HARBORVIEW MEDICAL CENTER
MAJOR INSTITUTIONAL MASTER PLAN
MAJOR AMENDMENT

DRAFT
ENVIRONMENTAL IMPACT STATEMENT

Prepared For:

King County, Department of Executive Services
Harborview Construction and Infrastructure Division
908 Jefferson Street, 13th Floor
MS: NJB13/#359794
Seattle, Washington 98104

Date Submitted: December 11, 2025

The intent and purpose of this Draft 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
Department of Executive Services
908 Jefferson Street
MS: NJB13/#359794
Seattle, WA 98104

12/11/2025

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

Following is the Draft Environmental Impact Statement (DEIS) for the proposed *Harborview Medical Center Major Institution Master Plan Major Amendment Project.* This DEIS analyzes the probable adverse environmental impacts associated with two development alternatives and the no action alternative. The analysis and DEIS 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 public comment period for this DEIS is Dec 11 2025, through Jan 26 2026, at 5pm.

Agencies, tribes, organizations, and members of the public are invited to comment on the DEIS using one of the methods below. All comments are due no later than 5pm on Jan 26 2026.

Submit comments via **email** to:	HarborviewBondProject@kingcounty.gov
Submit comments in writing by **mail** to:	Harborview Bond Program Office ATTN: Alex Hurtado/Public Comment 908 Jefferson Street, 13th Floor MS: NJB13/#359794 Seattle, WA 98104

Submit written or verbal comments at the DEIS public hearing:	**Jan 13 2026, 6-8 PM** Harborview Medical Center (Research & Training Building) Conference Room 113 300 9th Avenue Seattle, WA 98104

Project Information, including the Draft EIS and the Draft MIMP Amendment can be reviewed on the project website:	KingCounty.gov/Harborview

Following the DEIS comment period, King County will prepare a Final EIS (FEIS) that addresses comments received during the DEIS public comment period.

Copies of this Notice of Availability have been distributed to agencies noted on the Distribution List of this DEIS (see Appendix G). The DEIS 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 DEIS are also available from King County.

Sincerely,

Anthony O. Wright, Director
Harborview Construction and Infrastructure Division
Department of Executive Services
908 Jefferson Street
MS: NJB13/#359794
Seattle, WA 98104

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 1,348,273 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

Contact Person
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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

Due Date for Draft EIS Comments: January 26, 2026

Time and Place of Public Hearing

Date: Tuesday, January 13, 2026
Time: 6:00 – 8:00 p.m.
In-person location: Harborview Medical Center
Research & Training Building, Conference Room 113
300 9th Avenue
Seattle, WA 98104

Document Availability

Project website: KingCounty.gov/Harborview

To Provide Comments

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Location of EIS Background Data

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1.0 SUMMARY

1.1. INTRODUCTION

This chapter provides a summary of the Draft Environmental Impact Statement (DEIS) 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 DEIS 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.

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 57,307 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 6.0.
- 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.

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, one action alternative and a no action alternative are also analyzed in this Draft EIS, including the Alternative 2 - Maximum Building Height of 240' and the No Action Alternative. 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 488,000 square feet of net new building space with the Planned Tower I and the Potential Projects total of approximately 860,273 net new square feet of building space (1,348,273 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 in place the current MIMP unchanged. It assumes that the demand for increases in health care services in the region would 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 1,348,273 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 DEIS. Table 11 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 (con't.)		
Seismic Hazard 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 (con't.)		
Erosion and Sedimentation 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 (con't)		
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 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 (con't)		
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 Emissions 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 (con't)		
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 (con't)		
GHG Emissions The *Proposed Action* would generate approximately 3,052,269 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 169,665 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) (con't)		
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 development would be subject to the requirements of the 2021 Seattle Stormwater Manual.	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 (con't)		
Stormwater Flow The 2021 City of Seattle Stormwater Manual 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 2021 City of Seattle Stormwater Manual 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*.
Other requirements by the City of Seattle code include on-site stormwater management (OSM) best management practices (BMPs).	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 (con't)		
Water Quality Per the 2021 City of Seattle Stormwater Manual, systems which discharge into a combined sewer system are not required to conduct water treatment. Since runoff from 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 2021 City of Seattle Stormwater Manual, 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 the 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 (con't)		
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 (con't)		
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 (con't)		
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 campus 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 (con't)		
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 the 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.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.8 – Aesthetics – Viewshed (con't)		
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.
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.		

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
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.
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*.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.9 – Historic and Cultural Resources (con't)		
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.
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 200 vehicle trips during the weekday AM peak hour and 137 vehicle trips during the weekday PM peak hours. Under future (2045) action conditions the planned and potential projects result in an increase of 554 vehicle trips during the weekday AM peak hours and 379 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 reduction in trips during both the weekday AM and PM peak hours relative to existing conditions.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.10 – Transportation (con't)		
Transit Under the future (2045) *Alternative 1* conditions, there are estimated to be a total of approximately 1,025 and 700 transit trips in the AM and PM peak hours, respectively.	Same as *Alternative 1*.	The *No Action Alternative* is forecast to have no increase in transit trips; however, 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 25 percent or less.
The transit utilization for the screen lines reviewed surrounding the campus show up to 86 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 less than 1 minute or a percent increase of less than 20 percent as compared with *No Action Alternative.*		
Non-Motorized Under the future (2045) *Alternative 1* conditions, there are estimated to be a total of approximately 240 and 165 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 reduction relative to existing conditions.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.10 – Transportation (con't)		
Traffic Operations Future (2035) *Alternative 1* conditions show the study intersections are forecast to operate acceptably such that such that the added traffic forecast to occur with the addition of the planned tower project proposed with *Alternative 1* 2035 conditions does 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 (con't)		
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.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
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.
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 would need 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.
Utilities 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.

Alternative 1 - Proposed MIMP Major Amendment	Alternative 2 – Maximum Building Height of 240 Feet	No Action Alternative
3.11 – Public Services and Utilities (con't)		
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 2021 Stormwater Manual, 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 characteristic 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 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 onsite. 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 operate 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 2021 City of Seattle Stormwater Manual.
- 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.

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 open space additions 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 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

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 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 to 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.

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

Only the intersection of Jefferson Street/9th Avenue was identified to degrade as operating below standard during the future (2045) Action Alternatives during the AM 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 with the exception of the options with the partial loop road and the closure of private roadway known as 8th Avenue (Options 1A.3-4) which are forecast to operate at LOS E. 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. Note that Yesler Terrace has identified signalization of this intersection as mitigation with an identified trip threshold; although the trip threshold was not met, the identification of a traffic signal at this location is consistent with previous approved mitigation.

- With the installation of a traffic signal at the intersection of Jefferson Street/9th Avenue the traffic impacts to traffic and transit operations are as follows:
- The intersection is forecast to improve as operating acceptably at LOS B during the AM and PM peak hours under future (2045) conditions assuming the highest delay condition options as compared to the all-way stop-controlled condition. With the proposed installation of the signal, the 95th percentile southbound queue is reduced such that it is accommodated between the intersection during both the weekday AM and PM peak hours.
- The forecast change in travel times of the routes as a result of the change in traffic control from all-way stop controlled to a traffic signal result in reductions of a half minute of travel times to increases of up to 1 minute on the routes through the 9th Avenue/Jefferson Street intersection. This equates to changes of 14 percent less to 15 percent higher with the signal compared to the current all-way stop-controlled condition.

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 on disturbed soils.
- Protect exposed soils 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 on 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 Draft 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 Draft 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

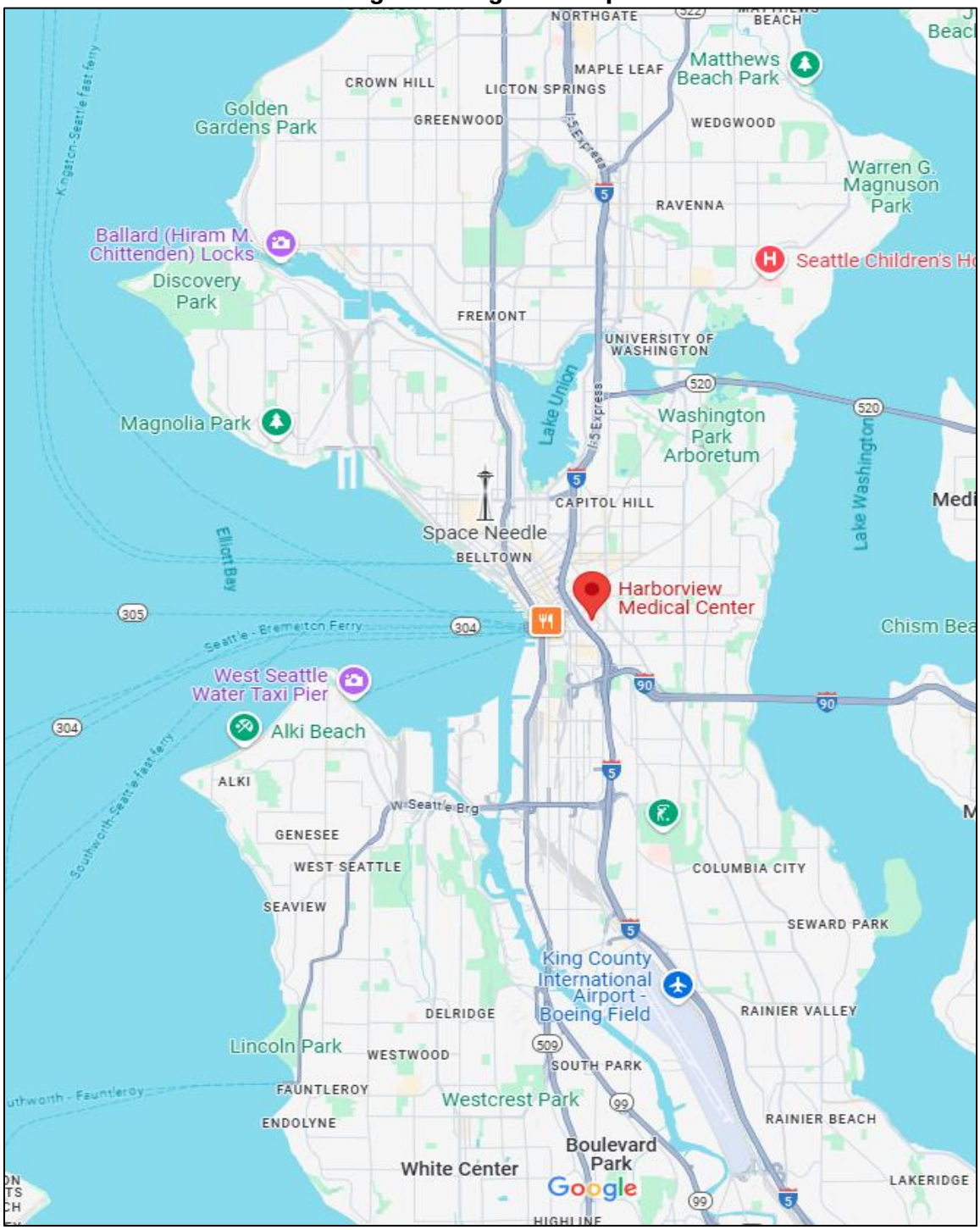


Figure 2: Vicinity Map



– – – – – – **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.

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.

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

Expand the MIO District boundary to the west by 57,307 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 6.0.

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.

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 2,076,959 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 63,169 square feet of additional building space capacity 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.	2,076,959 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 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.

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

- Expand the MIO District boundary to the west by 57,307 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 6.0.
- 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.

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 indicated on **Figure 3**.

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 2,076,959 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].

[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).

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

Figure 3: Existing Harborview Campus



The 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 remainder of the campus.

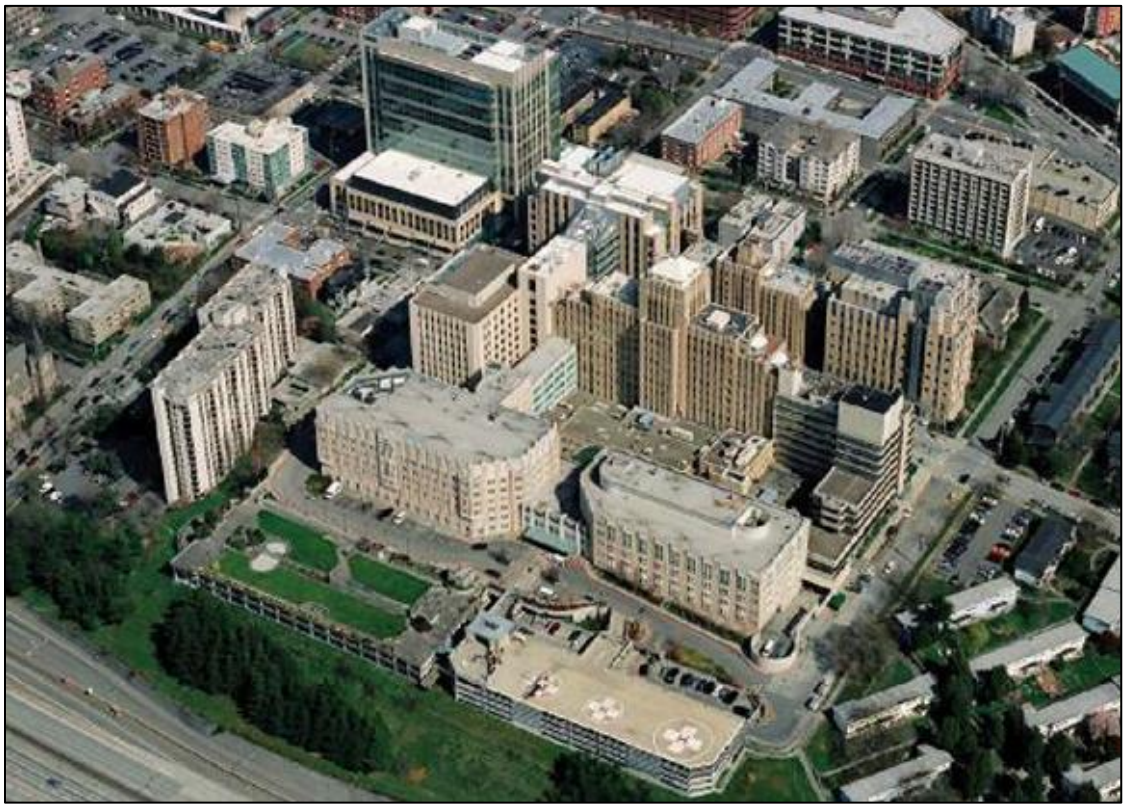
Table 4: Existing Campus Building Characteristics

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	285,216	9 floors	150 ft
Harborview Hall	**90,799**	12 floors	132 ft
Research & Training Building	**181,930**	9 floors	135 ft
Pat Steele Building*	287,824	5 floors	60 ft
Firehouse	8,542	3 floors	35 ft
Security Building*	8,093	2 floors	25 ft
Childcare Center*	5,706	1 floor	15 ft
TOTAL BUILDING SPACE	**2,797,676**		
View Park I Garage	106,980	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, 2025. *Not within the MIO boundary.

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 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 switch gear, 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	2,076,959 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.

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 63,169 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 SDCI Department of Neighborhoods (SDON), 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 Viewpark 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 57,307 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 6.0 and increase the allowable floor area to approximately 3.7 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.

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 1,348,273 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 57,307 square feet. The acquisition will increase the land area within the MIO district boundary to a gross 632,426 square feet of 14.5-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.

Figure 4: Proposed MIMP Amendment MIO Boundary



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 Option 1 would remove private roadway known as 8th Avenue and develop approximately

[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.

fifteen stories connecting the Tower I site to the West Hospital building across 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 round-about 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. 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.

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 purchase of 57,307 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.

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	488,000 sf
2024 MAJOR AMENDMENT POTENTIAL PROJECTS	
Future Tower	488,000 sf
Boren Garage (parking only)	0 [1]sf
New East Clinic in footprint of Existing East Clinic	380,000 sf
Expand WSB Site for Multi-Use Building (+ 4 stories)	38,000 sf
Subtotal	+ 906,000 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	64,000 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	*- 45,727 sf*
Existing Total	*2,076,959 sf*
Net New Total (Planned)	*+ 488,000 sf*
2035 Future Total *(Planned only)*	**2,564,959 sf**
Net New Total (Planned and Potential[1])	+ 1,348,273 sf
2045 Future Total *(Planned and Potential[1])*	**3,425,232 sf**

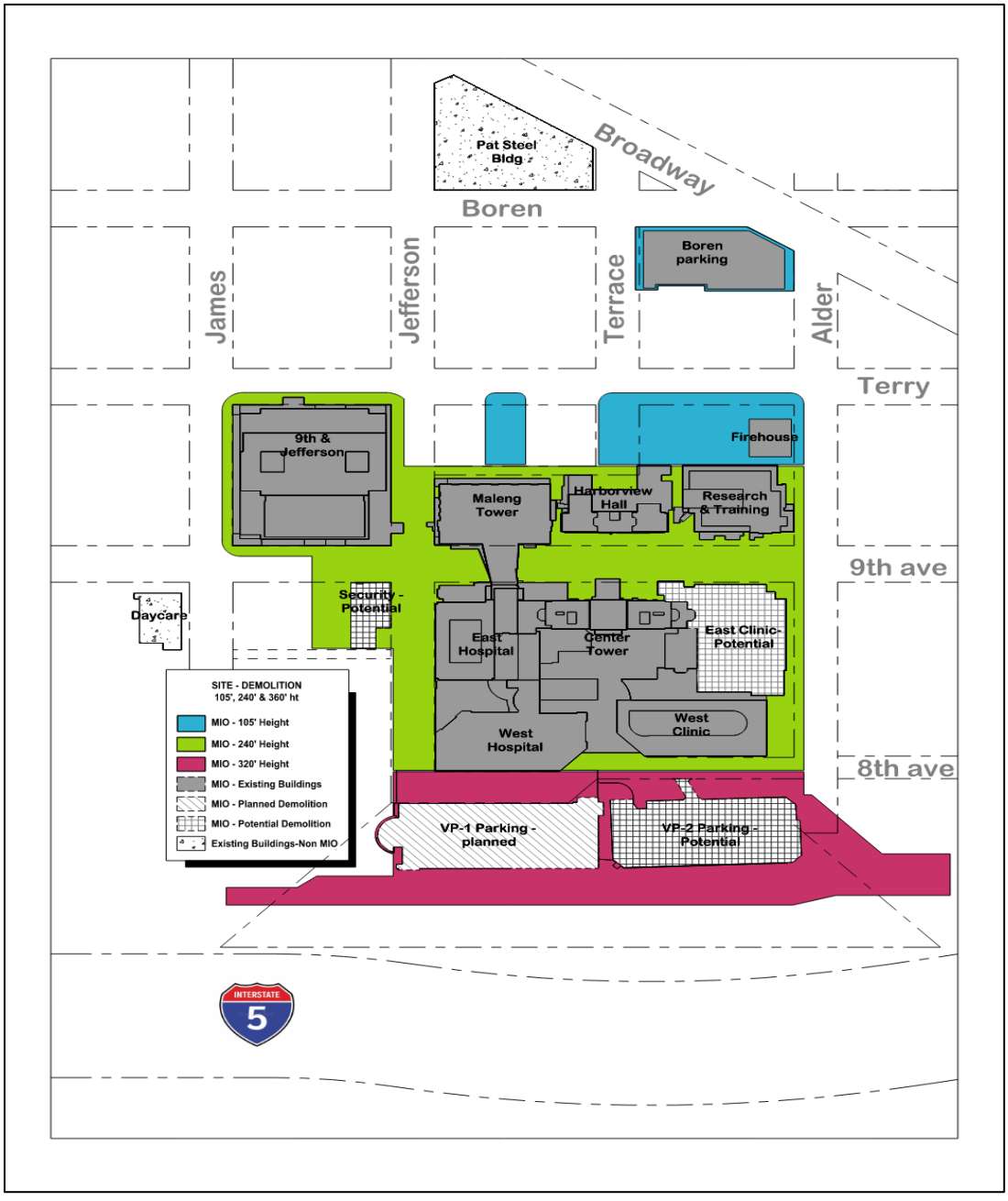
[1] **The Boren Garage redevelopment would include a 14-story parking garage consisting of approximately 284,620 sq. ft. and 823 parking stalls. The new square footage for this structure in the table is reported as '0' because square footage associated with parking is not included in the calculation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

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

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

The 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).

Figure 5: Retained Buildings and Potential Building Demolitions



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 three 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 building height of 105' at the current location.

  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.

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. **Figure 5** also 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 from the campus.

Table 7: **Potential Building Demolition**

Existing Building	Number of Stories	Approx. Building Area (Sq.Ft.)
Planned Demolition		
View Park I Garage	2 floors	106,980
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	284,620*
Total Potential Building Demolition		**559,5099**

*** 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.

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 **(Figure 7**).

Figure 6: Existing MIO Heights

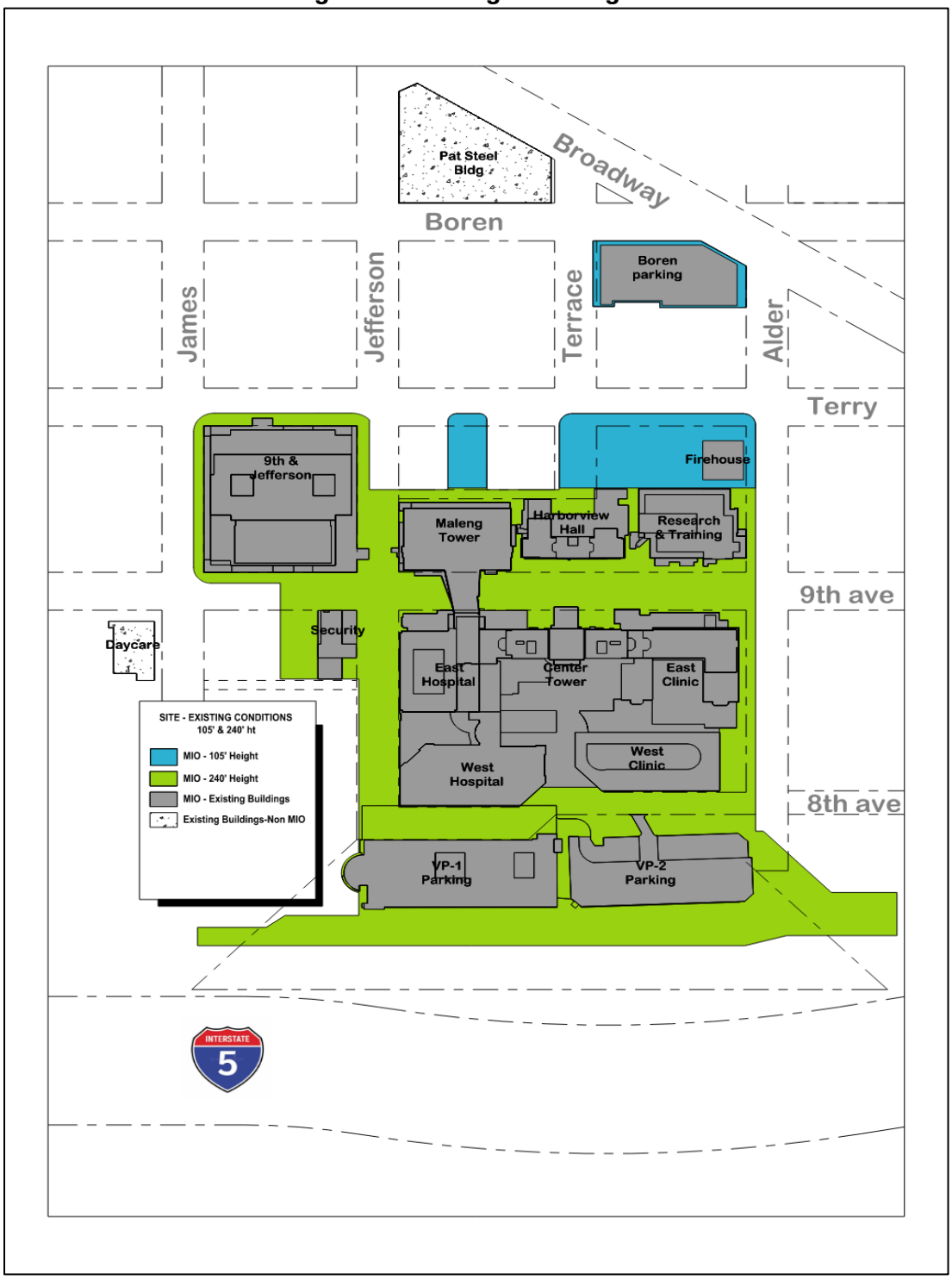
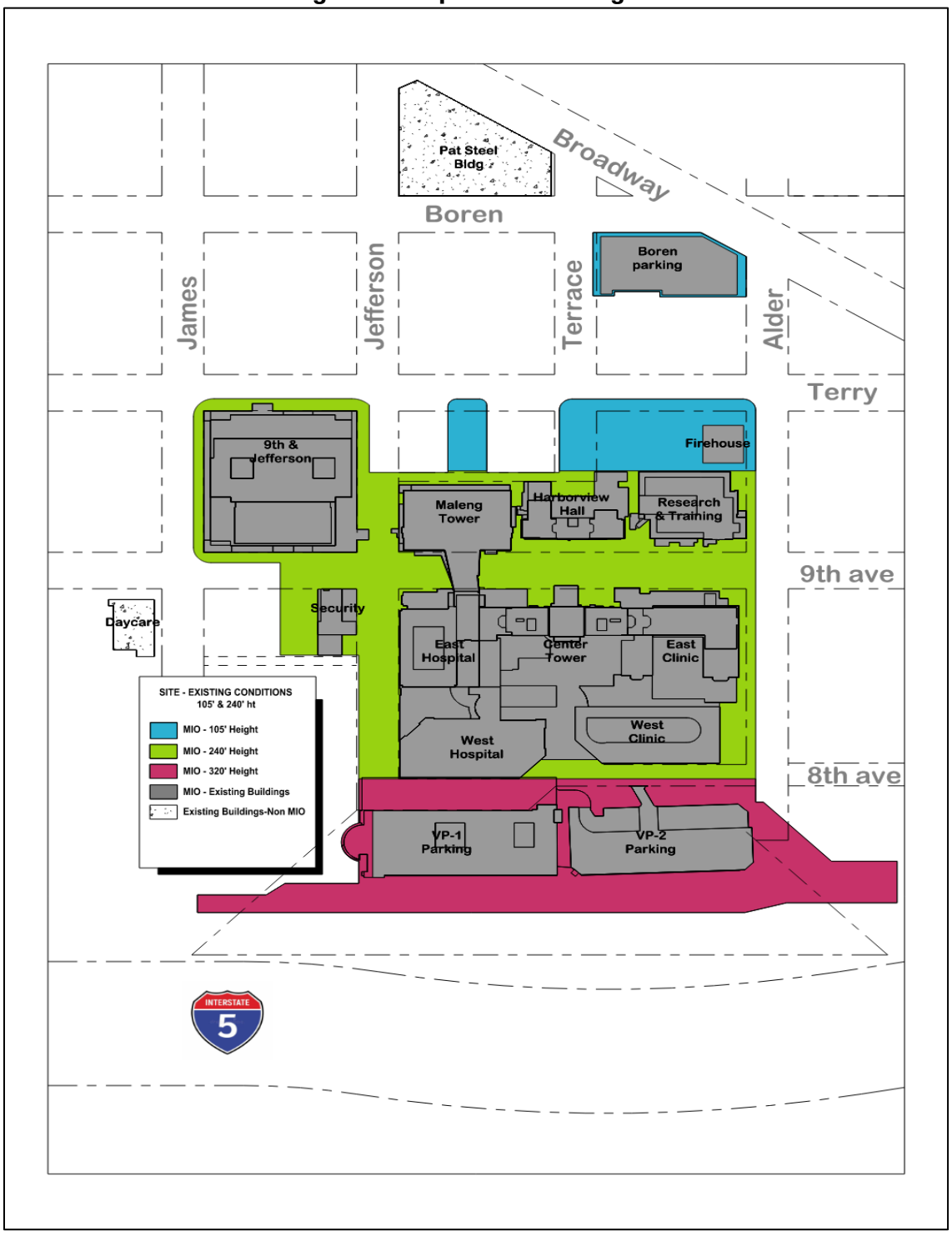


Figure 7: Proposed MIO Heights



Floor Area Ratio (FAR)

The existing allowable FAR established in the 1999 MIMP is 3.6. Using the existing campus MIO boundary of 575,119 square feet, the maximum allowable floor area is 2,070,428 square feet, of which Harborview has built 1,836,642 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 6.0 in order to accommodate this increased need. An FAR of 6.0 would result in a total chargeable floor area of 3,682,554 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 3.7 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 Applicant will increase its requested FAR under the Major Amendment to 6.4.

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.

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 488,000 square feet of net new building space with the Planned Tower I and the Potential Projects total of approximately 860,273 net new square feet of building space (1,348,273 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.

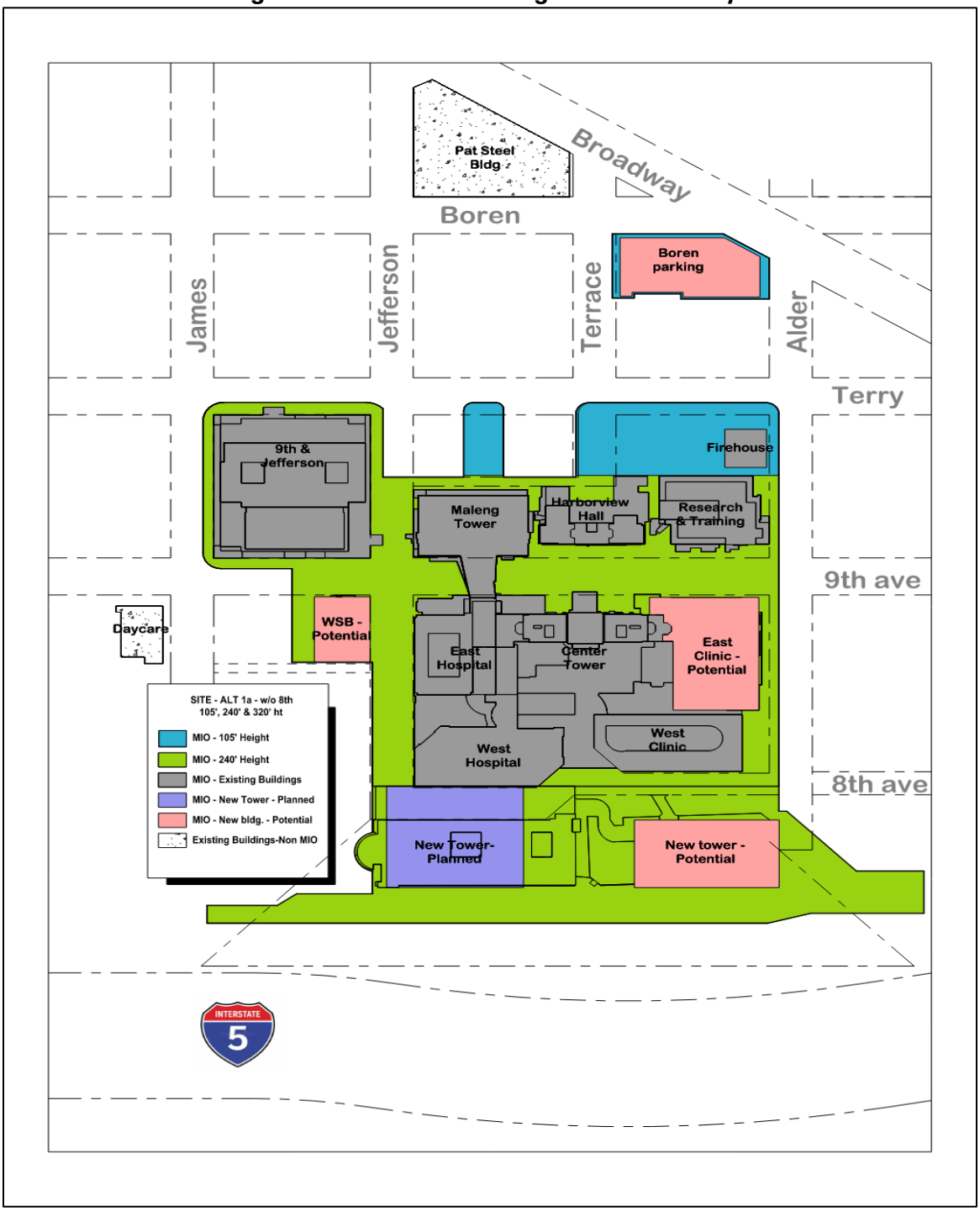
MIO Building Heights

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 488,000 square feet of net new building space for the Planned Tower I and the 488,000 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 with Alternative 2 and Alternative 1 (**Table 8**).

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 less 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.

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	488,000 sf
2024 MAJOR AMENDMENT POTENTIAL PROJECTS	
Future Tower	488,000 sf
Boren Garage (parking only)	0[1] sf
New East Clinic in footprint of Existing East Clinic	380,000 sf
Expand WSB Site for Multi-Use Building (+ 4 stories)	38,000 sf
Subtotal	+ 906,000 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	64,000 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	*- 45,727 sf*
Existing Total	*2,076,959 sf*
Net New Total (Planned)	*+ 488,000 sf*
2035 Future Total *(Planned only)*	**2,564,959 sf**

Project	**Alternative 2:** Maximum building height of 240'
Net New Total (Planned and Potential[1])	+ 1,348,273 sf
2045 Future Total *(Planned and Potential[1])*	**3,425,232 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.**

NO ACTION ALTERNATIVE

The *No Action Alternative* would leave in place the current MIMP unchanged. It assumes that the demand for increases in health care services in the region would 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 1,348,273 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)	-

Project	No Action Alternative:
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	64,000 sf
Demolition of Facilities Building[2]	- 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	*- 45,727 sf*
Existing Total	*2,076,959 sf*
Net New Total (Planned)	-
2035 Future Total *(planned only)*	**2,076,959 sf**
Net New Total (Planned and Potential[1])	*- 45,727 sf*
2045 Future Total *(Planned and Potential[1])*	**2,031,232 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.

