmax), s	34.5	40.0	* 38	16.0	20.0
Max Q Clear Time (g_c+I1), s	2.0	12.3	2.0	18.0	14.4
Green Ext Time (p_c), s	1.1	1.3	1.0	0.0	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	47.1
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

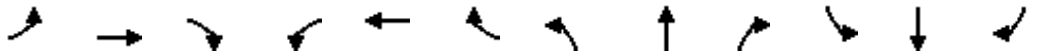
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	560	45	0	668	65	0	0	75	0	0	30
Future Vol, veh/h	0	560	45	0	668	65	0	0	75	0	0	30
Conflicting Peds, #/hr	90	0	110	58	0	38	110	0	58	38	0	90
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	609	49	0	726	71	0	0	82	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	497	-	-	526
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.92	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.31	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	521	0	0	501
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	441	-	-	442
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	15.01	13.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	441	-	-	-	-	442
HCM Lane V/C Ratio	0.185	-	-	-	-	0.074
HCM Ctrl Dly (s/v)	15	-	-	-	-	13.8
HCM Lane LOS	C	-	-	-	-	B
HCM 95th %tile Q(veh)	0.7	-	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	400	105	20	423	40	195	480	20	120	485	80
Future Volume (veh/h)	115	400	105	20	423	40	195	480	20	120	485	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.94	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	430	113	22	455	43	210	516	22	129	522	86
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	636	165	39	544	51	239	1169	50	348	1259	206
Arrive On Green	0.08	0.23	0.23	0.02	0.17	0.17	0.13	0.34	0.34	0.20	0.42	0.42
Sat Flow, veh/h	1795	2782	723	1781	3261	307	1781	3463	147	1781	3030	497
Grp Volume(v), veh/h	124	275	268	22	247	251	210	264	274	129	305	303
Grp Sat Flow(s),veh/h/ln	1795	1791	1714	1781	1777	1791	1781	1777	1833	1781	1777	1750
Q Serve(g_s), s	8.2	16.8	17.2	1.5	16.1	16.3	13.9	13.9	14.0	7.5	14.5	14.7
Cycle Q Clear(g_c), s	8.2	16.8	17.2	1.5	16.1	16.3	13.9	13.9	14.0	7.5	14.5	14.7
Prop In Lane	1.00		0.42	1.00		0.17	1.00		0.08	1.00		0.28
Lane Grp Cap(c), veh/h	150	410	392	39	296	299	239	600	619	348	738	727
V/C Ratio(X)	0.83	0.67	0.68	0.57	0.83	0.84	0.88	0.44	0.44	0.37	0.41	0.42
Avail Cap(c_a), veh/h	172	440	421	186	452	455	408	600	619	348	738	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.1	42.2	42.3	58.1	48.4	48.4	51.0	30.9	31.0	41.9	24.7	24.8
Incr Delay (d2), s/veh	21.8	2.7	3.2	4.8	4.7	5.2	5.2	2.3	2.2	0.2	1.7	1.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.1	12.4	12.2	1.3	12.1	12.3	10.7	10.5	10.8	6.1	10.7	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	76.0	44.9	45.5	63.0	53.1	53.7	56.2	33.2	33.2	42.1	26.5	26.6
LnGrp LOS	E	D	D	E	D	D	E	C	C	D	C	C
Approach Vol, veh/h		667			520			748			737	
Approach Delay, s/veh		50.9			53.8			39.7			29.2	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.6	57.4	14.5	26.5	31.0	48.0	7.1	33.9
Change Period (Y+Rc), s	5.5	7.5	4.5	6.5	7.5	* 7.5	4.5	6.5
Max Green Setting (Gmax), s	27.5	26.5	11.5	30.5	13.5	* 41	12.5	29.5
Max Q Clear Time (g_c+I1), s	15.9	16.7	10.2	18.3	9.5	16.0	3.5	19.2
Green Ext Time (p_c), s	0.2	2.0	0.0	1.7	0.1	2.3	0.0	1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	42.3
HCM 7th LOS	D

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

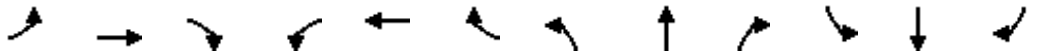
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	520	15	0	393	15	0	0	5	0	0	105
Future Vol, veh/h	0	520	15	0	393	15	0	0	5	0	0	105
Conflicting Peds, #/hr	58	0	41	23	0	40	41	0	23	40	0	58
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	1	1	1	0	0	0	1	1	1
Mvmt Flow	0	605	17	0	457	17	0	0	6	0	0	122

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	375	-	-	335
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	628	0	0	664
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	590	-	-	603
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	11.16	12.48
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	590	-	-	-	-	603
HCM Lane V/C Ratio	0.01	-	-	-	-	0.202
HCM Ctrl Dly (s/v)	11.2	-	-	-	-	12.5
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	352	30	40	296	45	30	269	22	65	377	92
Future Volume (vph)	143	352	30	40	296	45	30	269	22	65	377	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.99			0.97		1.00	0.99		1.00	1.00	0.95
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.99			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3481			3395		1752	1799		1787	1881	1512
Flt Permitted		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3481			3395		1752	1799		1787	1881	1512
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	391	33	44	329	50	33	299	24	72	419	102
RTOR Reduction (vph)	0	3	0	0	0	0	0	2	0	0	0	39
Lane Group Flow (vph)	0	580	0	0	423	0	33	321	0	72	419	63
Confl. Peds. (#/hr)	46		92	163		117	92		163	117		46
Confl. Bikes (#/hr)									12			11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	3%	3%	3%	1%	1%	1%
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases												6
Actuated Green, G (s)		25.2			19.7		4.8	33.7		7.4	43.3	68.5
Effective Green, g (s)		25.2			19.7		4.8	33.7		7.4	43.3	68.5
Actuated g/C Ratio		0.21			0.16		0.04	0.28		0.06	0.36	0.57
Clearance Time (s)		7.5			7.5		5.5	5.5		5.5	7.5	7.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		724			552		69	501		109	673	855
v/s Ratio Prot		c0.17			c0.12		0.02	c0.18		c0.04	c0.22	0.02
v/s Ratio Perm												0.03
v/c Ratio		0.80			0.77		0.48	0.64		0.66	0.62	0.07
Uniform Delay, d1		45.5			48.4		56.9	38.3		55.6	32.1	11.9
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		6.0			5.7		1.9	6.2		11.0	4.3	0.0
Delay (s)		51.5			54.1		58.8	44.5		66.6	36.4	11.9
Level of Service		D			D		E	D		E	D	B
Approach Delay (s/veh)		51.5			54.1			45.8			35.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	46.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	121.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	20.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	76	23	5	20	10	185	6	466	35	40	156	31
Future Vol, veh/h	76	23	5	20	10	185	6	466	35	40	156	31
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	81	24	5	21	11	197	6	496	37	43	166	33
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.7	12.9	29.1	13.2
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	73%	9%	18%
Vol Thru, %	92%	22%	5%	69%
Vol Right, %	7%	5%	86%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	507	104	215	227
LT Vol	6	76	20	40
Through Vol	466	23	10	156
RT Vol	35	5	185	31
Lane Flow Rate	539	111	229	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.822	0.21	0.386	0.407
Departure Headway (Hd)	5.587	6.826	6.068	6.066
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	653	528	595	596
Service Time	3.587	4.85	4.08	4.083
HCM Lane V/C Ratio	0.825	0.21	0.385	0.404
HCM Control Delay, s/veh	29.1	11.7	12.9	13.2
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	8.6	0.8	1.8	2

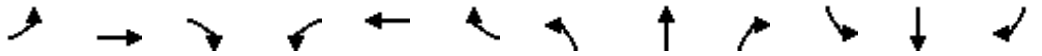
Intersection	
Int Delay, s/veh	13.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	10	78	15	11	90	15	30	10	15	50	35	90
Future Vol, veh/h	10	78	15	11	90	15	30	10	15	50	35	90
Conflicting Peds, #/hr	169	0	162	127	0	134	162	0	127	134	0	169
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	12	12	12	19	19	19	2	2	2	0	0	0
Mvmt Flow	11	87	17	12	100	17	33	11	17	56	39	100

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	286	0	0	265	0	0	592	589	391	550	589	446
Stage 1	-	-	-	-	-	-	279	279	-	302	302	-
Stage 2	-	-	-	-	-	-	313	310	-	248	288	-
Critical Hdwy	4.22	-	-	4.29	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.308	-	-	2.371	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1221	-	-	1206	-	-	418	421	658	449	423	616
Stage 1	-	-	-	-	-	-	727	680	-	712	668	-
Stage 2	-	-	-	-	-	-	698	659	-	760	678	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1025	-	-	1020	-	-	194	291	485	298	293	434
Mov Cap-2 Maneuver	-	-	-	-	-	-	194	291	-	298	293	-
Stage 1	-	-	-	-	-	-	608	568	-	590	553	-
Stage 2	-	-	-	-	-	-	413	546	-	620	566	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.83	0.81	24.01	26.92
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	250	169	-	-	166	-	-	354
HCM Lane V/C Ratio	0.245	0.011	-	-	0.012	-	-	0.55
HCM Ctrl Dly (s/v)	24	8.6	0	-	8.6	0	-	26.9
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	3.2



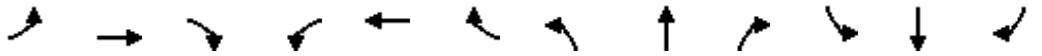
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	58	40	15	95	235	10	440	5	115	485	30
Future Volume (veh/h)	30	58	40	15	95	235	10	440	5	115	485	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.88	0.95		0.90	1.00		0.93	0.99		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	31	60	42	16	99	245	10	458	5	120	505	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	7	7	7	7	7	7	3	3	3	2	2	2
Cap, veh/h	83	149	90	40	115	264	54	2149	23	344	1453	91
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.63	0.63	0.63	0.21	0.21	0.21
Sat Flow, veh/h	174	565	341	33	438	1002	36	3419	37	480	2311	145
Grp Volume(v), veh/h	133	0	0	360	0	0	246	0	227	300	0	356
Grp Sat Flow(s),veh/h/ln	1080	0	0	1472	0	0	1814	0	1679	1272	0	1663
Q Serve(g_s), s	0.0	0.0	0.0	12.9	0.0	0.0	0.0	0.0	7.0	19.3	0.0	21.9
Cycle Q Clear(g_c), s	9.3	0.0	0.0	28.6	0.0	0.0	6.8	0.0	7.0	26.3	0.0	21.9
Prop In Lane	0.23		0.32	0.04		0.68	0.04		0.02	0.40		0.09
Lane Grp Cap(c), veh/h	321	0	0	419	0	0	1171	0	1055	842	0	1046
V/C Ratio(X)	0.41	0.00	0.00	0.86	0.00	0.00	0.21	0.00	0.21	0.36	0.00	0.34
Avail Cap(c_a), veh/h	459	0	0	588	0	0	1171	0	1055	842	0	1046
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	0.00	0.70	0.00	0.00	1.00	0.00	1.00	0.87	0.00	0.87
Uniform Delay (d), s/veh	35.6	0.0	0.0	43.1	0.0	0.0	9.5	0.0	9.6	28.7	0.0	26.4
Incr Delay (d2), s/veh	0.3	0.0	0.0	4.9	0.0	0.0	0.4	0.0	0.5	1.0	0.0	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.8	0.0	0.0	15.6	0.0	0.0	5.2	0.0	4.8	13.1	0.0	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.9	0.0	0.0	48.0	0.0	0.0	10.0	0.0	10.0	29.8	0.0	27.1
LnGrp LOS	D			D			A		B	C		C
Approach Vol, veh/h		133			360			473			656	
Approach Delay, s/veh		35.9			48.0			10.0			28.3	
Approach LOS		D			D			A			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		81.9		38.1		81.9		38.1				
Change Period (Y+Rc), s		6.5		6.5		* 6.5		* 6.5				
Max Green Setting (Gmax), s		63.5		43.5		* 66		* 46				
Max Q Clear Time (g_c+I1), s		9.0		11.3		28.3		30.6				
Green Ext Time (p_c), s		0.6		0.4		1.0		1.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	28.0
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	122	45	26	195	40	10	205	15	55	377	25
Future Volume (vph)	56	122	45	26	195	40	10	205	15	55	377	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.96			0.98		1.00	0.99		1.00	0.98	
Flpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.99		1.00	0.99	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1638			1678		1736	1793		1770	1812	
Flt Permitted		0.65			0.95		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1086			1606		1736	1793		1770	1812	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	126	46	27	201	41	10	211	15	57	389	26
RTOR Reduction (vph)	0	0	0	0	0	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	230	0	0	269	0	10	224	0	57	413	0
Confl. Peds. (#/hr)	45		71	71		45	73		80	80		73
Confl. Bikes (#/hr)			11						11			14
Heavy Vehicles (%)	5%	5%	5%	7%	7%	7%	4%	4%	4%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)		27.6			29.6		1.3	43.4		7.3	70.6	
Effective Green, g (s)		27.6			29.6		1.3	43.4		7.3	70.6	
Actuated g/C Ratio		0.23			0.25		0.01	0.36		0.06	0.59	
Clearance Time (s)		7.5			5.5		5.5	5.5		5.5	7.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		249			396		18	648		107	1066	
v/s Ratio Prot							0.01	0.12		c0.03	c0.23	
v/s Ratio Perm		c0.21			0.17							
v/c Ratio		0.92			0.68		0.56	0.35		0.53	0.39	
Uniform Delay, d1		45.2			40.9		59.1	27.9		54.7	13.2	
Progression Factor		1.17			1.00		1.22	0.68		1.00	1.00	
Incremental Delay, d2		36.1			4.6		19.1	1.4		2.5	1.1	
Delay (s)		89.1			45.5		90.9	20.5		57.2	14.2	
Level of Service		F			D		F	C		E	B	
Approach Delay (s/veh)		89.1			45.5			23.5			19.4	
Approach LOS		F			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	50	10	435	540	10
Future Vol, veh/h	20	50	10	435	540	10
Conflicting Peds, #/hr	85	26	26	0	0	85
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	21	53	11	458	568	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	994	400	664	0	-	0
Stage 1	659	-	-	-	-	-
Stage 2	335	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.16	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	246	605	914	-	-	-
Stage 1	482	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	204	542	840	-	-	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	646	-	-	-	-	-

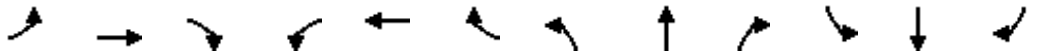
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.2	0.34	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	81	-	368	-	-
HCM Lane V/C Ratio	0.013	-	0.2	-	-
HCM Ctrl Dly (s/v)	9.3	0.1	17.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	10	250	15	1	433
Future Volume (vph)	20	10	250	15	1	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.95		1.00			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.96		0.99			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	1667		1825			3574
Flt Permitted	0.97		1.00			0.95
Satd. Flow (perm)	1667		1825			3413
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	11	272	16	1	471
RTOR Reduction (vph)	9	0	2	0	0	0
Lane Group Flow (vph)	24	0	286	0	0	472
Confl. Peds. (#/hr)	1	45		52	52	
Confl. Bikes (#/hr)		3		13		
Heavy Vehicles (%)	0%	0%	3%	3%	1%	1%
Turn Type	Prot		NA		Perm	NA
Protected Phases	4		2			6
Permitted Phases					6	
Actuated Green, G (s)	20.0		76.0			88.5
Effective Green, g (s)	20.0		76.0			88.5
Actuated g/C Ratio	0.17		0.63			0.74
Clearance Time (s)	6.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	277		1155			2517
v/s Ratio Prot	c0.01		c0.16			
v/s Ratio Perm						c0.14
v/c Ratio	0.09		0.25			0.19
Uniform Delay, d1	42.3		9.6			4.8
Progression Factor	1.00		1.00			0.71
Incremental Delay, d2	0.0		0.5			0.2
Delay (s)	42.3		10.1			3.6
Level of Service	D		B			A
Approach Delay (s/veh)	42.3		10.1			3.6
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	510	85	3	410	135	35	100	5	290	188	10
Future Volume (veh/h)	0	510	85	3	410	135	35	100	5	290	188	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	0.97		0.94	0.97		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1856	1856	1856	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	0	548	91	3	441	145	38	108	5	312	202	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	3	3	3	4	4	4	2	2	2
Cap, veh/h	0	1917	317	32	1599	516	245	456	21	323	459	25
Arrive On Green	0.00	0.63	0.63	0.63	0.63	0.63	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	0	3130	502	3	2533	818	1120	1740	81	1238	1750	95
Grp Volume(v), veh/h	0	320	319	323	0	266	38	0	113	312	0	213
Grp Sat Flow(s),veh/h/ln	0	1777	1762	1851	0	1503	1120	0	1820	1238	0	1846
Q Serve(g_s), s	0.0	9.9	10.0	0.0	0.0	9.7	3.6	0.0	6.0	26.0	0.0	11.7
Cycle Q Clear(g_c), s	0.0	9.9	10.0	9.5	0.0	9.7	15.3	0.0	6.0	32.0	0.0	11.7
Prop In Lane	0.00		0.29	0.01		0.54	1.00		0.04	1.00		0.05
Lane Grp Cap(c), veh/h	0	1121	1112	1198	0	949	245	0	477	323	0	484
V/C Ratio(X)	0.00	0.29	0.29	0.27	0.00	0.28	0.16	0.00	0.24	0.96	0.00	0.44
Avail Cap(c_a), veh/h	0	1121	1112	1198	0	949	245	0	477	323	0	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	0.0	10.1	10.1	10.0	0.0	10.1	43.9	0.0	35.4	50.0	0.0	37.5
Incr Delay (d2), s/veh	0.0	0.6	0.7	0.6	0.0	0.7	0.6	0.0	0.5	40.1	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	7.2	7.3	7.2	0.0	6.1	1.9	0.0	5.0	19.3	0.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.8	10.8	10.6	0.0	10.8	44.5	0.0	35.9	90.1	0.0	37.8
LnGrp LOS		B	B	B		B	D		D	F		D
Approach Vol, veh/h		639			589			151			525	
Approach Delay, s/veh		10.8			10.7			38.1			68.8	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	82.5	39.5	82.5	39.5
Change Period (Y+Rc), s	5.5	7.5	5.5	7.5
Max Green Setting (Gmax), s	38.5	31.0	38.5	32.0
Max Q Clear Time (g_c+I1), s	12.0	17.3	11.7	34.0
Green Ext Time (p_c), s	0.8	1.0	0.8	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	28.9
HCM 7th LOS	C

Intersection	
Intersection Delay, s/veh	19.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	407	20	135	45	26	20	28	75	10	10	75	91
Future Vol, veh/h	407	20	135	45	26	20	28	75	10	10	75	91
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	420	21	139	46	27	21	29	77	10	10	77	94
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	25.2	9.8	10.8	11.2
HCM LOS	D	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	72%	49%	6%
Vol Thru, %	66%	4%	29%	43%
Vol Right, %	9%	24%	22%	52%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	113	562	91	176
LT Vol	28	407	45	10
Through Vol	75	20	26	75
RT Vol	10	135	20	91
Lane Flow Rate	116	579	94	181
Geometry Grp	1	1	1	1
Degree of Util (X)	0.201	0.803	0.149	0.291
Departure Headway (Hd)	6.213	4.991	5.712	5.776
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	577	724	626	621
Service Time	4.267	3.023	3.763	3.826
HCM Lane V/C Ratio	0.201	0.8	0.15	0.291
HCM Control Delay, s/veh	10.8	25.2	9.8	11.2
HCM Lane LOS	B	D	A	B
HCM 95th-tile Q	0.7	8.3	0.5	1.2

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	15	16	120	250	26
Future Vol, veh/h	20	15	16	120	250	26
Conflicting Peds, #/hr	48	50	50	0	0	48
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	6	6	3	3
Mvmt Flow	22	16	17	130	272	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	549	386	350	0	-	0
Stage 1	336	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.16	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.254	-	-	-
Pot Cap-1 Maneuver	493	658	1187	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	441	596	1130	-	-	-
Mov Cap-2 Maneuver	441	-	-	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	780	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.85	0.97	0
HCM LOS	B		

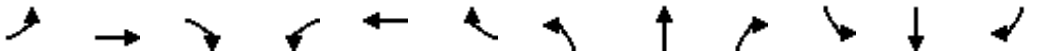
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1130	-	497	-	-
HCM Lane V/C Ratio	0.015	-	0.077	-	-
HCM Ctrl Dly (s/v)	8.2	-	12.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	61	15	20	45	65	185
Future Vol, veh/h	61	15	20	45	65	185
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	67	16	22	49	71	203
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.4	7.8	8.7
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	80%	0%	26%
Vol Thru, %	20%	31%	0%
Vol Right, %	0%	69%	74%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	76	65	250
LT Vol	61	0	65
Through Vol	15	20	0
RT Vol	0	45	185
Lane Flow Rate	84	71	275
Geometry Grp	1	1	1
Degree of Util (X)	0.112	0.086	0.304
Departure Headway (Hd)	4.811	4.358	3.98
Convergence, Y/N	Yes	Yes	Yes
Cap	747	824	907
Service Time	2.829	2.377	1.989
HCM Lane V/C Ratio	0.112	0.086	0.303
HCM Control Delay, s/veh	8.4	7.8	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	425	35	15	390	37	10	5	2	62	10	143
Future Volume (veh/h)	71	425	35	15	390	37	10	5	2	62	10	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	78	467	38	16	429	41	11	5	2	68	11	157
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	373	651	53	351	636	61	394	162	47	701	33	467
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	912	1706	139	878	1667	159	631	473	138	1314	95	1360
Grp Volume(v), veh/h	78	0	505	16	0	470	18	0	0	68	0	168
Grp Sat Flow(s),veh/h/ln	912	0	1845	878	0	1826	1241	0	0	1314	0	1456
Q Serve(g_s), s	2.5	0.0	7.6	0.5	0.0	7.0	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	9.5	0.0	7.6	8.1	0.0	7.0	2.8	0.0	0.0	0.9	0.0	2.8
Prop In Lane	1.00		0.08	1.00		0.09	0.61		0.11	1.00		0.93
Lane Grp Cap(c), veh/h	373	0	704	351	0	696	603	0	0	701	0	499
V/C Ratio(X)	0.21	0.00	0.72	0.05	0.00	0.67	0.03	0.00	0.00	0.10	0.00	0.34
Avail Cap(c_a), veh/h	737	0	1441	701	0	1426	784	0	0	874	0	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	8.6	12.1	0.0	8.4	7.2	0.0	0.0	7.3	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	0.0	3.6	0.1	0.0	3.3	0.1	0.0	0.0	0.4	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.5	0.0	9.1	12.1	0.0	8.8	7.2	0.0	0.0	7.4	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		583			486			18			236	
Approach Delay, s/veh		9.6			9.0			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.0		15.7		17.0		15.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		10.1		4.8		11.5		4.8				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.6				

Intersection Summary	
HCM 7th Control Delay, s/veh	9.0
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	526	523	15	10	15
Future Vol, veh/h	15	526	523	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	17	591	588	17	11	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	717	0	-	0	1446	822
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	737	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	888	-	-	-	147	377
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	793	-	-	-	113	300
Mov Cap-2 Maneuver	-	-	-	-	113	-
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	426	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.27	0	28.56
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	50	-	-	-	181
HCM Lane V/C Ratio	0.021	-	-	-	0.155
HCM Ctrl Dly (s/v)	9.6	0	-	-	28.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	206	2	10	53	73	0	1	30	136	5	5
Future Vol, veh/h	20	206	2	10	53	73	0	1	30	136	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	22	224	2	11	58	79	0	1	33	148	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.7	8.5	7.9	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	9%	7%	93%
Vol Thru, %	3%	90%	39%	3%
Vol Right, %	97%	1%	54%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	228	136	146
LT Vol	0	20	10	136
Through Vol	1	206	53	5
RT Vol	30	2	73	5
Lane Flow Rate	34	248	148	159
Geometry Grp	1	1	1	1
Degree of Util (X)	0.043	0.314	0.183	0.222
Departure Headway (Hd)	4.626	4.566	4.466	5.038
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	769	786	801	711
Service Time	2.682	2.6	2.506	3.083
HCM Lane V/C Ratio	0.044	0.316	0.185	0.224
HCM Control Delay, s/veh	7.9	9.7	8.5	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.3	0.7	0.8

Intersection	
Intersection Delay, s/veh	38.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	151	16	10	30	10	175	5	260	30	75	270	185
Future Vol, veh/h	151	16	10	30	10	175	5	260	30	75	270	185
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	166	18	11	33	11	192	5	286	33	82	297	203
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	16.4	16.3	20.7	65
HCM LOS	C	C	C	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	85%	14%	14%
Vol Thru, %	88%	9%	5%	51%
Vol Right, %	10%	6%	81%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	295	177	215	530
LT Vol	5	151	30	75
Through Vol	260	16	10	270
RT Vol	30	10	175	185
Lane Flow Rate	324	195	236	582
Geometry Grp	1	1	1	1
Degree of Util (X)	0.619	0.418	0.464	1.009
Departure Headway (Hd)	6.991	7.865	7.202	6.238
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	519	461	503	577
Service Time	4.991	5.865	5.202	4.335
HCM Lane V/C Ratio	0.624	0.423	0.469	1.009
HCM Control Delay, s/veh	20.7	16.4	16.3	65
HCM Lane LOS	C	C	C	F
HCM 95th-tile Q	4.2	2	2.4	15

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	155	15	65	1	44	10	155	110	40	12	40	245
Future Vol, veh/h	155	15	65	1	44	10	155	110	40	12	40	245
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	178	17	75	1	51	11	178	126	46	14	46	282
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13.5	10.2	15.2	13.2
HCM LOS	B	B	C	B

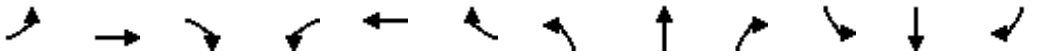
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	51%	66%	2%	4%
Vol Thru, %	36%	6%	80%	13%
Vol Right, %	13%	28%	18%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	305	235	55	297
LT Vol	155	155	1	12
Through Vol	110	15	44	40
RT Vol	40	65	10	245
Lane Flow Rate	351	270	63	341
Geometry Grp	1	1	1	1
Degree of Util (X)	0.544	0.44	0.111	0.492
Departure Headway (Hd)	5.583	5.87	6.315	5.191
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	645	610	563	690
Service Time	3.641	3.934	4.403	3.251
HCM Lane V/C Ratio	0.544	0.443	0.112	0.494
HCM Control Delay, s/veh	15.2	13.5	10.2	13.2
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.3	2.2	0.4	2.7

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	230	20	5	75	52	65
Future Vol, veh/h	230	20	5	75	52	65
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	253	22	5	82	57	71
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	10	7.7	8.6
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	92%	0%	44%
Vol Thru, %	8%	6%	0%
Vol Right, %	0%	94%	56%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	250	80	117
LT Vol	230	0	52
Through Vol	20	5	0
RT Vol	0	75	65
Lane Flow Rate	275	88	129
Geometry Grp	1	1	1
Degree of Util (X)	0.349	0.102	0.165
Departure Headway (Hd)	4.568	4.173	4.625
Convergence, Y/N	Yes	Yes	Yes
Cap	788	859	777
Service Time	2.588	2.197	2.647
HCM Lane V/C Ratio	0.349	0.102	0.166
HCM Control Delay, s/veh	10	7.7	8.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.6	0.3	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	420	30	5	335	100	0	0	0	33	5	52
Future Volume (veh/h)	190	420	30	5	335	100	0	0	0	33	5	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.93	1.00		1.00	0.95		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	200	442	32	5	353	105	0	0	0	35	5	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	488	806	58	486	634	189	0	458	0	612	29	317
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.00	0.00	0.00	0.24	0.24	0.24
Sat Flow, veh/h	910	1700	123	890	1338	398	0	1900	0	1592	120	1315
Grp Volume(v), veh/h	200	0	474	5	0	458	0	0	0	35	0	60
Grp Sat Flow(s),veh/h/ln	910	0	1823	890	0	1736	0	1900	0	1592	0	1435
Q Serve(g_s), s	6.4	0.0	5.8	0.1	0.0	5.9	0.0	0.0	0.0	0.5	0.0	1.0
Cycle Q Clear(g_c), s	12.3	0.0	5.8	6.0	0.0	5.9	0.0	0.0	0.0	0.5	0.0	1.0
Prop In Lane	1.00		0.07	1.00		0.23	0.00		0.00	1.00		0.92
Lane Grp Cap(c), veh/h	488	0	864	486	0	823	0	458	0	612	0	345
V/C Ratio(X)	0.41	0.00	0.55	0.01	0.00	0.56	0.00	0.00	0.00	0.06	0.00	0.17
Avail Cap(c_a), veh/h	792	0	1474	783	0	1403	0	933	0	1010	0	705
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.3	0.0	5.9	8.0	0.0	5.9	0.0	0.0	0.0	9.3	0.0	9.5
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.1	0.0	0.0	1.1	0.0	0.0	0.0	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.5	0.0	6.1	8.0	0.0	6.2	0.0	0.0	0.0	9.3	0.0	9.6
LnGrp LOS	B		A	A		A				A		A
Approach Vol, veh/h		674			463			0			95	
Approach Delay, s/veh		7.4			6.2			0.0			9.5	
Approach LOS		A			A						A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	19.5	12.1	19.5	12.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	15.5	25.5	15.5
Max Q Clear Time (g_c+I1), s	8.0	0.0	14.3	3.0
Green Ext Time (p_c), s	0.5	0.0	0.6	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.1
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	625	372	5	15	10
Future Vol, veh/h	30	625	372	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	32	665	396	5	16	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	466	0	-	0	1250	528
Stage 1	-	-	-	-	463	-
Stage 2	-	-	-	-	787	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1090	-	-	-	186	540
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	440	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1023	-	-	-	157	476
Mov Cap-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	556	-
Stage 2	-	-	-	-	416	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.4	0	24.16
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	82	-	-	-	214
HCM Lane V/C Ratio	0.031	-	-	-	0.124
HCM Ctrl Dly (s/v)	8.6	0	-	-	24.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	125	2	6	159	60	11	5	20	45	1	5
Future Vol, veh/h	20	125	2	6	159	60	11	5	20	45	1	5
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	154	2	7	196	74	14	6	25	56	1	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.8	9.3	8.1	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	14%	3%	88%
Vol Thru, %	14%	85%	71%	2%
Vol Right, %	56%	1%	27%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	147	225	51
LT Vol	11	20	6	45
Through Vol	5	125	159	1
RT Vol	20	2	60	5
Lane Flow Rate	44	181	278	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.059	0.226	0.328	0.089
Departure Headway (Hd)	4.774	4.477	4.248	5.083
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	748	802	847	704
Service Time	2.813	2.501	2.269	3.121
HCM Lane V/C Ratio	0.059	0.226	0.328	0.089
HCM Control Delay, s/veh	8.1	8.8	9.3	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.9	1.4	0.3

Intersection	
Intersection Delay, s/veh	18.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	23	5	20	10	185	6	396	35	40	121	66
Future Vol, veh/h	146	23	5	20	10	185	6	396	35	40	121	66
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	155	24	5	21	11	197	6	421	37	43	129	70
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13.3	13.1	24.9	13.6
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	84%	9%	18%
Vol Thru, %	91%	13%	5%	53%
Vol Right, %	8%	3%	86%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	437	174	215	227
LT Vol	6	146	20	40
Through Vol	396	23	10	121
RT Vol	35	5	185	66
Lane Flow Rate	465	185	229	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.758	0.345	0.39	0.414
Departure Headway (Hd)	5.871	6.712	6.134	6.176
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	618	535	586	582
Service Time	3.871	4.776	4.195	4.234
HCM Lane V/C Ratio	0.752	0.346	0.391	0.414
HCM Control Delay, s/veh	24.9	13.3	13.1	13.6
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	6.9	1.5	1.8	2

Intersection	
Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	337	20	135	45	26	20	28	75	10	10	75	56
Future Vol, veh/h	337	20	135	45	26	20	28	75	10	10	75	56
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	347	21	139	46	27	21	29	77	10	10	77	58
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	17.6	9.4	10.3	10.3
HCM LOS	C	A	B	B

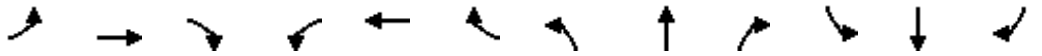
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	68%	49%	7%
Vol Thru, %	66%	4%	29%	53%
Vol Right, %	9%	27%	22%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	113	492	91	141
LT Vol	28	337	45	10
Through Vol	75	20	26	75
RT Vol	10	135	20	56
Lane Flow Rate	116	507	94	145
Geometry Grp	1	1	1	1
Degree of Util (X)	0.19	0.682	0.141	0.226
Departure Headway (Hd)	5.884	4.841	5.423	5.598
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	609	751	661	641
Service Time	3.924	2.841	3.458	3.636
HCM Lane V/C Ratio	0.19	0.675	0.142	0.226
HCM Control Delay, s/veh	10.3	17.6	9.4	10.3
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	0.7	5.4	0.5	0.9

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	61	15	20	45	65	185
Future Vol, veh/h	61	15	20	45	65	185
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	67	16	22	49	71	203
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.4	7.8	8.7
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	80%	0%	26%
Vol Thru, %	20%	31%	0%
Vol Right, %	0%	69%	74%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	76	65	250
LT Vol	61	0	65
Through Vol	15	20	0
RT Vol	0	45	185
Lane Flow Rate	84	71	275
Geometry Grp	1	1	1
Degree of Util (X)	0.112	0.086	0.304
Departure Headway (Hd)	4.811	4.358	3.98
Convergence, Y/N	Yes	Yes	Yes
Cap	747	824	907
Service Time	2.829	2.377	1.989
HCM Lane V/C Ratio	0.112	0.086	0.303
HCM Control Delay, s/veh	8.4	7.8	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	425	35	15	390	37	10	5	2	62	10	143
Future Volume (veh/h)	71	425	35	15	390	37	10	5	2	62	10	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	78	467	38	16	429	41	11	5	2	68	11	157
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	373	651	53	351	636	61	394	162	47	701	33	467
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	912	1706	139	878	1667	159	631	473	138	1314	95	1360
Grp Volume(v), veh/h	78	0	505	16	0	470	18	0	0	68	0	168
Grp Sat Flow(s),veh/h/ln	912	0	1845	878	0	1826	1241	0	0	1314	0	1456
Q Serve(g_s), s	2.5	0.0	7.6	0.5	0.0	7.0	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	9.5	0.0	7.6	8.1	0.0	7.0	2.8	0.0	0.0	0.9	0.0	2.8
Prop In Lane	1.00		0.08	1.00		0.09	0.61		0.11	1.00		0.93
Lane Grp Cap(c), veh/h	373	0	704	351	0	696	603	0	0	701	0	499
V/C Ratio(X)	0.21	0.00	0.72	0.05	0.00	0.67	0.03	0.00	0.00	0.10	0.00	0.34
Avail Cap(c_a), veh/h	737	0	1441	701	0	1426	784	0	0	874	0	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	8.6	12.1	0.0	8.4	7.2	0.0	0.0	7.3	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.0	0.1	0.0	1.8	0.1	0.0	0.0	0.2	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.5	0.0	9.1	12.1	0.0	8.8	7.2	0.0	0.0	7.4	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		583			486			18			236	
Approach Delay, s/veh		9.6			9.0			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.0		15.7		17.0		15.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		10.1		4.8		11.5		4.8				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.6				

Intersection Summary	
HCM 7th Control Delay, s/veh	9.0
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	526	523	15	10	15
Future Vol, veh/h	15	526	523	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	17	591	588	17	11	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	717	0	-	0	1446	822
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	737	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	888	-	-	-	147	377
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	793	-	-	-	113	300
Mov Cap-2 Maneuver	-	-	-	-	113	-
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	426	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.27	0	28.56
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	50	-	-	-	181
HCM Lane V/C Ratio	0.021	-	-	-	0.155
HCM Ctrl Dly (s/v)	9.6	0	-	-	28.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	171	2	10	35	55	0	1	30	101	5	5
Future Vol, veh/h	20	171	2	10	35	55	0	1	30	101	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	22	186	2	11	38	60	0	1	33	110	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9	8	7.6	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	10%	10%	91%
Vol Thru, %	3%	89%	35%	5%
Vol Right, %	97%	1%	55%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	193	100	111
LT Vol	0	20	10	101
Through Vol	1	171	35	5
RT Vol	30	2	55	5
Lane Flow Rate	34	210	109	121
Geometry Grp	1	1	1	1
Degree of Util (X)	0.041	0.257	0.13	0.162
Departure Headway (Hd)	4.375	4.408	4.299	4.842
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	817	816	835	741
Service Time	2.406	2.428	2.322	2.868
HCM Lane V/C Ratio	0.042	0.257	0.131	0.163
HCM Control Delay, s/veh	7.6	9	8	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1	0.4	0.6

Intersection	
Intersection Delay, s/veh	38.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	11	10	30	10	175	5	346	30	75	361	105
Future Vol, veh/h	66	11	10	30	10	175	5	346	30	75	361	105
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	73	12	11	33	11	192	5	380	33	82	397	115
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13.1	15.4	25.4	60
HCM LOS	B	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	76%	14%	14%
Vol Thru, %	91%	13%	5%	67%
Vol Right, %	8%	11%	81%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	381	87	215	541
LT Vol	5	66	30	75
Through Vol	346	11	10	361
RT Vol	30	10	175	105
Lane Flow Rate	419	96	236	595
Geometry Grp	1	1	1	1
Degree of Util (X)	0.739	0.212	0.449	0.994
Departure Headway (Hd)	6.35	7.975	6.836	6.021
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	565	453	525	600
Service Time	4.429	5.975	4.923	4.091
HCM Lane V/C Ratio	0.742	0.212	0.45	0.992
HCM Control Delay, s/veh	25.4	13.1	15.4	60
HCM Lane LOS	D	B	C	F
HCM 95th-tile Q	6.3	0.8	2.3	14.6

Intersection	
Intersection Delay, s/veh	17.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	286	15	38	1	55	10	75	65	40	12	40	336
Future Vol, veh/h	286	15	38	1	55	10	75	65	40	12	40	336
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	329	17	44	1	63	11	86	75	46	14	46	386
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	20	10.9	12.9	19.6
HCM LOS	C	B	B	C

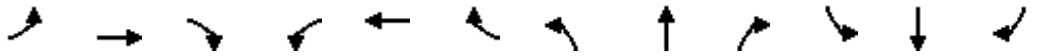
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	84%	2%	3%
Vol Thru, %	36%	4%	83%	10%
Vol Right, %	22%	11%	15%	87%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	339	66	388
LT Vol	75	286	1	12
Through Vol	65	15	55	40
RT Vol	40	38	10	336
Lane Flow Rate	207	390	76	446
Geometry Grp	1	1	1	1
Degree of Util (X)	0.363	0.653	0.142	0.684
Departure Headway (Hd)	6.309	6.153	6.731	5.522
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	571	592	533	660
Service Time	4.333	4.153	4.775	3.522
HCM Lane V/C Ratio	0.363	0.659	0.143	0.676
HCM Control Delay, s/veh	12.9	20	10.9	19.6
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.6	4.8	0.5	5.4

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	105	20	5	75	52	38
Future Vol, veh/h	105	20	5	75	52	38
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	115	22	5	82	57	42
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.4	7.4	8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	84%	0%	58%
Vol Thru, %	16%	6%	0%
Vol Right, %	0%	94%	42%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	80	90
LT Vol	105	0	52
Through Vol	20	5	0
RT Vol	0	75	38
Lane Flow Rate	137	88	99
Geometry Grp	1	1	1
Degree of Util (X)	0.168	0.096	0.121
Departure Headway (Hd)	4.395	3.938	4.399
Convergence, Y/N	Yes	Yes	Yes
Cap	806	914	819
Service Time	2.477	1.944	2.403
HCM Lane V/C Ratio	0.17	0.096	0.121
HCM Control Delay, s/veh	8.4	7.4	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.3	0.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	420	30	5	345	75	0	0	0	33	5	25
Future Volume (veh/h)	90	420	30	5	345	75	0	0	0	33	5	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.93	1.00		1.00	0.95		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	95	442	32	5	363	79	0	0	0	35	5	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	501	708	51	486	601	131	0	402	0	632	50	260
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.00	0.00	0.00	0.21	0.21	0.21
Sat Flow, veh/h	921	1699	123	888	1441	314	0	1900	0	1582	236	1230
Grp Volume(v), veh/h	95	0	474	5	0	442	0	0	0	35	0	31
Grp Sat Flow(s),veh/h/ln	921	0	1822	888	0	1755	0	1900	0	1582	0	1466
Q Serve(g_s), s	2.2	0.0	5.0	0.1	0.0	4.8	0.0	0.0	0.0	0.4	0.0	0.4
Cycle Q Clear(g_c), s	6.9	0.0	5.0	5.1	0.0	4.8	0.0	0.0	0.0	0.4	0.0	0.4
Prop In Lane	1.00		0.07	1.00		0.18	0.00		0.00	1.00		0.84
Lane Grp Cap(c), veh/h	501	0	759	486	0	731	0	402	0	632	0	310
V/C Ratio(X)	0.19	0.00	0.62	0.01	0.00	0.60	0.00	0.00	0.00	0.06	0.00	0.10
Avail Cap(c_a), veh/h	1088	0	1921	1052	0	1850	0	1217	0	1311	0	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	5.6	7.6	0.0	5.5	0.0	0.0	0.0	7.7	0.0	7.7
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.7	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.3	0.0	5.9	7.6	0.0	5.8	0.0	0.0	0.0	7.7	0.0	7.7
LnGrp LOS	A		A	A		A				A		A
Approach Vol, veh/h		569			447			0			66	
Approach Delay, s/veh		6.3			5.8			0.0			7.7	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.6		9.6		14.6		9.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		7.1		0.0		8.9		2.4				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.1				

Intersection Summary	
HCM 7th Control Delay, s/veh	6.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	525	355	5	15	10
Future Vol, veh/h	30	525	355	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	32	559	378	5	16	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	448	0	-	0	1126	510
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	680	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1107	-	-	-	222	553
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	494	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1039	-	-	-	188	487
Mov Cap-2 Maneuver	-	-	-	-	188	-
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.46	0	21.19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	97	-	-	-	249
HCM Lane V/C Ratio	0.031	-	-	-	0.107
HCM Ctrl Dly (s/v)	8.6	0	-	-	21.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	294	2	6	175	66	11	5	20	65	1	30
Future Vol, veh/h	20	294	2	6	175	66	11	5	20	65	1	30
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	363	2	7	216	81	14	6	25	80	1	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12.6	10.8	9	9.8
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	6%	2%	68%
Vol Thru, %	14%	93%	71%	1%
Vol Right, %	56%	1%	27%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	316	247	96
LT Vol	11	20	6	65
Through Vol	5	294	175	1
RT Vol	20	2	66	30
Lane Flow Rate	44	390	305	119
Geometry Grp	1	1	1	1
Degree of Util (X)	0.069	0.509	0.395	0.184
Departure Headway (Hd)	5.564	4.695	4.668	5.578
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	647	761	762	647
Service Time	3.569	2.773	2.751	3.578
HCM Lane V/C Ratio	0.068	0.512	0.4	0.184
HCM Control Delay, s/veh	9	12.6	10.8	9.8
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.2	2.9	1.9	0.7

Intersection	
Intersection Delay, s/veh	20.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	76	23	5	20	10	185	6	466	35	40	156	31
Future Vol, veh/h	76	23	5	20	10	185	6	466	35	40	156	31
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	81	24	5	21	11	197	6	496	37	43	166	33
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.7	12.9	29.1	13.2
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	73%	9%	18%
Vol Thru, %	92%	22%	5%	69%
Vol Right, %	7%	5%	86%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	507	104	215	227
LT Vol	6	76	20	40
Through Vol	466	23	10	156
RT Vol	35	5	185	31
Lane Flow Rate	539	111	229	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.822	0.21	0.386	0.407
Departure Headway (Hd)	5.587	6.826	6.068	6.066
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	653	528	595	596
Service Time	3.587	4.85	4.08	4.083
HCM Lane V/C Ratio	0.825	0.21	0.385	0.404
HCM Control Delay, s/veh	29.1	11.7	12.9	13.2
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	8.6	0.8	1.8	2

Intersection	
Intersection Delay, s/veh	15.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	425	20	60	45	26	20	8	58	10	10	75	91
Future Vol, veh/h	425	20	60	45	26	20	8	58	10	10	75	91
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	438	21	62	46	27	21	8	60	10	10	77	94
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	19.5	9.4	9.9	10.7
HCM LOS	C	A	A	B

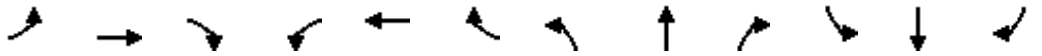
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	84%	49%	6%
Vol Thru, %	76%	4%	29%	43%
Vol Right, %	13%	12%	22%	52%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	505	91	176
LT Vol	8	425	45	10
Through Vol	58	20	26	75
RT Vol	10	60	20	91
Lane Flow Rate	78	521	94	181
Geometry Grp	1	1	1	1
Degree of Util (X)	0.13	0.717	0.142	0.278
Departure Headway (Hd)	5.96	4.955	5.44	5.511
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	600	734	659	651
Service Time	4.008	2.955	3.477	3.552
HCM Lane V/C Ratio	0.13	0.71	0.143	0.278
HCM Control Delay, s/veh	9.9	19.5	9.4	10.7
HCM Lane LOS	A	C	A	B
HCM 95th-tile Q	0.4	6.1	0.5	1.1

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	15	20	45	65	110
Future Vol, veh/h	23	15	20	45	65	110
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	25	16	22	49	71	121
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	7.8	7.5	8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	61%	0%	37%
Vol Thru, %	39%	31%	0%
Vol Right, %	0%	69%	63%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	38	65	175
LT Vol	23	0	65
Through Vol	15	20	0
RT Vol	0	45	110
Lane Flow Rate	42	71	192
Geometry Grp	1	1	1
Degree of Util (X)	0.052	0.08	0.208
Departure Headway (Hd)	4.501	4.042	3.893
Convergence, Y/N	Yes	Yes	Yes
Cap	785	873	913
Service Time	2.591	2.129	1.954
HCM Lane V/C Ratio	0.054	0.081	0.21
HCM Control Delay, s/veh	7.8	7.5	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	425	35	15	392	35	10	5	2	62	10	68
Future Volume (veh/h)	35	425	35	15	392	35	10	5	2	62	10	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.91	0.98		0.92	0.96		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	38	467	38	16	431	38	11	5	2	68	11	75
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	390	639	52	367	629	55	441	181	53	663	60	412
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	913	1706	139	878	1681	148	762	568	166	1303	189	1292
Grp Volume(v), veh/h	38	0	505	16	0	469	18	0	0	68	0	86
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1829	1496	0	0	1303	0	1481
Q Serve(g_s), s	1.1	0.0	6.9	0.5	0.0	6.3	0.0	0.0	0.0	0.8	0.0	1.2
Cycle Q Clear(g_c), s	7.4	0.0	6.9	7.4	0.0	6.3	0.2	0.0	0.0	1.0	0.0	1.2
Prop In Lane	1.00		0.08	1.00		0.08	0.61		0.11	1.00		0.87
Lane Grp Cap(c), veh/h	390	0	691	367	0	685	675	0	0	663	0	473
V/C Ratio(X)	0.10	0.00	0.73	0.04	0.00	0.68	0.03	0.00	0.00	0.10	0.00	0.18
Avail Cap(c_a), veh/h	841	0	1602	801	0	1589	976	0	0	936	0	782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	0.0	7.9	11.1	0.0	7.7	6.9	0.0	0.0	7.1	0.0	7.2
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.7	0.1	0.0	1.5	0.1	0.0	0.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.9	0.0	8.5	11.1	0.0	8.2	6.9	0.0	0.0	7.2	0.0	7.3
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		543			485			18			154	
Approach Delay, s/veh		8.6			8.3			6.9			7.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.5		13.9		15.5		13.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		9.4		2.2		9.4		3.2				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.3
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	490	450	15	10	15
Future Vol, veh/h	15	490	450	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	17	551	506	17	11	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	635	0	-	0	1323	740
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	696	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	953	-	-	-	174	420
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	498	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	850	-	-	-	135	334
Mov Cap-2 Maneuver	-	-	-	-	135	-
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	445	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.28	0	24.78
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	53	-	-	-	210
HCM Lane V/C Ratio	0.02	-	-	-	0.134
HCM Ctrl Dly (s/v)	9.3	0	-	-	24.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	286	2	10	45	59	0	1	30	69	5	73
Future Vol, veh/h	20	286	2	10	45	59	0	1	30	69	5	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	22	311	2	11	49	64	0	1	33	75	5	79
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.8	8.5	8.1	9.2
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	6%	9%	47%
Vol Thru, %	3%	93%	39%	3%
Vol Right, %	97%	1%	52%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	308	114	147
LT Vol	0	20	10	69
Through Vol	1	286	45	5
RT Vol	30	2	59	73
Lane Flow Rate	34	335	124	160
Geometry Grp	1	1	1	1
Degree of Util (X)	0.045	0.42	0.157	0.214
Departure Headway (Hd)	4.77	4.518	4.558	4.815
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	746	793	783	743
Service Time	2.832	2.56	2.609	2.865
HCM Lane V/C Ratio	0.046	0.422	0.158	0.215
HCM Control Delay, s/veh	8.1	10.8	8.5	9.2
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	2.1	0.6	0.8

Intersection	
Intersection Delay, s/veh	41.2
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	151	11	10	30	10	175	5	261	30	75	281	185
Future Vol, veh/h	151	11	10	30	10	175	5	261	30	75	281	185
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	166	12	11	33	11	192	5	287	33	82	309	203
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	16.3	16.4	20.8	70.1
HCM LOS	C	C	C	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	88%	14%	14%
Vol Thru, %	88%	6%	5%	52%
Vol Right, %	10%	6%	81%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	296	172	215	541
LT Vol	5	151	30	75
Through Vol	261	11	10	281
RT Vol	30	10	175	185
Lane Flow Rate	325	189	236	595
Geometry Grp	1	1	1	1
Degree of Util (X)	0.621	0.408	0.466	1.028
Departure Headway (Hd)	6.998	7.915	7.221	6.227
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	520	457	503	577
Service Time	4.998	5.915	5.221	4.324
HCM Lane V/C Ratio	0.625	0.414	0.469	1.031
HCM Control Delay, s/veh	20.8	16.3	16.4	70.1
HCM Lane LOS	C	C	C	F
HCM 95th-tile Q	4.2	2	2.4	15.8

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	201	15	38	1	55	10	75	65	40	12	40	256
Future Vol, veh/h	201	15	38	1	55	10	75	65	40	12	40	256
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	231	17	44	1	63	11	86	75	46	14	46	294
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13.4	9.8	11.3	12.9
HCM LOS	B	A	B	B

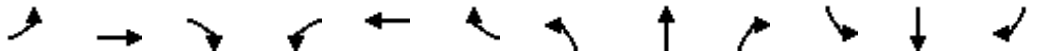
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	79%	2%	4%
Vol Thru, %	36%	6%	83%	13%
Vol Right, %	22%	15%	15%	83%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	254	66	308
LT Vol	75	201	1	12
Through Vol	65	15	55	40
RT Vol	40	38	10	256
Lane Flow Rate	207	292	76	354
Geometry Grp	1	1	1	1
Degree of Util (X)	0.321	0.457	0.125	0.493
Departure Headway (Hd)	5.583	5.63	5.933	5.015
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	641	639	602	715
Service Time	3.634	3.675	3.995	3.06
HCM Lane V/C Ratio	0.323	0.457	0.126	0.495
HCM Control Delay, s/veh	11.3	13.4	9.8	12.9
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	1.4	2.4	0.4	2.7

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	105	20	5	75	52	38
Future Vol, veh/h	105	20	5	75	52	38
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	115	22	5	82	57	42
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.4	7.4	8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	84%	0%	58%
Vol Thru, %	16%	6%	0%
Vol Right, %	0%	94%	42%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	80	90
LT Vol	105	0	52
Through Vol	20	5	0
RT Vol	0	75	38
Lane Flow Rate	137	88	99
Geometry Grp	1	1	1
Degree of Util (X)	0.168	0.096	0.121
Departure Headway (Hd)	4.395	3.938	4.399
Convergence, Y/N	Yes	Yes	Yes
Cap	806	914	819
Service Time	2.477	1.944	2.403
HCM Lane V/C Ratio	0.17	0.096	0.121
HCM Control Delay, s/veh	8.4	7.4	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.3	0.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	420	30	5	345	75	0	0	0	33	5	25
Future Volume (veh/h)	90	420	30	5	345	75	0	0	0	33	5	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.93	1.00		1.00	0.95		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	95	442	32	5	363	79	0	0	0	35	5	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	501	708	51	486	601	131	0	402	0	632	50	260
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.00	0.00	0.00	0.21	0.21	0.21
Sat Flow, veh/h	921	1699	123	888	1441	314	0	1900	0	1582	236	1230
Grp Volume(v), veh/h	95	0	474	5	0	442	0	0	0	35	0	31
Grp Sat Flow(s),veh/h/ln	921	0	1822	888	0	1755	0	1900	0	1582	0	1466
Q Serve(g_s), s	2.2	0.0	5.0	0.1	0.0	4.8	0.0	0.0	0.0	0.4	0.0	0.4
Cycle Q Clear(g_c), s	6.9	0.0	5.0	5.1	0.0	4.8	0.0	0.0	0.0	0.4	0.0	0.4
Prop In Lane	1.00		0.07	1.00		0.18	0.00		0.00	1.00		0.84
Lane Grp Cap(c), veh/h	501	0	759	486	0	731	0	402	0	632	0	310
V/C Ratio(X)	0.19	0.00	0.62	0.01	0.00	0.60	0.00	0.00	0.00	0.06	0.00	0.10
Avail Cap(c_a), veh/h	1088	0	1921	1052	0	1850	0	1217	0	1311	0	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	5.6	7.6	0.0	5.5	0.0	0.0	0.0	7.7	0.0	7.7
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.0	1.3	0.0	0.0	1.2	0.0	0.0	0.0	0.2	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.3	0.0	5.9	7.6	0.0	5.8	0.0	0.0	0.0	7.7	0.0	7.7
LnGrp LOS	A		A	A		A				A		A
Approach Vol, veh/h		569			447			0			66	
Approach Delay, s/veh		6.3			5.8			0.0			7.7	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.6		9.6		14.6		9.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		7.1		0.0		8.9		2.4				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.1				

Intersection Summary	
HCM 7th Control Delay, s/veh	6.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	525	355	5	15	10
Future Vol, veh/h	30	525	355	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	32	559	378	5	16	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	448	0	-	0	1126	510
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	680	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1107	-	-	-	222	553
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	494	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1039	-	-	-	188	487
Mov Cap-2 Maneuver	-	-	-	-	188	-
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.46	0	21.19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	97	-	-	-	249
HCM Lane V/C Ratio	0.031	-	-	-	0.107
HCM Ctrl Dly (s/v)	8.6	0	-	-	21.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	169	2	6	135	26	11	5	20	20	1	30
Future Vol, veh/h	20	169	2	6	135	26	11	5	20	20	1	30
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	209	2	7	167	32	14	6	25	25	1	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.2	8.8	8.1	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	10%	4%	39%
Vol Thru, %	14%	88%	81%	2%
Vol Right, %	56%	1%	16%	59%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	191	167	51
LT Vol	11	20	6	20
Through Vol	5	169	135	1
RT Vol	20	2	26	30
Lane Flow Rate	44	236	206	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.058	0.287	0.249	0.081
Departure Headway (Hd)	4.738	4.387	4.353	4.659
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	756	821	827	769
Service Time	2.77	2.407	2.374	2.69
HCM Lane V/C Ratio	0.058	0.287	0.249	0.082
HCM Control Delay, s/veh	8.1	9.2	8.8	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	1.2	1	0.3

Intersection	
Intersection Delay, s/veh	18.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	23	5	20	10	185	6	396	35	40	121	66
Future Vol, veh/h	146	23	5	20	10	185	6	396	35	40	121	66
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	155	24	5	21	11	197	6	421	37	43	129	70
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13.3	13.1	24.9	13.6
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	84%	9%	18%
Vol Thru, %	91%	13%	5%	53%
Vol Right, %	8%	3%	86%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	437	174	215	227
LT Vol	6	146	20	40
Through Vol	396	23	10	121
RT Vol	35	5	185	66
Lane Flow Rate	465	185	229	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.758	0.345	0.39	0.414
Departure Headway (Hd)	5.871	6.712	6.134	6.176
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	618	535	586	582
Service Time	3.871	4.776	4.195	4.234
HCM Lane V/C Ratio	0.752	0.346	0.391	0.414
HCM Control Delay, s/veh	24.9	13.3	13.1	13.6
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	6.9	1.5	1.8	2

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	355	20	60	45	26	20	8	58	10	10	75	56
Future Vol, veh/h	355	20	60	45	26	20	8	58	10	10	75	56
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	366	21	62	46	27	21	8	60	10	10	77	58
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.4	9	9.4	9.8
HCM LOS	B	A	A	A

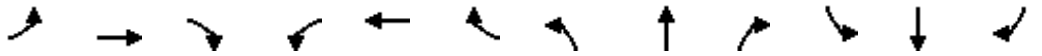
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	82%	49%	7%
Vol Thru, %	76%	5%	29%	53%
Vol Right, %	13%	14%	22%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	435	91	141
LT Vol	8	355	45	10
Through Vol	58	20	26	75
RT Vol	10	60	20	56
Lane Flow Rate	78	448	94	145
Geometry Grp	1	1	1	1
Degree of Util (X)	0.121	0.588	0.133	0.213
Departure Headway (Hd)	5.553	4.723	5.09	5.265
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	639	758	696	674
Service Time	3.651	2.786	3.179	3.352
HCM Lane V/C Ratio	0.122	0.591	0.135	0.215
HCM Control Delay, s/veh	9.4	14.4	9	9.8
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.4	3.9	0.5	0.8

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	15	20	45	65	110
Future Vol, veh/h	23	15	20	45	65	110
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	25	16	22	49	71	121
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	7.8	7.5	8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	61%	0%	37%
Vol Thru, %	39%	31%	0%
Vol Right, %	0%	69%	63%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	38	65	175
LT Vol	23	0	65
Through Vol	15	20	0
RT Vol	0	45	110
Lane Flow Rate	42	71	192
Geometry Grp	1	1	1
Degree of Util (X)	0.052	0.08	0.208
Departure Headway (Hd)	4.501	4.042	3.893
Convergence, Y/N	Yes	Yes	Yes
Cap	785	873	913
Service Time	2.591	2.129	1.954
HCM Lane V/C Ratio	0.054	0.081	0.21
HCM Control Delay, s/veh	7.8	7.5	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	425	35	15	392	35	10	5	2	62	10	68
Future Volume (veh/h)	35	425	35	15	392	35	10	5	2	62	10	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.91	0.98		0.92	0.96		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	38	467	38	16	431	38	11	5	2	68	11	75
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	390	639	52	367	629	55	441	181	53	663	60	412
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	913	1706	139	878	1681	148	762	568	166	1303	189	1292
Grp Volume(v), veh/h	38	0	505	16	0	469	18	0	0	68	0	86
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1829	1496	0	0	1303	0	1481
Q Serve(g_s), s	1.1	0.0	6.9	0.5	0.0	6.3	0.0	0.0	0.0	0.8	0.0	1.2
Cycle Q Clear(g_c), s	7.4	0.0	6.9	7.4	0.0	6.3	0.2	0.0	0.0	1.0	0.0	1.2
Prop In Lane	1.00		0.08	1.00		0.08	0.61		0.11	1.00		0.87
Lane Grp Cap(c), veh/h	390	0	691	367	0	685	675	0	0	663	0	473
V/C Ratio(X)	0.10	0.00	0.73	0.04	0.00	0.68	0.03	0.00	0.00	0.10	0.00	0.18
Avail Cap(c_a), veh/h	841	0	1602	801	0	1589	976	0	0	936	0	782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	0.0	7.9	11.1	0.0	7.7	6.9	0.0	0.0	7.1	0.0	7.2
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.0	3.0	0.1	0.0	2.7	0.1	0.0	0.0	0.3	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.9	0.0	8.5	11.1	0.0	8.2	6.9	0.0	0.0	7.2	0.0	7.3
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		543			485			18			154	
Approach Delay, s/veh		8.6			8.3			6.9			7.2	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.5		13.9		15.5		13.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		9.4		2.2		9.4		3.2				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.3
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	490	450	15	10	15
Future Vol, veh/h	15	490	450	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	17	551	506	17	11	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	635	0	-	0	1323	740
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	696	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	953	-	-	-	174	420
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	498	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	850	-	-	-	135	334
Mov Cap-2 Maneuver	-	-	-	-	135	-
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	445	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.28	0	24.78
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	53	-	-	-	210
HCM Lane V/C Ratio	0.02	-	-	-	0.134
HCM Ctrl Dly (s/v)	9.3	0	-	-	24.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	181	2	10	28	42	0	1	30	34	5	73
Future Vol, veh/h	20	181	2	10	28	42	0	1	30	34	5	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	22	197	2	11	30	46	0	1	33	37	5	79
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9	7.8	7.5	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	10%	13%	30%
Vol Thru, %	3%	89%	35%	4%
Vol Right, %	97%	1%	53%	65%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	203	80	112
LT Vol	0	20	10	34
Through Vol	1	181	28	5
RT Vol	30	2	42	73
Lane Flow Rate	34	221	87	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.041	0.267	0.104	0.146
Departure Headway (Hd)	4.336	4.354	4.299	4.331
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	826	827	835	829
Service Time	2.36	2.372	2.319	2.351
HCM Lane V/C Ratio	0.041	0.267	0.104	0.147
HCM Control Delay, s/veh	7.5	9	7.8	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.1	0.3	0.5

Intersection	
Intersection Delay, s/veh	37
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	5	10	30	10	175	5	392	36	75	445	20
Future Vol, veh/h	20	5	10	30	10	175	5	392	36	75	445	20
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	22	5	11	33	11	192	5	431	40	82	489	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.6	14.7	28.2	54.6
HCM LOS	B	B	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	57%	14%	14%
Vol Thru, %	91%	14%	5%	82%
Vol Right, %	8%	29%	81%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	433	35	215	540
LT Vol	5	20	30	75
Through Vol	392	5	10	445
RT Vol	36	10	175	20
Lane Flow Rate	476	38	236	593
Geometry Grp	1	1	1	1
Degree of Util (X)	0.793	0.083	0.434	0.975
Departure Headway (Hd)	5.996	7.773	6.617	5.917
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	604	458	543	617
Service Time	4.044	5.86	4.674	3.917
HCM Lane V/C Ratio	0.788	0.083	0.435	0.961
HCM Control Delay, s/veh	28.2	11.6	14.7	54.6
HCM Lane LOS	D	B	B	F
HCM 95th-tile Q	7.7	0.3	2.2	14

Intersection	
Intersection Delay, s/veh	39.7
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	293	15	69	1	55	10	134	110	40	12	40	420
Future Vol, veh/h	293	15	69	1	55	10	134	110	40	12	40	420
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	337	17	79	1	63	11	154	126	46	14	46	483
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	38.4	13.3	23.2	54.3
HCM LOS	E	B	C	F

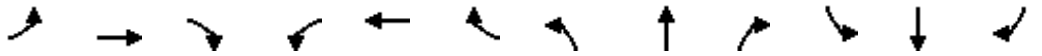
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	78%	2%	3%
Vol Thru, %	39%	4%	83%	8%
Vol Right, %	14%	18%	15%	89%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	377	66	472
LT Vol	134	293	1	12
Through Vol	110	15	55	40
RT Vol	40	69	10	420
Lane Flow Rate	326	433	76	543
Geometry Grp	1	1	1	1
Degree of Util (X)	0.656	0.849	0.176	0.963
Departure Headway (Hd)	7.238	7.051	8.454	6.389
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	496	511	427	570
Service Time	5.31	5.114	6.454	4.389
HCM Lane V/C Ratio	0.657	0.847	0.178	0.953
HCM Control Delay, s/veh	23.2	38.4	13.3	54.3
HCM Lane LOS	C	E	B	F
HCM 95th-tile Q	4.7	8.8	0.6	13