Table 10 and **Table 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:** Maximum building height of 320 feet
2024 MAJOR AMENDMENT PLANNED PROJECTS			
New Patient Tower	-	488,000 sf	488,000 sf
2024 MAJOR AMENDMENT POTENTIAL PROJECTS			
Future Tower	-	488,000 sf	488,000 sf
Boren Garage (parking only)[1]		0 sf	0 sf
New East Clinic in footprint of Existing East Clinic	-	380,000 sf	380,000 sf
Expand WSB Site for Multi-Use Building (+ 4 stories)	-	38,000 sf	38,000 sf
Subtotal	-	+ 906,000 sf	+ 906,000 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	64,000 sf	64,000 sf	64,000 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	*- 45,727 sf*	*- 45,727 sf*	*- 45,727 sf*
Existing Total	*2,076,959 sf*	*2,076,959 sf*	*2,076,959 sf*
Net New Total (Planned)	*-*	*+ 488,000 sf*	*+ 488,000 sf*

Project	Size (GSF)		
	No Action Alt:	**Alternative 2:** Maximum building height of 240 feet	**Alternative 1 - MIMP Amendment:** Maximum building height of 320 feet
2035 Future Total *(Planned only)*	**2,076,959 sf**	**2,564,959 sf**	**2,564,959 sf**
Net New Total (Planned and Potential[1])	*- 45,727 sf*	+ 1,348,273 sf	+ 1,348,273 sf
2045 Future Total *(Planned and Potential[1])*	**2,031,232 sf**	**3,425,232 sf**	**3,425,232 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	14.9 ac.	14.9 ac.	13.6 ac
New Building Space	1,348,273 sf	1,348,273 sf	222,250 sf
Total Building Space	3,425,232 sf	3,425,232 sf	2,058,892
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[1]	456,978 sf	456,978 sf	513,869 sf
Pervious Area[2]	123,255 sf	123,255 sf	61,250 sf

[1]Includes area in building footprint, roadways, parking, and hardscape.

[2]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 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 would create a connection at 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 health care facilities to meet the growing demand for health care 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.

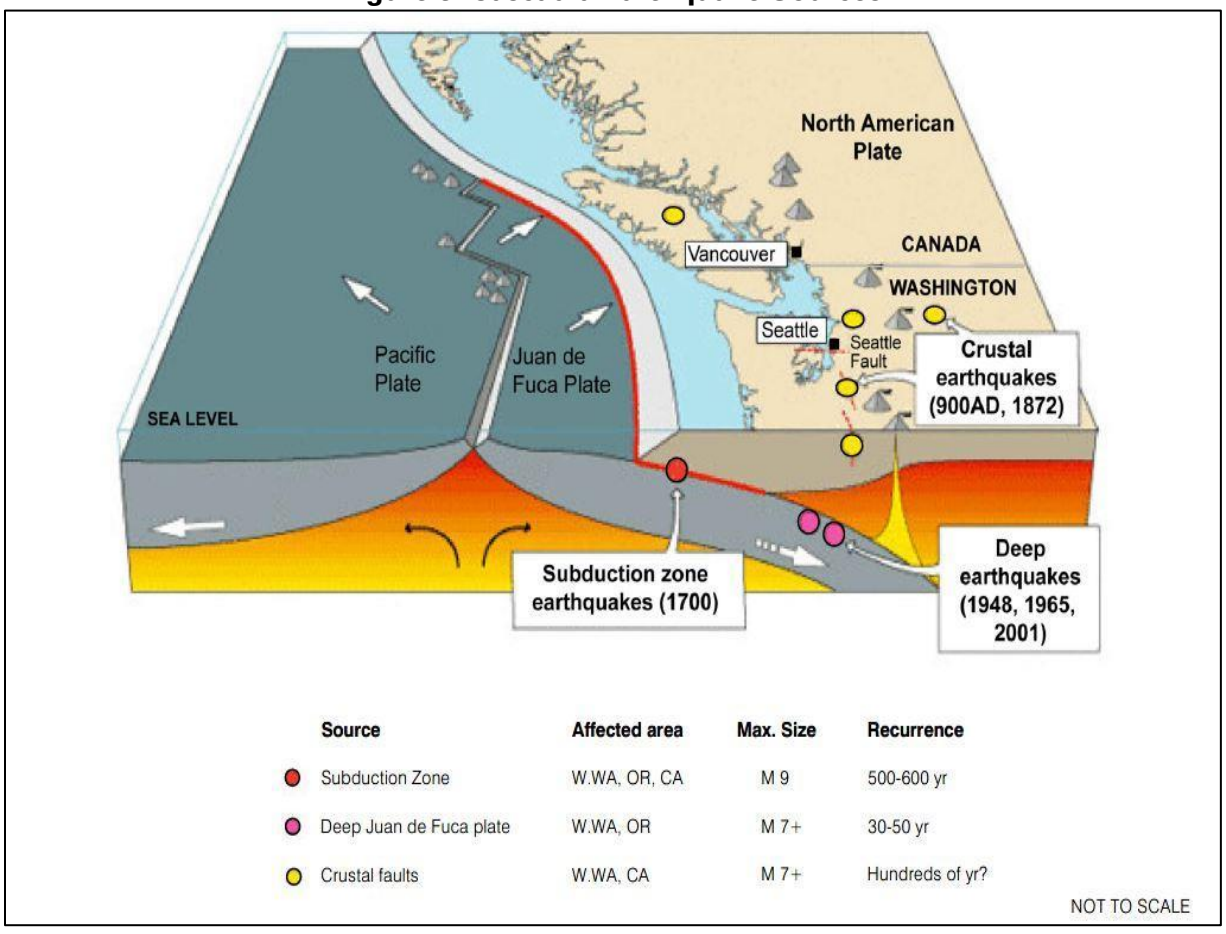
Seattle and the western Pacific Northwest are considered seismically active. The larger region has had many large earthquakes over the past 200 years. Earthquakes and seismic events may have a serious effect on Harborview's functionality depending on location, magnitude, and local geology. There are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

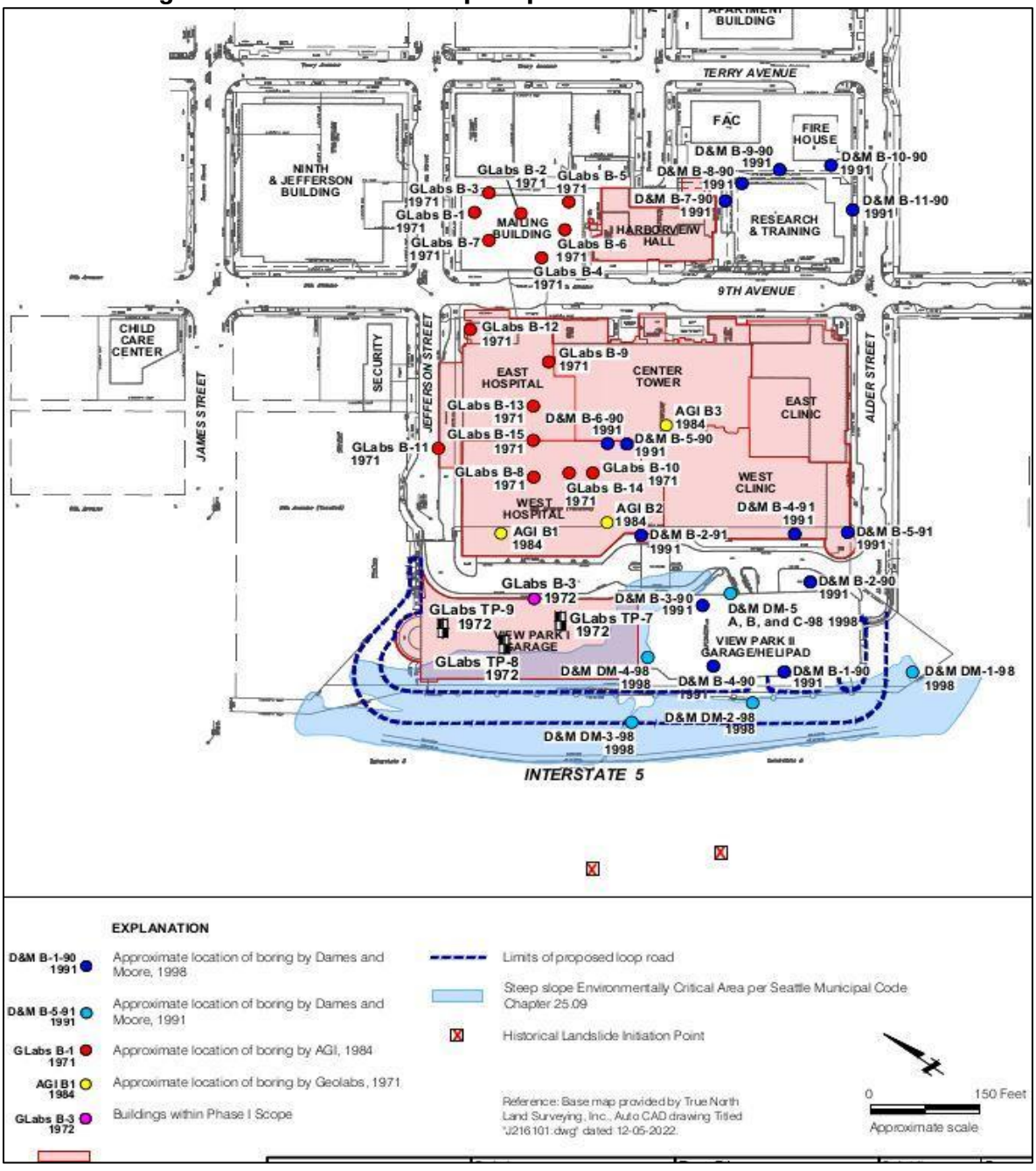
Figure 10 identifies an Environmentally Critical Area (ECA) designated at the southwest portion of the campus, which includes the location of areas with slopes greater than 40 percent. SMC chapter 25.09.012 describes geologic hazard areas, including landslide prone areas, liquefaction-prone areas, peat-settlement-prone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

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

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.

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.

[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.

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.[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 characteristic 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		1.0049E+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)	563,985	9.7521E+10	1.1774E+11	1.4557E+08	2.1541E+11
West Hospital	285,960	Included in EC/EH	Included in EC/EH	Included in EC/EH	Included in EC/EH
West Clinic	142,980				
Maleng	260,343				

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		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 in 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 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 heating 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 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 the 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

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	Primary	1 year	12.0 µg/m^3	Annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/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 µg/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 contributes 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 to 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 indicates 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.

[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

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] 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.

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

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.

As well, 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 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 over time 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 to be 3,052,269 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, by 2040 (Ecology; accessed November 16, 2023). The GHG emissions of the *MIMP Major Amendment* would be 3 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]	829,600	2,122,615	33,962
Healthcare - Outpatient[4]	690,400	929,654	14,875

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 an office building).

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 169,655 metric tons (tonnes) of CO2 equivalent ($MTCO_2e$) over a 62.5-year lifespan and corresponds to about 2,715 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]	126,000	169,665	2,715

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 an office building).

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.

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

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

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 on to 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]

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 delivery 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.

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

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 operate 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 Draft 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 (Alternative 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. Pervious 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 57,307 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

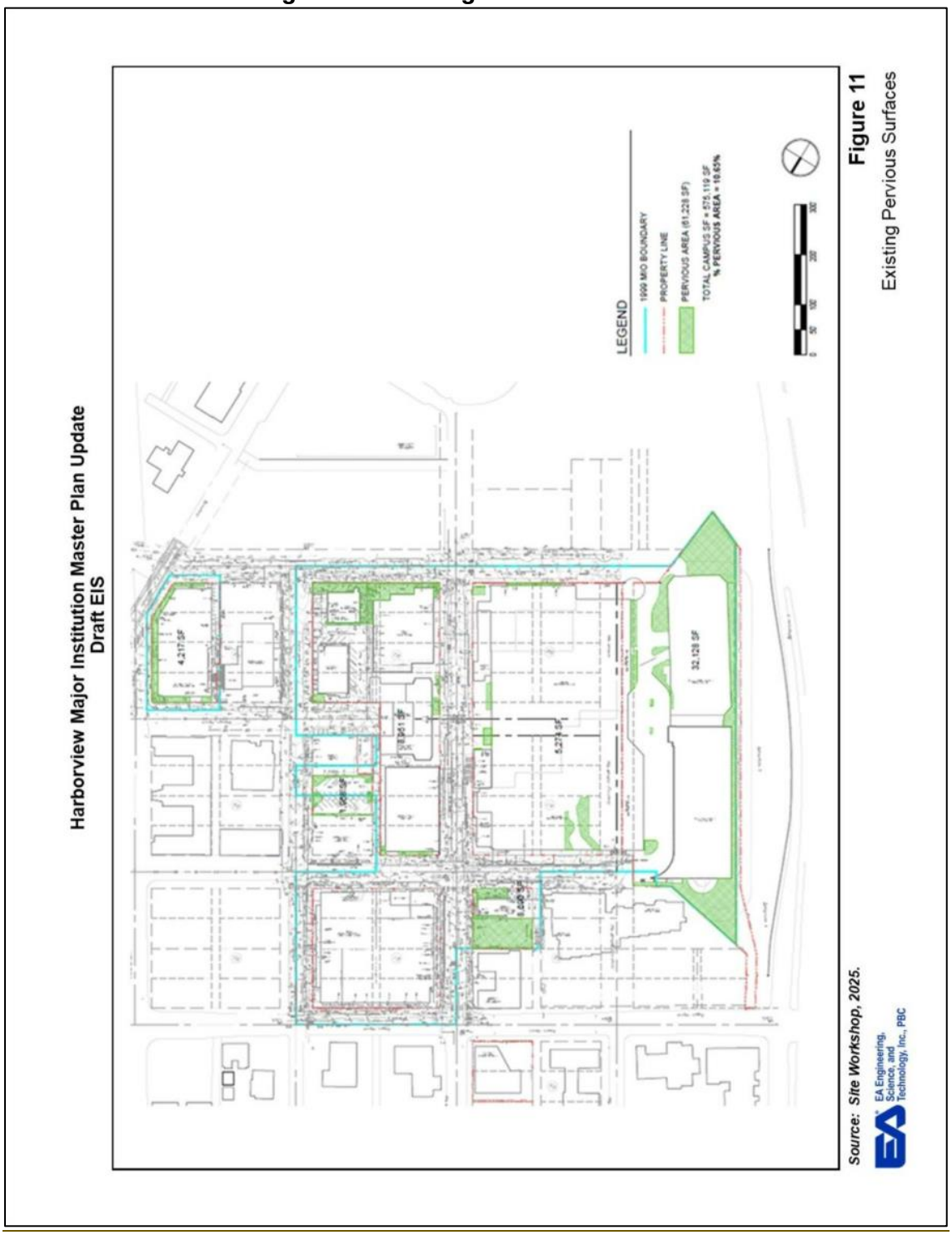
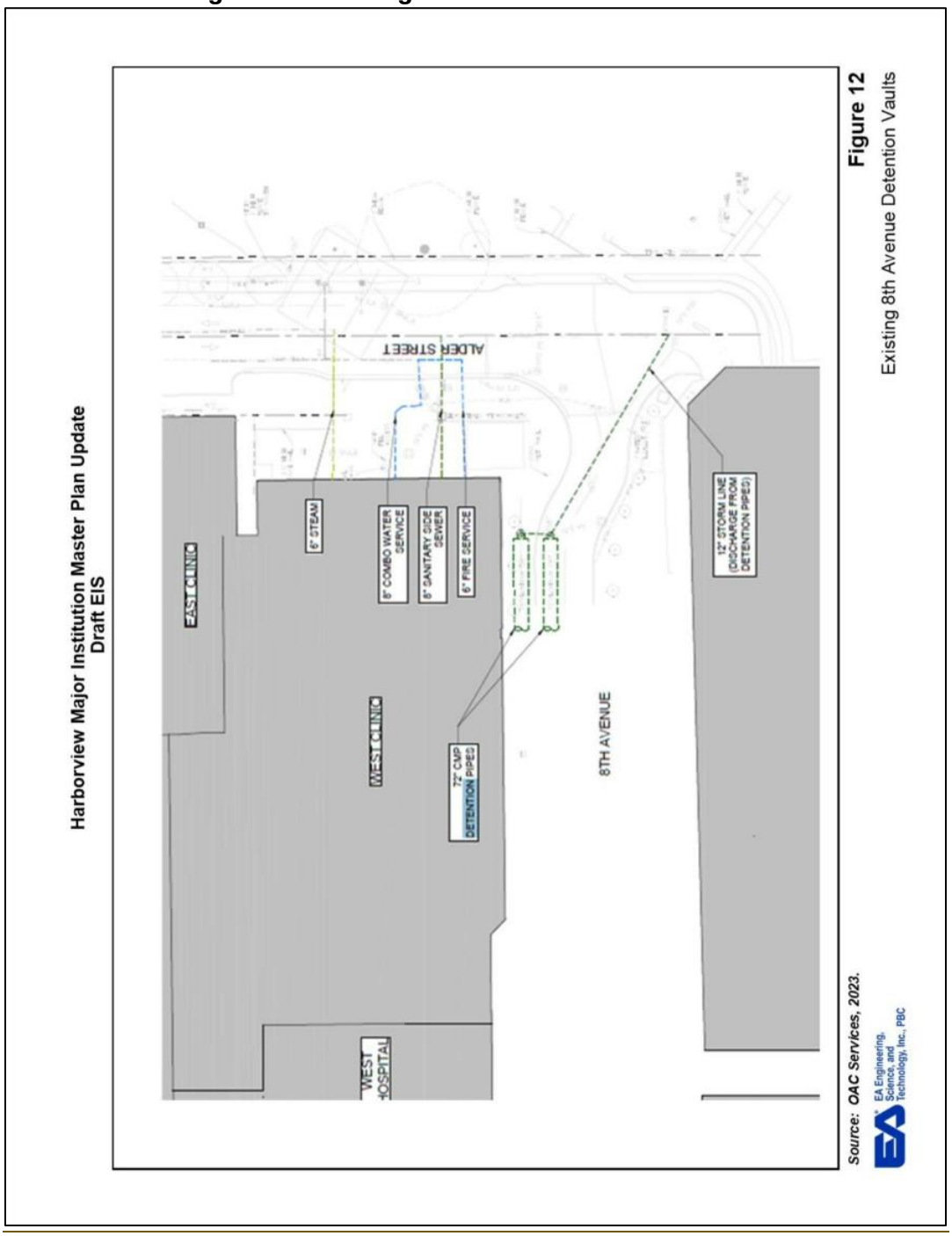


Figure 12: Existing 8th Avenue Detention Vaults



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**.

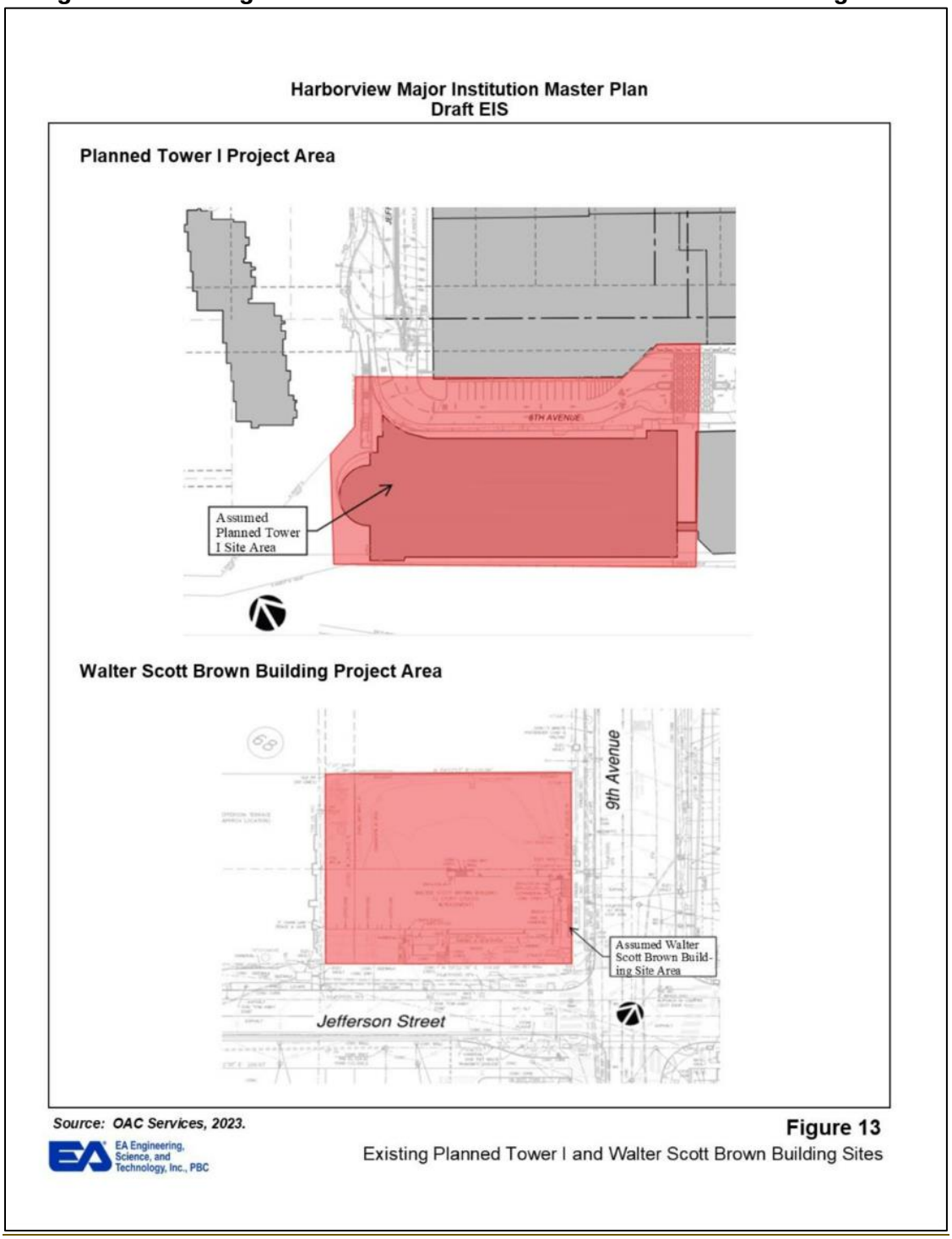
Existing Regulations

The City of Seattle Stormwater Code and Manual regulates stormwater runoff in the City of Seattle. The most current version of the code is the 2021 Seattle Stormwater Manual which became effective on July 1, 2021. The 2021 Seattle Stormwater 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 2021 Seattle Stormwater Manual requires sites that discharge into a combined sewer system to regulate flow control to the Peak Control Standard. The Peak Control Standard is 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 6.0, 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 2021 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 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 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 57,307 square feet of area associated with the boundary expansion.

Stormwater Flow Impacts

The 2021 City of Seattle Stormwater Manual requires sites that discharge into a combined sewer system to regulate flow control to the Peak Control Standard. The Peak Control Standard is 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 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 city stormwater code, 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

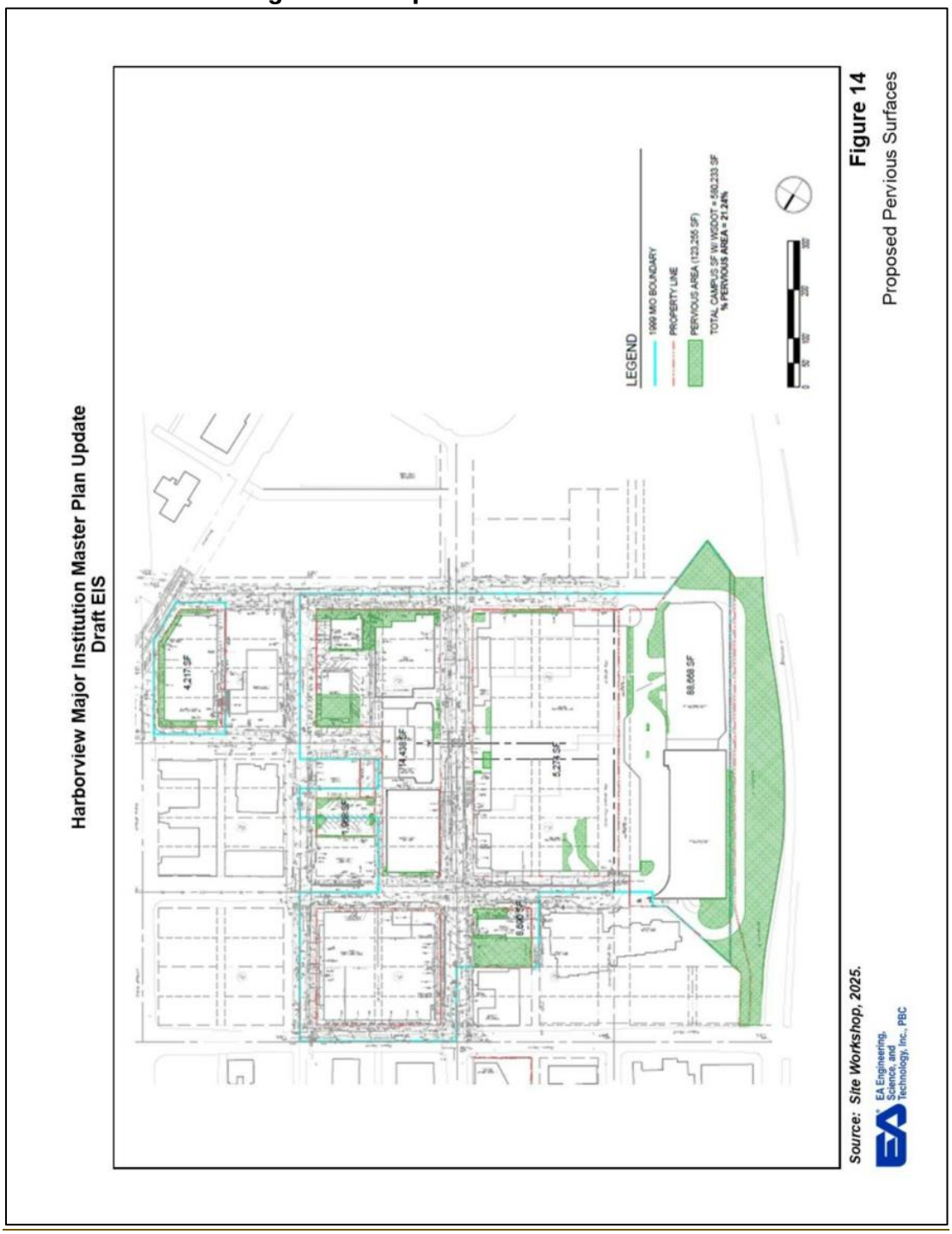
Surface Impacts

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 2021 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 2021 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 2021 City of Seattle Stormwater Manual dictates 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 meet 2021 City of Seattle Stormwater 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 2021 City of Seattle Stormwater Manual, 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 to 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 2021 City of Seattle Stormwater Manual.
- 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 Draft 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 DEIS 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 2,076,959 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	**306794**	6 floors	84 ft
West Clinic	**184191**	5 floors	78 ft
Ninth & Jefferson Building	764,347	14 floors	195 ft
Maleng Building	285,216	9 floors	150 ft
Harborview Hall	**90799**	12 floors	132 ft
Research & Training Building	**181930**	9 floors	135 ft
Pat Steele Building*	287,824	5 floors	60 ft
Firehouse	8,542	3 floors	35 ft
Security Building*	8,093	2 floors	25 ft
Childcare Center*	5,706	1 floor	15 ft
TOTAL BUILDING SPACE	**2,797,676**		
Viewpark, I Garage	106,980	2 floors	25 ft
Viewpark II Parking Garage/helipad	147,078	5 floors	60 ft
Boren Garage	**133,683**	5 floors	60 ft

Source: Harborview Medical Center, 2025. *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 Urban Center; urban centers are areas of the City of Seattle with concentrated employment and housing with direct access to high-capacity transit. The immediate surrounding area is also within the First Hill/Capitol Hill Urban 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.

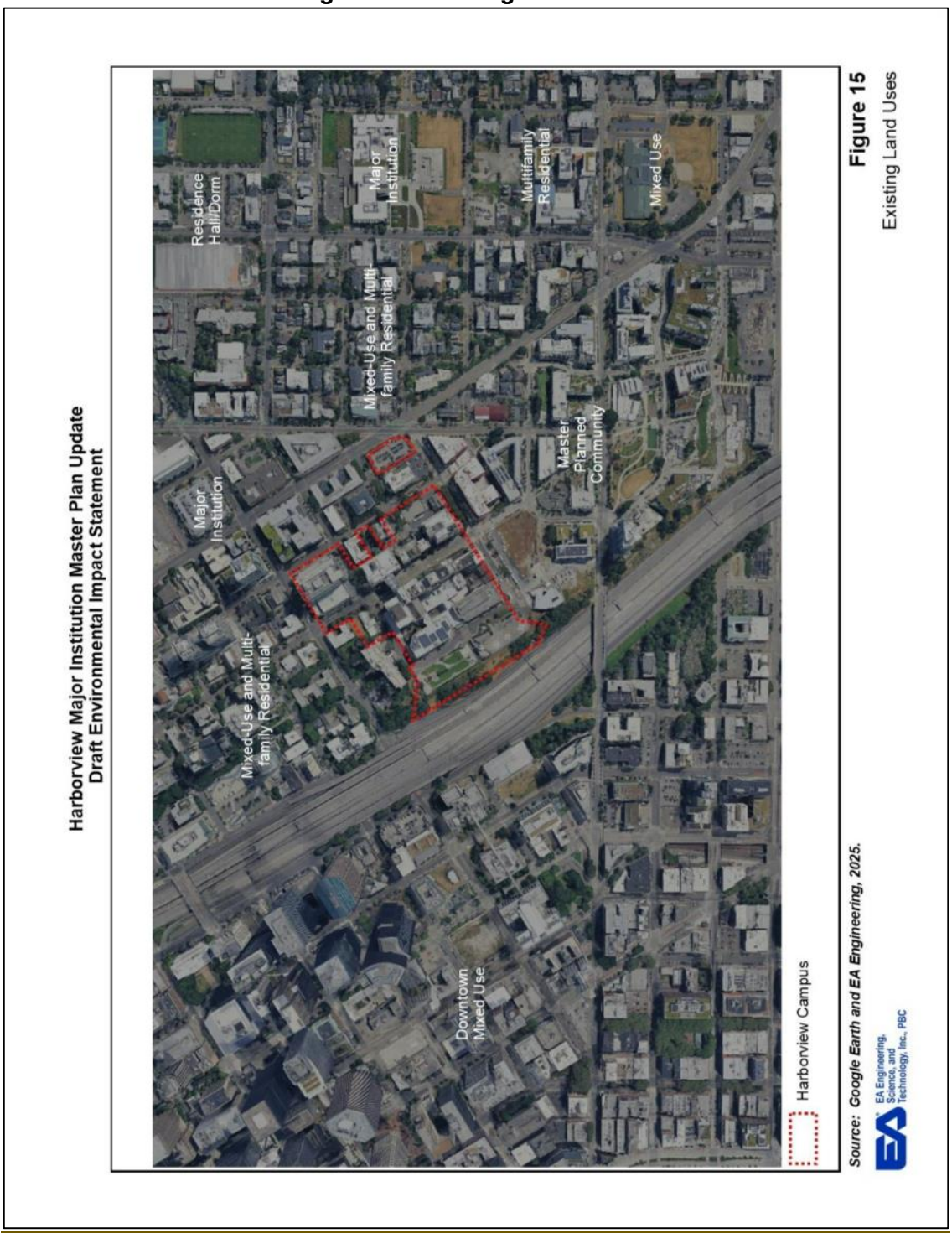
Land uses adjacent to the Harborview campus include[25]:

- **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. Farther north are 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). 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. Farther 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. Farther 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 identifies the Harborview campus as part of an Urban Center (First Hill/Capitol Hill Urban Center); the area to the north, east and south of the Harborview campus is also within this Urban Center (see

Figure 16). The Seattle urban village strategy (including Urban Centers) encourages most future job and housing growth to occur in specific areas in the city that are best able to absorb and capitalize on that growth. 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

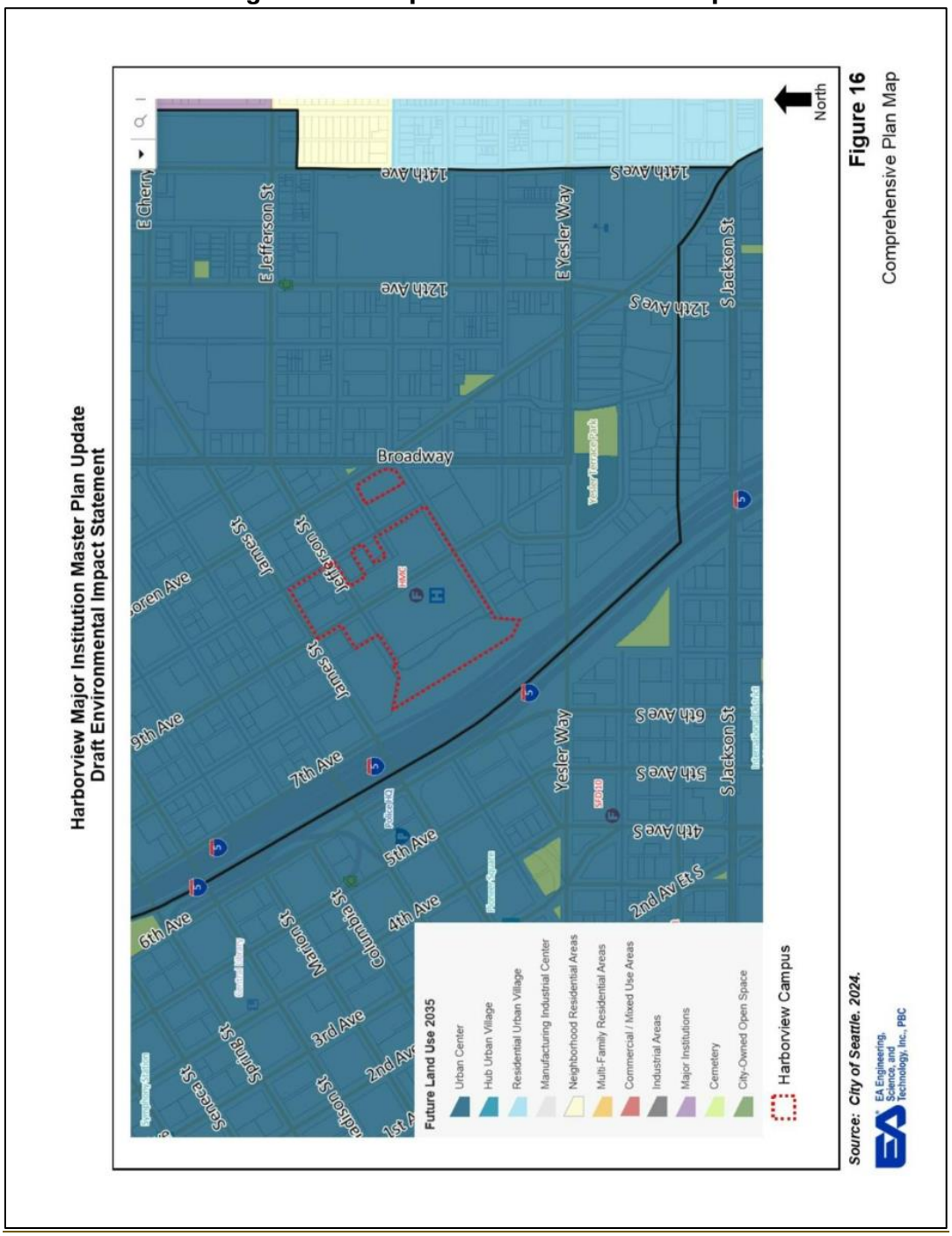
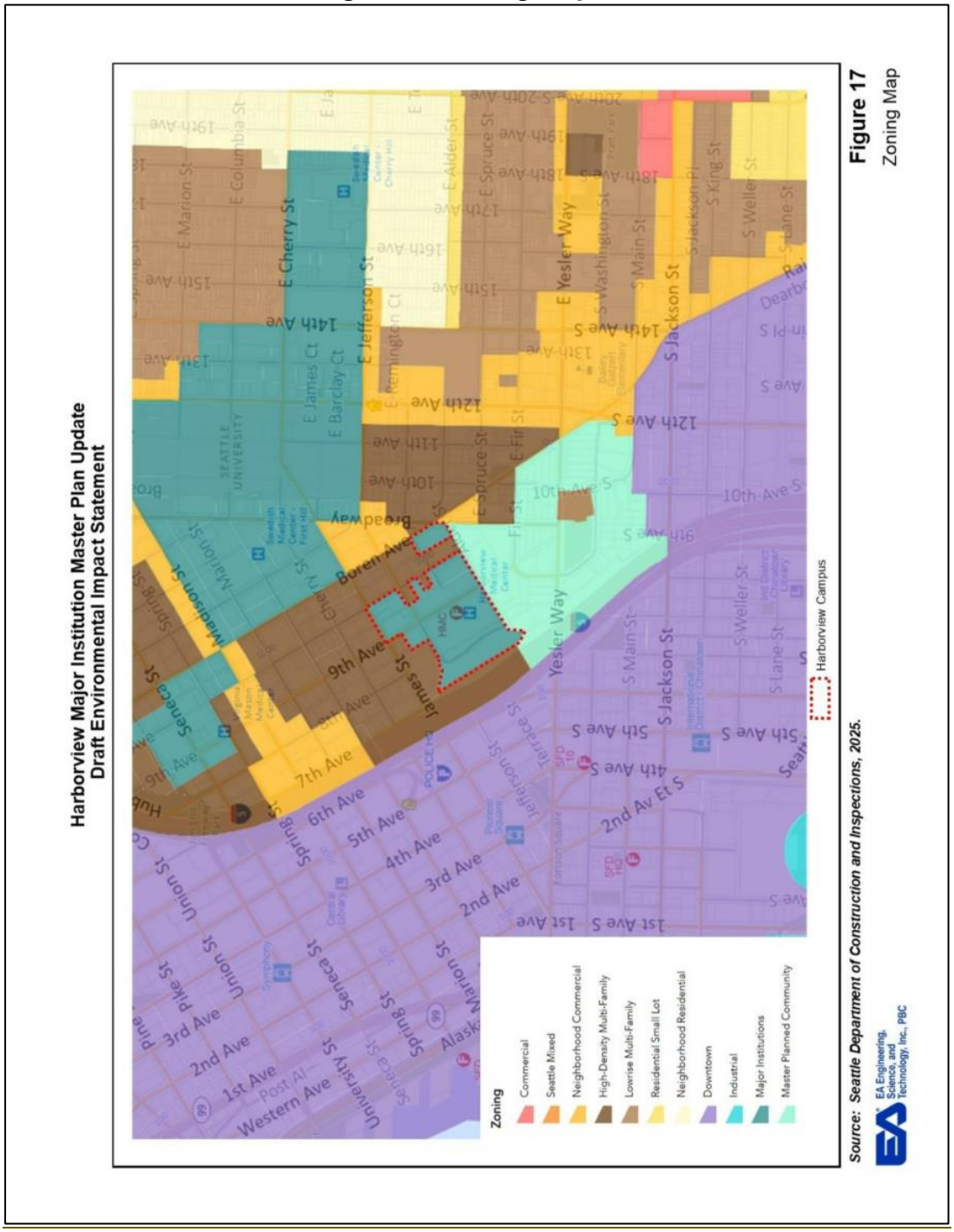


Figure 17: Zoning Map



Surrounding Area

The Comprehensive Plan identifies the area to the north, east and south of the Harborview campus as First Hill/Capitol Hill Urban 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.

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 1,343,273 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 3,425,232 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 515,552 sq. ft. of existing building space could be demolished under both Planned and Potential Projects.

The approximately 488,000 square feet of net new development with the Planned Projects would represent an approximately 23 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 860,273 square feet of net new space with the Potential Projects would result in a total of 1,348,273 net new space which would represent an approximately 65 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 488,000 square feet of net new building space to the campus, 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, 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 488,000 square feet of net new building space with the Planned Tower I and the Potential Projects total of approximately 860,273 net new square feet of building space (1,348,273 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 488,000 square feet of building space 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 515,552 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 488,000 square feet of net new building space for the Planned Tower I and the 488,000 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 would 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 1,348,273 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
- 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 2016 with subsequent amendments)[26]. 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 in 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.

[26] Note that at the time of publication of this Draft EIS, the City of Seattle is in the process of updating the Comprehensive Plan (One Seattle Plan). It is anticipated that the Seattle City Council final vote on the Comprehensive Plan Update (One Seattle Plan) will occur in Summer 2025.

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 November 2016 (Seattle 2035 Comprehensive Plan: Managing Growth to Become an Equitable and Sustainable City 2015-2035). The City is currently in the process of updating the Comprehensive Plan with the Draft One Seattle Plan (May 2025) under review by the Seattle City Council.

The Draft One Seattle Plan consists of 14 major elements: growth strategy, land use, transportation, housing, capital facilities, utilities, economic development, environment, parks and open space, arts and culture, community well-being, community engagement, container port, shoreline areas and neighborhood planning.

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 3.4 – 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 Draft 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: 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 6.4. 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 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 from 13.6 acres to 14.5 acres.

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 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 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 to consider 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 6.4. 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 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 from 13.6 acres to 14.5 acres.

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 SDCI Department of Neighborhoods (SDON), 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 3,737 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 __ 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 increase 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. The existing First Hill Neighborhood Plan was adopted in 1998 and portions of the plan have been incorporated into the City's current Comprehensive Plan (Seattle 2035 Comprehensive Plan: Managing Growth to Become an Equitable and Sustainable City 2015-2035). The following Comprehensive Plan 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.

It should also be noted that the City of Seattle's Draft 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 3,737 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 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 zoning 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 6.4 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 capacity 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 6.0 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 MIP and the zoning in areas surrounding the MIO. At the time of the 1999 MIMP adoption, the maximum height limit in the HR zone was 160 feet (with up 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 the 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 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 for 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 zoning. 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:[27]

- 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

[27] 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[28].

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.

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

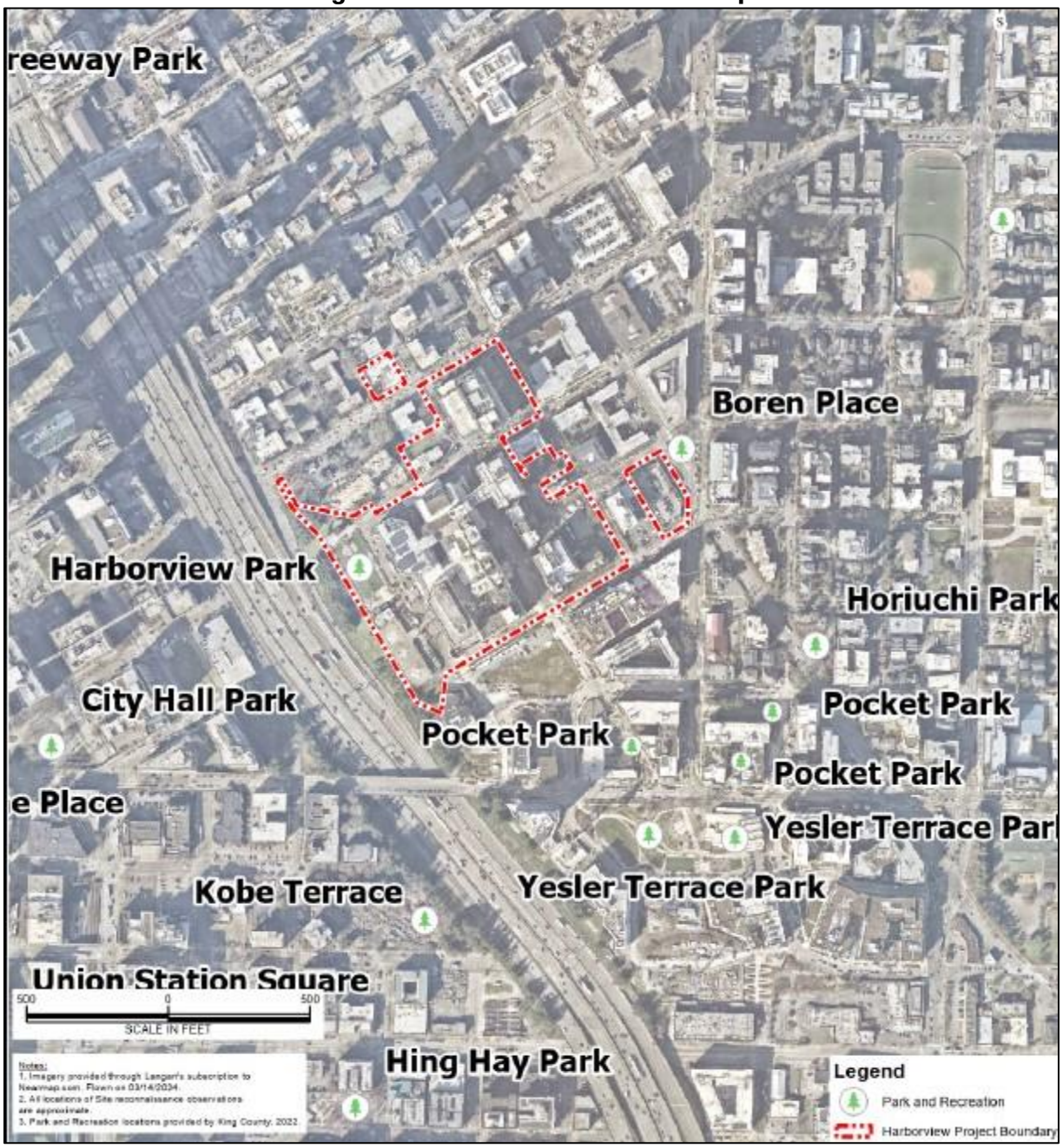
Figure 19: 2014 MIMP Minor Amendment Open Space Plan



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 of 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 play. 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.[29] 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, the 24-hour public access may lead to concerns regarding homelessness and illegal activities.

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

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 campus open space from 20 percent to 12 percent.

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 on Figure 3:

- 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.

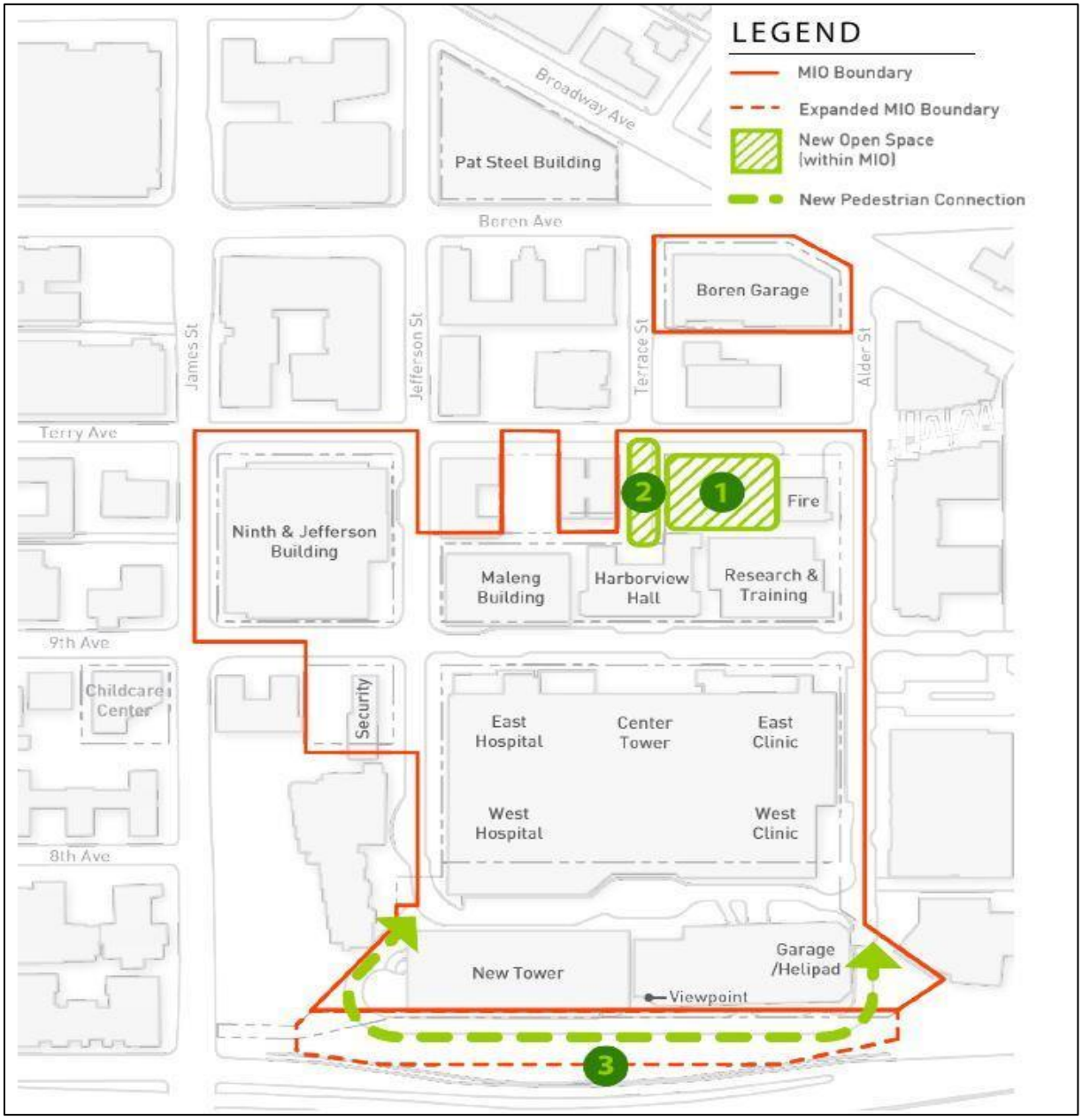
In the event the MIO boundary is not expanded to include the WSDOT ROW, the MIO would remain 594,480 square feet. With the removal of the pedestrian connection in the WSDOT ROW, the proposed open space area is 65,500 square feet, about 11 percent. The new patient tower will have a setback area around 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 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.

Figure 21: Potential New Open Space



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

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 additions address 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.

3.8. AESTHETICS

HEIGHT, BULK, AND SCALE

This section of the Draft 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 greenspace 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[30]:

- 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.

[30] 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.

- 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.

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, increased 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 Highrise and Midrise 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 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 2,076,959 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

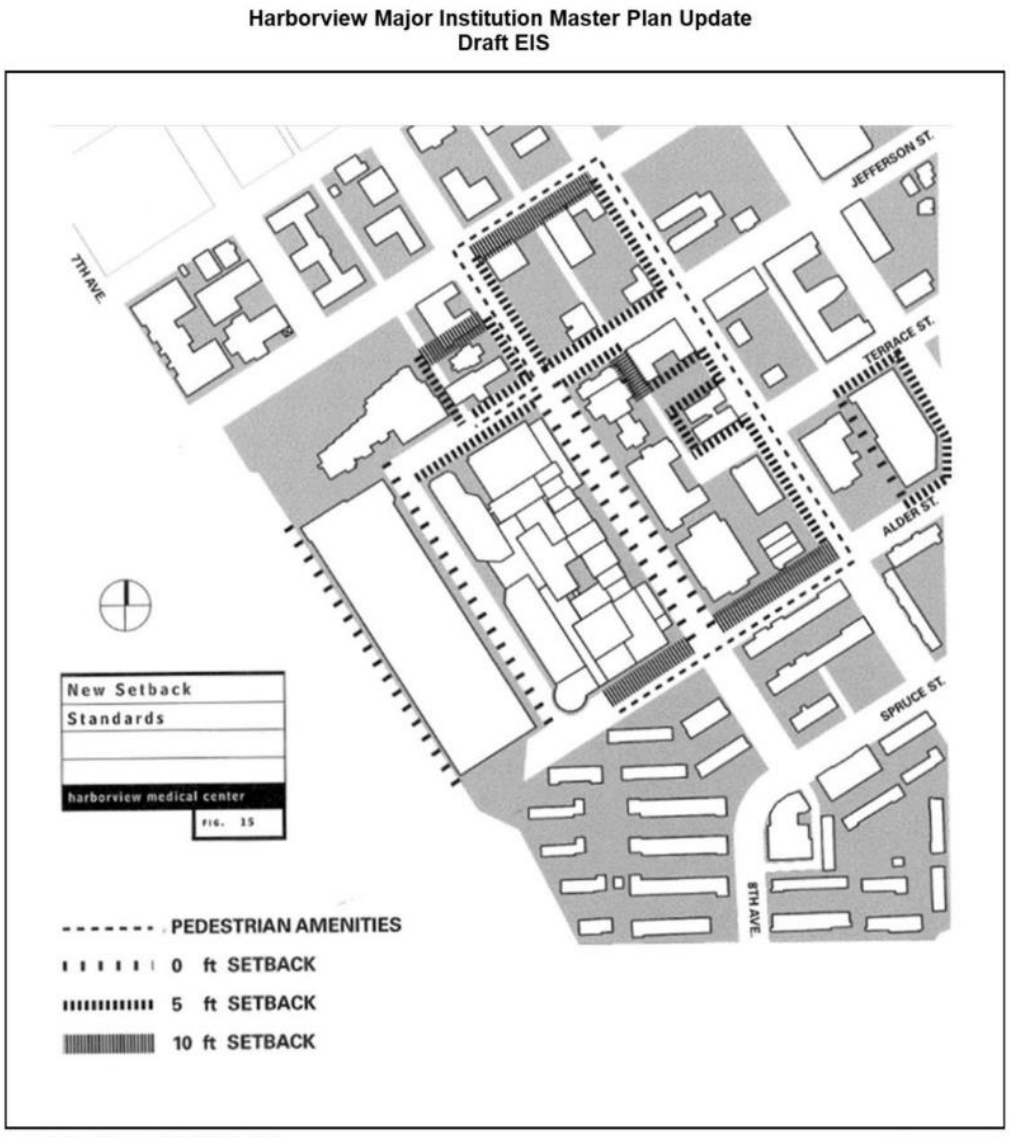
The building setbacks established by the *1999 MIMP* range from zero to 10 feet as shown in **Figure 25** below.

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

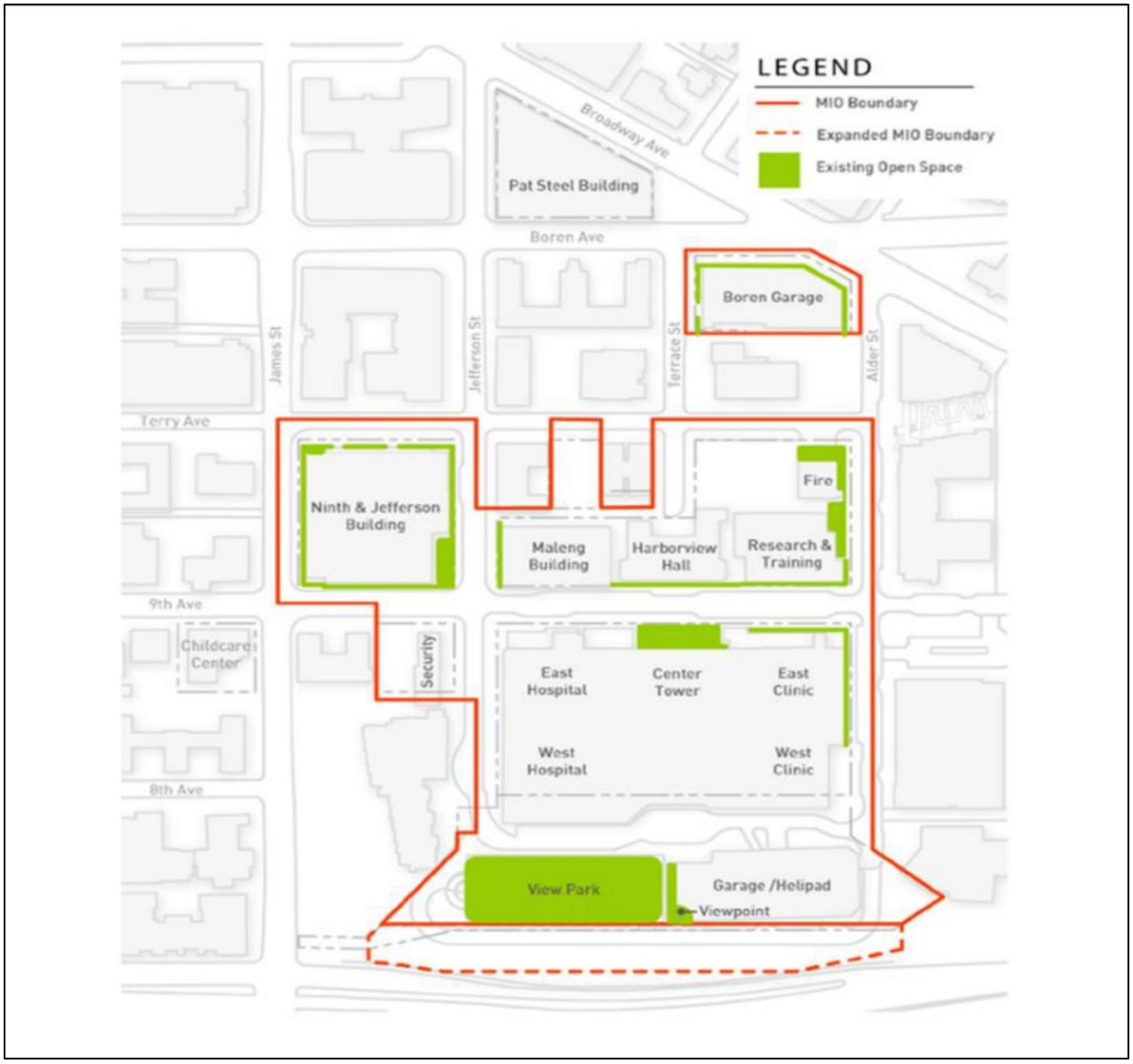


Figure 25: Existing MIO Setbacks



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 57,307 square feet to the MIO (an approximate 10 percent increase) for a total of approximately 651,787 square feet (2.3 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 6.0 would allow for a total of approximately 3.7 million square feet of building space within the campus. All main Planned and Potential Projects would add approximately 1.5 million square feet of building space resulting in a campus-wide total of roughly 3.4 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

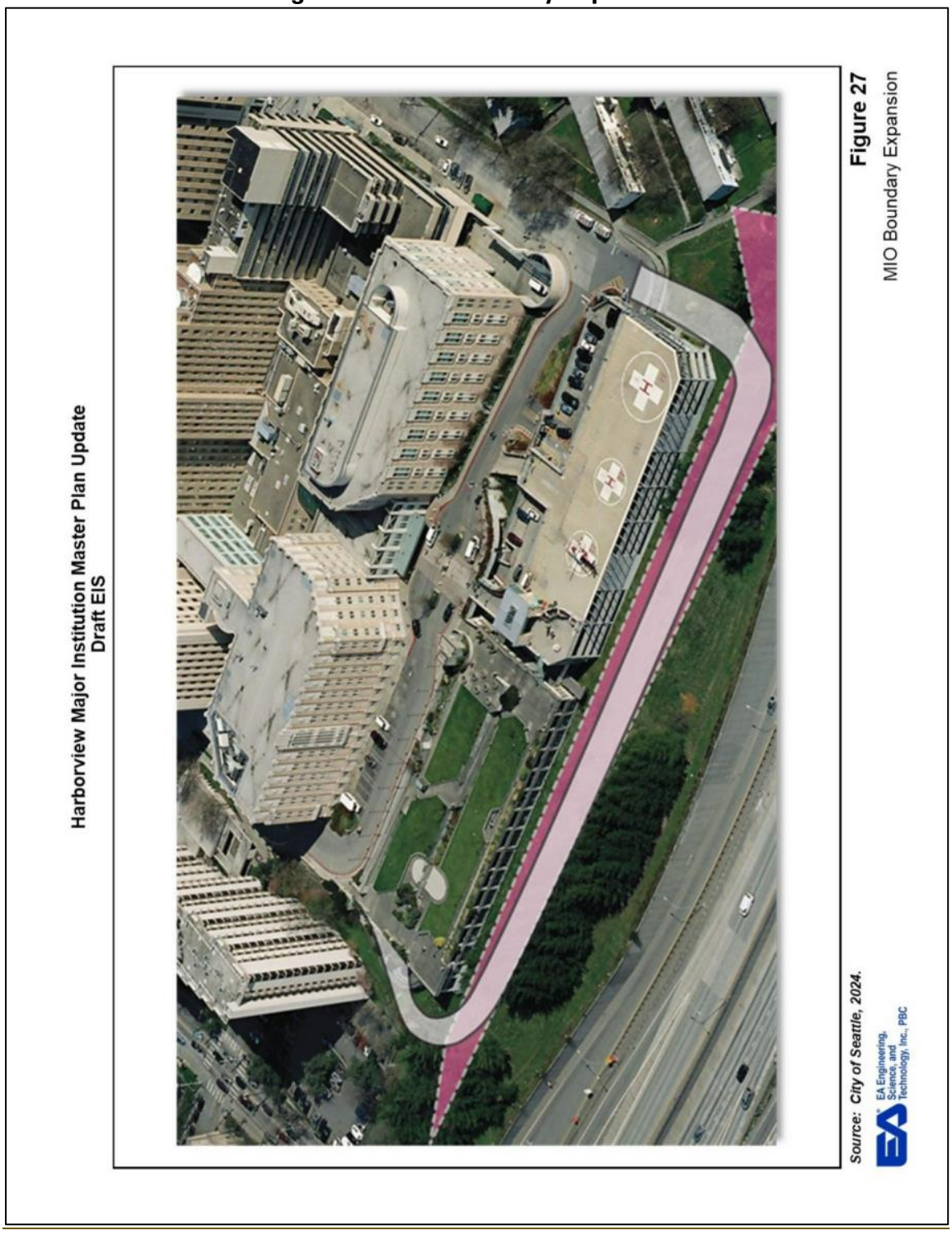


Table 20: Existing and New Square Footage for MIMP Major Amendment

Project	Planned or Potential	Existing Gross Square Footage to be Removed	Proposed Square Footage
Planned Tower I	Planned	N/A	488,000
Walter Scott Brown Building	Potential	8,093	100,000
East Clinic Building	Potential	119,718	380,000
Potential Tower II	Potential	N/A	488,000
Boren Garage	Potential	133,683	285,000[31]

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

[31] 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 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 zoning surrounding the campus is 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, 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 488,000 square-foot Planned Tower I. 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

Harborview Major Institution Master Plan Update
Draft EIS



Looking North



Looking Northeast

Source: King County, 2020.

EA Engineering, Science, and Technology, Inc., PBC

Figure 30

Planned Tower I Photo Simulations

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 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 29below 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 needed square footage 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 increase the buffer and improve transition from the building and lot edge to surrounding properties.

Design Option 1 would extend the building floorplate across 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 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 zoning 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 of 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 38,000 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 380,000 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 488,000 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** below portrays 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.

Figure 31: Alternative 1 Planned and Potential Building Massing – Option 1

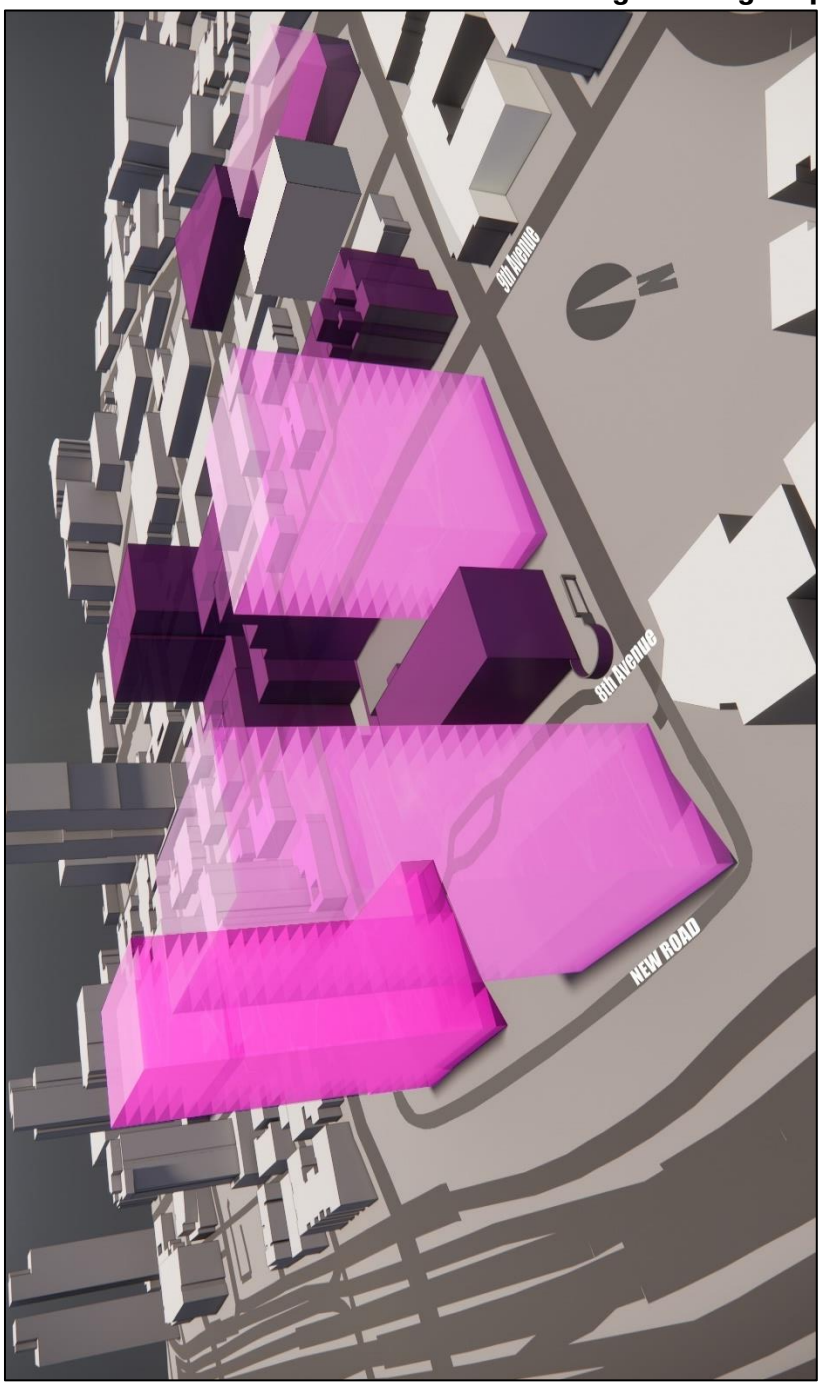
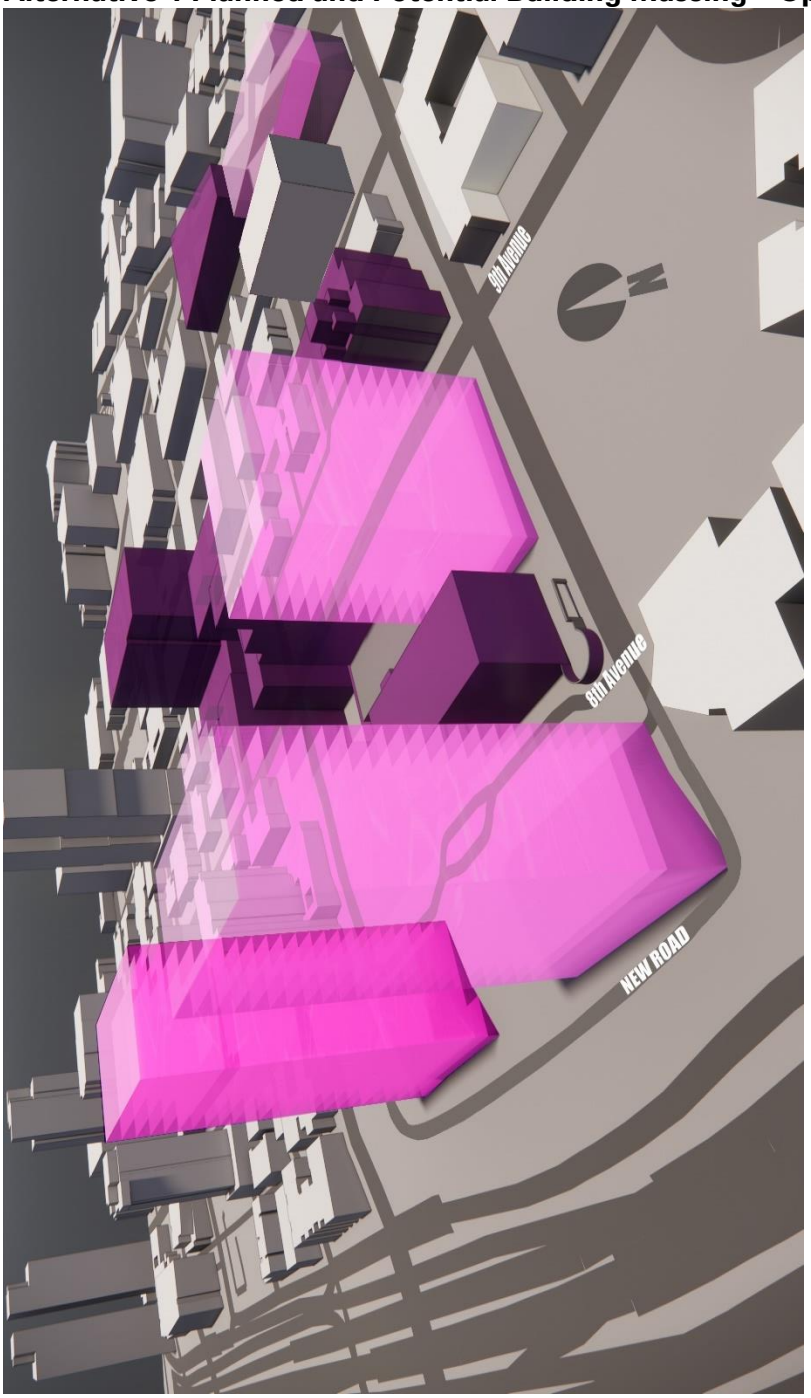


Figure 32: Alternative 1 Planned and Potential Building Massing – Option 2



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 provide 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.

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 building.

Figure 33: Retained MIO Setbacks



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. 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.

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.

Figure 34: Revised MIO Open Space



Source: City of Seattle, 2024.

EA Engineering, Science, and Technology, Inc., PBC

Figure 34

Revised MIO Open Space

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 square footage would remain at 488,000. 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 488,000 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.