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	209	20	5	75	52	69
Future Vol, veh/h	209	20	5	75	52	69
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	230	22	5	82	57	76
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	9.7	7.6	8.5
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	43%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	57%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	229	80	121
LT Vol	209	0	52
Through Vol	20	5	0
RT Vol	0	75	69
Lane Flow Rate	252	88	133
Geometry Grp	1	1	1
Degree of Util (X)	0.32	0.101	0.168
Departure Headway (Hd)	4.574	4.155	4.557
Convergence, Y/N	Yes	Yes	Yes
Cap	788	863	788
Service Time	2.591	2.177	2.579
HCM Lane V/C Ratio	0.32	0.102	0.169
HCM Control Delay, s/veh	9.7	7.6	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.4	0.3	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	420	30	5	335	86	0	0	0	33	5	56
Future Volume (veh/h)	183	420	30	5	335	86	0	0	0	33	5	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.93	1.00		1.00	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	193	442	32	5	353	91	0	0	0	35	5	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	488	784	57	474	640	165	0	471	0	628	28	328
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.00	0.00	0.00	0.25	0.25	0.25
Sat Flow, veh/h	921	1700	123	889	1388	358	0	1900	0	1594	112	1322
Grp Volume(v), veh/h	193	0	474	5	0	444	0	0	0	35	0	64
Grp Sat Flow(s),veh/h/ln	921	0	1823	889	0	1746	0	1900	0	1594	0	1434
Q Serve(g_s), s	5.9	0.0	5.9	0.1	0.0	5.7	0.0	0.0	0.0	0.5	0.0	1.1
Cycle Q Clear(g_c), s	11.6	0.0	5.9	6.0	0.0	5.7	0.0	0.0	0.0	0.5	0.0	1.1
Prop In Lane	1.00		0.07	1.00		0.20	0.00		0.00	1.00		0.92
Lane Grp Cap(c), veh/h	488	0	840	474	0	805	0	471	0	628	0	355
V/C Ratio(X)	0.40	0.00	0.56	0.01	0.00	0.55	0.00	0.00	0.00	0.06	0.00	0.18
Avail Cap(c_a), veh/h	823	0	1504	798	0	1440	0	953	0	1032	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.2	0.0	6.1	8.2	0.0	6.0	0.0	0.0	0.0	8.9	0.0	9.2
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.2	0.0	0.0	1.1	0.0	0.0	0.0	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.4	0.0	6.3	8.3	0.0	6.2	0.0	0.0	0.0	9.0	0.0	9.2
LnGrp LOS	B		A	A		A				A		A
Approach Vol, veh/h		667			449			0			99	
Approach Delay, s/veh		7.5			6.3			0.0			9.1	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.8		12.2		18.8		12.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		8.0		0.0		13.6		3.1				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	7.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	618	376	5	15	10
Future Vol, veh/h	30	618	376	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	32	657	400	5	16	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	470	0	-	0	1247	533
Stage 1	-	-	-	-	468	-
Stage 2	-	-	-	-	779	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1086	-	-	-	187	537
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	444	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1019	-	-	-	158	473
Mov Cap-2 Maneuver	-	-	-	-	158	-
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	419	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.4	0	24.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	83	-	-	-	215
HCM Lane V/C Ratio	0.031	-	-	-	0.124
HCM Ctrl Dly (s/v)	8.6	0	-	-	24.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	222	2	6	284	100	11	5	20	90	1	5
Future Vol, veh/h	20	222	2	6	284	100	11	5	20	90	1	5
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	274	2	7	351	123	14	6	25	111	1	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.6	15	9.3	10.5
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	8%	2%	94%
Vol Thru, %	14%	91%	73%	1%
Vol Right, %	56%	1%	26%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	244	390	96
LT Vol	11	20	6	90
Through Vol	5	222	284	1
RT Vol	20	2	100	5
Lane Flow Rate	44	301	481	119
Geometry Grp	1	1	1	1
Degree of Util (X)	0.072	0.421	0.617	0.198
Departure Headway (Hd)	5.812	5.026	4.61	6.007
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	618	720	770	600
Service Time	3.833	3.026	2.707	4.025
HCM Lane V/C Ratio	0.071	0.418	0.625	0.198
HCM Control Delay, s/veh	9.3	11.6	15	10.5
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.2	2.1	4.3	0.7

Intersection	
Intersection Delay, s/veh	24.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	15	5	20	10	185	6	527	43	40	177	10
Future Vol, veh/h	15	15	5	20	10	185	6	527	43	40	177	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	16	16	5	21	11	197	6	561	46	43	188	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.3	12.4	35	12.5
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	43%	9%	18%
Vol Thru, %	91%	43%	5%	78%
Vol Right, %	7%	14%	86%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	576	35	215	227
LT Vol	6	15	20	40
Through Vol	527	15	10	177
RT Vol	43	5	185	10
Lane Flow Rate	613	37	229	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.886	0.069	0.372	0.388
Departure Headway (Hd)	5.205	6.705	5.86	5.782
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	692	530	611	621
Service Time	3.248	4.799	3.926	3.841
HCM Lane V/C Ratio	0.886	0.07	0.375	0.388
HCM Control Delay, s/veh	35	10.3	12.4	12.5
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	11	0.2	1.7	1.8

Intersection	
Intersection Delay, s/veh	29.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	476	20	135	45	26	20	28	75	10	10	75	112
Future Vol, veh/h	476	20	135	45	26	20	28	75	10	10	75	112
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	491	21	139	46	27	21	29	77	10	10	77	115
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	40.6	10.1	11.3	12.1
HCM LOS	E	B	B	B

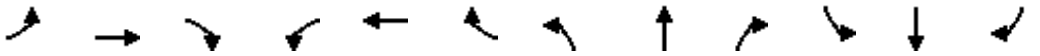
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	75%	49%	5%
Vol Thru, %	66%	3%	29%	38%
Vol Right, %	9%	21%	22%	57%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	113	631	91	197
LT Vol	28	476	45	10
Through Vol	75	20	26	75
RT Vol	10	135	20	112
Lane Flow Rate	116	651	94	203
Geometry Grp	1	1	1	1
Degree of Util (X)	0.211	0.925	0.155	0.338
Departure Headway (Hd)	6.518	5.117	5.96	5.991
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	548	709	598	597
Service Time	4.593	3.161	4.035	4.058
HCM Lane V/C Ratio	0.212	0.918	0.157	0.34
HCM Control Delay, s/veh	11.3	40.6	10.1	12.1
HCM Lane LOS	B	E	B	B
HCM 95th-tile Q	0.8	12.6	0.5	1.5

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	61	15	20	45	65	185
Future Vol, veh/h	61	15	20	45	65	185
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	67	16	22	49	71	203
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.4	7.8	8.7
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	80%	0%	26%
Vol Thru, %	20%	31%	0%
Vol Right, %	0%	69%	74%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	76	65	250
LT Vol	61	0	65
Through Vol	15	20	0
RT Vol	0	45	185
Lane Flow Rate	84	71	275
Geometry Grp	1	1	1
Degree of Util (X)	0.112	0.086	0.304
Departure Headway (Hd)	4.811	4.358	3.98
Convergence, Y/N	Yes	Yes	Yes
Cap	747	824	907
Service Time	2.829	2.377	1.989
HCM Lane V/C Ratio	0.112	0.086	0.303
HCM Control Delay, s/veh	8.4	7.8	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	425	35	15	390	37	10	5	2	62	10	143
Future Volume (veh/h)	71	425	35	15	390	37	10	5	2	62	10	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	78	467	38	16	429	41	11	5	2	68	11	157
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	373	651	53	351	636	61	394	162	47	701	33	467
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	912	1706	139	878	1667	159	631	473	138	1314	95	1360
Grp Volume(v), veh/h	78	0	505	16	0	470	18	0	0	68	0	168
Grp Sat Flow(s),veh/h/ln	912	0	1845	878	0	1826	1241	0	0	1314	0	1456
Q Serve(g_s), s	2.5	0.0	7.6	0.5	0.0	7.0	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	9.5	0.0	7.6	8.1	0.0	7.0	2.8	0.0	0.0	0.9	0.0	2.8
Prop In Lane	1.00		0.08	1.00		0.09	0.61		0.11	1.00		0.93
Lane Grp Cap(c), veh/h	373	0	704	351	0	696	603	0	0	701	0	499
V/C Ratio(X)	0.21	0.00	0.72	0.05	0.00	0.67	0.03	0.00	0.00	0.10	0.00	0.34
Avail Cap(c_a), veh/h	737	0	1441	701	0	1426	784	0	0	874	0	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	8.6	12.1	0.0	8.4	7.2	0.0	0.0	7.3	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.0	0.1	0.0	1.8	0.1	0.0	0.0	0.2	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.5	0.0	9.1	12.1	0.0	8.8	7.2	0.0	0.0	7.4	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		583			486			18			236	
Approach Delay, s/veh		9.6			9.0			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.0		15.7		17.0		15.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		10.1		4.8		11.5		4.8				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.6				

Intersection Summary	
HCM 7th Control Delay, s/veh	9.0
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	526	523	15	10	15
Future Vol, veh/h	15	526	523	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	17	591	588	17	11	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	717	0	-	0	1446	822
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	737	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	888	-	-	-	147	377
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	793	-	-	-	113	300
Mov Cap-2 Maneuver	-	-	-	-	113	-
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	426	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.27	0	28.56
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	50	-	-	-	181
HCM Lane V/C Ratio	0.021	-	-	-	0.155
HCM Ctrl Dly (s/v)	9.6	0	-	-	28.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	275	2	10	74	73	0	1	30	136	5	5
Future Vol, veh/h	20	275	2	10	74	73	0	1	30	136	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	22	299	2	11	80	79	0	1	33	148	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.9	9	8.2	9.9
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	7%	6%	93%
Vol Thru, %	3%	93%	47%	3%
Vol Right, %	97%	1%	46%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	297	157	146
LT Vol	0	20	10	136
Through Vol	1	275	74	5
RT Vol	30	2	73	5
Lane Flow Rate	34	323	171	159
Geometry Grp	1	1	1	1
Degree of Util (X)	0.046	0.413	0.219	0.232
Departure Headway (Hd)	4.874	4.611	4.615	5.268
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	727	778	773	678
Service Time	2.955	2.658	2.67	3.333
HCM Lane V/C Ratio	0.047	0.415	0.221	0.235
HCM Control Delay, s/veh	8.2	10.9	9	9.9
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	2	0.8	0.9

Intersection	
Intersection Delay, s/veh	40.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	5	10	30	10	175	5	307	36	75	365	100
Future Vol, veh/h	105	5	10	30	10	175	5	307	36	75	365	100
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	115	5	11	33	11	192	5	337	40	82	401	110
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.2	15.9	23.5	66.1
HCM LOS	B	C	C	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	88%	14%	14%
Vol Thru, %	88%	4%	5%	68%
Vol Right, %	10%	8%	81%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	348	120	215	540
LT Vol	5	105	30	75
Through Vol	307	5	10	365
RT Vol	36	10	175	100
Lane Flow Rate	382	132	236	593
Geometry Grp	1	1	1	1
Degree of Util (X)	0.697	0.289	0.457	1.015
Departure Headway (Hd)	6.561	7.998	7.067	6.158
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	547	452	513	587
Service Time	4.654	5.998	5.067	4.238
HCM Lane V/C Ratio	0.698	0.292	0.46	1.01
HCM Control Delay, s/veh	23.5	14.2	15.9	66.1
HCM Lane LOS	C	B	C	F
HCM 95th-tile Q	5.5	1.2	2.4	15.4

Intersection	
Intersection Delay, s/veh	18.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	208	15	69	1	55	10	134	110	40	12	40	340
Future Vol, veh/h	208	15	69	1	55	10	134	110	40	12	40	340
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	239	17	79	1	63	11	154	126	46	14	46	391
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	18.5	11.4	17.2	21
HCM LOS	C	B	C	C

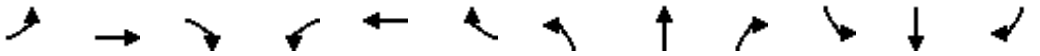
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	71%	2%	3%
Vol Thru, %	39%	5%	83%	10%
Vol Right, %	14%	24%	15%	87%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	292	66	392
LT Vol	134	208	1	12
Through Vol	110	15	55	40
RT Vol	40	69	10	340
Lane Flow Rate	326	336	76	451
Geometry Grp	1	1	1	1
Degree of Util (X)	0.567	0.596	0.15	0.704
Departure Headway (Hd)	6.258	6.388	7.099	5.627
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	575	564	504	640
Service Time	4.308	4.434	5.167	3.672
HCM Lane V/C Ratio	0.567	0.596	0.151	0.705
HCM Control Delay, s/veh	17.2	18.5	11.4	21
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	3.5	3.9	0.5	5.7

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	209	20	5	75	52	69
Future Vol, veh/h	209	20	5	75	52	69
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	230	22	5	82	57	76
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	9.7	7.6	8.5
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	43%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	57%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	229	80	121
LT Vol	209	0	52
Through Vol	20	5	0
RT Vol	0	75	69
Lane Flow Rate	252	88	133
Geometry Grp	1	1	1
Degree of Util (X)	0.32	0.101	0.168
Departure Headway (Hd)	4.574	4.155	4.557
Convergence, Y/N	Yes	Yes	Yes
Cap	788	863	788
Service Time	2.591	2.177	2.579
HCM Lane V/C Ratio	0.32	0.102	0.169
HCM Control Delay, s/veh	9.7	7.6	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.4	0.3	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	420	30	5	335	86	0	0	0	33	5	56
Future Volume (veh/h)	183	420	30	5	335	86	0	0	0	33	5	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.93	1.00		1.00	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	193	442	32	5	353	91	0	0	0	35	5	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	488	784	57	474	640	165	0	471	0	628	28	328
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.00	0.00	0.00	0.25	0.25	0.25
Sat Flow, veh/h	921	1700	123	889	1388	358	0	1900	0	1594	112	1322
Grp Volume(v), veh/h	193	0	474	5	0	444	0	0	0	35	0	64
Grp Sat Flow(s),veh/h/ln	921	0	1823	889	0	1746	0	1900	0	1594	0	1434
Q Serve(g_s), s	5.9	0.0	5.9	0.1	0.0	5.7	0.0	0.0	0.0	0.5	0.0	1.1
Cycle Q Clear(g_c), s	11.6	0.0	5.9	6.0	0.0	5.7	0.0	0.0	0.0	0.5	0.0	1.1
Prop In Lane	1.00		0.07	1.00		0.20	0.00		0.00	1.00		0.92
Lane Grp Cap(c), veh/h	488	0	840	474	0	805	0	471	0	628	0	355
V/C Ratio(X)	0.40	0.00	0.56	0.01	0.00	0.55	0.00	0.00	0.00	0.06	0.00	0.18
Avail Cap(c_a), veh/h	823	0	1504	798	0	1440	0	953	0	1032	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.2	0.0	6.1	8.2	0.0	6.0	0.0	0.0	0.0	8.9	0.0	9.2
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.2	0.0	0.0	1.1	0.0	0.0	0.0	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.4	0.0	6.3	8.3	0.0	6.2	0.0	0.0	0.0	9.0	0.0	9.2
LnGrp LOS	B		A	A		A				A		A
Approach Vol, veh/h		667			449			0			99	
Approach Delay, s/veh		7.5			6.3			0.0			9.1	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.8		12.2		18.8		12.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		8.0		0.0		13.6		3.1				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	7.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	618	376	5	15	10
Future Vol, veh/h	30	618	376	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	32	657	400	5	16	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	470	0	-	0	1247	533
Stage 1	-	-	-	-	468	-
Stage 2	-	-	-	-	779	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1086	-	-	-	187	537
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	444	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1019	-	-	-	158	473
Mov Cap-2 Maneuver	-	-	-	-	158	-
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	419	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.4	0	24.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	83	-	-	-	215
HCM Lane V/C Ratio	0.031	-	-	-	0.124
HCM Ctrl Dly (s/v)	8.6	0	-	-	24.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	182	2	6	244	60	11	5	20	45	1	5
Future Vol, veh/h	20	182	2	6	244	60	11	5	20	45	1	5
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	225	2	7	301	74	14	6	25	56	1	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.8	11.2	8.6	9.1
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	10%	2%	88%
Vol Thru, %	14%	89%	79%	2%
Vol Right, %	56%	1%	19%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	204	310	51
LT Vol	11	20	6	45
Through Vol	5	182	244	1
RT Vol	20	2	60	5
Lane Flow Rate	44	252	383	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.064	0.322	0.466	0.096
Departure Headway (Hd)	5.177	4.606	4.388	5.48
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	687	778	819	650
Service Time	3.243	2.646	2.423	3.545
HCM Lane V/C Ratio	0.064	0.324	0.468	0.097
HCM Control Delay, s/veh	8.6	9.8	11.2	9.1
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	1.4	2.5	0.3

Intersection	
Intersection Delay, s/veh	20.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	85	15	5	20	10	185	6	457	43	40	142	45
Future Vol, veh/h	85	15	5	20	10	185	6	457	43	40	142	45
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	90	16	5	21	11	197	6	486	46	43	151	48
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.7	12.8	28.8	13.1
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	18%
Vol Thru, %	90%	14%	5%	63%
Vol Right, %	8%	5%	86%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	506	105	215	227
LT Vol	6	85	20	40
Through Vol	457	15	10	142
RT Vol	43	5	185	45
Lane Flow Rate	538	112	229	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.819	0.212	0.385	0.404
Departure Headway (Hd)	5.477	6.832	6.063	6.03
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	651	527	597	599
Service Time	3.576	4.854	4.073	4.044
HCM Lane V/C Ratio	0.826	0.213	0.384	0.402
HCM Control Delay, s/veh	28.8	11.7	12.8	13.1
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	8.6	0.8	1.8	1.9

Intersection	
Intersection Delay, s/veh	19
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	406	20	135	45	26	20	28	75	10	10	75	77
Future Vol, veh/h	406	20	135	45	26	20	28	75	10	10	75	77
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	419	21	139	46	27	21	29	77	10	10	77	79
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	24.4	9.7	10.8	11
HCM LOS	C	A	B	B

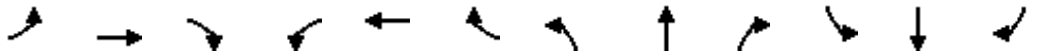
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	72%	49%	6%
Vol Thru, %	66%	4%	29%	46%
Vol Right, %	9%	24%	22%	48%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	113	561	91	162
LT Vol	28	406	45	10
Through Vol	75	20	26	75
RT Vol	10	135	20	77
Lane Flow Rate	116	578	94	167
Geometry Grp	1	1	1	1
Degree of Util (X)	0.2	0.795	0.147	0.268
Departure Headway (Hd)	6.166	4.946	5.65	5.784
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	581	735	633	620
Service Time	4.216	2.975	3.698	3.832
HCM Lane V/C Ratio	0.2	0.786	0.148	0.269
HCM Control Delay, s/veh	10.8	24.4	9.7	11
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	0.7	8.1	0.5	1.1

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	61	15	20	45	65	185
Future Vol, veh/h	61	15	20	45	65	185
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	67	16	22	49	71	203
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.4	7.8	8.7
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	80%	0%	26%
Vol Thru, %	20%	31%	0%
Vol Right, %	0%	69%	74%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	76	65	250
LT Vol	61	0	65
Through Vol	15	20	0
RT Vol	0	45	185
Lane Flow Rate	84	71	275
Geometry Grp	1	1	1
Degree of Util (X)	0.112	0.086	0.304
Departure Headway (Hd)	4.811	4.358	3.98
Convergence, Y/N	Yes	Yes	Yes
Cap	747	824	907
Service Time	2.829	2.377	1.989
HCM Lane V/C Ratio	0.112	0.086	0.303
HCM Control Delay, s/veh	8.4	7.8	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	425	35	15	390	37	10	5	2	62	10	143
Future Volume (veh/h)	71	425	35	15	390	37	10	5	2	62	10	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	78	467	38	16	429	41	11	5	2	68	11	157
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	373	651	53	351	636	61	394	162	47	701	33	467
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	912	1706	139	878	1667	159	631	473	138	1314	95	1360
Grp Volume(v), veh/h	78	0	505	16	0	470	18	0	0	68	0	168
Grp Sat Flow(s),veh/h/ln	912	0	1845	878	0	1826	1241	0	0	1314	0	1456
Q Serve(g_s), s	2.5	0.0	7.6	0.5	0.0	7.0	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	9.5	0.0	7.6	8.1	0.0	7.0	2.8	0.0	0.0	0.9	0.0	2.8
Prop In Lane	1.00		0.08	1.00		0.09	0.61		0.11	1.00		0.93
Lane Grp Cap(c), veh/h	373	0	704	351	0	696	603	0	0	701	0	499
V/C Ratio(X)	0.21	0.00	0.72	0.05	0.00	0.67	0.03	0.00	0.00	0.10	0.00	0.34
Avail Cap(c_a), veh/h	737	0	1441	701	0	1426	784	0	0	874	0	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	8.6	12.1	0.0	8.4	7.2	0.0	0.0	7.3	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.0	0.1	0.0	1.8	0.1	0.0	0.0	0.2	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.5	0.0	9.1	12.1	0.0	8.8	7.2	0.0	0.0	7.4	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		583			486			18			236	
Approach Delay, s/veh		9.6			9.0			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.0		15.7		17.0		15.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		10.1		4.8		11.5		4.8				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.0									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	526	523	15	10	15
Future Vol, veh/h	15	526	523	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	17	591	588	17	11	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	717	0	-	0	1446	822
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	737	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	888	-	-	-	147	377
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	793	-	-	-	113	300
Mov Cap-2 Maneuver	-	-	-	-	113	-
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	426	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.27	0	28.56
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	50	-	-	-	181
HCM Lane V/C Ratio	0.021	-	-	-	0.155
HCM Ctrl Dly (s/v)	9.6	0	-	-	28.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	240	2	10	56	55	0	1	30	101	5	5
Future Vol, veh/h	20	240	2	10	56	55	0	1	30	101	5	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	22	261	2	11	61	60	0	1	33	110	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.9	8.4	7.9	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	8%	8%	91%
Vol Thru, %	3%	92%	46%	5%
Vol Right, %	97%	1%	45%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	262	121	111
LT Vol	0	20	10	101
Through Vol	1	240	56	5
RT Vol	30	2	55	5
Lane Flow Rate	34	285	132	121
Geometry Grp	1	1	1	1
Degree of Util (X)	0.043	0.352	0.163	0.17
Departure Headway (Hd)	4.612	4.446	4.45	5.067
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	773	809	805	707
Service Time	2.661	2.475	2.485	3.108
HCM Lane V/C Ratio	0.044	0.352	0.164	0.171
HCM Control Delay, s/veh	7.9	9.9	8.4	9.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.6	0.6	0.6

Intersection	
Intersection Delay, s/veh	37
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	5	10	30	10	175	5	392	36	75	445	20
Future Vol, veh/h	20	5	10	30	10	175	5	392	36	75	445	20
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	22	5	11	33	11	192	5	431	40	82	489	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.6	14.7	28.2	54.6
HCM LOS	B	B	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	57%	14%	14%
Vol Thru, %	91%	14%	5%	82%
Vol Right, %	8%	29%	81%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	433	35	215	540
LT Vol	5	20	30	75
Through Vol	392	5	10	445
RT Vol	36	10	175	20
Lane Flow Rate	476	38	236	593
Geometry Grp	1	1	1	1
Degree of Util (X)	0.793	0.083	0.434	0.975
Departure Headway (Hd)	5.996	7.773	6.617	5.917
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	604	458	543	617
Service Time	4.044	5.86	4.674	3.917
HCM Lane V/C Ratio	0.788	0.083	0.435	0.961
HCM Control Delay, s/veh	28.2	11.6	14.7	54.6
HCM Lane LOS	D	B	B	F
HCM 95th-tile Q	7.7	0.3	2.2	14

Intersection	
Intersection Delay, s/veh	30.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	338	15	38	1	56	10	75	65	40	12	40	420
Future Vol, veh/h	338	15	38	1	56	10	75	65	40	12	40	420
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	389	17	44	1	64	11	86	75	46	14	46	483
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	32.8	12	14.6	38.1
HCM LOS	D	B	B	E

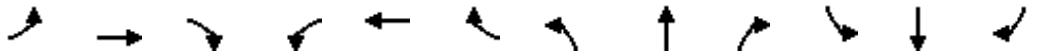
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	86%	1%	3%
Vol Thru, %	36%	4%	84%	8%
Vol Right, %	22%	10%	15%	89%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	391	67	472
LT Vol	75	338	1	12
Through Vol	65	15	56	40
RT Vol	40	38	10	420
Lane Flow Rate	207	449	77	543
Geometry Grp	1	1	1	1
Degree of Util (X)	0.399	0.818	0.162	0.885
Departure Headway (Hd)	6.944	6.556	7.587	5.872
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	515	548	476	613
Service Time	5.029	4.623	5.587	3.934
HCM Lane V/C Ratio	0.402	0.819	0.162	0.886
HCM Control Delay, s/veh	14.6	32.8	12	38.1
HCM Lane LOS	B	D	B	E
HCM 95th-tile Q	1.9	8.1	0.6	10.5

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	105	20	5	75	52	38
Future Vol, veh/h	105	20	5	75	52	38
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	115	22	5	82	57	42
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.4	7.4	8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	84%	0%	58%
Vol Thru, %	16%	6%	0%
Vol Right, %	0%	94%	42%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	80	90
LT Vol	105	0	52
Through Vol	20	5	0
RT Vol	0	75	38
Lane Flow Rate	137	88	99
Geometry Grp	1	1	1
Degree of Util (X)	0.168	0.096	0.121
Departure Headway (Hd)	4.395	3.938	4.399
Convergence, Y/N	Yes	Yes	Yes
Cap	806	914	819
Service Time	2.477	1.944	2.403
HCM Lane V/C Ratio	0.17	0.096	0.121
HCM Control Delay, s/veh	8.4	7.4	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.3	0.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	420	30	5	345	75	0	0	0	33	5	25
Future Volume (veh/h)	90	420	30	5	345	75	0	0	0	33	5	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.93	1.00		1.00	0.95		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	95	442	32	5	363	79	0	0	0	35	5	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	501	708	51	486	601	131	0	402	0	632	50	260
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.00	0.00	0.00	0.21	0.21	0.21
Sat Flow, veh/h	921	1699	123	888	1441	314	0	1900	0	1582	236	1230
Grp Volume(v), veh/h	95	0	474	5	0	442	0	0	0	35	0	31
Grp Sat Flow(s),veh/h/ln	921	0	1822	888	0	1755	0	1900	0	1582	0	1466
Q Serve(g_s), s	2.2	0.0	5.0	0.1	0.0	4.8	0.0	0.0	0.0	0.4	0.0	0.4
Cycle Q Clear(g_c), s	6.9	0.0	5.0	5.1	0.0	4.8	0.0	0.0	0.0	0.4	0.0	0.4
Prop In Lane	1.00		0.07	1.00		0.18	0.00		0.00	1.00		0.84
Lane Grp Cap(c), veh/h	501	0	759	486	0	731	0	402	0	632	0	310
V/C Ratio(X)	0.19	0.00	0.62	0.01	0.00	0.60	0.00	0.00	0.00	0.06	0.00	0.10
Avail Cap(c_a), veh/h	1088	0	1921	1052	0	1850	0	1217	0	1311	0	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	5.6	7.6	0.0	5.5	0.0	0.0	0.0	7.7	0.0	7.7
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.7	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.3	0.0	5.9	7.6	0.0	5.8	0.0	0.0	0.0	7.7	0.0	7.7
LnGrp LOS	A		A	A		A				A		A
Approach Vol, veh/h		569			447			0			66	
Approach Delay, s/veh		6.3			5.8			0.0			7.7	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.6		9.6		14.6		9.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		7.1		0.0		8.9		2.4				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.1				

Intersection Summary	
HCM 7th Control Delay, s/veh	6.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	525	355	5	15	10
Future Vol, veh/h	30	525	355	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	32	559	378	5	16	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	448	0	-	0	1126	510
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	680	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1107	-	-	-	222	553
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	494	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1039	-	-	-	188	487
Mov Cap-2 Maneuver	-	-	-	-	188	-
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.46	0	21.19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	97	-	-	-	249
HCM Lane V/C Ratio	0.031	-	-	-	0.107
HCM Ctrl Dly (s/v)	8.6	0	-	-	21.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	346	2	6	260	66	11	5	20	65	1	30
Future Vol, veh/h	20	346	2	6	260	66	11	5	20	65	1	30
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	427	2	7	321	81	14	6	25	80	1	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	15.9	14.1	9.6	10.5
HCM LOS	C	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	5%	2%	68%
Vol Thru, %	14%	94%	78%	1%
Vol Right, %	56%	1%	20%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	368	332	96
LT Vol	11	20	6	65
Through Vol	5	346	260	1
RT Vol	20	2	66	30
Lane Flow Rate	44	454	410	119
Geometry Grp	1	1	1	1
Degree of Util (X)	0.075	0.626	0.562	0.198
Departure Headway (Hd)	6.038	4.963	4.933	6.01
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	592	731	734	596
Service Time	4.094	2.975	2.947	4.059
HCM Lane V/C Ratio	0.074	0.621	0.559	0.2
HCM Control Delay, s/veh	9.6	15.9	14.1	10.5
HCM Lane LOS	A	C	B	B
HCM 95th-tile Q	0.2	4.4	3.5	0.7

Intersection	
Intersection Delay, s/veh	24.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	15	5	20	10	185	6	527	43	40	177	10
Future Vol, veh/h	15	15	5	20	10	185	6	527	43	40	177	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	16	16	5	21	11	197	6	561	46	43	188	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.3	12.4	35	12.5
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	43%	9%	18%
Vol Thru, %	91%	43%	5%	78%
Vol Right, %	7%	14%	86%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	576	35	215	227
LT Vol	6	15	20	40
Through Vol	527	15	10	177
RT Vol	43	5	185	10
Lane Flow Rate	613	37	229	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.886	0.069	0.372	0.388
Departure Headway (Hd)	5.205	6.705	5.86	5.782
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	692	530	611	621
Service Time	3.248	4.799	3.926	3.841
HCM Lane V/C Ratio	0.886	0.07	0.375	0.388
HCM Control Delay, s/veh	35	10.3	12.4	12.5
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	11	0.2	1.7	1.8

Intersection	
Intersection Delay, s/veh	21.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	494	20	60	45	26	20	8	58	10	10	75	112
Future Vol, veh/h	494	20	60	45	26	20	8	58	10	10	75	112
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	509	21	62	46	27	21	8	60	10	10	77	115
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	27.7	9.7	10.3	11.5
HCM LOS	D	A	B	B

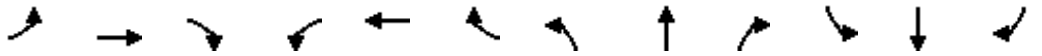
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	86%	49%	5%
Vol Thru, %	76%	3%	29%	38%
Vol Right, %	13%	10%	22%	57%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	574	91	197
LT Vol	8	494	45	10
Through Vol	58	20	26	75
RT Vol	10	60	20	112
Lane Flow Rate	78	592	94	203
Geometry Grp	1	1	1	1
Degree of Util (X)	0.136	0.829	0.148	0.322
Departure Headway (Hd)	6.251	5.043	5.665	5.707
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	572	716	631	630
Service Time	4.305	3.071	3.711	3.754
HCM Lane V/C Ratio	0.136	0.827	0.149	0.322
HCM Control Delay, s/veh	10.3	27.7	9.7	11.5
HCM Lane LOS	B	D	A	B
HCM 95th-tile Q	0.5	9.1	0.5	1.4

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	15	20	45	65	110
Future Vol, veh/h	23	15	20	45	65	110
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	25	16	22	49	71	121
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	7.8	7.5	8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	61%	0%	37%
Vol Thru, %	39%	31%	0%
Vol Right, %	0%	69%	63%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	38	65	175
LT Vol	23	0	65
Through Vol	15	20	0
RT Vol	0	45	110
Lane Flow Rate	42	71	192
Geometry Grp	1	1	1
Degree of Util (X)	0.052	0.08	0.208
Departure Headway (Hd)	4.501	4.042	3.893
Convergence, Y/N	Yes	Yes	Yes
Cap	785	873	913
Service Time	2.591	2.129	1.954
HCM Lane V/C Ratio	0.054	0.081	0.21
HCM Control Delay, s/veh	7.8	7.5	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	425	35	15	392	35	10	5	2	62	10	68
Future Volume (veh/h)	35	425	35	15	392	35	10	5	2	62	10	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.91	0.98		0.92	0.96		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	38	467	38	16	431	38	11	5	2	68	11	75
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	390	639	52	367	629	55	441	181	53	663	60	412
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	913	1706	139	878	1681	148	762	568	166	1303	189	1292
Grp Volume(v), veh/h	38	0	505	16	0	469	18	0	0	68	0	86
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1829	1496	0	0	1303	0	1481
Q Serve(g_s), s	1.1	0.0	6.9	0.5	0.0	6.3	0.0	0.0	0.0	0.8	0.0	1.2
Cycle Q Clear(g_c), s	7.4	0.0	6.9	7.4	0.0	6.3	0.2	0.0	0.0	1.0	0.0	1.2
Prop In Lane	1.00		0.08	1.00		0.08	0.61		0.11	1.00		0.87
Lane Grp Cap(c), veh/h	390	0	691	367	0	685	675	0	0	663	0	473
V/C Ratio(X)	0.10	0.00	0.73	0.04	0.00	0.68	0.03	0.00	0.00	0.10	0.00	0.18
Avail Cap(c_a), veh/h	841	0	1602	801	0	1589	976	0	0	936	0	782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	0.0	7.9	11.1	0.0	7.7	6.9	0.0	0.0	7.1	0.0	7.2
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.7	0.1	0.0	1.5	0.1	0.0	0.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.9	0.0	8.5	11.1	0.0	8.2	6.9	0.0	0.0	7.2	0.0	7.3
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		543			485			18			154	
Approach Delay, s/veh		8.6			8.3			6.9			7.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.5		13.9		15.5		13.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		9.4		2.2		9.4		3.2				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.3
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	490	450	15	10	15
Future Vol, veh/h	15	490	450	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	17	551	506	17	11	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	635	0	-	0	1323	740
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	696	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	953	-	-	-	174	420
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	498	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	850	-	-	-	135	334
Mov Cap-2 Maneuver	-	-	-	-	135	-
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	445	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.28	0	24.78
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	53	-	-	-	210
HCM Lane V/C Ratio	0.02	-	-	-	0.134
HCM Ctrl Dly (s/v)	9.3	0	-	-	24.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	355	2	10	66	59	0	1	30	69	5	73
Future Vol, veh/h	20	355	2	10	66	59	0	1	30	69	5	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	22	386	2	11	72	64	0	1	33	75	5	79
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12.5	8.9	8.4	9.6
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	5%	7%	47%
Vol Thru, %	3%	94%	49%	3%
Vol Right, %	97%	1%	44%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	377	135	147
LT Vol	0	20	10	69
Through Vol	1	355	66	5
RT Vol	30	2	59	73
Lane Flow Rate	34	410	147	160
Geometry Grp	1	1	1	1
Degree of Util (X)	0.047	0.52	0.192	0.224
Departure Headway (Hd)	5.016	4.564	4.711	5.043
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	706	787	756	706
Service Time	3.105	2.616	2.777	3.113
HCM Lane V/C Ratio	0.048	0.521	0.194	0.227
HCM Control Delay, s/veh	8.4	12.5	8.9	9.6
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	3.1	0.7	0.9

Intersection	
Intersection Delay, s/veh	40.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	5	10	30	10	175	5	307	36	75	365	100
Future Vol, veh/h	105	5	10	30	10	175	5	307	36	75	365	100
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	115	5	11	33	11	192	5	337	40	82	401	110
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.2	15.9	23.5	66.1
HCM LOS	B	C	C	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	88%	14%	14%
Vol Thru, %	88%	4%	5%	68%
Vol Right, %	10%	8%	81%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	348	120	215	540
LT Vol	5	105	30	75
Through Vol	307	5	10	365
RT Vol	36	10	175	100
Lane Flow Rate	382	132	236	593
Geometry Grp	1	1	1	1
Degree of Util (X)	0.697	0.289	0.457	1.015
Departure Headway (Hd)	6.561	7.998	7.067	6.158
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	547	452	513	587
Service Time	4.654	5.998	5.067	4.238
HCM Lane V/C Ratio	0.698	0.292	0.46	1.01
HCM Control Delay, s/veh	23.5	14.2	15.9	66.1
HCM Lane LOS	C	B	C	F
HCM 95th-tile Q	5.5	1.2	2.4	15.4

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	253	15	38	1	56	10	75	65	40	12	40	340
Future Vol, veh/h	253	15	38	1	56	10	75	65	40	12	40	340
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	291	17	44	1	64	11	86	75	46	14	46	391
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	17.3	10.7	12.4	18.2
HCM LOS	C	B	B	C

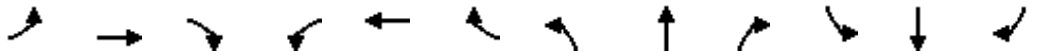
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	83%	1%	3%
Vol Thru, %	36%	5%	84%	10%
Vol Right, %	22%	12%	15%	87%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	306	67	392
LT Vol	75	253	1	12
Through Vol	65	15	56	40
RT Vol	40	38	10	340
Lane Flow Rate	207	352	77	451
Geometry Grp	1	1	1	1
Degree of Util (X)	0.348	0.586	0.141	0.661
Departure Headway (Hd)	6.052	5.995	6.592	5.282
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	588	598	548	676
Service Time	4.151	4.074	4.592	3.363
HCM Lane V/C Ratio	0.352	0.589	0.141	0.667
HCM Control Delay, s/veh	12.4	17.3	10.7	18.2
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.6	3.8	0.5	5

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	105	20	5	75	52	38
Future Vol, veh/h	105	20	5	75	52	38
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	115	22	5	82	57	42
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.4	7.4	8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	84%	0%	58%
Vol Thru, %	16%	6%	0%
Vol Right, %	0%	94%	42%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	80	90
LT Vol	105	0	52
Through Vol	20	5	0
RT Vol	0	75	38
Lane Flow Rate	137	88	99
Geometry Grp	1	1	1
Degree of Util (X)	0.168	0.096	0.121
Departure Headway (Hd)	4.395	3.938	4.399
Convergence, Y/N	Yes	Yes	Yes
Cap	806	914	819
Service Time	2.477	1.944	2.403
HCM Lane V/C Ratio	0.17	0.096	0.121
HCM Control Delay, s/veh	8.4	7.4	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.3	0.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	420	30	5	345	75	0	0	0	33	5	25
Future Volume (veh/h)	90	420	30	5	345	75	0	0	0	33	5	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.93	0.98		0.93	1.00		1.00	0.95		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	95	442	32	5	363	79	0	0	0	35	5	26
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	501	708	51	486	601	131	0	402	0	632	50	260
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.00	0.00	0.00	0.21	0.21	0.21
Sat Flow, veh/h	921	1699	123	888	1441	314	0	1900	0	1582	236	1230
Grp Volume(v), veh/h	95	0	474	5	0	442	0	0	0	35	0	31
Grp Sat Flow(s),veh/h/ln	921	0	1822	888	0	1755	0	1900	0	1582	0	1466
Q Serve(g_s), s	2.2	0.0	5.0	0.1	0.0	4.8	0.0	0.0	0.0	0.4	0.0	0.4
Cycle Q Clear(g_c), s	6.9	0.0	5.0	5.1	0.0	4.8	0.0	0.0	0.0	0.4	0.0	0.4
Prop In Lane	1.00		0.07	1.00		0.18	0.00		0.00	1.00		0.84
Lane Grp Cap(c), veh/h	501	0	759	486	0	731	0	402	0	632	0	310
V/C Ratio(X)	0.19	0.00	0.62	0.01	0.00	0.60	0.00	0.00	0.00	0.06	0.00	0.10
Avail Cap(c_a), veh/h	1088	0	1921	1052	0	1850	0	1217	0	1311	0	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	5.6	7.6	0.0	5.5	0.0	0.0	0.0	7.7	0.0	7.7
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.7	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.3	0.0	5.9	7.6	0.0	5.8	0.0	0.0	0.0	7.7	0.0	7.7
LnGrp LOS	A		A	A		A				A		A
Approach Vol, veh/h		569			447			0			66	
Approach Delay, s/veh		6.3			5.8			0.0			7.7	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		14.6		9.6		14.6		9.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		7.1		0.0		8.9		2.4				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.1				

Intersection Summary	
HCM 7th Control Delay, s/veh	6.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	525	355	5	15	10
Future Vol, veh/h	30	525	355	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	32	559	378	5	16	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	448	0	-	0	1126	510
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	680	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1107	-	-	-	222	553
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	494	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1039	-	-	-	188	487
Mov Cap-2 Maneuver	-	-	-	-	188	-
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.46	0	21.19
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	97	-	-	-	249
HCM Lane V/C Ratio	0.031	-	-	-	0.107
HCM Ctrl Dly (s/v)	8.6	0	-	-	21.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	221	2	6	220	26	11	5	20	20	1	30
Future Vol, veh/h	20	221	2	6	220	26	11	5	20	20	1	30
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	273	2	7	272	32	14	6	25	25	1	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.3	10.3	8.5	8.6
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	8%	2%	39%
Vol Thru, %	14%	91%	87%	2%
Vol Right, %	56%	1%	10%	59%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	243	252	51
LT Vol	11	20	6	20
Through Vol	5	221	220	1
RT Vol	20	2	26	30
Lane Flow Rate	44	300	311	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.063	0.376	0.387	0.088
Departure Headway (Hd)	5.125	4.518	4.475	5.041
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	695	795	803	707
Service Time	3.186	2.553	2.509	3.099
HCM Lane V/C Ratio	0.063	0.377	0.387	0.089
HCM Control Delay, s/veh	8.5	10.3	10.3	8.6
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.2	1.8	1.8	0.3

Intersection	
Intersection Delay, s/veh	20.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	85	15	5	20	10	185	6	457	43	40	142	45
Future Vol, veh/h	85	15	5	20	10	185	6	457	43	40	142	45
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	90	16	5	21	11	197	6	486	46	43	151	48
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.7	12.8	28.8	13.1
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	18%
Vol Thru, %	90%	14%	5%	63%
Vol Right, %	8%	5%	86%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	506	105	215	227
LT Vol	6	85	20	40
Through Vol	457	15	10	142
RT Vol	43	5	185	45
Lane Flow Rate	538	112	229	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.819	0.212	0.385	0.404
Departure Headway (Hd)	5.477	6.832	6.063	6.03
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	651	527	597	599
Service Time	3.576	4.854	4.073	4.044
HCM Lane V/C Ratio	0.826	0.213	0.384	0.402
HCM Control Delay, s/veh	28.8	11.7	12.8	13.1
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	8.6	0.8	1.8	1.9

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	424	20	60	45	26	20	8	58	10	10	75	77
Future Vol, veh/h	424	20	60	45	26	20	8	58	10	10	75	77
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	437	21	62	46	27	21	8	60	10	10	77	79
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	18.3	9.3	9.8	10.4
HCM LOS	C	A	A	B

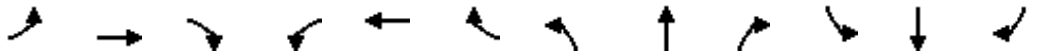
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	84%	49%	6%
Vol Thru, %	76%	4%	29%	46%
Vol Right, %	13%	12%	22%	48%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	504	91	162
LT Vol	8	424	45	10
Through Vol	58	20	26	75
RT Vol	10	60	20	77
Lane Flow Rate	78	520	94	167
Geometry Grp	1	1	1	1
Degree of Util (X)	0.129	0.694	0.14	0.256
Departure Headway (Hd)	5.917	4.81	5.383	5.521
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	608	743	668	653
Service Time	3.929	2.908	3.401	3.529
HCM Lane V/C Ratio	0.128	0.7	0.141	0.256
HCM Control Delay, s/veh	9.8	18.3	9.3	10.4
HCM Lane LOS	A	C	A	B
HCM 95th-tile Q	0.4	5.7	0.5	1

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	15	20	45	65	110
Future Vol, veh/h	23	15	20	45	65	110
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	25	16	22	49	71	121
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	7.8	7.5	8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	61%	0%	37%
Vol Thru, %	39%	31%	0%
Vol Right, %	0%	69%	63%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	38	65	175
LT Vol	23	0	65
Through Vol	15	20	0
RT Vol	0	45	110
Lane Flow Rate	42	71	192
Geometry Grp	1	1	1
Degree of Util (X)	0.052	0.08	0.208
Departure Headway (Hd)	4.501	4.042	3.893
Convergence, Y/N	Yes	Yes	Yes
Cap	785	873	913
Service Time	2.591	2.129	1.954
HCM Lane V/C Ratio	0.054	0.081	0.21
HCM Control Delay, s/veh	7.8	7.5	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	425	35	15	392	35	10	5	2	62	10	68
Future Volume (veh/h)	35	425	35	15	392	35	10	5	2	62	10	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.91	0.98		0.92	0.96		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	38	467	38	16	431	38	11	5	2	68	11	75
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	390	639	52	367	629	55	441	181	53	663	60	412
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	913	1706	139	878	1681	148	762	568	166	1303	189	1292
Grp Volume(v), veh/h	38	0	505	16	0	469	18	0	0	68	0	86
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1829	1496	0	0	1303	0	1481
Q Serve(g_s), s	1.1	0.0	6.9	0.5	0.0	6.3	0.0	0.0	0.0	0.8	0.0	1.2
Cycle Q Clear(g_c), s	7.4	0.0	6.9	7.4	0.0	6.3	0.2	0.0	0.0	1.0	0.0	1.2
Prop In Lane	1.00		0.08	1.00		0.08	0.61		0.11	1.00		0.87
Lane Grp Cap(c), veh/h	390	0	691	367	0	685	675	0	0	663	0	473
V/C Ratio(X)	0.10	0.00	0.73	0.04	0.00	0.68	0.03	0.00	0.00	0.10	0.00	0.18
Avail Cap(c_a), veh/h	841	0	1602	801	0	1589	976	0	0	936	0	782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	0.0	7.9	11.1	0.0	7.7	6.9	0.0	0.0	7.1	0.0	7.2
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.7	0.1	0.0	1.5	0.1	0.0	0.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.9	0.0	8.5	11.1	0.0	8.2	6.9	0.0	0.0	7.2	0.0	7.3
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		543			485			18			154	
Approach Delay, s/veh		8.6			8.3			6.9			7.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.5		13.9		15.5		13.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		9.4		2.2		9.4		3.2				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.3
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	490	450	15	10	15
Future Vol, veh/h	15	490	450	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	17	551	506	17	11	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	635	0	-	0	1323	740
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	696	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	953	-	-	-	174	420
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	498	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	850	-	-	-	135	334
Mov Cap-2 Maneuver	-	-	-	-	135	-
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	445	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.28	0	24.78
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	53	-	-	-	210
HCM Lane V/C Ratio	0.02	-	-	-	0.134
HCM Ctrl Dly (s/v)	9.3	0	-	-	24.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	250	2	10	49	42	0	1	30	34	5	73
Future Vol, veh/h	20	250	2	10	49	42	0	1	30	34	5	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	22	272	2	11	53	46	0	1	33	37	5	79
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.9	8.2	7.8	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	7%	10%	30%
Vol Thru, %	3%	92%	49%	4%
Vol Right, %	97%	1%	42%	65%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	272	101	112
LT Vol	0	20	10	34
Through Vol	1	250	49	5
RT Vol	30	2	42	73
Lane Flow Rate	34	296	110	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.043	0.361	0.136	0.154
Departure Headway (Hd)	4.57	4.39	4.454	4.554
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	781	819	804	786
Service Time	2.611	2.418	2.487	2.588
HCM Lane V/C Ratio	0.044	0.361	0.137	0.155
HCM Control Delay, s/veh	7.8	9.9	8.2	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.7	0.5	0.5

Intersection	
Intersection Delay, s/veh	70.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	91	14	14	30	13	210	15	413	33	97	433	138
Future Vol, veh/h	91	14	14	30	13	210	15	413	33	97	433	138
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	91	14	14	30	13	210	15	413	33	97	433	138
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.8	17.7	35.5	125.2
HCM LOS	B	C	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	76%	12%	15%
Vol Thru, %	90%	12%	5%	65%
Vol Right, %	7%	12%	83%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	461	119	253	668
LT Vol	15	91	30	97
Through Vol	413	14	13	433
RT Vol	33	14	210	138
Lane Flow Rate	461	119	253	668
Geometry Grp	1	1	1	1
Degree of Util (X)	0.831	0.268	0.497	1.191
Departure Headway (Hd)	6.951	8.659	7.525	6.416
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	526	418	483	568
Service Time	4.951	6.659	5.525	4.442
HCM Lane V/C Ratio	0.876	0.285	0.524	1.176
HCM Control Delay, s/veh	35.5	14.8	17.7	125.2
HCM Lane LOS	E	B	C	F
HCM 95th-tile Q	8.4	1.1	2.7	23.8

Intersection	
Intersection Delay, s/veh	23.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	284	15	78	7	59	22	152	135	59	29	49	386
Future Vol, veh/h	284	15	78	7	59	22	152	135	59	29	49	386
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	284	15	78	7	59	22	152	135	59	29	49	386
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	24	12.4	20.6	27
HCM LOS	C	B	C	D

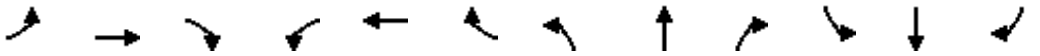
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	75%	8%	6%
Vol Thru, %	39%	4%	67%	11%
Vol Right, %	17%	21%	25%	83%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	346	377	88	464
LT Vol	152	284	7	29
Through Vol	135	15	59	49
RT Vol	59	78	22	386
Lane Flow Rate	346	377	88	464
Geometry Grp	1	1	1	1
Degree of Util (X)	0.635	0.7	0.186	0.776
Departure Headway (Hd)	6.611	6.683	7.619	6.017
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	543	539	473	599
Service Time	4.697	4.762	5.619	4.094
HCM Lane V/C Ratio	0.637	0.699	0.186	0.775
HCM Control Delay, s/veh	20.6	24	12.4	27
HCM Lane LOS	C	C	B	D
HCM 95th-tile Q	4.4	5.5	0.7	7.2

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	256	25	5	80	57	88
Future Vol, veh/h	256	25	5	80	57	88
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	256	25	5	80	57	88
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	10.2	7.7	8.7
HCM LOS	B	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	39%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	61%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	281	85	145
LT Vol	256	0	57
Through Vol	25	5	0
RT Vol	0	80	88
Lane Flow Rate	281	85	145
Geometry Grp	1	1	1
Degree of Util (X)	0.359	0.1	0.185
Departure Headway (Hd)	4.602	4.219	4.596
Convergence, Y/N	Yes	Yes	Yes
Cap	784	849	782
Service Time	2.624	2.246	2.621
HCM Lane V/C Ratio	0.358	0.1	0.185
HCM Control Delay, s/veh	10.2	7.7	8.7
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.6	0.3	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	460	30	5	370	113	0	0	0	39	5	69
Future Volume (veh/h)	208	460	30	5	370	113	0	0	0	39	5	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.93	1.00		1.00	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	208	460	30	5	370	113	0	0	0	39	5	69
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	467	839	55	473	650	199	0	478	0	609	24	335
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.00	0.00	0.00	0.25	0.25	0.25
Sat Flow, veh/h	890	1715	112	880	1329	406	0	1900	0	1595	96	1330
Grp Volume(v), veh/h	208	0	490	5	0	483	0	0	0	39	0	74
Grp Sat Flow(s),veh/h/ln	890	0	1827	880	0	1734	0	1900	0	1595	0	1426
Q Serve(g_s), s	7.5	0.0	6.5	0.1	0.0	6.8	0.0	0.0	0.0	0.7	0.0	1.4
Cycle Q Clear(g_c), s	14.3	0.0	6.5	6.6	0.0	6.8	0.0	0.0	0.0	0.7	0.0	1.4
Prop In Lane	1.00		0.06	1.00		0.23	0.00		0.00	1.00		0.93
Lane Grp Cap(c), veh/h	467	0	894	473	0	849	0	478	0	609	0	359
V/C Ratio(X)	0.45	0.00	0.55	0.01	0.00	0.57	0.00	0.00	0.00	0.06	0.00	0.21
Avail Cap(c_a), veh/h	685	0	1341	688	0	1273	0	848	0	919	0	636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.4	0.0	6.2	8.5	0.0	6.3	0.0	0.0	0.0	10.0	0.0	10.3
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	0.0	2.6	0.0	0.0	2.6	0.0	0.0	0.0	0.3	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.6	0.0	6.4	8.5	0.0	6.5	0.0	0.0	0.0	10.0	0.0	10.4
LnGrp LOS	B		A	A		A				A		B
Approach Vol, veh/h		698			488			0			113	
Approach Delay, s/veh		7.9			6.5			0.0			10.2	
Approach LOS		A			A						B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.5		13.2		21.5		13.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		8.8		0.0		16.3		3.4				
Green Ext Time (p_c), s		0.6		0.0		0.7		0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	7.6
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	688	419	5	15	10
Future Vol, veh/h	35	688	419	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	35	688	419	5	15	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	489	0	-	0	1303	552
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	816	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1069	-	-	-	173	524
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	426	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1003	-	-	-	145	461
Mov Cap-2 Maneuver	-	-	-	-	145	-
Stage 1	-	-	-	-	538	-
Stage 2	-	-	-	-	403	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.42	0	25.62
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	87	-	-	-	199
HCM Lane V/C Ratio	0.035	-	-	-	0.125
HCM Ctrl Dly (s/v)	8.7	0	-	-	25.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	186	2	6	210	116	11	5	20	100	1	5
Future Vol, veh/h	25	186	2	6	210	116	11	5	20	100	1	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	186	2	6	210	116	11	5	20	100	1	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.5	10.3	8.4	9.4
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	12%	2%	94%
Vol Thru, %	14%	87%	63%	1%
Vol Right, %	56%	1%	35%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	213	332	106
LT Vol	11	25	6	100
Through Vol	5	186	210	1
RT Vol	20	2	116	5
Lane Flow Rate	36	213	332	106
Geometry Grp	1	1	1	1
Degree of Util (X)	0.05	0.275	0.401	0.156
Departure Headway (Hd)	5.047	4.646	4.344	5.312
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	704	771	827	672
Service Time	3.117	2.689	2.381	3.373
HCM Lane V/C Ratio	0.051	0.276	0.401	0.158
HCM Control Delay, s/veh	8.4	9.5	10.3	9.4
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	1.1	1.9	0.6

Intersection	
Intersection Delay, s/veh	34.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	109	30	12	25	12	235	7	535	37	49	185	39
Future Vol, veh/h	109	30	12	25	12	235	7	535	37	49	185	39
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	109	30	12	25	12	235	7	535	37	49	185	39
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14	16.3	57.6	16.7
HCM LOS	B	C	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	72%	9%	18%
Vol Thru, %	92%	20%	4%	68%
Vol Right, %	6%	8%	86%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	579	151	272	273
LT Vol	7	109	25	49
Through Vol	535	30	12	185
RT Vol	37	12	235	39
Lane Flow Rate	579	151	272	273
Geometry Grp	1	1	1	1
Degree of Util (X)	0.982	0.317	0.502	0.51
Departure Headway (Hd)	6.106	7.564	6.649	6.722
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	591	479	539	532
Service Time	4.182	5.564	4.744	4.82
HCM Lane V/C Ratio	0.98	0.315	0.505	0.513
HCM Control Delay, s/veh	57.6	14	16.3	16.7
HCM Lane LOS	F	B	C	C
HCM 95th-tile Q	14	1.3	2.8	2.9

Intersection	
Intersection Delay, s/veh	27.1
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	457	20	152	58	28	41	29	81	13	15	87	105
Future Vol, veh/h	457	20	152	58	28	41	29	81	13	15	87	105
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	457	20	152	58	28	41	29	81	13	15	87	105
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	38.3	10.6	11.6	12.5
HCM LOS	E	B	B	B

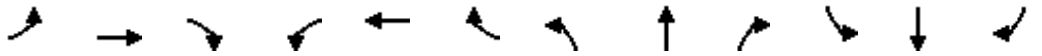
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	73%	46%	7%
Vol Thru, %	66%	3%	22%	42%
Vol Right, %	11%	24%	32%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	123	629	127	207
LT Vol	29	457	58	15
Through Vol	81	20	28	87
RT Vol	13	152	41	105
Lane Flow Rate	123	629	127	207
Geometry Grp	1	1	1	1
Degree of Util (X)	0.225	0.908	0.209	0.351
Departure Headway (Hd)	6.572	5.198	5.925	6.097
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	542	692	601	586
Service Time	4.661	3.252	4.01	4.174
HCM Lane V/C Ratio	0.227	0.909	0.211	0.353
HCM Control Delay, s/veh	11.6	38.3	10.6	12.5
HCM Lane LOS	B	E	B	B
HCM 95th-tile Q	0.9	11.8	0.8	1.6

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	72	20	25	50	75	222
Future Vol, veh/h	72	20	25	50	75	222
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	72	20	25	50	75	222
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.6	7.9	9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	78%	0%	25%
Vol Thru, %	22%	33%	0%
Vol Right, %	0%	67%	75%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	92	75	297
LT Vol	72	0	75
Through Vol	20	25	0
RT Vol	0	50	222
Lane Flow Rate	92	75	297
Geometry Grp	1	1	1
Degree of Util (X)	0.124	0.092	0.33
Departure Headway (Hd)	4.863	4.436	4.006
Convergence, Y/N	Yes	Yes	Yes
Cap	739	809	900
Service Time	2.884	2.457	2.017
HCM Lane V/C Ratio	0.124	0.093	0.33
HCM Control Delay, s/veh	8.6	7.9	9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	465	35	20	430	45	10	5	2	77	10	165
Future Volume (veh/h)	77	465	35	20	430	45	10	5	2	77	10	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	77	465	35	20	430	45	10	5	2	77	10	165
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	367	657	49	353	630	66	381	173	51	703	29	473
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	908	1719	129	882	1650	173	602	500	147	1315	83	1369
Grp Volume(v), veh/h	77	0	500	20	0	475	17	0	0	77	0	175
Grp Sat Flow(s),veh/h/ln	908	0	1848	882	0	1823	1249	0	0	1315	0	1452
Q Serve(g_s), s	2.6	0.0	7.6	0.6	0.0	7.2	0.0	0.0	0.0	0.0	0.0	3.0
Cycle Q Clear(g_c), s	9.7	0.0	7.6	8.2	0.0	7.2	3.0	0.0	0.0	1.0	0.0	3.0
Prop In Lane	1.00		0.07	1.00		0.09	0.59		0.12	1.00		0.94
Lane Grp Cap(c), veh/h	367	0	706	353	0	696	604	0	0	703	0	502
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.11	0.00	0.35
Avail Cap(c_a), veh/h	722	0	1427	697	0	1407	776	0	0	866	0	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	8.6	12.1	0.0	8.5	7.2	0.0	0.0	7.4	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	0.0	3.6	0.2	0.0	3.4	0.1	0.0	0.0	0.5	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.7	0.0	9.1	12.1	0.0	9.0	7.2	0.0	0.0	7.4	0.0	8.2
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		577			495			17			252	
Approach Delay, s/veh		9.6			9.1			7.2			8.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	17.1	15.9	17.1	15.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	15.5	25.5	15.5
Max Q Clear Time (g_c+I1), s	10.2	5.0	11.7	5.0
Green Ext Time (p_c), s	0.5	0.0	0.6	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	9.1
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	577	590	15	10	15
Future Vol, veh/h	15	577	590	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	15	577	590	15	10	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	718	0	-	0	1430	824
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	719	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	888	-	-	-	150	376
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	792	-	-	-	116	300
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	426	-
Stage 2	-	-	-	-	434	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.24	0	27.66
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	46	-	-	-	184
HCM Lane V/C Ratio	0.019	-	-	-	0.136
HCM Ctrl Dly (s/v)	9.6	0	-	-	27.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	211	2	10	61	80	0	1	30	152	5	5
Future Vol, veh/h	25	211	2	10	61	80	0	1	30	152	5	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	25	211	2	10	61	80	0	1	30	152	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.6	8.5	7.9	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	11%	7%	94%
Vol Thru, %	3%	89%	40%	3%
Vol Right, %	97%	1%	53%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	238	151	162
LT Vol	0	25	10	152
Through Vol	1	211	61	5
RT Vol	30	2	80	5
Lane Flow Rate	31	238	151	162
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.302	0.187	0.226
Departure Headway (Hd)	4.615	4.575	4.461	5.023
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	771	785	802	713
Service Time	2.67	2.61	2.5	3.068
HCM Lane V/C Ratio	0.04	0.303	0.188	0.227
HCM Control Delay, s/veh	7.9	9.6	8.5	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.3	0.7	0.9

Intersection	
Intersection Delay, s/veh	73.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	186	19	14	30	13	210	15	317	33	97	332	228
Future Vol, veh/h	186	19	14	30	13	210	15	317	33	97	332	228
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	186	19	14	30	13	210	15	317	33	97	332	228
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	19.4	19.1	28	138.1
HCM LOS	C	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	85%	12%	15%
Vol Thru, %	87%	9%	5%	51%
Vol Right, %	9%	6%	83%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	365	219	253	657
LT Vol	15	186	30	97
Through Vol	317	19	13	332
RT Vol	33	14	210	228
Lane Flow Rate	365	219	253	657
Geometry Grp	1	1	1	1
Degree of Util (X)	0.722	0.484	0.516	1.221
Departure Headway (Hd)	7.622	8.61	7.952	6.688
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	478	420	455	545
Service Time	5.622	6.61	5.952	4.75
HCM Lane V/C Ratio	0.764	0.521	0.556	1.206
HCM Control Delay, s/veh	28	19.4	19.1	138.1
HCM Lane LOS	D	C	C	F
HCM 95th-tile Q	5.8	2.6	2.9	24.6

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	188	15	74	7	48	22	174	135	59	29	49	285
Future Vol, veh/h	188	15	74	7	48	22	174	135	59	29	49	285
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	188	15	74	7	48	22	174	135	59	29	49	285
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.4	10.7	16.6	14.7
HCM LOS	B	B	C	B

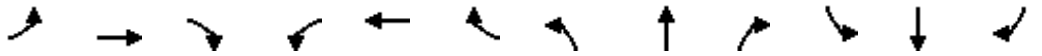
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	68%	9%	8%
Vol Thru, %	37%	5%	62%	13%
Vol Right, %	16%	27%	29%	79%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	368	277	77	363
LT Vol	174	188	7	29
Through Vol	135	15	48	49
RT Vol	59	74	22	285
Lane Flow Rate	368	277	77	363
Geometry Grp	1	1	1	1
Degree of Util (X)	0.584	0.466	0.141	0.541
Departure Headway (Hd)	5.711	6.057	6.575	5.366
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	626	590	549	668
Service Time	3.792	4.143	4.575	3.449
HCM Lane V/C Ratio	0.588	0.469	0.14	0.543
HCM Control Delay, s/veh	16.6	14.4	10.7	14.7
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.8	2.5	0.5	3.3

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	278	25	5	80	57	84
Future Vol, veh/h	278	25	5	80	57	84
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	278	25	5	80	57	84
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	10.5	7.7	8.7
HCM LOS	B	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	92%	0%	40%
Vol Thru, %	8%	6%	0%
Vol Right, %	0%	94%	60%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	303	85	141
LT Vol	278	0	57
Through Vol	25	5	0
RT Vol	0	80	84
Lane Flow Rate	303	85	141
Geometry Grp	1	1	1
Degree of Util (X)	0.387	0.1	0.182
Departure Headway (Hd)	4.597	4.237	4.656
Convergence, Y/N	Yes	Yes	Yes
Cap	785	846	771
Service Time	2.62	2.265	2.683
HCM Lane V/C Ratio	0.386	0.1	0.183
HCM Control Delay, s/veh	10.5	7.7	8.7
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.8	0.3	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	460	30	5	370	128	0	0	0	39	5	65
Future Volume (veh/h)	215	460	30	5	370	128	0	0	0	39	5	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.94	1.00		1.00	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	215	460	30	5	370	128	0	0	0	39	5	65
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	467	862	56	484	644	223	0	465	0	592	25	324
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.00	0.24	0.24	0.24
Sat Flow, veh/h	879	1715	112	880	1282	443	0	1900	0	1593	102	1324
Grp Volume(v), veh/h	215	0	490	5	0	498	0	0	0	39	0	70
Grp Sat Flow(s),veh/h/ln	879	0	1827	880	0	1725	0	1900	0	1593	0	1426
Q Serve(g_s), s	8.1	0.0	6.5	0.1	0.0	7.2	0.0	0.0	0.0	0.7	0.0	1.4
Cycle Q Clear(g_c), s	15.3	0.0	6.5	6.6	0.0	7.2	0.0	0.0	0.0	0.7	0.0	1.4
Prop In Lane	1.00		0.06	1.00		0.26	0.00		0.00	1.00		0.93
Lane Grp Cap(c), veh/h	467	0	918	484	0	867	0	465	0	592	0	349
V/C Ratio(X)	0.46	0.00	0.53	0.01	0.00	0.57	0.00	0.00	0.00	0.07	0.00	0.20
Avail Cap(c_a), veh/h	654	0	1308	672	0	1235	0	827	0	896	0	621
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.5	0.0	6.0	8.3	0.0	6.2	0.0	0.0	0.0	10.4	0.0	10.7
Incr Delay (d2), s/veh	0.3	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.4	0.0	0.0	1.5	0.0	0.0	0.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.8	0.0	6.2	8.3	0.0	6.4	0.0	0.0	0.0	10.4	0.0	10.8
LnGrp LOS	B		A	A		A				B		B
Approach Vol, veh/h		705			503			0			109	
Approach Delay, s/veh		7.9			6.4			0.0			10.7	
Approach LOS		A			A						B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.4		13.2		22.4		13.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		9.2		0.0		17.3		3.4				
Green Ext Time (p_c), s		0.6		0.0		0.6		0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	7.6
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	695	415	5	15	10
Future Vol, veh/h	35	695	415	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	35	695	415	5	15	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	485	0	-	0	1306	548
Stage 1	-	-	-	-	483	-
Stage 2	-	-	-	-	823	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1073	-	-	-	172	527
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	423	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1006	-	-	-	144	464
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	400	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.42	0	25.68
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	86	-	-	-	199
HCM Lane V/C Ratio	0.035	-	-	-	0.126
HCM Ctrl Dly (s/v)	8.7	0	-	-	25.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	136	2	6	165	71	11	5	20	50	1	5
Future Vol, veh/h	25	136	2	6	165	71	11	5	20	50	1	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	136	2	6	165	71	11	5	20	50	1	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.5	8.8	7.9	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	15%	2%	89%
Vol Thru, %	14%	83%	68%	2%
Vol Right, %	56%	1%	29%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	163	242	56
LT Vol	11	25	6	50
Through Vol	5	136	165	1
RT Vol	20	2	71	5
Lane Flow Rate	36	163	242	56
Geometry Grp	1	1	1	1
Degree of Util (X)	0.046	0.199	0.28	0.077
Departure Headway (Hd)	4.632	4.394	4.163	4.949
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	773	818	866	724
Service Time	2.661	2.411	2.178	2.977
HCM Lane V/C Ratio	0.047	0.199	0.279	0.077
HCM Control Delay, s/veh	7.9	8.5	8.8	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.7	1.1	0.2