Figure 35: Alternative 2 Planned and Potential Building Massing – Option 1



o 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 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.

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 Draft 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.[32] 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** for a Viewpoint Location Map:

- **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.

[32] Seattle Municipal Code Chap. 25.05.675 P.2.a.i.

Figure 36: Viewpoint Location Map – Views 1 through 8

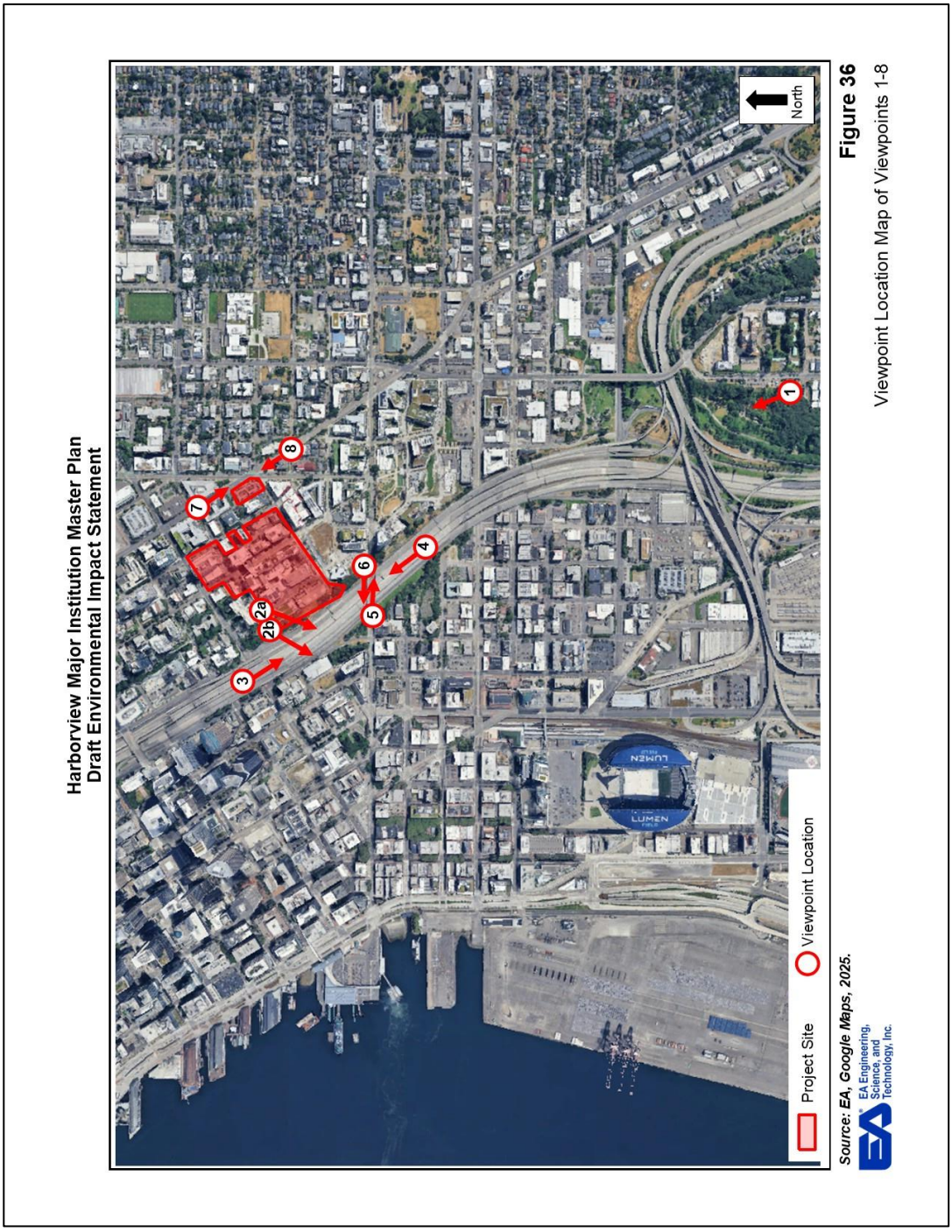


Figure 37: Viewpoint Location Map – Views 9 and 10



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.[33.] None of the protected Space Needle viewpoints would be affected by development included within the proposed *MIMP Major Amendment*.

Scenic Routes

City ordinances[34] 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.

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**).

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33 Seattle Municipal Code Chap. 25.05.675 P. and Seattle DCLU, 2001,

34 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 38 :Looking East from Seattle Waterfront

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Source: Google Maps, 2025.

EA Engineering, Science, and Technology, Inc., PBC

Figure 38
Views from the Seattle Waterfront, Looking East

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.[35]

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.

[35] The Facilities building has been demolished as of June 2025.

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 –Viewpark 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

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NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



Source: TGB Architects, 2025.

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Figure 39
Viewpoint 1 – from Jose Rizal Park, Looking North

- 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 Viewpark 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, however, would remain.

- 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.

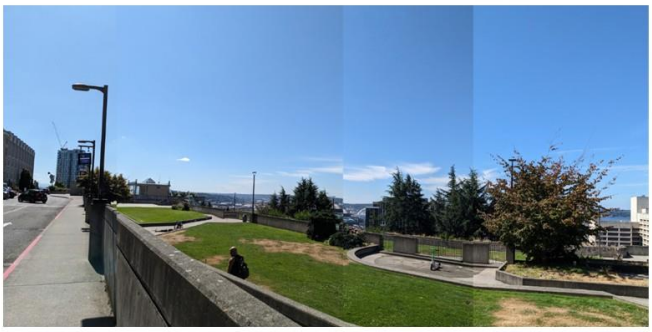
  Under existing conditions, the Puget Sound and the Olympic Mountains are visible looking west beyond the Downtown corridor, where other structures such as Lumen Field are visible. Other structures visible from the viewpoint such as the Columbia Tower and the Seattle Municipal Tower are taller and more 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 Viewpark 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

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NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



Source: TGB Architects, 2025.

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Figure 40

Viewpoint 2a – from Harborview Hospital Viewpoint, Looking West

Figure 41: View from Informal Public Viewpoint on View Park I/Garage

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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.

Source: TGB Architects, 2025.

EA Engineering, Science, and Technology, Inc., PBC

Figure 41

Viewpoint 2b – Informal Public Viewpoint from View Park I, Looking West

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



Figure 43: View from I-5, Looking North

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NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



Source: TGB Architects, 2025.

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Figure 43
Viewpoint 4 – View from I-5, Looking North

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

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ALTERNATIVE 1



ALTERNATIVE 2



Source: TGB Architects, 2025.

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Figure 44
Viewpoint 5 – View from Yesler Way, Looking Northeast

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

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NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



Source: TGB Architects, 2025.

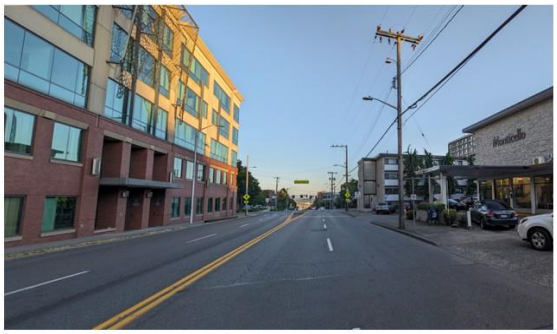
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Figure 45
Viewpoint 6 – View from Yesler Way, Looking West

Figure 46: Looking South along Boren Avenue

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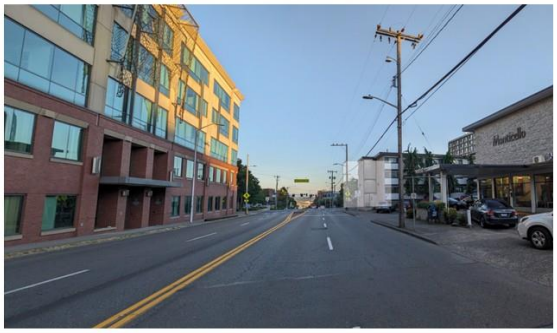
NO ACTION ALTERNATIVE



ALTERNATIVE 1



ALTERNATIVE 2



Source: TGB Architects, 2025.

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Figure 46
Viewpoint 7 – View Looking South along Boren Avenue

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 represent a significant impact, as the garage would blend into the existing development and not impact the view along Boren Avenue.

- **Viewpoint 8 – Figure** 47 **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 represent a significant impact, as the garage would blend into the existing development and not impact 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

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ALTERNATIVE 1



ALTERNATIVE 2



Source: TGB Architects, 2025.

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Figure 47
Viewpoint 8 – Looking North along Boren Avenue

Figure 48: Looking East from Jack Block Park

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ALTERNATIVE 1



ALTERNATIVE 2



Location of Harborview Campus

Source: TGB Architects, 2025.

EA Engineering, Science, and Technology, Inc., PBC

Figure 48
Viewpoint 9 – View from Jack Block Park, Looking East

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 not anticipated.

SHADOWS

This section of the Draft 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.[36] 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.

[36] The Facilities building has been demolished as of June 2025.

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.

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 amount of shaded area 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[37], 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).

[37] 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.

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. Because of the earth's rotation, the duration of shadow-related impacts varies for a stationary observer[38] 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.[39]

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[40] indicate that on average March has 4 clear days, 8 partly cloudy days and 19 cloudy days.[41]

As indicated in Figure 43, 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.

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38 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.

39 Pacific Daylight Savings Time (PDST) applies to shadow impacts associated with spring equinox, summer solstice and autumnal equinox.

40 NOAA, 2005.

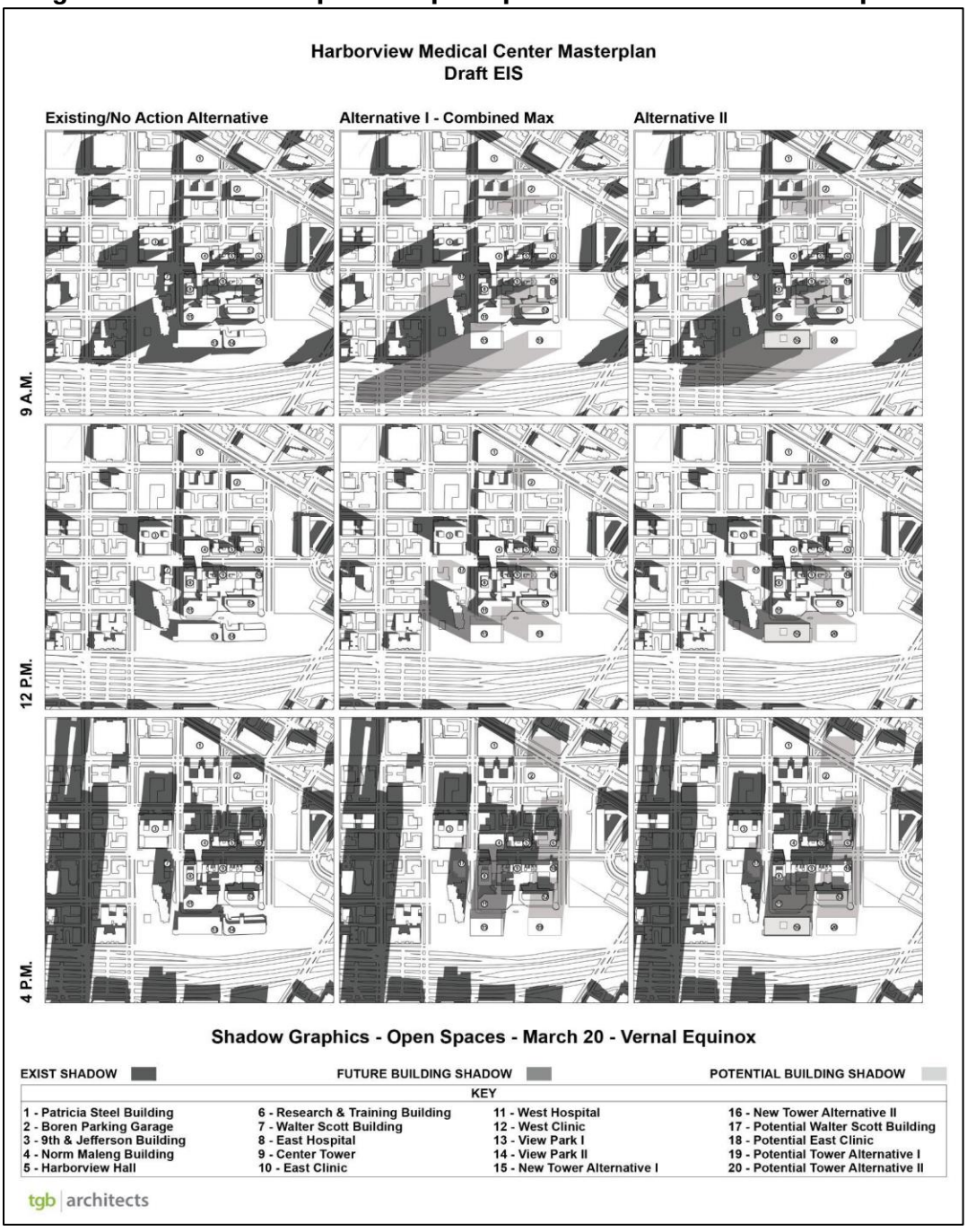
41 NOAA defines a clear day as one with zero to 3/10 average sky cover, a partly cloudy is one with 4/10 to 7/10 tenths average sky cover and a cloudy day is one with 8/10 to 10/10 tenths average sky cover.

- At **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.

- 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.

- 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.

Figure 49: Shadow Graphics – Open Spaces – March 20 – Vernal Equinox



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[42] for June indicates that on average June has 7 clear days, 8 partly cloudy days and 15 cloudy days.[43] 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.

- 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.

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42 NOAA, 2005.

43 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 **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 indicate 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.

- 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.

Figure 51: Shadow Graphics – Open Spaces – September 22 – Autumnal Equinox



- 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[44] for the month of December indicate that on average December has 3 clear days, 4 partly cloudy days and 23 cloudy days.[45]

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.

[44] NOAA, 2005.

[45] 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 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.

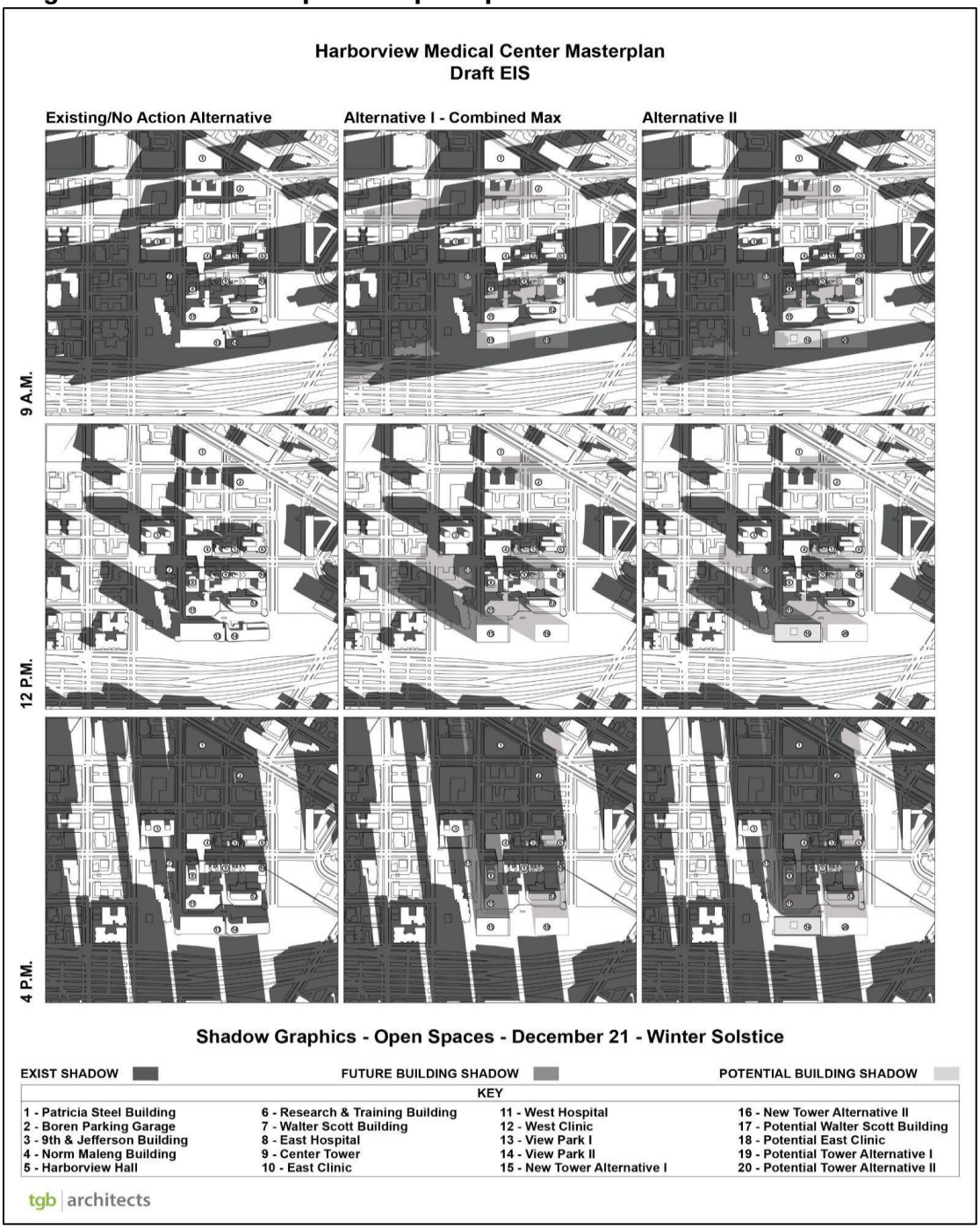
  Under Alternatives 1 and 2, shadows from the potential redevelopment of the Boren Garage would increase compared to the No Action Alternative but would not create new impacts to the surrounding area. The new shading would not be considered significant, as it would represent a slight increase in overall 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.

  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.

- 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.

Figure 52: Shadow Graphics – Open Spaces – December 21 – Winter Solstice



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 to 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.[46]

[46] https://wsdot.wa.gov/about/transportation-data/travel-data/traffic-count-data.

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.

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 afford 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 relative 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).[47]

[47] 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 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.

The two times of the day (8 AM and 5 PM[48]) 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[49] 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.[50]

- 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[51] 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 differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. As 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.

- 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.

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48 8:30 AM and 4 PM for winter solstice because sunrise occurs slightly before 8:30 AM and sunset occurs slightly after 4 PM.

49 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.

50 U.S. Dept. of Commerce, NOAA, 1992.

51 The speed limit on I-5 through Downtown Seattle is normally 60 mph. https://geo.wa.gov/datasets/WSDOT::wsdot-roadway-data-speed-limits/

Figure 53: Alternative 1 – Vernal Equinox – March 20

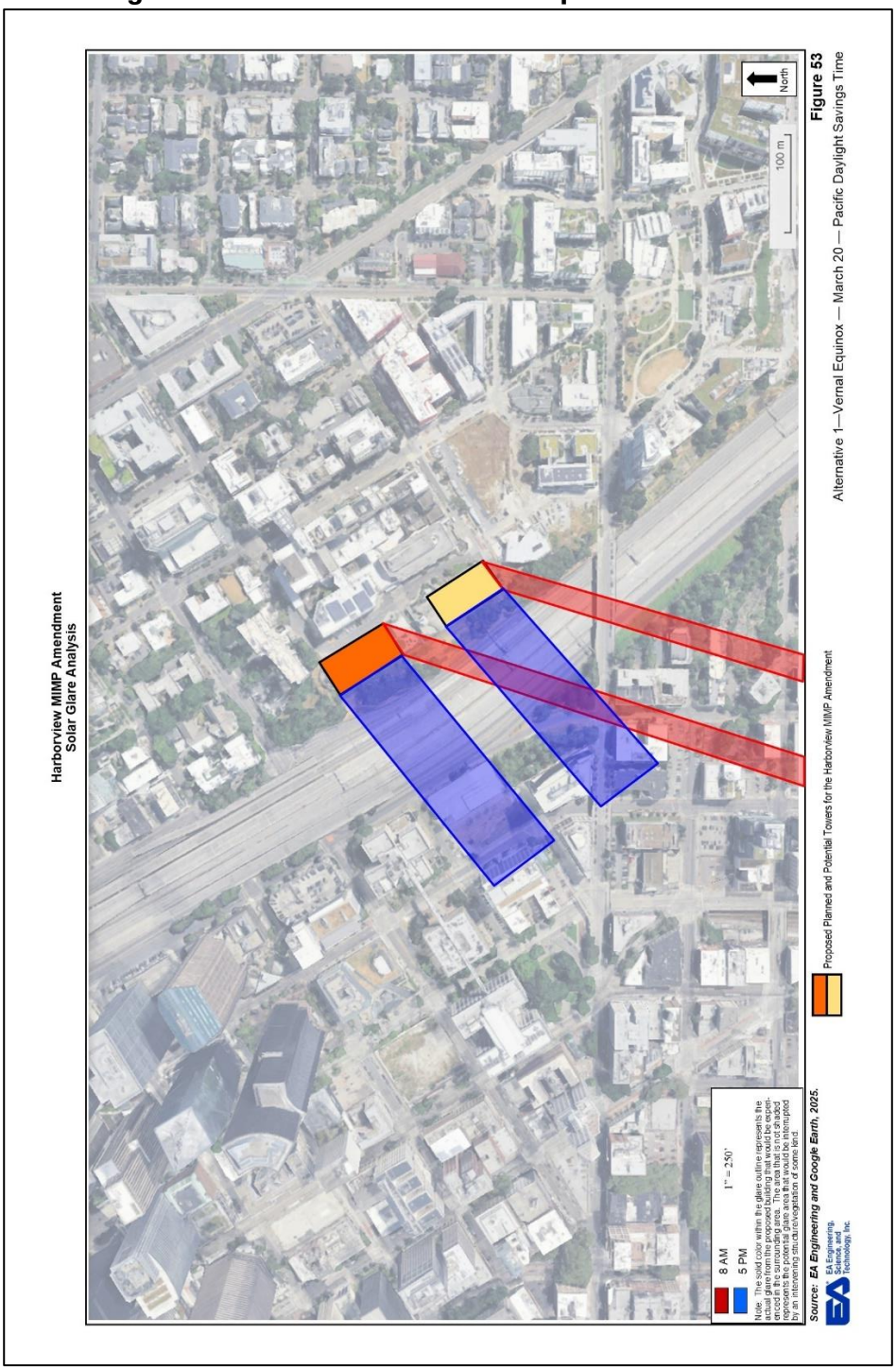
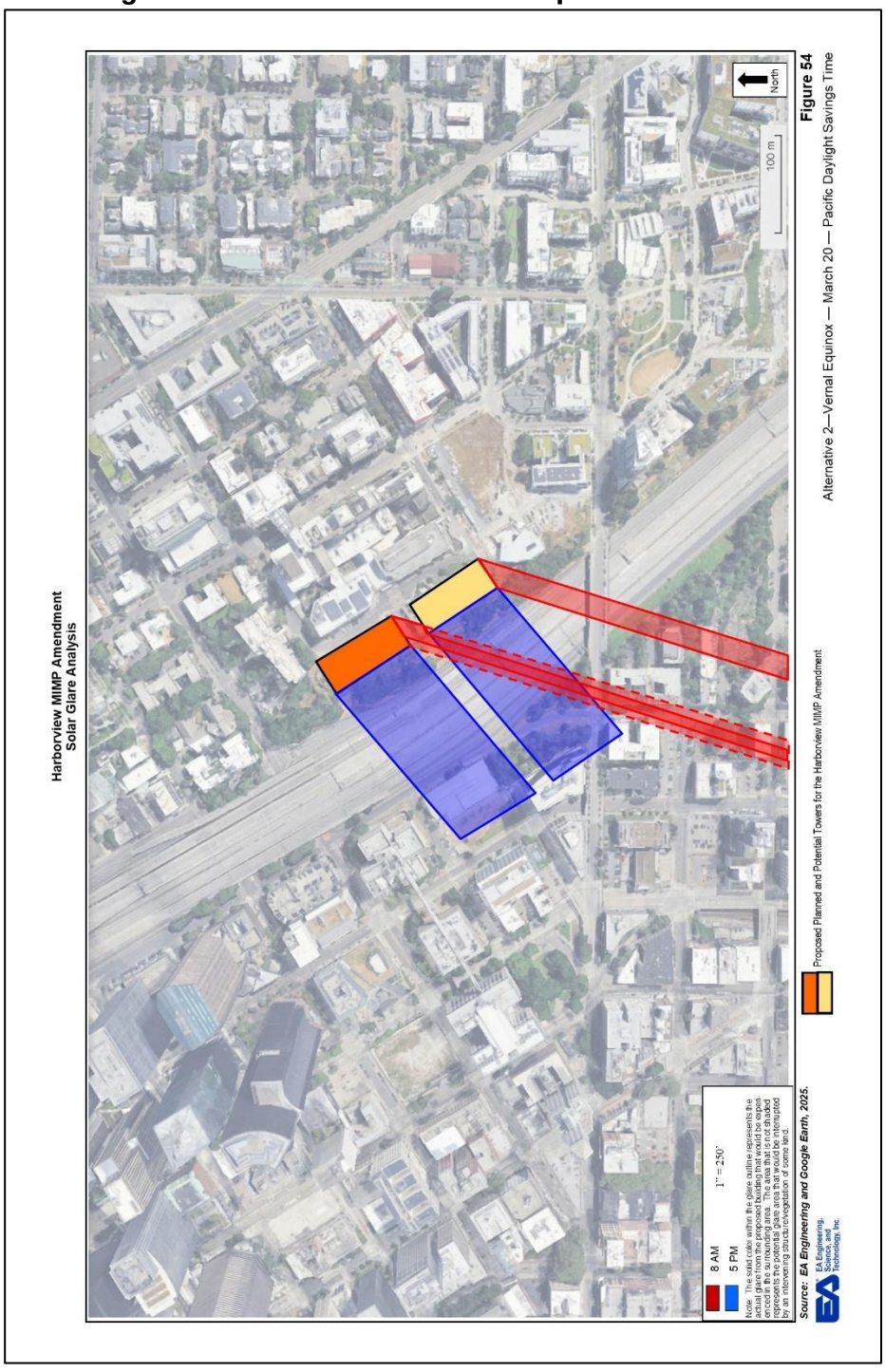


Figure 54: Alternative 2 – Vernal Equinox – March 20



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 differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. As 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.

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.[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 differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. As 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.

- 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 differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. As 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.

[52] U.S. Dept. of Commerce, NOAA, 1992.

Figure 55: Alternative 1 – Summer Solstice – June 21

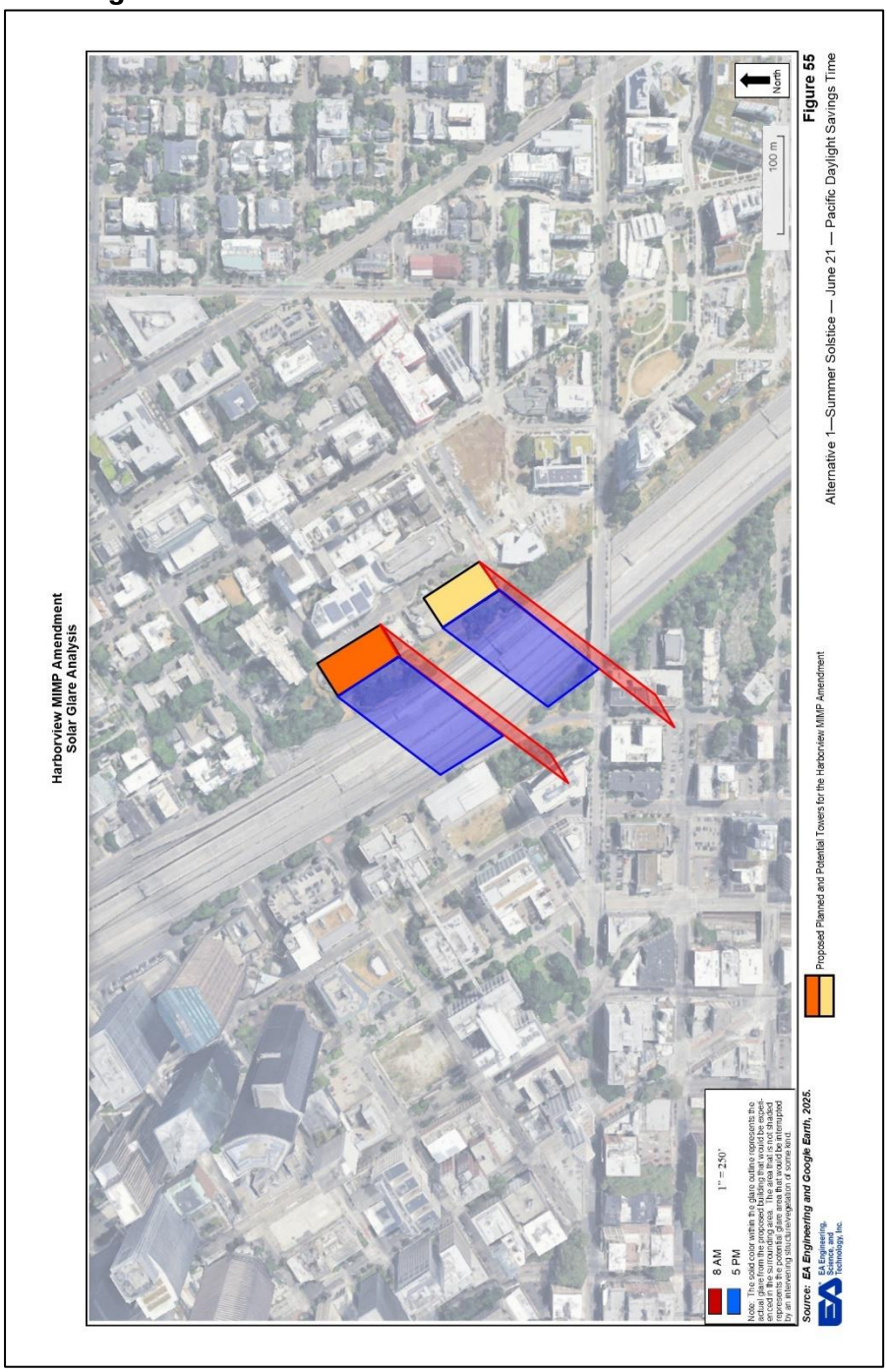
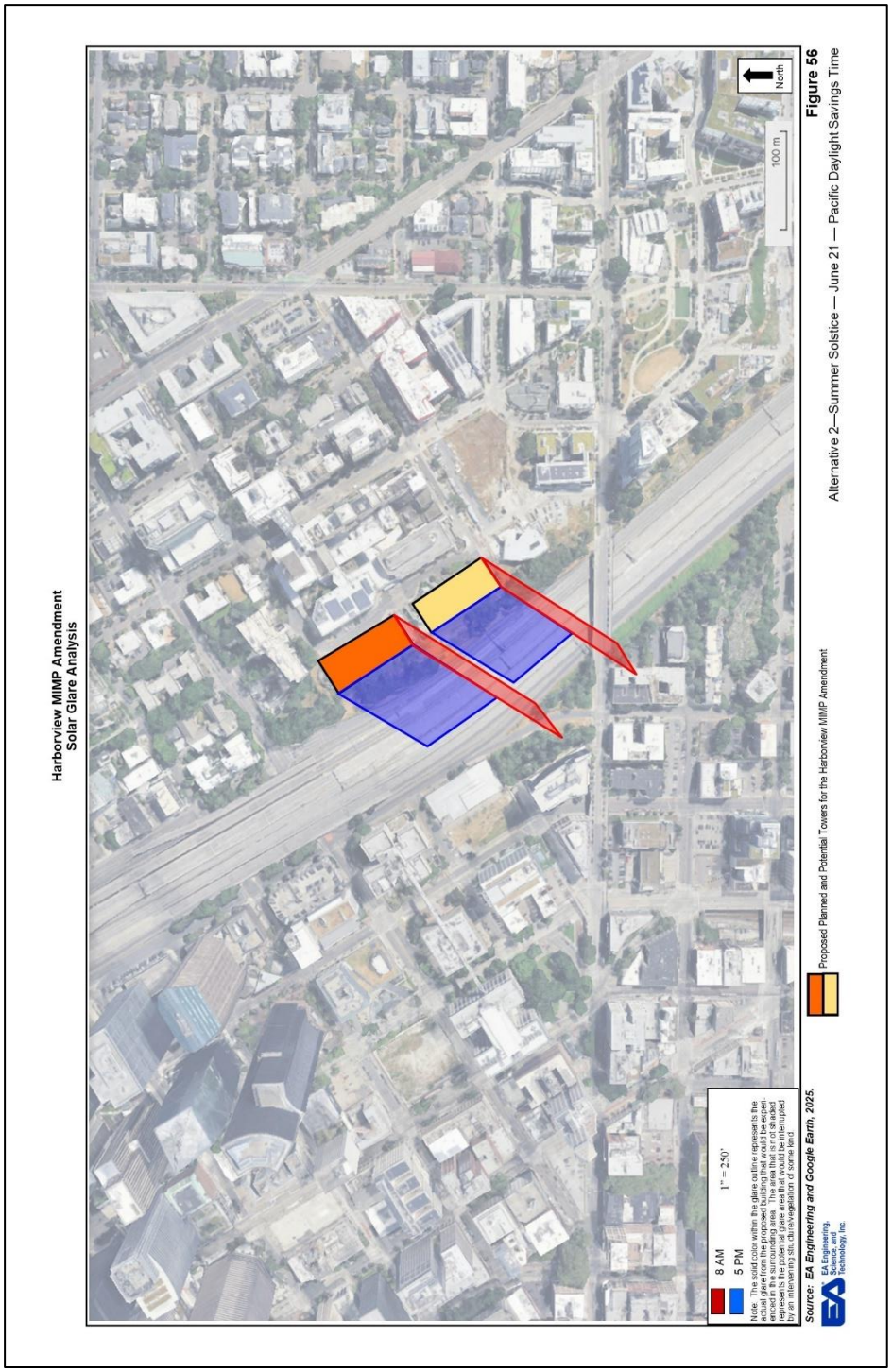


Figure 56: Alternative 2 – Summer Solstice – June 21



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.[53]

- 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 differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. As 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.

- 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 differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. As 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

[53] U.S. Dept. of Commerce, NOAA, 1992.