Intersection	
Intersection Delay, s/veh	28.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	184	30	12	25	12	235	7	460	37	49	145	79
Future Vol, veh/h	184	30	12	25	12	235	7	460	37	49	145	79
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	184	30	12	25	12	235	7	460	37	49	145	79
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	17	17.2	46.5	17.7
HCM LOS	C	C	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	18%
Vol Thru, %	91%	13%	4%	53%
Vol Right, %	7%	5%	86%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	504	226	272	273
LT Vol	7	184	25	49
Through Vol	460	30	12	145
RT Vol	37	12	235	79
Lane Flow Rate	504	226	272	273
Geometry Grp	1	1	1	1
Degree of Util (X)	0.919	0.469	0.52	0.53
Departure Headway (Hd)	6.561	7.466	6.879	6.991
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	554	481	522	513
Service Time	4.561	5.543	4.952	5.062
HCM Lane V/C Ratio	0.91	0.47	0.521	0.532
HCM Control Delay, s/veh	46.5	17	17.2	17.7
HCM Lane LOS	E	C	C	C
HCM 95th-tile Q	11.3	2.5	3	3.1

Intersection	
Intersection Delay, s/veh	17.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	382	20	152	58	28	41	30	81	13	15	87	65
Future Vol, veh/h	382	20	152	58	28	41	30	81	13	15	87	65
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	382	20	152	58	28	41	30	81	13	15	87	65
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	22.8	10	10.9	11.2
HCM LOS	C	A	B	B

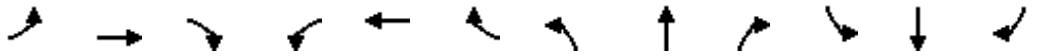
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	69%	46%	9%
Vol Thru, %	65%	4%	22%	52%
Vol Right, %	10%	27%	32%	39%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	124	554	127	167
LT Vol	30	382	58	15
Through Vol	81	20	28	87
RT Vol	13	152	41	65
Lane Flow Rate	124	554	127	167
Geometry Grp	1	1	1	1
Degree of Util (X)	0.213	0.77	0.197	0.273
Departure Headway (Hd)	6.191	5.003	5.59	5.889
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	578	726	640	608
Service Time	4.249	3.037	3.642	3.942
HCM Lane V/C Ratio	0.215	0.763	0.198	0.275
HCM Control Delay, s/veh	10.9	22.8	10	11.2
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	0.8	7.4	0.7	1.1

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	73	20	25	50	75	222
Future Vol, veh/h	73	20	25	50	75	222
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	73	20	25	50	75	222
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.6	7.9	9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	78%	0%	25%
Vol Thru, %	22%	33%	0%
Vol Right, %	0%	67%	75%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	93	75	297
LT Vol	73	0	75
Through Vol	20	25	0
RT Vol	0	50	222
Lane Flow Rate	93	75	297
Geometry Grp	1	1	1
Degree of Util (X)	0.126	0.092	0.331
Departure Headway (Hd)	4.863	4.437	4.008
Convergence, Y/N	Yes	Yes	Yes
Cap	738	808	900
Service Time	2.886	2.461	2.021
HCM Lane V/C Ratio	0.126	0.093	0.33
HCM Control Delay, s/veh	8.6	7.9	9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	465	35	20	430	45	10	5	2	77	10	165
Future Volume (veh/h)	77	465	35	20	430	45	10	5	2	77	10	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	77	465	35	20	430	45	10	5	2	77	10	165
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	367	657	49	353	630	66	381	173	51	703	29	473
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	908	1719	129	882	1650	173	602	500	147	1315	83	1369
Grp Volume(v), veh/h	77	0	500	20	0	475	17	0	0	77	0	175
Grp Sat Flow(s),veh/h/ln	908	0	1848	882	0	1823	1249	0	0	1315	0	1452
Q Serve(g_s), s	2.6	0.0	7.6	0.6	0.0	7.2	0.0	0.0	0.0	0.0	0.0	3.0
Cycle Q Clear(g_c), s	9.7	0.0	7.6	8.2	0.0	7.2	3.0	0.0	0.0	1.0	0.0	3.0
Prop In Lane	1.00		0.07	1.00		0.09	0.59		0.12	1.00		0.94
Lane Grp Cap(c), veh/h	367	0	706	353	0	696	604	0	0	703	0	502
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.11	0.00	0.35
Avail Cap(c_a), veh/h	722	0	1427	697	0	1407	776	0	0	866	0	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	8.6	12.1	0.0	8.5	7.2	0.0	0.0	7.4	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.0	0.1	0.0	1.9	0.1	0.0	0.0	0.3	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.7	0.0	9.1	12.1	0.0	9.0	7.2	0.0	0.0	7.4	0.0	8.2
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		577			495			17			252	
Approach Delay, s/veh		9.6			9.1			7.2			8.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	17.1	15.9	17.1	15.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	15.5	25.5	15.5
Max Q Clear Time (g_c+I1), s	10.2	5.0	11.7	5.0
Green Ext Time (p_c), s	0.5	0.0	0.6	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	9.1
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	577	590	15	10	15
Future Vol, veh/h	15	577	590	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	15	577	590	15	10	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	718	0	-	0	1430	824
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	719	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	888	-	-	-	150	376
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	792	-	-	-	116	300
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	426	-
Stage 2	-	-	-	-	434	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.24	0	27.66
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	46	-	-	-	184
HCM Lane V/C Ratio	0.019	-	-	-	0.136
HCM Ctrl Dly (s/v)	9.6	0	-	-	27.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	176	2	10	41	60	0	1	30	112	5	5
Future Vol, veh/h	25	176	2	10	41	60	0	1	30	112	5	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	25	176	2	10	41	60	0	1	30	112	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.9	8	7.6	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	12%	9%	92%
Vol Thru, %	3%	87%	37%	4%
Vol Right, %	97%	1%	54%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	203	111	122
LT Vol	0	25	10	112
Through Vol	1	176	41	5
RT Vol	30	2	60	5
Lane Flow Rate	31	203	111	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.038	0.249	0.132	0.164
Departure Headway (Hd)	4.365	4.412	4.293	4.831
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	819	816	836	743
Service Time	2.396	2.433	2.317	2.858
HCM Lane V/C Ratio	0.038	0.249	0.133	0.164
HCM Control Delay, s/veh	7.6	8.9	8	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1	0.5	0.6

Intersection	
Intersection Delay, s/veh	70.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	91	14	14	30	13	210	15	413	33	97	433	138
Future Vol, veh/h	91	14	14	30	13	210	15	413	33	97	433	138
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	91	14	14	30	13	210	15	413	33	97	433	138
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.8	17.7	35.5	125.2
HCM LOS	B	C	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	76%	12%	15%
Vol Thru, %	90%	12%	5%	65%
Vol Right, %	7%	12%	83%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	461	119	253	668
LT Vol	15	91	30	97
Through Vol	413	14	13	433
RT Vol	33	14	210	138
Lane Flow Rate	461	119	253	668
Geometry Grp	1	1	1	1
Degree of Util (X)	0.831	0.268	0.497	1.191
Departure Headway (Hd)	6.951	8.659	7.525	6.416
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	526	418	483	568
Service Time	4.951	6.659	5.525	4.442
HCM Lane V/C Ratio	0.876	0.285	0.524	1.176
HCM Control Delay, s/veh	35.5	14.8	17.7	125.2
HCM Lane LOS	E	B	C	F
HCM 95th-tile Q	8.4	1.1	2.7	23.8

Intersection	
Intersection Delay, s/veh	22.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	284	15	72	7	59	22	139	135	59	29	49	386
Future Vol, veh/h	284	15	72	7	59	22	139	135	59	29	49	386
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	284	15	72	7	59	22	139	135	59	29	49	386
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	22.9	12.2	19.3	26
HCM LOS	C	B	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	77%	8%	6%
Vol Thru, %	41%	4%	67%	11%
Vol Right, %	18%	19%	25%	83%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	333	371	88	464
LT Vol	139	284	7	29
Through Vol	135	15	59	49
RT Vol	59	72	22	386
Lane Flow Rate	333	371	88	464
Geometry Grp	1	1	1	1
Degree of Util (X)	0.606	0.683	0.183	0.766
Departure Headway (Hd)	6.551	6.63	7.499	5.941
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	549	542	481	608
Service Time	4.629	4.702	5.499	4.011
HCM Lane V/C Ratio	0.607	0.685	0.183	0.763
HCM Control Delay, s/veh	19.3	22.9	12.2	26
HCM Lane LOS	C	C	B	D
HCM 95th-tile Q	4	5.2	0.7	7

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	243	25	5	80	57	82
Future Vol, veh/h	243	25	5	80	57	82
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	243	25	5	80	57	82
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	10	7.7	8.6
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	41%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	59%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	268	85	139
LT Vol	243	0	57
Through Vol	25	5	0
RT Vol	0	80	82
Lane Flow Rate	268	85	139
Geometry Grp	1	1	1
Degree of Util (X)	0.341	0.099	0.177
Departure Headway (Hd)	4.585	4.186	4.577
Convergence, Y/N	Yes	Yes	Yes
Cap	785	856	785
Service Time	2.606	2.213	2.599
HCM Lane V/C Ratio	0.341	0.099	0.177
HCM Control Delay, s/veh	10	7.7	8.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.5	0.3	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	460	30	5	380	103	0	0	0	39	5	63
Future Volume (veh/h)	205	460	30	5	380	103	0	0	0	39	5	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.93	1.00		1.00	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	205	460	30	5	380	103	0	0	0	39	5	63
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	471	835	54	475	668	181	0	471	0	607	26	328
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.00	0.00	0.00	0.25	0.25	0.25
Sat Flow, veh/h	890	1715	112	879	1371	372	0	1900	0	1594	105	1324
Grp Volume(v), veh/h	205	0	490	5	0	483	0	0	0	39	0	68
Grp Sat Flow(s),veh/h/ln	890	0	1827	879	0	1743	0	1900	0	1594	0	1429
Q Serve(g_s), s	7.2	0.0	6.4	0.1	0.0	6.7	0.0	0.0	0.0	0.6	0.0	1.3
Cycle Q Clear(g_c), s	13.9	0.0	6.4	6.5	0.0	6.7	0.0	0.0	0.0	0.6	0.0	1.3
Prop In Lane	1.00		0.06	1.00		0.21	0.00		0.00	1.00		0.93
Lane Grp Cap(c), veh/h	471	0	890	475	0	849	0	471	0	607	0	354
V/C Ratio(X)	0.44	0.00	0.55	0.01	0.00	0.57	0.00	0.00	0.00	0.06	0.00	0.19
Avail Cap(c_a), veh/h	705	0	1371	707	0	1309	0	867	0	939	0	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	0.0	6.1	8.4	0.0	6.2	0.0	0.0	0.0	9.8	0.0	10.1
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.4	0.0	0.0	1.4	0.0	0.0	0.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.3	0.0	6.3	8.4	0.0	6.4	0.0	0.0	0.0	9.9	0.0	10.2
LnGrp LOS	B		A	A		A				A		B
Approach Vol, veh/h		695			488			0			107	
Approach Delay, s/veh		7.8			6.4			0.0			10.1	
Approach LOS		A			A						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	21.0	12.9	21.0	12.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	15.5	25.5	15.5
Max Q Clear Time (g_c+I1), s	8.7	0.0	15.9	3.3
Green Ext Time (p_c), s	0.6	0.0	0.7	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.5
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	685	423	5	15	10
Future Vol, veh/h	35	685	423	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	35	685	423	5	15	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	493	0	-	0	1304	556
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	813	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1065	-	-	-	173	521
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	428	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	999	-	-	-	144	459
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	404	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.42	0	25.67
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	88	-	-	-	199
HCM Lane V/C Ratio	0.035	-	-	-	0.126
HCM Ctrl Dly (s/v)	8.7	0	-	-	25.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	180	2	6	197	116	11	5	20	100	1	5
Future Vol, veh/h	25	180	2	6	197	116	11	5	20	100	1	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	180	2	6	197	116	11	5	20	100	1	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.4	10.1	8.3	9.3
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	12%	2%	94%
Vol Thru, %	14%	87%	62%	1%
Vol Right, %	56%	1%	36%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	207	319	106
LT Vol	11	25	6	100
Through Vol	5	180	197	1
RT Vol	20	2	116	5
Lane Flow Rate	36	207	319	106
Geometry Grp	1	1	1	1
Degree of Util (X)	0.05	0.266	0.384	0.155
Departure Headway (Hd)	5.002	4.632	4.329	5.269
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	711	774	829	677
Service Time	3.068	2.672	2.362	3.326
HCM Lane V/C Ratio	0.051	0.267	0.385	0.157
HCM Control Delay, s/veh	8.3	9.4	10.1	9.3
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	1.1	1.8	0.5

Intersection	
Intersection Delay, s/veh	34.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	109	30	12	25	12	235	7	535	37	49	185	39
Future Vol, veh/h	109	30	12	25	12	235	7	535	37	49	185	39
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	109	30	12	25	12	235	7	535	37	49	185	39
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14	16.3	57.6	16.7
HCM LOS	B	C	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	72%	9%	18%
Vol Thru, %	92%	20%	4%	68%
Vol Right, %	6%	8%	86%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	579	151	272	273
LT Vol	7	109	25	49
Through Vol	535	30	12	185
RT Vol	37	12	235	39
Lane Flow Rate	579	151	272	273
Geometry Grp	1	1	1	1
Degree of Util (X)	0.982	0.317	0.502	0.51
Departure Headway (Hd)	6.106	7.564	6.649	6.722
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	591	479	539	532
Service Time	4.182	5.564	4.744	4.82
HCM Lane V/C Ratio	0.98	0.315	0.505	0.513
HCM Control Delay, s/veh	57.6	14	16.3	16.7
HCM Lane LOS	F	B	C	C
HCM 95th-tile Q	14	1.3	2.8	2.9

Intersection	
Intersection Delay, s/veh	25.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	457	20	144	58	28	41	26	81	13	15	87	105
Future Vol, veh/h	457	20	144	58	28	41	26	81	13	15	87	105
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	457	20	144	58	28	41	26	81	13	15	87	105
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	36.4	10.5	11.5	12.4
HCM LOS	E	B	B	B

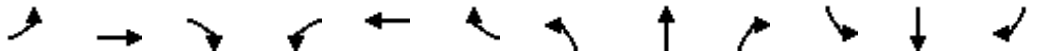
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	74%	46%	7%
Vol Thru, %	68%	3%	22%	42%
Vol Right, %	11%	23%	32%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	621	127	207
LT Vol	26	457	58	15
Through Vol	81	20	28	87
RT Vol	13	144	41	105
Lane Flow Rate	120	621	127	207
Geometry Grp	1	1	1	1
Degree of Util (X)	0.218	0.896	0.208	0.349
Departure Headway (Hd)	6.539	5.192	5.894	6.063
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	545	696	605	590
Service Time	4.626	3.241	3.974	4.138
HCM Lane V/C Ratio	0.22	0.892	0.21	0.351
HCM Control Delay, s/veh	11.5	36.4	10.5	12.4
HCM Lane LOS	B	E	B	B
HCM 95th-tile Q	0.8	11.4	0.8	1.6

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	69	20	25	50	75	214
Future Vol, veh/h	69	20	25	50	75	214
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	69	20	25	50	75	214
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.5	7.9	8.9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	78%	0%	26%
Vol Thru, %	22%	33%	0%
Vol Right, %	0%	67%	74%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	89	75	289
LT Vol	69	0	75
Through Vol	20	25	0
RT Vol	0	50	214
Lane Flow Rate	89	75	289
Geometry Grp	1	1	1
Degree of Util (X)	0.12	0.092	0.321
Departure Headway (Hd)	4.843	4.413	4.002
Convergence, Y/N	Yes	Yes	Yes
Cap	741	813	902
Service Time	2.864	2.435	2.015
HCM Lane V/C Ratio	0.12	0.092	0.32
HCM Control Delay, s/veh	8.5	7.9	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	465	35	20	432	44	10	5	2	77	10	157
Future Volume (veh/h)	76	465	35	20	432	44	10	5	2	77	10	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	76	465	35	20	432	44	10	5	2	77	10	157
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	368	657	49	354	633	64	385	175	51	701	30	470
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	908	1719	129	882	1655	169	614	508	150	1314	87	1366
Grp Volume(v), veh/h	76	0	500	20	0	476	17	0	0	77	0	167
Grp Sat Flow(s),veh/h/ln	908	0	1848	882	0	1824	1272	0	0	1314	0	1453
Q Serve(g_s), s	2.5	0.0	7.5	0.6	0.0	7.2	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	9.7	0.0	7.5	8.2	0.0	7.2	2.8	0.0	0.0	1.0	0.0	2.8
Prop In Lane	1.00		0.07	1.00		0.09	0.59		0.12	1.00		0.94
Lane Grp Cap(c), veh/h	368	0	706	354	0	697	612	0	0	701	0	500
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.11	0.00	0.33
Avail Cap(c_a), veh/h	725	0	1433	701	0	1414	788	0	0	868	0	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	8.6	12.1	0.0	8.5	7.2	0.0	0.0	7.4	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.0	0.1	0.0	1.9	0.1	0.0	0.0	0.3	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	0.0	9.1	12.1	0.0	8.9	7.2	0.0	0.0	7.4	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		576			496			17			244	
Approach Delay, s/veh		9.6			9.1			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.1		15.8		17.1		15.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		10.2		4.8		11.7		4.8				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.0									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	576	584	15	10	15
Future Vol, veh/h	15	576	584	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	15	576	584	15	10	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	712	0	-	0	1423	818
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	718	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	892	-	-	-	151	379
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	487	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	796	-	-	-	117	302
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	435	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.24	0	27.42
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	46	-	-	-	185
HCM Lane V/C Ratio	0.019	-	-	-	0.135
HCM Ctrl Dly (s/v)	9.6	0	-	-	27.4
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	203	2	10	58	80	0	1	30	152	5	5
Future Vol, veh/h	25	203	2	10	58	80	0	1	30	152	5	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	25	203	2	10	58	80	0	1	30	152	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.5	8.5	7.8	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	11%	7%	94%
Vol Thru, %	3%	88%	39%	3%
Vol Right, %	97%	1%	54%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	230	148	162
LT Vol	0	25	10	152
Through Vol	1	203	58	5
RT Vol	30	2	80	5
Lane Flow Rate	31	230	148	162
Geometry Grp	1	1	1	1
Degree of Util (X)	0.039	0.292	0.183	0.225
Departure Headway (Hd)	4.586	4.569	4.443	4.997
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	776	787	805	716
Service Time	2.642	2.603	2.48	3.042
HCM Lane V/C Ratio	0.04	0.292	0.184	0.226
HCM Control Delay, s/veh	7.8	9.5	8.5	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.2	0.7	0.9

Intersection	
Intersection Delay, s/veh	74.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	8	14	30	13	210	15	364	39	97	427	143
Future Vol, veh/h	140	8	14	30	13	210	15	364	39	97	427	143
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	140	8	14	30	13	210	15	364	39	97	427	143
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	16.6	18.4	32.5	136.8
HCM LOS	C	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	86%	12%	15%
Vol Thru, %	87%	5%	5%	64%
Vol Right, %	9%	9%	83%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	418	162	253	667
LT Vol	15	140	30	97
Through Vol	364	8	13	427
RT Vol	39	14	210	143
Lane Flow Rate	418	162	253	667
Geometry Grp	1	1	1	1
Degree of Util (X)	0.791	0.363	0.506	1.219
Departure Headway (Hd)	7.258	8.703	7.761	6.58
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	502	416	468	554
Service Time	5.258	6.703	5.761	4.629
HCM Lane V/C Ratio	0.833	0.389	0.541	1.204
HCM Control Delay, s/veh	32.5	16.6	18.4	136.8
HCM Lane LOS	D	C	C	F
HCM 95th-tile Q	7.3	1.6	2.8	24.9

Intersection	
Intersection Delay, s/veh	19.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	241	15	72	7	60	22	139	135	59	29	49	380
Future Vol, veh/h	241	15	72	7	60	22	139	135	59	29	49	380
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	241	15	72	7	60	22	139	135	59	29	49	380
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	18.7	11.7	17.9	22.6
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	73%	8%	6%
Vol Thru, %	41%	5%	67%	11%
Vol Right, %	18%	22%	25%	83%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	333	328	89	458
LT Vol	139	241	7	29
Through Vol	135	15	60	49
RT Vol	59	72	22	380
Lane Flow Rate	333	328	89	458
Geometry Grp	1	1	1	1
Degree of Util (X)	0.583	0.593	0.176	0.728
Departure Headway (Hd)	6.302	6.51	7.122	5.721
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	573	554	501	632
Service Time	4.357	4.563	5.202	3.77
HCM Lane V/C Ratio	0.581	0.592	0.178	0.725
HCM Control Delay, s/veh	17.9	18.7	11.7	22.6
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	3.7	3.8	0.6	6.2

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	243	25	5	80	57	82
Future Vol, veh/h	243	25	5	80	57	82
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	243	25	5	80	57	82
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	10	7.7	8.6
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	41%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	59%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	268	85	139
LT Vol	243	0	57
Through Vol	25	5	0
RT Vol	0	80	82
Lane Flow Rate	268	85	139
Geometry Grp	1	1	1
Degree of Util (X)	0.341	0.099	0.177
Departure Headway (Hd)	4.585	4.186	4.577
Convergence, Y/N	Yes	Yes	Yes
Cap	785	856	785
Service Time	2.606	2.213	2.599
HCM Lane V/C Ratio	0.341	0.099	0.177
HCM Control Delay, s/veh	10	7.7	8.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.5	0.3	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	460	30	5	380	103	0	0	0	39	5	63
Future Volume (veh/h)	205	460	30	5	380	103	0	0	0	39	5	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.93	1.00		1.00	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	205	460	30	5	380	103	0	0	0	39	5	63
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	471	835	54	475	668	181	0	471	0	607	26	328
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.00	0.00	0.00	0.25	0.25	0.25
Sat Flow, veh/h	890	1715	112	879	1371	372	0	1900	0	1594	105	1324
Grp Volume(v), veh/h	205	0	490	5	0	483	0	0	0	39	0	68
Grp Sat Flow(s),veh/h/ln	890	0	1827	879	0	1743	0	1900	0	1594	0	1429
Q Serve(g_s), s	7.2	0.0	6.4	0.1	0.0	6.7	0.0	0.0	0.0	0.6	0.0	1.3
Cycle Q Clear(g_c), s	13.9	0.0	6.4	6.5	0.0	6.7	0.0	0.0	0.0	0.6	0.0	1.3
Prop In Lane	1.00		0.06	1.00		0.21	0.00		0.00	1.00		0.93
Lane Grp Cap(c), veh/h	471	0	890	475	0	849	0	471	0	607	0	354
V/C Ratio(X)	0.44	0.00	0.55	0.01	0.00	0.57	0.00	0.00	0.00	0.06	0.00	0.19
Avail Cap(c_a), veh/h	705	0	1371	707	0	1309	0	867	0	939	0	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	0.0	6.1	8.4	0.0	6.2	0.0	0.0	0.0	9.8	0.0	10.1
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	0.0	2.5	0.0	0.0	2.5	0.0	0.0	0.0	0.3	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.3	0.0	6.3	8.4	0.0	6.4	0.0	0.0	0.0	9.9	0.0	10.2
LnGrp LOS	B		A	A		A				A		B
Approach Vol, veh/h		695			488			0			107	
Approach Delay, s/veh		7.8			6.4			0.0			10.1	
Approach LOS		A			A						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	21.0	12.9	21.0	12.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	15.5	25.5	15.5
Max Q Clear Time (g_c+I1), s	8.7	0.0	15.9	3.3
Green Ext Time (p_c), s	0.6	0.0	0.7	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.5
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	685	423	5	15	10
Future Vol, veh/h	35	685	423	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	35	685	423	5	15	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	493	0	-	0	1304	556
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	813	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1065	-	-	-	173	521
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	428	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	999	-	-	-	144	459
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	404	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.42	0	25.67
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	88	-	-	-	199
HCM Lane V/C Ratio	0.035	-	-	-	0.126
HCM Ctrl Dly (s/v)	8.7	0	-	-	25.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	187	2	6	237	71	11	5	20	50	1	5
Future Vol, veh/h	25	187	2	6	237	71	11	5	20	50	1	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	187	2	6	237	71	11	5	20	50	1	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.1	9.8	8.2	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	12%	2%	89%
Vol Thru, %	14%	87%	75%	2%
Vol Right, %	56%	1%	23%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	214	314	56
LT Vol	11	25	6	50
Through Vol	5	187	237	1
RT Vol	20	2	71	5
Lane Flow Rate	36	214	314	56
Geometry Grp	1	1	1	1
Degree of Util (X)	0.049	0.266	0.372	0.081
Departure Headway (Hd)	4.913	4.477	4.269	5.227
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	727	802	845	684
Service Time	2.956	2.502	2.291	3.268
HCM Lane V/C Ratio	0.05	0.267	0.372	0.082
HCM Control Delay, s/veh	8.2	9.1	9.8	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	1.1	1.7	0.3

Intersection	
Intersection Delay, s/veh	28.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	184	30	12	25	12	235	7	460	37	49	145	79
Future Vol, veh/h	184	30	12	25	12	235	7	460	37	49	145	79
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	184	30	12	25	12	235	7	460	37	49	145	79
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	17	17.2	46.5	17.7
HCM LOS	C	C	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	18%
Vol Thru, %	91%	13%	4%	53%
Vol Right, %	7%	5%	86%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	504	226	272	273
LT Vol	7	184	25	49
Through Vol	460	30	12	145
RT Vol	37	12	235	79
Lane Flow Rate	504	226	272	273
Geometry Grp	1	1	1	1
Degree of Util (X)	0.919	0.469	0.52	0.53
Departure Headway (Hd)	6.561	7.466	6.879	6.991
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	554	481	522	513
Service Time	4.561	5.543	4.952	5.062
HCM Lane V/C Ratio	0.91	0.47	0.521	0.532
HCM Control Delay, s/veh	46.5	17	17.2	17.7
HCM Lane LOS	E	C	C	C
HCM 95th-tile Q	11.3	2.5	3	3.1

Intersection	
Intersection Delay, s/veh	17.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	382	20	144	58	28	41	26	81	13	15	87	65
Future Vol, veh/h	382	20	144	58	28	41	26	81	13	15	87	65
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	382	20	144	58	28	41	26	81	13	15	87	65
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	21.9	10	10.8	11.1
HCM LOS	C	A	B	B

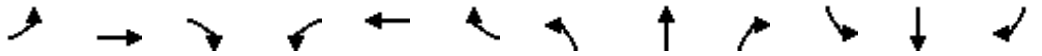
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	70%	46%	9%
Vol Thru, %	68%	4%	22%	52%
Vol Right, %	11%	26%	32%	39%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	546	127	167
LT Vol	26	382	58	15
Through Vol	81	20	28	87
RT Vol	13	144	41	65
Lane Flow Rate	120	546	127	167
Geometry Grp	1	1	1	1
Degree of Util (X)	0.205	0.757	0.196	0.272
Departure Headway (Hd)	6.157	4.993	5.557	5.853
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	581	726	644	613
Service Time	4.212	3.027	3.607	3.904
HCM Lane V/C Ratio	0.207	0.752	0.197	0.272
HCM Control Delay, s/veh	10.8	21.9	10	11.1
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	0.8	7.1	0.7	1.1

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	69	20	25	50	75	214
Future Vol, veh/h	69	20	25	50	75	214
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	69	20	25	50	75	214
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.5	7.9	8.9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	78%	0%	26%
Vol Thru, %	22%	33%	0%
Vol Right, %	0%	67%	74%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	89	75	289
LT Vol	69	0	75
Through Vol	20	25	0
RT Vol	0	50	214
Lane Flow Rate	89	75	289
Geometry Grp	1	1	1
Degree of Util (X)	0.12	0.092	0.321
Departure Headway (Hd)	4.843	4.413	4.002
Convergence, Y/N	Yes	Yes	Yes
Cap	741	813	902
Service Time	2.864	2.435	2.015
HCM Lane V/C Ratio	0.12	0.092	0.32
HCM Control Delay, s/veh	8.5	7.9	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	465	35	20	432	44	10	5	2	77	10	157
Future Volume (veh/h)	76	465	35	20	432	44	10	5	2	77	10	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	76	465	35	20	432	44	10	5	2	77	10	157
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	368	657	49	354	633	64	385	175	51	701	30	470
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	908	1719	129	882	1655	169	614	508	150	1314	87	1366
Grp Volume(v), veh/h	76	0	500	20	0	476	17	0	0	77	0	167
Grp Sat Flow(s),veh/h/ln	908	0	1848	882	0	1824	1272	0	0	1314	0	1453
Q Serve(g_s), s	2.5	0.0	7.5	0.6	0.0	7.2	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	9.7	0.0	7.5	8.2	0.0	7.2	2.8	0.0	0.0	1.0	0.0	2.8
Prop In Lane	1.00		0.07	1.00		0.09	0.59		0.12	1.00		0.94
Lane Grp Cap(c), veh/h	368	0	706	354	0	697	612	0	0	701	0	500
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.11	0.00	0.33
Avail Cap(c_a), veh/h	725	0	1433	701	0	1414	788	0	0	868	0	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	8.6	12.1	0.0	8.5	7.2	0.0	0.0	7.4	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	0.0	3.6	0.2	0.0	3.4	0.1	0.0	0.0	0.5	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	0.0	9.1	12.1	0.0	8.9	7.2	0.0	0.0	7.4	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		576			496			17			244	
Approach Delay, s/veh		9.6			9.1			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.1		15.8		17.1		15.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		10.2		4.8		11.7		4.8				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.6				

Intersection Summary	
HCM 7th Control Delay, s/veh	9.0
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	576	584	15	10	15
Future Vol, veh/h	15	576	584	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	15	576	584	15	10	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	712	0	-	0	1423	818
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	718	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	892	-	-	-	151	379
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	487	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	796	-	-	-	117	302
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	435	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.24	0	27.42
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	46	-	-	-	185
HCM Lane V/C Ratio	0.019	-	-	-	0.135
HCM Ctrl Dly (s/v)	9.6	0	-	-	27.4
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	168	2	10	38	60	0	1	30	112	5	5
Future Vol, veh/h	25	168	2	10	38	60	0	1	30	112	5	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	25	168	2	10	38	60	0	1	30	112	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.8	7.9	7.5	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	13%	9%	92%
Vol Thru, %	3%	86%	35%	4%
Vol Right, %	97%	1%	56%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	195	108	122
LT Vol	0	25	10	112
Through Vol	1	168	38	5
RT Vol	30	2	60	5
Lane Flow Rate	31	195	108	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.037	0.239	0.128	0.163
Departure Headway (Hd)	4.337	4.407	4.273	4.805
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	825	817	840	747
Service Time	2.368	2.426	2.295	2.83
HCM Lane V/C Ratio	0.038	0.239	0.129	0.163
HCM Control Delay, s/veh	7.5	8.8	7.9	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.9	0.4	0.6

Intersection	
Intersection Delay, s/veh	64.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	8	14	30	13	210	15	459	39	97	517	53
Future Vol, veh/h	45	8	14	30	13	210	15	459	39	97	517	53
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	45	8	14	30	13	210	15	459	39	97	517	53
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13	16.6	40.6	106.3
HCM LOS	B	C	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	67%	12%	15%
Vol Thru, %	89%	12%	5%	78%
Vol Right, %	8%	21%	83%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	513	67	253	667
LT Vol	15	45	30	97
Through Vol	459	8	13	517
RT Vol	39	14	210	53
Lane Flow Rate	513	67	253	667
Geometry Grp	1	1	1	1
Degree of Util (X)	0.884	0.149	0.478	1.142
Departure Headway (Hd)	6.52	8.536	7.206	6.162
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	559	423	503	587
Service Time	4.52	6.536	5.206	4.256
HCM Lane V/C Ratio	0.918	0.158	0.503	1.136
HCM Control Delay, s/veh	40.6	13	16.6	106.3
HCM Lane LOS	E	B	C	F
HCM 95th-tile Q	10.1	0.5	2.5	21.6

Intersection	
Intersection Delay, s/veh	44.7
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	336	15	78	7	59	22	153	135	59	29	49	470
Future Vol, veh/h	336	15	78	7	59	22	153	135	59	29	49	470
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	336	15	78	7	59	22	153	135	59	29	49	470
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	41.6	14	26.9	63.2
HCM LOS	E	B	D	F

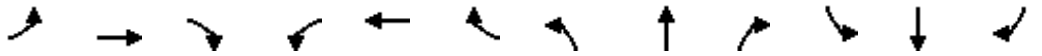
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	78%	8%	5%
Vol Thru, %	39%	3%	67%	9%
Vol Right, %	17%	18%	25%	86%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	347	429	88	548
LT Vol	153	336	7	29
Through Vol	135	15	59	49
RT Vol	59	78	22	470
Lane Flow Rate	347	429	88	548
Geometry Grp	1	1	1	1
Degree of Util (X)	0.712	0.866	0.212	0.996
Departure Headway (Hd)	7.383	7.266	8.661	6.541
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	486	498	417	553
Service Time	5.468	5.338	6.661	4.613
HCM Lane V/C Ratio	0.714	0.861	0.211	0.991
HCM Control Delay, s/veh	26.9	41.6	14	63.2
HCM Lane LOS	D	E	B	F
HCM 95th-tile Q	5.6	9.2	0.8	14.1

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	257	25	5	80	57	88
Future Vol, veh/h	257	25	5	80	57	88
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	257	25	5	80	57	88
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	10.2	7.7	8.7
HCM LOS	B	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	39%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	61%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	282	85	145
LT Vol	257	0	57
Through Vol	25	5	0
RT Vol	0	80	88
Lane Flow Rate	282	85	145
Geometry Grp	1	1	1
Degree of Util (X)	0.36	0.1	0.185
Departure Headway (Hd)	4.602	4.221	4.6
Convergence, Y/N	Yes	Yes	Yes
Cap	784	849	782
Service Time	2.624	2.247	2.623
HCM Lane V/C Ratio	0.36	0.1	0.185
HCM Control Delay, s/veh	10.2	7.7	8.7
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.6	0.3	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	460	30	5	370	113	0	0	0	39	5	69
Future Volume (veh/h)	209	460	30	5	370	113	0	0	0	39	5	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.93	1.00		1.00	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	209	460	30	5	370	113	0	0	0	39	5	69
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	468	840	55	474	651	199	0	478	0	608	24	334
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.00	0.00	0.00	0.25	0.25	0.25
Sat Flow, veh/h	890	1715	112	880	1329	406	0	1900	0	1595	96	1330
Grp Volume(v), veh/h	209	0	490	5	0	483	0	0	0	39	0	74
Grp Sat Flow(s),veh/h/ln	890	0	1827	880	0	1734	0	1900	0	1595	0	1426
Q Serve(g_s), s	7.5	0.0	6.5	0.1	0.0	6.9	0.0	0.0	0.0	0.7	0.0	1.4
Cycle Q Clear(g_c), s	14.4	0.0	6.5	6.6	0.0	6.9	0.0	0.0	0.0	0.7	0.0	1.4
Prop In Lane	1.00		0.06	1.00		0.23	0.00		0.00	1.00		0.93
Lane Grp Cap(c), veh/h	468	0	895	474	0	850	0	478	0	608	0	358
V/C Ratio(X)	0.45	0.00	0.55	0.01	0.00	0.57	0.00	0.00	0.00	0.06	0.00	0.21
Avail Cap(c_a), veh/h	684	0	1338	687	0	1271	0	846	0	917	0	635
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.4	0.0	6.2	8.5	0.0	6.3	0.0	0.0	0.0	10.0	0.0	10.3
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.4	0.0	0.0	1.4	0.0	0.0	0.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.6	0.0	6.4	8.5	0.0	6.5	0.0	0.0	0.0	10.0	0.0	10.4
LnGrp LOS	B		A	A		A				B		B
Approach Vol, veh/h		699			488			0			113	
Approach Delay, s/veh		7.9			6.5			0.0			10.3	
Approach LOS		A			A						B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.6		13.2		21.6		13.2				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		8.9		0.0		16.4		3.4				
Green Ext Time (p_c), s		0.6		0.0		0.7		0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	7.6
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	689	419	5	15	10
Future Vol, veh/h	35	689	419	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	35	689	419	5	15	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	489	0	-	0	1304	552
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	817	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1069	-	-	-	173	524
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	426	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1003	-	-	-	144	461
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	538	-
Stage 2	-	-	-	-	402	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.42	0	25.65
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	87	-	-	-	199
HCM Lane V/C Ratio	0.035	-	-	-	0.126
HCM Ctrl Dly (s/v)	8.7	0	-	-	25.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	238	2	6	295	116	11	5	20	100	1	5
Future Vol, veh/h	25	238	2	6	295	116	11	5	20	100	1	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	238	2	6	295	116	11	5	20	100	1	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.4	12.3	8.8	9.8
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	9%	1%	94%
Vol Thru, %	14%	90%	71%	1%
Vol Right, %	56%	1%	28%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	265	417	106
LT Vol	11	25	6	100
Through Vol	5	238	295	1
RT Vol	20	2	116	5
Lane Flow Rate	36	265	417	106
Geometry Grp	1	1	1	1
Degree of Util (X)	0.055	0.35	0.518	0.166
Departure Headway (Hd)	5.481	4.761	4.469	5.624
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	657	750	801	632
Service Time	3.481	2.827	2.524	3.715
HCM Lane V/C Ratio	0.055	0.353	0.521	0.168
HCM Control Delay, s/veh	8.8	10.4	12.3	9.8
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.2	1.6	3	0.6

Intersection	
Intersection Delay, s/veh	43.2
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	22	12	25	12	235	7	596	45	49	206	18
Future Vol, veh/h	48	22	12	25	12	235	7	596	45	49	206	18
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	48	22	12	25	12	235	7	596	45	49	206	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12	15.3	70.6	15.4
HCM LOS	B	C	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	59%	9%	18%
Vol Thru, %	92%	27%	4%	75%
Vol Right, %	7%	15%	86%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	648	82	272	273
LT Vol	7	48	25	49
Through Vol	596	22	12	206
RT Vol	45	12	235	18
Lane Flow Rate	648	82	272	273
Geometry Grp	1	1	1	1
Degree of Util (X)	1.04	0.166	0.479	0.481
Departure Headway (Hd)	5.78	7.512	6.507	6.5
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	635	481	558	557
Service Time	3.78	5.512	4.507	4.5
HCM Lane V/C Ratio	1.02	0.17	0.487	0.49
HCM Control Delay, s/veh	70.6	12	15.3	15.4
HCM Lane LOS	F	B	C	C
HCM 95th-tile Q	17.2	0.6	2.6	2.6

Intersection	
Intersection Delay, s/veh	44.7
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	526	20	152	58	28	41	29	81	13	15	87	126
Future Vol, veh/h	526	20	152	58	28	41	29	81	13	15	87	126
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	526	20	152	58	28	41	29	81	13	15	87	126
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	66.7	11.1	12.2	13.6
HCM LOS	F	B	B	B

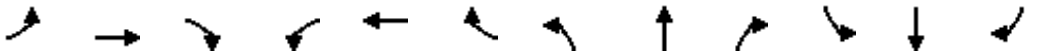
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	75%	46%	7%
Vol Thru, %	66%	3%	22%	38%
Vol Right, %	11%	22%	32%	55%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	123	698	127	228
LT Vol	29	526	58	15
Through Vol	81	20	28	87
RT Vol	13	152	41	126
Lane Flow Rate	123	698	127	228
Geometry Grp	1	1	1	1
Degree of Util (X)	0.236	1.034	0.218	0.4
Departure Headway (Hd)	7.012	5.333	6.305	6.423
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	515	677	573	563
Service Time	5.012	3.398	4.305	4.423
HCM Lane V/C Ratio	0.239	1.031	0.222	0.405
HCM Control Delay, s/veh	12.2	66.7	11.1	13.6
HCM Lane LOS	B	F	B	B
HCM 95th-tile Q	0.9	17.6	0.8	1.9

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	72	20	25	50	75	222
Future Vol, veh/h	72	20	25	50	75	222
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	72	20	25	50	75	222
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.6	7.9	9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	78%	0%	25%
Vol Thru, %	22%	33%	0%
Vol Right, %	0%	67%	75%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	92	75	297
LT Vol	72	0	75
Through Vol	20	25	0
RT Vol	0	50	222
Lane Flow Rate	92	75	297
Geometry Grp	1	1	1
Degree of Util (X)	0.124	0.092	0.33
Departure Headway (Hd)	4.863	4.436	4.006
Convergence, Y/N	Yes	Yes	Yes
Cap	739	809	900
Service Time	2.884	2.457	2.017
HCM Lane V/C Ratio	0.124	0.093	0.33
HCM Control Delay, s/veh	8.6	7.9	9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	465	35	20	430	45	10	5	2	77	10	165
Future Volume (veh/h)	77	465	35	20	430	45	10	5	2	77	10	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	77	465	35	20	430	45	10	5	2	77	10	165
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	367	657	49	353	630	66	381	173	51	703	29	473
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	908	1719	129	882	1650	173	602	500	147	1315	83	1369
Grp Volume(v), veh/h	77	0	500	20	0	475	17	0	0	77	0	175
Grp Sat Flow(s),veh/h/ln	908	0	1848	882	0	1823	1249	0	0	1315	0	1452
Q Serve(g_s), s	2.6	0.0	7.6	0.6	0.0	7.2	0.0	0.0	0.0	0.0	0.0	3.0
Cycle Q Clear(g_c), s	9.7	0.0	7.6	8.2	0.0	7.2	3.0	0.0	0.0	1.0	0.0	3.0
Prop In Lane	1.00		0.07	1.00		0.09	0.59		0.12	1.00		0.94
Lane Grp Cap(c), veh/h	367	0	706	353	0	696	604	0	0	703	0	502
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.11	0.00	0.35
Avail Cap(c_a), veh/h	722	0	1427	697	0	1407	776	0	0	866	0	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	8.6	12.1	0.0	8.5	7.2	0.0	0.0	7.4	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.0	0.1	0.0	1.9	0.1	0.0	0.0	0.3	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.7	0.0	9.1	12.1	0.0	9.0	7.2	0.0	0.0	7.4	0.0	8.2
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		577			495			17			252	
Approach Delay, s/veh		9.6			9.1			7.2			8.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	17.1	15.9	17.1	15.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	15.5	25.5	15.5
Max Q Clear Time (g_c+I1), s	10.2	5.0	11.7	5.0
Green Ext Time (p_c), s	0.5	0.0	0.6	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	9.1
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	577	590	15	10	15
Future Vol, veh/h	15	577	590	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	15	577	590	15	10	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	718	0	-	0	1430	824
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	719	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	888	-	-	-	150	376
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	792	-	-	-	116	300
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	426	-
Stage 2	-	-	-	-	434	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.24	0	27.66
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	46	-	-	-	184
HCM Lane V/C Ratio	0.019	-	-	-	0.136
HCM Ctrl Dly (s/v)	9.6	0	-	-	27.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	280	2	10	82	80	0	1	30	152	5	5
Future Vol, veh/h	25	280	2	10	82	80	0	1	30	152	5	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	25	280	2	10	82	80	0	1	30	152	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.6	8.9	8.1	9.9
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	8%	6%	94%
Vol Thru, %	3%	91%	48%	3%
Vol Right, %	97%	1%	47%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	307	172	162
LT Vol	0	25	10	152
Through Vol	1	280	82	5
RT Vol	30	2	80	5
Lane Flow Rate	31	307	172	162
Geometry Grp	1	1	1	1
Degree of Util (X)	0.042	0.393	0.219	0.235
Departure Headway (Hd)	4.842	4.613	4.594	5.233
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	732	777	777	682
Service Time	2.919	2.659	2.648	3.295
HCM Lane V/C Ratio	0.042	0.395	0.221	0.238
HCM Control Delay, s/veh	8.1	10.6	8.9	9.9
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	1.9	0.8	0.9

Intersection	
Intersection Delay, s/veh	74.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	8	14	30	13	210	15	364	39	97	427	143
Future Vol, veh/h	140	8	14	30	13	210	15	364	39	97	427	143
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	140	8	14	30	13	210	15	364	39	97	427	143
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	16.6	18.4	32.5	136.8
HCM LOS	C	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	86%	12%	15%
Vol Thru, %	87%	5%	5%	64%
Vol Right, %	9%	9%	83%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	418	162	253	667
LT Vol	15	140	30	97
Through Vol	364	8	13	427
RT Vol	39	14	210	143
Lane Flow Rate	418	162	253	667
Geometry Grp	1	1	1	1
Degree of Util (X)	0.791	0.363	0.506	1.219
Departure Headway (Hd)	7.258	8.703	7.761	6.58
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	502	416	468	554
Service Time	5.258	6.703	5.761	4.629
HCM Lane V/C Ratio	0.833	0.389	0.541	1.204
HCM Control Delay, s/veh	32.5	16.6	18.4	136.8
HCM Lane LOS	D	C	C	F
HCM 95th-tile Q	7.3	1.6	2.8	24.9

Intersection	
Intersection Delay, s/veh	20.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	241	15	78	7	59	22	153	135	59	29	49	380
Future Vol, veh/h	241	15	78	7	59	22	153	135	59	29	49	380
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	241	15	78	7	59	22	153	135	59	29	49	380
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	19.3	11.9	19	23.4
HCM LOS	C	B	C	C

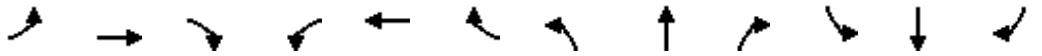
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	72%	8%	6%
Vol Thru, %	39%	4%	67%	11%
Vol Right, %	17%	23%	25%	83%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	347	334	88	458
LT Vol	153	241	7	29
Through Vol	135	15	59	49
RT Vol	59	78	22	380
Lane Flow Rate	347	334	88	458
Geometry Grp	1	1	1	1
Degree of Util (X)	0.612	0.608	0.177	0.736
Departure Headway (Hd)	6.354	6.557	7.222	5.789
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	566	548	494	623
Service Time	4.413	4.616	5.307	3.842
HCM Lane V/C Ratio	0.613	0.609	0.178	0.735
HCM Control Delay, s/veh	19	19.3	11.9	23.4
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	4.1	4	0.6	6.4

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	257	25	5	80	57	88
Future Vol, veh/h	257	25	5	80	57	88
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	257	25	5	80	57	88
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	10.2	7.7	8.7
HCM LOS	B	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	39%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	61%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	282	85	145
LT Vol	257	0	57
Through Vol	25	5	0
RT Vol	0	80	88
Lane Flow Rate	282	85	145
Geometry Grp	1	1	1
Degree of Util (X)	0.36	0.1	0.185
Departure Headway (Hd)	4.602	4.221	4.6
Convergence, Y/N	Yes	Yes	Yes
Cap	784	849	782
Service Time	2.624	2.247	2.623
HCM Lane V/C Ratio	0.36	0.1	0.185
HCM Control Delay, s/veh	10.2	7.7	8.7
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.6	0.3	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	460	30	5	370	113	0	0	0	39	5	69
Future Volume (veh/h)	209	460	30	5	370	113	0	0	0	39	5	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.93	1.00		1.00	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	209	460	30	5	370	113	0	0	0	39	5	69
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	468	840	55	474	651	199	0	478	0	608	24	334
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.00	0.00	0.00	0.25	0.25	0.25
Sat Flow, veh/h	890	1715	112	880	1329	406	0	1900	0	1595	96	1330
Grp Volume(v), veh/h	209	0	490	5	0	483	0	0	0	39	0	74
Grp Sat Flow(s),veh/h/ln	890	0	1827	880	0	1734	0	1900	0	1595	0	1426
Q Serve(g_s), s	7.5	0.0	6.5	0.1	0.0	6.9	0.0	0.0	0.0	0.7	0.0	1.4
Cycle Q Clear(g_c), s	14.4	0.0	6.5	6.6	0.0	6.9	0.0	0.0	0.0	0.7	0.0	1.4
Prop In Lane	1.00		0.06	1.00		0.23	0.00		0.00	1.00		0.93
Lane Grp Cap(c), veh/h	468	0	895	474	0	850	0	478	0	608	0	358
V/C Ratio(X)	0.45	0.00	0.55	0.01	0.00	0.57	0.00	0.00	0.00	0.06	0.00	0.21
Avail Cap(c_a), veh/h	684	0	1338	687	0	1271	0	846	0	917	0	635
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.4	0.0	6.2	8.5	0.0	6.3	0.0	0.0	0.0	10.0	0.0	10.3
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	0.0	2.6	0.0	0.0	2.6	0.0	0.0	0.0	0.3	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.6	0.0	6.4	8.5	0.0	6.5	0.0	0.0	0.0	10.0	0.0	10.4
LnGrp LOS	B		A	A		A				B		B
Approach Vol, veh/h		699			488			0			113	
Approach Delay, s/veh		7.9			6.5			0.0			10.3	
Approach LOS		A			A						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	21.6	13.2	21.6	13.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	15.5	25.5	15.5
Max Q Clear Time (g_c+I1), s	8.9	0.0	16.4	3.4
Green Ext Time (p_c), s	0.6	0.0	0.7	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.6
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	689	419	5	15	10
Future Vol, veh/h	35	689	419	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	35	689	419	5	15	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	489	0	-	0	1304	552
Stage 1	-	-	-	-	487	-
Stage 2	-	-	-	-	817	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1069	-	-	-	173	524
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	426	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1003	-	-	-	144	461
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	538	-
Stage 2	-	-	-	-	402	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.42	0	25.65
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	87	-	-	-	199
HCM Lane V/C Ratio	0.035	-	-	-	0.126
HCM Ctrl Dly (s/v)	8.7	0	-	-	25.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	193	2	6	250	71	11	5	20	50	1	5
Future Vol, veh/h	25	193	2	6	250	71	11	5	20	50	1	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	193	2	6	250	71	11	5	20	50	1	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.2	10	8.3	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	11%	2%	89%
Vol Thru, %	14%	88%	76%	2%
Vol Right, %	56%	1%	22%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	220	327	56
LT Vol	11	25	6	50
Through Vol	5	193	250	1
RT Vol	20	2	71	5
Lane Flow Rate	36	220	327	56
Geometry Grp	1	1	1	1
Degree of Util (X)	0.05	0.274	0.389	0.082
Departure Headway (Hd)	4.957	4.49	4.281	5.27
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	720	799	840	678
Service Time	3.002	2.521	2.308	3.314
HCM Lane V/C Ratio	0.05	0.275	0.389	0.083
HCM Control Delay, s/veh	8.3	9.2	10	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	1.1	1.9	0.3

Intersection	
Intersection Delay, s/veh	34
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	123	22	12	25	12	235	7	521	45	49	166	58
Future Vol, veh/h	123	22	12	25	12	235	7	521	45	49	166	58
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	123	22	12	25	12	235	7	521	45	49	166	58
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.3	16.4	55.9	16.8
HCM LOS	B	C	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	78%	9%	18%
Vol Thru, %	91%	14%	4%	61%
Vol Right, %	8%	8%	86%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	573	157	272	273
LT Vol	7	123	25	49
Through Vol	521	22	12	166
RT Vol	45	12	235	58
Lane Flow Rate	573	157	272	273
Geometry Grp	1	1	1	1
Degree of Util (X)	0.974	0.33	0.503	0.516
Departure Headway (Hd)	6.117	7.56	6.764	6.801
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	590	477	536	532
Service Time	4.211	5.576	4.764	4.801
HCM Lane V/C Ratio	0.971	0.329	0.507	0.513
HCM Control Delay, s/veh	55.9	14.3	16.4	16.8
HCM Lane LOS	F	B	C	C
HCM 95th-tile Q	13.6	1.4	2.8	2.9

Intersection	
Intersection Delay, s/veh	25.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	451	20	152	58	28	41	29	81	13	15	87	86
Future Vol, veh/h	451	20	152	58	28	41	29	81	13	15	87	86
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	451	20	152	58	28	41	29	81	13	15	87	86
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	35	10.4	11.4	12
HCM LOS	D	B	B	B

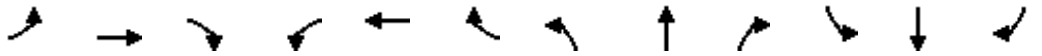
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	72%	46%	8%
Vol Thru, %	66%	3%	22%	46%
Vol Right, %	11%	24%	32%	46%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	123	623	127	188
LT Vol	29	451	58	15
Through Vol	81	20	28	87
RT Vol	13	152	41	86
Lane Flow Rate	123	623	127	188
Geometry Grp	1	1	1	1
Degree of Util (X)	0.222	0.888	0.206	0.318
Departure Headway (Hd)	6.486	5.131	5.828	6.086
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	550	704	612	588
Service Time	4.565	3.176	3.901	4.157
HCM Lane V/C Ratio	0.224	0.885	0.208	0.32
HCM Control Delay, s/veh	11.4	35	10.4	12
HCM Lane LOS	B	D	B	B
HCM 95th-tile Q	0.8	11.1	0.8	1.4

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	72	20	25	50	75	222
Future Vol, veh/h	72	20	25	50	75	222
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	72	20	25	50	75	222
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.6	7.9	9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	78%	0%	25%
Vol Thru, %	22%	33%	0%
Vol Right, %	0%	67%	75%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	92	75	297
LT Vol	72	0	75
Through Vol	20	25	0
RT Vol	0	50	222
Lane Flow Rate	92	75	297
Geometry Grp	1	1	1
Degree of Util (X)	0.124	0.092	0.33
Departure Headway (Hd)	4.863	4.436	4.006
Convergence, Y/N	Yes	Yes	Yes
Cap	739	809	900
Service Time	2.884	2.457	2.017
HCM Lane V/C Ratio	0.124	0.093	0.33
HCM Control Delay, s/veh	8.6	7.9	9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	465	35	20	430	46	10	5	2	77	10	165
Future Volume (veh/h)	77	465	35	20	430	46	10	5	2	77	10	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	77	465	35	20	430	46	10	5	2	77	10	165
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	367	657	49	353	630	67	381	173	51	703	29	473
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	908	1719	129	882	1646	176	601	500	147	1315	83	1369
Grp Volume(v), veh/h	77	0	500	20	0	476	17	0	0	77	0	175
Grp Sat Flow(s),veh/h/ln	908	0	1848	882	0	1822	1248	0	0	1315	0	1452
Q Serve(g_s), s	2.6	0.0	7.6	0.6	0.0	7.2	0.0	0.0	0.0	0.0	0.0	3.0
Cycle Q Clear(g_c), s	9.8	0.0	7.6	8.2	0.0	7.2	3.0	0.0	0.0	1.1	0.0	3.0
Prop In Lane	1.00		0.07	1.00		0.10	0.59		0.12	1.00		0.94
Lane Grp Cap(c), veh/h	367	0	707	353	0	697	604	0	0	703	0	501
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.11	0.00	0.35
Avail Cap(c_a), veh/h	720	0	1426	696	0	1405	775	0	0	866	0	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	8.6	12.1	0.0	8.5	7.2	0.0	0.0	7.4	0.0	8.1
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	0.0	3.6	0.2	0.0	3.4	0.1	0.0	0.0	0.5	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.7	0.0	9.1	12.1	0.0	9.0	7.2	0.0	0.0	7.5	0.0	8.2
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		577			496			17			252	
Approach Delay, s/veh		9.6			9.1			7.2			8.0	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.1		15.9		17.1		15.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		10.2		5.0		11.8		5.0				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.6				

Intersection Summary	
HCM 7th Control Delay, s/veh	9.1
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	577	590	15	10	15
Future Vol, veh/h	15	577	590	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	15	577	590	15	10	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	718	0	-	0	1430	824
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	719	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	888	-	-	-	150	376
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	792	-	-	-	116	300
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	426	-
Stage 2	-	-	-	-	434	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.24	0	27.66
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	46	-	-	-	184
HCM Lane V/C Ratio	0.019	-	-	-	0.136
HCM Ctrl Dly (s/v)	9.6	0	-	-	27.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	245	2	10	62	60	0	1	30	112	5	5
Future Vol, veh/h	25	245	2	10	62	60	0	1	30	112	5	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	25	245	2	10	62	60	0	1	30	112	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.7	8.3	7.8	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	9%	8%	92%
Vol Thru, %	3%	90%	47%	4%
Vol Right, %	97%	1%	45%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	272	132	122
LT Vol	0	25	10	112
Through Vol	1	245	62	5
RT Vol	30	2	60	5
Lane Flow Rate	31	272	132	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.039	0.336	0.162	0.171
Departure Headway (Hd)	4.584	4.445	4.431	5.039
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	778	808	809	711
Service Time	2.629	2.472	2.463	3.076
HCM Lane V/C Ratio	0.04	0.337	0.163	0.172
HCM Control Delay, s/veh	7.8	9.7	8.3	9.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.5	0.6	0.6

Intersection	
Intersection Delay, s/veh	64.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	8	14	30	13	210	15	459	39	97	517	53
Future Vol, veh/h	45	8	14	30	13	210	15	459	39	97	517	53
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	45	8	14	30	13	210	15	459	39	97	517	53
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13	16.6	40.6	106.3
HCM LOS	B	C	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	67%	12%	15%
Vol Thru, %	89%	12%	5%	78%
Vol Right, %	8%	21%	83%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	513	67	253	667
LT Vol	15	45	30	97
Through Vol	459	8	13	517
RT Vol	39	14	210	53
Lane Flow Rate	513	67	253	667
Geometry Grp	1	1	1	1
Degree of Util (X)	0.884	0.149	0.478	1.142
Departure Headway (Hd)	6.52	8.536	7.206	6.162
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	559	423	503	587
Service Time	4.52	6.536	5.206	4.256
HCM Lane V/C Ratio	0.918	0.158	0.503	1.136
HCM Control Delay, s/veh	40.6	13	16.6	106.3
HCM Lane LOS	E	B	C	F
HCM 95th-tile Q	10.1	0.5	2.5	21.6

Intersection	
Intersection Delay, s/veh	41.5
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	336	15	72	7	59	22	139	135	59	29	49	470
Future Vol, veh/h	336	15	72	7	59	22	139	135	59	29	49	470
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	336	15	72	7	59	22	139	135	59	29	49	470
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	38.4	13.7	24.3	58.7
HCM LOS	E	B	C	F

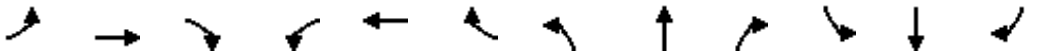
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	79%	8%	5%
Vol Thru, %	41%	4%	67%	9%
Vol Right, %	18%	17%	25%	86%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	333	423	88	548
LT Vol	139	336	7	29
Through Vol	135	15	59	49
RT Vol	59	72	22	470
Lane Flow Rate	333	423	88	548
Geometry Grp	1	1	1	1
Degree of Util (X)	0.675	0.845	0.207	0.98
Departure Headway (Hd)	7.294	7.188	8.485	6.437
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	493	503	426	564
Service Time	5.371	5.251	6.485	4.501
HCM Lane V/C Ratio	0.675	0.841	0.207	0.972
HCM Control Delay, s/veh	24.3	38.4	13.7	58.7
HCM Lane LOS	C	E	B	F
HCM 95th-tile Q	5	8.6	0.8	13.6

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	243	25	5	80	57	82
Future Vol, veh/h	243	25	5	80	57	82
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	243	25	5	80	57	82
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	10	7.7	8.6
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	41%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	59%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	268	85	139
LT Vol	243	0	57
Through Vol	25	5	0
RT Vol	0	80	82
Lane Flow Rate	268	85	139
Geometry Grp	1	1	1
Degree of Util (X)	0.341	0.099	0.177
Departure Headway (Hd)	4.585	4.186	4.577
Convergence, Y/N	Yes	Yes	Yes
Cap	785	856	785
Service Time	2.606	2.213	2.599
HCM Lane V/C Ratio	0.341	0.099	0.177
HCM Control Delay, s/veh	10	7.7	8.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.5	0.3	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	460	30	5	380	103	0	0	0	39	5	63
Future Volume (veh/h)	205	460	30	5	380	103	0	0	0	39	5	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.93	1.00		1.00	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	205	460	30	5	380	103	0	0	0	39	5	63
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	471	835	54	475	668	181	0	471	0	607	26	328
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.00	0.00	0.00	0.25	0.25	0.25
Sat Flow, veh/h	890	1715	112	879	1371	372	0	1900	0	1594	105	1324
Grp Volume(v), veh/h	205	0	490	5	0	483	0	0	0	39	0	68
Grp Sat Flow(s),veh/h/ln	890	0	1827	879	0	1743	0	1900	0	1594	0	1429
Q Serve(g_s), s	7.2	0.0	6.4	0.1	0.0	6.7	0.0	0.0	0.0	0.6	0.0	1.3
Cycle Q Clear(g_c), s	13.9	0.0	6.4	6.5	0.0	6.7	0.0	0.0	0.0	0.6	0.0	1.3
Prop In Lane	1.00		0.06	1.00		0.21	0.00		0.00	1.00		0.93
Lane Grp Cap(c), veh/h	471	0	890	475	0	849	0	471	0	607	0	354
V/C Ratio(X)	0.44	0.00	0.55	0.01	0.00	0.57	0.00	0.00	0.00	0.06	0.00	0.19
Avail Cap(c_a), veh/h	705	0	1371	707	0	1309	0	867	0	939	0	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	0.0	6.1	8.4	0.0	6.2	0.0	0.0	0.0	9.8	0.0	10.1
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.4	0.0	0.0	1.4	0.0	0.0	0.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.3	0.0	6.3	8.4	0.0	6.4	0.0	0.0	0.0	9.9	0.0	10.2
LnGrp LOS	B		A	A		A				A		B
Approach Vol, veh/h		695			488			0			107	
Approach Delay, s/veh		7.8			6.4			0.0			10.1	
Approach LOS		A			A						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	21.0	12.9	21.0	12.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	15.5	25.5	15.5
Max Q Clear Time (g_c+I1), s	8.7	0.0	15.9	3.3
Green Ext Time (p_c), s	0.6	0.0	0.7	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.5
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	685	423	5	15	10
Future Vol, veh/h	35	685	423	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	35	685	423	5	15	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	493	0	-	0	1304	556
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	813	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1065	-	-	-	173	521
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	428	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	999	-	-	-	144	459
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	404	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.42	0	25.67
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	88	-	-	-	199
HCM Lane V/C Ratio	0.035	-	-	-	0.126
HCM Ctrl Dly (s/v)	8.7	0	-	-	25.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	232	2	6	281	116	11	5	20	100	1	5
Future Vol, veh/h	25	232	2	6	281	116	11	5	20	100	1	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	232	2	6	281	116	11	5	20	100	1	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.3	11.9	8.7	9.8
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	10%	1%	94%
Vol Thru, %	14%	90%	70%	1%
Vol Right, %	56%	1%	29%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	259	403	106
LT Vol	11	25	6	100
Through Vol	5	232	281	1
RT Vol	20	2	116	5
Lane Flow Rate	36	259	403	106
Geometry Grp	1	1	1	1
Degree of Util (X)	0.053	0.341	0.498	0.164
Departure Headway (Hd)	5.329	4.743	4.453	5.579
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	664	754	806	637
Service Time	3.426	2.8	2.502	3.662
HCM Lane V/C Ratio	0.054	0.344	0.5	0.166
HCM Control Delay, s/veh	8.7	10.3	11.9	9.8
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.2	1.5	2.8	0.6

Intersection	
Intersection Delay, s/veh	43.2
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	22	12	25	12	235	7	596	45	49	206	18
Future Vol, veh/h	48	22	12	25	12	235	7	596	45	49	206	18
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	48	22	12	25	12	235	7	596	45	49	206	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12	15.3	70.6	15.4
HCM LOS	B	C	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	59%	9%	18%
Vol Thru, %	92%	27%	4%	75%
Vol Right, %	7%	15%	86%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	648	82	272	273
LT Vol	7	48	25	49
Through Vol	596	22	12	206
RT Vol	45	12	235	18
Lane Flow Rate	648	82	272	273
Geometry Grp	1	1	1	1
Degree of Util (X)	1.04	0.166	0.479	0.481
Departure Headway (Hd)	5.78	7.512	6.507	6.5
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	635	481	558	557
Service Time	3.78	5.512	4.507	4.5
HCM Lane V/C Ratio	1.02	0.17	0.487	0.49
HCM Control Delay, s/veh	70.6	12	15.3	15.4
HCM Lane LOS	F	B	C	C
HCM 95th-tile Q	17.2	0.6	2.6	2.6

Intersection	
Intersection Delay, s/veh	42.3
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	526	20	144	58	28	41	26	81	13	15	87	126
Future Vol, veh/h	526	20	144	58	28	41	26	81	13	15	87	126
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	526	20	144	58	28	41	26	81	13	15	87	126
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	62.8	11	12	13.5
HCM LOS	F	B	B	B

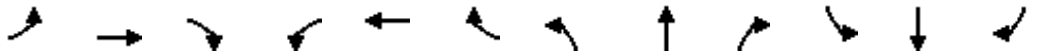
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	76%	46%	7%
Vol Thru, %	68%	3%	22%	38%
Vol Right, %	11%	21%	32%	55%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	690	127	228
LT Vol	26	526	58	15
Through Vol	81	20	28	87
RT Vol	13	144	41	126
Lane Flow Rate	120	690	127	228
Geometry Grp	1	1	1	1
Degree of Util (X)	0.229	1.02	0.217	0.398
Departure Headway (Hd)	6.972	5.322	6.266	6.283
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	518	676	577	568
Service Time	4.972	3.387	4.266	4.383
HCM Lane V/C Ratio	0.232	1.021	0.22	0.401
HCM Control Delay, s/veh	12	62.8	11	13.5
HCM Lane LOS	B	F	B	B
HCM 95th-tile Q	0.9	16.8	0.8	1.9