Figure 57: Alternative 1 – Autumnal Equinox – September 20

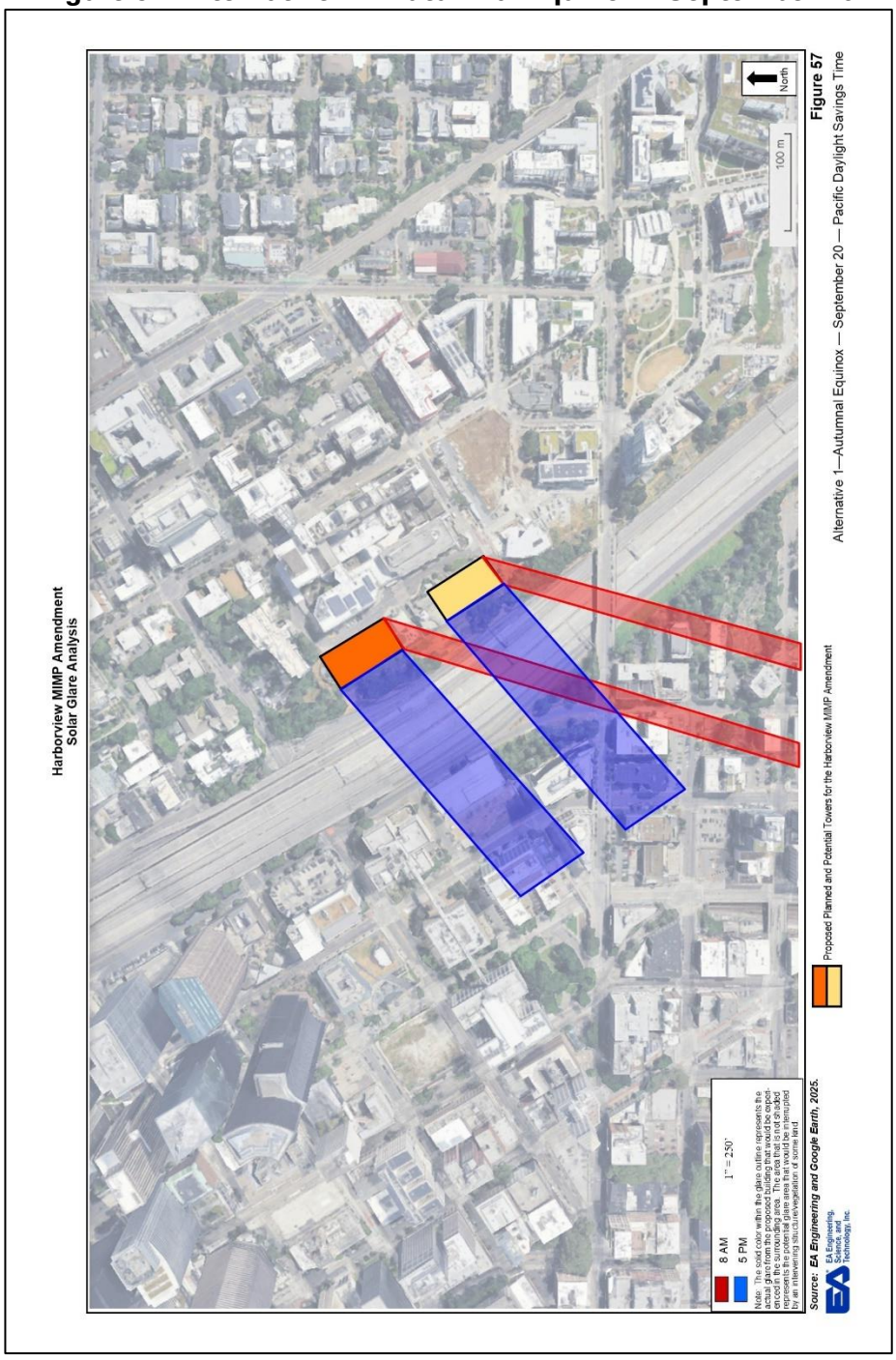
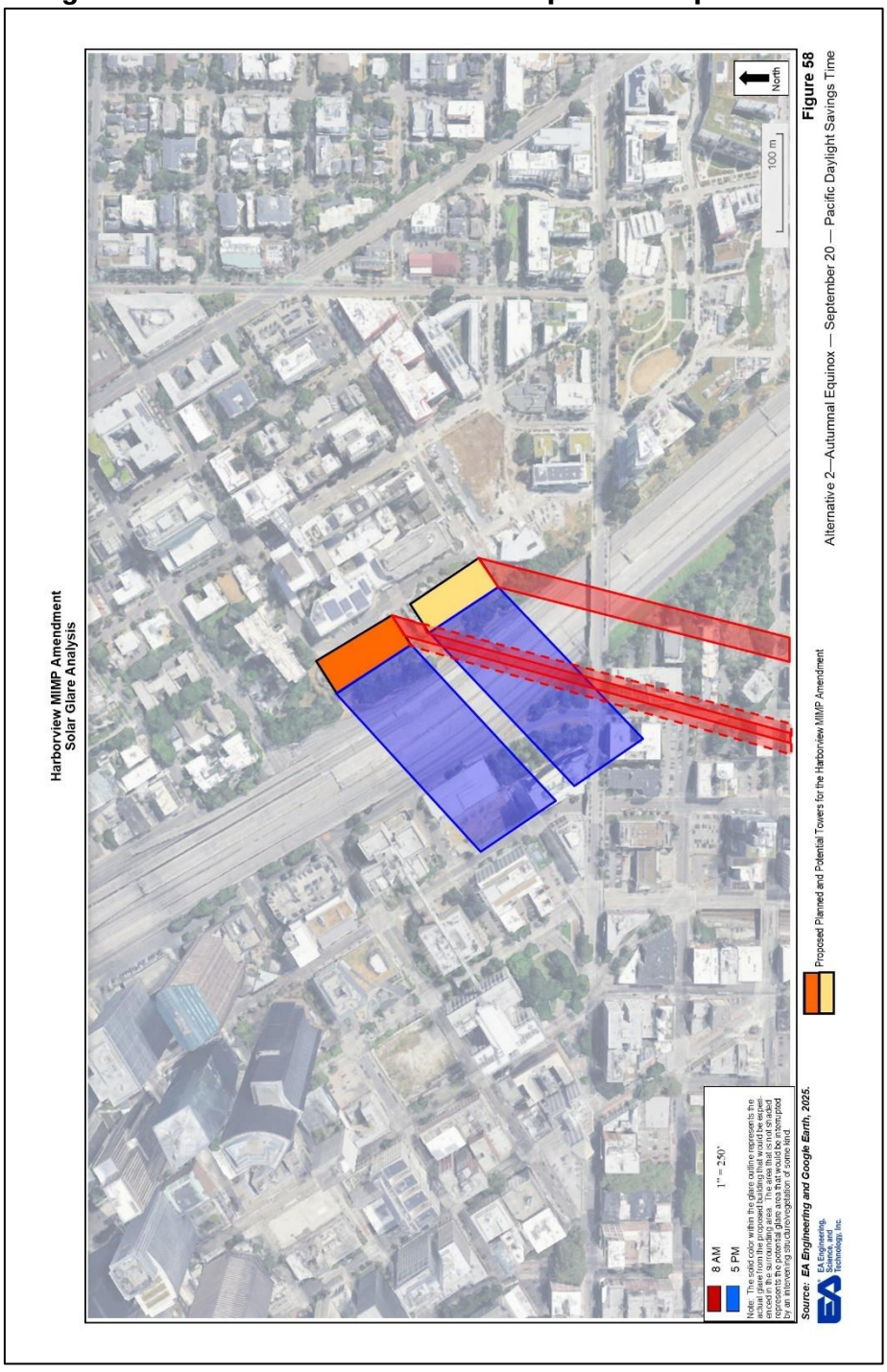


Figure 58: Alternative 2 – Autumnal Equinox – September 20



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.[54] 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 differ substantially from periodic glare from stationary and mobile sources that motorists typically experience. As 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

- 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.

  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 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.

[54] U.S. Dept. of Commerce, NOAA, 1992.

Figure 59: Alternative 1 – Winter Solstice – December 21

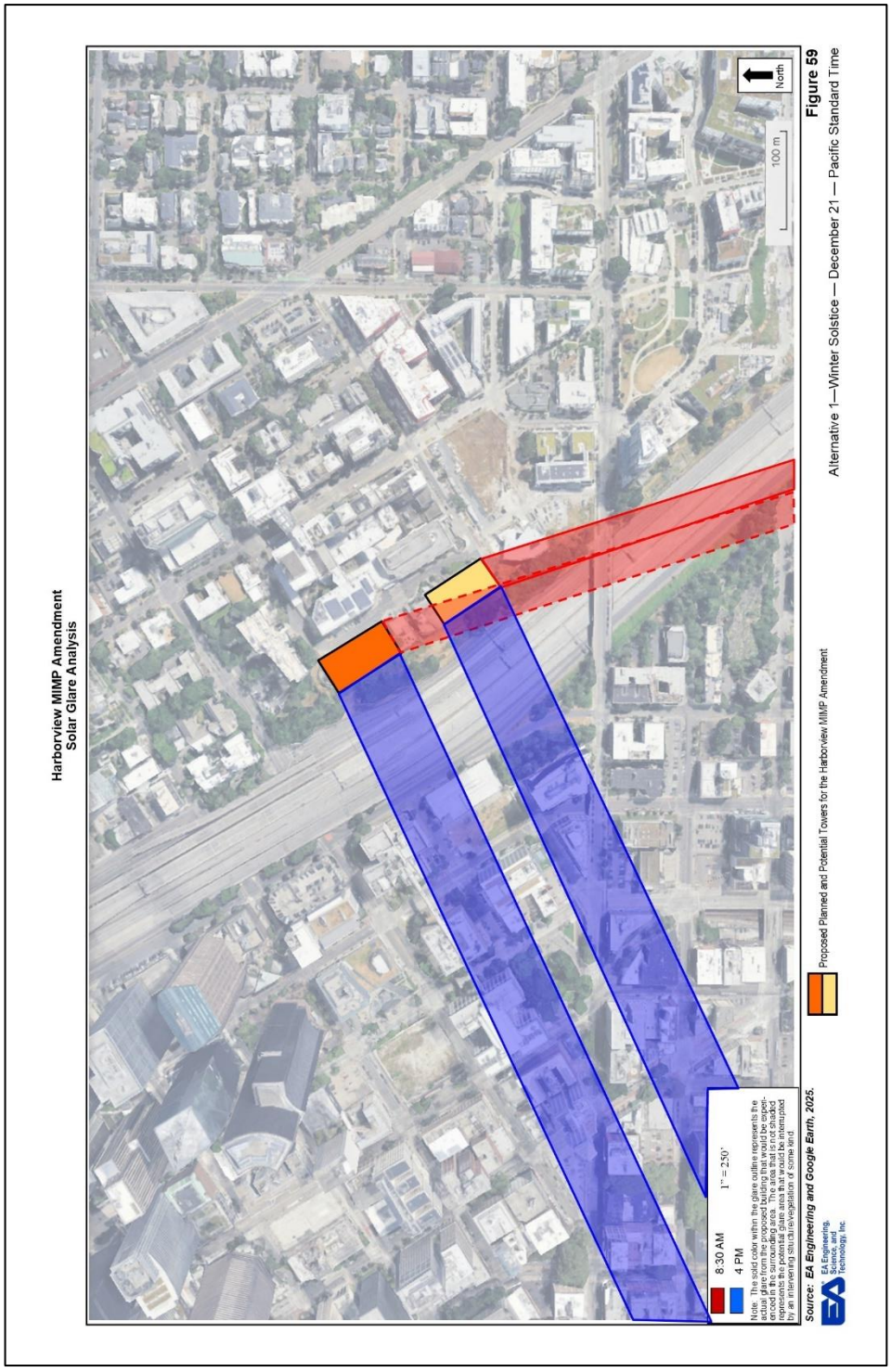


Figure 60: Alternative 2 – Winter Solstice – December 21



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.[55] 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 completed 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.[56]

Federal and State agencies have defined standards and processes for listing historic resources on State and National registers.

[55] 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

[56] City of Seattle Department of Neighborhoods, Historic Preservation Program, City Landmarks https://www.seattle.gov/neighborhoods/historic-preservation/city-landmarks#nominationanddesignationprocess

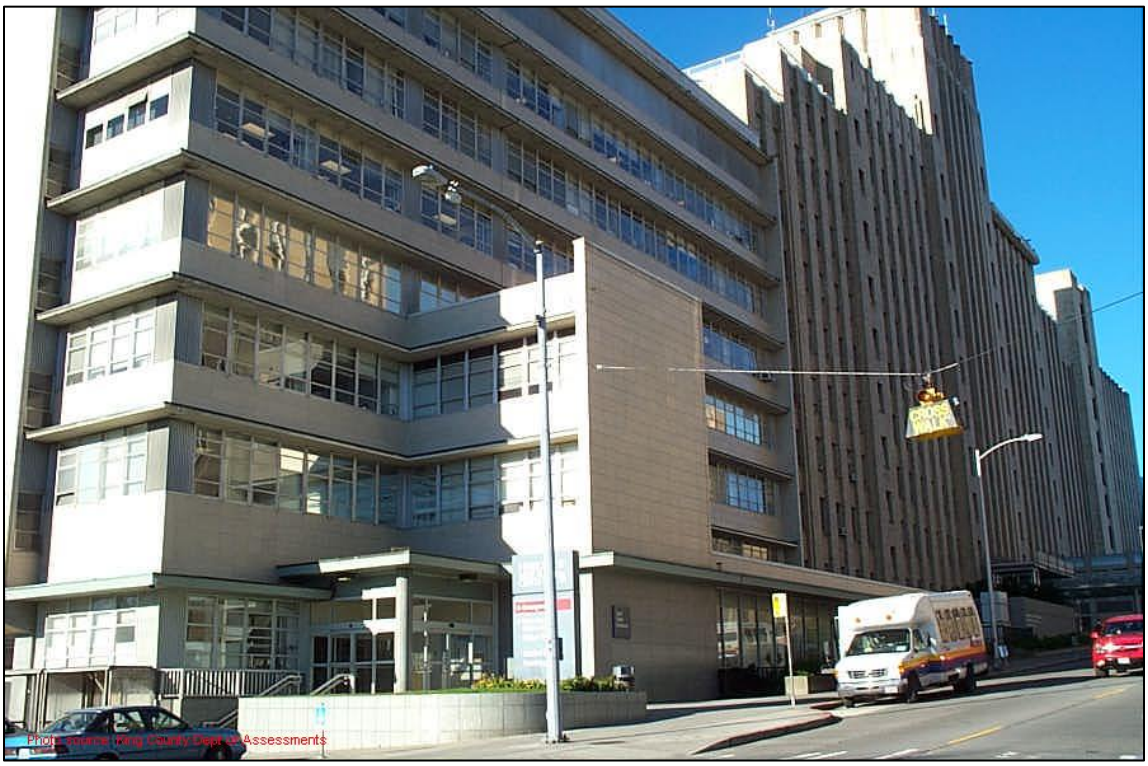
Designated Historic Landmarks

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.

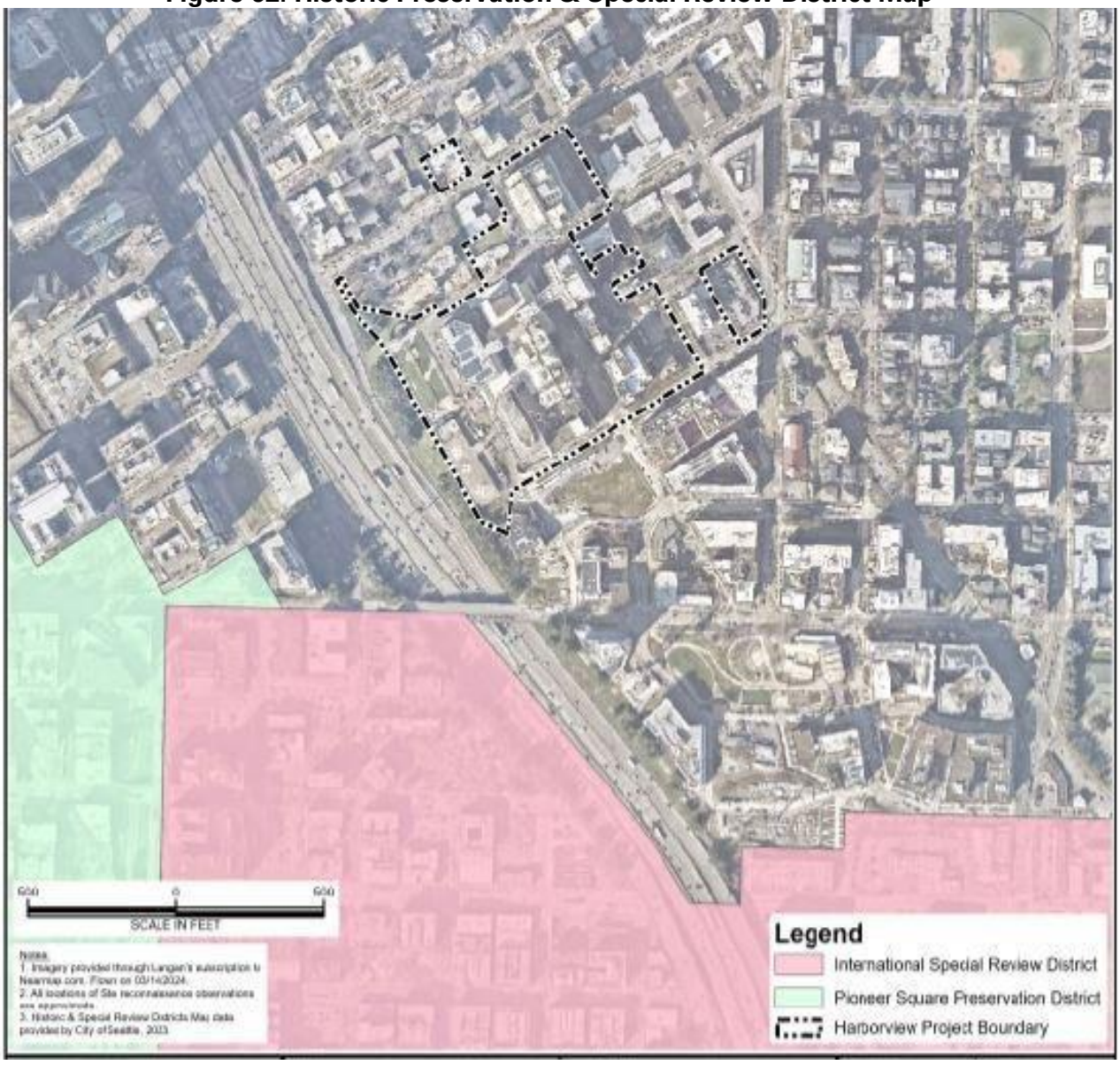
Figure 61: Seattle Landmarks Map



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*."

At the September 16, 2009, City Landmarks Preservation Board meeting, the 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 to their settings. Any construction impacts 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 (Appendix E – City of Seattle Landmarks Documentation).

2024 MIMP Planned Project: The 488,000 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 488,000 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 488,000 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 380,000 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 i 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 to historic and cultural resources would occur 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: At the September 16, 2009, City Landmarks Preservation Board meeting, the 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 to 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, 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 a reduction of 45,727 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 1,348,273 gsf added to MIO. The planned development includes the new patient tower at View Park I (VPI). 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.

- **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 are 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 2,076,959 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. 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 HMC size of 2,076,959 sf. This resulted in trip generation rates of 0.41 trips/1,000 sf and 0.28 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
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

Roadway	Arterial Classification[1]	Posted Speed Limit (mph)	Number of Travel Lanes	Parking?	Side walks ?	Bicycle Facilities ?	Transit Service ?
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 SeaTac Airport. 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.

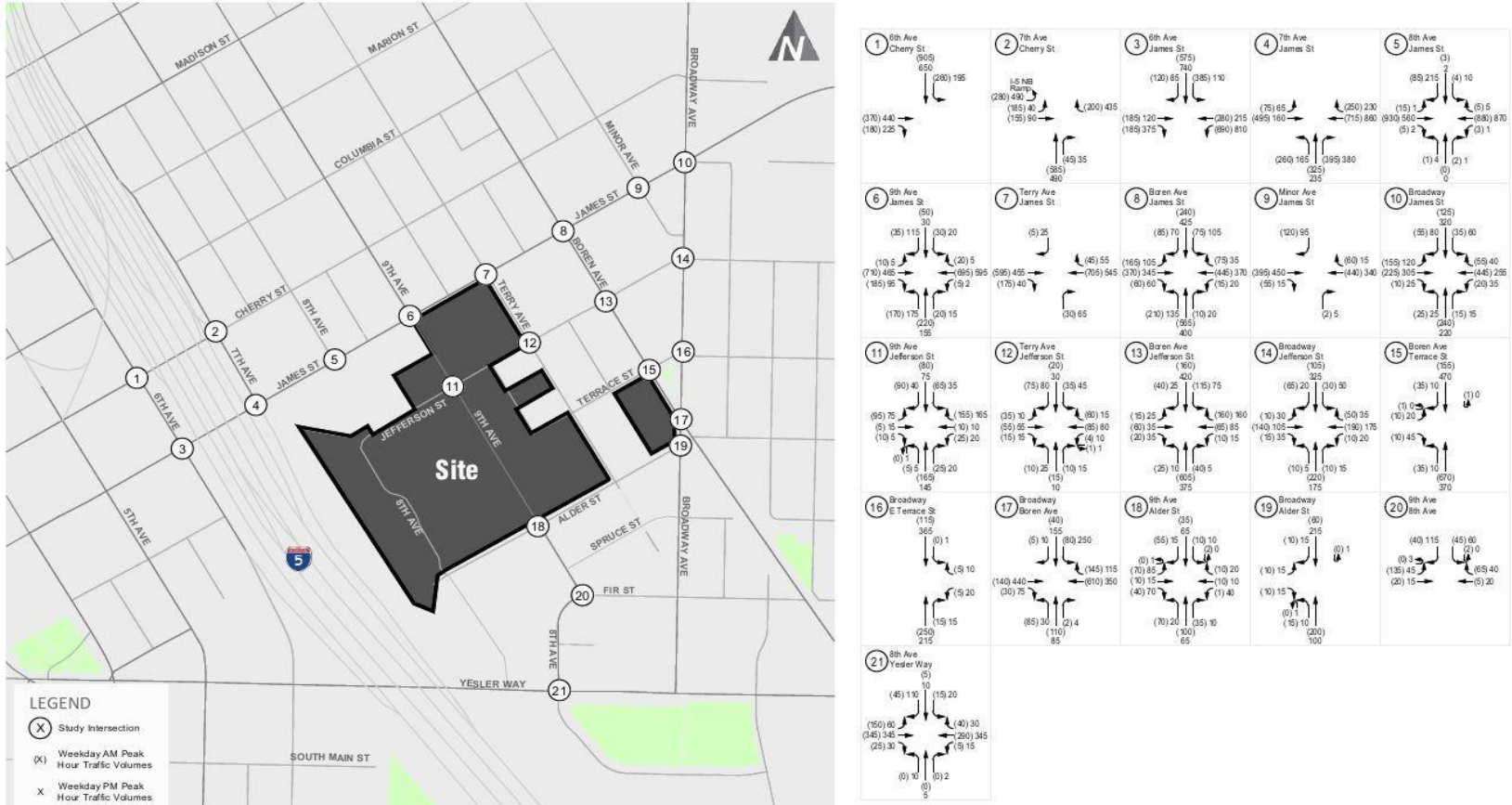
Traffic operations and average vehicle delay for an intersection can be described qualitatively with a range of levels of service (LOS A through LOS F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. The City of Seattle's Comprehensive Plan 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



The study intersections 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 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

		AM Peak Hour Trips				PM Peak Hour Trips		
Land Use	**Size**	**In**	**Out**	**Total**		**In**	**Out**	**Total**
Existing	*2,076,959 sf*	*505*	*348*	*853*		*121*	*462*	*583*
Future (2045)								
No Action	-45,727 sf	-11	-8	-19		-3	-10	-13
Total	**2,031,232 sf**	**494**	**340**	**834**		**118**	**452**	**570**

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 reduction 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.

[57] *Yesler Terrace Planned Action Ordinance 123962, Exhibit B to Ordinance: Planned Action Mitigation Document* (Table 2. Thresholds for mitigation implementation).

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 known at this time.

Transit

Transit service changes in the vicinity of the Harborview Medical Center campus include the expansion of Sound Transit's Link Light Rail Network. Future planned transit improvements include the Sound Transit Link Light Rail Ballard Extension which is anticipated to be operational by 2039. Sound Transit's Link Light Rail Ballard Extension extends the light rail from downtown Seattle to the Ballard neighborhood including a new downtown Seattle rail-only tunnel.

As a part of the new tunnel and extension, nine new stations will be constructed with the nearest being the Midtown Station proposed to be located at approximately 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 proposed Ballard Link Extension. 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.

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 25 percent or less.

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 limited reduction in overall size of the campus and the non-motorized trips are correspondingly anticipated to remain consistent with existing conditions or have a slight reduction relative to existing conditions.

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 reduction 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.

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.

[58] Optimization included adjusting the splits and offsets. Existing cycle lengths for coordinated signals were maintained.

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.

Figure 65: Trip Distribution

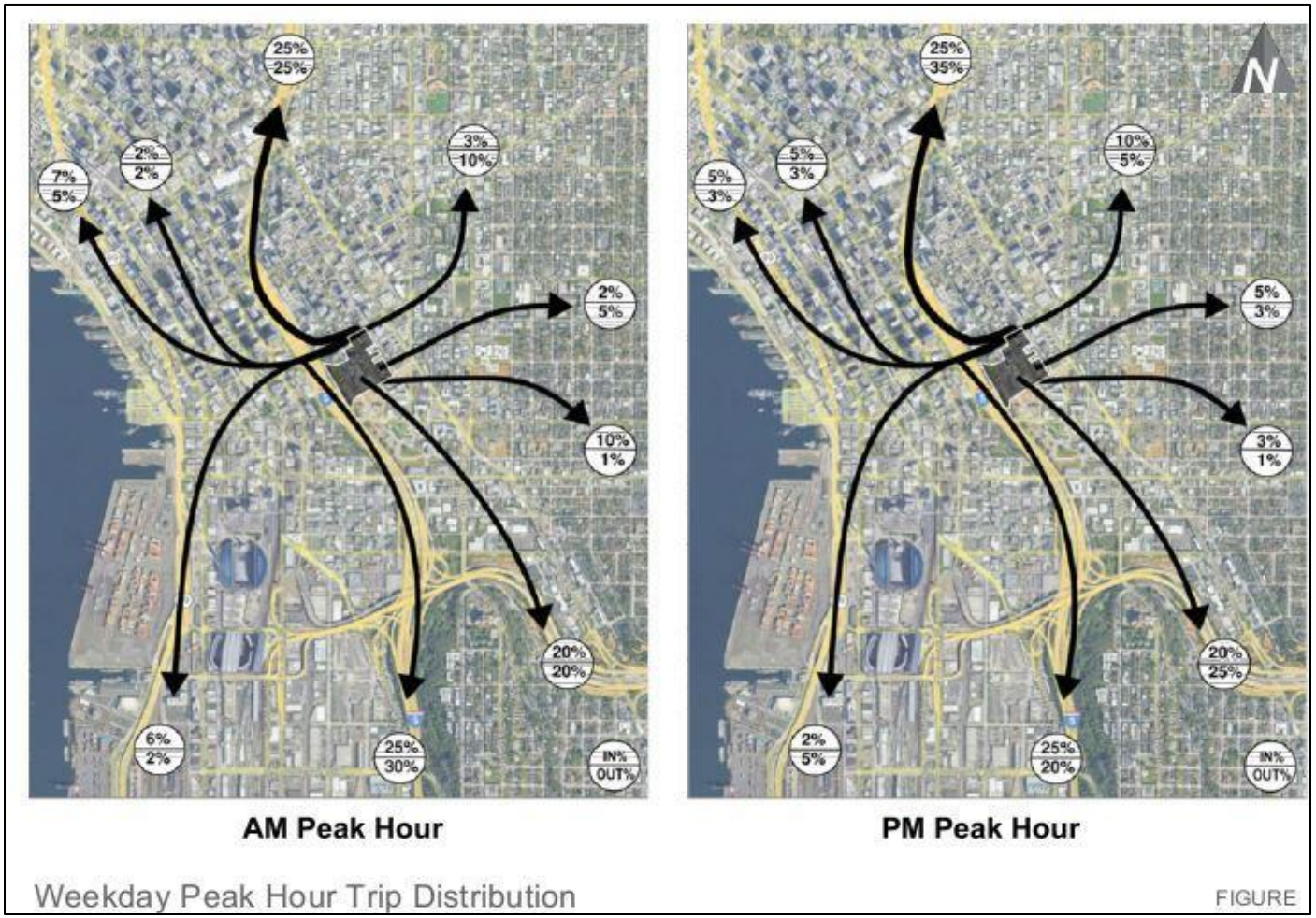


Figure 66: No Action (2035) Weekday Peak Hour Traffic Volumes

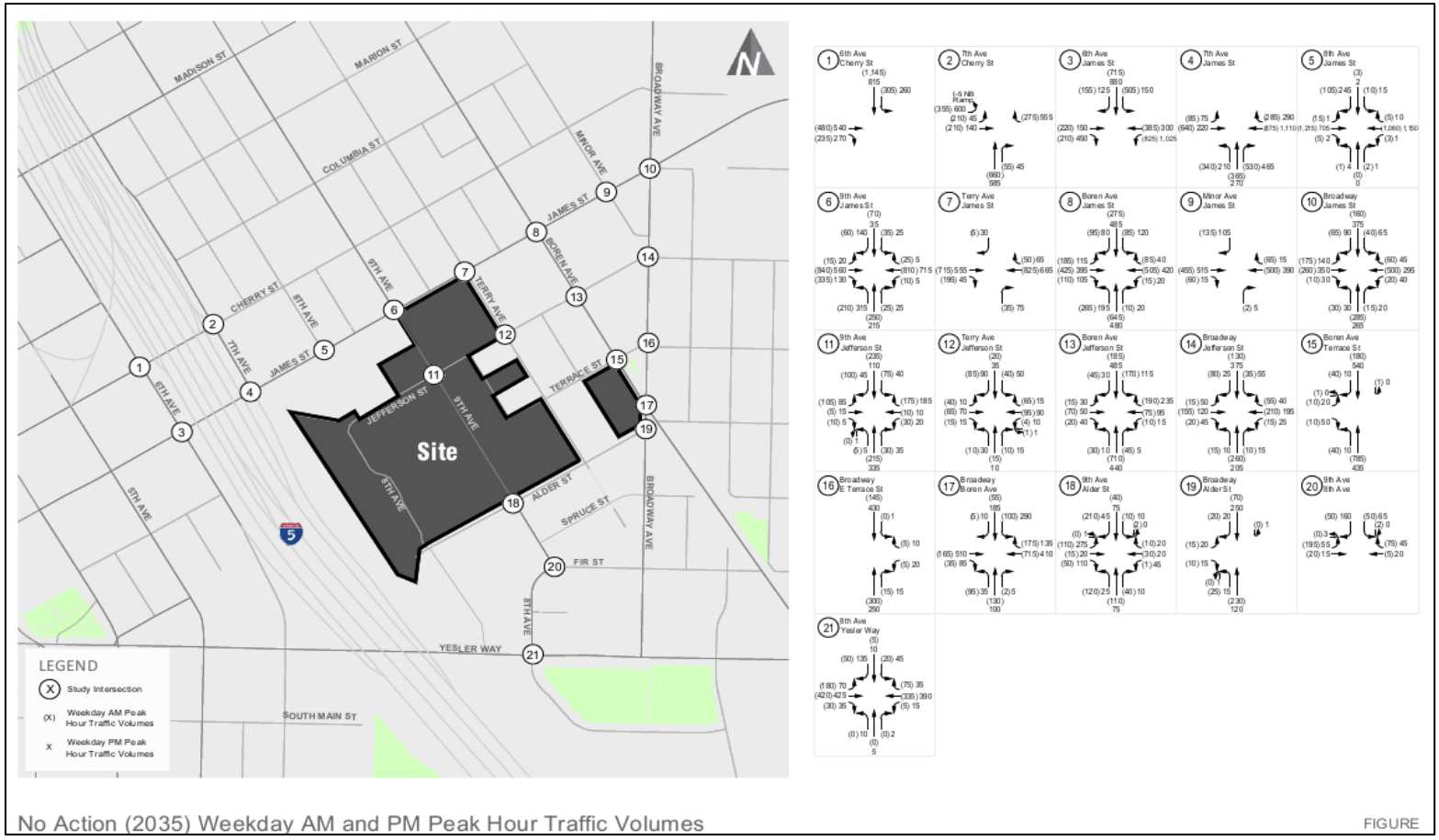
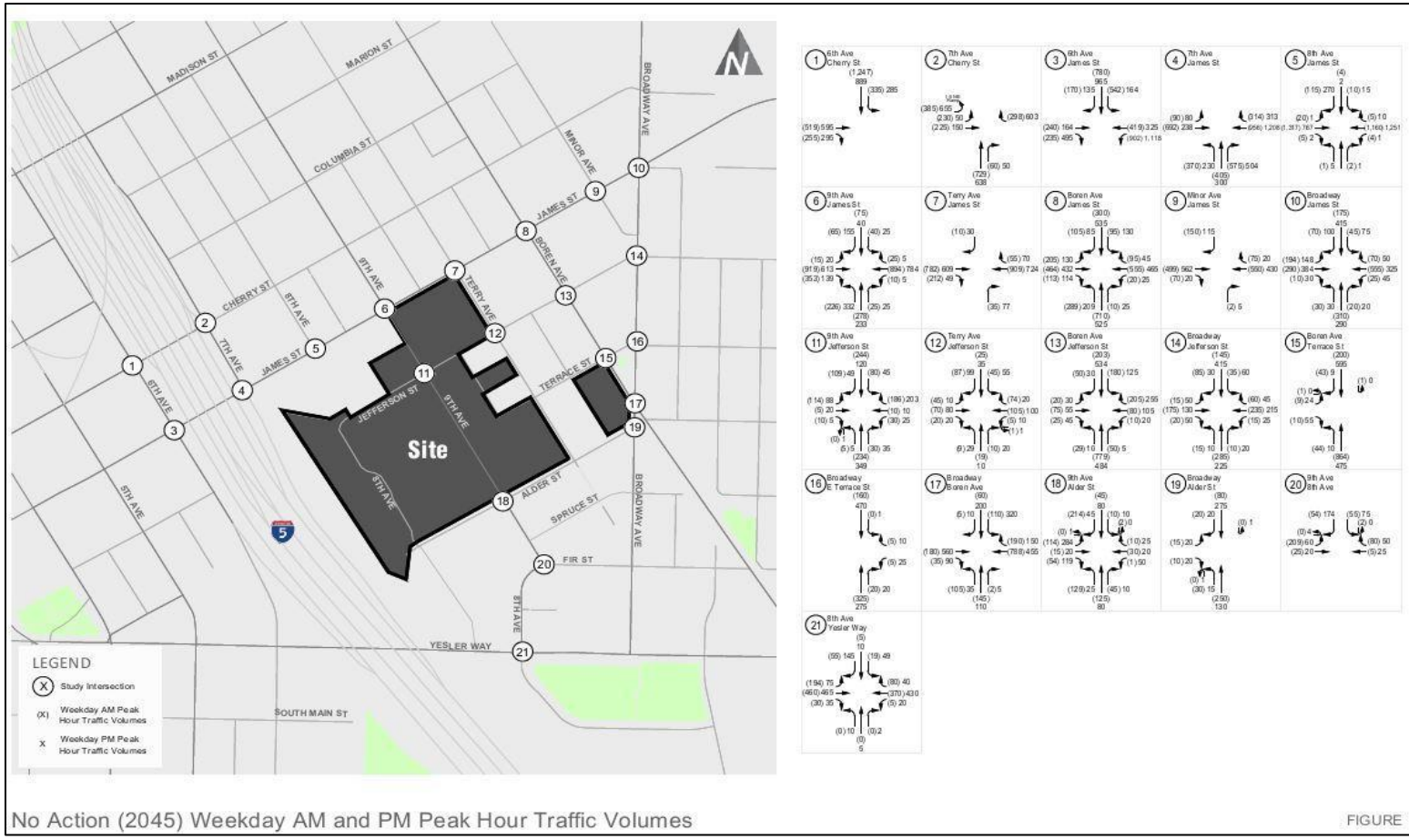


Figure 67: No Action (2045) Weekday Peak Hour Traffic Volumes



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.