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	69	20	25	50	75	214
Future Vol, veh/h	69	20	25	50	75	214
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	69	20	25	50	75	214
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.5	7.9	8.9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	78%	0%	26%
Vol Thru, %	22%	33%	0%
Vol Right, %	0%	67%	74%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	89	75	289
LT Vol	69	0	75
Through Vol	20	25	0
RT Vol	0	50	214
Lane Flow Rate	89	75	289
Geometry Grp	1	1	1
Degree of Util (X)	0.12	0.092	0.321
Departure Headway (Hd)	4.843	4.413	4.002
Convergence, Y/N	Yes	Yes	Yes
Cap	741	813	902
Service Time	2.864	2.435	2.015
HCM Lane V/C Ratio	0.12	0.092	0.32
HCM Control Delay, s/veh	8.5	7.9	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	465	35	20	432	44	10	5	2	77	10	157
Future Volume (veh/h)	76	465	35	20	432	44	10	5	2	77	10	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	76	465	35	20	432	44	10	5	2	77	10	157
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	368	657	49	354	633	64	385	175	51	701	30	470
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	908	1719	129	882	1655	169	614	508	150	1314	87	1366
Grp Volume(v), veh/h	76	0	500	20	0	476	17	0	0	77	0	167
Grp Sat Flow(s),veh/h/ln	908	0	1848	882	0	1824	1272	0	0	1314	0	1453
Q Serve(g_s), s	2.5	0.0	7.5	0.6	0.0	7.2	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	9.7	0.0	7.5	8.2	0.0	7.2	2.8	0.0	0.0	1.0	0.0	2.8
Prop In Lane	1.00		0.07	1.00		0.09	0.59		0.12	1.00		0.94
Lane Grp Cap(c), veh/h	368	0	706	354	0	697	612	0	0	701	0	500
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.11	0.00	0.33
Avail Cap(c_a), veh/h	725	0	1433	701	0	1414	788	0	0	868	0	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	8.6	12.1	0.0	8.5	7.2	0.0	0.0	7.4	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.0	0.1	0.0	1.9	0.1	0.0	0.0	0.3	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	0.0	9.1	12.1	0.0	8.9	7.2	0.0	0.0	7.4	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		576			496			17			244	
Approach Delay, s/veh		9.6			9.1			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.1		15.8		17.1		15.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		10.2		4.8		11.7		4.8				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.6				

Intersection Summary	
HCM 7th Control Delay, s/veh	9.0
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	576	584	15	10	15
Future Vol, veh/h	15	576	584	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	15	576	584	15	10	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	712	0	-	0	1423	818
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	718	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	892	-	-	-	151	379
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	487	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	796	-	-	-	117	302
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	435	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.24	0	27.42
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	46	-	-	-	185
HCM Lane V/C Ratio	0.019	-	-	-	0.135
HCM Ctrl Dly (s/v)	9.6	0	-	-	27.4
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	272	2	10	79	80	0	1	30	152	5	5
Future Vol, veh/h	25	272	2	10	79	80	0	1	30	152	5	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	25	272	2	10	79	80	0	1	30	152	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.5	8.9	8.1	9.9
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	8%	6%	94%
Vol Thru, %	3%	91%	47%	3%
Vol Right, %	97%	1%	47%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	299	169	162
LT Vol	0	25	10	152
Through Vol	1	272	79	5
RT Vol	30	2	80	5
Lane Flow Rate	31	299	169	162
Geometry Grp	1	1	1	1
Degree of Util (X)	0.041	0.383	0.215	0.234
Departure Headway (Hd)	4.814	4.607	4.577	5.207
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	737	777	781	685
Service Time	2.891	2.652	2.629	3.269
HCM Lane V/C Ratio	0.042	0.385	0.216	0.236
HCM Control Delay, s/veh	8.1	10.5	8.9	9.9
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	1.8	0.8	0.9

Intersection	
Intersection Delay, s/veh	74.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	8	14	30	13	210	15	364	39	97	427	143
Future Vol, veh/h	140	8	14	30	13	210	15	364	39	97	427	143
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	140	8	14	30	13	210	15	364	39	97	427	143
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	16.6	18.4	32.5	136.8
HCM LOS	C	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	86%	12%	15%
Vol Thru, %	87%	5%	5%	64%
Vol Right, %	9%	9%	83%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	418	162	253	667
LT Vol	15	140	30	97
Through Vol	364	8	13	427
RT Vol	39	14	210	143
Lane Flow Rate	418	162	253	667
Geometry Grp	1	1	1	1
Degree of Util (X)	0.791	0.363	0.506	1.219
Departure Headway (Hd)	7.258	8.703	7.761	6.58
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	502	416	468	554
Service Time	5.258	6.703	5.761	4.629
HCM Lane V/C Ratio	0.833	0.389	0.541	1.204
HCM Control Delay, s/veh	32.5	16.6	18.4	136.8
HCM Lane LOS	D	C	C	F
HCM 95th-tile Q	7.3	1.6	2.8	24.9

Intersection	
Intersection Delay, s/veh	19.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	241	15	72	7	60	22	139	135	59	29	49	380
Future Vol, veh/h	241	15	72	7	60	22	139	135	59	29	49	380
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	241	15	72	7	60	22	139	135	59	29	49	380
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	18.7	11.7	17.9	22.6
HCM LOS	C	B	C	C

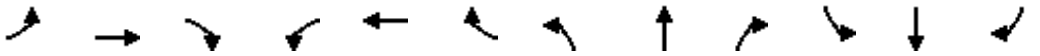
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	73%	8%	6%
Vol Thru, %	41%	5%	67%	11%
Vol Right, %	18%	22%	25%	83%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	333	328	89	458
LT Vol	139	241	7	29
Through Vol	135	15	60	49
RT Vol	59	72	22	380
Lane Flow Rate	333	328	89	458
Geometry Grp	1	1	1	1
Degree of Util (X)	0.583	0.593	0.176	0.728
Departure Headway (Hd)	6.302	6.51	7.122	5.721
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	573	554	501	632
Service Time	4.357	4.563	5.202	3.77
HCM Lane V/C Ratio	0.581	0.592	0.178	0.725
HCM Control Delay, s/veh	17.9	18.7	11.7	22.6
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	3.7	3.8	0.6	6.2

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	243	25	5	80	57	82
Future Vol, veh/h	243	25	5	80	57	82
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	13	13	8	8
Mvmt Flow	243	25	5	80	57	82
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	10	7.7	8.6
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	41%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	59%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	268	85	139
LT Vol	243	0	57
Through Vol	25	5	0
RT Vol	0	80	82
Lane Flow Rate	268	85	139
Geometry Grp	1	1	1
Degree of Util (X)	0.341	0.099	0.177
Departure Headway (Hd)	4.585	4.186	4.577
Convergence, Y/N	Yes	Yes	Yes
Cap	785	856	785
Service Time	2.606	2.213	2.599
HCM Lane V/C Ratio	0.341	0.099	0.177
HCM Control Delay, s/veh	10	7.7	8.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.5	0.3	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	460	30	5	380	103	0	0	0	39	5	63
Future Volume (veh/h)	205	460	30	5	380	103	0	0	0	39	5	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.94	0.99		0.93	1.00		1.00	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1900	1900	1900	1752	1752	1752
Adj Flow Rate, veh/h	205	460	30	5	380	103	0	0	0	39	5	63
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	471	835	54	475	668	181	0	471	0	607	26	328
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.00	0.00	0.00	0.25	0.25	0.25
Sat Flow, veh/h	890	1715	112	879	1371	372	0	1900	0	1594	105	1324
Grp Volume(v), veh/h	205	0	490	5	0	483	0	0	0	39	0	68
Grp Sat Flow(s),veh/h/ln	890	0	1827	879	0	1743	0	1900	0	1594	0	1429
Q Serve(g_s), s	7.2	0.0	6.4	0.1	0.0	6.7	0.0	0.0	0.0	0.6	0.0	1.3
Cycle Q Clear(g_c), s	13.9	0.0	6.4	6.5	0.0	6.7	0.0	0.0	0.0	0.6	0.0	1.3
Prop In Lane	1.00		0.06	1.00		0.21	0.00		0.00	1.00		0.93
Lane Grp Cap(c), veh/h	471	0	890	475	0	849	0	471	0	607	0	354
V/C Ratio(X)	0.44	0.00	0.55	0.01	0.00	0.57	0.00	0.00	0.00	0.06	0.00	0.19
Avail Cap(c_a), veh/h	705	0	1371	707	0	1309	0	867	0	939	0	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	0.0	6.1	8.4	0.0	6.2	0.0	0.0	0.0	9.8	0.0	10.1
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.4	0.0	0.0	1.4	0.0	0.0	0.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.3	0.0	6.3	8.4	0.0	6.4	0.0	0.0	0.0	9.9	0.0	10.2
LnGrp LOS	B		A	A		A				A		B
Approach Vol, veh/h		695			488			0			107	
Approach Delay, s/veh		7.8			6.4			0.0			10.1	
Approach LOS		A			A						B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	21.0	12.9	21.0	12.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	25.5	15.5	25.5	15.5
Max Q Clear Time (g_c+I1), s	8.7	0.0	15.9	3.3
Green Ext Time (p_c), s	0.6	0.0	0.7	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.5
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	685	423	5	15	10
Future Vol, veh/h	35	685	423	5	15	10
Conflicting Peds, #/hr	65	0	0	58	58	65
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	7	7
Mvmt Flow	35	685	423	5	15	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	493	0	-	0	1304	556
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	813	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1065	-	-	-	173	521
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	428	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	999	-	-	-	144	459
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	404	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.42	0	25.67
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	88	-	-	-	199
HCM Lane V/C Ratio	0.035	-	-	-	0.126
HCM Ctrl Dly (s/v)	8.7	0	-	-	25.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	186	2	6	237	71	11	5	20	51	1	5
Future Vol, veh/h	25	186	2	6	237	71	11	5	20	51	1	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	2	2	2	3	3	3	0	0	0
Mvmt Flow	25	186	2	6	237	71	11	5	20	51	1	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.1	9.8	8.2	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	12%	2%	89%
Vol Thru, %	14%	87%	75%	2%
Vol Right, %	56%	1%	23%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	213	314	57
LT Vol	11	25	6	51
Through Vol	5	186	237	1
RT Vol	20	2	71	5
Lane Flow Rate	36	213	314	57
Geometry Grp	1	1	1	1
Degree of Util (X)	0.049	0.265	0.372	0.083
Departure Headway (Hd)	4.913	4.479	4.27	5.226
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	727	803	842	685
Service Time	2.957	2.506	2.294	3.267
HCM Lane V/C Ratio	0.05	0.265	0.373	0.083
HCM Control Delay, s/veh	8.2	9.1	9.8	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	1.1	1.7	0.3

Intersection	
Intersection Delay, s/veh	34
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	123	22	12	25	12	235	7	521	45	49	166	58
Future Vol, veh/h	123	22	12	25	12	235	7	521	45	49	166	58
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	123	22	12	25	12	235	7	521	45	49	166	58
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.3	16.4	55.9	16.8
HCM LOS	B	C	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	78%	9%	18%
Vol Thru, %	91%	14%	4%	61%
Vol Right, %	8%	8%	86%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	573	157	272	273
LT Vol	7	123	25	49
Through Vol	521	22	12	166
RT Vol	45	12	235	58
Lane Flow Rate	573	157	272	273
Geometry Grp	1	1	1	1
Degree of Util (X)	0.974	0.33	0.503	0.516
Departure Headway (Hd)	6.117	7.56	6.764	6.801
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	590	477	536	532
Service Time	4.211	5.576	4.764	4.801
HCM Lane V/C Ratio	0.971	0.329	0.507	0.513
HCM Control Delay, s/veh	55.9	14.3	16.4	16.8
HCM Lane LOS	F	B	C	C
HCM 95th-tile Q	13.6	1.4	2.8	2.9

Intersection	
Intersection Delay, s/veh	24.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	451	20	144	58	28	41	26	81	13	15	87	86
Future Vol, veh/h	451	20	144	58	28	41	26	81	13	15	87	86
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	451	20	144	58	28	41	26	81	13	15	87	86
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	33.2	10.4	11.3	11.9
HCM LOS	D	B	B	B

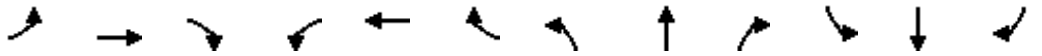
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	73%	46%	8%
Vol Thru, %	68%	3%	22%	46%
Vol Right, %	11%	23%	32%	46%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	615	127	188
LT Vol	26	451	58	15
Through Vol	81	20	28	87
RT Vol	13	144	41	86
Lane Flow Rate	120	615	127	188
Geometry Grp	1	1	1	1
Degree of Util (X)	0.215	0.875	0.204	0.316
Departure Headway (Hd)	6.452	5.121	5.794	6.05
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	553	707	616	590
Service Time	4.527	3.165	3.865	4.118
HCM Lane V/C Ratio	0.217	0.87	0.206	0.319
HCM Control Delay, s/veh	11.3	33.2	10.4	11.9
HCM Lane LOS	B	D	B	B
HCM 95th-tile Q	0.8	10.6	0.8	1.3

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	69	20	25	50	75	214
Future Vol, veh/h	69	20	25	50	75	214
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	5	5	11	11	6	6
Mvmt Flow	69	20	25	50	75	214
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay, s/veh	8.5	7.9	8.9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	78%	0%	26%
Vol Thru, %	22%	33%	0%
Vol Right, %	0%	67%	74%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	89	75	289
LT Vol	69	0	75
Through Vol	20	25	0
RT Vol	0	50	214
Lane Flow Rate	89	75	289
Geometry Grp	1	1	1
Degree of Util (X)	0.12	0.092	0.321
Departure Headway (Hd)	4.843	4.413	4.002
Convergence, Y/N	Yes	Yes	Yes
Cap	741	813	902
Service Time	2.864	2.435	2.015
HCM Lane V/C Ratio	0.12	0.092	0.32
HCM Control Delay, s/veh	8.5	7.9	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	1.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	465	35	20	432	44	10	5	2	77	10	157
Future Volume (veh/h)	76	465	35	20	432	44	10	5	2	77	10	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.92	0.98		0.92	0.97		0.96	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1900	1900	1900	1811	1811	1811
Adj Flow Rate, veh/h	76	465	35	20	432	44	10	5	2	77	10	157
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	368	657	49	354	633	64	385	175	51	701	30	470
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	908	1719	129	882	1655	169	614	508	150	1314	87	1366
Grp Volume(v), veh/h	76	0	500	20	0	476	17	0	0	77	0	167
Grp Sat Flow(s),veh/h/ln	908	0	1848	882	0	1824	1272	0	0	1314	0	1453
Q Serve(g_s), s	2.5	0.0	7.5	0.6	0.0	7.2	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	9.7	0.0	7.5	8.2	0.0	7.2	2.8	0.0	0.0	1.0	0.0	2.8
Prop In Lane	1.00		0.07	1.00		0.09	0.59		0.12	1.00		0.94
Lane Grp Cap(c), veh/h	368	0	706	354	0	697	612	0	0	701	0	500
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.11	0.00	0.33
Avail Cap(c_a), veh/h	725	0	1433	701	0	1414	788	0	0	868	0	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	8.6	12.1	0.0	8.5	7.2	0.0	0.0	7.4	0.0	8.0
Incr Delay (d2), s/veh	0.1	0.0	0.5	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.0	0.1	0.0	1.9	0.1	0.0	0.0	0.3	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	0.0	9.1	12.1	0.0	8.9	7.2	0.0	0.0	7.4	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		576			496			17			244	
Approach Delay, s/veh		9.6			9.1			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.1		15.8		17.1		15.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		15.5		25.5		15.5				
Max Q Clear Time (g_c+I1), s		10.2		4.8		11.7		4.8				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.6				

Intersection Summary	
HCM 7th Control Delay, s/veh	9.0
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	576	584	15	10	15
Future Vol, veh/h	15	576	584	15	10	15
Conflicting Peds, #/hr	113	0	0	112	112	113
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	15	576	584	15	10	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	712	0	-	0	1423	818
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	718	-
Critical Hdwy	4.11	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	892	-	-	-	151	379
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	487	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	796	-	-	-	117	302
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	435	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.24	0	27.42
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	46	-	-	-	185
HCM Lane V/C Ratio	0.019	-	-	-	0.135
HCM Ctrl Dly (s/v)	9.6	0	-	-	27.4
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	237	2	10	59	60	0	1	30	112	5	5
Future Vol, veh/h	25	237	2	10	59	60	0	1	30	112	5	5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	6	6	6	11	11	11	2	2	2
Mvmt Flow	25	237	2	10	59	60	0	1	30	112	5	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	9.6	8.3	7.8	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	9%	8%	92%
Vol Thru, %	3%	90%	46%	4%
Vol Right, %	97%	1%	47%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	264	129	122
LT Vol	0	25	10	112
Through Vol	1	237	59	5
RT Vol	30	2	60	5
Lane Flow Rate	31	264	129	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.039	0.326	0.158	0.17
Departure Headway (Hd)	4.556	4.44	4.414	5.013
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	783	810	811	715
Service Time	2.601	2.466	2.446	3.05
HCM Lane V/C Ratio	0.04	0.326	0.159	0.171
HCM Control Delay, s/veh	7.8	9.6	8.3	9.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.4	0.6	0.6

Intersection	
Intersection Delay, s/veh	19.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	5	10	30	10	193	5	227	30	92	252	100
Future Vol, veh/h	105	5	10	30	10	193	5	227	30	92	252	100
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	115	5	11	33	11	212	5	249	33	101	277	110
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12.6	14.1	15.2	27.3
HCM LOS	B	B	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	88%	13%	21%
Vol Thru, %	87%	4%	4%	57%
Vol Right, %	11%	8%	83%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	262	120	233	444
LT Vol	5	105	30	92
Through Vol	227	5	10	252
RT Vol	30	10	193	100
Lane Flow Rate	288	132	256	488
Geometry Grp	1	1	1	1
Degree of Util (X)	0.496	0.259	0.441	0.79
Departure Headway (Hd)	6.199	7.065	6.194	5.828
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	579	506	581	620
Service Time	4.252	5.129	4.247	3.872
HCM Lane V/C Ratio	0.497	0.261	0.441	0.787
HCM Control Delay, s/veh	15.2	12.6	14.1	27.3
HCM Lane LOS	C	B	B	D
HCM 95th-tile Q	2.7	1	2.2	7.6

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	110	15	50	7	30	22	120	110	54	29	40	210
Future Vol, veh/h	110	15	50	7	30	22	120	110	54	29	40	210
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	126	17	57	8	34	25	138	126	62	33	46	241
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.3	9.6	12.9	11.8
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	63%	12%	10%
Vol Thru, %	39%	9%	51%	14%
Vol Right, %	19%	29%	37%	75%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	175	59	279
LT Vol	120	110	7	29
Through Vol	110	15	30	40
RT Vol	54	50	22	210
Lane Flow Rate	326	201	68	321
Geometry Grp	1	1	1	1
Degree of Util (X)	0.474	0.317	0.11	0.439
Departure Headway (Hd)	5.232	5.668	5.83	4.93
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	689	634	613	731
Service Time	3.265	3.709	3.882	2.965
HCM Lane V/C Ratio	0.473	0.317	0.111	0.439
HCM Control Delay, s/veh	12.9	11.3	9.6	11.8
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	2.6	1.4	0.4	2.2

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	85	15	5	20	10	212	6	351	35	44	114	45
Future Vol, veh/h	85	15	5	20	10	212	6	351	35	44	114	45
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	90	16	5	21	11	226	6	373	37	47	121	48
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.9	12.2	17.3	11.8
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	81%	8%	22%
Vol Thru, %	90%	14%	4%	56%
Vol Right, %	9%	5%	88%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	392	105	242	203
LT Vol	6	85	20	44
Through Vol	351	15	10	114
RT Vol	35	5	212	45
Lane Flow Rate	417	112	257	216
Geometry Grp	1	1	1	1
Degree of Util (X)	0.629	0.195	0.394	0.344
Departure Headway (Hd)	5.434	6.291	5.514	5.732
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	663	566	649	624
Service Time	3.488	4.371	3.58	3.798
HCM Lane V/C Ratio	0.629	0.198	0.396	0.346
HCM Control Delay, s/veh	17.3	10.9	12.2	11.8
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	4.4	0.7	1.9	1.5

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	276	20	110	53	20	36	25	75	13	14	75	45
Future Vol, veh/h	276	20	110	53	20	36	25	75	13	14	75	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	285	21	113	55	21	37	26	77	13	14	77	46
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	13.5	9.2	9.9	9.9
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	68%	49%	10%
Vol Thru, %	66%	5%	18%	56%
Vol Right, %	12%	27%	33%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	113	406	109	134
LT Vol	25	276	53	14
Through Vol	75	20	20	75
RT Vol	13	110	36	45
Lane Flow Rate	116	419	112	138
Geometry Grp	1	1	1	1
Degree of Util (X)	0.183	0.549	0.162	0.209
Departure Headway (Hd)	5.643	4.726	5.18	5.436
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	638	753	694	663
Service Time	3.653	2.818	3.197	3.446
HCM Lane V/C Ratio	0.182	0.556	0.161	0.208
HCM Control Delay, s/veh	9.9	13.5	9.2	9.9
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.7	3.4	0.6	0.8

Intersection	
Intersection Delay, s/veh	19.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	5	10	30	10	193	5	227	30	92	252	100
Future Vol, veh/h	105	5	10	30	10	193	5	227	30	92	252	100
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	115	5	11	33	11	212	5	249	33	101	277	110
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12.6	14.1	15.2	27.3
HCM LOS	B	B	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	88%	13%	21%
Vol Thru, %	87%	4%	4%	57%
Vol Right, %	11%	8%	83%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	262	120	233	444
LT Vol	5	105	30	92
Through Vol	227	5	10	252
RT Vol	30	10	193	100
Lane Flow Rate	288	132	256	488
Geometry Grp	1	1	1	1
Degree of Util (X)	0.496	0.259	0.441	0.79
Departure Headway (Hd)	6.199	7.065	6.194	5.828
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	579	506	581	620
Service Time	4.252	5.129	4.247	3.872
HCM Lane V/C Ratio	0.497	0.261	0.441	0.787
HCM Control Delay, s/veh	15.2	12.6	14.1	27.3
HCM Lane LOS	C	B	B	D
HCM 95th-tile Q	2.7	1	2.2	7.6

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	155	15	25	7	30	22	75	65	54	29	40	210
Future Vol, veh/h	155	15	25	7	30	22	75	65	54	29	40	210
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	178	17	29	8	34	25	86	75	62	33	46	241
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	11.4	9.3	10.7	11.5
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	39%	79%	12%	10%
Vol Thru, %	34%	8%	51%	14%
Vol Right, %	28%	13%	37%	75%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	194	195	59	279
LT Vol	75	155	7	29
Through Vol	65	15	30	40
RT Vol	54	25	22	210
Lane Flow Rate	223	224	68	321
Geometry Grp	1	1	1	1
Degree of Util (X)	0.323	0.344	0.105	0.432
Departure Headway (Hd)	5.209	5.518	5.566	4.852
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	689	652	642	747
Service Time	3.244	3.554	3.612	2.852
HCM Lane V/C Ratio	0.324	0.344	0.106	0.43
HCM Control Delay, s/veh	10.7	11.4	9.3	11.5
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	1.4	1.5	0.4	2.2

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	85	15	5	20	10	212	6	351	35	44	114	45
Future Vol, veh/h	85	15	5	20	10	212	6	351	35	44	114	45
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	90	16	5	21	11	226	6	373	37	47	121	48
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	10.9	12.2	17.3	11.8
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	81%	8%	22%
Vol Thru, %	90%	14%	4%	56%
Vol Right, %	9%	5%	88%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	392	105	242	203
LT Vol	6	85	20	44
Through Vol	351	15	10	114
RT Vol	35	5	212	45
Lane Flow Rate	417	112	257	216
Geometry Grp	1	1	1	1
Degree of Util (X)	0.629	0.195	0.394	0.344
Departure Headway (Hd)	5.434	6.291	5.514	5.732
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	663	566	649	624
Service Time	3.488	4.371	3.58	3.798
HCM Lane V/C Ratio	0.629	0.198	0.396	0.346
HCM Control Delay, s/veh	17.3	10.9	12.2	11.8
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	4.4	0.7	1.9	1.5

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	294	20	43	53	20	36	8	58	13	14	75	45
Future Vol, veh/h	294	20	43	53	20	36	8	58	13	14	75	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	303	21	44	55	21	37	8	60	13	14	77	46
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12.2	8.9	9.2	9.5
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	82%	49%	10%
Vol Thru, %	73%	6%	18%	56%
Vol Right, %	16%	12%	33%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	357	109	134
LT Vol	8	294	53	14
Through Vol	58	20	20	75
RT Vol	13	43	36	45
Lane Flow Rate	81	368	112	138
Geometry Grp	1	1	1	1
Degree of Util (X)	0.121	0.484	0.153	0.198
Departure Headway (Hd)	5.357	4.731	4.899	5.154
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	663	758	726	691
Service Time	3.441	2.788	2.974	3.23
HCM Lane V/C Ratio	0.122	0.485	0.154	0.2
HCM Control Delay, s/veh	9.2	12.2	8.9	9.5
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.4	2.7	0.5	0.7

Intersection	
Intersection Delay, s/veh	75.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	186	18	14	30	13	210	15	318	33	97	384	176
Future Vol, veh/h	186	18	14	30	13	210	15	318	33	97	384	176
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	186	18	14	30	13	210	15	318	33	97	384	176
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	19.4	19.1	28.2	141.4
HCM LOS	C	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	85%	12%	15%
Vol Thru, %	87%	8%	5%	58%
Vol Right, %	9%	6%	83%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	366	218	253	657
LT Vol	15	186	30	97
Through Vol	318	18	13	384
RT Vol	33	14	210	176
Lane Flow Rate	366	218	253	657
Geometry Grp	1	1	1	1
Degree of Util (X)	0.724	0.482	0.515	1.229
Departure Headway (Hd)	7.626	8.628	7.967	6.733
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	476	421	455	539
Service Time	5.626	6.628	5.967	4.795
HCM Lane V/C Ratio	0.769	0.518	0.556	1.219
HCM Control Delay, s/veh	28.2	19.4	19.1	141.4
HCM Lane LOS	D	C	C	F
HCM 95th-tile Q	5.8	2.6	2.9	25

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	189	15	74	7	48	22	174	135	59	29	49	337
Future Vol, veh/h	189	15	74	7	48	22	174	135	59	29	49	337
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	189	15	74	7	48	22	174	135	59	29	49	337
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	15.1	10.9	17.3	17.1
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	68%	9%	7%
Vol Thru, %	37%	5%	62%	12%
Vol Right, %	16%	27%	29%	81%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	368	278	77	415
LT Vol	174	189	7	29
Through Vol	135	15	48	49
RT Vol	59	74	22	337
Lane Flow Rate	368	278	77	415
Geometry Grp	1	1	1	1
Degree of Util (X)	0.596	0.487	0.145	0.621
Departure Headway (Hd)	5.94	6.307	6.783	5.5
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	611	575	531	660
Service Time	3.94	4.307	4.796	3.5
HCM Lane V/C Ratio	0.602	0.483	0.145	0.629
HCM Control Delay, s/veh	17.3	15.1	10.9	17.1
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	3.9	2.7	0.5	4.3

Intersection	
Intersection Delay, s/veh	28.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	184	30	12	25	12	234	7	460	37	49	157	67
Future Vol, veh/h	184	30	12	25	12	234	7	460	37	49	157	67
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	184	30	12	25	12	234	7	460	37	49	157	67
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	17	17.2	46.3	17.8
HCM LOS	C	C	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	18%
Vol Thru, %	91%	13%	4%	58%
Vol Right, %	7%	5%	86%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	504	226	271	273
LT Vol	7	184	25	49
Through Vol	460	30	12	157
RT Vol	37	12	234	67
Lane Flow Rate	504	226	271	273
Geometry Grp	1	1	1	1
Degree of Util (X)	0.918	0.469	0.518	0.532
Departure Headway (Hd)	6.56	7.468	6.883	7.016
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	554	481	523	513
Service Time	4.56	5.541	4.954	5.083
HCM Lane V/C Ratio	0.91	0.47	0.518	0.532
HCM Control Delay, s/veh	46.3	17	17.2	17.8
HCM Lane LOS	E	C	C	C
HCM 95th-tile Q	11.2	2.5	2.9	3.1

Intersection	
Intersection Delay, s/veh	17.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	382	20	152	58	28	41	29	81	13	15	87	77
Future Vol, veh/h	382	20	152	58	28	41	29	81	13	15	87	77
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	382	20	152	58	28	41	29	81	13	15	87	77
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	23.3	10.1	11	11.4
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	69%	46%	8%
Vol Thru, %	66%	4%	22%	49%
Vol Right, %	11%	27%	32%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	123	554	127	179
LT Vol	29	382	58	15
Through Vol	81	20	28	87
RT Vol	13	152	41	77
Lane Flow Rate	123	554	127	179
Geometry Grp	1	1	1	1
Degree of Util (X)	0.213	0.775	0.199	0.292
Departure Headway (Hd)	6.226	5.037	5.635	5.873
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	574	720	635	610
Service Time	4.287	3.076	3.692	3.929
HCM Lane V/C Ratio	0.214	0.769	0.2	0.293
HCM Control Delay, s/veh	11	23.3	10.1	11.4
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	0.8	7.5	0.7	1.2

Intersection	
Intersection Delay, s/veh	78.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	186	14	14	30	13	210	15	318	33	97	393	177
Future Vol, veh/h	186	14	14	30	13	210	15	318	33	97	393	177
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	186	14	14	30	13	210	15	318	33	97	393	177
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	19.2	19.1	28	147.2
HCM LOS	C	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	87%	12%	15%
Vol Thru, %	87%	7%	5%	59%
Vol Right, %	9%	7%	83%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	366	214	253	667
LT Vol	15	186	30	97
Through Vol	318	14	13	393
RT Vol	33	14	210	177
Lane Flow Rate	366	214	253	667
Geometry Grp	1	1	1	1
Degree of Util (X)	0.722	0.473	0.514	1.244
Departure Headway (Hd)	7.621	8.655	7.97	6.713
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	479	419	455	540
Service Time	5.621	6.655	5.97	4.771
HCM Lane V/C Ratio	0.764	0.511	0.556	1.235
HCM Control Delay, s/veh	28	19.2	19.1	147.2
HCM Lane LOS	D	C	C	F
HCM 95th-tile Q	5.8	2.5	2.9	25.8

Intersection	
Intersection Delay, s/veh	16.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	189	15	72	7	60	22	149	135	59	29	49	346
Future Vol, veh/h	189	15	72	7	60	22	149	135	59	29	49	346
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	189	15	72	7	60	22	149	135	59	29	49	346
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	15.1	11.1	16.5	17.5
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	43%	68%	8%	7%
Vol Thru, %	39%	5%	67%	12%
Vol Right, %	17%	26%	25%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	276	89	424
LT Vol	149	189	7	29
Through Vol	135	15	60	49
RT Vol	59	72	22	346
Lane Flow Rate	343	276	89	424
Geometry Grp	1	1	1	1
Degree of Util (X)	0.568	0.483	0.167	0.633
Departure Headway (Hd)	5.963	6.305	6.746	5.502
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	607	574	532	661
Service Time	3.979	4.322	4.779	3.502
HCM Lane V/C Ratio	0.565	0.481	0.167	0.641
HCM Control Delay, s/veh	16.5	15.1	11.1	17.5
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	3.6	2.6	0.6	4.5

Intersection	
Intersection Delay, s/veh	28.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	184	30	12	25	12	234	7	460	37	49	158	66
Future Vol, veh/h	184	30	12	25	12	234	7	460	37	49	158	66
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	184	30	12	25	12	234	7	460	37	49	158	66
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	17	17.2	46.3	17.9
HCM LOS	C	C	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	18%
Vol Thru, %	91%	13%	4%	58%
Vol Right, %	7%	5%	86%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	504	226	271	273
LT Vol	7	184	25	49
Through Vol	460	30	12	158
RT Vol	37	12	234	66
Lane Flow Rate	504	226	271	273
Geometry Grp	1	1	1	1
Degree of Util (X)	0.918	0.469	0.518	0.532
Departure Headway (Hd)	6.56	7.468	6.883	7.018
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	554	481	523	513
Service Time	4.56	5.541	4.954	5.085
HCM Lane V/C Ratio	0.91	0.47	0.518	0.532
HCM Control Delay, s/veh	46.3	17	17.2	17.9
HCM Lane LOS	E	C	C	C
HCM 95th-tile Q	11.2	2.5	2.9	3.1

Intersection	
Intersection Delay, s/veh	17.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	382	20	144	58	28	41	28	81	13	15	87	78
Future Vol, veh/h	382	20	144	58	28	41	28	81	13	15	87	78
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	382	20	144	58	28	41	28	81	13	15	87	78
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	22.6	10.1	10.9	11.3
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	70%	46%	8%
Vol Thru, %	66%	4%	22%	48%
Vol Right, %	11%	26%	32%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	546	127	180
LT Vol	28	382	58	15
Through Vol	81	20	28	87
RT Vol	13	144	41	78
Lane Flow Rate	122	546	127	180
Geometry Grp	1	1	1	1
Degree of Util (X)	0.21	0.765	0.198	0.292
Departure Headway (Hd)	6.206	5.044	5.621	5.848
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	577	715	636	612
Service Time	4.264	3.077	3.674	3.902
HCM Lane V/C Ratio	0.211	0.764	0.2	0.294
HCM Control Delay, s/veh	10.9	22.6	10.1	11.3
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	0.8	7.2	0.7	1.2

Intersection	
Intersection Delay, s/veh	40.5
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	117	11	10	30	10	175	5	296	30	75	331	134
Future Vol, veh/h	117	11	10	30	10	175	5	296	30	75	331	134
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	129	12	11	33	11	192	5	325	33	82	364	147
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.9	16.1	22.7	67.6
HCM LOS	B	C	C	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	85%	14%	14%
Vol Thru, %	89%	8%	5%	61%
Vol Right, %	9%	7%	81%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	331	138	215	540
LT Vol	5	117	30	75
Through Vol	296	11	10	331
RT Vol	30	10	175	134
Lane Flow Rate	364	152	236	593
Geometry Grp	1	1	1	1
Degree of Util (X)	0.675	0.331	0.461	1.02
Departure Headway (Hd)	6.785	7.976	7.133	6.188
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	535	453	508	582
Service Time	4.785	5.976	5.133	4.274
HCM Lane V/C Ratio	0.68	0.336	0.465	1.019
HCM Control Delay, s/veh	22.7	14.9	16.1	67.6
HCM Lane LOS	C	B	C	F
HCM 95th-tile Q	5	1.4	2.4	15.5

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	191	15	68	1	55	10	134	110	40	12	40	306
Future Vol, veh/h	191	15	68	1	55	10	134	110	40	12	40	306
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	220	17	78	1	63	11	154	126	46	14	46	352
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	16.4	11	16.2	17.1
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	47%	70%	2%	3%
Vol Thru, %	39%	5%	83%	11%
Vol Right, %	14%	25%	15%	85%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	274	66	358
LT Vol	134	191	1	12
Through Vol	110	15	55	40
RT Vol	40	68	10	306
Lane Flow Rate	326	315	76	411
Geometry Grp	1	1	1	1
Degree of Util (X)	0.549	0.544	0.144	0.618
Departure Headway (Hd)	6.053	6.219	6.821	5.533
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	597	583	526	658
Service Time	4.072	4.236	4.857	3.533
HCM Lane V/C Ratio	0.546	0.54	0.144	0.625
HCM Control Delay, s/veh	16.2	16.4	11	17.1
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	3.3	3.3	0.5	4.3

Intersection	
Intersection Delay, s/veh	20.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	100	23	5	20	10	185	6	442	35	40	133	53
Future Vol, veh/h	100	23	5	20	10	185	6	442	35	40	133	53
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	106	24	5	21	11	197	6	470	37	43	141	56
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12.2	13	28.5	13.2
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	78%	9%	18%
Vol Thru, %	92%	18%	5%	59%
Vol Right, %	7%	4%	86%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	483	128	215	226
LT Vol	6	100	20	40
Through Vol	442	23	10	133
RT Vol	35	5	185	53
Lane Flow Rate	514	136	229	240
Geometry Grp	1	1	1	1
Degree of Util (X)	0.811	0.257	0.387	0.406
Departure Headway (Hd)	5.681	6.787	6.086	6.076
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	642	528	590	591
Service Time	3.681	4.844	4.137	4.123
HCM Lane V/C Ratio	0.801	0.258	0.388	0.406
HCM Control Delay, s/veh	28.5	12.2	13	13.2
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	8.3	1	1.8	2

Intersection	
Intersection Delay, s/veh	17.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	383	20	135	45	26	20	29	75	10	10	75	68
Future Vol, veh/h	383	20	135	45	26	20	29	75	10	10	75	68
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	395	21	139	46	27	21	30	77	10	10	77	70
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	21.7	9.6	10.6	10.7
HCM LOS	C	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	71%	49%	7%
Vol Thru, %	66%	4%	29%	49%
Vol Right, %	9%	25%	22%	44%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	538	91	153
LT Vol	29	383	45	10
Through Vol	75	20	26	75
RT Vol	10	135	20	68
Lane Flow Rate	118	555	94	158
Geometry Grp	1	1	1	1
Degree of Util (X)	0.198	0.759	0.145	0.251
Departure Headway (Hd)	6.065	4.928	5.568	5.724
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	590	738	643	626
Service Time	4.119	2.928	3.616	3.775
HCM Lane V/C Ratio	0.2	0.752	0.146	0.252
HCM Control Delay, s/veh	10.6	21.7	9.6	10.7
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	0.7	7.1	0.5	1

Intersection	
Intersection Delay, s/veh	40.3
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	117	11	10	30	10	175	5	295	30	75	331	134
Future Vol, veh/h	117	11	10	30	10	175	5	295	30	75	331	134
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	129	12	11	33	11	192	5	324	33	82	364	147
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.8	16	22.6	67.3
HCM LOS	B	C	C	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	85%	14%	14%
Vol Thru, %	89%	8%	5%	61%
Vol Right, %	9%	7%	81%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	330	138	215	540
LT Vol	5	117	30	75
Through Vol	295	11	10	331
RT Vol	30	10	175	134
Lane Flow Rate	363	152	236	593
Geometry Grp	1	1	1	1
Degree of Util (X)	0.673	0.33	0.46	1.019
Departure Headway (Hd)	6.778	7.968	7.125	6.181
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	537	453	508	582
Service Time	4.778	5.968	5.125	4.267
HCM Lane V/C Ratio	0.676	0.336	0.465	1.019
HCM Control Delay, s/veh	22.6	14.8	16	67.3
HCM Lane LOS	C	B	C	F
HCM 95th-tile Q	5	1.4	2.4	15.5

Intersection	
Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	235	15	38	1	55	10	75	65	40	12	40	306
Future Vol, veh/h	235	15	38	1	55	10	75	65	40	12	40	306
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	270	17	44	1	63	11	86	75	46	14	46	352
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	15.6	10.3	11.9	15.6
HCM LOS	C	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	82%	2%	3%
Vol Thru, %	36%	5%	83%	11%
Vol Right, %	22%	13%	15%	85%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	288	66	358
LT Vol	75	235	1	12
Through Vol	65	15	55	40
RT Vol	40	38	10	306
Lane Flow Rate	207	331	76	411
Geometry Grp	1	1	1	1
Degree of Util (X)	0.337	0.538	0.132	0.592
Departure Headway (Hd)	5.864	5.846	6.257	5.178
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	608	616	568	691
Service Time	3.941	3.909	4.349	3.242
HCM Lane V/C Ratio	0.34	0.537	0.134	0.595
HCM Control Delay, s/veh	11.9	15.6	10.3	15.6
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.5	3.2	0.5	3.9

Intersection	
Intersection Delay, s/veh	20.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	100	23	5	20	10	185	6	442	35	40	133	53
Future Vol, veh/h	100	23	5	20	10	185	6	442	35	40	133	53
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	106	24	5	21	11	197	6	470	37	43	141	56
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	12.2	13	28.5	13.2
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	78%	9%	18%
Vol Thru, %	92%	18%	5%	59%
Vol Right, %	7%	4%	86%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	483	128	215	226
LT Vol	6	100	20	40
Through Vol	442	23	10	133
RT Vol	35	5	185	53
Lane Flow Rate	514	136	229	240
Geometry Grp	1	1	1	1
Degree of Util (X)	0.811	0.257	0.387	0.406
Departure Headway (Hd)	5.681	6.787	6.086	6.076
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	642	528	590	591
Service Time	3.681	4.844	4.137	4.123
HCM Lane V/C Ratio	0.801	0.258	0.388	0.406
HCM Control Delay, s/veh	28.5	12.2	13	13.2
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	8.3	1	1.8	2

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	401	20	60	45	26	20	8	58	10	10	75	68
Future Vol, veh/h	401	20	60	45	26	20	8	58	10	10	75	68
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	413	21	62	46	27	21	8	60	10	10	77	70
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	16.7	9.2	9.7	10.2
HCM LOS	C	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	83%	49%	7%
Vol Thru, %	76%	4%	29%	49%
Vol Right, %	13%	12%	22%	44%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	481	91	153
LT Vol	8	401	45	10
Through Vol	58	20	26	75
RT Vol	10	60	20	68
Lane Flow Rate	78	496	94	158
Geometry Grp	1	1	1	1
Degree of Util (X)	0.127	0.658	0.138	0.239
Departure Headway (Hd)	5.821	4.775	5.306	5.465
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	618	749	678	659
Service Time	3.832	2.864	3.321	3.474
HCM Lane V/C Ratio	0.126	0.662	0.139	0.24
HCM Control Delay, s/veh	9.7	16.7	9.2	10.2
HCM Lane LOS	A	C	A	B
HCM 95th-tile Q	0.4	5	0.5	0.9

Intersection	
Intersection Delay, s/veh	98.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	192	21	14	30	13	214	15	346	33	88	415	193
Future Vol, veh/h	192	21	14	30	13	214	15	346	33	88	415	193
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	192	21	14	30	13	214	15	346	33	88	415	193
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	21.3	20.8	35.3	189
HCM LOS	C	C	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	85%	12%	13%
Vol Thru, %	88%	9%	5%	60%
Vol Right, %	8%	6%	83%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	394	227	257	696
LT Vol	15	192	30	88
Through Vol	346	21	13	415
RT Vol	33	14	214	193
Lane Flow Rate	394	227	257	696
Geometry Grp	1	1	1	1
Degree of Util (X)	0.794	0.514	0.538	1.345
Departure Headway (Hd)	7.961	9.064	8.416	6.955
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	457	400	432	522
Service Time	5.961	7.064	6.416	5.019
HCM Lane V/C Ratio	0.862	0.568	0.595	1.333
HCM Control Delay, s/veh	35.3	21.3	20.8	189
HCM Lane LOS	E	C	C	F
HCM 95th-tile Q	7.2	2.8	3.1	30.6

Intersection	
Intersection Delay, s/veh	19.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	229	15	83	5	61	10	180	135	47	12	49	385
Future Vol, veh/h	229	15	83	5	61	10	180	135	47	12	49	385
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	229	15	83	5	61	10	180	135	47	12	49	385
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	18.5	11.6	19.4	21.3
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	70%	7%	3%
Vol Thru, %	37%	5%	80%	11%
Vol Right, %	13%	25%	13%	86%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	362	327	76	446
LT Vol	180	229	5	12
Through Vol	135	15	61	49
RT Vol	47	83	10	385
Lane Flow Rate	362	327	76	446
Geometry Grp	1	1	1	1
Degree of Util (X)	0.629	0.589	0.153	0.705
Departure Headway (Hd)	6.259	6.479	7.234	5.692
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	576	556	493	633
Service Time	4.312	4.53	5.312	3.742
HCM Lane V/C Ratio	0.628	0.588	0.154	0.705
HCM Control Delay, s/veh	19.4	18.5	11.6	21.3
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	4.4	3.8	0.5	5.7

Intersection	
Intersection Delay, s/veh	38.8
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	192	34	12	25	12	236	7	497	37	46	164	71
Future Vol, veh/h	192	34	12	25	12	236	7	497	37	46	164	71
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	192	34	12	25	12	236	7	497	37	46	164	71
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	18.9	18.8	67.6	19.8
HCM LOS	C	C	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	16%
Vol Thru, %	92%	14%	4%	58%
Vol Right, %	7%	5%	86%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	541	238	273	281
LT Vol	7	192	25	46
Through Vol	497	34	12	164
RT Vol	37	12	236	71
Lane Flow Rate	541	238	273	281
Geometry Grp	1	1	1	1
Degree of Util (X)	1.01	0.515	0.548	0.571
Departure Headway (Hd)	6.719	7.788	7.226	7.321
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	541	462	497	489
Service Time	4.783	5.873	5.31	5.406
HCM Lane V/C Ratio	1	0.515	0.549	0.575
HCM Control Delay, s/veh	67.6	18.9	18.8	19.8
HCM Lane LOS	F	C	C	C
HCM 95th-tile Q	14.5	2.9	3.3	3.5

Intersection	
Intersection Delay, s/veh	23.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	435	20	164	55	31	25	31	81	10	10	87	89
Future Vol, veh/h	435	20	164	55	31	25	31	81	10	10	87	89
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	435	20	164	55	31	25	31	81	10	10	87	89
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	32.4	10.2	11.3	11.8
HCM LOS	D	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	70%	50%	5%
Vol Thru, %	66%	3%	28%	47%
Vol Right, %	8%	26%	23%	48%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	619	111	186
LT Vol	31	435	55	10
Through Vol	81	20	31	87
RT Vol	10	164	25	89
Lane Flow Rate	122	619	111	186
Geometry Grp	1	1	1	1
Degree of Util (X)	0.218	0.871	0.18	0.31
Departure Headway (Hd)	6.421	5.064	5.851	5.993
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	556	712	609	597
Service Time	4.492	3.107	3.921	4.057
HCM Lane V/C Ratio	0.219	0.869	0.182	0.312
HCM Control Delay, s/veh	11.3	32.4	10.2	11.8
HCM Lane LOS	B	D	B	B
HCM 95th-tile Q	0.8	10.5	0.7	1.3

Intersection	
Intersection Delay, s/veh	101.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	192	17	14	30	13	214	15	346	33	88	423	194
Future Vol, veh/h	192	17	14	30	13	214	15	346	33	88	423	194
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	4	4	4	7	7	7	8	8	8	9	9	9
Mvmt Flow	192	17	14	30	13	214	15	346	33	88	423	194
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	21	20.7	35	193.9
HCM LOS	C	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	86%	12%	12%
Vol Thru, %	88%	8%	5%	60%
Vol Right, %	8%	6%	83%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	394	223	257	705
LT Vol	15	192	30	88
Through Vol	346	17	13	423
RT Vol	33	14	214	194
Lane Flow Rate	394	223	257	705
Geometry Grp	1	1	1	1
Degree of Util (X)	0.792	0.505	0.536	1.357
Departure Headway (Hd)	7.948	9.081	8.411	6.929
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	457	399	432	529
Service Time	5.948	7.081	6.411	4.991
HCM Lane V/C Ratio	0.862	0.559	0.595	1.333
HCM Control Delay, s/veh	35	21	20.7	193.9
HCM Lane LOS	D	C	C	F
HCM 95th-tile Q	7.1	2.8	3.1	31.3

Intersection	
Intersection Delay, s/veh	18.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	229	15	78	5	73	10	149	135	47	12	49	393
Future Vol, veh/h	229	15	78	5	73	10	149	135	47	12	49	393
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	5	5	5	7	7	7	11	11	11
Mvmt Flow	229	15	78	5	73	10	149	135	47	12	49	393
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	18	11.7	17.6	21.5
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	45%	71%	6%	3%
Vol Thru, %	41%	5%	83%	11%
Vol Right, %	14%	24%	11%	87%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	331	322	88	454
LT Vol	149	229	5	12
Through Vol	135	15	73	49
RT Vol	47	78	10	393
Lane Flow Rate	331	322	88	454
Geometry Grp	1	1	1	1
Degree of Util (X)	0.577	0.577	0.174	0.712
Departure Headway (Hd)	6.273	6.452	7.129	5.647
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	573	557	501	640
Service Time	4.324	4.503	5.204	3.694
HCM Lane V/C Ratio	0.578	0.578	0.176	0.709
HCM Control Delay, s/veh	17.6	18	11.7	21.5
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	3.6	3.6	0.6	5.9

Intersection	
Intersection Delay, s/veh	39
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	192	34	12	25	12	236	7	497	37	46	166	70
Future Vol, veh/h	192	34	12	25	12	236	7	497	37	46	166	70
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	9	9	9	8	8	8	9	9	9
Mvmt Flow	192	34	12	25	12	236	7	497	37	46	166	70
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	19	18.9	67.9	19.9
HCM LOS	C	C	F	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	16%
Vol Thru, %	92%	14%	4%	59%
Vol Right, %	7%	5%	86%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	541	238	273	282
LT Vol	7	192	25	46
Through Vol	497	34	12	166
RT Vol	37	12	236	70
Lane Flow Rate	541	238	273	282
Geometry Grp	1	1	1	1
Degree of Util (X)	1.011	0.515	0.549	0.574
Departure Headway (Hd)	6.725	7.794	7.235	7.328
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	541	459	497	491
Service Time	4.79	5.883	5.318	5.413
HCM Lane V/C Ratio	1	0.519	0.549	0.574
HCM Control Delay, s/veh	67.9	19	18.9	19.9
HCM Lane LOS	F	C	C	C
HCM 95th-tile Q	14.5	2.9	3.3	3.6

Intersection	
Intersection Delay, s/veh	22.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	435	20	152	55	31	25	28	81	10	10	87	91
Future Vol, veh/h	435	20	152	55	31	25	28	81	10	10	87	91
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	435	20	152	55	31	25	28	81	10	10	87	91
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	30.4	10.2	11.2	11.7
HCM LOS	D	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	72%	50%	5%
Vol Thru, %	68%	3%	28%	46%
Vol Right, %	8%	25%	23%	48%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	607	111	188
LT Vol	28	435	55	10
Through Vol	81	20	31	87
RT Vol	10	152	25	91
Lane Flow Rate	119	607	111	188
Geometry Grp	1	1	1	1
Degree of Util (X)	0.211	0.854	0.18	0.311
Departure Headway (Hd)	6.384	5.067	5.824	5.948
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	559	716	613	602
Service Time	4.453	3.107	3.887	4.011
HCM Lane V/C Ratio	0.213	0.848	0.181	0.312
HCM Control Delay, s/veh	11.2	30.4	10.2	11.7
HCM Lane LOS	B	D	B	B
HCM 95th-tile Q	0.8	9.9	0.7	1.3

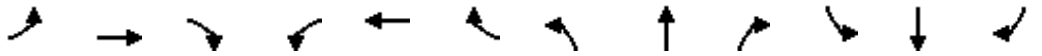
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1012	551	24	944	36	350	326	33	40	97	65
Future Volume (veh/h)	15	1012	551	24	944	36	350	326	33	40	97	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.95	0.94		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1811	1811	1811	1752	1752	1752
Adj Flow Rate, veh/h	15	1012	551	24	944	36	350	326	33	40	97	65
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	2	2	2	6	6	6	10	10	10
Cap, veh/h	54	2529	1313	98	3687	139	262	665	67	85	162	95
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.15	0.41	0.41	0.21	0.21	0.21
Sat Flow, veh/h	12	2163	1123	49	3154	119	1725	1609	163	184	781	458
Grp Volume(v), veh/h	857	0	721	497	0	507	350	0	359	202	0	0
Grp Sat Flow(s),veh/h/ln	1829	0	1470	1643	0	1679	1725	0	1771	1422	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	13.7	5.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	13.7	11.6	0.0	0.0
Prop In Lane	0.02		0.76	0.05		0.07	1.00		0.09	0.20		0.32
Lane Grp Cap(c), veh/h	2178	0	1718	1961	0	1962	262	0	732	341	0	0
V/C Ratio(X)	0.39	0.00	0.42	0.25	0.00	0.26	1.33	0.00	0.49	0.59	0.00	0.00
Avail Cap(c_a), veh/h	2178	0	1718	1961	0	1962	262	0	732	355	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.51	0.00	0.51	1.00	0.00	1.00	0.91	0.00	0.91	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	39.0	0.0	19.9	33.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.3	0.0	0.3	171.8	0.0	0.2	1.6	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.0	0.3	0.3	0.0	0.3	28.4	0.0	9.3	7.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.3	0.0	0.4	0.3	0.0	0.3	210.8	0.0	20.0	34.9	0.0	0.0
LnGrp LOS	A		A	A		A	F		C	C		
Approach Vol, veh/h		1578			1004			709			202	
Approach Delay, s/veh		0.3			0.3			114.2			34.9	
Approach LOS		A			A			F			C	

Timer - Assigned Phs	2	4	6	7	8
Phs Duration (G+Y+Rc), s	117.1	46.0	117.1	19.0	27.0
Change Period (Y+Rc), s	7.5	8.0	* 7.5	5.0	8.0
Max Green Setting (Gmax), s	37.5	37.0	* 41	14.0	20.0
Max Q Clear Time (g_c+I1), s	2.0	15.7	2.0	16.0	13.6
Green Ext Time (p_c), s	2.8	1.5	1.6	0.0	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	25.4
HCM 7th LOS	C

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

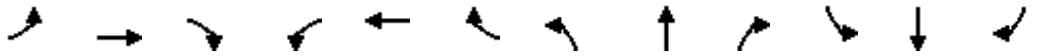


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	8	14	30	13	210	15	364	39	97	427	143
Future Volume (veh/h)	140	8	14	30	13	210	15	364	39	97	427	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.86		0.39	1.00		0.59	1.00		0.76	0.96		0.77
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1796	1796	1796	1781	1781	1781	1767	1767	1767
Adj Flow Rate, veh/h	140	8	14	30	13	210	15	364	39	97	427	143
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	7	7	7	8	8	8	9	9	9
Cap, veh/h	174	11	10	71	24	250	56	933	98	150	607	194
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	485	52	51	130	119	1216	24	1487	155	166	967	309
Grp Volume(v), veh/h	162	0	0	253	0	0	418	0	0	667	0	0
Grp Sat Flow(s),veh/h/ln	588	0	0	1464	0	0	1666	0	0	1442	0	0
Q Serve(g_s), s	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.5	0.0	0.0
Cycle Q Clear(g_c), s	18.5	0.0	0.0	15.6	0.0	0.0	11.0	0.0	0.0	27.4	0.0	0.0
Prop In Lane	0.86		0.09	0.12		0.83	0.04		0.09	0.15		0.21
Lane Grp Cap(c), veh/h	195	0	0	346	0	0	1087	0	0	951	0	0
V/C Ratio(X)	0.83	0.00	0.00	0.73	0.00	0.00	0.38	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	195	0	0	346	0	0	1087	0	0	951	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.70	0.00	0.00
Uniform Delay (d), s/veh	38.6	0.0	0.0	35.7	0.0	0.0	8.3	0.0	0.0	11.1	0.0	0.0
Incr Delay (d2), s/veh	24.7	0.0	0.0	7.7	0.0	0.0	1.0	0.0	0.0	3.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.6	0.0	0.0	10.1	0.0	0.0	7.2	0.0	0.0	12.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	63.3	0.0	0.0	43.4	0.0	0.0	9.3	0.0	0.0	14.1	0.0	0.0
LnGrp LOS	E			D			A			B		
Approach Vol, veh/h		162			253			418			667	
Approach Delay, s/veh		63.3			43.4			9.3			14.1	
Approach LOS		E			D			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.0		26.0		64.0		26.0				
Change Period (Y+Rc), s		7.5		7.5		7.5		7.5				
Max Green Setting (Gmax), s		56.5		18.5		56.5		18.5				
Max Q Clear Time (g_c+I1), s		13.0		20.5		29.4		17.6				
Green Ext Time (p_c), s		3.3		0.0		6.3		0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	23.0
HCM 7th LOS	C

Notes
User approved pedestrian interval to be less than phase max green.



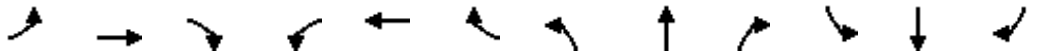
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	636	187	10	846	20	498	299	32	25	46	155
Future Volume (veh/h)	20	636	187	10	846	20	498	299	32	25	46	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.95	0.94		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1796	1796	1796	1856	1856	1856
Adj Flow Rate, veh/h	20	636	187	10	846	20	498	299	32	25	46	155
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	7	7	7	3	3	3
Cap, veh/h	94	2853	829	58	3846	90	497	875	94	62	75	205
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.29	0.55	0.55	0.21	0.21	0.21
Sat Flow, veh/h	48	2544	739	16	3430	81	1711	1586	170	90	363	988
Grp Volume(v), veh/h	450	0	393	457	0	419	498	0	331	226	0	0
Grp Sat Flow(s),veh/h/ln	1777	0	1553	1841	0	1686	1711	0	1755	1441	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	27.0	0.0	9.7	5.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	27.0	0.0	9.7	13.5	0.0	0.0
Prop In Lane	0.04		0.48	0.02		0.05	1.00		0.10	0.11		0.69
Lane Grp Cap(c), veh/h	2034	0	1742	2104	0	1891	497	0	968	342	0	0
V/C Ratio(X)	0.22	0.00	0.23	0.22	0.00	0.22	1.00	0.00	0.34	0.66	0.00	0.00
Avail Cap(c_a), veh/h	2034	0	1742	2104	0	1891	497	0	968	352	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.00	0.92	1.00	0.00	1.00	0.77	0.00	0.77	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	33.0	0.0	11.5	34.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.3	0.2	0.0	0.3	36.1	0.0	0.1	3.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	0.2	0.2	0.0	0.3	21.7	0.0	6.4	8.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.2	0.0	0.3	0.2	0.0	0.3	69.1	0.0	11.6	37.8	0.0	0.0
LnGrp LOS	A		A	A		A	E		B	D		
Approach Vol, veh/h		843			876			829			226	
Approach Delay, s/veh		0.3			0.3			46.1			37.8	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		114.1		59.3		114.1	32.0	27.3				
Change Period (Y+Rc), s		7.5		8.0		* 7.5	5.0	8.0				
Max Green Setting (Gmax), s		25.5		49.0		* 29	27.0	20.0				
Max Q Clear Time (g_c+I1), s		2.0		11.7		2.0	29.0	15.5				
Green Ext Time (p_c), s		1.2		1.5		1.1	0.0	0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			17.0									
HCM 7th LOS			B									

Notes

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	30	12	25	12	235	7	460	37	49	145	79
Future Volume (veh/h)	184	30	12	25	12	235	7	460	37	49	145	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	0.98		0.61	1.00		0.75	0.93		0.74	1.00		0.76
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1767	1767	1767	1781	1781	1781	1767	1767	1767
Adj Flow Rate, veh/h	184	30	12	25	12	235	7	460	37	49	145	79
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	9	9	9	8	8	8	9	9	9
Cap, veh/h	275	42	14	69	34	376	44	826	66	149	409	208
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.53	0.53	0.53	0.53	0.53	0.53
Sat Flow, veh/h	659	136	45	81	112	1224	7	1570	125	193	777	395
Grp Volume(v), veh/h	226	0	0	272	0	0	504	0	0	273	0	0
Grp Sat Flow(s),veh/h/ln	839	0	0	1417	0	0	1701	0	0	1365	0	0
Q Serve(g_s), s	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	24.6	0.0	0.0	16.4	0.0	0.0	17.9	0.0	0.0	9.3	0.0	0.0
Prop In Lane	0.81		0.05	0.09		0.86	0.01		0.07	0.18		0.29
Lane Grp Cap(c), veh/h	330	0	0	479	0	0	936	0	0	766	0	0
V/C Ratio(X)	0.68	0.00	0.00	0.57	0.00	0.00	0.54	0.00	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	434	0	0	579	0	0	936	0	0	766	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	0.73	0.00	0.00
Uniform Delay (d), s/veh	31.8	0.0	0.0	27.8	0.0	0.0	14.3	0.0	0.0	12.3	0.0	0.0
Incr Delay (d2), s/veh	2.9	0.0	0.0	1.1	0.0	0.0	2.2	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.6	0.0	0.0	9.0	0.0	0.0	11.5	0.0	0.0	5.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.7	0.0	0.0	28.9	0.0	0.0	16.5	0.0	0.0	13.2	0.0	0.0
LnGrp LOS	C			C			B			B		
Approach Vol, veh/h		226			272			504			273	
Approach Delay, s/veh		34.7			28.9			16.5			13.2	
Approach LOS		C			C			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		54.9		35.1		54.9		35.1				
Change Period (Y+Rc), s		7.5		7.5		7.5		7.5				
Max Green Setting (Gmax), s		39.5		35.5		39.5		35.5				
Max Q Clear Time (g_c+I1), s		19.9		26.6		11.3		18.4				
Green Ext Time (p_c), s		3.5		1.0		2.2		2.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			21.7									
HCM 7th LOS			C									

Appendix G Pipeline Projects

#	Project Address	Number	Description
1.	801 3RD AVE	3027315	construction of a 36-story office building and includes approximately 810,000 square feet of office space and 8,400 square feet retail space. A six-story underground garage with 387 spaces is proposed. The existing structures consisting of 41,543 square feet of office space as well as 9,314 square feet of retail space would be demolished
2.	701 4th Ave	3020955	Land Use Application to allow a 100-story, 1020 unit apartment building with office and retail. Parking for 750 vehicles proposed. Existing structures to be demolished. An Addendum to the Downtown Height & Density Environmental Impact Statement is being prepared.
3.	601 4th Ave	3028747	Use Application to allow a 58-story, 422-unit apartment building with retail sales and service and public plaza. Parking for 509 vehicles proposed.
4.	751 MARION ST	3011809	Land Use Application to allow a two-story parking garage with 351 parking spaces. Project includes 17,600 cu. yds. of grading and alley improvements. See related environmental review for #3012007, 800 7th Ave, 49 additional surface parking spaces.
5.	800 COLUMBIA ST	3022893	Land Use Application to allow a 30-story, apartment building with 287 units in an environmentally critical area. Parking for 234 vehicles to be located below grade. Environmental and Early Design Guidance review conducted under previously approved project 3013479. This project proposes changes to 3013479 consisting of design changes to the top of the building, modulation, and exterior materials.
6.	901 MADISON ST	3034785	Land use application to allow a 21-story, 178-unit apartment building with retail. Parking for 18 vehicles proposed. Existing building to be demolished. Early Design Guidance conducted under 3034798-EG. This project is participating in the Living Building Pilot.
7.	815 9TH AVE	3030904	Land Use application to allow an 8 -story, 96-unit apartment building. Parking for 8 vehicles proposed. Design Review Guidance conducted under 3030904-EG.
8.	615 8TH AVE	3028710	Land Use Application to allow for a 27-story, 226-unit apartment building with institution and general retail sales and service. Parking for 178 vehicles proposed. Existing structures to be demolished.
9.	907 TERRY AVE	3039601	Land Use Application to allow a 41-story, 373-unit apartment building with commercial. Parking for 129 vehicles proposed. Existing buildings to be demolished. This project is participating in the Living Building Pilot Program.
10.	707 TERRY AVE	3021510	Land Use Application to allow two, 33-story towers with 440 apartment units above a 3-story podium. 7,600 sq. ft. of retail will be located at street level. Parking for 316 vehicles to be provided below grade.
11.	718 YESLER WAY	3038868	Land use application to allow an 8-story hotel. Parking for 32 vehicles proposed. Early Design Guidance conducted under 3038919-EG.
12.	500 TERRY AVE	3012929	Land Use Application to allow a 27-story building containing 328 residential units. Parking for 230 vehicles to be provided below grade. Project also includes 46,000 cubic yards of grading.
13.	803 S WASHINGTON ST	3034294	Land Use Application to allow a 21-story and a 23-story apartment building (352 units total) with retail. Parking for 245 vehicles proposed. Early Design Guidance conducted under Project #3033617-EG.
14.	515 MINOR AVE	3020828	Land Use Application to allow a six-story building with 136,984 sq. ft. of medical office space. Parking for 274 vehicles to be provided below grade. Existing building at 515 Minor Ave to be demolished. Existing building at 516 Boren Ave to remain.
15.	500 BROADWAY	3033011	Land use Application to allow an 8-story congregate residence and hotel with retail. No parking proposed. Existing building to be demolished.
16.	910 E FIR ST	3037568	Streamlined Design Review for a 6-story, 14-unit apartment building. No parking proposed.
17.	216 10TH AVE	3028186	Land Use Application to allow an 8-story, 168-unit apartment building. No parking proposed. Existing buildings to be demolished.
18.	110 10TH AVE S	3030186	Land Use Application to allow a 7-story, 136-unit apartment building. Parking for 63 vehicles proposed. Early Design Guidance conducted under 3032257-EG.
19.	1032 S JACKSON ST	3022675	Land Use Application to allow an 8-story building containing 258 apartments and hotel above retail, restaurant, grocery, child care center and theater. Parking for 416 vehicles proposed. Existing 2-story building at 1032 S Jackson St to be demolished and 106 surface parking spaces removed. Existing one-story building at 1046 S Jackson St to remain.
20.	301 12TH AVE	3016903	Land Use Application to allow a 7-story, 75-unit residential building with 2,700 sq. ft. of retail at grade and 20 parking spaces located within the structure. Existing buildings to be demolished.
21.	157 12TH AVE	3028225	Land Use Application to allow an 8-story apartment building with 65 apartments, 27 small efficiency dwelling units (92 units total) and retail. No proposed parking. Existing building to be demolished.
22.	1121 E FIR ST	3036579	Land Use application to allow an 8-story, 119-unit apartment building with retail. Parking for 46 vehicles proposed. Existing building to be demolished. Early Design Guidance conducted under 3038915-EG.
23.	104 12TH AVE	3028662	Land Use Application to allow a 6-story, 279-unit apartment building with general retail sales and service. Parking for 135 vehicles proposed. Existing buildings to be demolished.
24.	1221 S MAIN ST	3024316	Design Review Early Design Guidance to construct an 130,000 sq. ft. mixed use commercial building with 160 apartment units and 75 below grade parking stalls. REVISED FROM: Demolition of existing building. New construction of 84,000 sq. ft. mixed use building with below grade parking.
25.	215 9TH AVE	-	Construct a new 225,000 sf office building as part of the Yesler Terrace Development.

Appendix H Signal Warrants

HCS Warrants Report

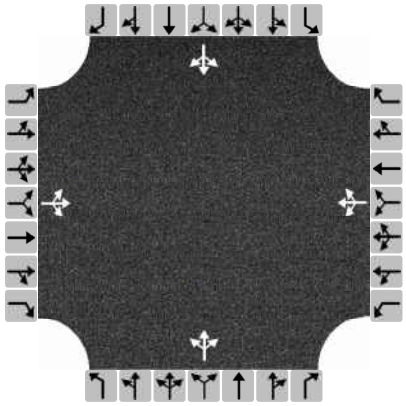
Project Information

Analyst	Transpo Group	Date	5/5/2026
Agency		Analysis Year	8th open, with loop rd, with Yesler connection
Jurisdiction	City of Seattle	Time Period Analyzed	Future 2045
Units	U.S. Customary	MUTCD Method	MUTCD 11 (2023)
Project Description	Harborview Medical Center		

General

Major Street Direction	North-South	Population < 10,000	No
Starting Time Interval	7:00	Coordinated Signal System	No
Major Street Speed (mi/h)	25	Nearest Signal (ft)	300
Adequate Trials of Crash Exp. Alt.	No		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	1	0	0	1	0	0	1	0	0	1	0
Lane Usage		LTR			LTR			LTR			LTR	
Vehicle Volumes Averages (veh/h)	132	17	8	19	9	164	6	300	26	47	152	91
Pedestrian median refuge available	No			No			No			No		
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay Averages (s/veh)	0.0			0.0			0.0			0.0		
Delay Averages (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)	-	Tractor-Trailer Trucks (%)	10

Volume Summary

Hours	Major Volume (veh/h)	Minor Volume (veh/h)	Total Volume (veh/h)	Peds/h	Gaps/h	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (80%)	4A (100%)	4B (100%)
7:00 - 8:00	800	198	1162	0	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
8:00 - 9:00	594	148	864	0	0	No	Yes	No	No	No	No	No	No	No
9:00 - 10:00	430	107	626	0	0	No	No	No	No	No	No	No	No	No
10:00 - 11:00	529	132	770	0	0	No	Yes	No	No	No	No	No	No	No
11:00 - 12:00	616	152	895	0	0	Yes	Yes	No	Yes	No	No	No	No	No
12:00 - 13:00	611	213	998	0	0	Yes	Yes	No	Yes	No	No	No	No	No
13:00 - 14:00	524	182	856	0	0	Yes	Yes	No	No	No	No	No	No	No
14:00 - 15:00	574	200	937	0	0	Yes	Yes	No	No	No	No	No	No	No
15:00 - 16:00	745	260	1217	0	0	Yes	Yes	No	Yes	Yes	No	No	No	No
16:00 - 17:00	766	267	1251	0	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
17:00 - 18:00	757	264	1237	0	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
18:00 - 19:00	561	195	915	0	0	Yes	Yes	No	No	No	No	No	No	No
Total	7507	2318	11728	0	0	9	11	3	6	4	0	0	0	0

Pedestrian Volume

15th % pedestrian speed < 3.5 ft/s		Pedestrian refuge present?	NB		SB	

Hours	Major Street Vehicular Volume (veh/h)			Major Street Pedestrian Volume (ped/h)			4A (100%)	4B (100%)
	NB	SB	Total	NB	SB	Total		
7:00 - 8:00	284	516	800	0	0	0	No	No
8:00 - 9:00	211	383	594	0	0	0	No	No
9:00 - 10:00	153	277	430	0	0	0	No	No
10:00 - 11:00	188	341	529	0	0	0	No	No
11:00 - 12:00	219	397	616	0	0	0	No	No
12:00 - 13:00	397	214	611	0	0	0	No	No
13:00 - 14:00	340	184	524	0	0	0	No	No
14:00 - 15:00	373	201	574	0	0	0	No	No
15:00 - 16:00	484	261	745	0	0	0	No	No
16:00 - 17:00	498	268	766	0	0	0	No	No
17:00 - 18:00	493	264	757	0	0	0	No	No
18:00 - 19:00	364	197	561	0	0	0	No	No
Totals	4004	3503	7507	0	0	0	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	✔
A. Minimum Vehicular Volumes (Both major approaches --and-- more critical minor approach) --or--	✔
B. Interruption of Continuous Traffic (Both major approaches --and-- more critical minor approach) --or--	
80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- more critical minor approach)	
Warrant 2: Four-Hour Vehicular Volume	✔
Four-Hour Vehicular Volume (Both major approaches --and-- more critical minor approach)	✔
Warrant 3: Peak Hour	

A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- more critical minor approach)	
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. Peak-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	
Degree of Platooning (Predominant direction or both directions)	
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported Crash History --and--	
B1. Angle Crashes and Pedestrian Crashes within a 1-year Period (All Severities)	
B2. Angle Crashes and Pedestrian Crashes within a 1-year Period (Fatal-and-Injury)	
B3. Angle Crashes and Pedestrian Crashes within a 3-year Period (All Severities)	
B4. Angle Crashes and Pedestrian Crashes within a 3-year Period (Fatal-and-Injury)	
C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	✓
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	

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Appendix G: DISTRIBUTION LIST

Appendix G

HMC MIMP Major Amendment Draft EIS Distribution List

Publications

Seattle Times
Seattle Daily Journal of Commerce
Seattle Medium

Tribes and Agencies

Muckleshoot Tribe
Puyallup Tribe
Samish Indian Nation
Snoqualmie Tribe
Squaxin Island Tribe
Stillaguamish Tribe
Suquamish Tribe
Tulalip Tribe

WA Department of Ecology
WA Department of Fish and Wildlife
WA State Department of Archaeology
WA State Department of Transportation
WA State Department of Commerce
WA State Dept of Agriculture
WA State Department of Natural Resources
WA State Department of Health

King County Executive
King County Department of Local Services
King County Department of Metro Transit
King County Department of Natural Resources and Parks
King County Parks Division
King County Solid Waste Division
King County Wastewater Division

Seattle Department of Construction and Inspections
Seattle Department of Neighborhoods
Seattle Department of Transportation
Seattle Fire Department
Seattle City Light
Seattle Housing Authority

Seattle Public Utilities
PSRC
Puget Sound Partnership
Snohomish County
Pierce County
Kittitas County
Puget Sound Clean Air Agency
Sound Transit
Seattle Public Utilities

Fire Districts within King County
Water Districts within King County
Sewer and Wastewater Districts within King County
School Districts within King County

Cities

Bellevue
Black Diamond
Burien
Carnation
Covington
Des Moines
Enumclaw
Federal Way
Issaquah
Kenmore
Kent
Kirkland
Mercer Island
Newcastle
Normandy Park
Redmond
Renton
Sammamish
SeaTac
Seattle
Shoreline
Snoqualmie
Woodinville
Auburn
Bothell

Community Organizations

HMC Implementation Advisory Committee (10-member committee representing surrounding neighborhoods)

First Hill Improvement Association

Asian Pacific Directors Coalition

Association of General Contractors of Washington

Greater Seattle Business Association

Little Saigon

Seattle Chinatown International District Preservation and Development Authority

Tabor 100

Urban League of Metropolitan Seattle

Yesler Terrace Community Council

Management at surrounding apartment/condominium buildings, including Portico on Terrace Apartments, Terrace Crest, and Hilltop House

Libraries

Seattle Libraries – Central and Capitol Hill Branches

Parties of Record

All Property Owners within 300 feet of the campus boundary.

Appendix H: DAHP AND TRIBAL CONSULTATION

January 26, 2026, letter from the State of Washington Department of Archaeology & Historic Preservation (DAHP) re Archaeology – Monitoring Recommended

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

January 26, 2026

Alex Hurtado
Harborview Bond Program Office
908 Jefferson Street, 13th Floor,
Seattle, WA 98104

In future correspondence please refer to:
Project Tracking Code: 2026-01-00565
Property: King County_Harborview Bond Program_Draft EIS
Re: Archaeology – Monitoring Recommended

Dear Alex Hurtado:

Thank you for contacting the Washington State Historic Preservation Officer (SHPO) and Department of Archaeology and Historic Preservation (DAHP) and providing documentation regarding the above referenced project. As a result of our review, our professional opinion is that the project area has the potential to contain archaeological resources. Based on the long-term use of the area as evidenced by Sandborn maps (1905) and historic properties, we recommend professional archaeological monitoring of all ground disturbing activities that have the potential for encountering native soil deposits.

In addition, the affected tribes have a special interest in this area. Therefore, we recommend that the tribes be consulted and would appreciate receiving any correspondence or comments from the tribes or other parties concerning cultural resource issues that you receive.

These comments are based on the information available at the time of this. Should additional information become available, our assessment may be revised.

Thank you for the opportunity to comment on this project and we look forward to receiving the monitoring report. Please ensure that the DAHP Project Number (a.k.a. Project Tracking Code) is shared with any hired cultural resource consultants and is attached to any communications or submitted reports. Should you have any questions, please feel free to contact me.

Sincerely,

Tamela Smart

Tamela Smart, M.A.
Local Government Archaeologist
(360) 628-2755
Tamela.Smart@dahp.wa.gov

April 13, 2026, Technical Memorandum from Langan re Response to Archaeology – Monitoring Recommended

LANGAN

Technical Memorandum

520 Pike Street, Suite 985 Seattle, WA 98101 T: 206.674.7100. F: 206.674.7101

To: Tamela Smart, RPA - Department of Archaeology and Historic Preservation

From: Heather McDaniel McDevitt, RPA – Cultural Resource Practice Director, Langan

Info: Alex Hurtado – King County
Sohail Abrahams – King County
Maryam Alaeddini- Harborview Medical Center
Erica Pabis - Vanir
Sean Moronski - Langan

Date: April 17, 2026

Re: Project Tracking Code: 2026-01-00565
Response to Archaeology – Monitoring Recommended
Harborview Medical Center Major Institution Master Plan Major Amendment
Seattle, King County, Washinton
Langan Project No.: 791006401
DAHP Project Tracking Code: 2026-01-00565

Attachments Figure 1 - Site Location Map; Figure 2 – Parcel Map
1964 Primary State Highway Grading Plans
1973 Harborview Medical Center View Park/Parking Garage Architectural Plans

This memorandum has been prepared in response to the letter authored by Tamela Smart, RPA, Local Government Archaeologist, on behalf of the Washington State Historic Preservation Officer (SHPO) and Department of Archaeology and Historic Preservation (DAHP) and dated January 26, 2026. The letter provided findings of an environmental review of the Harborview Medical Center Major Institution Master Plan Major Amendment (proposed Project) located at 325 9th Avenue in King County, Seattle, Washington. The letter also provided recommendations for the Project including that "professional archaeological monitoring of all ground disturbing activities that have the potential for encountering native soil deposits" be conducted as well as tribal consultation.

Ms. Smart graciously provided her time to meet with the Project team including staff from King County, Harborview Bond Program Office, Vanir and Langan Engineering and Environmental. During this meeting, the Project was defined as limited to the only Planned Project: New InPatient Tower in the location of the existing View Park I garage. Evidence of historic development and of significant ground disturbance previously conducted with the proposed Project site footprint were discussed. The Project team requested the opportunity to provide evidence of previous disturbance within the proposed Project site to depths below which archaeological deposits may exist with the intent to decrease the recommended mitigation.

This memorandum is intended to provide the results of Langan's desktop review of historic maps and aerial images, as-built and proposed plans, soils profiles, and geotechnical studies.

Historical Activity Within Proposed Project Site

Langan reviewed historical topographic maps and aerial photographs employing the Nationwide Environmental Title Research, LLC (NETR), United States Geological Survey (USGS) Historical Topo Map Explorer, University of California, Santa Barbara's (UCSB) Frame Finder database. As well as Sanborn Fire Insurance Maps from the Library of Congress and historical maps from the Seattle Public Library Online Database. A summary of the historical document review is provided in table 1 below and a list of all sources consulted is provided in the references section of this letter.

Table 1. Relevant Information from Topographic Maps, Atlases, Aerial Photographs, and Sanborn Fire Insurance Maps.

Historic Map	Description
1893 Sanborn Fire Insurance Map (US Library of Congress)	Proposed Project Site: dwelling and associated accessory structures are depicted within the area proposed for ground disturbance. Surrounding Area: dwelling and associated accessory structures as well as the Good Shepard Catholic Orphans Home and Reform School are depicted.
1903 Topographical Map (NETR)	Proposed Project Site: structures are depicted within the area proposed for ground disturbance. Surrounding Area: structures are depicted and roads are depicted similar to the present day/modern alignment.
1905 Baist's Real Estate Atlas of Surveys of Seattle Washington (Seattle Public Library)	Proposed Project Site: structures are depicted within the area proposed for ground disturbance consistent with depictions on the 1893 Sanborn Fire Insurance map. Surrounding Area: what appear to be residential and accessory structures as well as the Good Shepard Catholic Orphans Home and Reform School are depicted consistent with depictions on the 1893 Sanborn Fire Insurance map.
1908-1922 Topographical Maps (NETR)	The level of specificality of structural depiction varies, but in general the proposed Project site and surrounding area are significantly developed. Proposed Project Site: structures are depicted within the area proposed for ground disturbance but in different locations and orientations than previous. Surrounding Area: nondescript structures as well as the orphanage and reform school are depicted in some maps.
1930 Aerial Image (UCSB Frame Finder)	Proposed Project Site: structures covering a large majority of the area proposed for ground disturbance are visible. Surrounding Area: appears to be under construction just before the establishment of the hospital in 1931.

1936, 1955, 1964 Topographical Maps (NETR)	The level of specificality of structural depiction varies, but in general the proposed Project site and surrounding area are fully developed. Proposed Project Site: structures are depicted within the area proposed for ground disturbance but in different locations and orientations than previous. Surrounding Area: nondescript structures consistent with latter depictions and images of the hospital are depicted.
1936 Aerial Image (NETR)	Proposed Project Site: structures covering a large majority of the area proposed for ground disturbance are visible. Surrounding Area: the area directly south of the proposed Project site appears to be under construction and main hospital appears to be completely constructed.
1969 Topographical Map and Aerial Image (NETR)	This map illustrates the Project area specifically labeled as Harborview Hospital. The level of specificality of structural depiction varies, but in general the proposed Project site and surrounding area are fully developed. Proposed Project Site: Topo - no structures are depicted within the area of ground disturbance; aerial – shows a parking lot. Surrounding Area: Topo - Interstate Freeway I-5 is depicted in the present day/modern alignment replacing the previous 7th Street alignment. Only structure depicted within the immediate vicinity is the hospital. aerial – shows a parking lot.
1977, 1980, 1983 Topographical Maps 1977 and 1980 Aerial Imagery (NETR)	The level of specificality of structural depiction varies, but in general the proposed Project site and surrounding area are fully developed. Proposed Project Site: Topos - no structures are depicted within the area of ground disturbance; aerials – shows the current parking structure. Surrounding Area: Topos - Only structure depicted within the immediate vicinity is the hospital; however the hospital structure is depicted as expanded in the 1983 map. Aerials – show the area where the current south parking structure is located under construction or as a greenspace.
1990 Aerial Image (NETR)	Proposed Project Site: shows the current parking structure. Surrounding Area: show the area where the current south parking structure is located either under construction or as a greenspace.
1998 Aerial Image (NETR)	The general layout of the Project area remains similar to present-day (2026). Proposed Project Site: shows the current parking structure. Surrounding Area: shows the current south parking structure constructed to its current state.

The earliest available topographic map is dated to 1903 and depicts the general proposed Project area as partially developed with residential and associated accessory structures including roads similar in alignment to the present day with the exception of the area immediately west of the proposed Project site currently occupied by Interstate 5. Freeway/Interstate 5 appears on topographical maps between 1964 and 1969. The earliest topographical map that clearly marks the general Project area as the Harborview Medical Center dates to 1969 (NETR 2026).

The earliest historic aerial imagery showing the proposed Project area dates to 1930, just prior to the establishment of the hospital in 1931. This image shows the general area as developed with portions under construction. The proposed Project site appears to be densely populated with several structures. Later aerials demonstrate that the proposed Project site served as a ground level parking lot until at least 1969 and by 1977, the current parking lot with greenspace atop is complete.

Previous Disturbance

A review of grading and construction plans for the current Interstate 5 (1964) and the architectural plans for the Harborview Medical Center View Park/Parking Garage (1974) revealed evidence that significant ground disturbance has occurred within the proposed Project site and surrounding area. Construction of Interstate 5 resulted in grading to depths of at least 30 feet below ground surface at the time of construction. This grading activity extended within the western portion of the proposed Project site. Additionally, construction of the current parking structure required removal of approximately 5-10 feet of soil where the current Project proposes to conduct ground disturbance. Likewise, approximately 15-20 feet of soil was removed for construction of the current southern parking garage. Finally, the current parking structure includes subterranean levels requiring previous ground disturbance of approximately 40 feet bgs for its construction.

According to the NRCS Web Soil Survey (USDA 2026), soils within the proposed Project area and specifically within the proposed Project site, consist of Urban Soils defined as heavily modified and disturbed soils typically found in cities and created by human construction, industrial activity, or material dumping. Geotechnical studies were conducted in 1984 and again in 2013. The associated reports presenting the results of these studies state that mixed fill soils are present to a depth of at least 20 feet below the ground surface (bgs), including in the proposed Project site. Boring samples described the soils as grey-brown silty sand with occasional cobbles to a depth of at least five feet, gradually increasing in silt with pockets of sand and clay to final exploratory depths of 20 feet bgs (Applied Geology Inc 1984; Langan 2023).

Project Description

The Project proposes the demolition of the View Park I garage (northern parking structure) and the construction of a New Inpatient Tower. The new tower will include up to four levels of below-grade construction (relative to 8th Avenue grades), requiring an excavation up to 50 feet. The

existing View Park I garage includes four levels below-grade – so the new tower will extend slightly deeper than the existing garage building.

Conclusion and Recommendation

Evidence revealed by a review of historic maps, aerial imagery, USDA soil profiles, geotechnical data, and as-built plans demonstrates that the proposed Project site has been developed since at least 1893 with multiple interactions over the last 130 years. The proposed Project site was fully redeveloped in the early 1900s for the original hospital construction replacing the residential development that dates at least as early as the 1890s. Construction impacting the proposed Project site occurred again in the 1970s for the current View Park I garage. This latter construction resulted in the grading, removal and recompaction of soils and a depth of disturbance of approximate 40 feet from the grade at the time of construction.

Due to the various occurrences of previous ground disturbance, specifically, that which was conducted for the 1973 construction of the View Park I garage, it is unlikely that soils capable of retaining intact archaeologic deposits still exist. Therefore, there is low potential for implementation of the proposed Project to encounter and adversely impact intact archaeological deposits or human remains.

We respectfully request that the current recommended measure of archaeological monitoring be reduced to the following proactive measures for the proper identification, treatment and, if feasible, preservation of any inadvertently discovered archaeological resources and human remains:

- Retention of a qualified archaeologist to prepare and implement
    - Workers Environmental Awareness Training
    - Inadvertent Discovery Treatment Plan
    - On-call response to any inadvertent discovery or suspected discovery of archaeological resources or human remains

As recommended by Washington SHPO and DAHP, King County has contacted local tribes that may have interest in the Project and any potential impacts to Tribal Cultural Properties and has provided the opportunity to consult if they desire. Notification efforts and subsequent communication are ongoing.

Please do not hesitate to contact me at hmcdanielmcdevitt@langan.com or by phone at 805-696-0957 with any questions pertaining to the information and findings provided in this memorandum.

Very Respectfully,



Heather McDaniel McDevitt, RPA
Cultural Resources Practice Director

Sources Consulted

Seattle Public Library Digital Collection. 2026. https://spl.contentdm.oclc.org/digital/collection/p16118coll2

1875 Map of Seattle, Washington Territory, Showing its Additions and Walla Walla Railroad.

1884 Map of Seattle and Vicinity.

1888 Anderson's New Map of King County, Washington Territory.

1894 McKee's Correct Road Map of Seattle and Vicinity.

1905 Baist's Real Estate Atlas of Surveys of Seattle.

1907 Anderson Map Atlas, pgs. 10-11.

1912 Knoll's Atlas of King County, pgs. 10-11. T25N R4E.

1926 Industry, Commercial, and Residential Map.

Refences Cited

Applied Geology Inc. 1984. Report Geotechnical Investigation Harborview Medical Center Additions.

Langan. 2023. Preliminary Geotechnical Evaluation. Harborview Medical Center Campus Expansion.

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St. James' Cathedral. 2026. Letter from the Home of the Good Shepherd. Accessed 10 April 2026. https://www.stjamescathedral.org/history/holythings/40goodshepherdhome.aspx

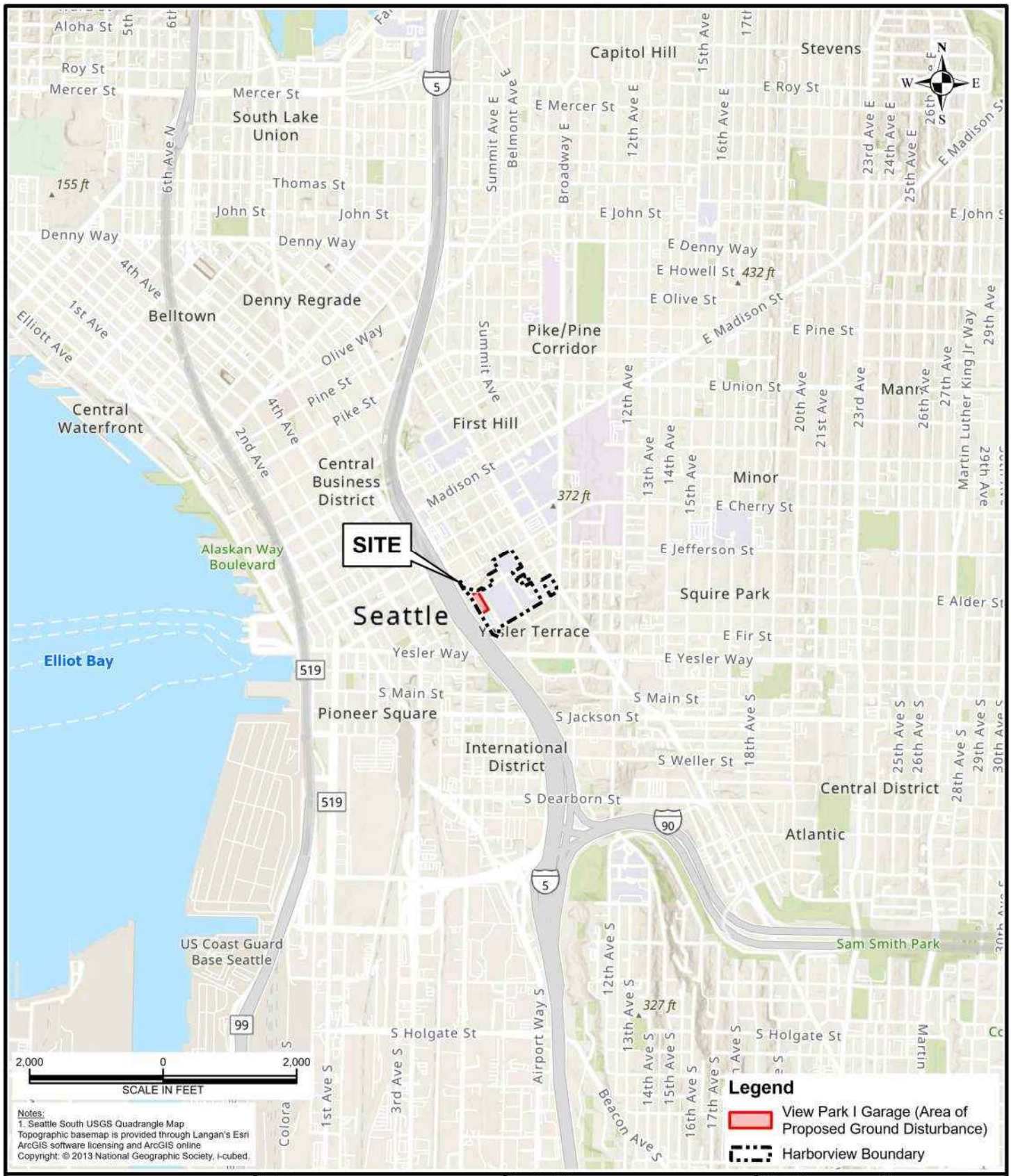
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United States Library of Congress (Library of Congress). 2026. Sanborn Fire Insurance Maps, King County. Accessed 10 April 2026. https://www.loc.gov/item/sanborn09315_003/

United States Soil Survey (USDA). 2026. Web Soil Survey. Accessed 10 April 2026. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Attachment – Figure 1 Site Location Map



LANGAN
Langan Engineering and Environmental Services, LLC
520 Pike Street, Suite 985
Seattle, WA 98101
T: 206.674.7100 F: 206.674.7101
www.langan.com

Project
HARBORVIEW MEDICAL CENTER
SEATTLE
KING COUNTY WASHINGTON

Drawing Title
SITE LOCATION MAP

Project No.	791006401
Date	4/14/2026
Scale	1" = 2,000 feet
Drawn By	JNE
Figure	1

© 2024 Langan

Path: \\langan.com\data\SEA\data4\791006401\Project Data\ArcGIS\APRX\791006401\Harbor View\Harbor View.aprx

Attachment – Figure 2 Parcel Map



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www.langan.com

Project

HARBORVIEW MEDICAL CENTER

SEATTLE

KING COUNTY WASHINGTON

Drawing Title

PARCEL MAP

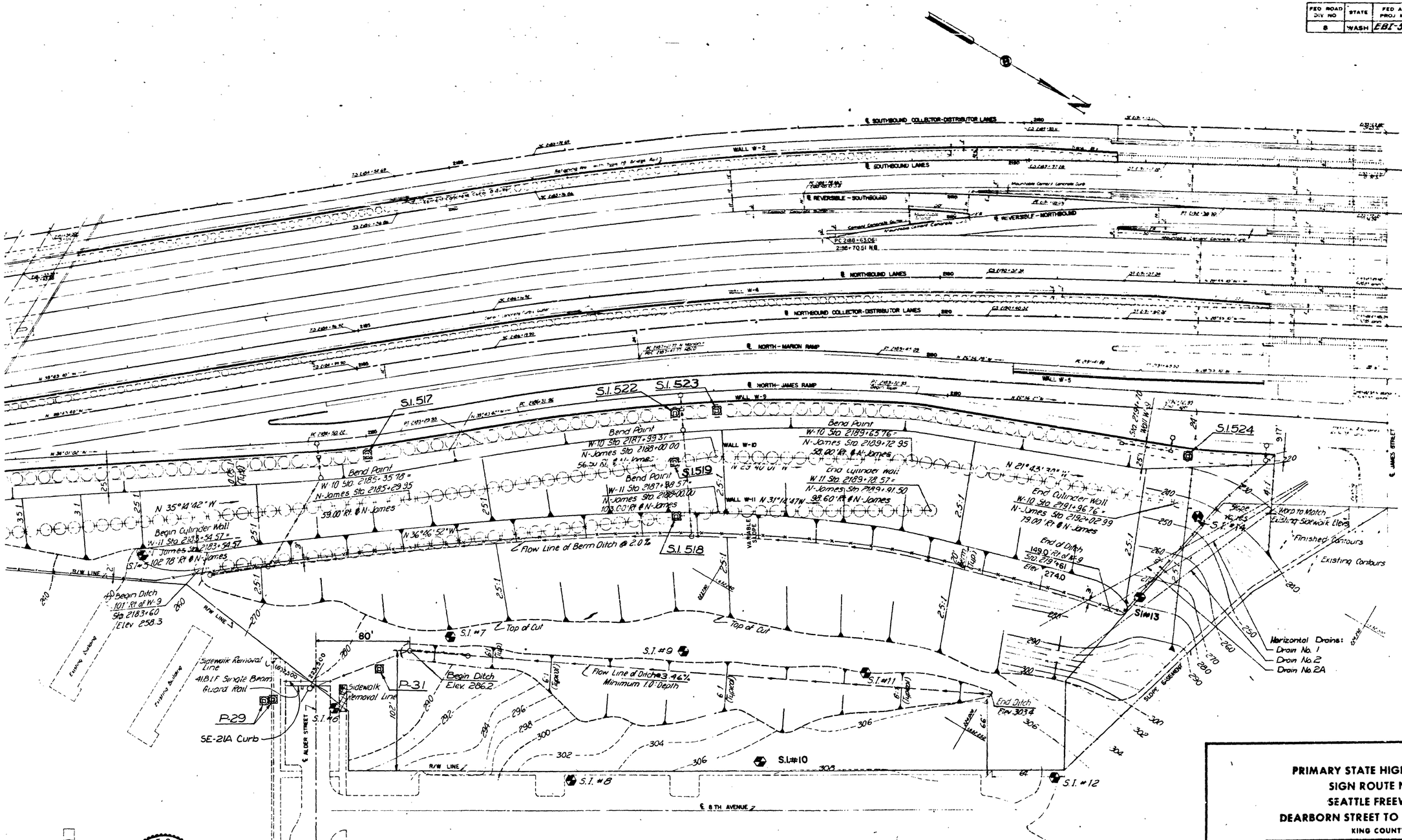
Project No.	791006401
Date	4/14/2026
Scale	1" = 250 feet
Drawn By	GS
Figure	2

© 2026 Langan

Path: \\langan.com\data\SEA\data4\791006401\Project Data\ArcGIS\APRX\791006401\Harbor View\Harbor View.aprx

Attachment - 1964 Primary State Highway Grading Plans

FED ROAD DIV NO	STATE	FED AID PROJ NO	SHEET NO	TOTAL SHEETS
8	WASH	EBI-5-3(202)164	44	269



CITY OF SEATTLE

JOSEF SORMIN STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER

NOTES:
ALL SLOPES WERE SET NORMAL TO S.B. LANES INSTEAD OF WALL 9
SEE SHEET 113 THRU 115 FOR LOCATION OF OFFSET CYLINDERS OF WALLS 10 AND 11
SEE SHEET 99 FOR LOCATION OF OFFSET OF CYLINDER 112 FOR WALL 4

GRADING PLAN
YESLER WAY TO JAMES STREET
Scale: 1"= 40'-0"

DATE	REVISION	BY
11-1-66	Revised To As Builts	HHM

NOTES:
See Sheet 39 thru 42
See Roadway Sections, Sheet 20 thru 24
For General Notes, See Sheet 32
All Curbs and Gutters shown are future construction except the SE-21A Curb at Alder Street. Fence and Gate Items are included in Quantities shown for sheet 39

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

GRADING PLAN

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SCALE As Shown
APPROVED March 13, 1964
SHEET 44 OF 269 SHEETS
CONTRACT NUMBER 7504

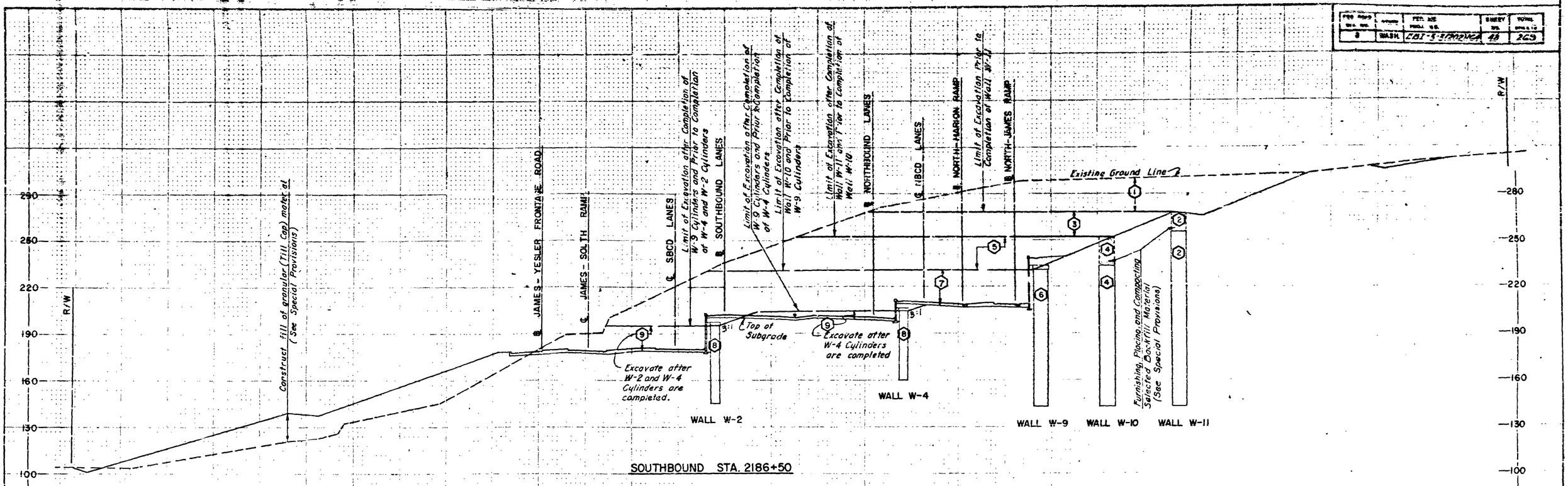
HOWARD, NEEDLES, TAMMEN & BERGENDOFF

DESIGNED BY
DRAWN BY
TRACED BY
DESIGN CHECKED BY
QUANTITIES FIGURED BY
QUANTITIES CHECKED BY

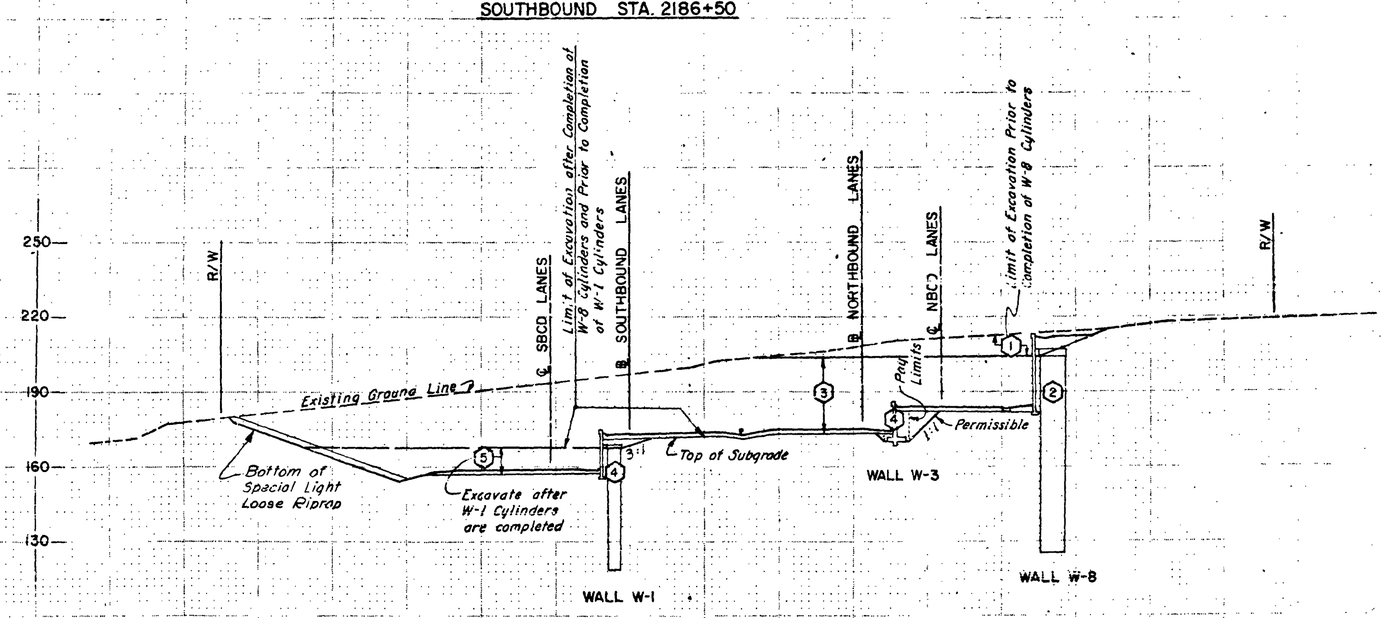
ALIGNMENT CHECKED BY DATE
GRADES BY DATE
R.W. BY DATE
STRUCTURE NOTATIONS BY DATE

UNAVED BY DATE
TRACED BY DATE
CHECKED BY DATE
LOC. BOOK BY DATE
DETAILED BY DATE

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH.	I-5-3(76)216	48	269



SOUTHBOUND STA. 2186+50



SOUTHBOUND STA. 2179+00

GENERAL NOTES:

1. The section shown at Southbound Sta. 2186+50 is representative of the construction northward of the Yesler Way Undercrossing; the section shown at Southbound Sta. 2179+00 is representative of the construction between the King-Jackson Overcrossings and the Yesler Way Undercrossing. Additional cross sections are available at the Resident Engineer's office.
2. The required construction sequence is shown thus (X)
3. Certain boring data is included in the plans; additional boring data is available at the Resident Engineer's office.

DATE	REVISION	BY
8-14-68	REVISED TO AS-BUILT	LER

PRIMARY STATE HIGHWAY NO. 1
SIGN ROUTE NO. 5
SEATTLE FREEWAY
DEARBORN STREET TO JAMES STREET
KING COUNTY

CONSTRUCTION SEQUENCE

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

APPROVED March 13, 1969

SHEET 48 OF 269 SHEETS

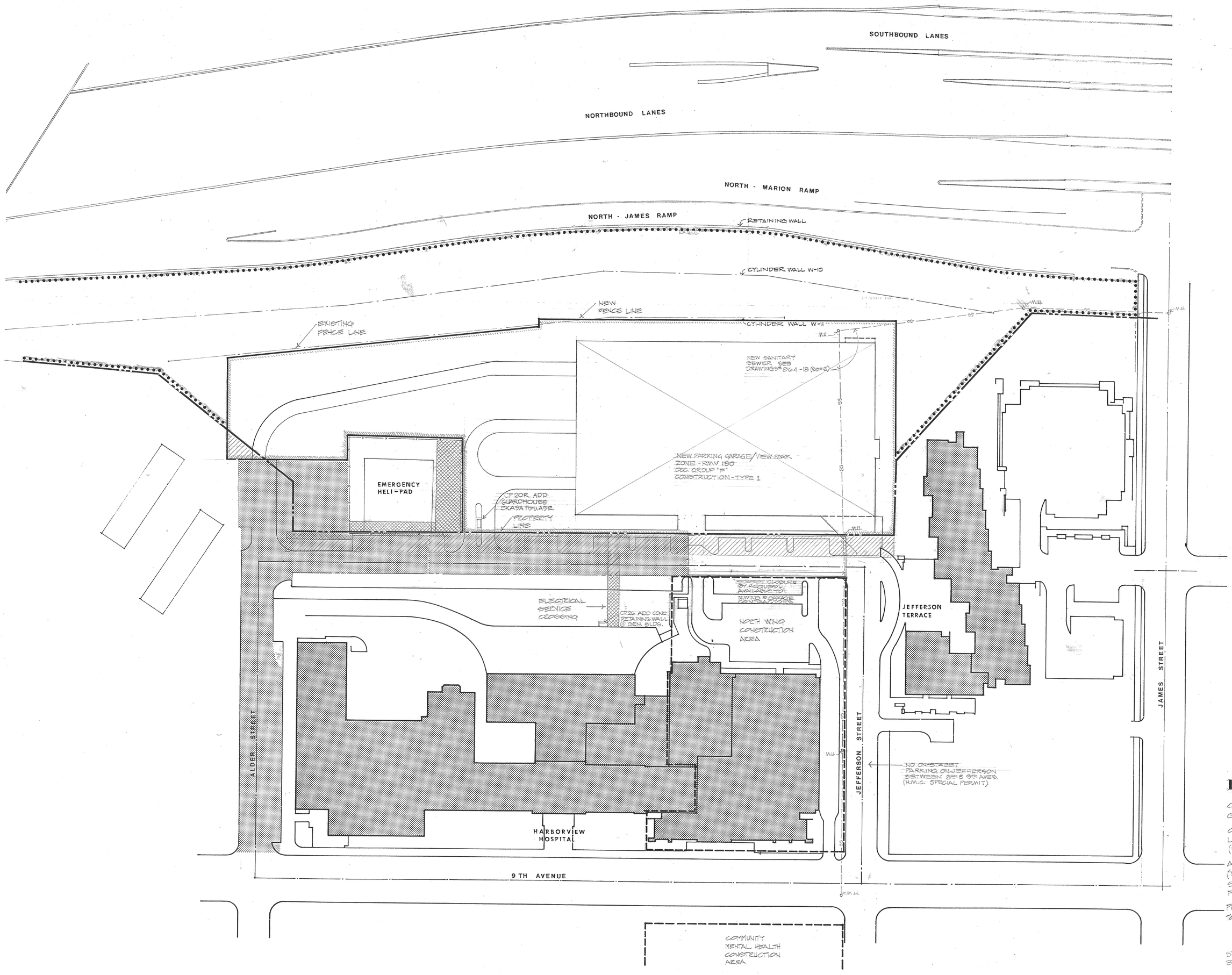
CONTRACT NUMBER 7504

JOSEF SORAN — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY SEATTLE NEW YORK

Attachment - 1973 Harborview Medical Center View Park/Parking Garage Architectural Plans

FED RD DIV NO	STATE	FED AID PROJECT NO	SHEET NO	TOTAL SHEETS
10	WASH	I-5-3(403)165	1	40



DRAWING INDEX

ARCHITECTURAL

A-1 VICINITY SITE PLAN, DRAWING INDEX
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A-2 SITE DETAILS, LEGEND, ABBREVIATIONS, VICINITY MAP
A-3 SITE PLAN
A-4 PARKING LEVEL, FLOOR PLANS, DETAILS
A-5 STRIPING PLAN, DETAILS, GRAPHICS
A-6 PARK PLAN, NORTH, DIMENSIONS
A-7 PARK PLAN, SOUTH, DIMENSIONS, DETAILS
A-8 PARK PLAN, NORTH, VERTICAL ELEVATIONS
A-9 PARK PLAN, SOUTH, VERTICAL ELEVATIONS
A-10 BUILDING ELEVATIONS
A-11 BUILDING ELEVATIONS, SECTIONS
A-12 WALL SECTIONS AND DETAILS
A-13 SOUTH STAIR TOWER, PLANS AND ELEVATIONS
A-14 SOUTH STAIR TOWER, SECTIONS, NORTH STAIR PLANS AND SECTIONS
A-15 PLAY GYM AND LADDERS

LANDSCAPING

L-1 LANDSCAPE WORK INDEX
L-2 PLANTING AT GRADE
L-3 PLANTING AT GRADE, NORTH AND SOUTH END
L-4 PLANTING ON PARK DECK, NORTH END
L-5 PLANTING ON PARK DECK, SOUTH END
L-6 PARK IRRIGATION, NORTH END
L-7 PARK IRRIGATION, SOUTH END
L-8 PARK DRAINAGE, NORTH END
L-9 PARK DRAINAGE, SOUTH END

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S-1 TYPICAL DETAILS, STRUCTURAL NOTES
S-2 PARKING LEVEL PLANS AND DETAILS
S-3 VIEW PARK PLAN AND DETAILS
S-4 SCHEDULES, SLAB BEAM COLUMNS
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MECHANICAL

M-1 SITE PLAN
M-2 PARK DRAINAGE, FOUNDATION PLUMBING
M-3 PLUMBING PLANS, LEVEL 1 AND 2
M-4 SPRINKLER PLANS, LEVEL 1 and 2

ELECTRICAL

E-1 SITE PLAN, SCHEDULES
E-2 VIEW PARK LEVEL PLAN AND DETAILS
E-3 PARKING LEVEL PLANS

HARBORVIEW SANITARY SEWERS

1 NORTH JAMES RAMP
2 JEFFERSON STREET
3 TEST BORINGS & DETAILS

LEGEND

CONSTRUCTION LIMIT LINE GENERAL CONSTRUCTION #1

CONSTRUCTION LIMIT LINE LANDSCAPE CONSTRUCTION (TO INCLUDE GENERAL CONST. AREA)

ADJACENT CONSTRUCTION AREAS (NOT A PART OF THIS CONTRACT) STREET USE PERMIT REQUIRED FOR CONSTRUCTION

PRIOR NOTICE AND PERMISSION TO WORK REQUIRED

STREET CLOSED TO PUBLIC BY H.M.C. SPECIAL PERMIT

#1 CONSTRUCTION LIMIT LINES DOES NOT LIMIT THE EXTENT OF THE WORK, BUT IS INTENDED TO LIMIT THE USE OF AREAS BEYOND, WITHOUT PRIOR APPROVAL

WA. 12298 REGISTERED ARCHITECT CLAYTON R. GRAY STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan architects urban designers
Sakuma James Peterson landscape architects
Victor O. Gray & Company structural engineers
Benjamin S. Notkin & Assoc. mechanical engineers
Sparling & Assoc. electrical engineers

scale 1"=40'-0" date 5/8/73
REV. W.S. HWY. 1-7-74
AS BUILT STATUS 1-2-75

VICINITY SITE PLAN
DRAWING INDEX

A-1

A1 SITE, LEGEND 2/6

FED. DIV. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH	I-5-3(403)165	2	40

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan architects urban designers
Sakuma James Peterson landscape architects
Victor O. Gray & Company structural engineers
Benjamin S. Notkin & Assoc. mechanical engineers
Sparling & Assoc. electrical engineers

SCALES: 1"=20'-0 DATE: 5-5-72
REV. W.S. HWY 7-7-72
CO. DOC. 8-1-72

LEGAL DESCRIPTION
PROPOSED LEASE AREA

REVISED SEE EXHIBIT 'B'
LEASE AGREEMENT

That portion of right-of-way of Primary State Highway No. 1 known as the Seattle Freeway (Interstate 5) described as follows:

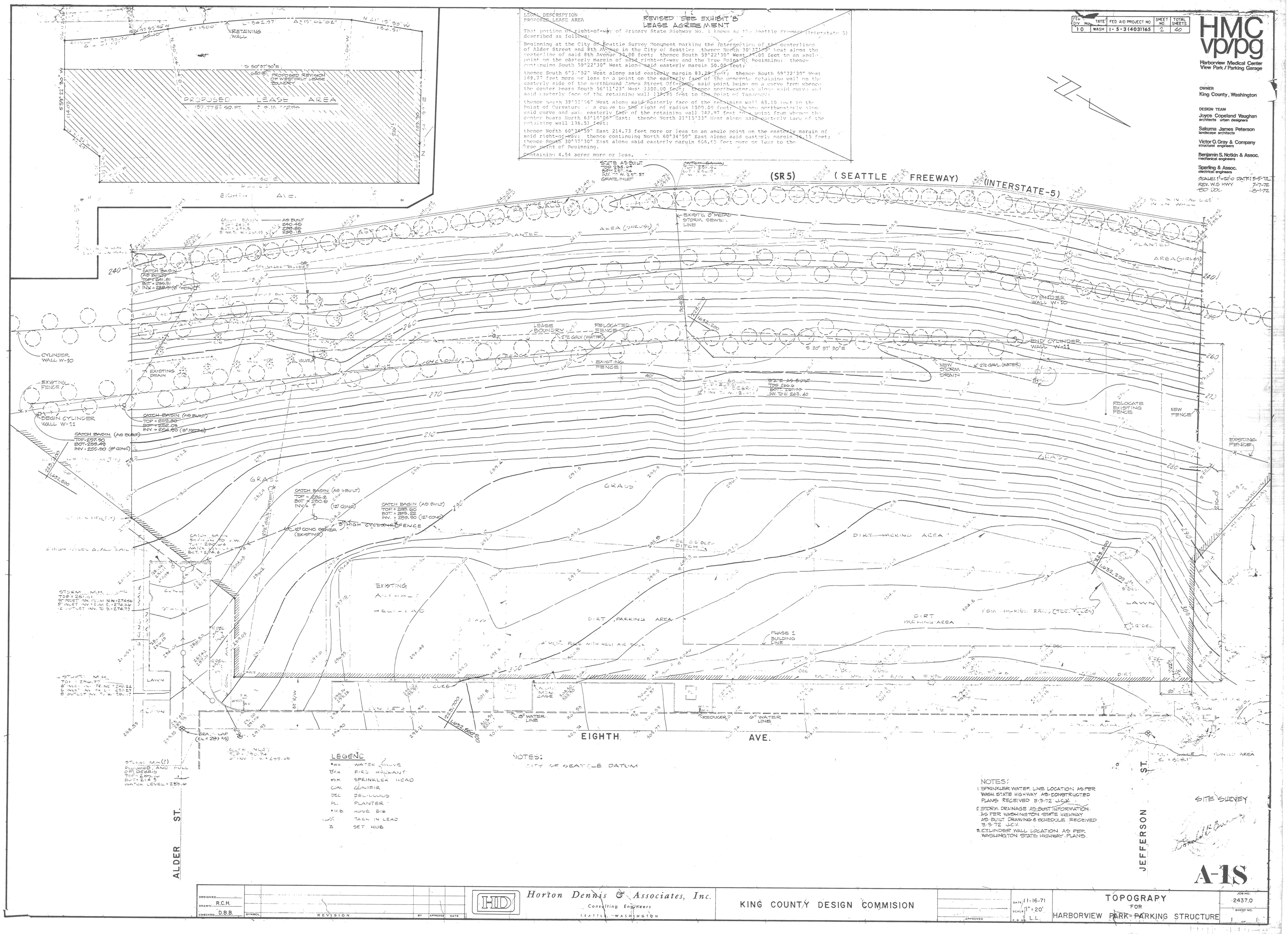
Beginning at the City of Seattle Survey Monument marking the intersection of the centerlines of Alder Street and 8th Avenue in the City of Seattle; thence North 30°32'30" East along the centerline of said 8th Avenue 33.00 feet; thence South 59°22'30" East 33.00 feet to an angle point on the easterly margin of said right-of-way and the True Point of Beginning; thence continuing South 59°22'30" East along said easterly margin 50.00 feet;

thence South 67°51'52" West along said easterly margin 83.28 feet; thence South 59°22'30" West 169.77 feet more or less to a point on the easterly face of the concrete retaining wall on the easterly side of the northbound James Street Off-Ramp, said point being on a curve from whence the center bears South 56°11'22" West 1300.00 feet; thence northwesterly along said curve and said easterly face of the retaining wall 132.96 feet to the Point of Tangency;

thence North 39°55'56" West along said easterly face of the retaining wall 65.10 feet to the Point of Curvature of a curve to the right of radius 1500.00 feet; thence northwesterly along said curve and said easterly face of the retaining wall 142.97 feet to a point from whence the center bears North 63°10'06" East; thence North 21°15'33" West along said easterly face of the retaining wall 136.51 feet;

thence North 60°34'59" East 214.73 feet more or less to an angle point on the easterly margin of said right-of-way; thence continuing North 60°34'59" East along said easterly margin 76.15 feet; thence South 30°17'30" East along said easterly margin 666.65 feet more or less to the True Point of Beginning.

Containing 4.54 acres more or less.



LEGEND

⊗W.V.	WATER VALVE
⊗F.H.	FIRE HYDRANT
⊗S.H.	SPRINKLER HEAD
CON.	CONIFER
DEC.	DECIDUOUS
PL.	PLANTER
*H.B.	HOSE BIB
⌐/	TACK IN LEAD
⊡	SET HUB

NOTES:
CITY OF SEATTLE DATUM

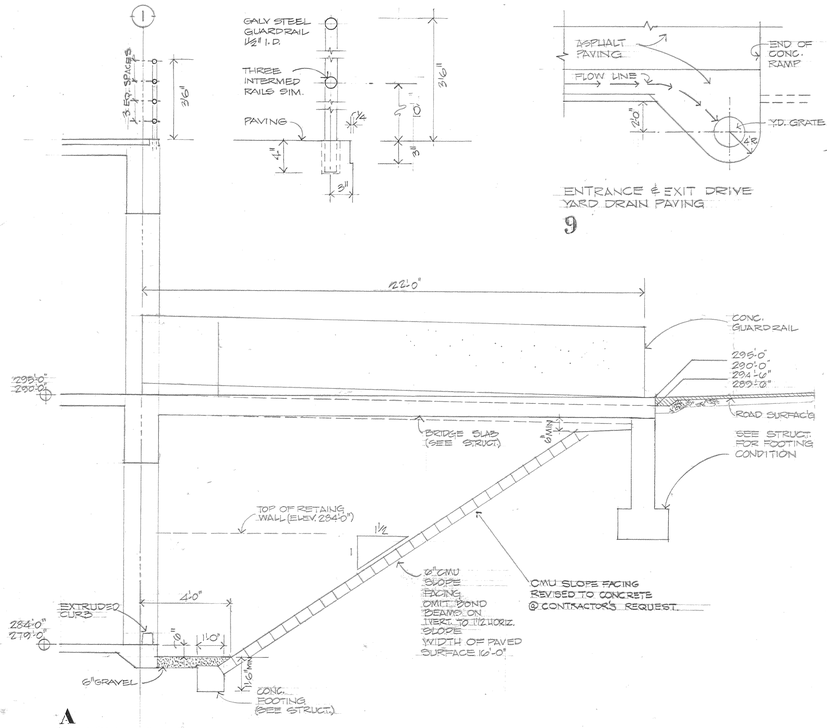
NOTES:
1. SPRINKLER WATER LINE LOCATION AS PER WASH. STATE HIGHWAY AS-CONSTRUCTED PLANS RECEIVED 8-3-72 J.C.V.
2. STORM DRAINAGE AS-BUILT INFORMATION AS PER WASHINGTON STATE HIGHWAY AS BUILT DRAWING & SCHEDULE. RECEIVED 8-3-72 J.C.V.
3. CYLINDER WALL LOCATION AS PER WASHINGTON STATE HIGHWAY PLANS.

A-1S

DESIGNED									
DRAWN R.C.H.	SYMBOL	REVISION	BY	APPROVED	DATE	Horton Dennis & Associates, Inc. Consulting Engineers SEATTLE, WASHINGTON	KING COUNTY DESIGN COMMISION	DATE 11-16-71	TOPOGRAPY FOR HARBORVIEW PARK-PARKING STRUCTURE	JOB NO. 2437.0
CHECKED D.B.B.								SCALE 1"=20'		SHEET NO. 1 OF 1
								APPROVED		

AIS TOPOGRAPY 1/16

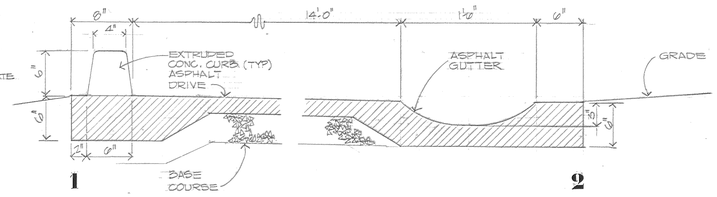
FED RD DIV NO.	STATE	FED AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH	I-5-3(403)165	3	40



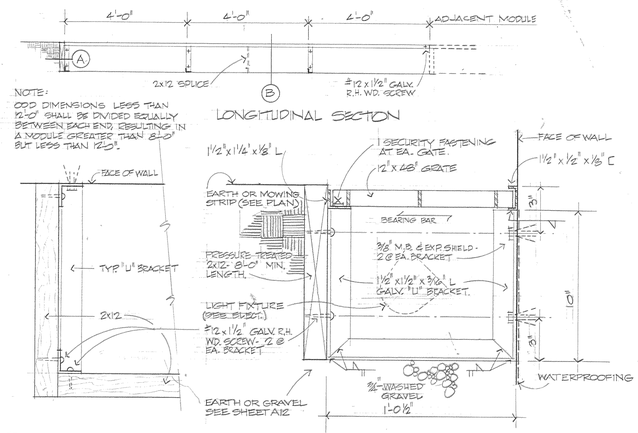
A
SECTION THRU BRIDGES SOUTH ELEVATION SCALE 3/8"=1'-0"

ENTRANCE & EXIT DRIVE YARD DRAIN PAVING

9



1 **2**



(A) TYPICAL END
3"=1'-0"

(B) CROSS SECTION
3"=1'-0"

NOTE: SEE SHEET A6, A7 & E8 FOR LOCATION. SEE SHEET A12 FOR ELEVATION.

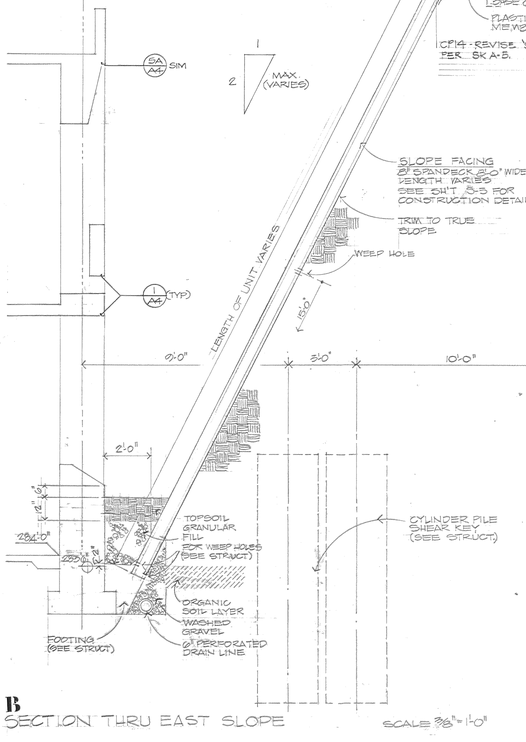
5 BELOW GRADE LIGHT FIXTURE BRACKET & GRATING

LEGEND

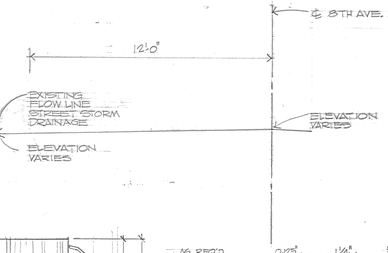
COORDINATE LINE — (3)
MATCH LINE
PROPERTY LINE
EXISTING CONTOUR — 321
FINISH CONTOUR — 324
STORM DRAIN — SIZE — MH3
WATER LINE — 3W
FENCE — X — X — X
CONCRETE WALL
YARD DRAIN
FIRE HYDRANT
MONUMENT
POINT ELEVATION — 250 FINAL / 249.6 EXIST.
DOOR NUMBER — 101
BUILDING SECTION — A A 1 A-9
WALL SECTION — A A 1 A-9

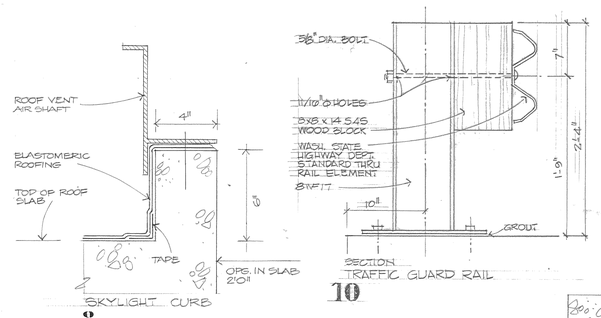
ABBREVIATIONS

A.B.	ANCHOR BOLT	FIN.	FINISH	O.L.PLWD.	OVERLAID PLYWOOD
AC.PL.	ACOUSTICAL PLASTER	FL.	FLOOR		
AC.TILE	ACOUSTICAL TILE	FDN.	FOUNDATION	PERF.	PERFORATED
ADJ.	ADJUSTABLE	FTG.	FOOTING	P.C.	PRECAST
ALT.	ALTERNATE	F.O.I.C.	FURNISHED BY OTHERS,	P.D.S.	PIPE DOOR STOP
ALUM.	ALUMINUM		INSTALLED BY CONTRACTOR	P.GL.	PATTERNED GLASS
ARCH.	ARCHITECT			PLAS.LAM	PLASTIC LAMINATE
ASPH.	ASPHALT			PLWD.	PLYWOOD
A.C.B.	ASBESTOS CEMENT BOARD			P.W.GL.	PATTERNED WIRE GLASS
		GA.	GAUGE	P.P.	POWER POLE
BD.	BOARD	GALV.I.	GALVANIZED IRON	PVG.	PAVING
BLK.	BLOCK	GL.	GLASS	Q.T.	QUARRY TILE
BM.	BEAM	GLU-LAM.	GLUE-LAMINATED		
BLDG.	BUILDING	G.S.U.	GLAZED STRUCTURAL UNITS		
		G.TILE	GLAZED TILE	R.	RISER
		G.W.B.	GYPSUM WALL BOARD	RAD.	RADIUS
CAB'T.	CABINET			R.BASE	RESILIENT BASE
C.B.	CATCH BASIN	HDBD.	HARDBOARD	R.D.	ROOF DRAIN
CEM.	CEMENT	H.M.	HOLLOW METAL	REFRIG.	REFRIGERATION
CEM.PL.	CEMENT PLASTER	HORIZ.	HORIZONTAL	REINF.	REINFORCING
CH.BD.	CHALKBOARD	H.M.C.	HARBORVIEW MEDICAL CENTER	REQD.	REQUIRED
C.I.	CAST IRON	H.RAIL	HANDRAIL	RM.	ROOM
CLG.	CEILING	I.D.	INSIDE DIAMETER	R.O.	ROUGH OPENING
C.M.U.	CONCRETE MASONRY UNIT	INSUL.	INSULATION	R.TILE	RESILIENT TILE
C.O.	CLEAN OUT	INT.	INTERIOR	R/W.	RIGHT-OF-WAY
COL.	COLUMN	INV.	INVERT		
CONC.	CONCRETE			S.GL.	SAFETY GLASS
CONTR.	CONTRACTOR			SHT.	SHEET
COORD.	COORDINATE	JT.	JOINT	SIM.	SIMILAR
CRS.	COURSES			SM.CONC.	SMOOTH CONCRETE
C.TILE	CLAY TILE			SQ.	SQUARE
CUSP.	CUSPIDOR	LAV.	LAVATORY	SQ.FT.	SQUARE FOOT
				S.STL.	STAINLESS STEEL
				S.SINK	SERVICE SINK
				STL.	STEEL
DET.	DETAIL	MAX.	MAXIMUM	STOR.	STORAGE
D.F.	DRINKING FOUNTAIN	M.B.	MACHINE BOLT	STRUCT.	STRUCTURAL
DIA.	DIAMETER	MECH.	MECHANICAL		
DIM.	DIMENSION	MED.	MEDIUM		
DIM.PT.	DIMENSION POINT	M.H.	MANHOLE	T.	TREAD
D.S.	DOWNSPOUT	MIN.	MINIMUM	T&G	TONGUE & GROOVE
DWG.	DRAWING	MTL.	METAL	TK.BD.	TACKBOARD
		M.O.	MASONRY OPENING	TYP.	TYPICAL
		MON.	MONUMENT		
EA.	EACH				
EL.	ELEVATION	N.I.C.	NOT IN CONTRACT	UR.	URINAL
ELEC.	ELECTRICAL	NO.	NUMBER	U.V.	UNIT VENT
EQ.	EQUAL	NOM.	NOMINAL		
EXIST.	EXISTING	NON-COM.	NON-COMBUSTIBLE		
EXP.	EXPANSION	N.I.B.	NOT IN BASIC	V.G.	VERTICAL GRAIN
EXT.	EXTERIOR			VERT.	VERTICAL
				VEST.	VESTIBULE
		O.C.	ON CENTER		
F.B.	FLAT BAR	O.D.	OUTSIDE DIAMETER	W.M.	WATER METER
F.B.O.	FURNISHED BY OWNER	O.H.	OVAL HEAD	W.C.	WATER CLOSET
F.D.	FLOOR DRAIN	OPNG.	OPENING	WD.	WOOD
F.D.T.L.	FIRE DAMPER TRANSOM LOUVER	OPP.	OPPOSITE	W.GL.	WIRE GLASS
		OVHD.	OVERHEAD	WSHD.	WASHINGTON STATE HIGHWAY DEPARTMENT
F.EX.	FIRE EXTINGUISHER	O/S	OUTSIDE	W.V.	WATER VALVE
F.H.	FLAT HEAD			Y.D.	YARD DRAIN



B
SECTION THRU EAST SLOPE SCALE 3/8"=1'-0"



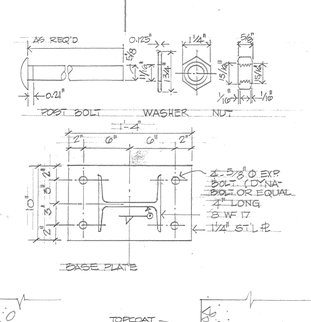


SKYLIGHT CURB

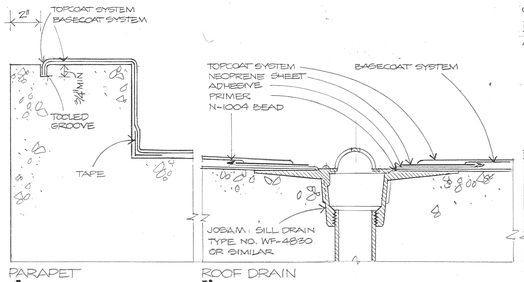
8

SECTION TRAFFIC GUARD RAIL

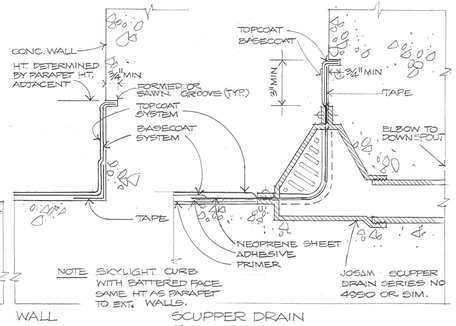
10



BASE PLATE



PARAPET **4** ROOF DRAIN **5**

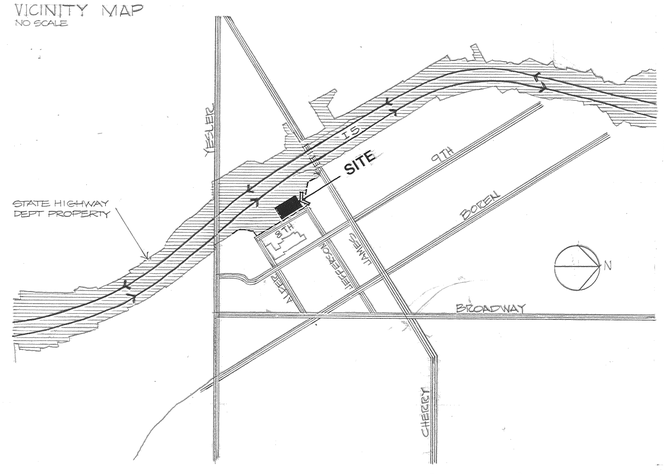


WALL **6** SCUPPER DRAIN **7**

TYPICAL ROOFING DETAILS NO SCALE

VICINITY MAP

NO SCALE



T1 1288
REGISTERED ARCHITECT
CLAYTON R. JOYCE
STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan architects urban designers
Sakuma James Peterson landscape architects
Victor O. Gray & Company structural engineers
Benjamin S. Notkin & Assoc. mechanical engineers
Sparling & Assoc. electrical engineers

scale AS SHOWN date 3/8/73
REV W.S.H.W. 7-7-72
AS BUILT STATUS 1-6-75
SITE DETAILS
LEGEND
ABBREVIATIONS
VICINITY MAP

A-2

A2 SITE DETAILS, LEGEND 3/16"

FED. RD. DIV. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH	I-5-3(4031)165	6	40

A3 SITE PLAN SECTION 4/6

(SR 5) (SEATTLE FREEWAY) (INTERSTATE-5)

CATCH BASIN TOP 288.62

EXIST'G 8" CONC. STORM SEWER LINE

30-12% GRADE

C-C A-2

6' CYLINDER WALL W-10

END CYLINDER WALL W-11

NEW VALVE BOX LOCATION

EXIST. C.B. TOP 267.51

RELOCATE EXIST'G IRRIGATION LINE & VALVE BOX BY MECH. CONTR.