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 1,348,273 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 0.41 trips/1,000 sf and 0.28 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

		AM Peak Hour Trips				PM Peak Hour Trips		
Condition	**Size**	**In**	**Out**	**Total**		**In**	**Out**	**Total**
Existing	*2,076,959 gsf*	*505*	*348*	*853*		*121*	*462*	*583*
Future (2035)								
Alternative 1	+ 488,000 gsf[1]	118	82	200		28	109	137
Total	**2,564,959 gsf**	**623**	**430**	**1,053**		**149**	**571**	**720**
Future (2045)								
Alternative 1	+ 1,348,273 gsf[1]	328	226	554		79	300	379
Total	**3,425,232 gsf**	**833**	**574**	**1,407**		**200**	**762**	**962**

Note: gsf = gross square feet

1. Added size relative to existing.

Under future (2035) conditions the Action alternative results in an increase of 200 vehicle trips during the weekday AM peak hour and 137 vehicle trips during the weekday PM peak hours. Under future (2045) action conditions the planned and potential projects result in an increase of 554 vehicle trips during the weekday AM peak hours and 379 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 Hr											
Vehicle Trips	505	348	853		328	226	554		833	574	1,407
Person Trips[1]											
Walk and Bike Trips	87	59	146		56	38	95		143	97	241
Transit Trips	366	254	620		238	166	404		604	420	1,024
Other	81	55	136		53	36	88		134	91	224
Person Trips by Vehicle[2]	662	456	1,119		429	296	726		1,091	752	1,845
Total Person Trips	*1,196*	*824*	*2,020*		*776*	*536*	*1,312*		*1,972*	*1,360*	*3,332*
Weekday PM Peak Hr											
Vehicle Trips	121	462	583		79	300	379		200	762	962
Person Trips1											
Walk and Bike Trips	21	79	100		14	51	65		35	130	165
Transit Trips	88	335	423		58	218	276		146	553	699
Other	19	74	93		13	48	60		32	122	153
Person Trips by Vehicle2	159	606	765		104	391	495		263	997	1,260
Total Person Trips	*287*	*1,094*	*1,381*		*189*	*708*	*897*		*476*	*1,802*	*2,278*

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, 1,026 and 702 transit trips are estimated in the AM and PM peak hours, respectively and 241 and 165 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 74 percent to 86 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 less than 1 minute or a percent increase of less than 20 percent.

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 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 the existing west hospital. Note that the connection along private roadway known as 8th Avenue from Alder Street to the existing turnaround mid-block is anticipated to be maintained.
- Option 1B: The private roadway known as 8th Avenue connection between Alder Street and Jefferson Street to remain open.

Both options assume a loop road is constructed along the west side of 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. The loop road will connect to the existing roadway network at the intersection of Alder Street and the private roadway known as 8th Avenue. Additional potential connections of the loop road reviewed in the analysis include Jefferson Street at the private roadway known as 8th Avenue and a connection extending to the south to Yesler Way. The options reviewed include the following:

- Option 1A – The private roadway known as 8th Avenue Closure. Loop Road Connection 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. Loop Road Connection 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 on **Figure 68** through **Figure 71** for the 2035 and 2045 conditions.

This primary analysis assumes the planned new tower includes parking accessed via the proposed loop road and the trips are assigned accordingly. A sensitivity analysis is conducted that considers the possibility of parking not being located within the planned new tower. The results of this analysis are presented in a subsequent section.

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 at LOS D or better 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 D 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 with the exception of the options with the partial loop road and the closure of 8th Avenue (Options 1A.3-4) which are forecast to operate at LOS E. 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.

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 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 have not indicated this threshold was met such that the signal was not assumed in the analysis.

Figure 68: Alternative 1 – (2035) Weekday Peak Hour Traffic Volumes



Figure 69: Alternative 1 – (2035) Weekday Peak Hour Traffic Volumes (Road Connection Options)

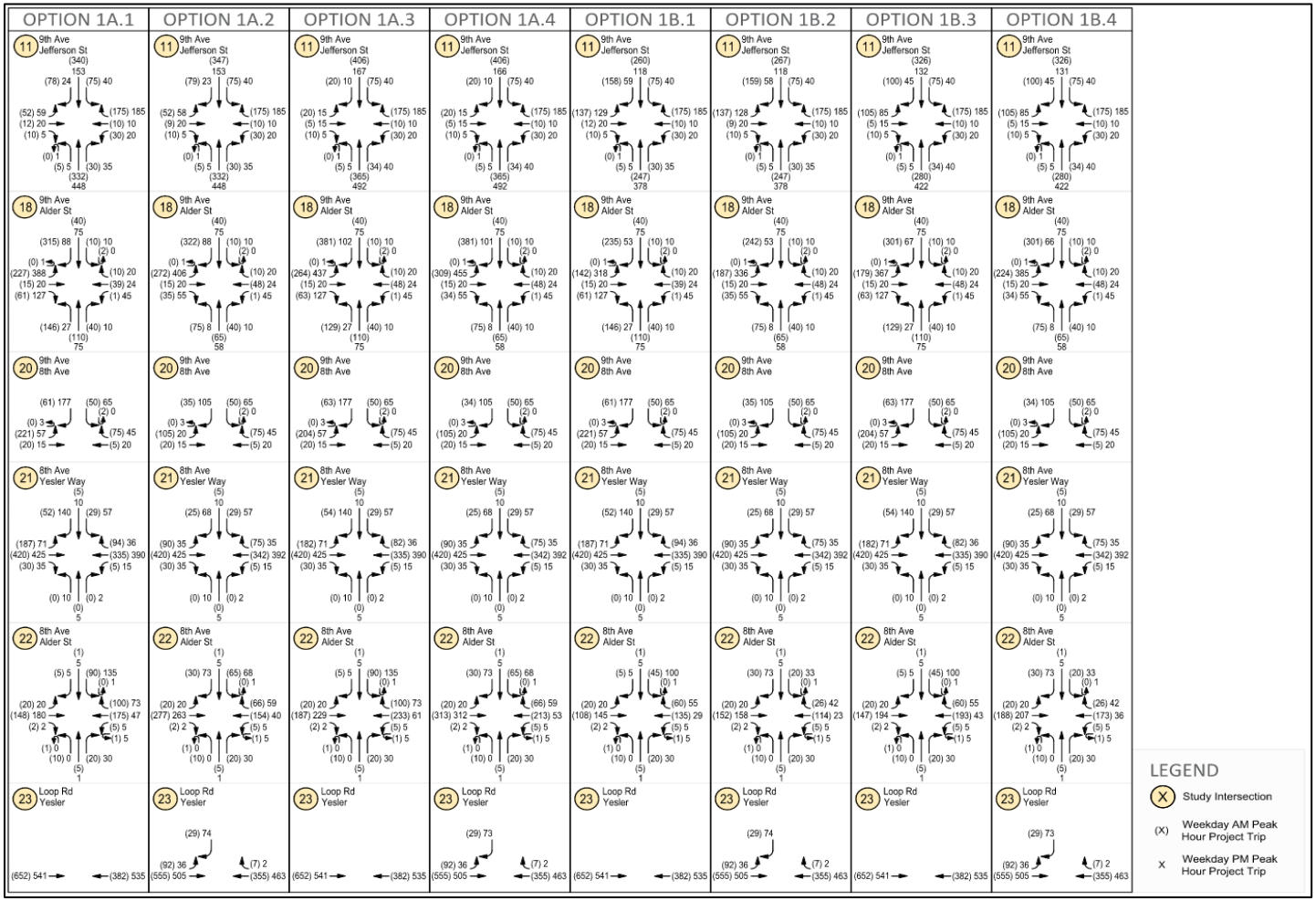
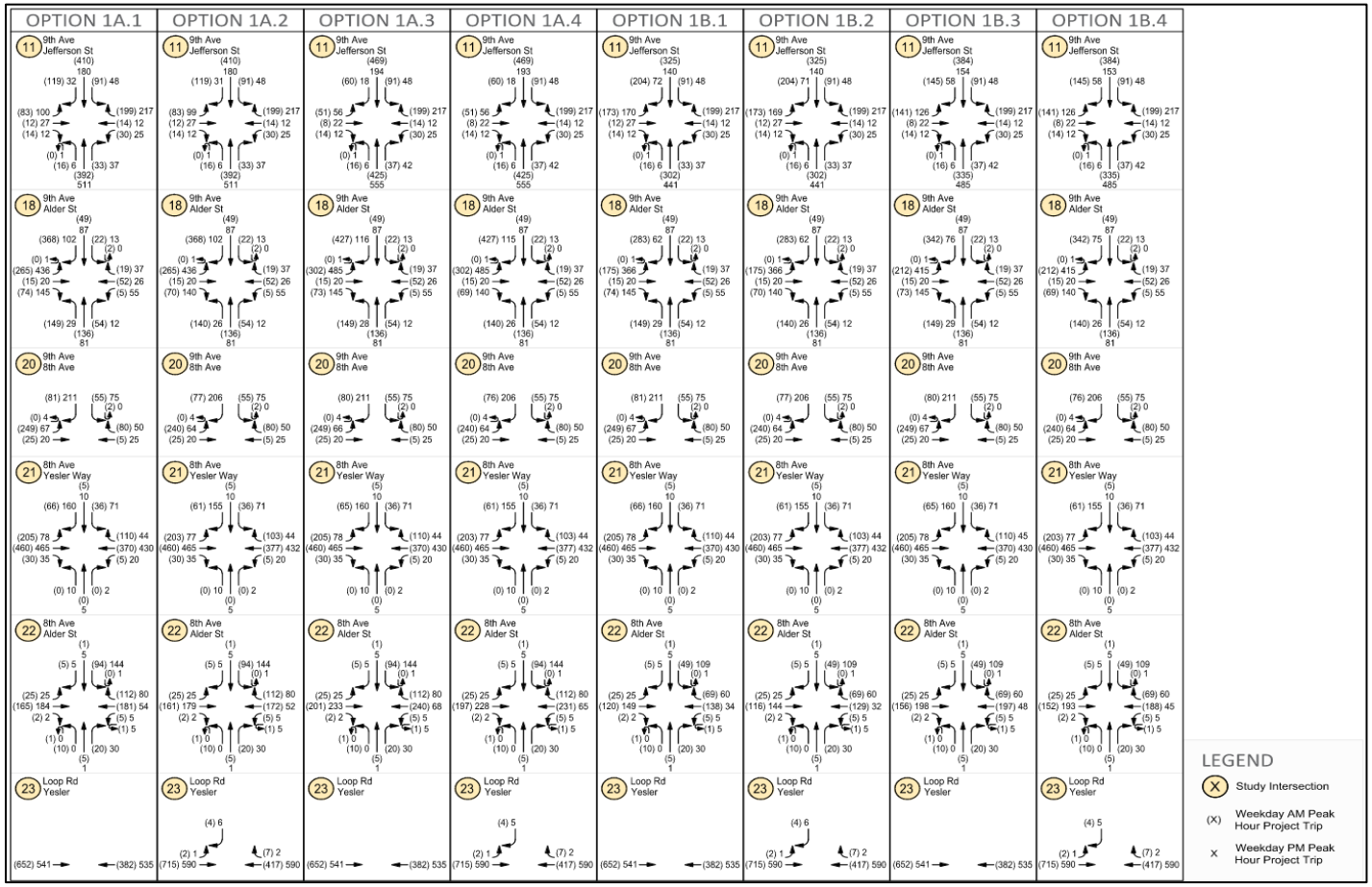


Figure 70: Alternative 1 – (2045) Weekday Peak Hour Traffic Volumes



Figure 71: Alternative 1 – (2045) Weekday Peak Hour Traffic Volumes (Road Connection Options)



Sensitivity Review – Alternative Trip Assignment

As noted above, the analysis above of Alternative 1 assumes the planned new tower includes parking accessed via the proposed loop road 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 to operate below standard 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.

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 loop drive 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. Construction haul routes and activities would be coordinated with City staff through a Construction Management Plan (CMP).

To support construction traffic, a connection between Jefferson Street and James Street is anticipated to be made on the western side of campus extending north of the planned loop road connection. This would be used for construction purposes only and would be removed once construction is completed.

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

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 with the exception of the options with the partial loop road and the closure of the private roadway known as 8th Avenue (Options 1A.3-4) which are forecast to operate at LOS E. 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 for the Alternative Options identified to operate below standard. The traffic signal warrant for the options reviewed were 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 forecast 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 as a result of the change in traffic control from all-way stop controlled to a traffic signal result in reductions of a half minute of travel times to increases of up to 1 minute on the routes through the 9th Avenue/Jefferson Street intersection. This equates to changes of 14 percent less to 15 percent higher with the signal compared to the current all-way stop-controlled condition.

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
- 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
- Haul Routes

UNAVOIDABLE ADVERSE IMPACTS

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

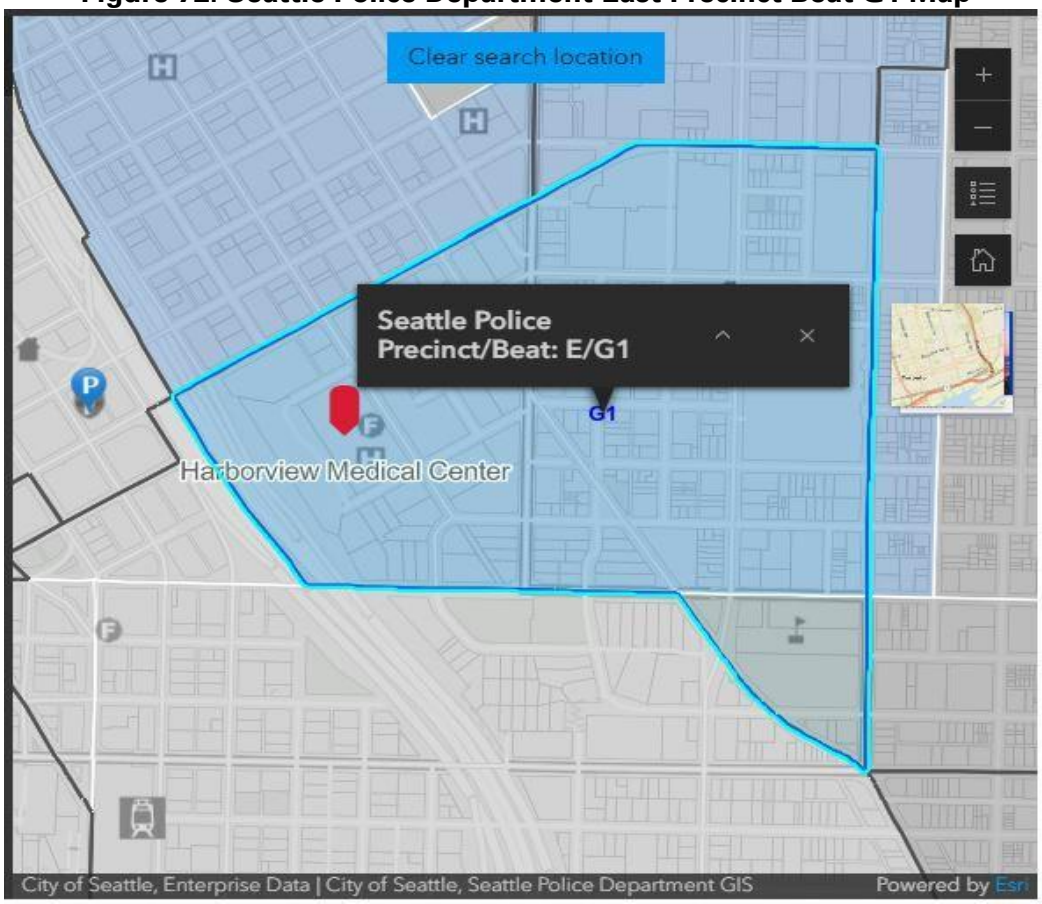
3.11. PUBLIC SERVICES AND UTILITIES

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 72** shows Beat G1, a 0.23-square-mile area within the larger 91.57[59] square mile city.

Figure 72: 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

[59] 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.[60]

As of March 31, 2025, the East Precinct has 11 sergeants and 71 officers available for 911 emergency response.[61] 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[62]

[60] 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

[61] 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.

[62] 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[63]:

- 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.

[63] 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[64]. 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

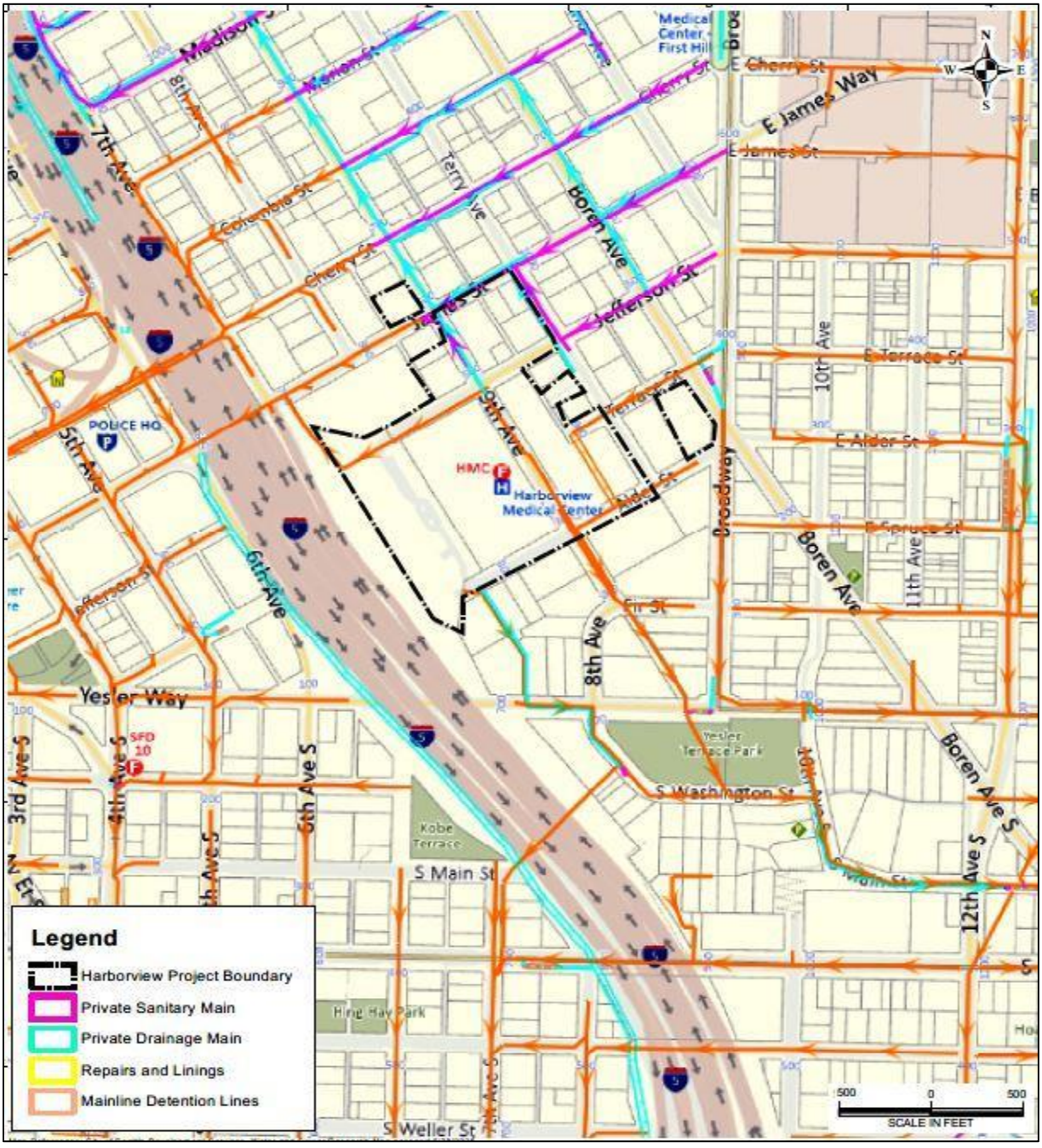
Existing public utility systems within the Harborview MIO include storm drains, sanitary sewer, water distribution lines, and other utilities.

- 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.[65]

- Figure 73 shows the existing storm and sewer system serving the campus.

[64] https://www.seattle.gov/fire/about-us/about-the-department/operations/medic-one
[65] King County Harborview Medical Center Facilities Master Plan, Seattle, WA, February 9, 2023, page 33.

Figure 73: Existing Stormwater and Sanitary Sewer Map



Source: City of Seattle Development Services Office, Water and Sewer Research Map.

Sewer lines are also found within Terrace and Alder streets[4]. The mains direct site flows for treatment at the West Point Treatment Plant in Discovery Park, over 6 miles northwest of the 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.[66] 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.

- 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.

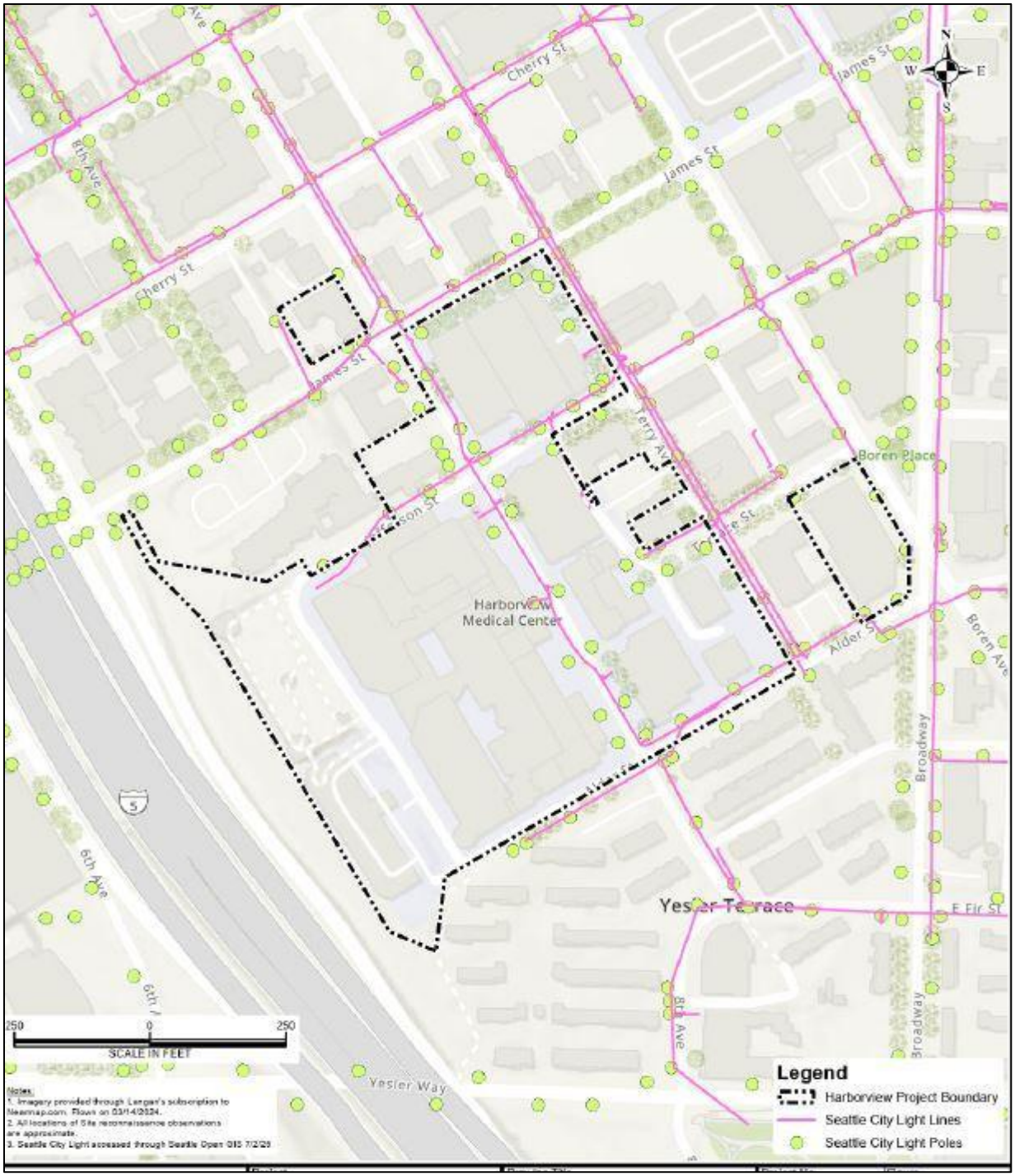
[66] King County Wastewater Collection and Treatment System https://kingcounty.gov/en/dept/dnrp/waste-services/wastewater-treatment/about/system-and-service-area

[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: Water Service Map



Figure 75: 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 2021 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 2021 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 differences 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.

[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.

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:[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

[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.

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.

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 a 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 for 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 on disturbed soils.
- Protect exposed soils 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 averaged 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

<u>Proposed Action</u>

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 regulation, 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 impacts 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 on 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 occur when existing lots and street spots are closed due to construction, until completion of projects. Temporary demand increases occur 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.

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

REFERENCES

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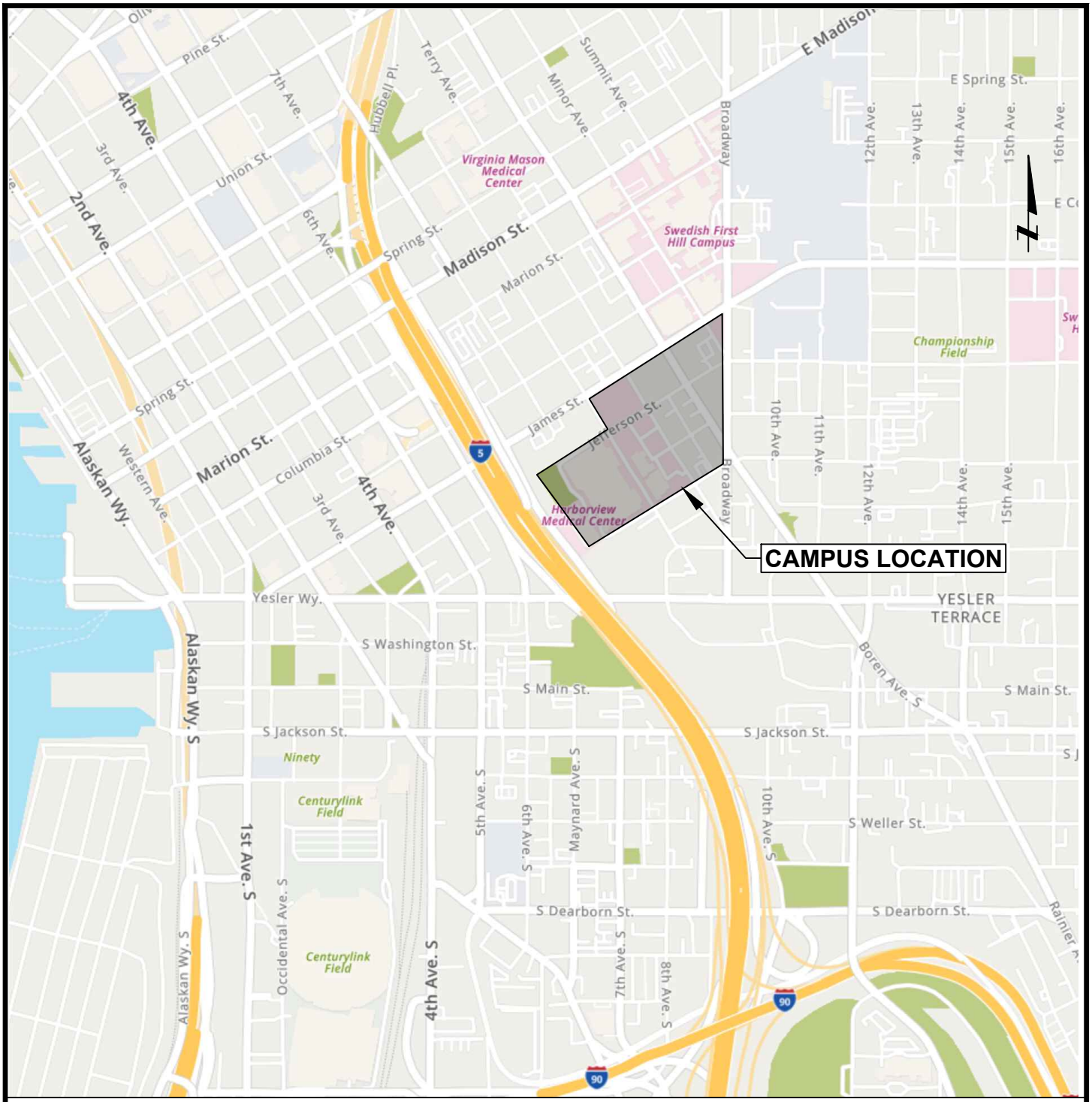
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FIGURES



Note:
Map by Mapquest 2022.