EXTRUDED CONC. CURB

ASPHALT DRIVE

YD TOP 278.0

6" S.D. BY MECHANICAL

2½" GALV. WATER LINE AS REQUIRED BY MECH. CONTRACTOR

C.B. TOP EL. 286.12

C.B. TOP EL. 286.60

C.B. TOP EL. 280.63

STORM MH. TOP EL. 281.31

SEE SHEET A-5 FOR LARGE SCALE PLAN OF BRIDGE

RETAINING WALL

EXTRUDED CONC. CURB

ASPHALT DRIVEWAY

SEE SHEET A-5 FOR LARGE SCALE PLAN OF BRIDGE

A A2

PERF. CONC. FOOTING DRAIN. CONNECT TO STORM DRAIN BY MECH. SEE SHEET S-5 DETAIL

CONC. PANEL SLOPE FACING

RETAINING WALL

C.B. EXTEND FOOTING DRAIN ALONG LINE (1). CONNECT TO YARD DRAIN LINE @ NEAREST POINT W/ APPROPRIATE ELEVATION.

B A-2

SEE SHEET A-7 FOR LARGE SCALE PLAN

CONC. PANEL SLOPE FACING

NEW ASPHALT SIDEWALK

REMOVE EXIST'G CONC. PAVING AS SHOWN. TYP. WHERE INDICATED IN PLANTING AREAS

EXIST'G LOG RAIL TO BE REMOVED

EXIST'G TREE TO BE REMOVED (TYP. SYMBOL)

SEE SHEET L-6 FOR LARGE SCALE PLAN

EXISTING EMERGENCY HELI-PAD

REMOVE & REINSTALL FENCE AS REQUIRED FOR GRADING FOR ADD'L GUARDHOUSE SEE ARCHITECTURAL

RELOCATE EXISTING FENCE 7'-6" WEST OF CONC. CURB

PATCH EXISTING FENCE POST HOLES

NEW ASPHALT SIDEWALK

WIND SOCK RELOCATE AS DIRECTED

PLANTING

CONC. RAMP

PERF. CONC. FOOTING DRAIN

CONC. RAMP

EXIST'G CONC.

NEW ASPHALT SIDEWALK

CURB INLET TOP 290.74

BRASS CAP EL = 289.35

EIGHTH AVE.

EASTERLY MARGIN 8TH AVE R/W

C-C A-3

CITY OF SEATTLE CURB CUT TYPE 10G-A ALT. #1

EASTERLY MARGIN OF RIGHT-OF-WAY

MON. 308.17

ALDER ST.

JEFFERSON ST.

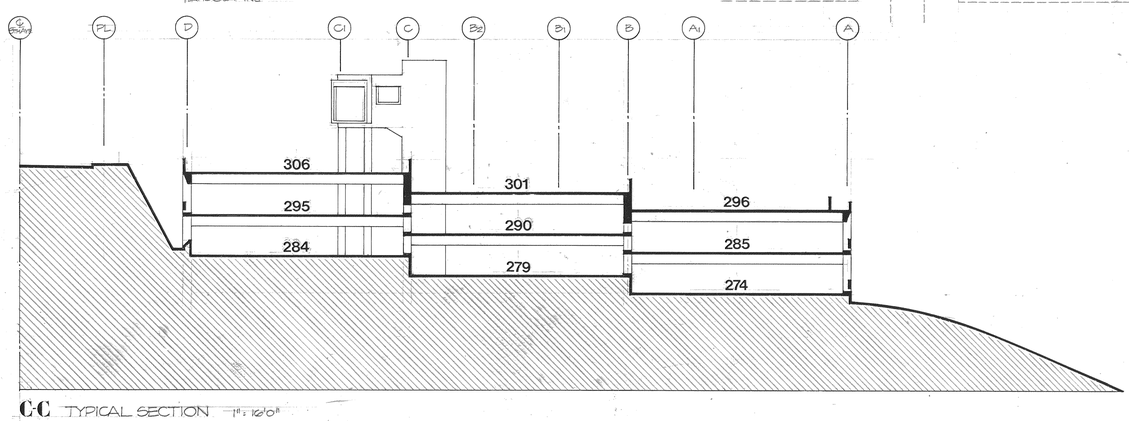
REMOVE CURBS, WALLS, CONC. PAVING & DRAINAGE AS REQ'D FOR NEW PAVING & LANDSCAPING

LEGEND

- CONC. CURB TO REMAIN
- CONC. CURB TO BE REMOVED
- NEW CONC. CURB
- PAVING TO BE REMOVED
- EXISTING FENCE TO REMAIN
- EXISTING FENCE TO BE REMOVED & RELOCATED
- RELOCATED FENCE
- ASPHALT SIDEWALK
- PERFORATED CONC. FOOTING DRAIN

NOTE:
CROSSWALK & PARKING STALL STRIPING TO COMPLY WITH CITY OF SEATTLE STANDARDS. (8TH AVE. ONLY. ALL OTHER PERF. DRAWINGS)

N



C-C TYPICAL SECTION 1" = 16'-0"

JL 1298 REGISTERED ARCHITECT Clayton R. Pope CLAYTON R. POPE STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

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Benjamin S. Notkin & Assoc. mechanical engineers
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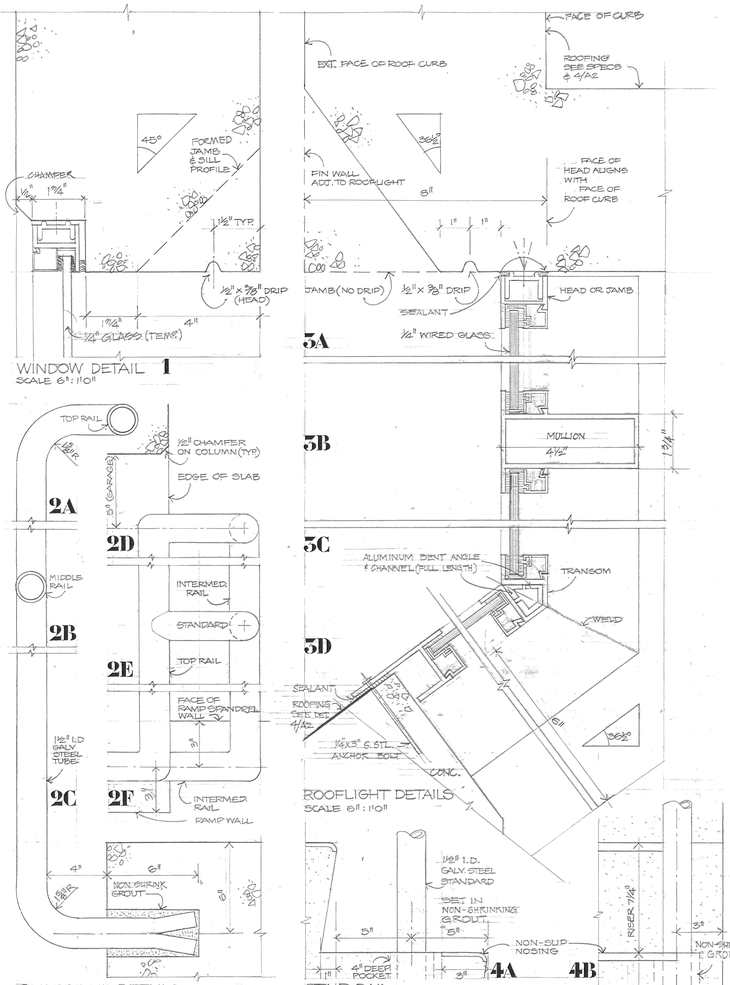
1" = 16'-0"
scale 1" = 20'-0" date 3/1/76
REV. WORDING 7-27-76
AS BUILT STATUS 11-75

SITE PLAN (1" = 20')
SECTION (1" = 16')

A-3

FED RD DIV NO	STATE	FED AID PROJECT NO	SHEET NO	TOTAL SHEETS
10	WASH	I-5-3(403)165	5	40

A4 PARKING LEVEL-FLR.PLANS,DETAILS,DOOR SCHEDULE 5/16

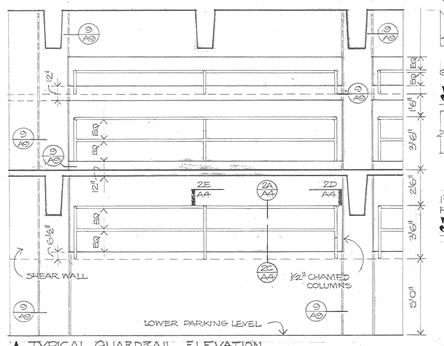


WINDOW DETAIL 1
SCALE 6"=1'0"

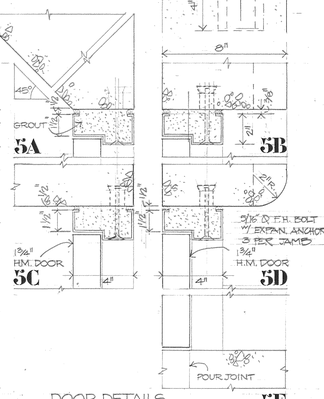
GUARDRAIL DETAILS
SCALE 3"=1'0"

ROOFLIGHT DETAILS
SCALE 6"=1'0"

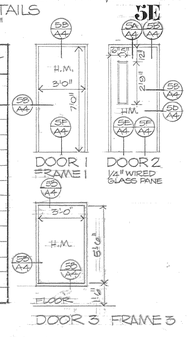
STAIR RAIL DETAILS
SCALE 3"=1'0"



A TYPICAL GUARDRAIL ELEVATION
SCALE ½"=1'0"



DOOR DETAILS
SCALE 3"=1'0"

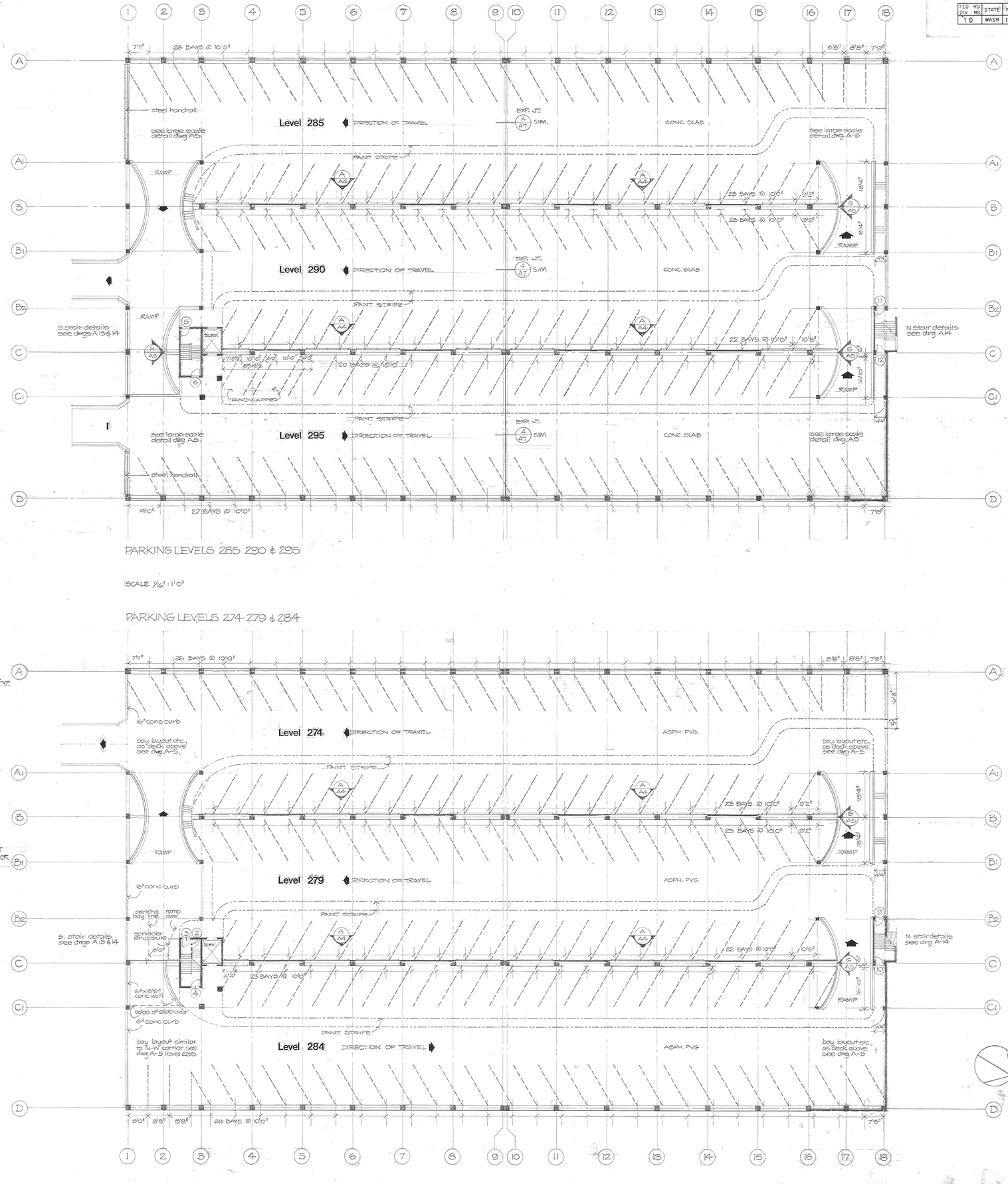


DOOR SCHEDULE

● = REQUIRED

LEGEND H.M. HOLLOW METAL
G.S. GALV. STEEL

DOOR NO.	DOOR TYPE	SIZE W	SIZE H	FRAME TYPE	FRAME MAT.	FRAME DTLS H	FRAME DTLS J	FRAME DTLS S	HDW GR	CLOS	FUS LINK	REMARKS
1	1	3'0"	7'0"	1	HM	5B	5B	5F	1		—	
2	3	3'0"	5'0"	3	HM	5B	5B	5B	1		—	
3	2	3'0"	7'0"	1	HM	5B	5D	5F	2		●	
4	2	3'0"	7'0"	1	HM	5B	5D	5F	2		●	
5	2	3'0"	7'0"	1	HM	5B	5D	5F	2		●	
6	2	3'0"	7'0"	1	HM	5B	5D	5F	2		●	
7	2	3'0"	7'0"	1	HM	5B	5D	5E	3		●	NOTE FRAME REVERSED
8	2	3'0"	7'0"	1	HM	5B	5D	5D	5F	4		●
9	2	3'0"	7'0"	1	HM	5A	5C	5C	5F	2		●
10	2	3'0"	7'0"	1	HM	5A	5C	5C	5F	2		●
11	2	3'0"	7'0"	1	HM	5A	5C	5C	5F	2		●
12	2	3'0"	7'0"	1	HM	5A	5C	5C	5F	2		●
13		5'0	6'0"		GS	11	10	10	—	5	—	O/HEAD ROLLER SHUTTER



PARKING LEVELS 285 290 & 295

SCALE 1/16"=1'0"

PARKING LEVELS 274 279 & 284

NOTES:
ALL HANDRAILS, GUARD-RAILS, BALUSTRADES, ETC ARE GALV. STEEL PIPE OR TUBE WELDED & HOT DIPPED GALV. AFTER FABRICATION, *

GUARDRAILS ON PARKG LEVELS @ GRID LINES D & C AS 2A-F & A/A4

GUARDRAILS ON SOUTH ELEVATION PARKING LEVELS & PARK DECK, ON EAST SIDE ADJ. 8TH AVE. AS A & B/A2.

GUARDRAILS TO PARKG LEVEL RAMPS & STEPS AS F & G/A5

HANDRAILS TO STAIRS SEE SHEET A3 #5 & 4/A4.

PLAY GYM & ASSOC RAILS SEE SHEET A15
* EXCEPTION.

WA. 125... REGISTERED ARCHITECT Clayton R. Joyce CLAYTON R. JOYCE STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan architects urban designers
Sakuma James Peterson landscape architects
Victor O. Gray & Company structural engineers
Benjamin S. Notkin & Assoc. mechanical engineers
Sparling & Assoc. electrical engineers

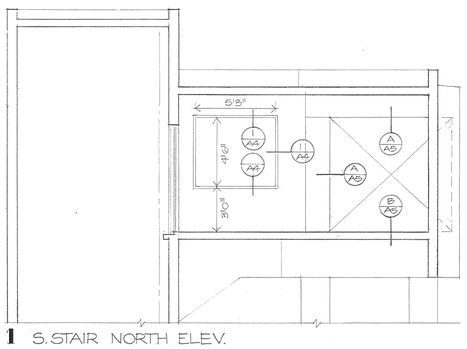
scale A5 shown date 5-8-75
AS BUILT STATUS 6-6-75

PARKING LEVEL PLANS
DETAILS
DOOR SCHEDULE

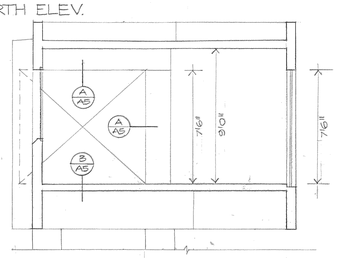
A-4

FED RD DIV NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH	I-5-314031165	6	40

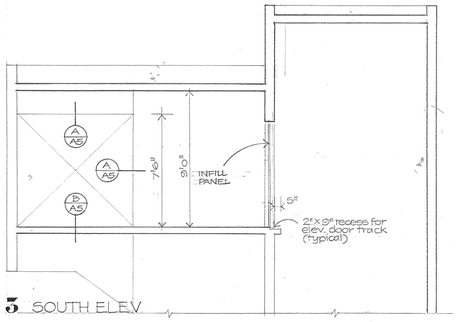
AS STRIPING PLAN, DETAILS, GRAPHICS SCHEDULE 6/78



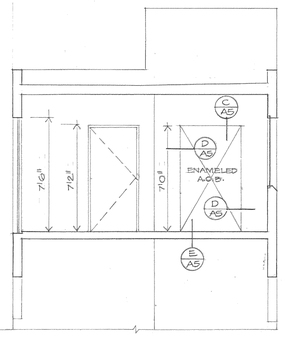
1 S. STAIR NORTH ELEV.



2 EAST ELEV.



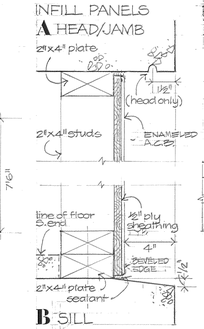
3 SOUTH ELEV.



4 WEST ELEV.
SCALE 1/4": 1'0"

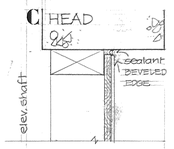
INFILL PANELS

A HEAD/JAMB

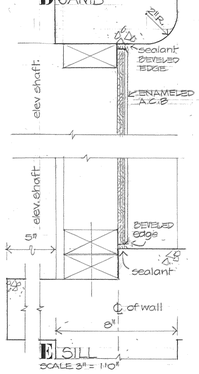


B SILL

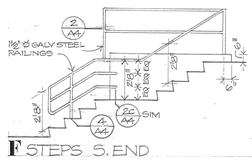
C HEAD



D JAMB



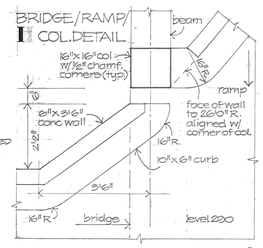
E SILL
SCALE 3" = 1'0"

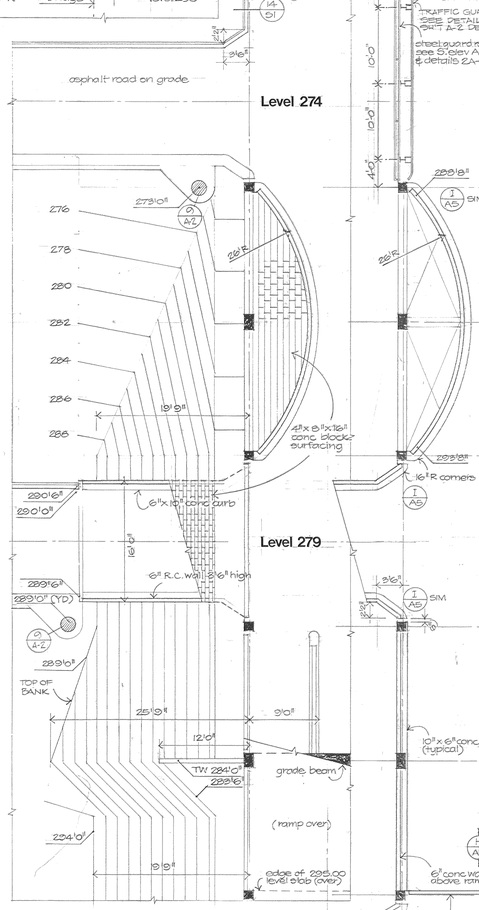


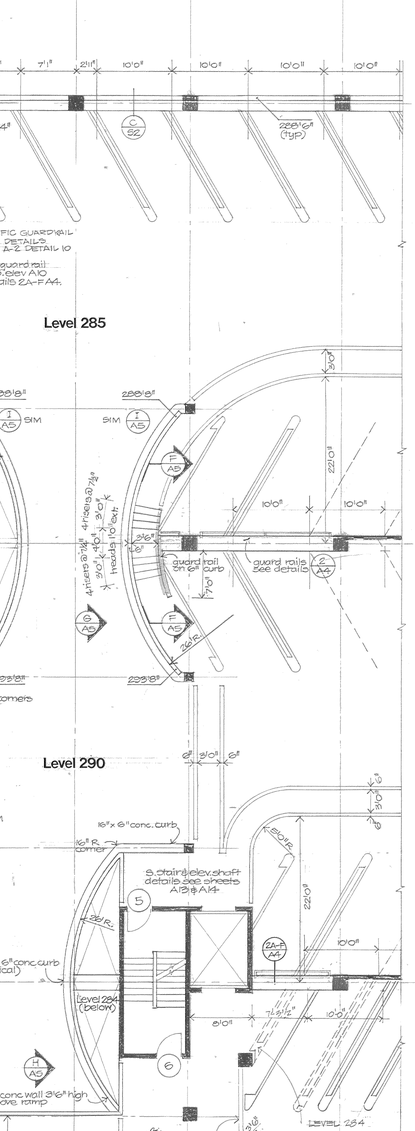
F STEPS S. END

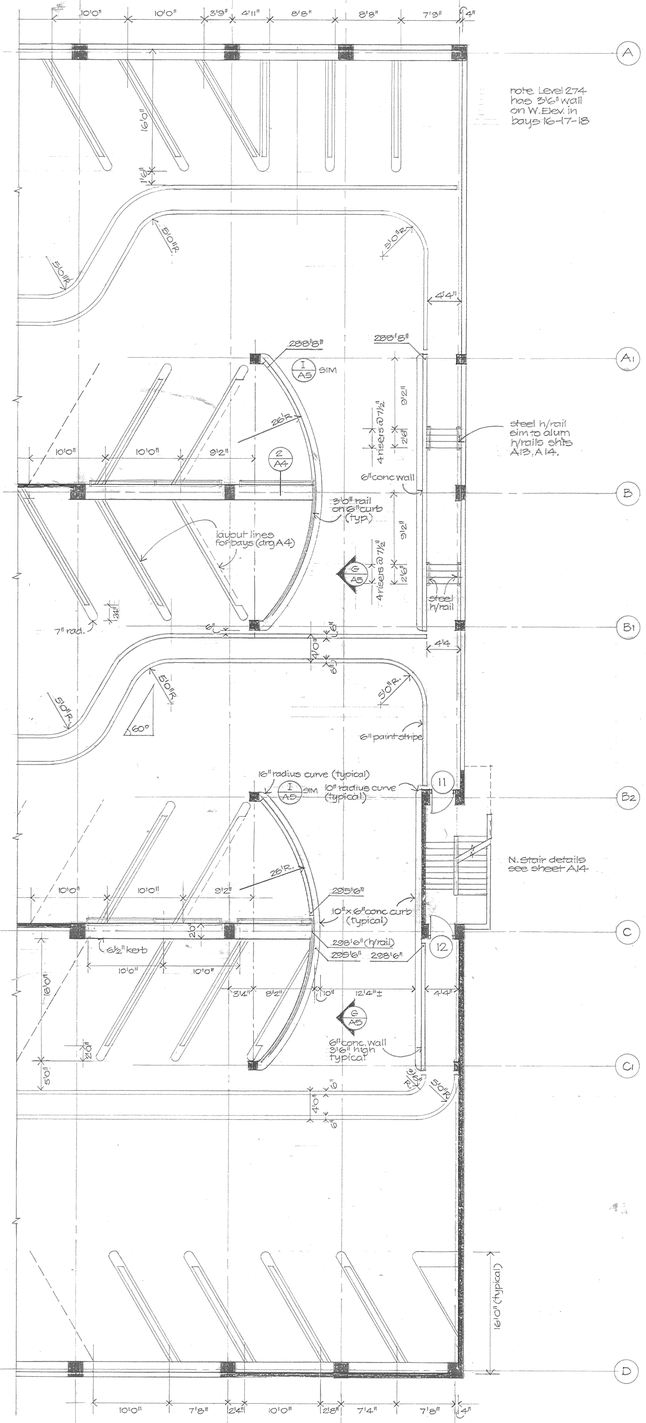
BRIDGE/RAMP

I COL. DETAIL

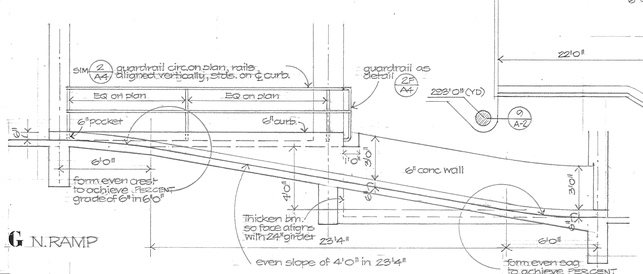




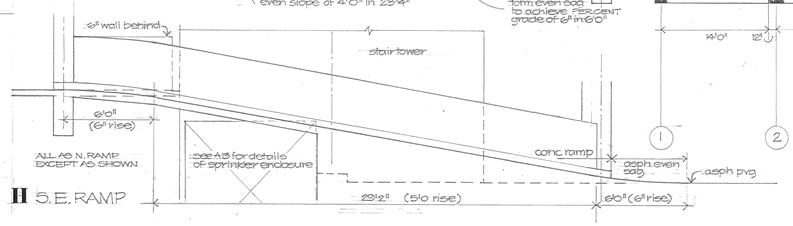




GRAPHICS REVISED - OCT 27 - GRAPHICS DRAWINGS 1-28 DATED 5-20-74	NOTE: DIFFERENT COLORED GROUNDS TO BE 12" WIDER & HIGHER THAN NOTICE/NUMBER			
NUMBERING	NO.	HT.	LOC'N	REMARKS
PARKING BAY NOS. 1-311	311	6"	FLOOR	ON DIFFERENT COLD GRD
PARKING LEVEL NOS. 1-4	8	4'0"	WALL	
LETTERING				HELVETICA MEDIUM UPPER & LOWER CASE. SIZE STATED IS RE. CAPS
Exit	4	12"	BEAM	ON DIFFERENT COLD GRD
Caution	6	12"	BEAM	" "
No Left Turn	1	12"	BEAM	" "
No Right Turn	1	12"	BEAM	" "
Visitor/Patient Parking	3	12"	BEAM	" "
Staff Parking Only	3	12"	BEAM	" "
Lower Parking Levels	1	12"	BEAM	" "
Stairs & Elevator	6	12"	BEAM	" "
Escape Stairs	6	12"	WALL	" "
No Entry	1	4"	DOOR	
⇒ (SIZE 16'x 8'½")	10	X	BEAM	ON DIFFERENT COLD GRD
⇒ (SIZE 6'0" x 3'0"%)	10	X	FLOOR	
COMPACT (CAPS ONLY)	5	12"	FLOOR	ON DIFFERENT COLD GRD



G N. RAMP



H S.E. RAMP

PARKING LAYOUT
SCALE 1/8": 1'0"

TI 1298
REGISTERED ARCHITECT
CLAYTON R. JOYCE
STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

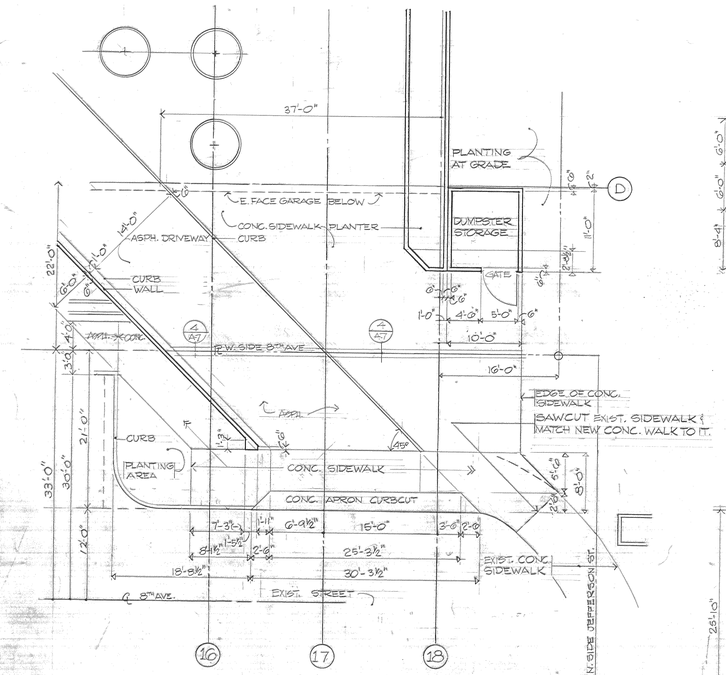
DESIGN TEAM
Joyce Copeland Vaughan
architects urban designers
Sakuma James Peterson
landscape architects
Victor O. Gray & Company
structural engineers
Benjamin S. Notkin & Assoc.
mechanical engineers
Sparling & Assoc.
electrical engineers

scale as shown date 3/6/78
AS BUILT STATUS 1-6-75

STRIPING PLAN
DETAILS
GRAPHICS SCHED.

A-5

FED. RD DIV. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH.	I-5-3(403)165	7	20



Ⓐ NORTHEAST CORNER ENTRY BRIDGE

LEGEND

LINES

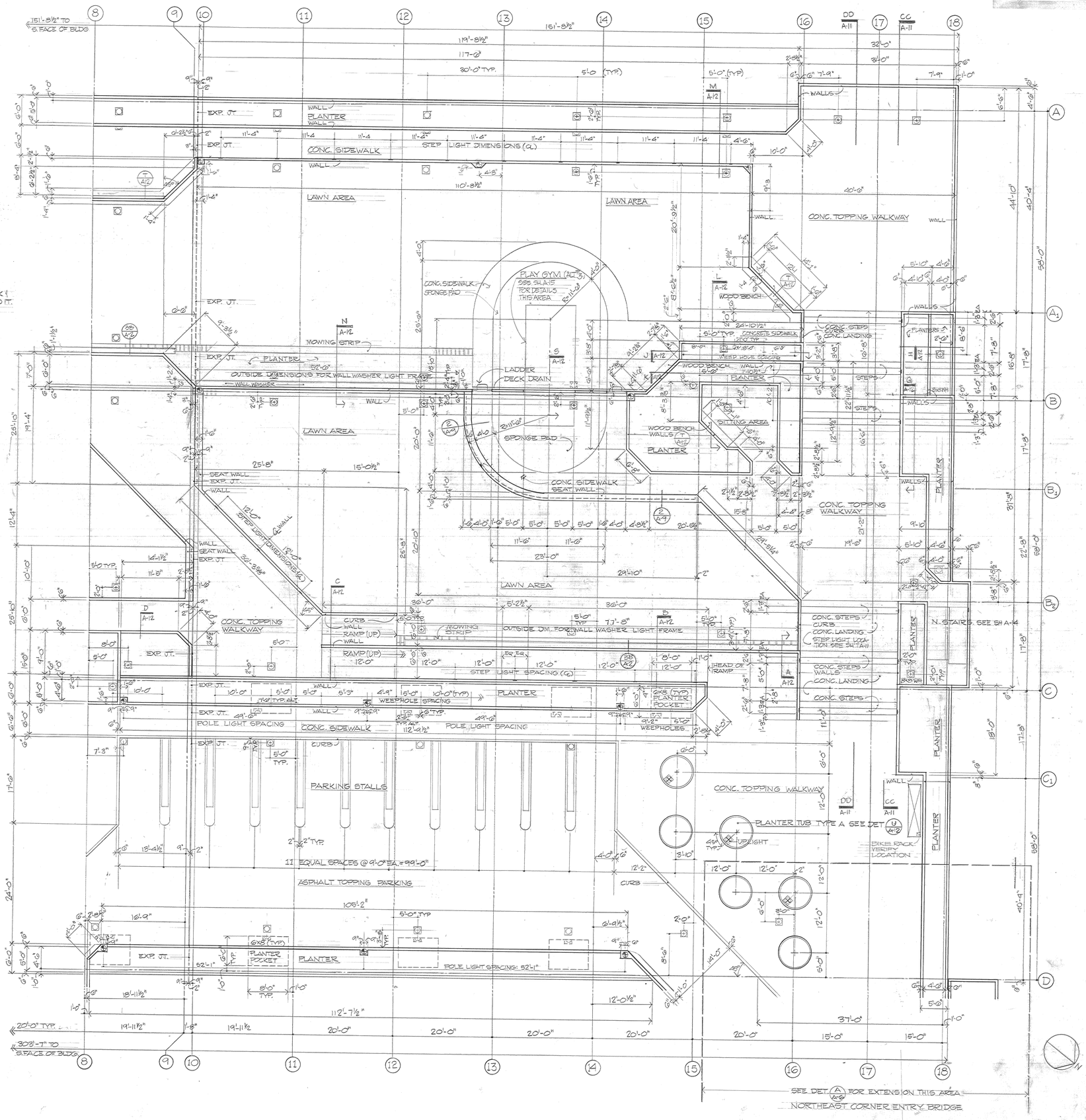
- Ⓩ —— COLUMN & GIRDER CENTERLINES
- ——— PROPERTY LINE
- - - - - - OCCURRING BELOW
- ——— DIMENSION TO CENTERLINE
- ——— DIMENSION TO FACE
- ——— MATCH LINE

SYMBOLS

- DRAIN
- SCUPPER DRAIN
- DRAIN BELOW
- UPLIGHT
- POLE MOUNTED LIGHT
- STEP LIGHT
- WEEPHOLE
- WALL WASHING LIGHT W/ ADJACENT MOWING STRIP

ABBREVIATIONS

ASPH.	ASPHALT
CONC.	CONCRETE
℄	CENTERLINE
E	EAST
EXP. JT.	EXPANSION JOINT
EXIST.	EXISTING
S.	SOUTH
SH.	SHEET
TYP.	TYPICAL
P.L.	PROPERTY LINE
W	WEST
WH	WEEPHOLE



TL 12355 REGISTERED ARCHITECT Clayton R. Rivvee CLAYTON R. RIVVEE STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan architects urban designers
Sakuma James Peterson landscape architects
Victor O. Gray & Company structural engineers
Benjamin S. Notkin & Assoc. mechanical engineers
Sparling & Assoc. electrical engineers

scale 3/8" = 1'-0" date 3/9/17

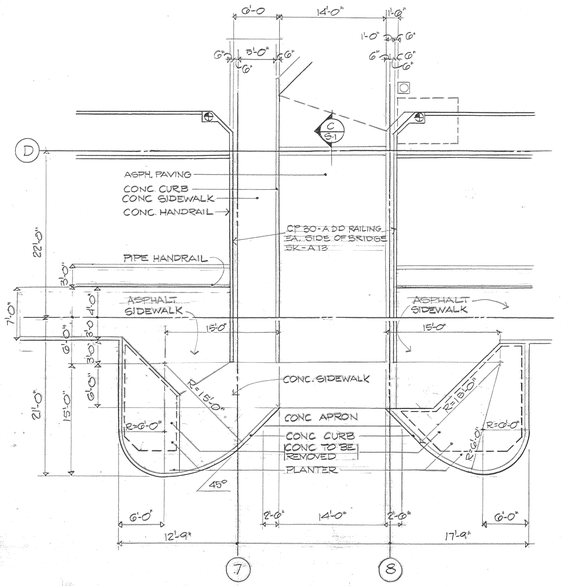
AS BUILT STATUS INDICATED

PARK PLAN NORTH DIMENSIONS

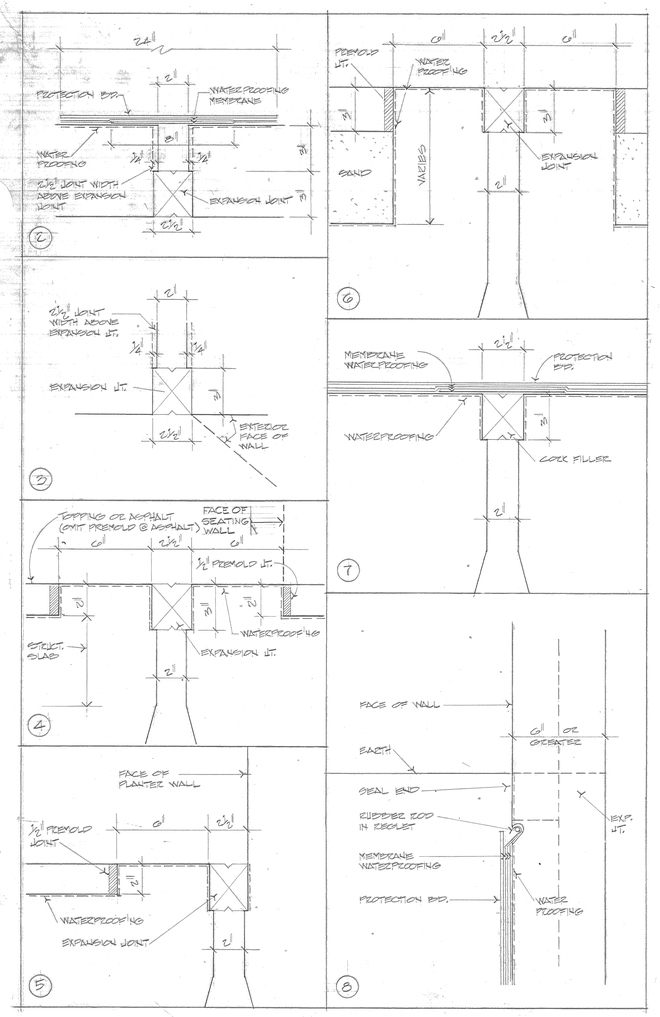
A-6

A6 PARK PLANS NORTH DIMENSIONS 7/16

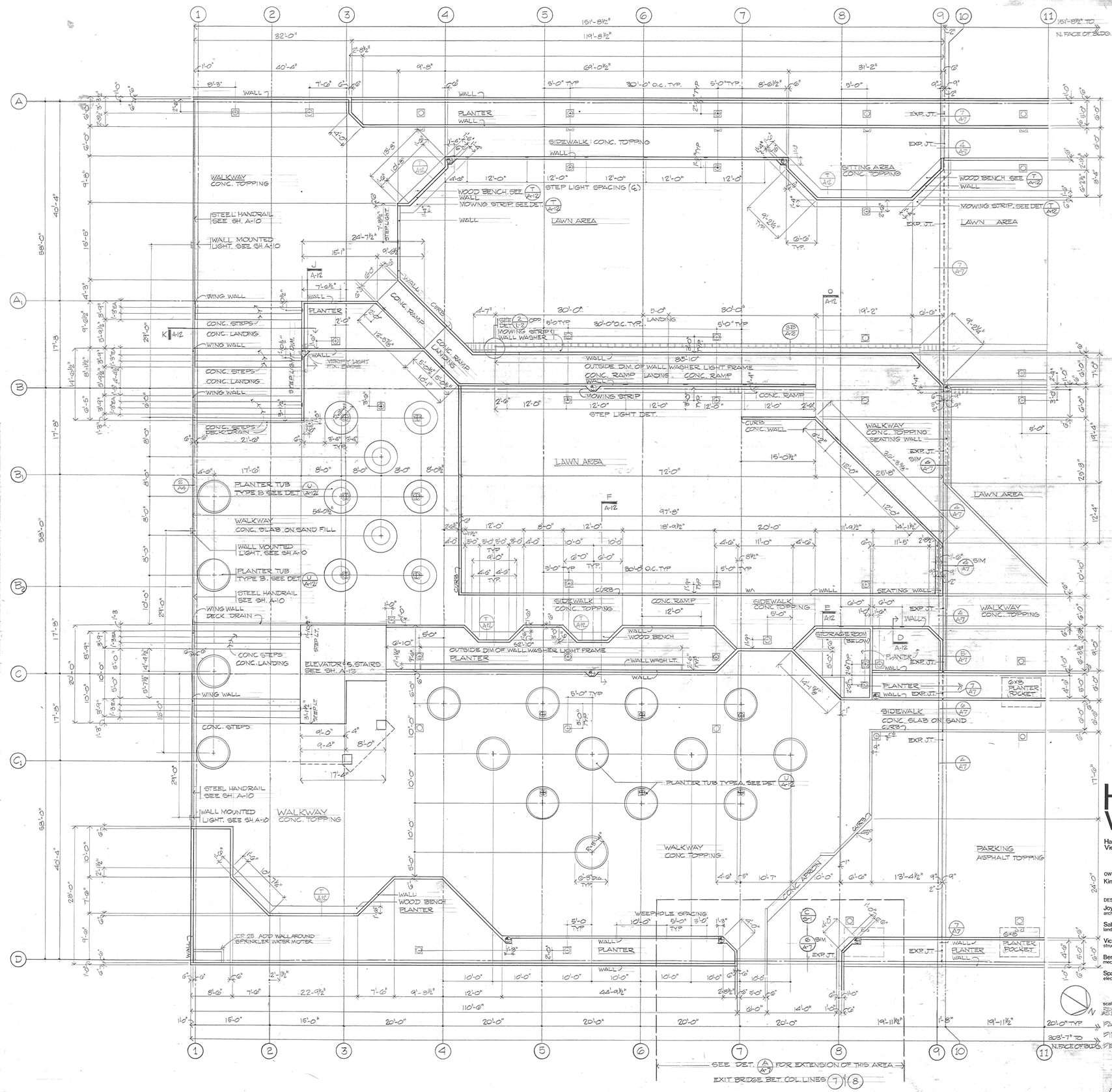
FED. RD. DIV. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH	I-5-3(403)165	8	40



A EXIT BRIDGE BETWEEN COL. LINES 7 & 8



EXPANSION JOINT DETAILS
3" = 1'-0"



TL 1238 REGISTERED ARCHITECT CLAYTON R. JOYCE STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan
architects urban designers
Sakuma James Peterson
landscape architects
Victor O. Gray & Company
structural engineers
Benjamin S. Notkin & Assoc.
mechanical engineers
Sparling & Assoc.
electrical engineers

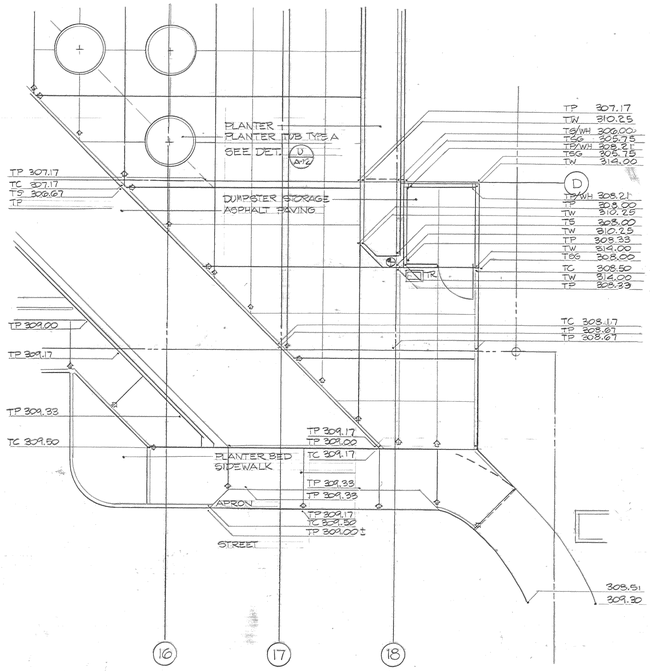
scale AS SHOWN date 3-3-78
REVISED 7-7-78
AS BUILT STATUS 1-7-79

A7 PARK PLAN SOUTH DIMENSIONS DETAILS

A-7

A7 PARK PLAN SOUTH DIMENSIONS DETAILS 8/16

FED. RD. DIV. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH	I-5-3(40)3165	9	40



A NORTHEAST CORNER ENTRY BRIDGE

EXPLANATIONS

LINES

- (Z) ---- COLUMN & BEAM CENTERLINES
- ———— PROPERTY LINE
- - - - - - - - OCCURRING BELOW
- — — — GRADE PITCH BREAK
- ⊕ ———— PAVING JTS. W/ PREMOLDED FILLER TO STRUCTURAL SLAB
- ———— ¼" DP. GROOVE SCORE IN PAVING

SYMBOLS

SEE DIMENSION LAYOUT, N. END PLAN (A-)

TR TRASH RECEPTACLE

ELEVATION NOTATIONS

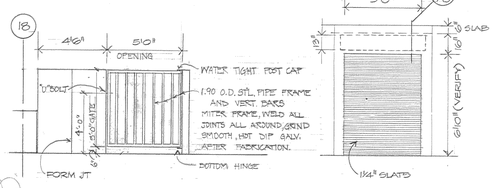
TG	TOP OF GROUT
TP	" " PAVING
TS	" " STRUCTURE
TS/WH	" " /INVERT OF WEEPHOLE
TSG	" " SUBGRADE
TT	" " TREAD
TW	" " WALL
RE	RIM ELEVATION (DRAIN)

ABBREVIATIONS

SEE DIMENSION LAYOUT, N. END PLAN (A-)

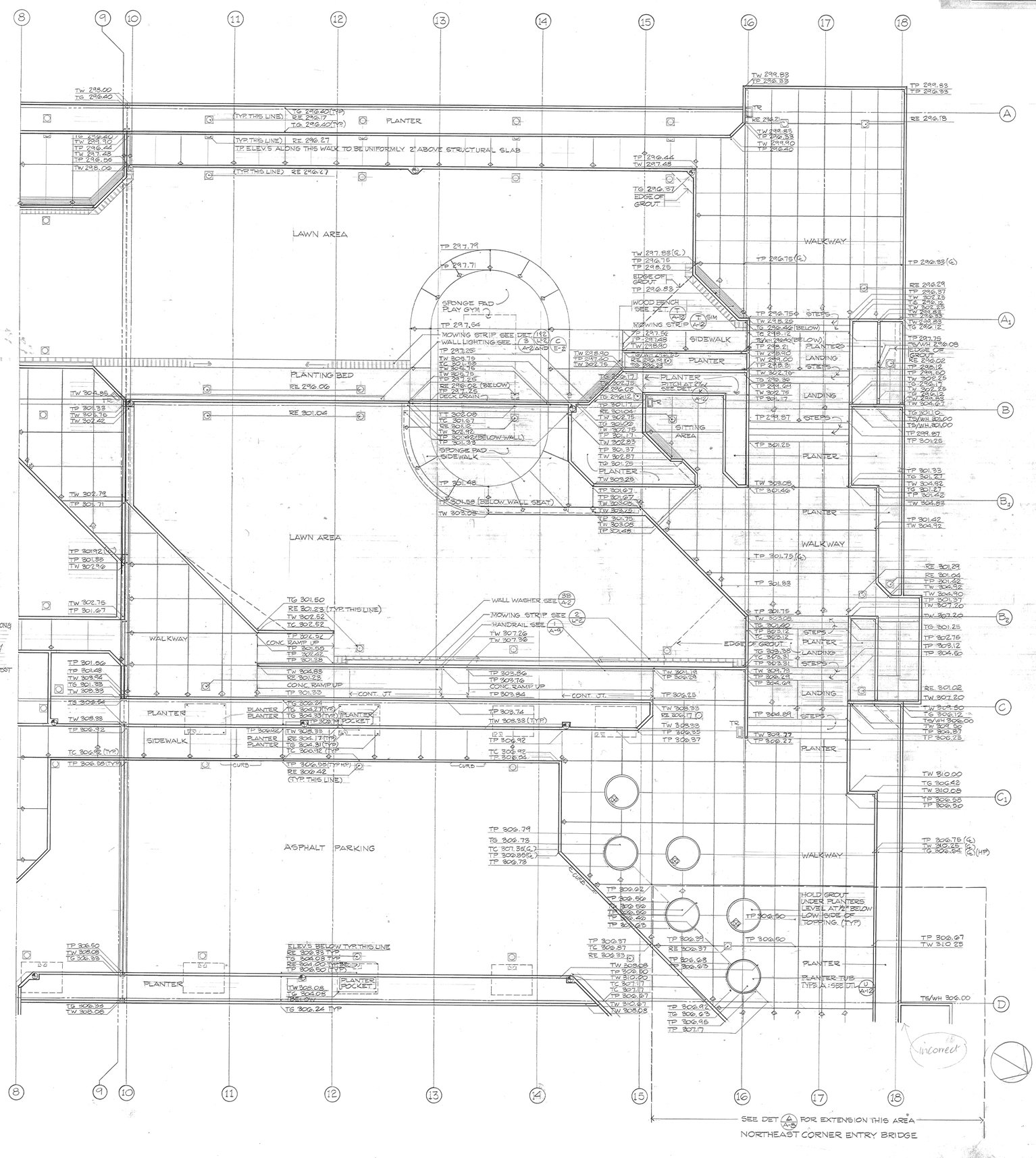
DP.	DEEP
W/	WITH
CONT. JT.	CONTROL JOINT

DUMPSTER STORAGE GATE
PLAN SECTION SCALE ½"=1'-0"



GATE TO DUMPSTER STORAGE
½" = 1'-0" SEE DETAIL, THIS PAGE

R.S. DOOR TO STORAGE
¼" = 1'-0"



R. 12218 REGISTERED ARCHITECT Clayton R. Joyce STATE OF WASHINGTON

HMC vp/pg
Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan architects urban designers
Sakuma James Peterson landscape architects
Victor O. Gray & Company structural engineers
Benjamin S. Notkin & Assoc. mechanical engineers
Sparling & Assoc. electrical engineers

scale ½"=1'-0" date 3-8-73
REV W.S. HWY 7-7-75
AS BUILT STATUS 1-6-75

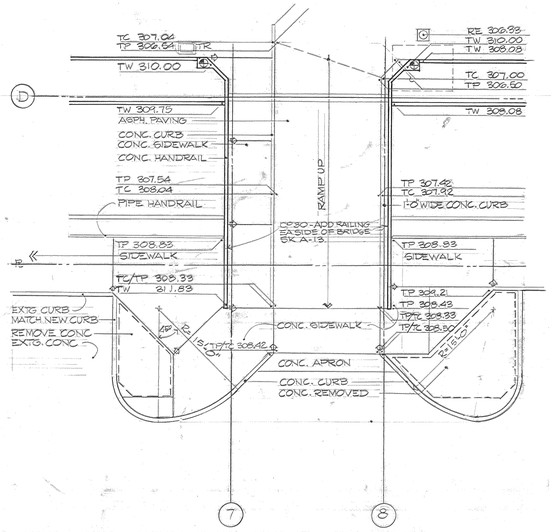
PARK PLAN NORTH

A-8

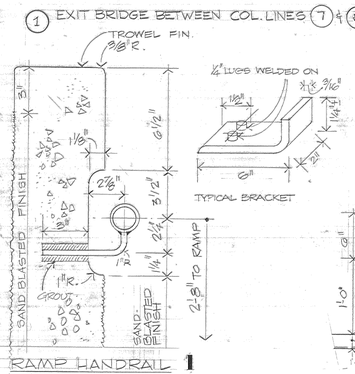
A8 PARK PLAN NORTH 9/16

FED. RD. DIV. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH.	I-5-3(403)165	10	20

A9 PARK PLAN SOUTH, VERTICAL ELEVS. 10/16

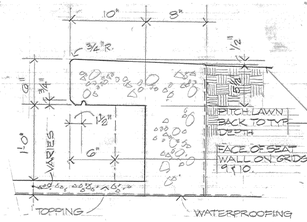


1 EXIT BRIDGE BETWEEN COL. LINES 7 & 8



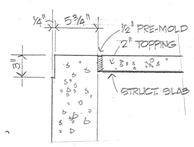
RAMP HANDRAIL 1

1½" ∅ GALV STEEL TUBE WELDED HOT-DIPPED GALV AFTER FABRICN. RAIL - 1½" I.D MILL FIN. 20' LENGTHS. CONCEALED SPLICE BRACKET 6"x 1¼"x ⅜" L 2" LONG. PROVIDE TERMINAL CAPS.

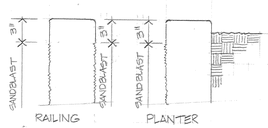


BENCH AT PLAYAREA 2

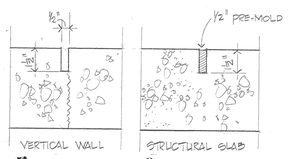
1½"=1'-0"



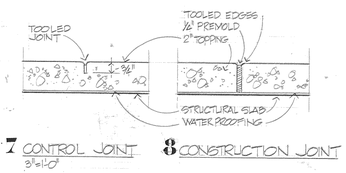
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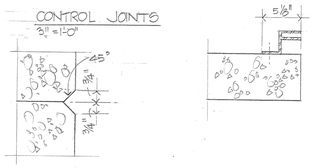
4 CONCRETE FINISHES



5 6

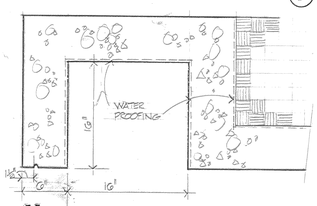


7 CONTROL JOINT 3"=1'-0" 8 CONSTRUCTION JOINT

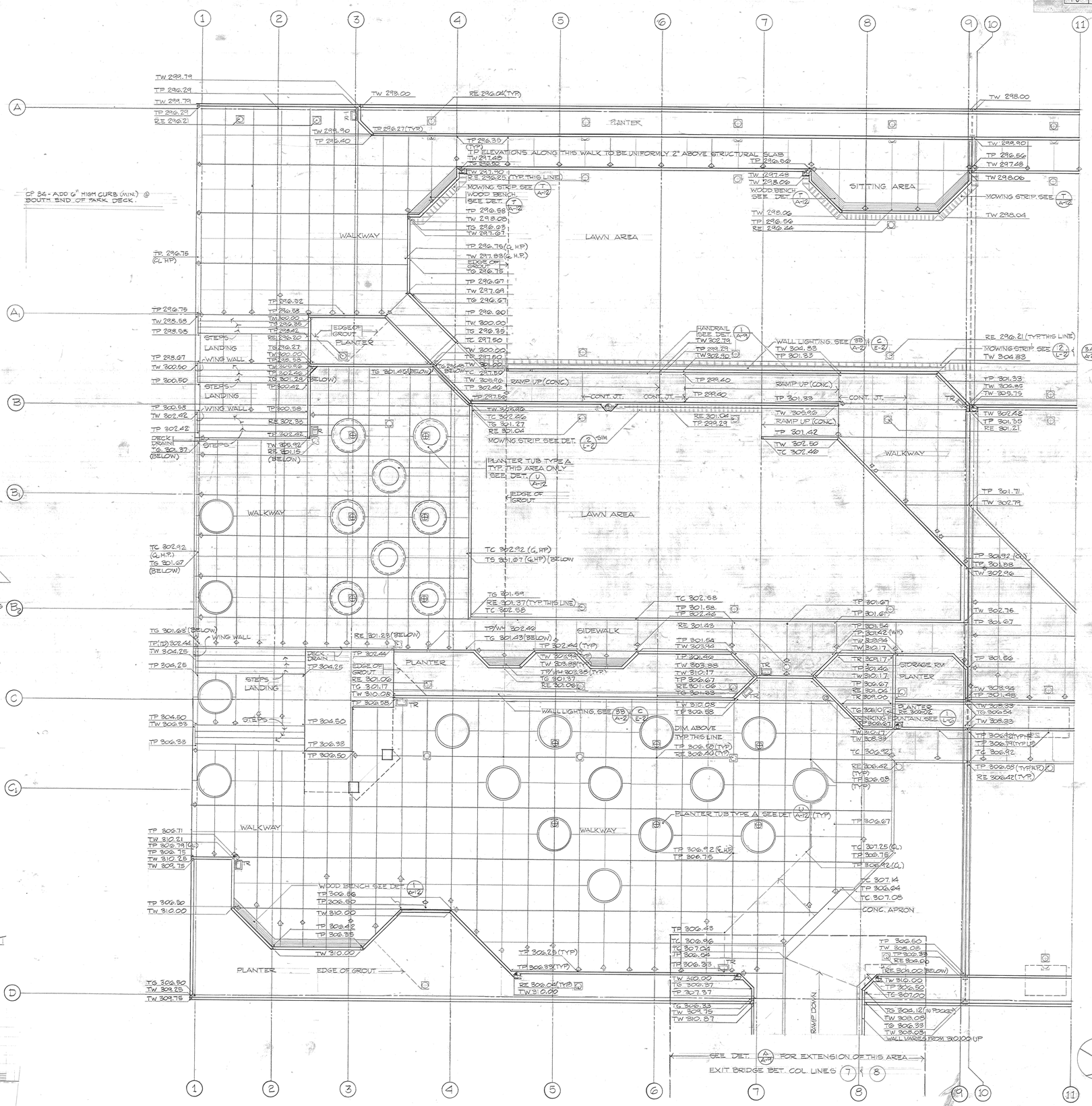


9 POUR JOINT

10 JAMB



11 HEAD



TL 1238 REGISTERED ARCHITECT CLAYTON R. JOYCE STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

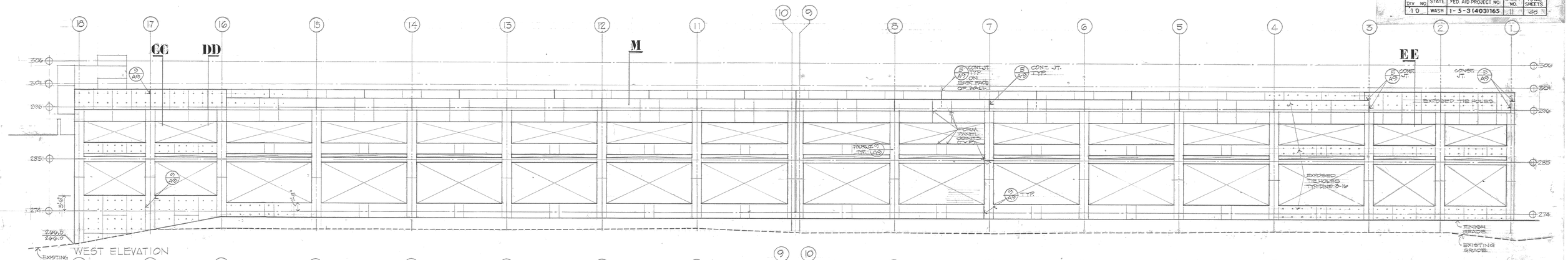
DESIGN TEAM
Joyce Copeland Vaughan
architects urban designers
Sakuma James Peterson
landscape architects
Victor O. Gray & Company
structural engineers
Benjamin S. Notkin & Assoc.
mechanical engineers
Sparling & Assoc.
electrical engineers

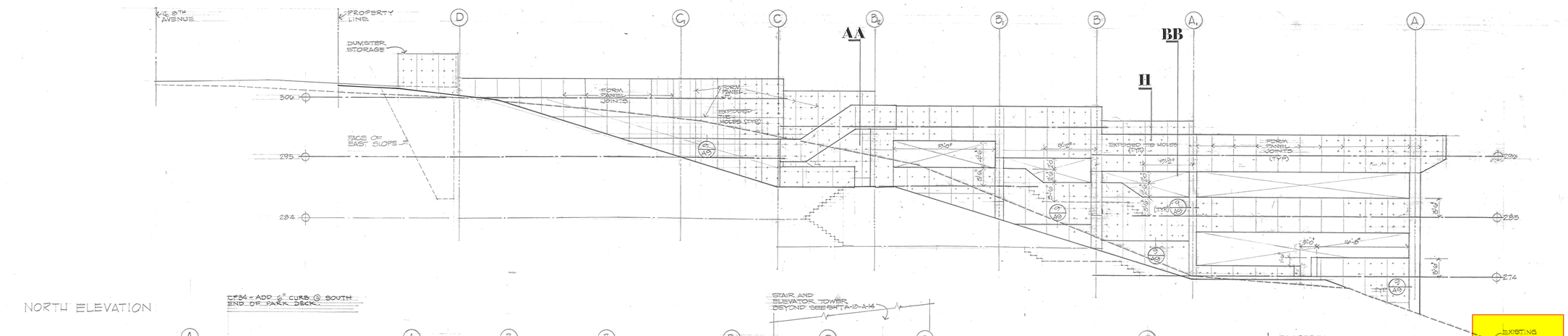
scale 1/8"=1'-0" date 3-8-73
REV. W.S. HWY 7-7-72
AS BUILT STATUS 11-6-75

PARK PLAN SOUTH
VERTICAL ELEVATIONS

A-9

FED RD DIV NO	STATE	FED AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH	I-5-3(403)165	12	20





A10 BUILDING ELEVATIONS 11/16

TL 1228 REGISTERED ARCHITECT CLAYTON R. JOYCE STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan
architects urban designers
Sakuma James Peterson
landscape architects
Victor O. Gray & Company
structural engineers
Benjamin S. Notkin & Assoc.
mechanical engineers
Sparling & Assoc.
electrical engineers

scale 1/8"=1'-0" date 3-8-73
REV W.O.H.W.P. 7-7-75
AS BUILT STATUS 1-6-75

BUILDING ELEVATIONS

A-10

FED RD DIV NO	STATE	FED AID PROJECT NO	SHEET NO	TOTAL SHEETS
10	WASH	I-5-3(403)165	12	40

SECTION-ELEVATION **A-A** SCALE 1/8"=1'-0"

SECTION-ELEVATION **B-B** SCALE 1/8"=1'-0"

SECTION-ELEVATION **C-C** SCALE 1/4"=1'-0"

SECTION-ELEVATION **D-D** SCALE 1/4"=1'-0"

SECTION-ELEVATION **E-E** SCALE 1/4"=1'-0"

A11 BUILDING ELEVATION & SECTIONS 12/16

REGISTERED ARCHITECT CLAYTON R. JOYCE STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

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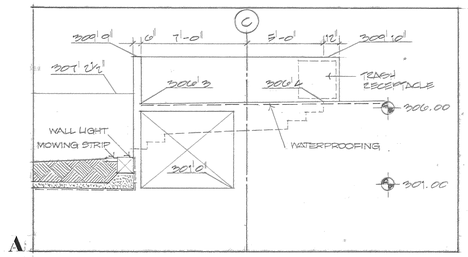
scale 1/8" date: 3-8-73
AS BUILT STATUS 1-16-73

BUILDING ELEVATIONS & SECTIONS

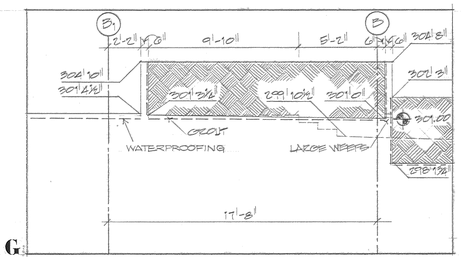
A-11

FED RD DIV NO.	STATE	FED AID PROJECT NO	SHEET NO.	TOTAL SHEETS
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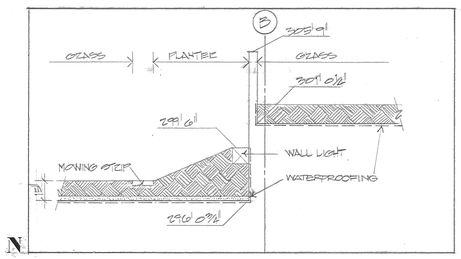
A12 WALL SECTIONS & DETAILS 12/16



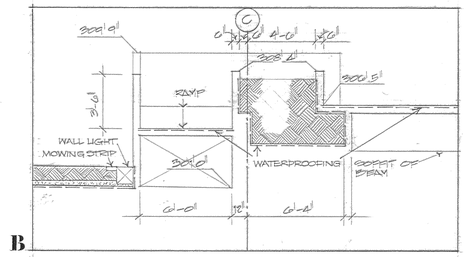
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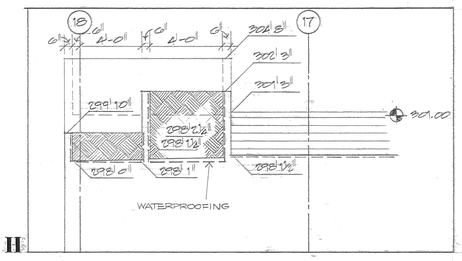
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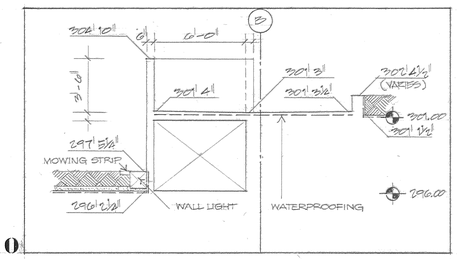
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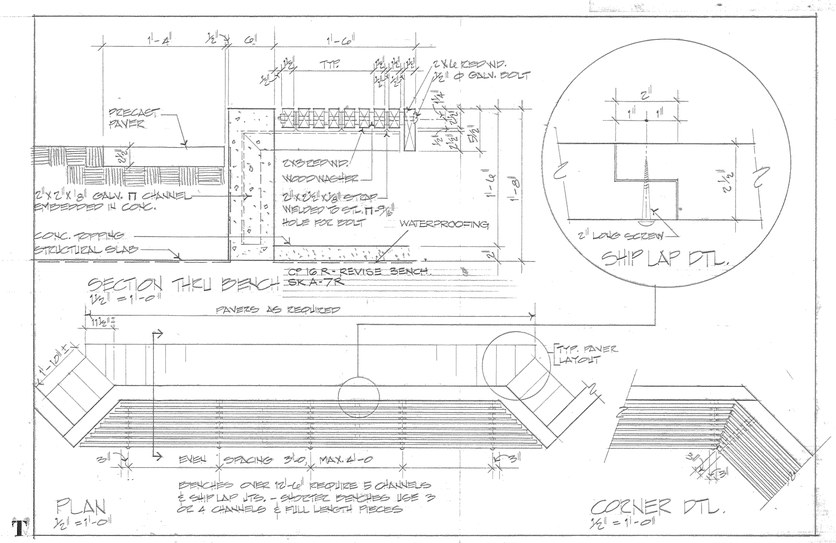
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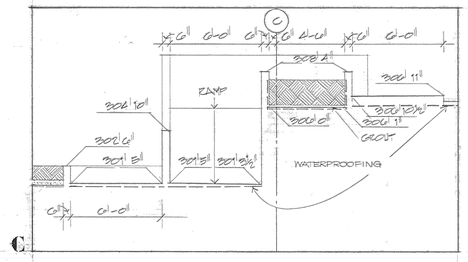
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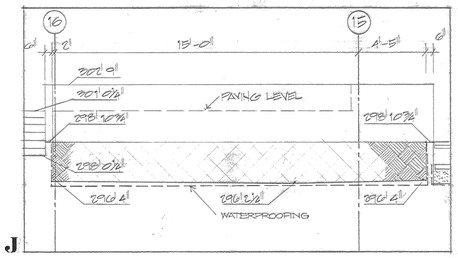
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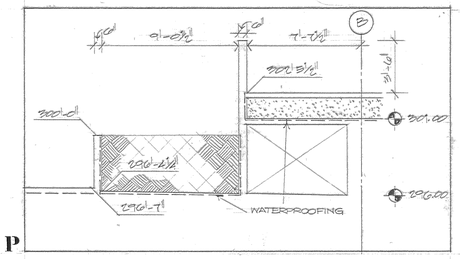
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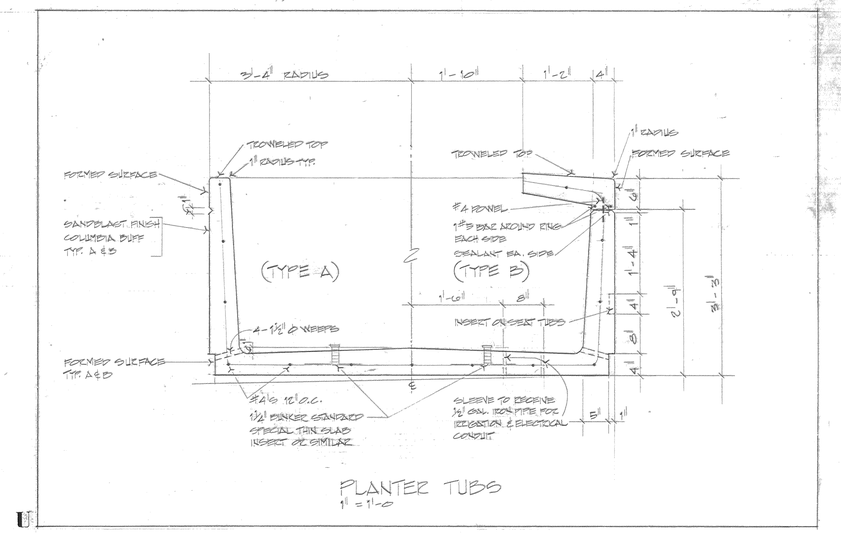
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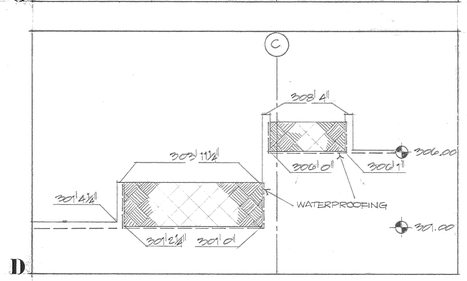
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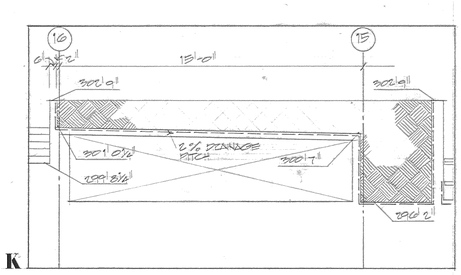
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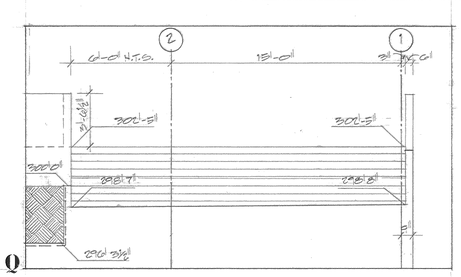
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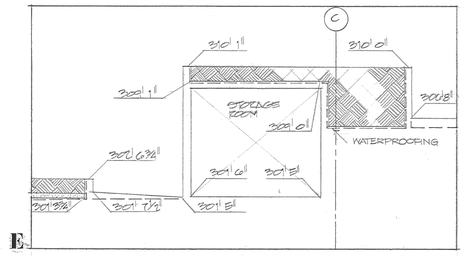


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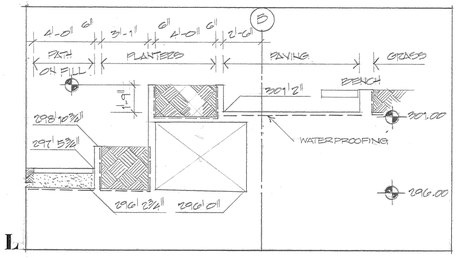


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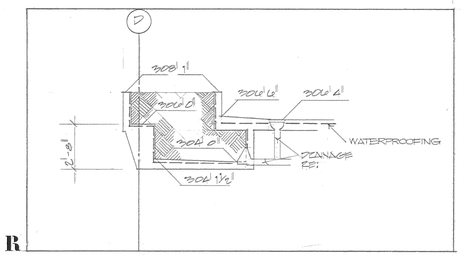




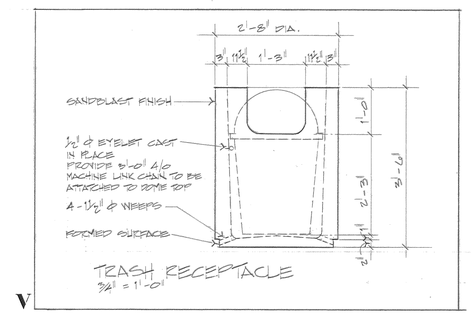
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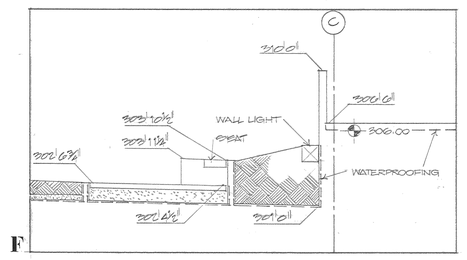
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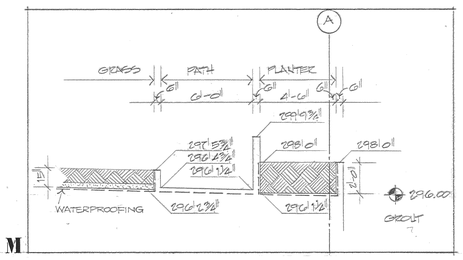
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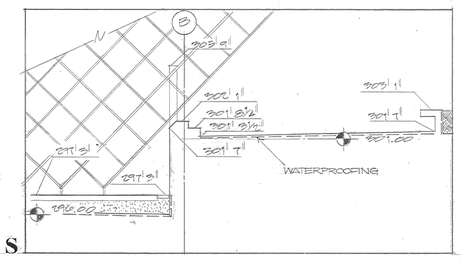
V



F



M



S

WALL SECTIONS 1/4"=1'-0"

TL 1208
REGISTERED ARCHITECT
CLAYTON R. JOYCE
STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan
architects urban designers
Sakuma James Peterson
landscape architects
Victor O. Gray & Company
structural engineers
Benjamin S. Notkin & Assoc.
mechanical engineers
Sparling & Assoc.
electrical engineers

scale AS SHOWN date 3-8-75
AS BUILT STATUS 1-6-76

WALL SECTIONS & DETAILS

A-12

FED RD DIV NO.	STATE	FED AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH	I-5-3(403)165	14	40

CP 22 - INSTALL WIND SOCK, FURNISH & INSTALL LADDER TO ROOF. SK 11-A.

OBSTRUCTION LIGHT (SEE SHEET)

FLOOD LIGHTS (SEE SHEET)

TOP OF PARAPET 335.50

TOP OF PARAPET 331.50

TOP OF PARAPET 323.50

TOP OF SLAB 321.00 BRIDGE LOBBY

306.00

301.00

295.00

290.00

284.00

279.00

CP 30 - REVISE SPRINKLER ENCLOSURE. SK A-14.

A NORTH ELEVATION

B EAST ELEVATION

C SOUTH ELEVATION

D WEST ELEVATION

CP 30 - REVISE SPRINKLER ENCLOSURE. SK A-14.

CP 10 - REVISE ROOF DRAINAGE. SK A 2A thru A 2C.

1 PARKING LEVEL 279

2 PARK DECK LOBBY

3 BRIDGE LOBBY

4 ROOF PLAN

REGISTERED ARCHITECT CLAYTON R. JOYCE STATE OF WASHINGTON TL 1258

HMC vp/pg

Harborview Medical Center View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan architects urban designers
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Victor O. Gray & Company structural engineers
Benjamin S. Notkin & Assoc. mechanical engineers
Sparling & Assoc. electrical engineers

scale 1/4"=1'0" date 3-3-75
AS BUILT STATUS 1-6-74

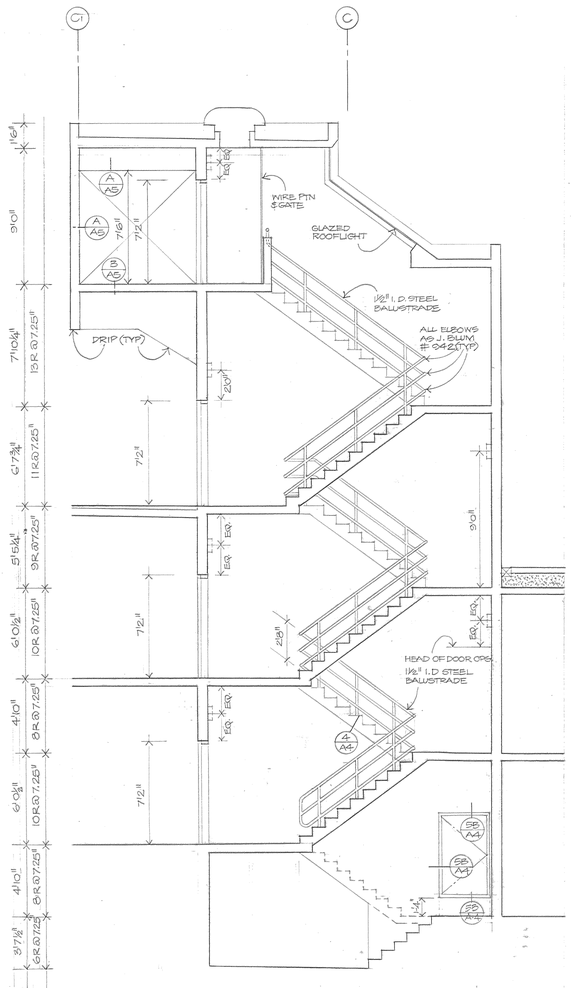
SOUTH STAIR TOWER PLANS & ELEVATIONS

A-13

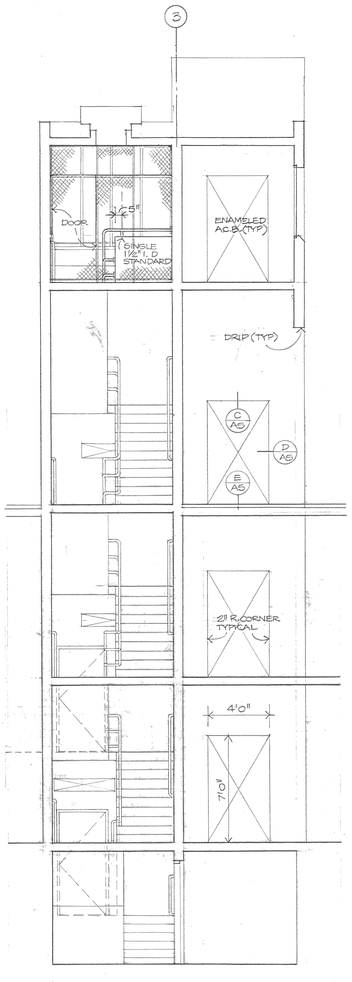
A13 SOUTH STAIR TOWER PLANS & ELEVS. 14/16

FED RD DIV NO	STATE	FED AID PROJECT NO	SHEET NO.	TOTAL SHEETS
10	WASH	I-5-3(403)165	15	20

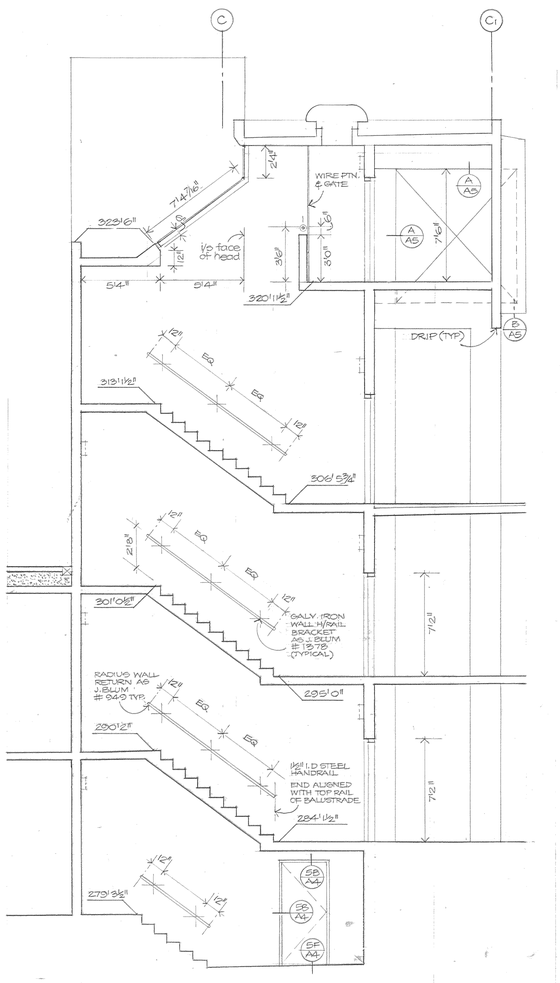
A14 SOUTH STAIR TOWER SECTIONS,NORTH STAIR PLAN,SECTION 1



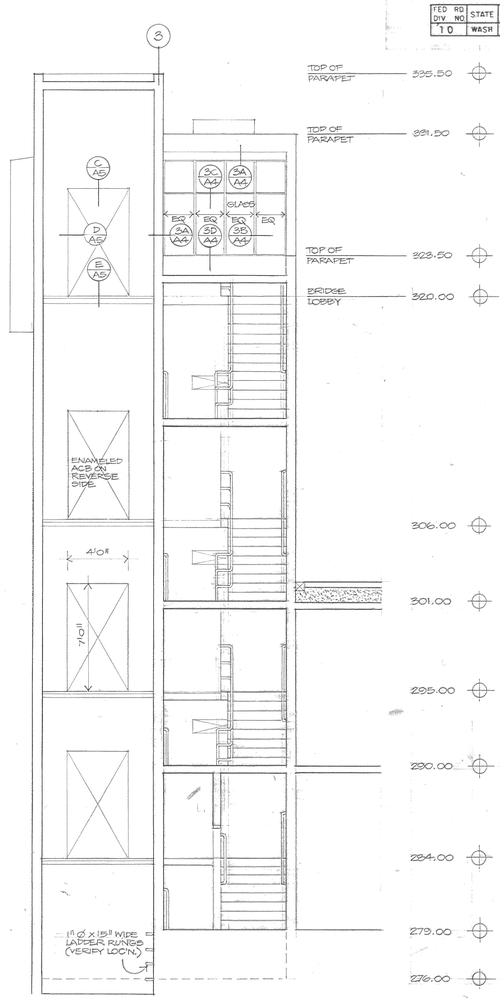
5. STAIR SECTIONS **A**



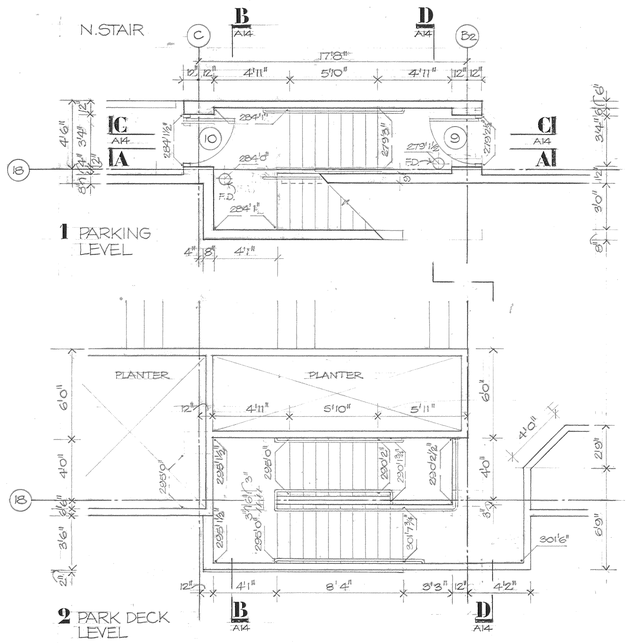
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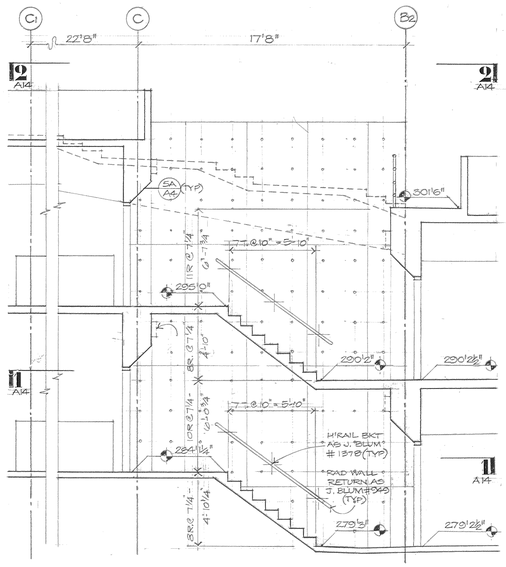


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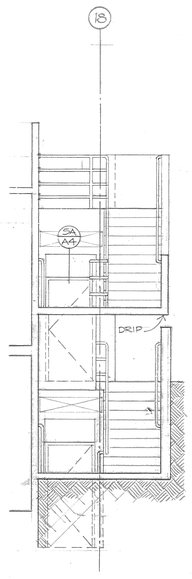


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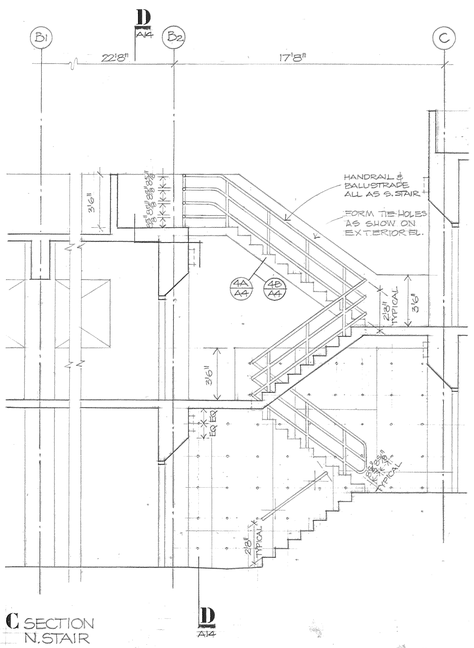




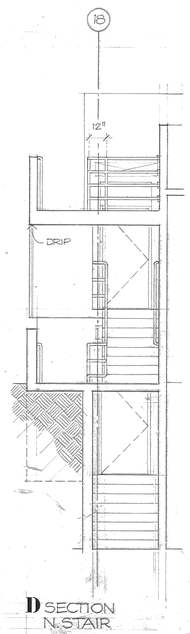
A SECTION N. STAIR



B SECTION N. STAIR



C SECTION N. STAIR



D SECTION N. STAIR

TL 2238 REGISTERED ARCHITECT
CLAYTON R. JOYCE STATE OF WASHINGTON

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

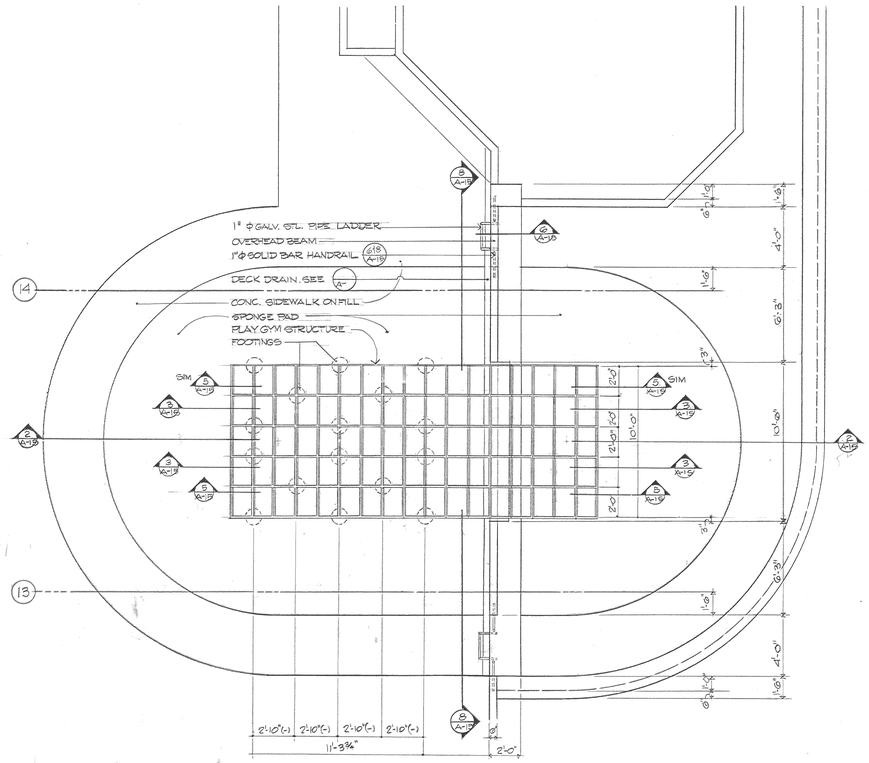
OWNER
King County, Washington

DESIGN TEAM
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Sakuma James Peterson landscape architects
Victor O. Gray & Company structural engineers
Benjamin S. Notkin & Assoc. mechanical engineers
Sparling & Assoc. electrical engineers

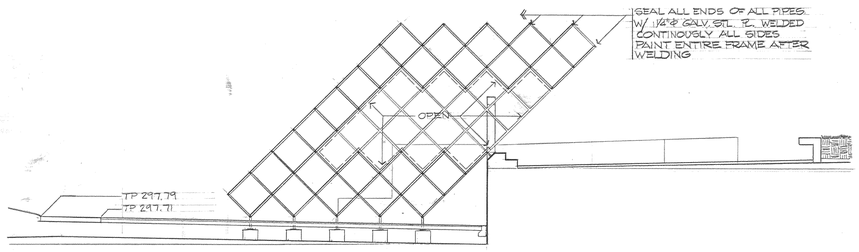
scale: 1/4"=1'-0" date: 3-3-75
AS BUILT STATUS 1-6-75

SOUTH STAIR TOWER SECTIONS & NORTH STAIR PLANS & SECTIONS

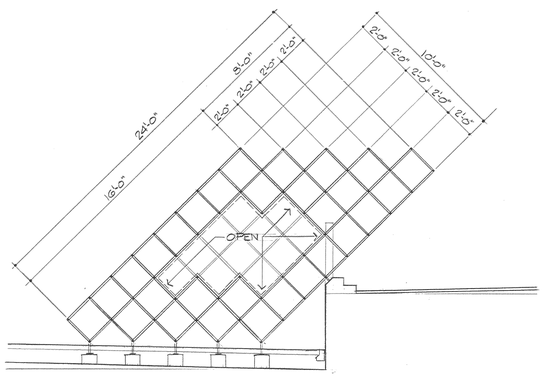
A-14



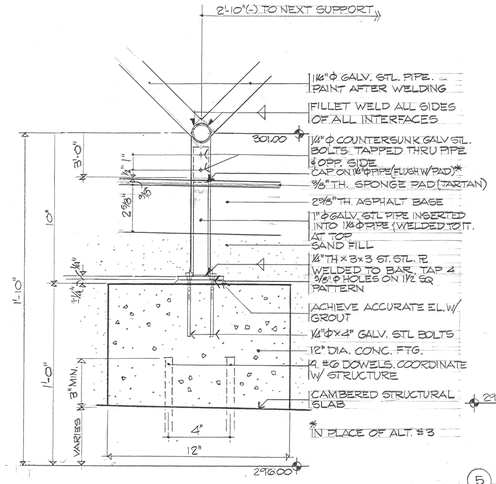
1 PLAN OF PLAY GYM STRUCTURE
1/4"=1'-0"



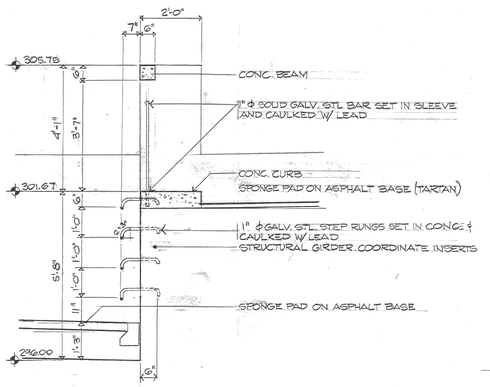
2 SECTION THROUGH CENTER
1/4"=1'-0"



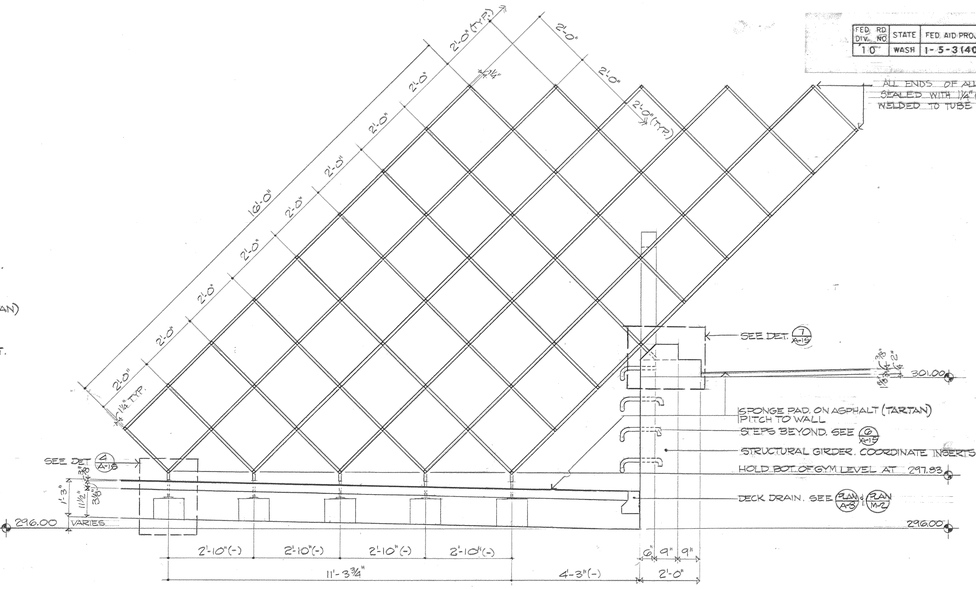
3 SECTION AT 2ND & 4TH BAYS
1/2"=1'-0"



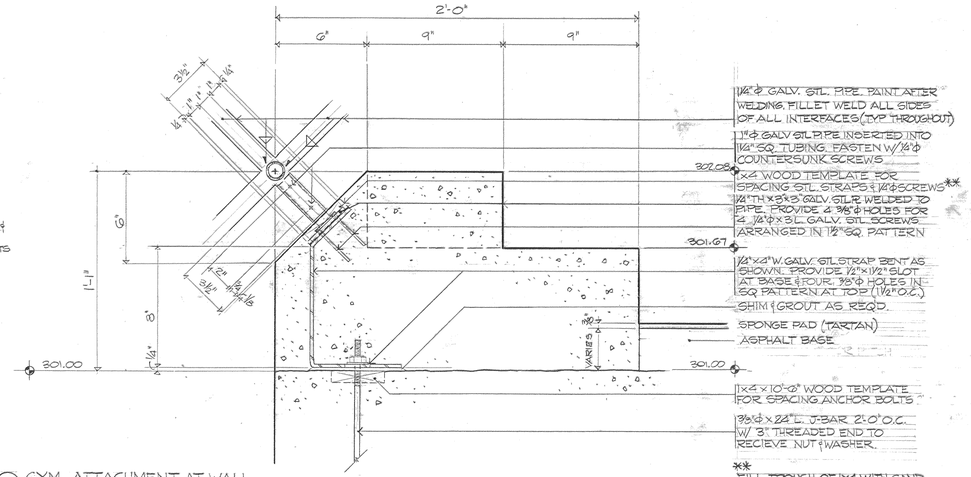
4 FOOTING DETAIL (SIM. FOR ALL)
3"=1'-0"



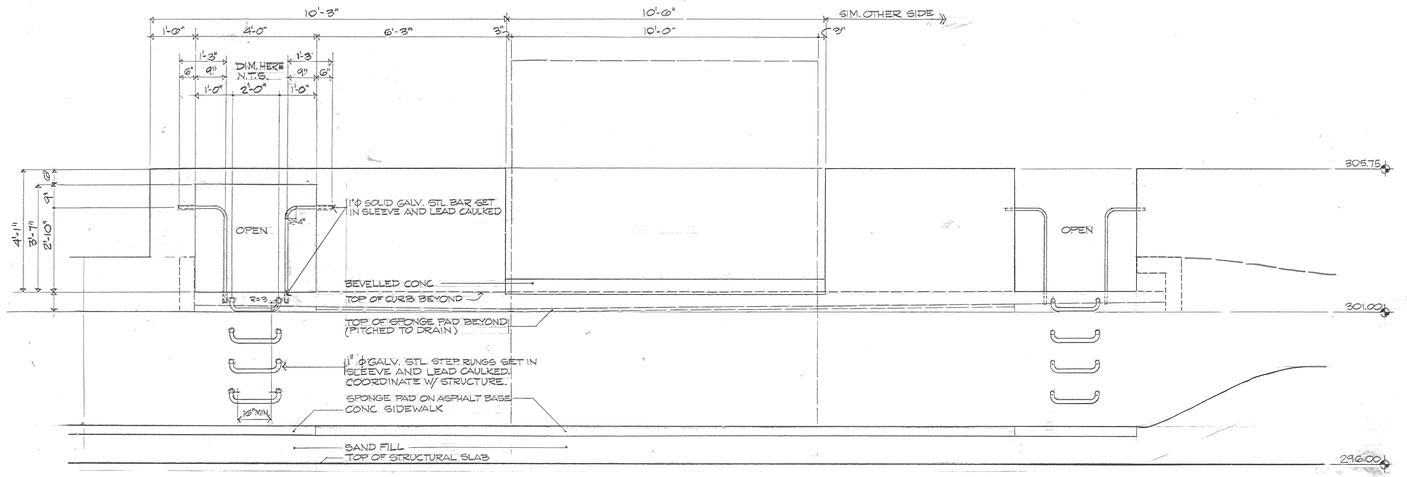
6 SECTION AT LADDER
1/2"=1'-0"



5 SECTION THROUGH OUTSIDE BAYS
1/2"=1'-0"



7 GYM ATTACHMENT AT WALL
3"=1'-0"



8 ELEVATION OF WALL
1/2"=1'-0"

FED. RD DIV. NO.	STATE	FED. AID PROJECT NO.	SHEET NO.	TOTAL SHEETS
10	WASH	I-5-3(403)165	16	40

A15 PLAY GYM & LADDERS 16/16

REGISTERED ARCHITECT
CLAYTON R. JOYCE
STATE OF WASHINGTON
EL 12281

HMC vp/pg

Harborview Medical Center
View Park / Parking Garage

OWNER
King County, Washington

DESIGN TEAM
Joyce Copeland Vaughan
architects urban designers
Sakuma James Peterson
landscape architects
Victor O. Gray & Company
structural engineers
Benjamin S. Notkin & Assoc.
mechanical engineers
Sparling & Assoc.
electrical engineers

scale 1/2 date 3-30-75
drawn
AS BUILT STATUS 1-6-76

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ALT. # 3

A-15

April 20, 2026, letter from the State of Washington DAHP re Archaeology – Comments on Technical Memorandum

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

April 20, 2026

Alex Hurtado
Harborview Bond Program Office
908 Jefferson Street, 13th Floor,
Seattle, WA 98104

In future correspondence please refer to:
Project Tracking Code: 2026-01-00565
Property: King County_Harborview Bond Program_Draft EIS
Re: Archaeology – Comments on Technical Memorandum

Dear Alex Hurtado:

Thank you for contacting the State Historic Preservation Officer (SHPO) and the Department of Archaeology and Historic Preservation (DAHP) with documentation regarding the above-referenced project. We have received and reviewed the technical memorandum completed by Heather McDaniel McDevitt (Langan), dated April 17, 2026. Based on this review, we concur with the conclusions and recommendations regarding the New InPatient Tower (in the location of the existing View Park I garage). We recommend that the project proceed as planned with an Inadvertent Discovery Plan (IDP) and IDP training.

In addition, the affected tribes have a special interest in this area. Therefore, we recommend that the tribes be consulted and would appreciate receiving any correspondence or comments from the tribes or from other parties regarding cultural resource concerns.

These comments are based on the information available at the time of this review. Please note that should the project scope of work and/or location change significantly, please contact DAHP for further review.

Thank you for the opportunity to review and comment on this project. Should you have any questions, please feel free to contact me.

Sincerely,

Tamela Smart

Tamela Smart, M.A.
Local Government Archaeologist
(360) 628-2755
Tamela.Smart@dahp.wa.gov

April 24, 2026, Technical Memorandum from Langan re Inadvertent Discovery Plan

LANGAN

Technical Memorandum

520 Pike Street, Suite 985 Seattle, WA 98101 T: 206.674.7100. F: 206.674.7101

To: Tamela Smart, RPA - Department of Archaeology and Historic Preservation

From: Heather McDaniel McDevitt, RPA – Cultural Resource Practice Director, Langan

Info: Alex Hurtado – King County
Sohail Abrahams – King County
Maryam Alaeddini- Harborview Medical Center
Erica Pabis - Vanir
Sean Moronski - Langan

Date: April 23, 2026

Re: **Inadvertent Discovery Plan**
Harborview Medical Center Major Institution Master Plan Major Amendment
Seattle, King County, Washinton
Langan Project No.: 791006401
DAHP Project Tracking Code: 2026-01-00565

Attachments Workers' Environmental Awareness Program Pamphlet

This memorandum is to serve as the Inadvertent Discovery Plan (Plan) for the Harborview Medical Center Major Institution Master Plan Major Amendment (Project) construction activities occurring 325 9th Avenue in King County, Seattle, Washington. This Plan includes protocols and procedures for the response to an inadvertent discovery of cultural resources or human remains.

SECTION 1. PROJECT DESCRIPTION

The Project proposes the demolition of the View Park I garage (northern parking structure) and the construction of a New Inpatient Tower. The new tower will include up to four levels of below-grade construction (relative to 8th Avenue grades), requiring an excavation up to 50 feet. The existing View Park I garage includes four levels below-grade – so the new tower will extend slightly deeper than the existing garage building.

SECTION 2. PROTOCOLS AND PROCEDURES

Worker Environmental Awareness Program Training

Before the start of any ground disturbing activities, including any vegetation clearing or grading activities, Langan's Archaeological Principal Investigator who exceeds Secretary of Interior's standard for prehistoric and historic archaeology and is listed in the Register of Professional Archaeologists, or their representative, shall conduct a Worker Environmental Awareness Program (WEAP) training. The training shall be attended by all construction personnel who are

involved in on-site ground disturbing activities. The WEAP training shall include an explanation of types of cultural materials[1] that may be encountered during ground disturbing activities, potential indicators for the presence of cultural materials, examples of cultural materials commonly found in the region and the procedures and communication protocols that must be followed upon the inadvertent discovery of cultural resources and human remains or suspect human remains. The training shall also establish procedures for temporary halting and redirecting work to permit sampling, identification, and evaluation of possible cultural resources, as appropriate. All personnel attending the WEAP training shall be provided a pamphlet outlining the details discussed in the meeting along with important contact information. Langan shall provide both hard and electronic copies of the WEAP pamphlet for any personnel that begin work on the Project after the commencement of ground disturbing activities.

Owner Applicant and Construction Contractor Tasks

- It is the construction contractor's responsibility that all personnel meeting the description above attend the WEAP training prior to involvement with ground disturbing activities. Any construction personnel who begin work at any time after the first day of ground disturbance must also attend a WEAP training. Langan shall be available to conduct additional WEAP trainings upon request with no less than 48 hours' notice.

- A hard copy or electronic sign in sheet shall be distributed for signature of all attendees of each WEAP training and be available for review by the jurisdictional agency staff.

Stop Work at Encounter

Cultural Resources Treatment Protocol for Inadvertent Discovery

Pursuant to state requirements and mitigation required for the Project, if previously unidentified cultural resources are encountered or suspected as a result of ground disturbing activities, the following protocols shall be adhered to:

1. All ground disturbing activities shall be stopped within at least 100 feet from the area of discovery and the Project's Archaeological Principal Investigator shall be contacted to assess the nature, extent and potential significance of any discoveries. If the find is considered a potentially significant cultural resource, the Project's Archaeological Principal Investigator shall notify the jurisdictional agency staff immediately and if the cultural resource is Native American in nature, the appropriate tribe/s shall be contacted immediately.

[11] Cultural Resources include any sites, artifacts, features and materials of a prehistoric or historic-era origin and considered archaeological, built environment or tribal in nature.

2. The discovery location and 100-foot buffer, within which no ground disturbance can occur, shall be physically delineated by easily visible marking such as temporary plastic fencing or flagging tape until the discovery is addressed appropriately and consistent with state and local requirements and guidelines. The discovery shall not be disturbed in any way until the qualified Archaeological Principal Investigator, or qualified representative, in consultation with jurisdictional agency staff and tribal entities, as appropriate, removes the rope or flagging and allows ground disturbance to resume in the area.

3. Once temporary avoidance measures are in place, the Project's Archaeological Principal Investigator or qualified representative shall formally record and delineate the resource boundaries and evaluate the significance of the resource in accordance with state and local criteria. Documentation of the discovery shall include photographing artifacts/specimens/material with a digital camera, GPS mapping of the resource location with a handheld GPS unit and noting the stratigraphy and taphonomy of the sediments. Depending on the resource, effort to evaluate the resource may require subsurface testing and laboratory analysis.

4. If the resource meets the criteria set forth in Washington State Law, the Project's Archaeological Principal Investigator shall develop management recommendations for cultural resource treatment of the discovery with avoidance of the resource taking precedence. If avoidance is not feasible, the Project's Archaeological Principal Investigator will develop and submit the archaeological data recovery work plan and research design to the DAHP for review and concurrence of the final draft. If required, issuance of a Washington Archaeological Site Alteration and Excavation Permit may be required.

5. If avoidance of the resource is determined to be feasible by the Project's Archaeological Principal Investigator, in consultation with jurisdictional agency staff and tribal entities, as appropriate, the Project's Archaeological Principal Investigator shall develop a plan of avoidance.

6. If avoidance of the resource is determined infeasible by the Project's Archaeological Principal Investigator, in consultation with jurisdictional agency staff and tribal entities, as appropriate, the Project's Archaeological Principal Investigator shall develop a treatment plan to mitigate the impact of the Project on the resource in accordance with state and local requirements. The treatment plan shall be designed in a customized manner considering the unique traits of the resource and the Project conditions in order to minimize as much as possible the impact of the Project on the resource. These mitigation measures may include but are not limited to data recovery (excavation, analysis and report preparation); archaeological and Native American monitoring; partial preservation and curation.

Human Remains Treatment Protocol for Inadvertent Discovery[2]

The following language has been provided by the DAHP: *If ground disturbing activities encounter human skeletal remains during the course of construction, then all activity will cease that may cause further disturbance to those remains. The area of the find will be secured and protected from further disturbance until the State provides notice to proceed. The finding of human skeletal remains will be reported to the county medical examiner/coroner and local law enforcement in the most expeditious manner possible. The remains will not be touched, moved, or further disturbed. The county medical examiner/coroner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic. If the county medical examiner/coroner determines the remains are non-forensic, then they will report that finding to the Department of Archaeology and Historic Preservation (DAHP) who will then take jurisdiction over the remains. The DAHP will notify any appropriate cemeteries and all affected tribes of the find. The State Physical Anthropologist will make a determination of whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and the affected tribes. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.*

As such, the following protocols shall be followed upon discovery of human remains or suspected discovery of human remains:

1. All ground disturbing activities shall be diverted away from the area of discovery, and the King County Coroner shall be contacted immediately. If it is unknown if the bones are human, the Project's Archaeological Principal Investigator and Human Osteologist shall be contacted to assess the nature of the remains and shall contact the King County Coroner if the remains are determined human. Once the coroner has been contacted, the jurisdictional agency staff shall be contacted.

2. The King County Coroner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or not. If the remains are determined to be forensic the county coroner will retain jurisdiction over the remains. If the county coroner determines the remains are non-forensic, then the Department of Archaeology and Historic Preservation (DAHP) will take jurisdiction over those remains found on non-Federal and Non-Tribal land.

3. Upon assuming jurisdiction, the DAHP and State Physical Anthropologist will make a determination of whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and to the affected tribes. If the remains are identified as Indian, then after notification to the affected tribes of that finding by the DAHP, the

[2] https://dahp.wa.gov/archaeology/human-remains/recommended-inadvertent-human-remains-discovery-language

affected tribes will have 5 business days to communicate with the DAHP their interest in those remains. The DAHP will handle all consultation concerning the remains with the affected tribes and other involved parties as to their future preservation, excavation, and disposition. If the remains are determined to be Non-Indian, then the DAHP will handle all consultation concerning the remains with the involved parties as to their future preservation, excavation, and disposition.

4. Work within no less than 100 feet of the area of discovery or nearby area suspected to overlie remains shall cease until the discovery is addressed appropriately and consistent with state requirements and guidelines. This area shall be physically delineated by easily visible marking such as temporary plastic fencing or flagging tape and shall not be disturbed in any way until the Department of Archaeology and Historic Preservation, allows the removal of the rope or flagging and the resumption of ground disturbance in the area.

Communication Protocols

To ensure Project compliance the following communication protocols shall be implemented:

- Construction personnel shall report to the Project's Archaeological Principal Investigator regarding the occurrence of inadvertent discovery of cultural material and human remains or suspicion of human remains;

- All communication (via text, phone call or email) from the Project's Archaeological Principal Investigator and construction personnel is assumed undelivered without confirmation of receipt. It is the responsibility of all staff and construction personnel to ensure that communication has been received through confirmation of receipt. If confirmation is not received, it is the responsibility of the sender to follow-up and ensure receipt.

- Any inadvertent discovery of cultural material and human remains, or suspicion of the same, by construction personnel shall be reported immediately to the Project's Archaeological Principal Investigator upon discovery.

Cultural Staff Responsibilities

Human Osteologist – Langan's Human Osteologist, Heather McDaniel McDevitt, is also the Project's Archaeological Principal Investigator overseeing cultural services for this Project and shall be on call throughout the duration of the ground disturbing activities to address any potential discovery of human remains. Initial determination of the nature of suspect bones shall be made through the examination of pictures and through phone discussion. If the identification of "non-human" is not absolutely certain, Ms. McDaniel McDevitt will travel to the Project site within 24

hours of discovery, if possible, to make a determination on site. A 100-foot buffer around the discovery shall be allocated, marked and enforced until a full determination of the discovery can be completed and appropriately treated. Please refer to Human Remains Treatment Protocol for Inadvertent Discovery for further details regarding required treatments and protocols in the event of an inadvertent discovery of human remains.

Please do not hesitate to contact me at hmcdanielmcdevitt@langan.com regarding any questions or concerns pertaining to this Inadvertent Discovery Plan for the Harborview Medical Center Major Institution Master Plan Major Amendment Project.

Very Respectfully,

Heather McDaniel McDevitt, RPA
Cultural Resource Practice Director

Attachment – Workers' Environmental Awareness Program Pamphlet

Archaeological Resources

Historic Glass Bottles



Sandstone Wall/Foundations



Ceramic Artifact Fragments



Archaeological Resources

Buried Foundation



Historic Well



Terrestrial Bone



WHEN IN DOUBT, PLEASE ASK!

LANGAN

WORKERS ENVIRONMENTAL AWARENESS PROGRAM

Project

Harborview Bond Program Office Development

Resource

Archaeological Staff

Principal Archaeologist
Heather McDaniel McDevitt, RPA
Email: hmcdanielmcdevitt@langan.com
Cell phone (preferred): 805.696.0957
Office phone: 805.957.6013

It is important that all project staff understand that archaeological staff may visit the site to ensure that the project remains compliant with the conditions of approval for this project. Please contact us with any questions or concerns that you might have. It is much more efficient and beneficial to the project when we are able to respond to a potential issue immediately upon discovery when we can make a more flexible decision with regard to compliance.

Cultural Staff Responsibilities

- Ensure project is compliant with all project COAs
- Confer with construction foreman at the beginning and end of each day to determine monitoring needs.
- Determine absence or presence of cultural material and, if necessary, its significance.
- Decide the next appropriate action based on CEQA regulations and Project Mitigation Measures
- Notify the City when archaeological materials of significance have been found

Construction Staff Responsibilities

- Adherence to the Project Mitigation Measures.
- Communicate with the Principal Investigator prior to any ground disturbance activities. All construction personnel must attend a WEAP prior to being involved in ground disturbing activities. Tracking of attendance will be monitored by the jurisdictional agency.
- Immediately halt ground disturbance if cultural resources, human remains or suspected cultural resources and human remains have been encountered.
- Contact the archaeological staff and immediately halt ground disturbing activities if you observe any potential resources.
- Allow archaeological staff access to all project areas for assessments

The project site is located in a general area with the potential to retain archaeological deposits. If an inadvertent archaeological discovery is made, all construction work within no less than 100 feet from the discovery shall stop and the Archaeological Principal Investigator shall be contacted immediately. Upon the discovery or suspected discovery of human remains, all work within no less than 100 feet from the discovery shall stop and the Archaeological Principal Investigator shall be contacted immediately. If the remains are determined to be human, the Archeological Principal Investigator will contact the appropriate authorities.

There is always potential that archaeological resources and human remains may be encountered during ground disturbing activities. Collecting of any material from the site is illegal and punishable by both imprisonment and severe monetary fines. It is very important that any questionable material be reported to the Archaeological Principal Investigator immediately. We would rather you be cautious then inadvertently destroy a resource.

Lithic Stone Tool/Production Artifact



Archaeological Resources

Marine Shell Midden



Groundstone – Metate and Manos



Lithic Tools – Projectile Points



Project Notice Letters Sent to Tribal Historic Preservation Offices

March 31, 2026

The Honorable Jaison Elkins
Chairperson
Muckleshoot Indian Tribe
39015 172nd Avenue SE
Auburn, Washington 98092

Dear Chairperson Elkins:

Please accept this letter as notification of the Harborview Medical Center Major Institutional Master Plan (MIMP) Major Amendment Project (Project), located in the First Hill neighborhood of Seattle, King County, for your consideration. The Harborview campus is bound by James Street on the north, Alder Street on the south, Terry Avenue on the east, and Interstate 5 (I-5) on the west (see figures 1 and 2).

King County's Harborview Medical Center (HMC) is a hospital with a license for 540 beds, owned by King County and operated by UW Medicine. Harborview is one of the nation's leading academic medical centers and is the only Level 1 trauma center and verified burn center serving a five-state region (Alaska, Idaho, Montana, Wyoming, and Washington state). Harborview provides premier medical education facilities for trauma and related disciplines. The facilities must be seismically stable, usable, and accessible after a significant event. HMC is the state's largest hospital provider of charity care. This Major Amendment to the MIMP focuses on future improvements to meet the growing service demands for the years 2023 to 2030.

In November 2020, 77.5% of King County voters passed a historic $1.74 billion bond measure to facilitate building the next generation of health care facilities on the King County-owned HMC campus.

This Bond Program furthers the commitment of King County, HMC, and the UW Medicine to provide safe and sufficient facilities for the highest quality of health care, teaching, research, and community services.

The proposed project includes the following changes to the 1999 MIMP:

- Expand the Major Institution Overlay District boundary to the west.
- Expand the current Floor Area Ratio from 3.6 to 6.0.
- Increase the maximum building height west of the private roadway known as 8th Avenue from 240 feet to 320 feet.
- Revise open space percentage goals from 20 percent to 12 percent.
- Identify additional potential projects beyond those identified in the 1999 MIMP, including a new patient care tower.

Link to MIMP/EIS: HarborviewBondProgram.com/EIS

King County is committed to meaningful consultation with tribal governments to identify and make a concerted effort to avoid adverse impacts to cultural resources, including tribal cultural properties. The intent of this notification is to offer an opportunity, if desired, for your tribe to provide information about the property and surrounding area relative to traditional cultural properties (TCP), and present any concerns regarding potential adverse effects to TCPs.

We look forward to your response. If we do not receive a written response delivered to the email or mail provided below by April 30, 2026, we will assume that your tribe does not have concerns related to the project presented in this letter or is not interested in providing information.

Please send all communication including questions about this project to:

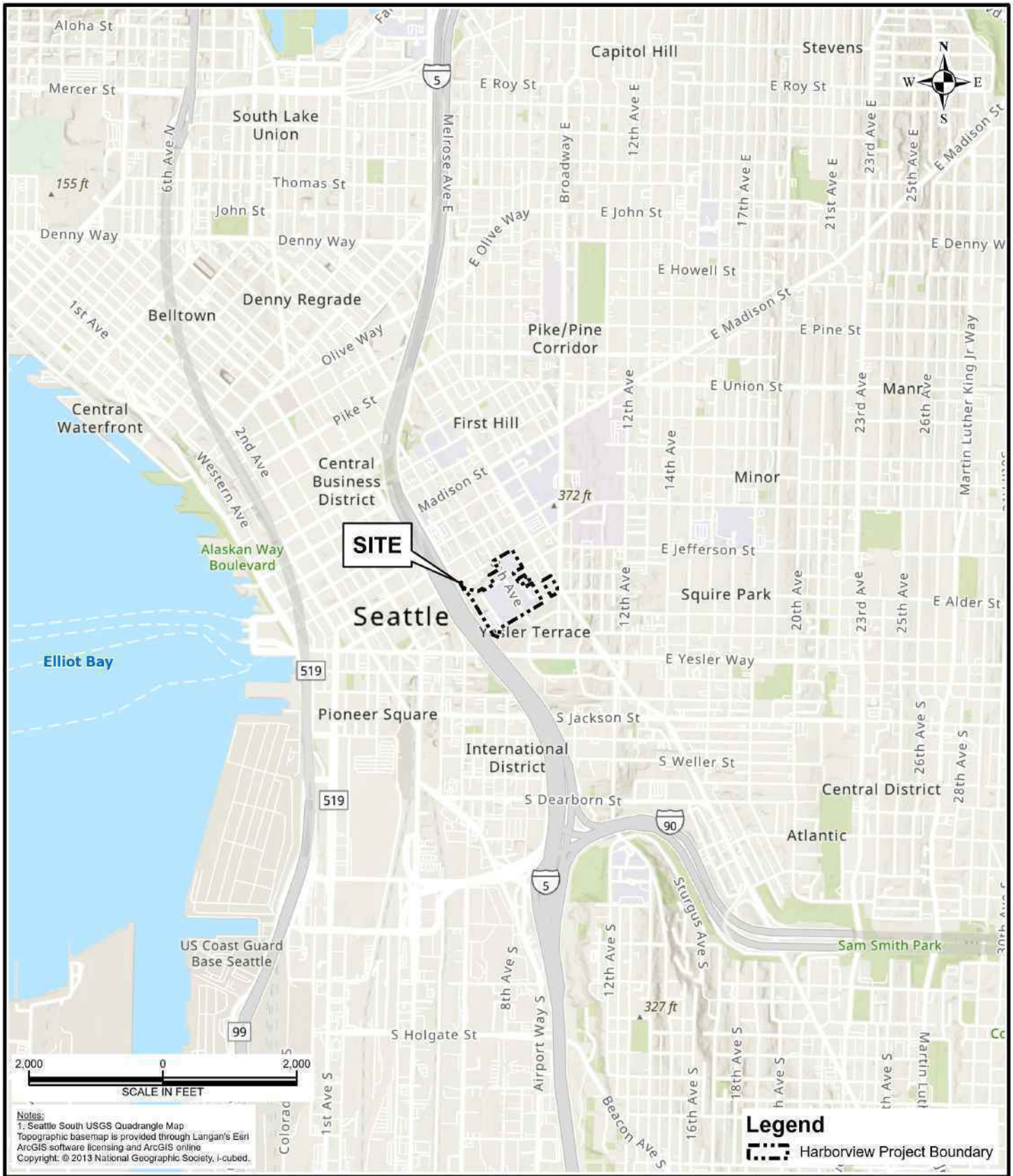
Mailing Address: Harborview Bond Program Office
ATTN: Alex Hurtado
908 Jefferson Street, 13th Floor
MS: NJB13/#359794
Seattle, WA 98104

E-mail: HarborviewBondProject@KingCounty.gov

Thank you for your time in reviewing this letter and consideration in sharing information.

Sincerely,

Anthony O. Wright, Director
Harborview Construction and Infrastructure Division
King County, Department of Executive Services



LANGAN

Langan Engineering and Environmental Services, LLC

520 Pike Street, Suite 985
Seattle, WA 98101

T: 206.674.7100 F: 206.674.7101
www.langan.com

Project

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KING COUNTY WASHINGTON

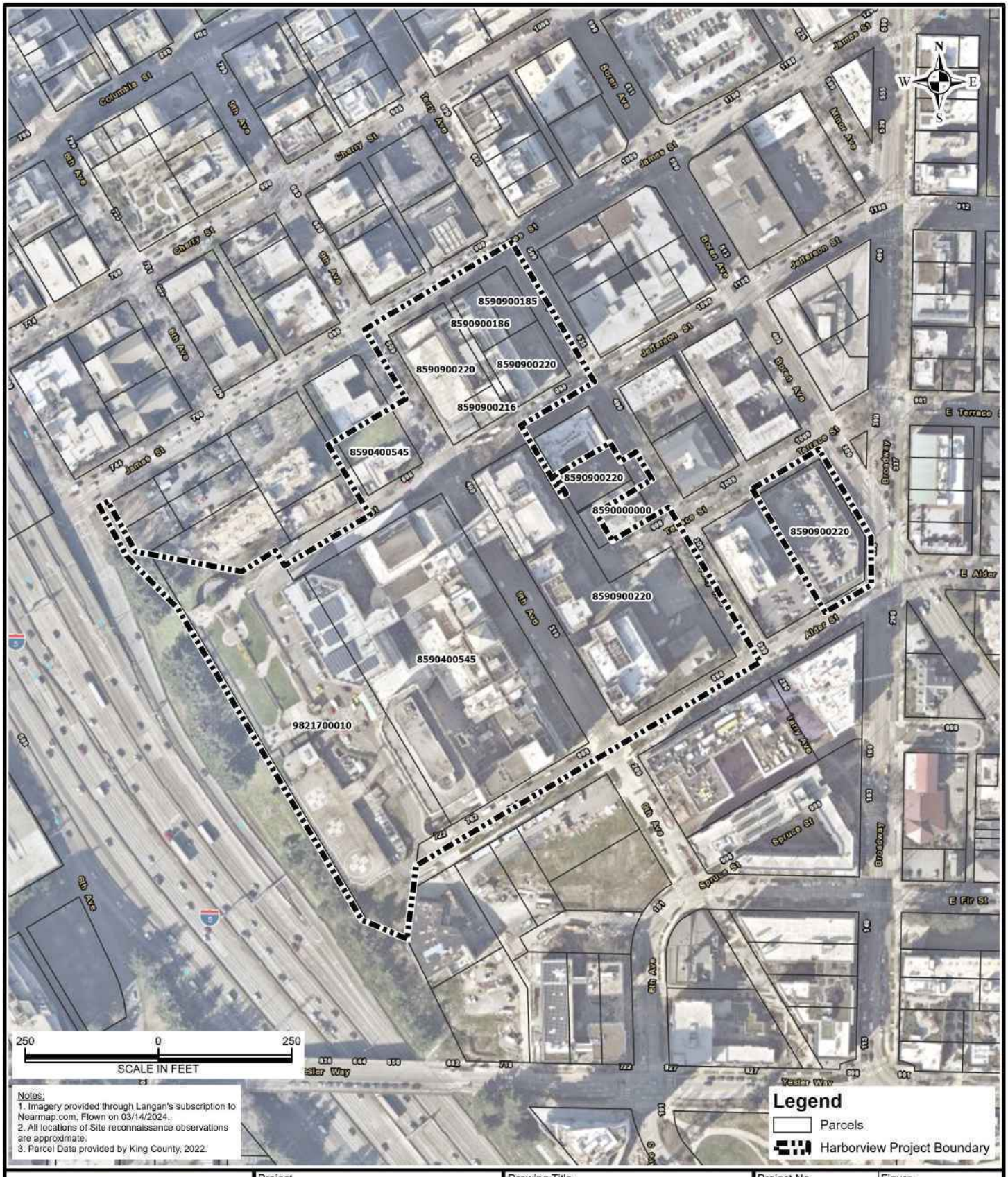
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SITE LOCATION MAP

Project No.	791006401
Date	3/31/2026
Scale	1" = 2,000 feet
Drawn By	JNE
Figure	1

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PARCEL MAP

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Date	3/31/2026
Scale	1" = 250 feet
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Figure	2

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March 31, 2026

The Honorable Tom Wooten
Chairperson
Puyallup Indian Tribe
3002 Duct Cho St.
Tacoma WA 98404

Dear Chairperson Wooten:

Please accept this letter as notification of the Harborview Medical Center Major Institutional Master Plan (MIMP) Major Amendment Project (Project), located in the First Hill neighborhood of Seattle, King County, for your consideration. The Harborview campus is bound by James Street on the north, Alder Street on the south, Terry Avenue on the east, and Interstate 5 (I-5) on the west (see figures 1 and 2).

King County's Harborview Medical Center (HMC) is a hospital with a license for 540 beds, owned by King County and operated by UW Medicine. Harborview is one of the nation's leading academic medical centers and is the only Level 1 trauma center and verified burn center serving a five-state region (Alaska, Idaho, Montana, Wyoming, and Washington state). Harborview provides premier medical education facilities for trauma and related disciplines. The facilities must be seismically stable, usable, and accessible after a significant event. HMC is the state's largest hospital provider of charity care. This Major Amendment to the MIMP focuses on future improvements to meet the growing service demands for the years 2023 to 2030.

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This Bond Program furthers the commitment of King County, HMC, and the UW Medicine to provide safe and sufficient facilities for the highest quality of health care, teaching, research, and community services.

The proposed project includes the following changes to the 1999 MIMP:

- Expand the Major Institution Overlay District boundary to the west.
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- Identify additional potential projects beyond those identified in the 1999 MIMP, including a new patient care tower.

Link to MIMP/EIS: HarborviewBondProgram.com/EIS

King County is committed to meaningful consultation with tribal governments to identify and make a concerted effort to avoid adverse impacts to cultural resources, including tribal cultural properties. The intent of this notification is to offer an opportunity, if desired, for your tribe to provide information about the property and surrounding area relative to traditional cultural properties (TCP), and present any concerns regarding potential adverse effects to TCPs.

We look forward to your response. If we do not receive a written response delivered to the email or mail provided below by April 30, 2026, we will assume that your tribe does not have concerns related to the project presented in this letter or is not interested in providing information.