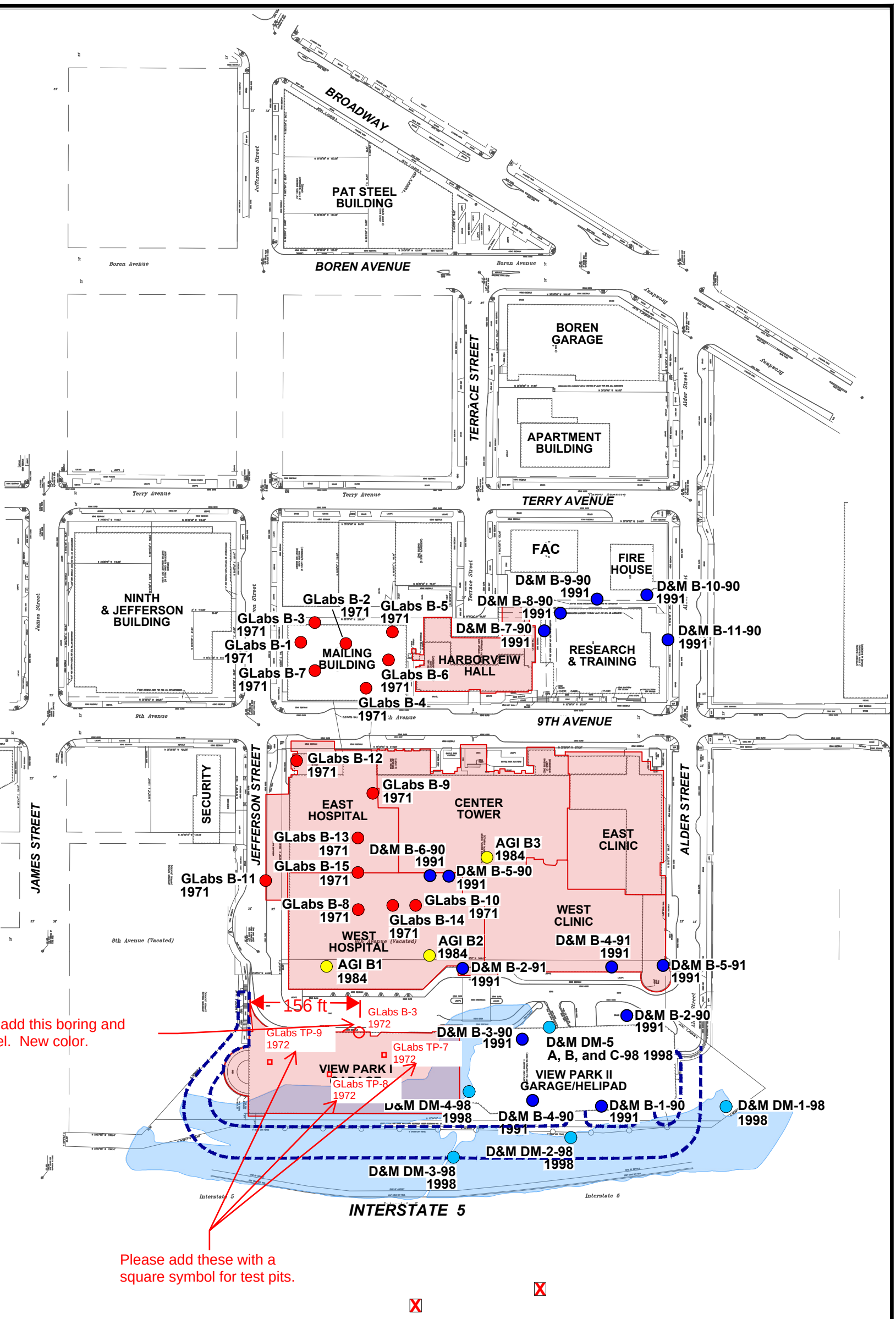
0 1,000 Feet

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

© 2023 Langan

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
- 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

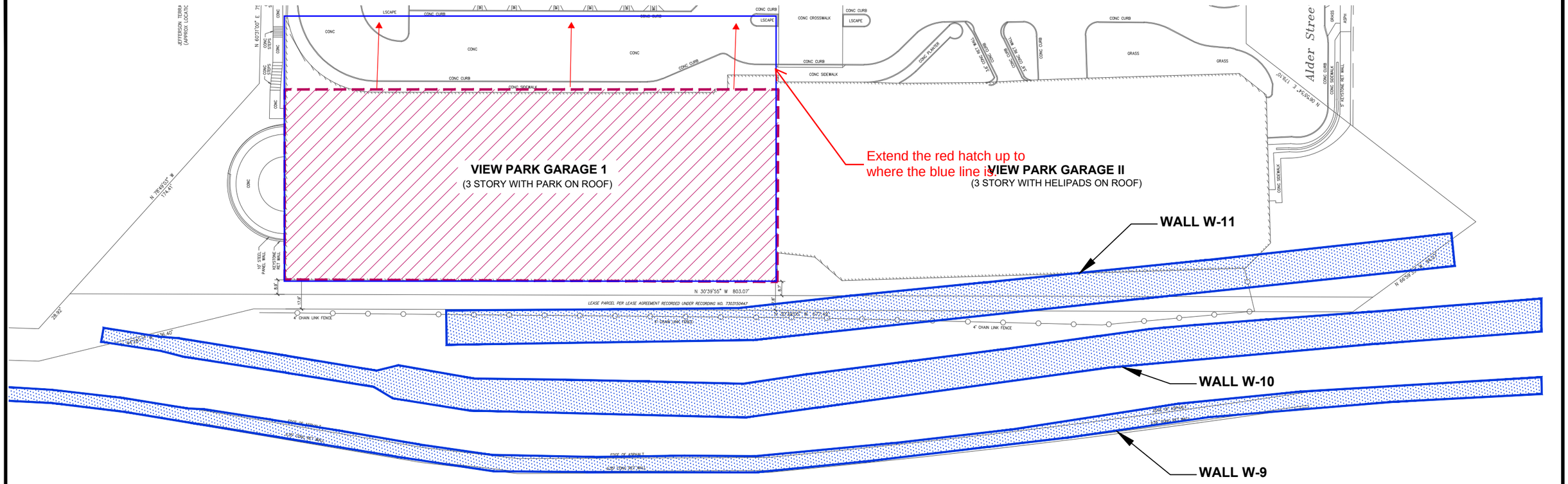
Approximate scale

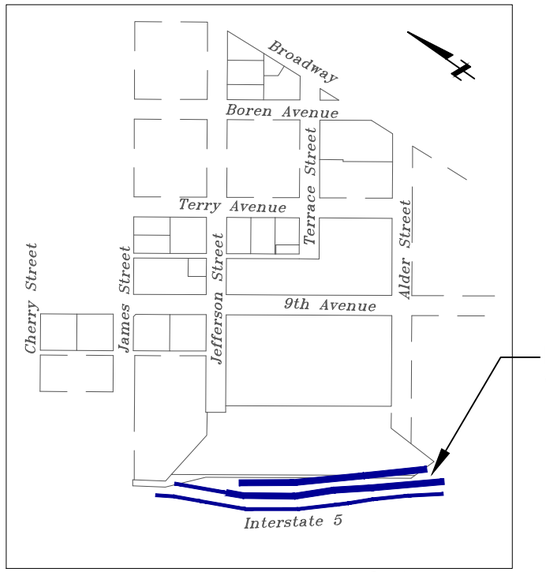
LANGAN
Langan Engineering and Environmental Services, Inc.
1420 Fifth Avenue
Seattle, WA 98101
T: 206.504.3489 www.langan.com

Project	HARBORVIEW MEDICAL CENTER CAMPUS EXPANSION SEATTLE KING COUNTY WASHINGTON
Figure Title	SITE PLAN
Project No.	791006401
Date	01/05/2023
Drawn By	AG
Checked By	EE
Figure	2

© 2023 Langan

Filename: \\langan.com\data\SEA\data4\791006401\Project Data\CAD 01\791006401-B-SP0101.dwg Date: 1/6/2023 Time: 11:25 User: agekas Style Table: Langan.stb Layout: NEW_ Figure 2 Site Plan Portrait





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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Project: HARBORVIEW MEDICAL CENTER CAMPUS EXPANSION
SEATTLE
KING COUNTY WASHINGTON

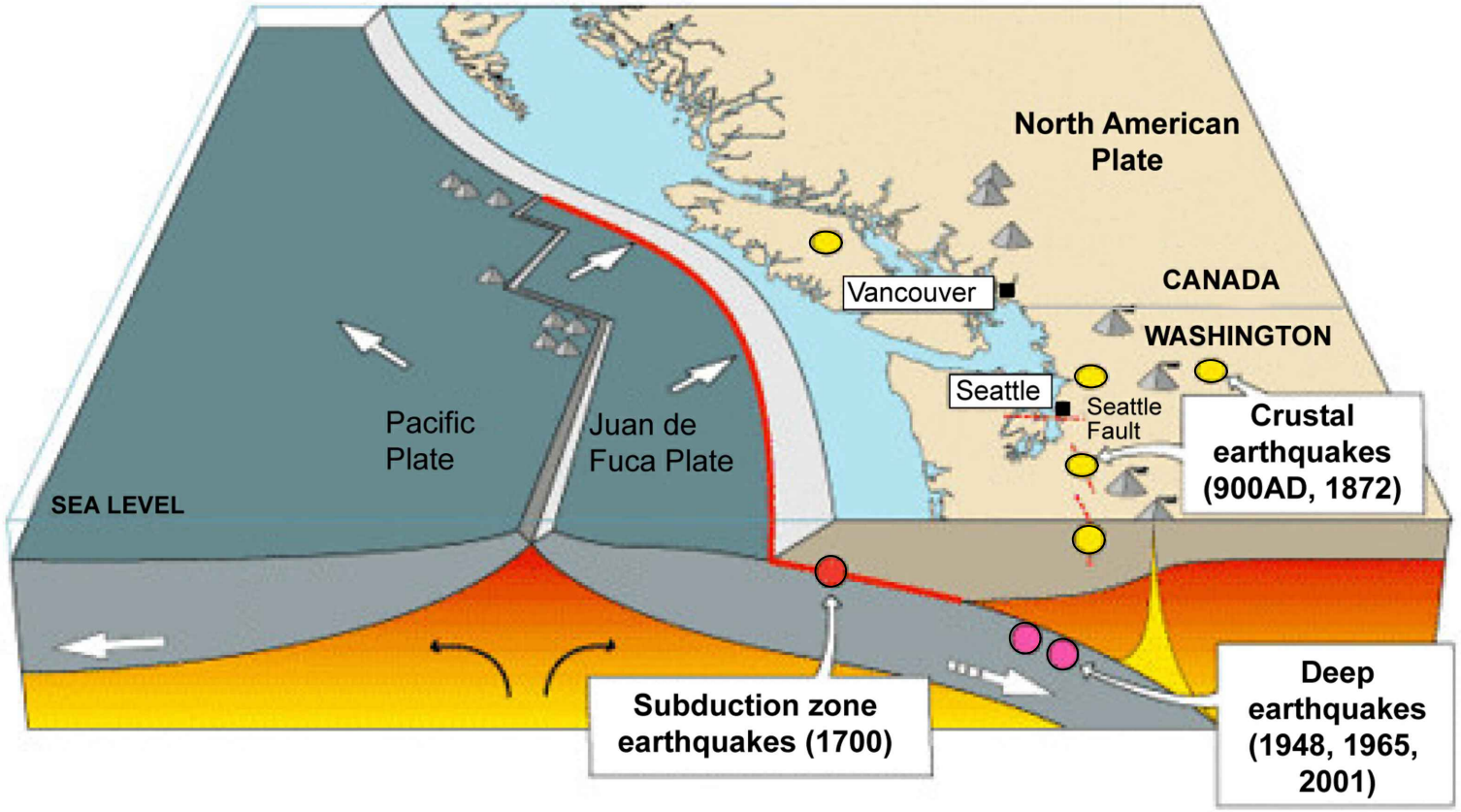
Figure Title: RETAINING WALL LOCATIONS

Project No. 791006401
Date 01/05/2023
Drawn By AG
Checked By EE

Figure No. 3

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Filename: \\langan.com\data\SEA\data4\791006401\Project Data\CAD 01\791006401-B-SP0101.dwg Date: 1/6/2023 Time: 11:38 User: agekas Style Table: Langan.stb Layout: FIGURE 3



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
HARBORVIEW MEDICAL CENTER CAMPUS EXPANSION
SEATTLE
KING COUNTY WASHINGTON

Drawing Title
CASCADIA SUBDUCTION ZONE EARTHQUAKE FAULT SOURCES

Project No.	791006401
Date	01/05/2023
Drawn By	AG
Checked By	EE

Figure 4

© 2023 Langan

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-5-3(202)164	108	269

145.39' CYLINDER PILE WALL (See Sheet No. 106)

1 Cast In Place Panel @ 36'-10½" | 1 Cast In Place Panel @ 36'-3⅜" | 1 Cast In Place Panel @ 36'-2" | 1 Cast In Place Panel @ 36'-0"

Begin Retaining Wall W-9 Sta. 2181+32.23 N.B.C.O. Sta. 2181+32.23 El. 215.81

℄ Junction Box Sta. 2181+39.70 (See Details, Sheet 128)

Sta. 2181+45.07 ℄ Anchor Block El. 213.90 (See Detail Sheet 61)

Sta. 2181+69.07 El. 219.42

℄ 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 Reinforcing @ 4'-0" Crs. 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.) | 3'-0" | 1'-0"

Existing Ground Line | Top of Parapet | +9.80% | CAP BEAM | El. 212.00 | Face Wall Footing | 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)

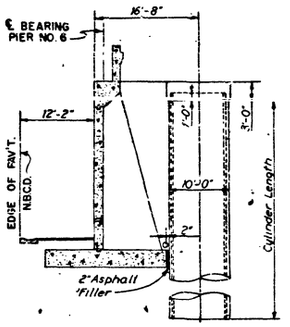
REAR ELEVATION PIER NO. 6
YESLER WAY UNDERCROSSING
Scale: 1"= 10'-0"

End 6"P.D.P. | Begin 6"P.D.P.

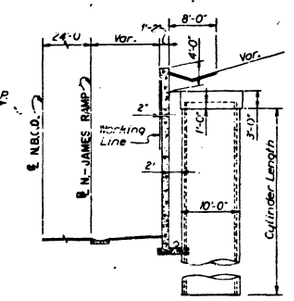
W-9 Sta. 2181+45.07
8"M.D.P. Connect Underdrain to Catch Basin

REAR ELEVATION WALL W-9
STA. 2181+32.23 TO STA. 2182+77.56
Scale: 1"=10'-0"

Continue 6"P.D.P.



SECTION A-A



SECTION B-B

PC Sta. 2181+32.23
N. 223,136.534
E. 1,632,511.700

PC Sta. 2181+32.23
N. 223,141.754
E. 1,632,517.981

℄ 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+23.56
N: 223,209.562
E: 1,632,456.924

N 39° 43' 40" W | N 34° 01' 02" W | Working Line

0'-10" (Typ.) | 3'-0" (Typ.) | 3'-2" (Typ.)

5'-2" Typ. | 6'-0" | 6'-0" | 3'-3¾" | 1'-9¾"

For Typical Detail (See Sheet 107)

9 Spaces @ 12'-0" = 108'-0"

2 Spa. @ 12'-3"

TYPE 'A' BEAM
10'-0" ø CYLINDERS X 88'-0"

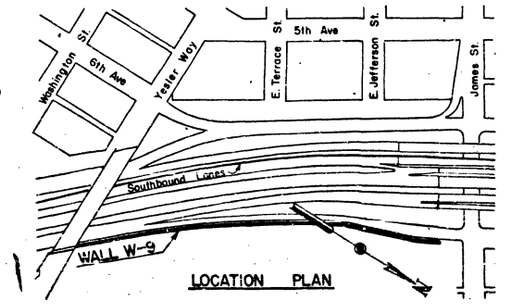
TYPE 'B' BEAM
10'-0" ø CYLINDERS X 93'-0"

6'-0"

Dimensions Along ℄ of Cylinders

7 Spaces @ 11'-6" = 80'-6"
TYPE 'F' BEAM 10'-0" ø CYLINDERS X85'-0"
90'-9"

FOOTING PLAN
(FOR BEAM DETAILS SEE SHEETS 120 and 121)



LOCATION PLAN

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'

DATUM

CITY OF SEATTLE

JOSEF SORKIN REGISTERED PROFESSIONAL ENGINEER STATE OF WASHINGTON

HOWARD, NEEDLES TAMMEN & BERGENDOFF

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

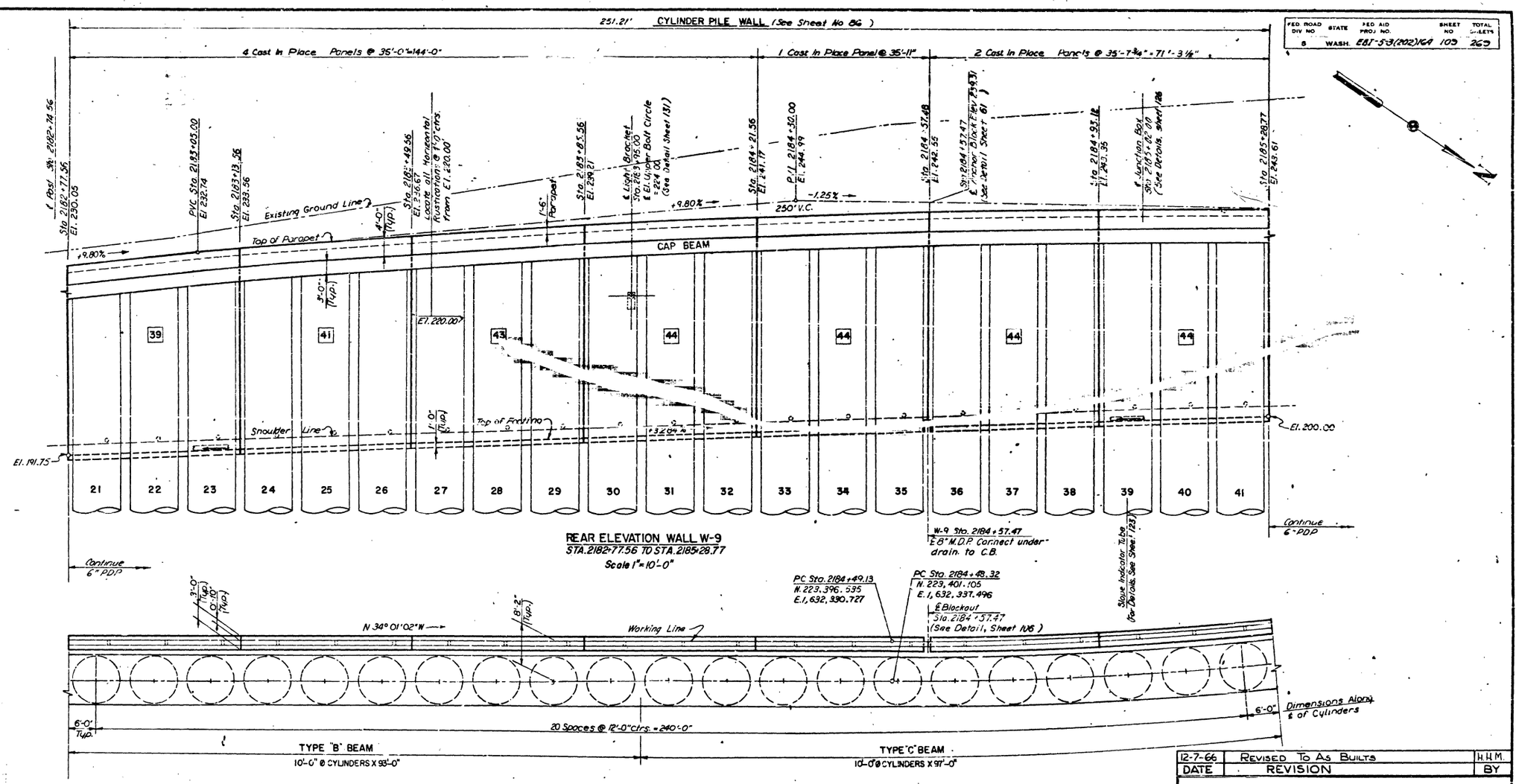
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

APPROVED March 13, 1964

SHEET 108 OF 269 SHEETS

STANDARD NUMBER 7504

FED ROAD DIV NO	STATE	FED AID PROJ. NO.	SHEET NO	TOTAL SHEETS
8	WASH.	E81-5-3(202)169	109	269



REAR ELEVATION WALL W-9
STA. 2182+77.56 TO STA. 2185+28.77
Scale 1"=10'-0"

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. = 1,632,308.177
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 SORKIN 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

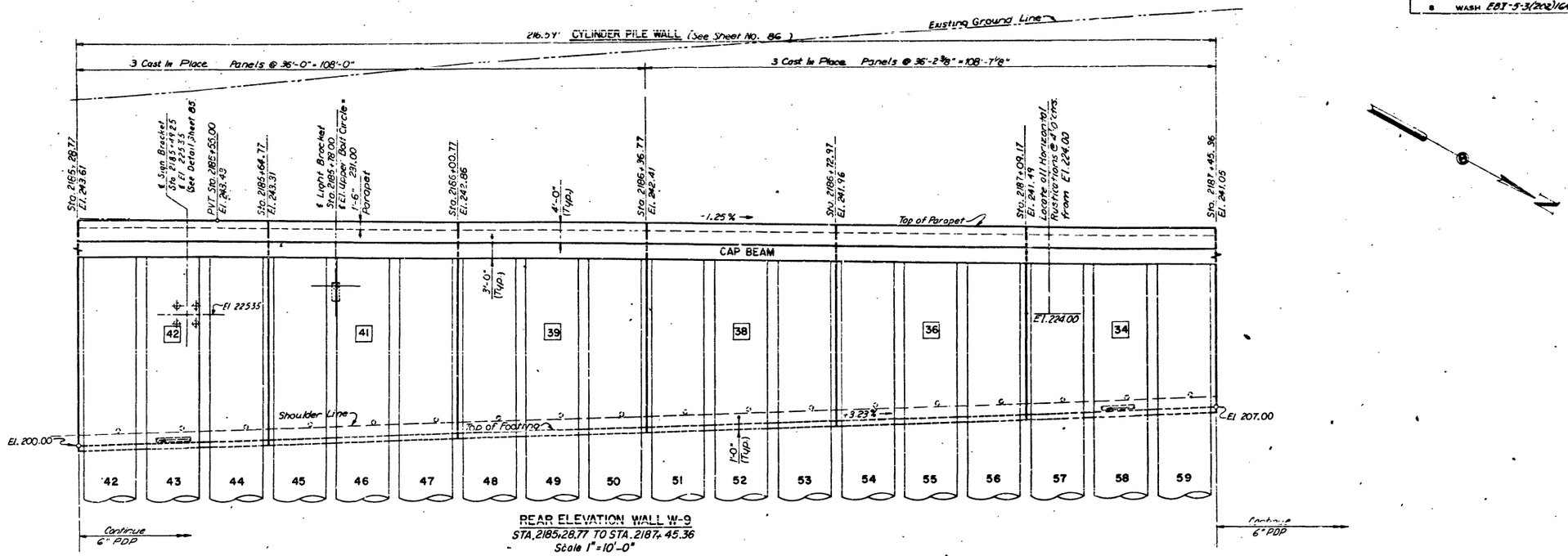
RETAINING WALL W-9

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

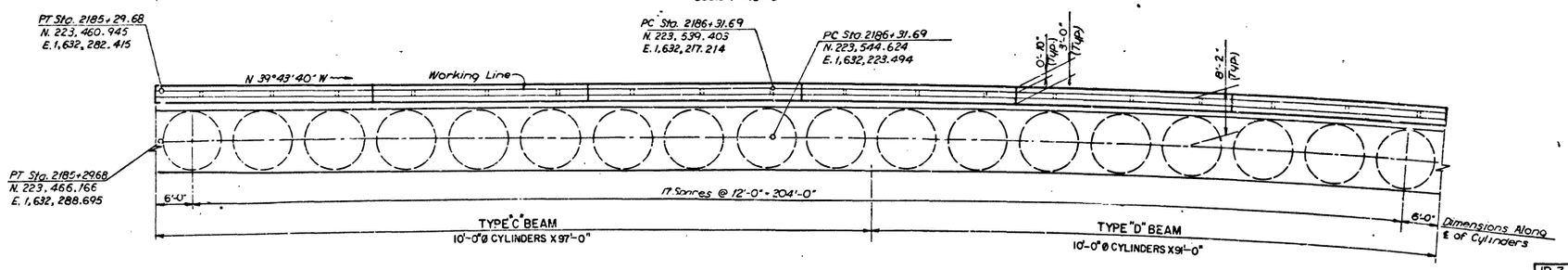
SCALE As Shown
APPROVED March 13, 1968

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. P.E.
PROFESSIONAL ENGINEER

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

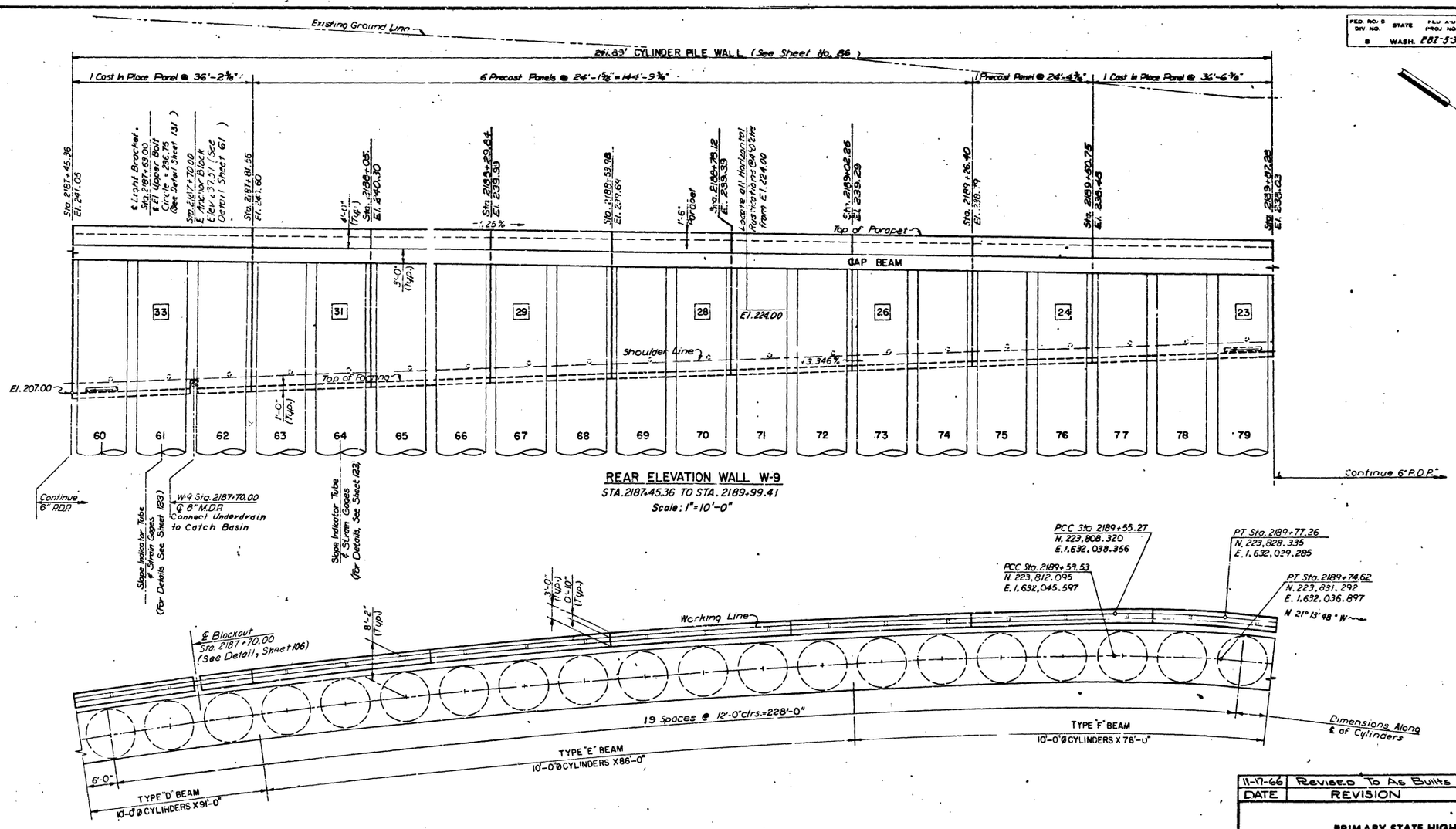
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

Scale As Shown
Approved March 13, 1964

SHEET 110 OF 269 SHEETS
CONTRACT NUMBER 7504

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

FED. ROAD DIV. NO.	STATE	F.A.U. A.I.U. PROJ. NO.	SHEET No.	TOTAL SHEETS
8	WASH.	FBI-5-3(202)164	111	269



REAR ELEVATION WALL W-9

STA. 2187+45.36 TO STA. 2189+99.41

Scale: 1" = 10'-0"

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. 1,632,030.719
Δ = 6° 17' 54"
D = 29° 52' 03"
R = 191.83'
L = 21.09'
T = 10.55'

DATUM
CITY OF SEATTLE

JOSEF SORKIN — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

HOWARD, NEEDLES TAMMEN & BERGENDOFF

DATE	REVISION	BY
11-17-66	Revised To As Builts	HWM

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

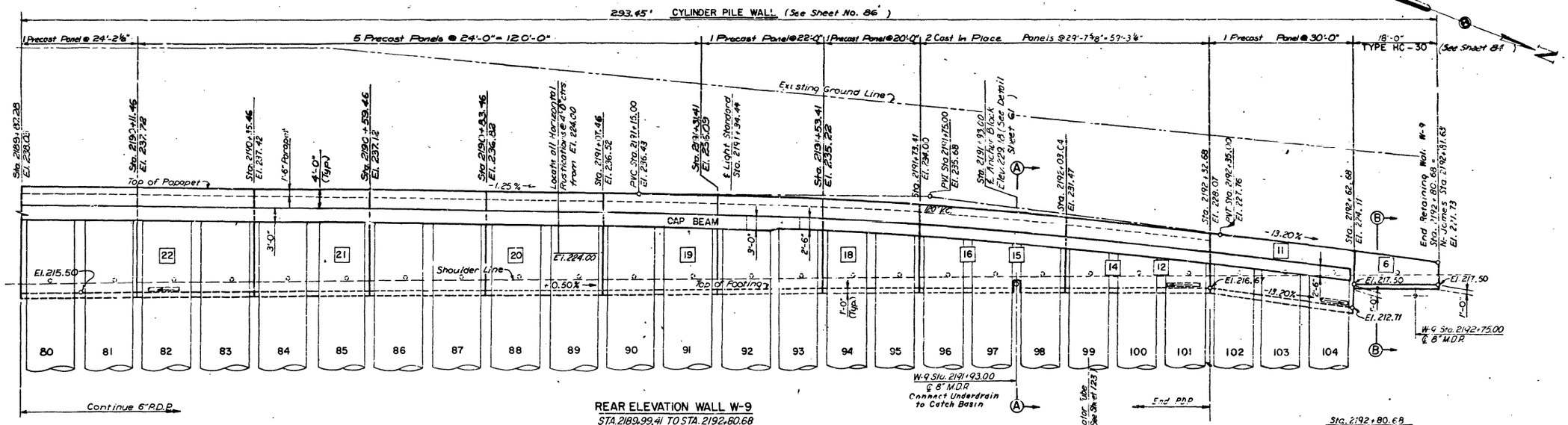
E. A. COWELL, Chairman
REVIEW CLARK III
E. L. BERGMAN
G. B. ZAHN
J. M. BLACK III
Mark As Shown
APPROVED March 16, 1964

SHEET 111 OF 269 SHEETS
CONTRACT NUMBER 7504

FED ROAD DIST NO	STATE	FED AID PROJ. NO.	SHEET NO	TOTAL SHEETS
8	WASH.	EBI-5-4(202)164	112	269

293.45' CYLINDER PILE WALL (See Sheet No. 86)

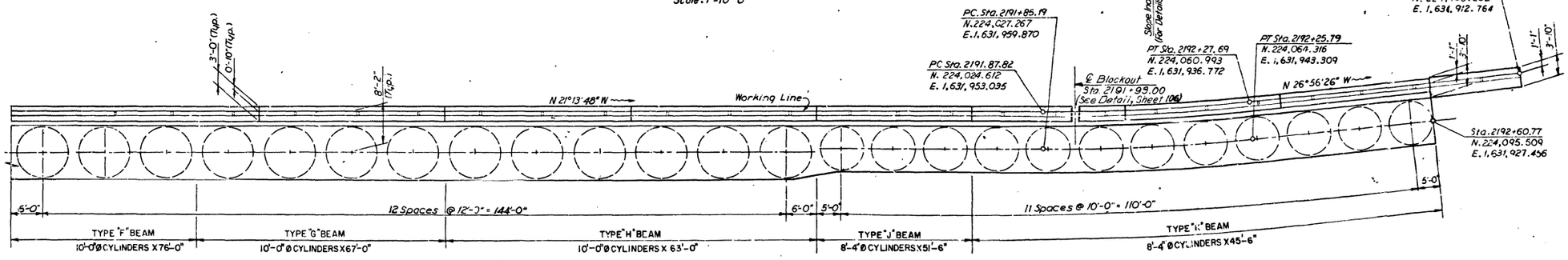
1 Precast Panel @ 24'-2½" | 5 Precast Panels @ 24'-0" = 120'-0" | 1 Precast Panel @ 22'-0" | 1 Precast Panel @ 20'-0" | 2 Cast In Place Panels @ 29'-7⅝" = 59'-3½" | 1 Precast Panel @ 30'-0" | 18'-0" TYPE HC-30 (See Sheet 84)



REAR ELEVATION WALL W-9

STA. 2189+99.41 TO STA. 2192+80.68

Scale: 1"=10'-0"

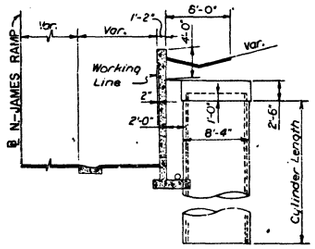


FOOTING PLAN

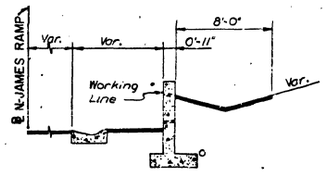
(For Beam Details See Sheets 120 and 121)

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	= 407.35'
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.	ES1-5-3(202)64	113	269

647.59'

Begin Retaining Wall
Sta 2181+51.78 W-10 =
Sta 2181+51.78 N-James
El. 213.61

Existing Ground Line

Final Ground Line

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. 230.84 | El. 231.36 | El. 232.92 | El. 233.80 | El. 234.62 | El. 235.39 | El. 236.09 | El. 236.72 | El. 237.28 | 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. 238.60 | El. 239.54 | El. 239.41 | El. 239.26 | El. 238.00 | El. 238.96 | 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

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

Slope Indicator Tube & 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. 1,632,543.106

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+33.78 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 223,700.481
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 →

11.78'

WEST 4.5 | WEST 4.5 | WEST 7.0 | EAST 7.0

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.