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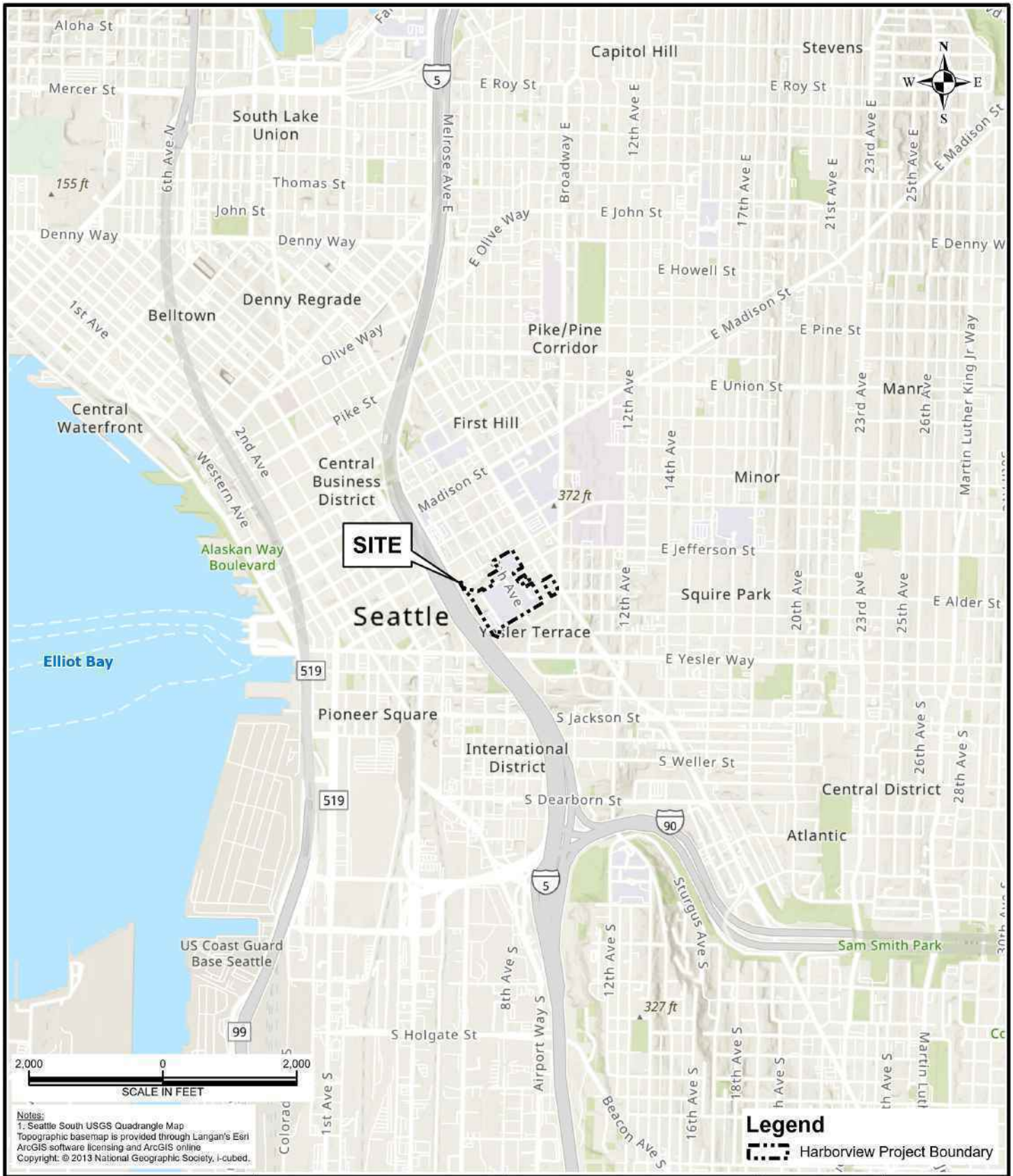
Mailing Address: Harborview Bond Program Office
ATTN: Alex Hurtado
908 Jefferson Street, 13th Floor
MS: NJB13/#359794
Seattle, WA 98104

E-mail: HarborviewBondProject@KingCounty.gov

Thank you for your time in reviewing this letter and consideration in sharing information.

Sincerely,

Anthony O. Wright, Director
Harborview Construction and Infrastructure Division
King County, Department of Executive Services



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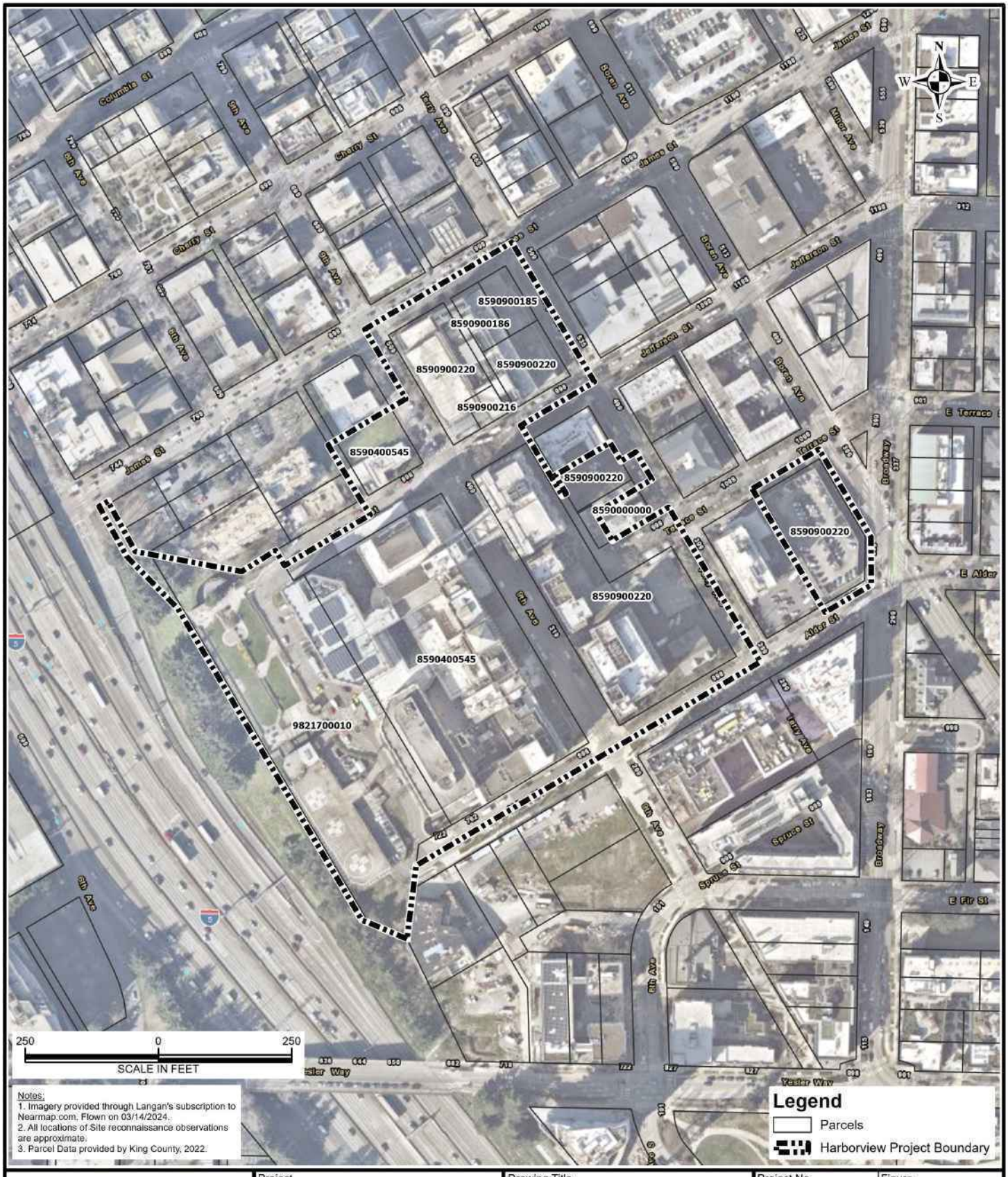
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PARCEL MAP

Project No.	791006401
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Figure	2

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March 31, 2026

The Honorable Bill Sterud
Chairperson
Samish Indian Tribe
2918 Commercial Ave
Anacortes WA 98221

Dear Chairperson Sterud:

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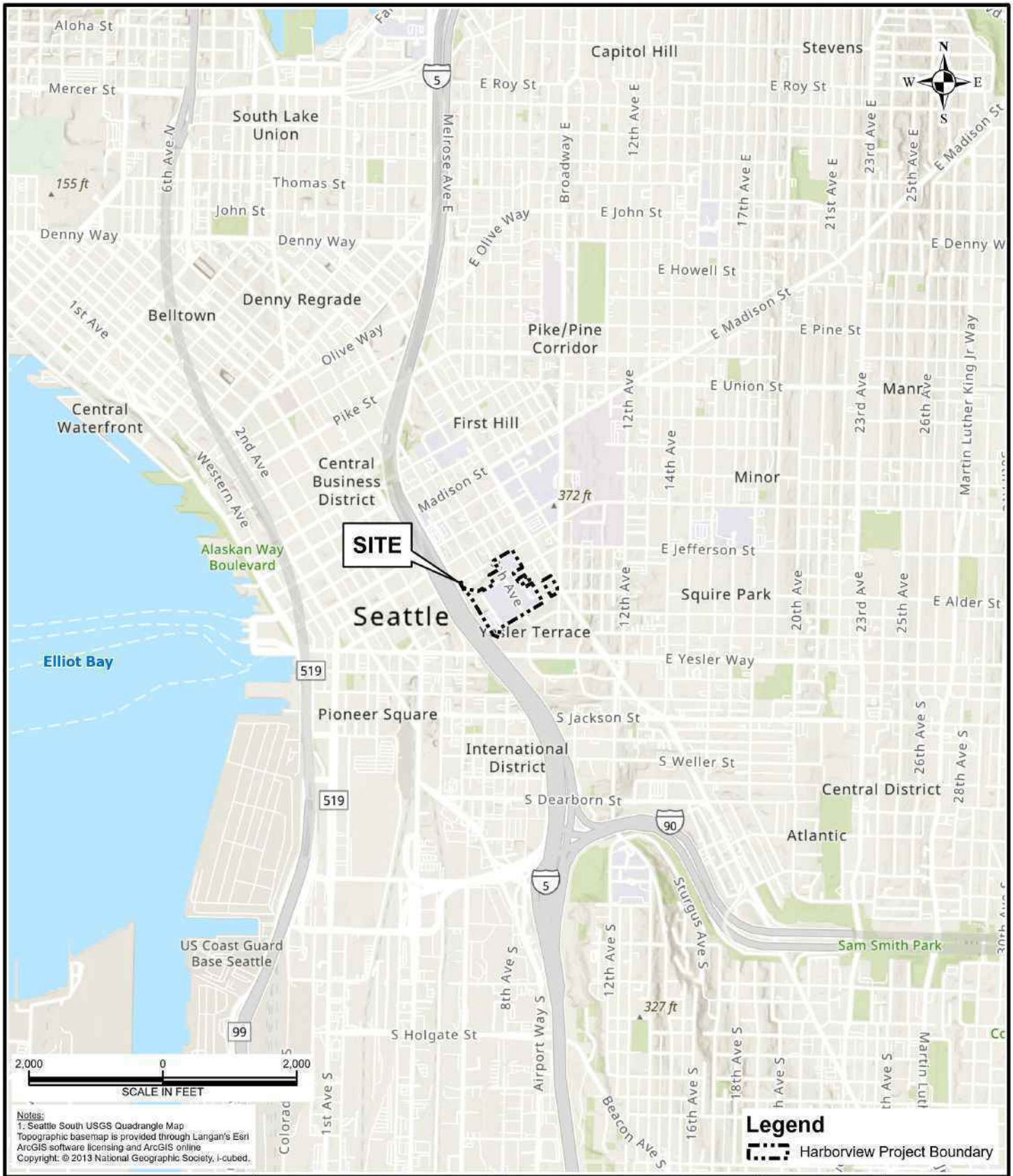
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Sincerely,

Anthony O. Wright, Director
Harborview Construction and Infrastructure Division
King County, Department of Executive Services



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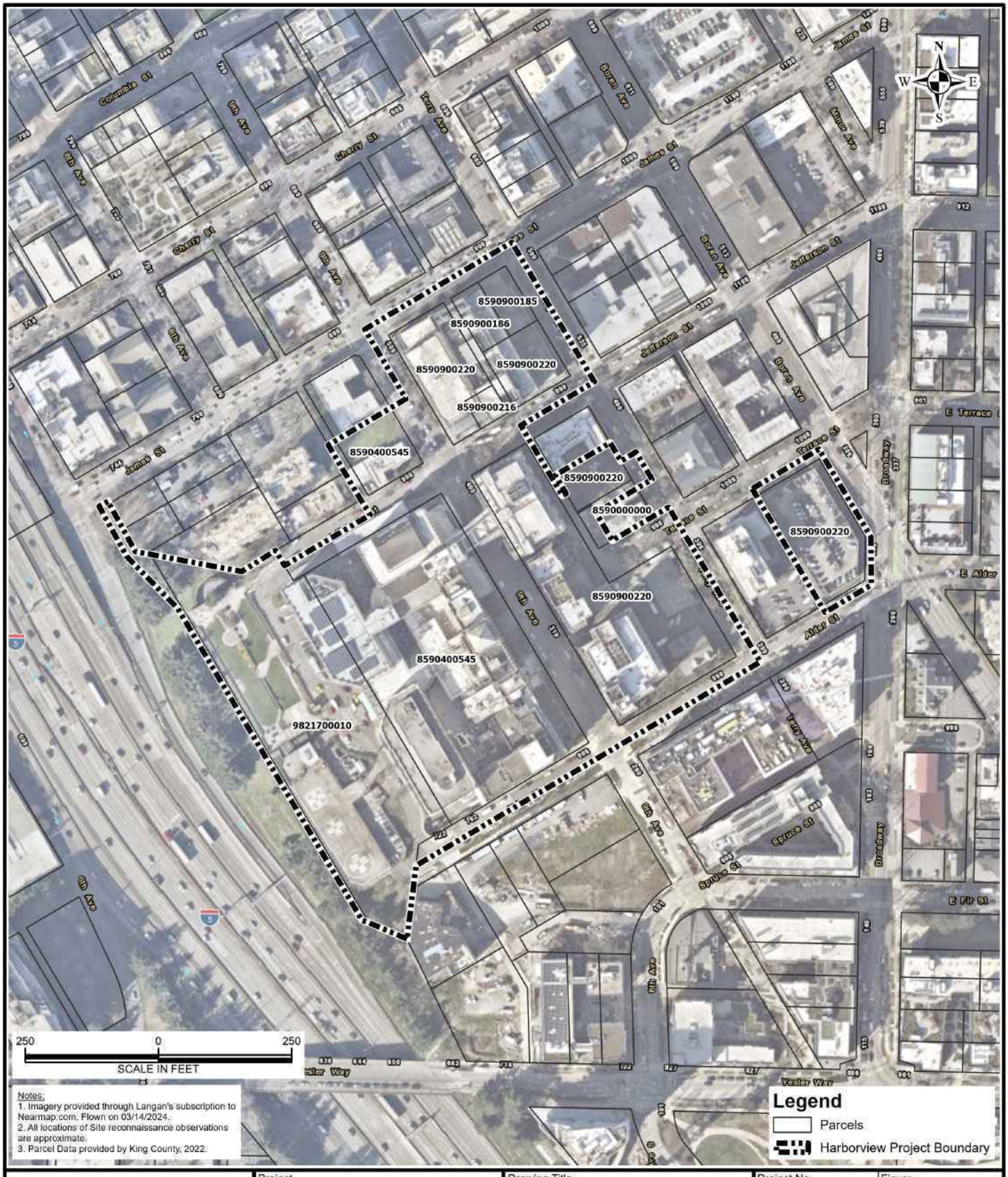
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Figure	2

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March 31, 2026

The Honorable Robert de los Angeles
Chairperson
Snoqualmie Indian Tribe
8130 Railroad Avenue, Suite 103
P.O. Box 969
Snoqualmie, Washington 98065

Dear Chairperson de los Angeles:

Please accept this letter as notification of the Harborview Medical Center Major Institutional Master Plan (MIMP) Major Amendment Project (Project), located in the First Hill neighborhood of Seattle, King County, for your consideration. The Harborview campus is bound by James Street on the north, Alder Street on the south, Terry Avenue on the east, and Interstate 5 (I-5) on the west (see figures 1 and 2).

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Link to MIMP/EIS: HarborviewBondProgram.com/EIS

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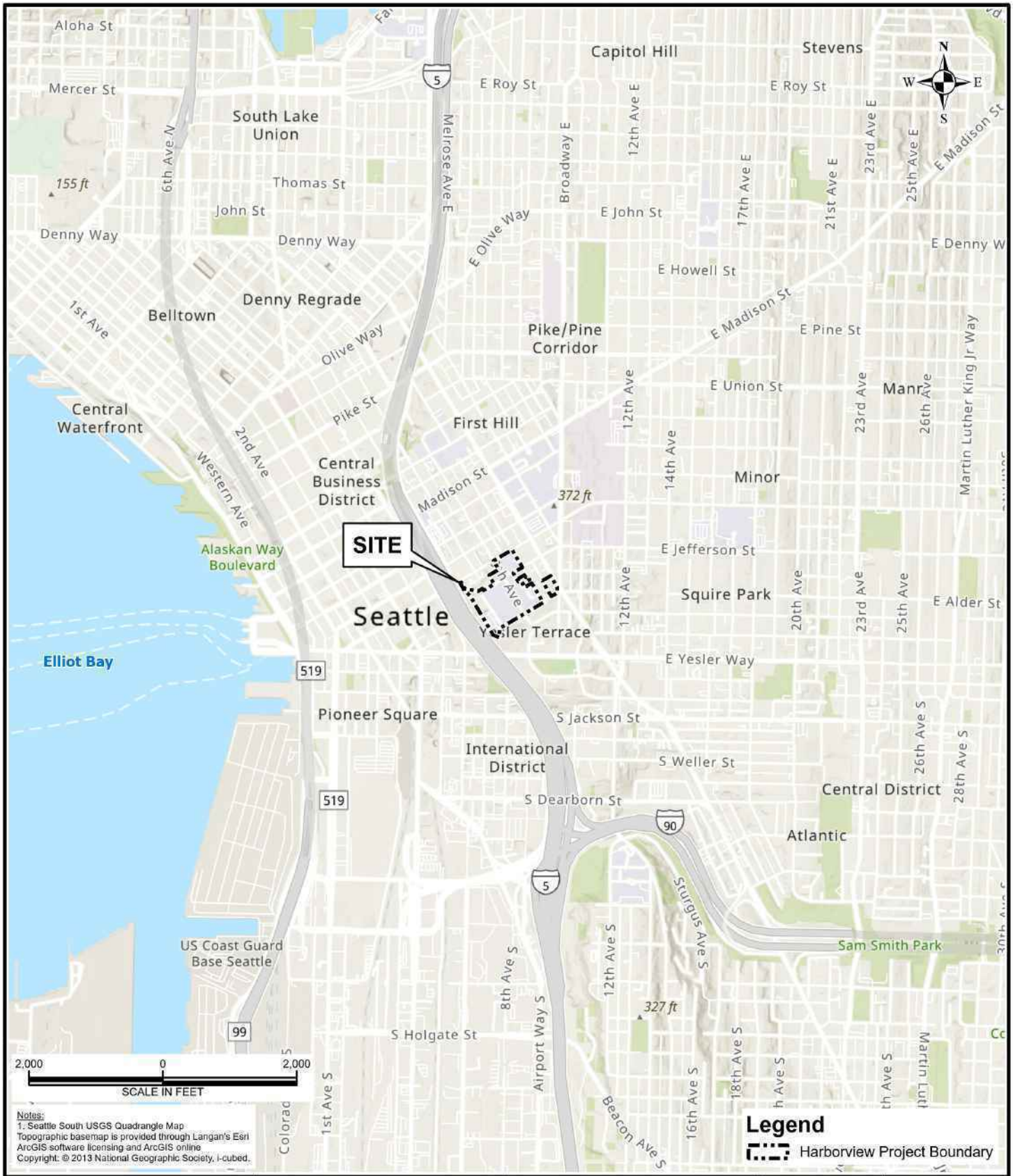
Mailing Address: Harborview Bond Program Office
ATTN: Alex Hurtado
908 Jefferson Street, 13th Floor
MS: NJB13/#359794
Seattle, WA 98104

E-mail: HarborviewBondProject@KingCounty.gov

Thank you for your time in reviewing this letter and consideration in sharing information.

Sincerely,

Anthony O. Wright, Director
Harborview Construction and Infrastructure Division
King County, Department of Executive Services



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Langan Engineering and Environmental Services, LLC

520 Pike Street, Suite 985
Seattle, WA 98101

T: 206.674.7100 F: 206.674.7101
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Project

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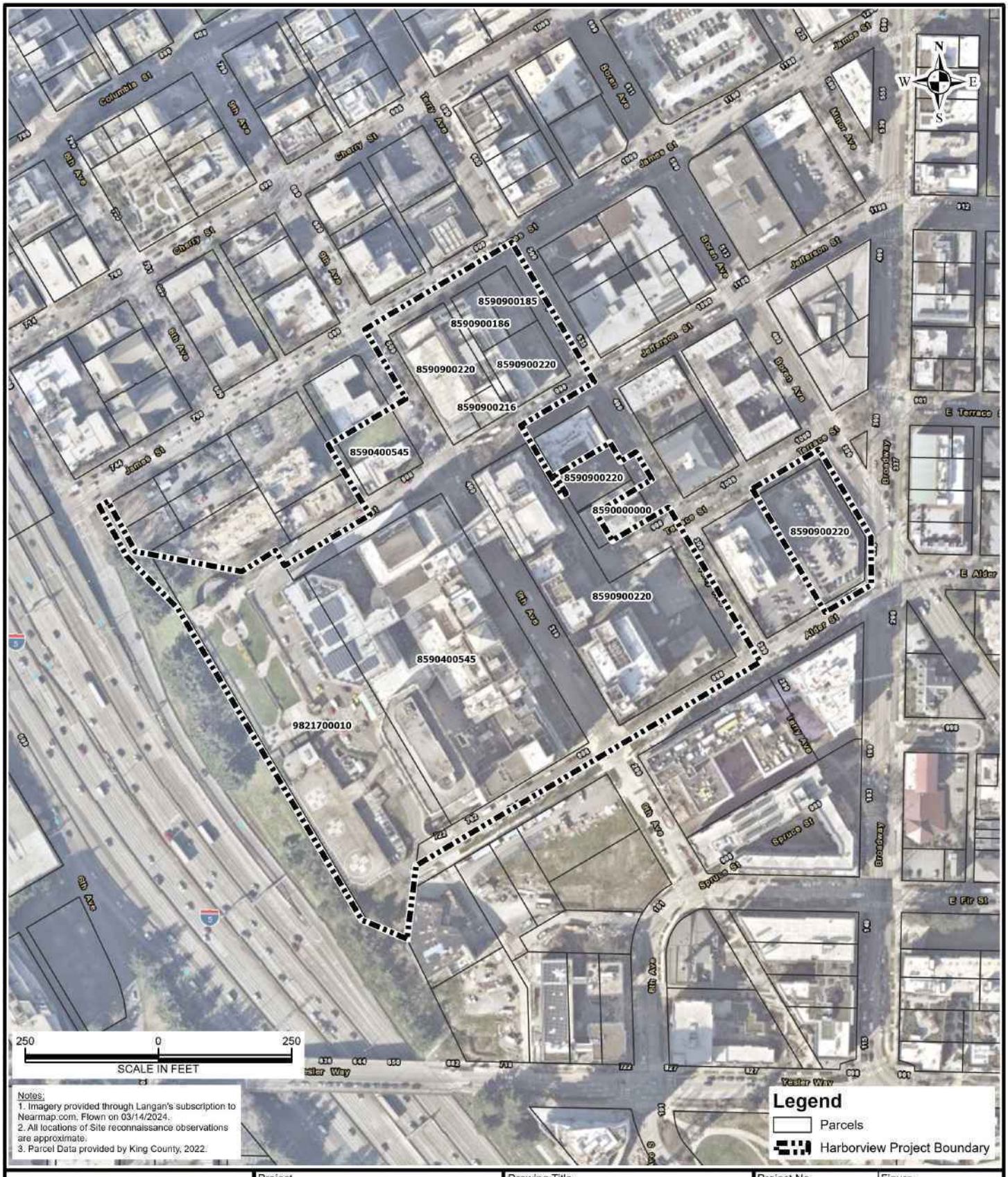
Drawing Title

SITE LOCATION MAP

Project No.	791006401
Date	3/31/2026
Scale	1" = 2,000 feet
Drawn By	JNE
Figure	1

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Drawing Title

PARCEL MAP

Project No.	791006401
Date	3/31/2026
Scale	1" = 250 feet
Drawn By	GS
Figure	2

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King County
Harborview Construction and Infrastructure Division

March 31, 2026

The Honorable Kris Peters
Chairperson
Squaxin Island Tribe
200 SE Billy Frank Jr. Way
Shelton, Washington 98584-9200

Dear Chairperson Peters:

Please accept this letter as notification of the Harborview Medical Center Major Institutional Master Plan (MIMP) Major Amendment Project (Project), located in the First Hill neighborhood of Seattle, King County, for your consideration. The Harborview campus is bound by James Street on the north, Alder Street on the south, Terry Avenue on the east, and Interstate 5 (I-5) on the west (see figures 1 and 2).

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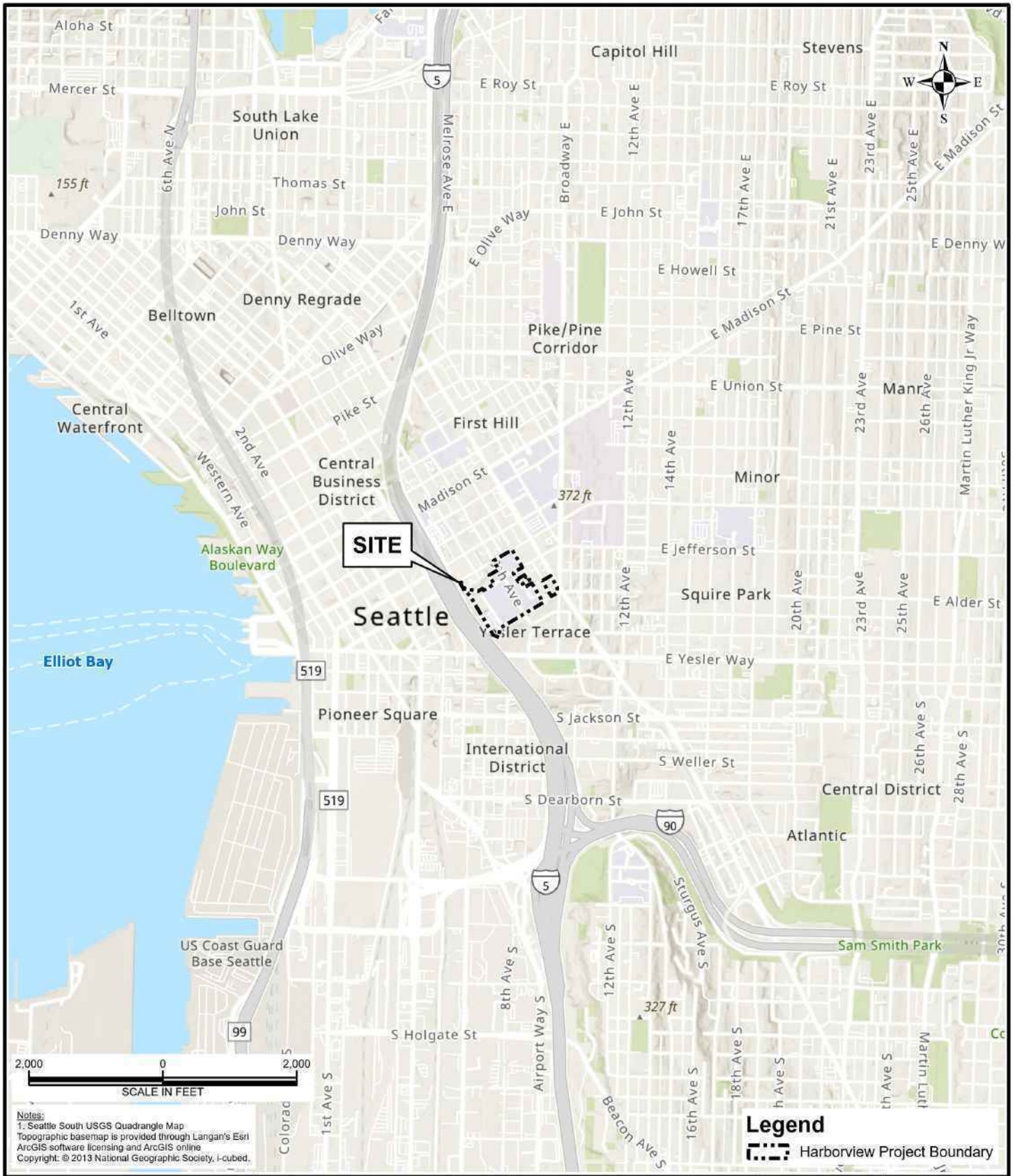
Mailing Address: Harborview Bond Program Office
ATTN: Alex Hurtado
908 Jefferson Street, 13th Floor
MS: NJB13/#359794
Seattle, WA 98104

E-mail: HarborviewBondProject@KingCounty.gov

Thank you for your time in reviewing this letter and consideration in sharing information.

Sincerely,

Anthony O. Wright, Director
Harborview Construction and Infrastructure Division
King County, Department of Executive Services



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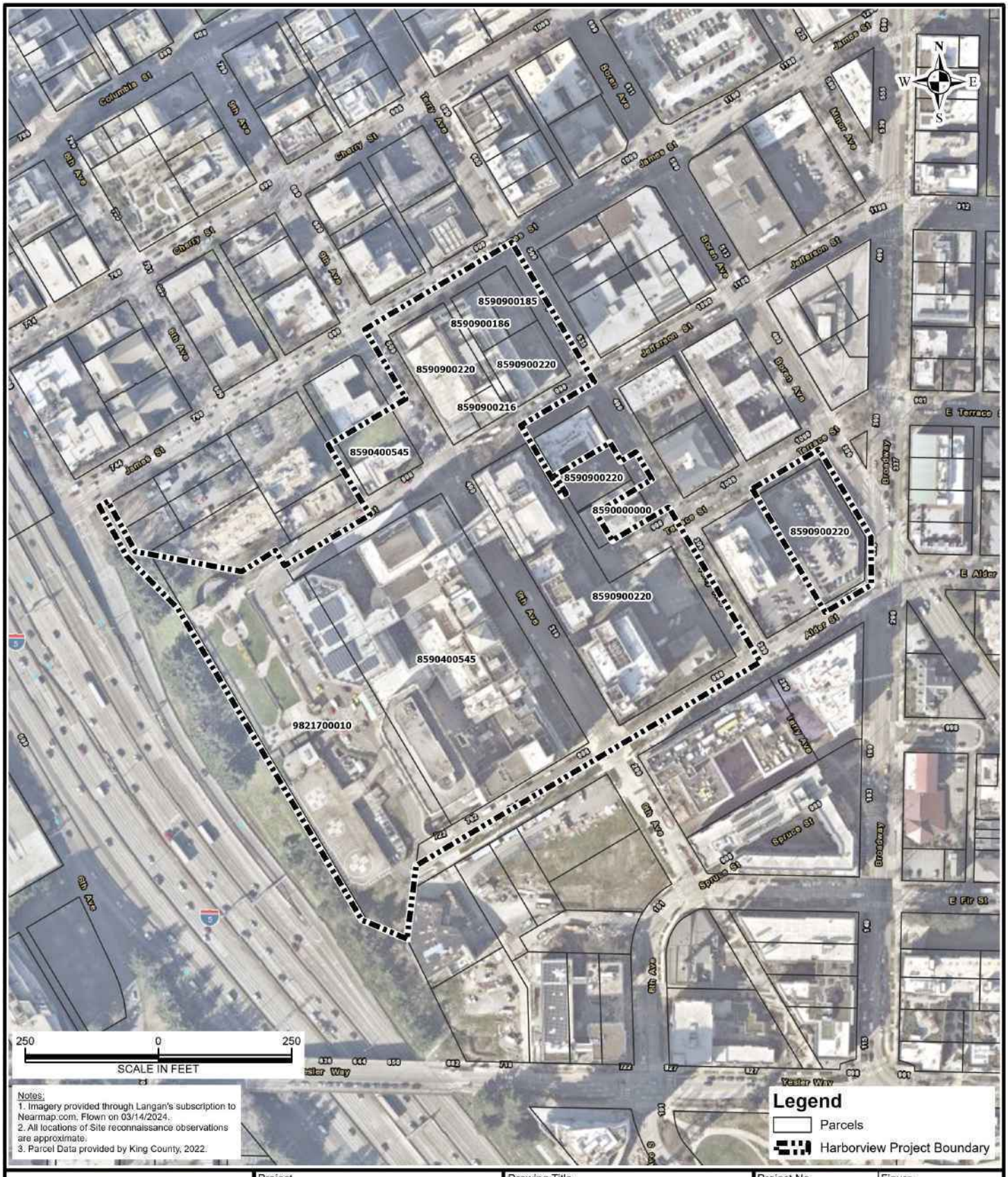
Drawing Title

SITE LOCATION MAP

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Drawn By	JNE
Figure	1

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Drawing Title

PARCEL MAP

Project No.	791006401
Date	3/31/2026
Scale	1" = 250 feet
Drawn By	GS
Figure	2

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March 31, 2026

The Honorable Eric White
Chairperson
Stillaguamish Tribe of Indians
3310 Smokey Point Drive
P.O. Box 277
Arlington, Washington 98223-0277

Dear Chairperson White:

Please accept this letter as notification of the Harborview Medical Center Major Institutional Master Plan (MIMP) Major Amendment Project (Project), located in the First Hill neighborhood of Seattle, King County, for your consideration. The Harborview campus is bound by James Street on the north, Alder Street on the south, Terry Avenue on the east, and Interstate 5 (I-5) on the west (see figures 1 and 2).

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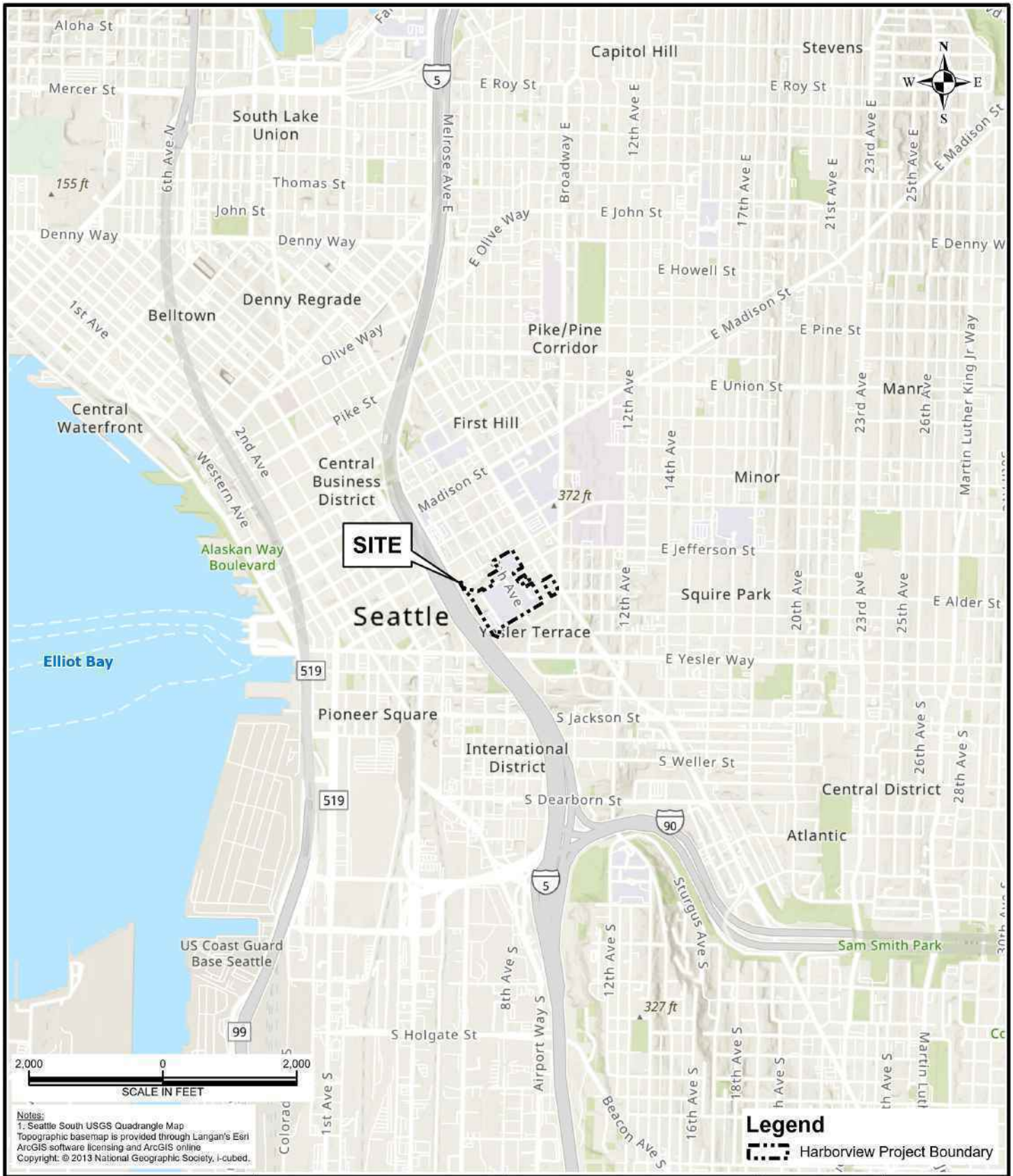
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908 Jefferson Street, 13th Floor
MS: NJB13/#359794
Seattle, WA 98104

E-mail: HarborviewBondProject@KingCounty.gov

Thank you for your time in reviewing this letter and consideration in sharing information.

Sincerely,

Anthony O. Wright, Director
Harborview Construction and Infrastructure Division
King County, Department of Executive Services



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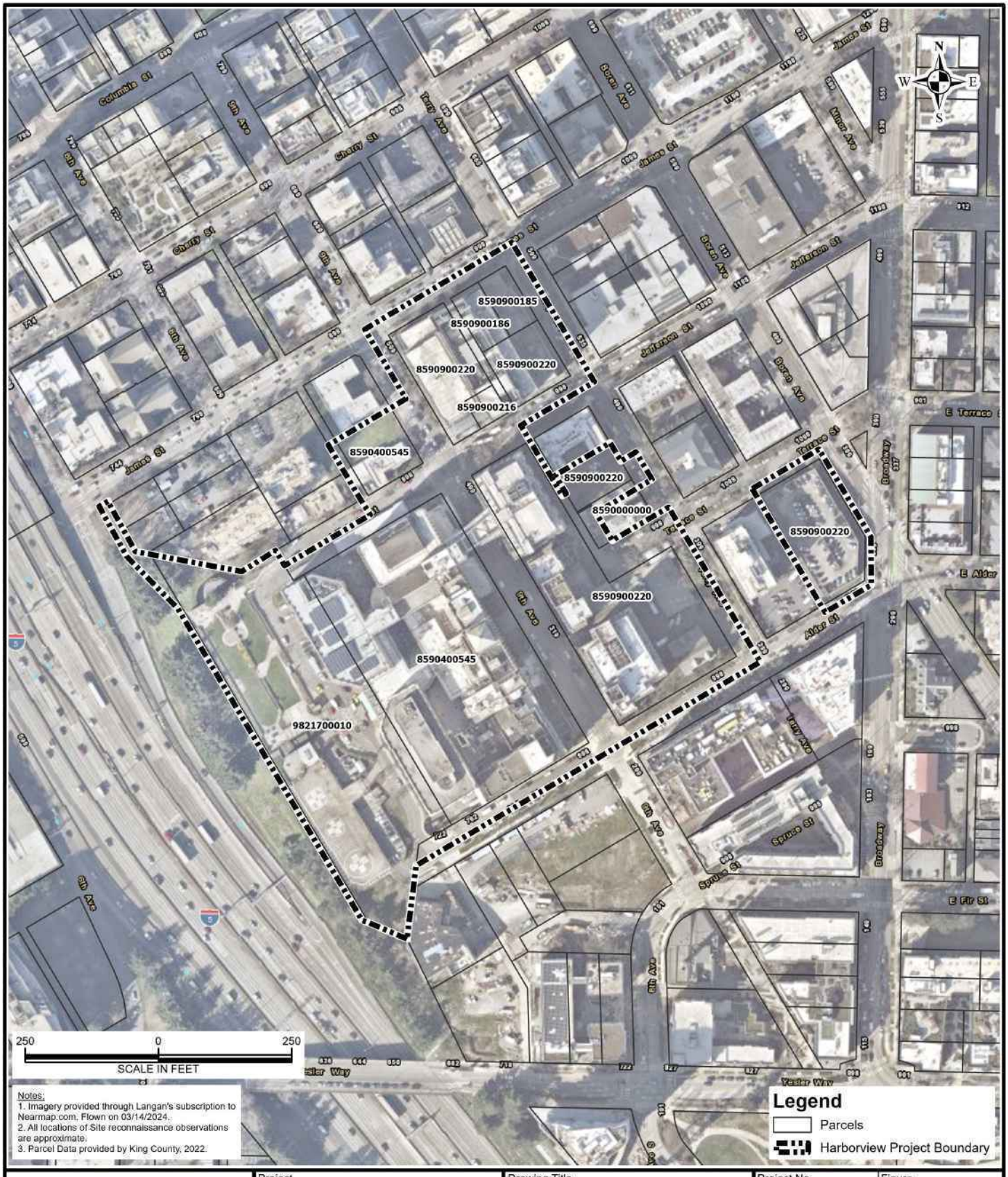
Drawing Title

SITE LOCATION MAP

Project No.	791006401
Date	3/31/2026
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Drawn By	JNE
Figure	1

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Drawing Title

PARCEL MAP

Project No.	791006401
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Scale	1" = 250 feet
Drawn By	GS
Figure	2

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March 31, 2026

The Honorable Leonard Forsman
Chairperson
Suquamish Tribe
PO Box 498
Suquamish, Washington 98392-0498

Dear Chairperson Forsman:

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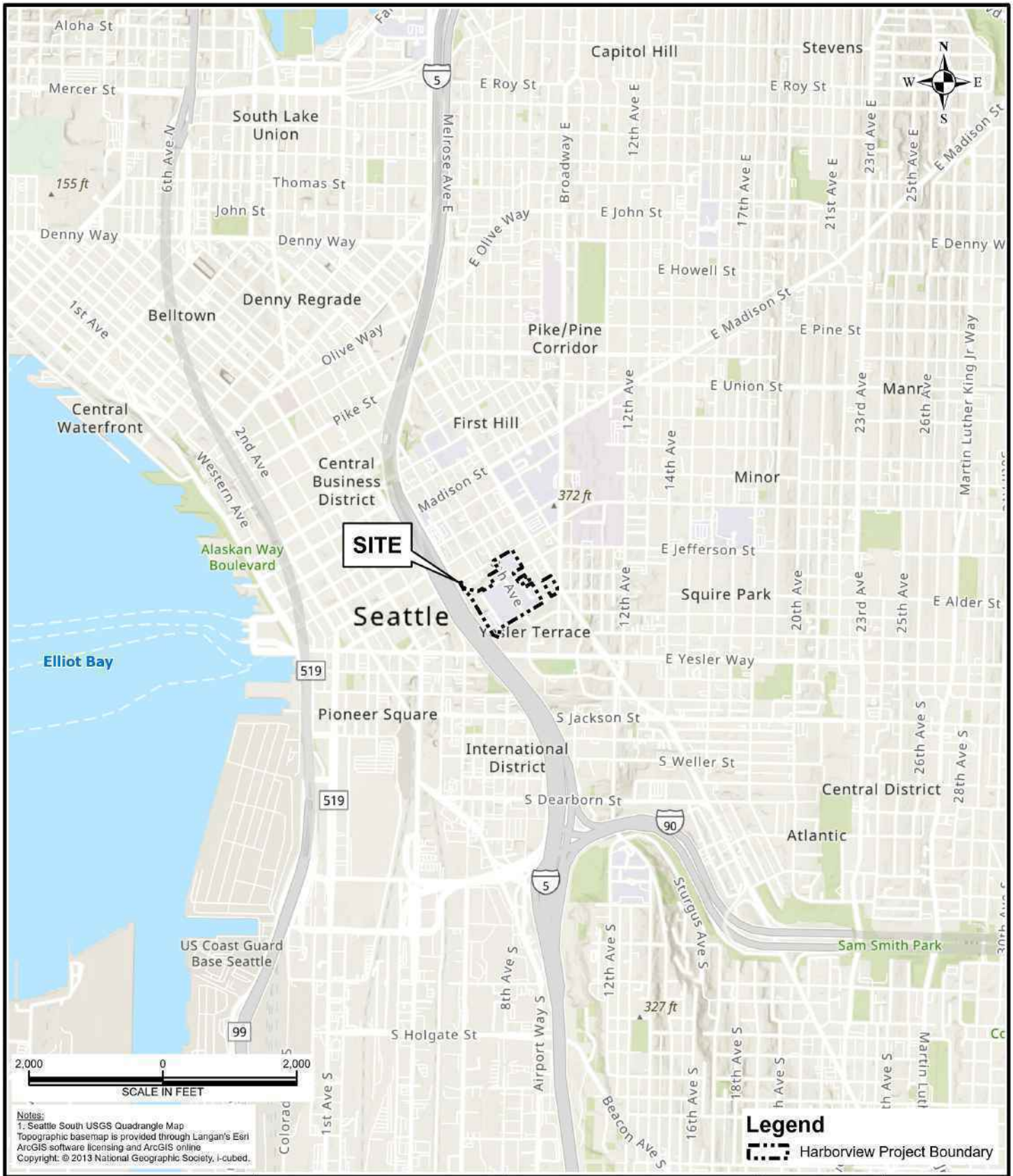
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King County, Department of Executive Services



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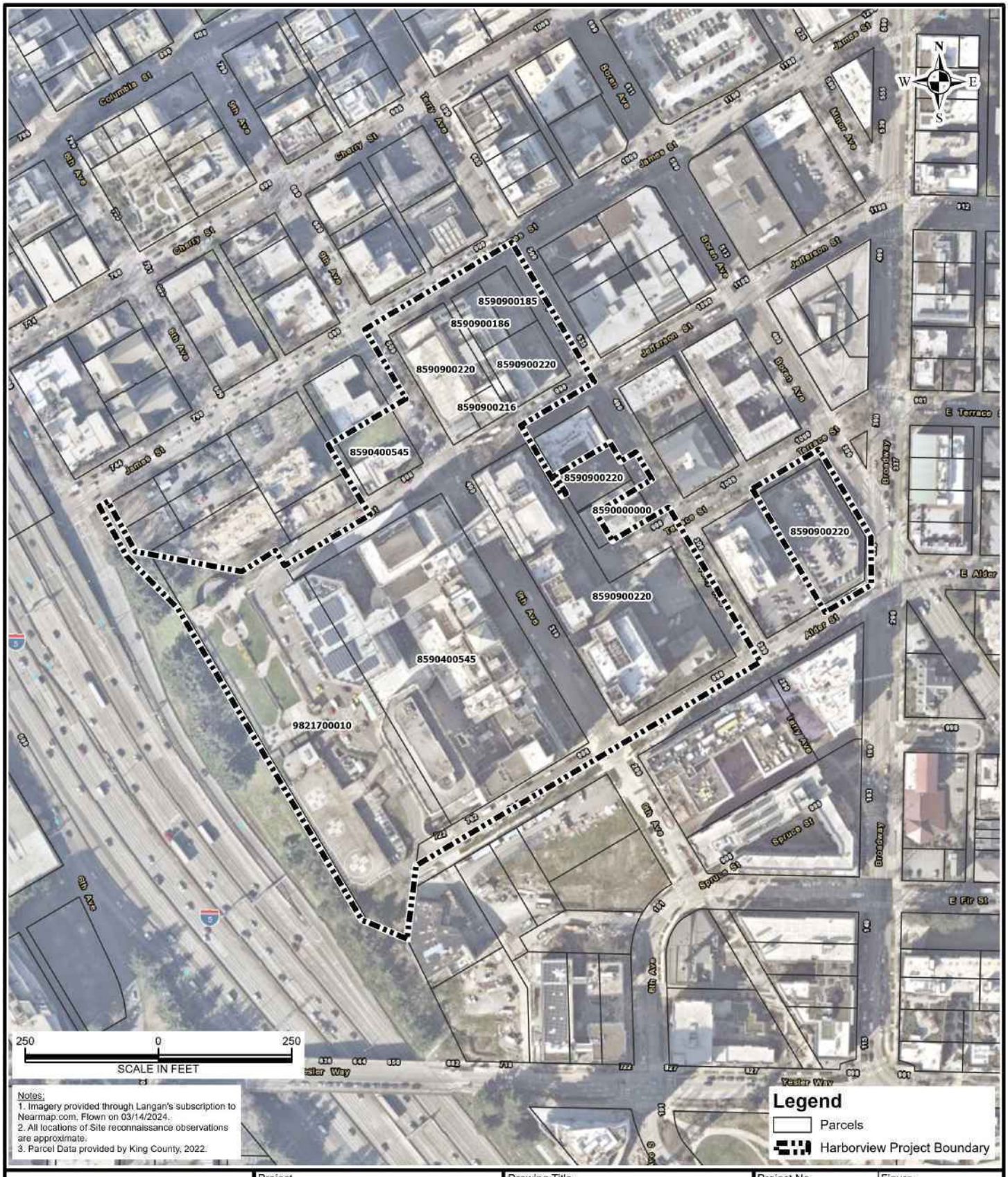
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KING COUNTY WASHINGTON

Drawing Title

PARCEL MAP

Project No.	791006401
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Scale	1" = 250 feet
Drawn By	GS
Figure	2

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March 31, 2026

The Honorable Theresa Sheldon
Chairperson
Tulalip Tribes
6406 Marine Drive
Tulalip, Washington 98271

Dear Chairperson Sheldon:

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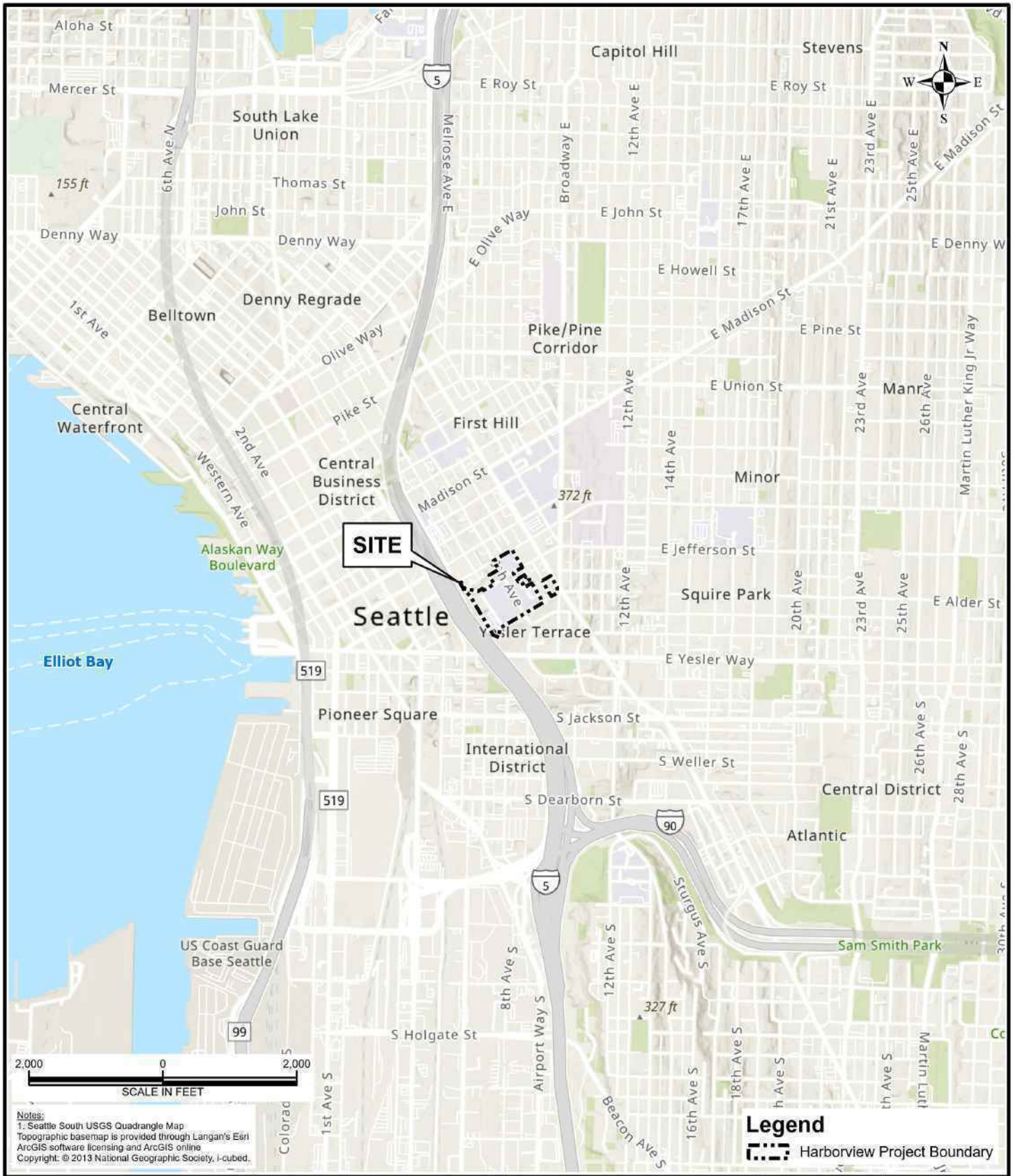
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King County, Department of Executive Services



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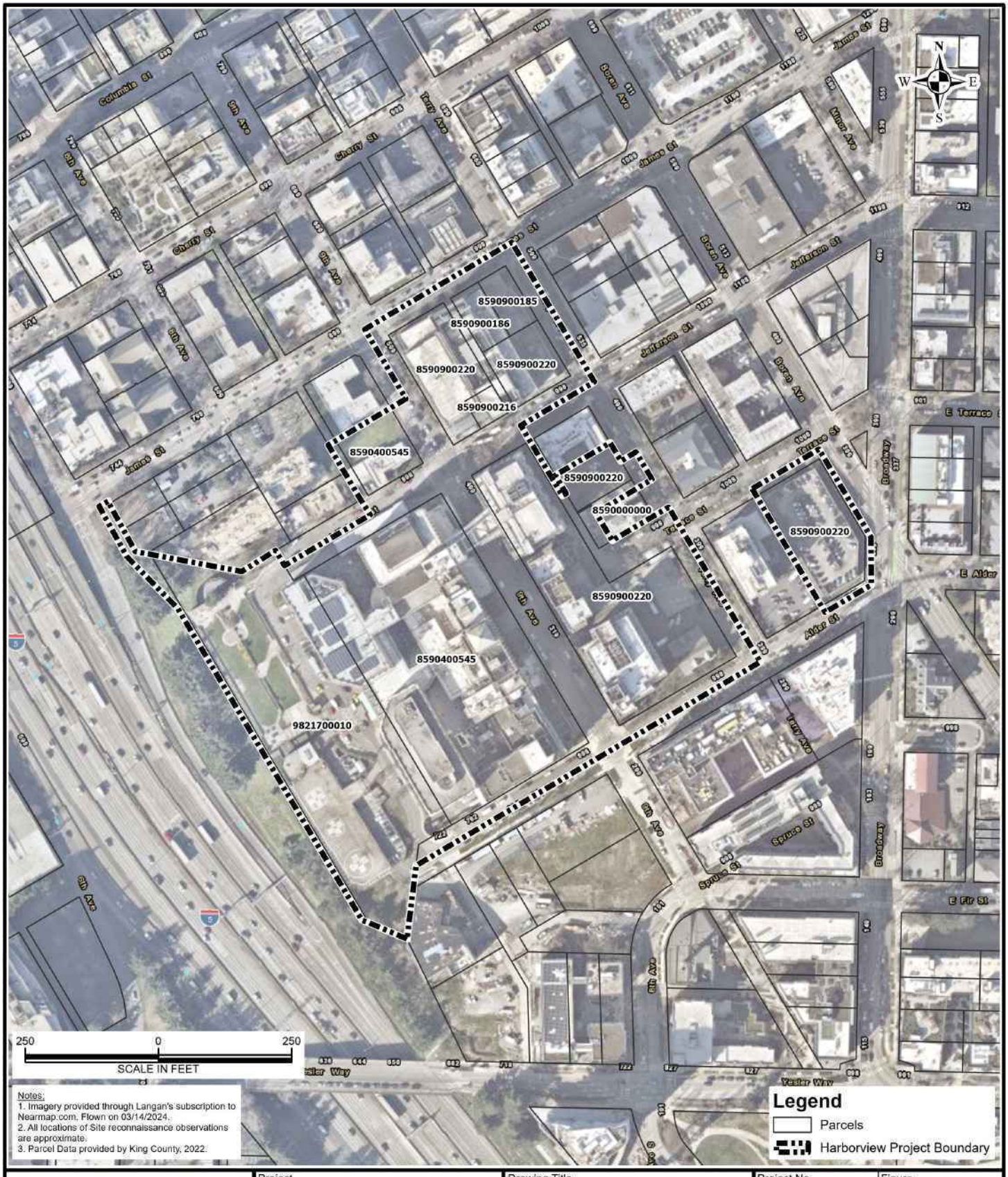
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Figure	2

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Comment Letters Received from Tribal Historic Preservation Offices

Pabis, Erica

From: Harborview Bond Project <HarborviewBondProject@kingcounty.gov>
Sent: Friday, April 17, 2026 12:01 PM
To: Hurtado, Alex
Subject: IDP request from Tulalip… FW: Harborview Medical Center Major Institutional Master Plan

---

From: Gene Enick <genick@tulaliptribes-nsn.gov>
Sent: Wednesday, April 15, 2026 10:28 AM
To: Harborview Bond Project <HarborviewBondProject@kingcounty.gov>
Cc: ryoung <ryoung@tulaliptribes-nsn.gov>
Subject: Harborview Medical Center Major Institutional Master Plan

[EXTERNAL Email Notice!] External communication is important to us. Be cautious of phishing attempts. Do not click or open suspicious links or attachments.

Good Morning,

The Tulalip Tribes is interested in the above referrenced project and is requesting a IDP for this project, Please continue to keep me included in all future coorespondence.

Thank you,

Gene Enick
Assistant Historical Preservation Officer
Hibulb Cultural Center
6419 23rd Avenue N.E.
Tulalip, WA 98271
(360) 716-2653
genick@tulaliptribes-nsn.gov

Pabis, Erica

From: Hurtado, Alex <ahurtado@kingcounty.gov>
Sent: Monday, April 20, 2026 10:31 AM
To: Pabis, Erica; Givens III, Melvin; Pfarr, Tim
Subject: FW: King County Harborview Bond Program Draft EIS (Project Tracking Code: 2026-01-00565)

Hi all,

Forwarding for tracking purposes.

Thanks,

Alex Hurtado
Special Projects Manager III, Assoc. DBIA
Harborview Construction and Infrastructure Division (HCID)
ahurtado@kingcounty.gov
O: 206-263-0613 C: 206-491-0590
King County
Harborview Construction and Infrastructure Division

From: Rhonda Foster <rfoster@squaxin.us>
Sent: Monday, April 20, 2026 10:29 AM
To: Hurtado, Alex <ahurtado@kingcounty.gov>
Cc: Rhonda Foster <rfoster@squaxin.us>; Shaun Dinubilo <sdinubilo@squaxin.us>
Subject: Re: King County Harborview Bond Program Draft EIS (Project Tracking Code: 2026-01-00565)

[EXTERNAL Email Notice!] External communication is important to us. Be cautious of phishing attempts. Do not click or open suspicious links or attachments.

Thank you for contacting the Squaxin Island Tribe Cultural Resources Department regarding the above listed project for our review and comment. This project is outside the Squaxin Island Tribe's traditional area and we do not need any further consultation for this project.

Thank you

Rhonda Foster

CR Director, THPO

CR Department

Squaxin Island Tribe

200 S.E. Billy Frank Jr. Way

Shelton, WA 98584

D 360-432-3850

rfoster@squaxin.us

Email is my preferred method of communication

As per 43 CFR 7.18([a][1]) of the Archaeological Resource Protection Act, Section 304 of the National Historic Preservation Act, and RCW 42.56.300 of the Washington State Public Records Act- Archaeological Sites: all information concerning the location, character, and ownership of any cultural resource must be withheld from public disclosure.

From: Hurtado, Alex <ahurtado@kingcounty.gov>
Sent: Monday, April 20, 2026 7:52 AM
To: DAHP SEPA <sepa@dahp.wa.gov>
Cc: Hamacher, Patrick <pahamacher@kingcounty.gov>; Beran, Teresa <Teresa.Beran@kingcounty.gov>; Kodani-Lee, Nancy <Nancy.Kodani-Lee@kingcounty.gov>; Maryam Alaeddini <maryam00@uw.edu>; Abrahams, Sohail <sabrahams@kingcounty.gov>; Thomas, Cassie <Cassie.Thomas@vanir.com>; Farrell, Garrett <gfarrell@kingcounty.gov>; Wright, Anthony <Anthony.Wright@kingcounty.gov>; tklainer <tklainer@uw.edu>; Heather McDaniel McDevitt <hmcdanielmcdevitt@langan.com>; thpo@stillaguamish.com <thpo@stillaguamish.com>; Stephanie Trudel <strudel@suquamish.nsn.us>; laura.murphy <laura.murphy@muckleshoot.nsn.us>; ryoung <ryoung@tulaliptribes-nsn.gov>; genick <genick@tulaliptribes-nsn.gov>; Rhonda Foster <rfoster@squaxin.us>; Shaun Dinubilo <sdinubilo@squaxin.us>; steve <steve@snoqualmietribe.us>; Adam Osbekoff <adam@snoqualmietribe.us>
Subject: RE: King County Harborview Bond Program Draft EIS (Project Tracking Code: 2026-01-00565)

Some people who received this message don't often get email from ahurtado@kingcounty.gov. Learn why this is important

Hello Tamela,

Thank you for your prompt response and alignment on the mitigation efforts. Our team will move forward with the development of our IDP.

Thanks,

Alex Hurtado
Special Projects Manager III, Assoc. DBIA
Harborview Construction and Infrastructure Division (HCID)
ahurtado@kingcounty.gov
O: 206-263-0613 C: 206-491-0590

King County
Harborview Construction and Infrastructure Division

From: DAHP SEPA <sepa@dahp.wa.gov>
Sent: Monday, April 20, 2026 7:36 AM

To: Hurtado, Alex <ahurtado@kingcounty.gov>
Cc: Hamacher, Patrick <pahamacher@kingcounty.gov>; Beran, Teresa <Teresa.Beran@kingcounty.gov>; Kodani-Lee, Nancy <Nancy.Kodani-Lee@kingcounty.gov>; Maryam Alaeddini <maryam00@uw.edu>; Abrahams, Sohail <sabrahams@kingcounty.gov>; Thomas, Cassie <Cassie.Thomas@vanir.com>; Farrell, Garrett <gfarrell@kingcounty.gov>; Hurtado, Alex <ahurtado@kingcounty.gov>; Wright, Anthony <Anthony.Wright@kingcounty.gov>; tklainer <tklainer@uw.edu>; Heather McDaniel McDevitt <hmcdanielmcdevitt@langan.com>; thpo@stillaguamish.com; Stephanie Trudel <strudel@suquamish.nsn.us>; laura.murphy <laura.murphy@muckleshoot.nsn.us>; ryoung <ryoung@tulaliptribes-nsn.gov>; genick <genick@tulaliptribes-nsn.gov>; rfoster@squaxin.us; Shaun Dinubilo <sdinubilo@squaxin.us>; steve <steve@snoqualmietribe.us>; Adam Osbekoff <adam@snoqualmietribe.us>
Subject: RE: King County Harborview Bond Program Draft EIS (Project Tracking Code: 2026-01-00565)

[EXTERNAL Email Notice!] External communication is important to us. Be cautious of phishing attempts. Do not click or open suspicious links or attachments.

Good morning, Alex,
Attached please find my comments for this project. Please feel free to contact me if you have any questions.

Sincerely,

Tamela Smart (she/her)
Local Government Archaeologist

Email: tamela.smart@dahp.wa.gov
Mobile: 360-628-2755
Hours: 6:30AM – 3:00PM
Physical Address: 1110 Capitol Way South Suite 30, Olympia, WA 98501
Mailing Address: PO Box 48343, Olympia, WA 98504-8343
www.dahp.wa.gov
How are we doing? Take the very brief survey!
https://forms.office.com/g/0vxt8UAaTy

From: Heather McDaniel McDevitt <hmcdanielmcdevitt@langan.com>
Sent: Friday, April 17, 2026 12:17 PM
To: Smart, Tamela (DAHP) <tamela.smart@dahp.wa.gov>
Cc: Hamacher, Patrick <pahamacher@kingcounty.gov>; Beran, Teresa <Teresa.Beran@kingcounty.gov>; Kodani-Lee, Nancy <Nancy.Kodani-Lee@kingcounty.gov>; Maryam Alaeddini <maryam00@uw.edu>; Abrahams, Sohail <sabrahams@kingcounty.gov>; Thomas, Cassie <Cassie.Thomas@vanir.com>; Heather McDaniel McDevitt <hmcdanielmcdevitt@langan.com>; Farrell, Garrett <gfarrell@kingcounty.gov>; Hurtado, Alex <ahurtado@kingcounty.gov>; Wright, Anthony <Anthony.Wright@kingcounty.gov>; tklainer <tklainer@uw.edu>
Subject: King County Harborview Bond Program Draft EIS (Project Tracking Code: 2026-01-00565)

External Email

Good afternoon, Tamela.

Thank you again for your time in reviewing the additional information regarding previous ground disturbance that has occurred with the proposed Project site.

As promised, please find a memorandum at the link below that documents previous disturbance in light of the proposed Project ground disturbance.

Please do not hesitate to contact us with any questions or desired information requests.

https://clients.langan.com/Sharing/filesharing/ViewPosted?transactionHash=-1591077420

Wishing you a very nice weekend.

Warm Regards,
Heather

Heather McDaniel McDevitt
Practice Director

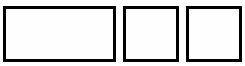
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STILLAGUAMISH TRIBE OF INDIANS

Tribal Historic Preservation Office (THPO)

To Whom it may concern,

Thank you for notifying us about this project. We appreciate the opportunity to comment and stay informed about the projects and development taking place on ancestral lands. The Stillaguamish Tribe THPO does not plan to review or submit comments relating to the above-mentioned project at this time. It falls outside of our current consultation area. We would like to defer and support more proximate tribes for this project.

Please do not hesitate to reach out if you have any questions about the above. Thank you for your time and attention to this matter.

Sincerely,

Jodee Davison – THPO

Amanda Palaniuk-Tatro - Cultural Resource-THPO

THPO@stillaguamish.com

3322 236th St. NE, Arlington, WA 98223

360-652-7362

STILLAGUAMISH
TRIBE OF INDIANS