0.05 Min

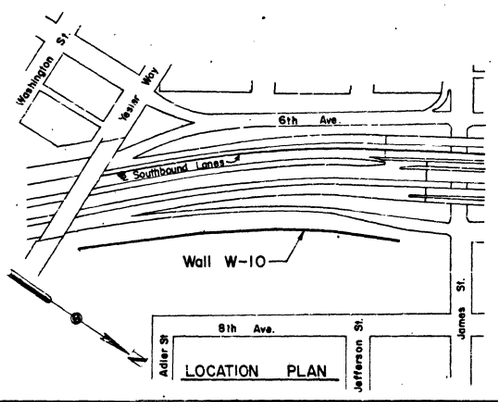
2" | Working Line ℄

EDGE OF PAV'T. N. JAMES RAMP ℄

℄ Cylinder | Cylinder Length | 5'-0" for 10'-0" Cyls. 1'-6" for 8'-6" Cyls. | ℄ Cylinder | Furnishing, Placing & Compacting Selected Backfill Material | Cylinder Excavation | 14'-0" ± | Cylinder Length | 2'-0" for 10'-0" Cyls. 1'-6" for 8'-6" Cyls. | ℄ Cylinder | Furnishing, Placing & Compacting Selected Backfill Material | Cylinder Excavation

WALL W-9 | WALL W-10 | WALL W-11

TYPICAL SECTION



LOCATION PLAN

DATE	REVISION	BY
11-21-66	Revised To As Builts	H.W.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

DESIGNING ENGINEER
DESIGN CHECKED
DRAWN BY
QUANTITIES PREPARED
QUANTITIES CHECKED

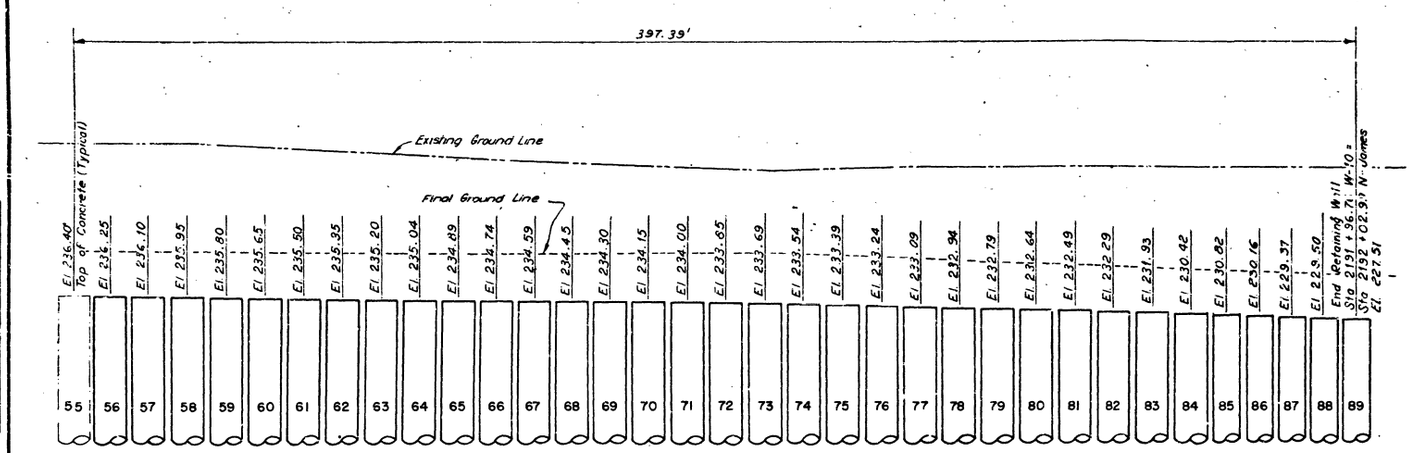
DATE 12-27-63
DRAWN L.J.H.
TRACED
CHECKED
QUANTITIES
DIST. ENGR.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

CITY OF SEATTLE

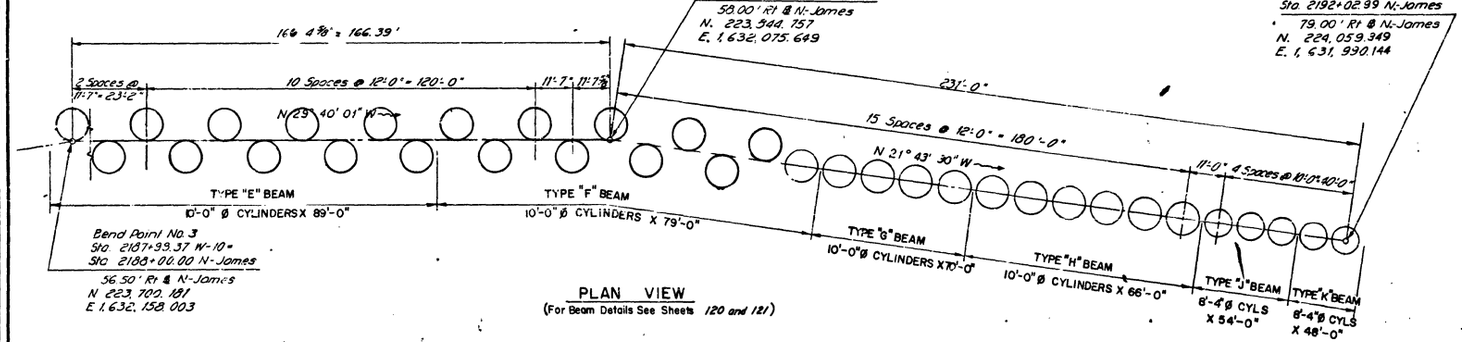
JOSEF SORKIN
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER

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 13, 1968
SHEET 114 OF 269 SHEETS
CONTRACT NUMBER 7506

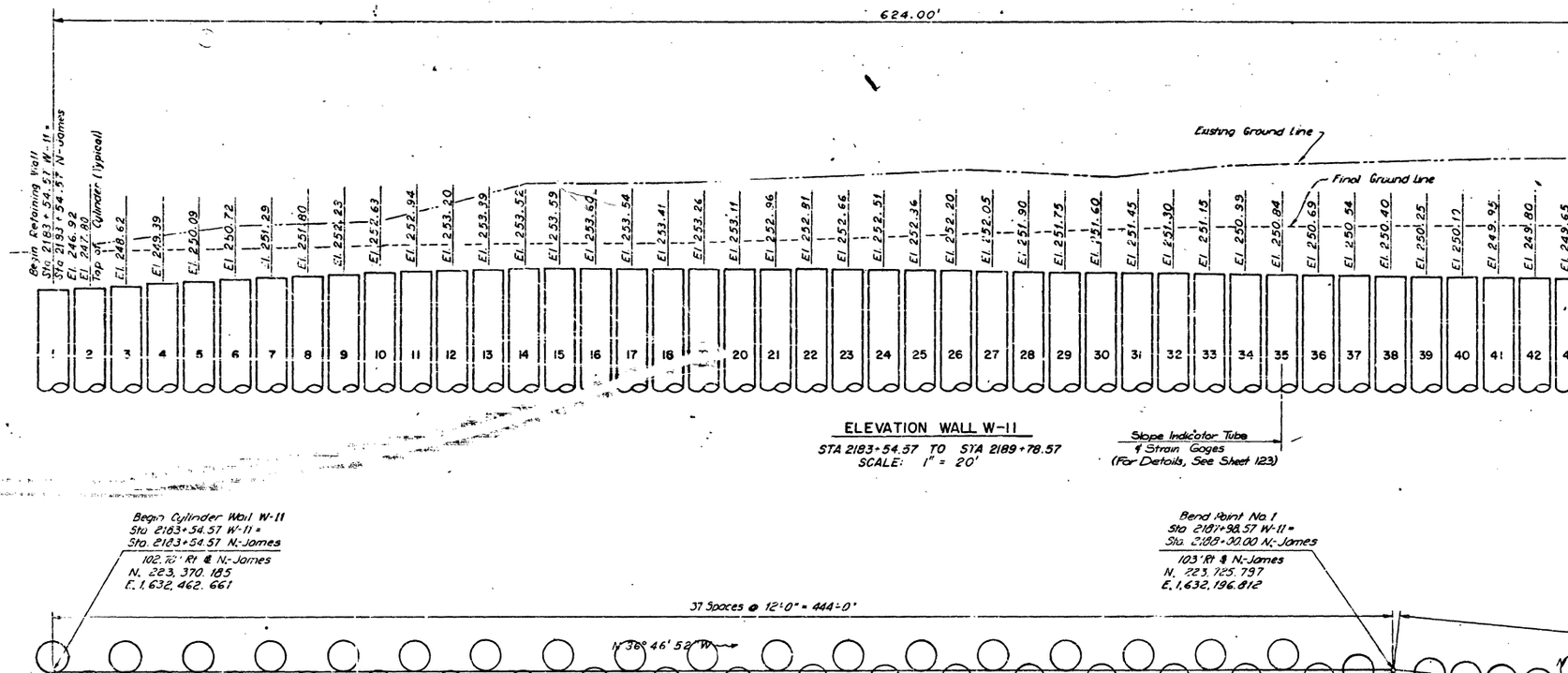
DATUM
CITY OF SEATTLE

JOSEF SORKIN STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER

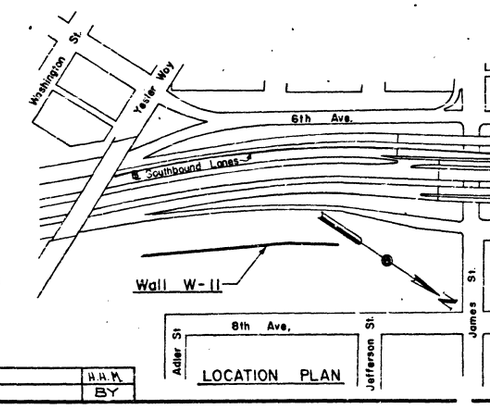
HOWARD, NEEDLES, TAMMEN & BERGENDOFF

DESIGNING ENGINEER
DESIGNED
DETAILED
DRAWN BY
QUANTITIES COMPUTED
QUANTITIES CHECKED

DRAWN
TRACED
CHECKED
LOC. ENGR.
DATE 12-27-67 BY LVH



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

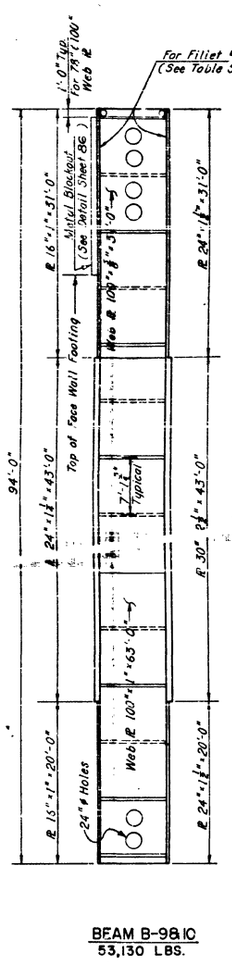
CITY OF SEATTLE

JOSEF SORKIN STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER

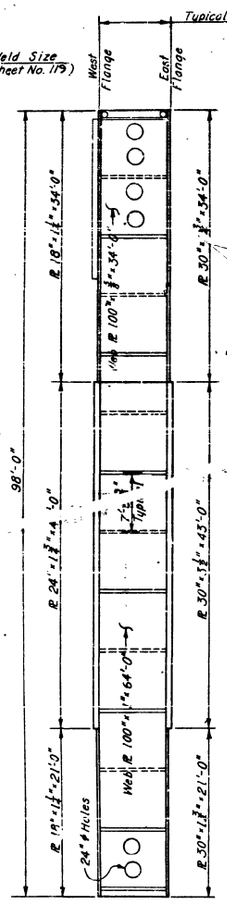
HOWARD, NEEDLES, TAMMEN & BERGENDOFF

DATE	REVISION	BY
11-21-66	Revised To As Builts	H.H.M.

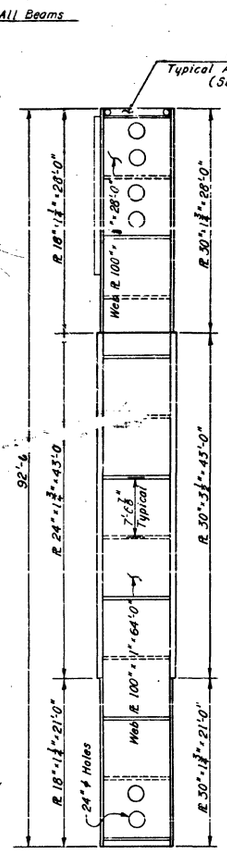
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.
8	WASH.	FBT-5-3(202)164



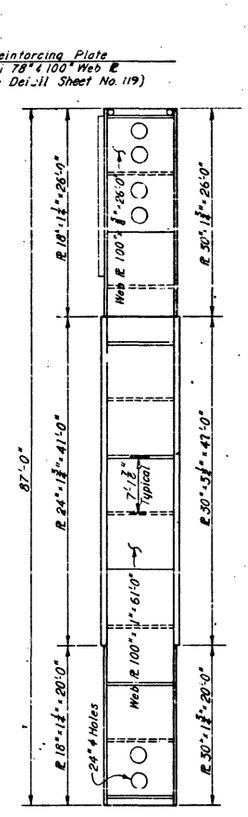
BEAM B-98.10
53,130 LBS.



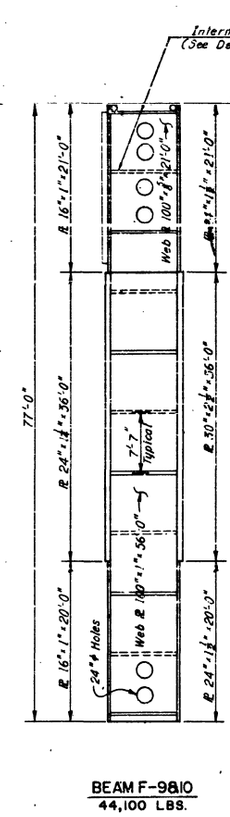
BEAM C-98.10
65,440 LBS.



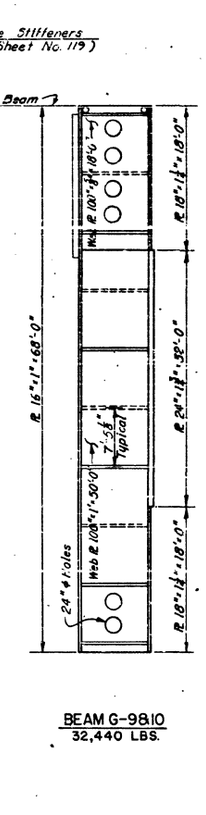
BEAM D-98.10
62,550 LBS.



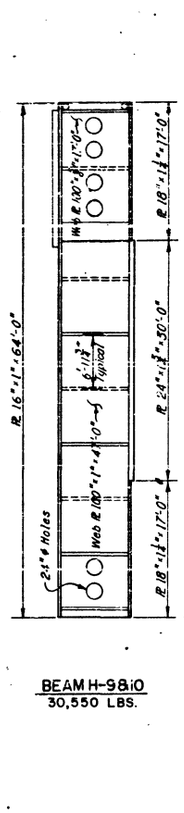
BEAM E-98.10
59,340 LBS.



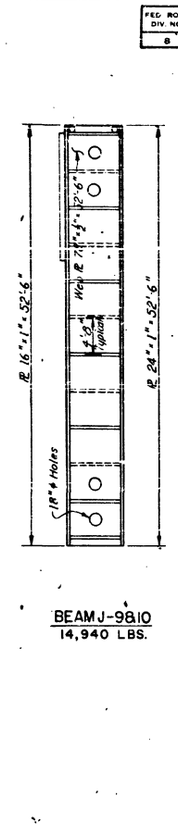
BEAM F-98.10
44,100 LBS.



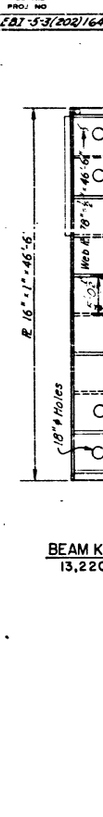
BEAM G-98.10
32,440 LBS.



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"

8-18-68	REVISED TO AS-BUILT
DATE	REVISION

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

SCALE 1/8"

SHEET 121 OF 269 SHEETS

7504

JOSEF SORKIN
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER

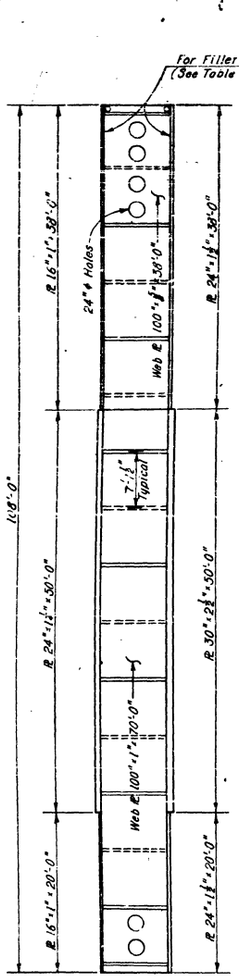
HOWARD, NEEDLES, TAMMEN & BERGENDOFF

ALIGNMENT CHECKED
DATE
ANGLE TOP WAY
ANGLE BOT.
B.M.
DESIGN ELEVATION

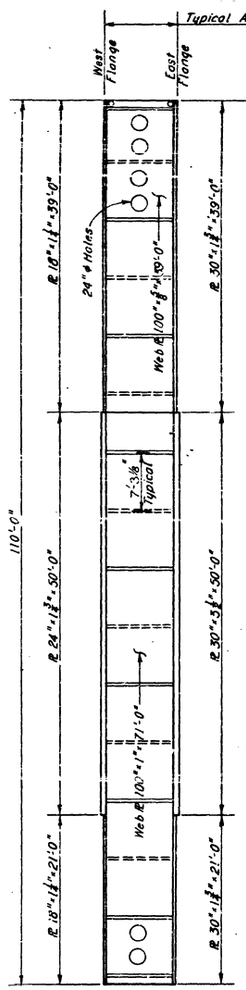
DESIGNED BY
DETAILED
CHECKED
DRAWN BY
QUANTITIES FIGURED
QUANTITIES CHECKED

DATE
BY
DRAWN
TRACED
CHECKED
LOC. ENGR.
DIST. ENGR.

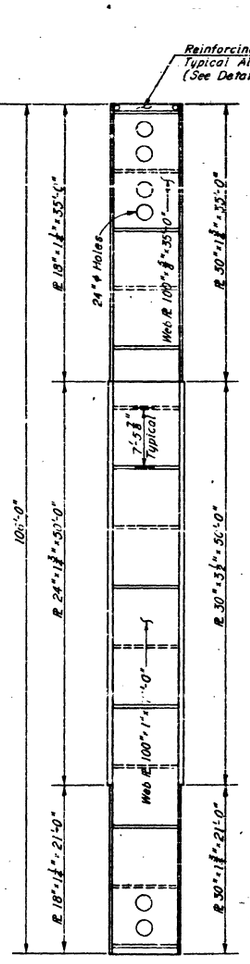
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH.	FBI-5-3(202)164	122	269



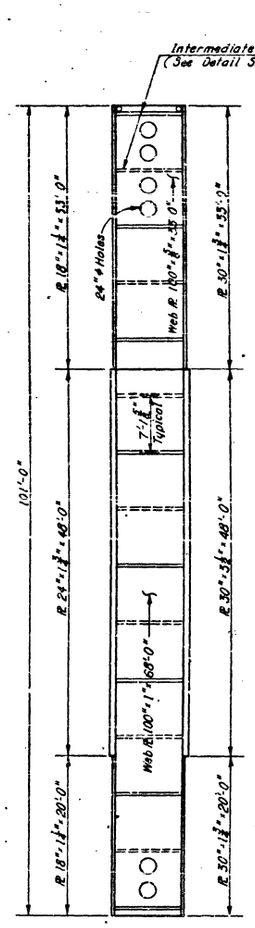
BEAM A-II
60,910 LBS.



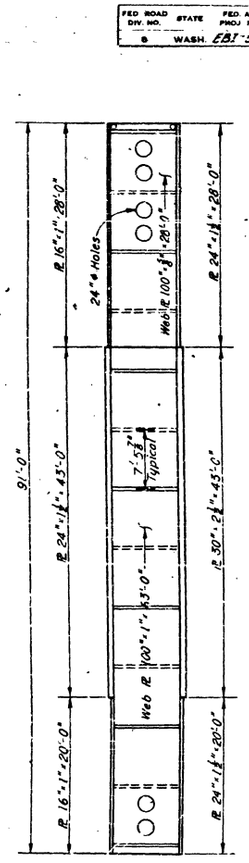
BEAM B-II
73,630 LBS.



BEAM C-II
71,870 LBS.



BEAM D-II
68,660 LBS.



BEAM E-II
52,730 LBS.

8-19-66	REVISED TO AS-BUILT	LER
DATE	REVISION	BY

CYLINDER BEAM DETAILS WALL W-11

(FOR ADDITIONAL BEAM DETAILS SEE SHEET NO. 119)
Scale: 1/8" = 1'-0"

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

Scale 1/8" = 1'-0"
Approved March 15, 1966

SHEET 122 OF 269 SHEETS
CONTRACT NUMBER 7504

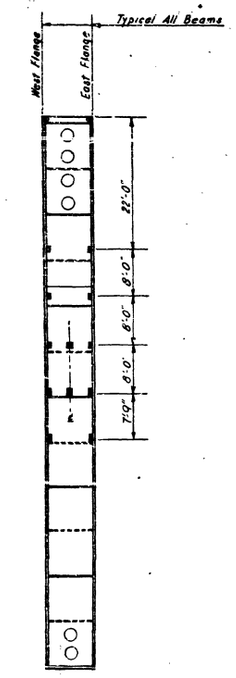
JOSEF SOKKIN
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

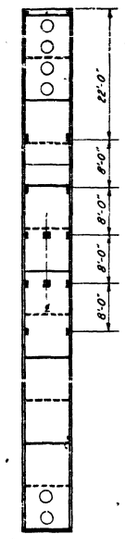
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DETAILED
DESIGN CHECKED
DRAWN BY
TRACED
CHECKED
QUANTITIES CHECKED
QUANT. TABS CHECKED

DATE BY
DESIGN REVISION
DRAWING REVISION
DIST. ENGR.

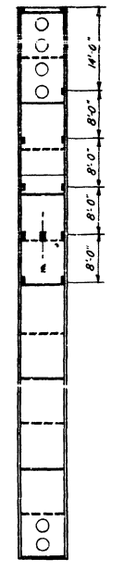
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH	I-BI-5-3(202)164	123	263



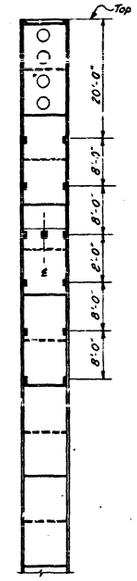
BEAM "D", CYLINDER #61
WALL W-9



BEAM "E", CYLINDER #64
WALL W-9

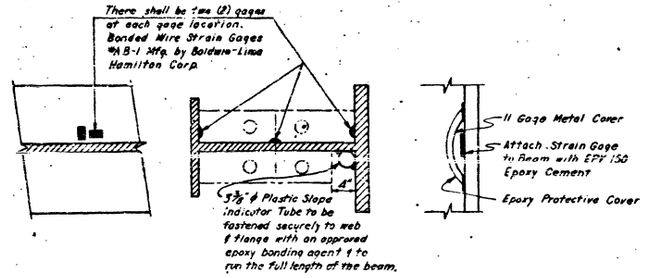


BEAM "D", CYLINDER #52
WALL W-10

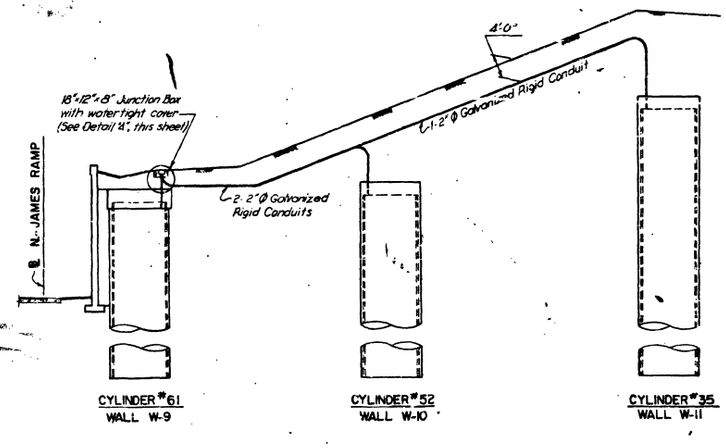


BEAM "C", CYLINDER #35
WALL W-11

SR-4 STRAIN GAGE LOCATIONS
Scale: 3/32" = 1'-0"



STRAIN GAGE AND SLOPE INDICATOR TUBE MOUNTING DETAILS

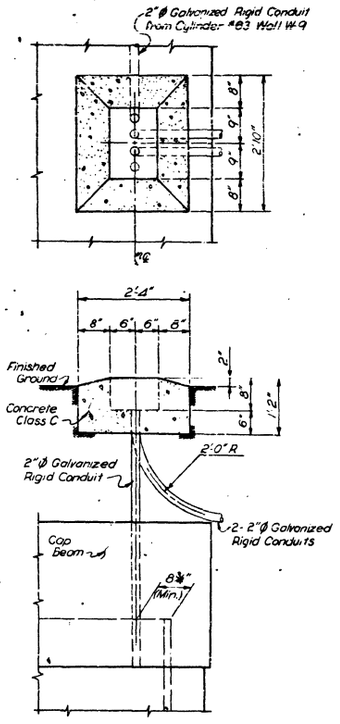


CYLINDER #61
WALL W-9

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	965
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 3/8" 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 4" for installation of slope indicator tubes. (see table on this sheet for beams which are affected)

11-21-66	Revised To As Builts	HHM
DATE	REVISION	BY

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, 1961

SHEET 123 OF 263 SHEETS
CONTRACT NUMBER 7504

JOSEF SONNEN — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

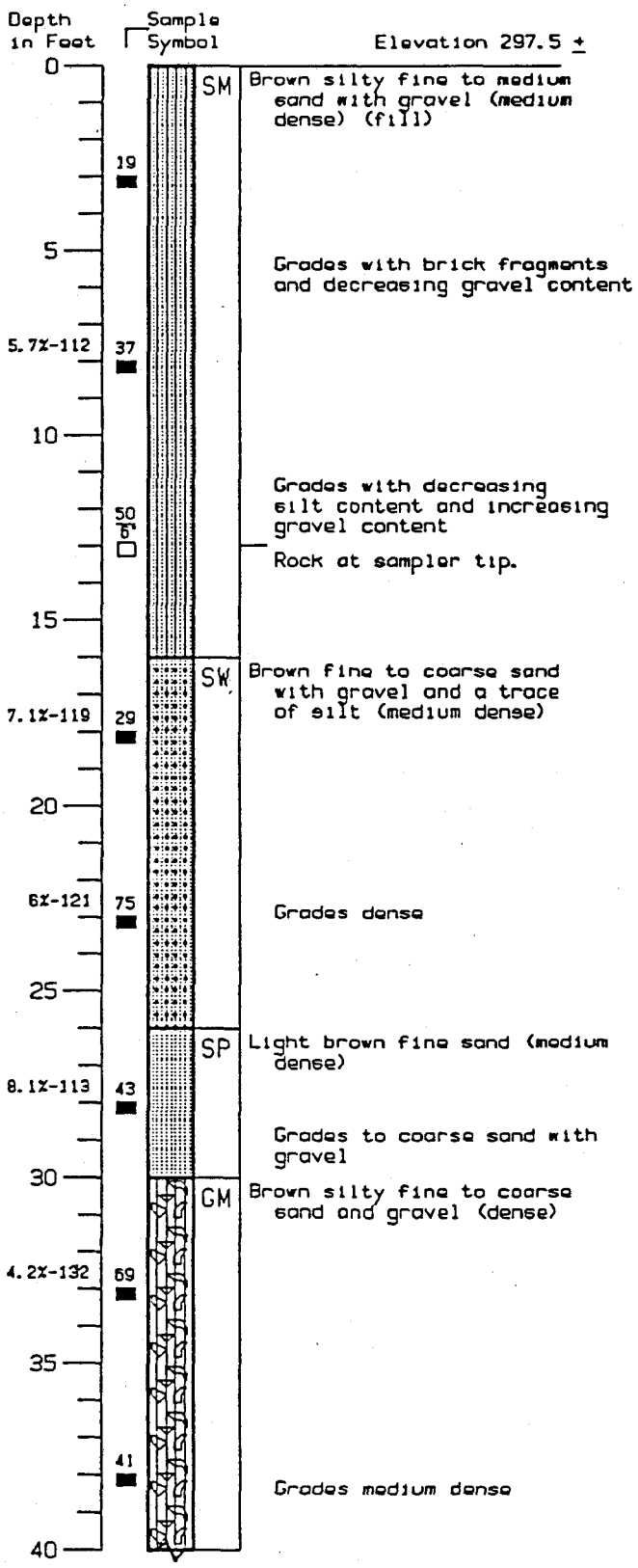
HOWARD, NEEDLES, TAMMEN & BERGENDOFF

ALTERNATE CHECKED — BY — DATE
ORIGINAL — REVISED — TRACED — CHECKED — QUANTITIES PREPARED
DRAWN — CHECKED — LOC. ENGR. — DIST. ENGR.

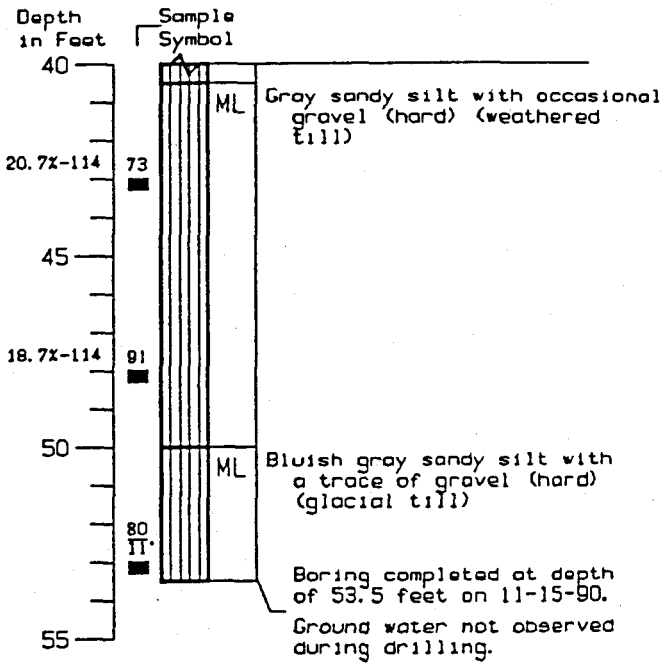
APPENDIX B

SELECTED DATA FROM REPORTS BY OTHERS

Boring B-1-90



Boring B-1-90, Cont.



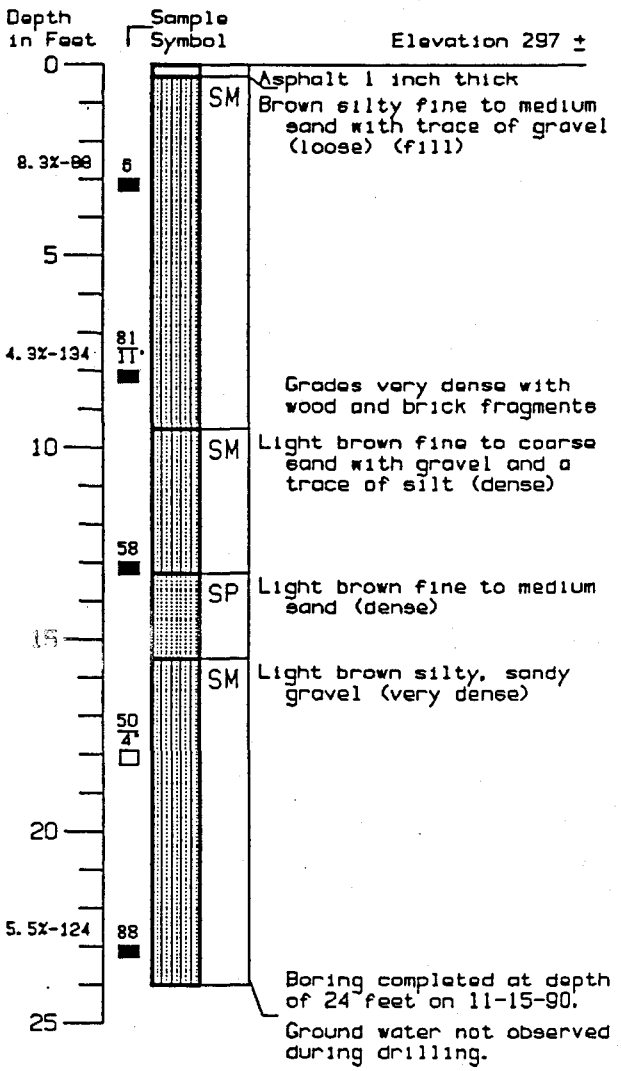
Log of Borings

Dames & Moore

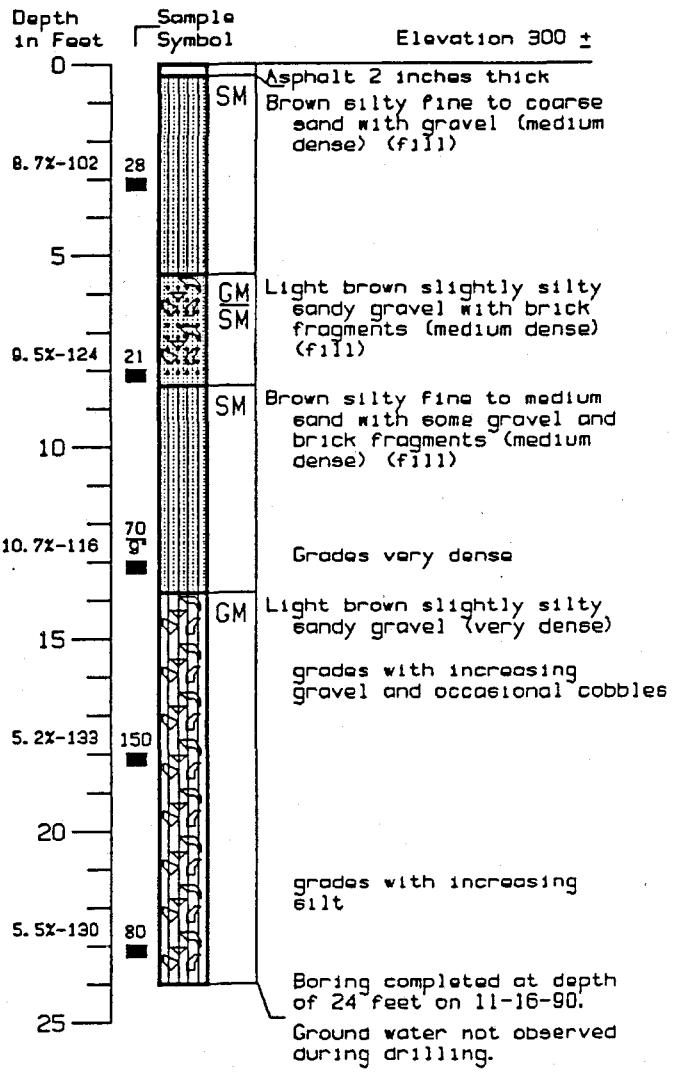
Job No. 05586-043-016

Plate A-1

Boring B-2-90



Boring B-3-90



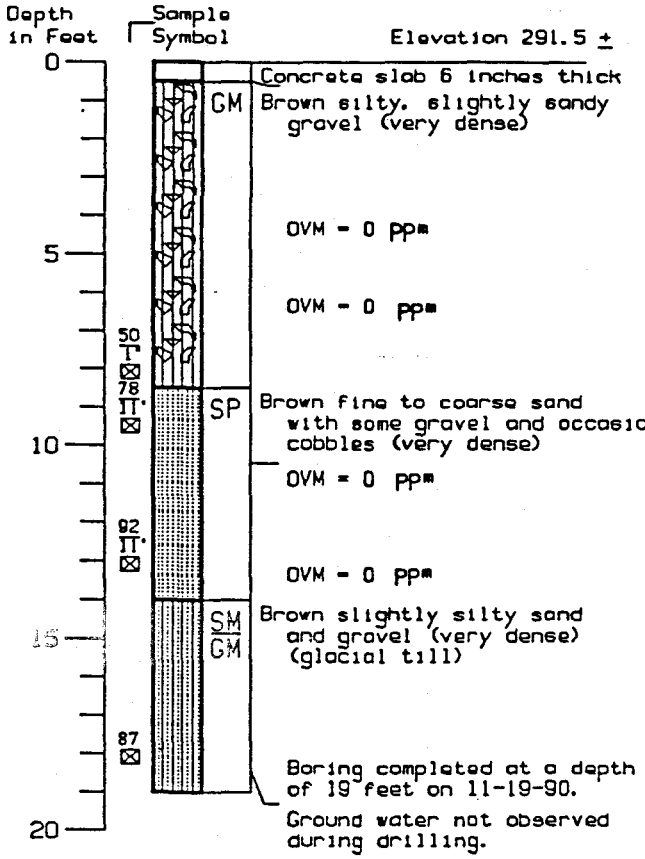
Log of Borings

Domes & Moore

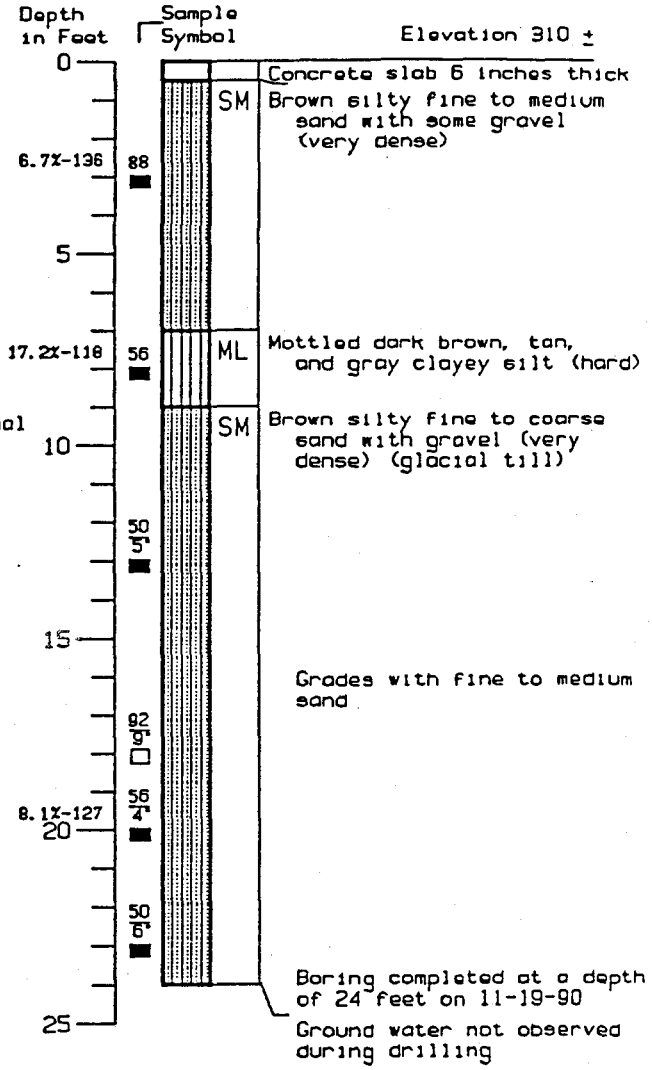
Job No. 05586-043-016

Plate A-2

Boring B-6-90



Boring B-7-90



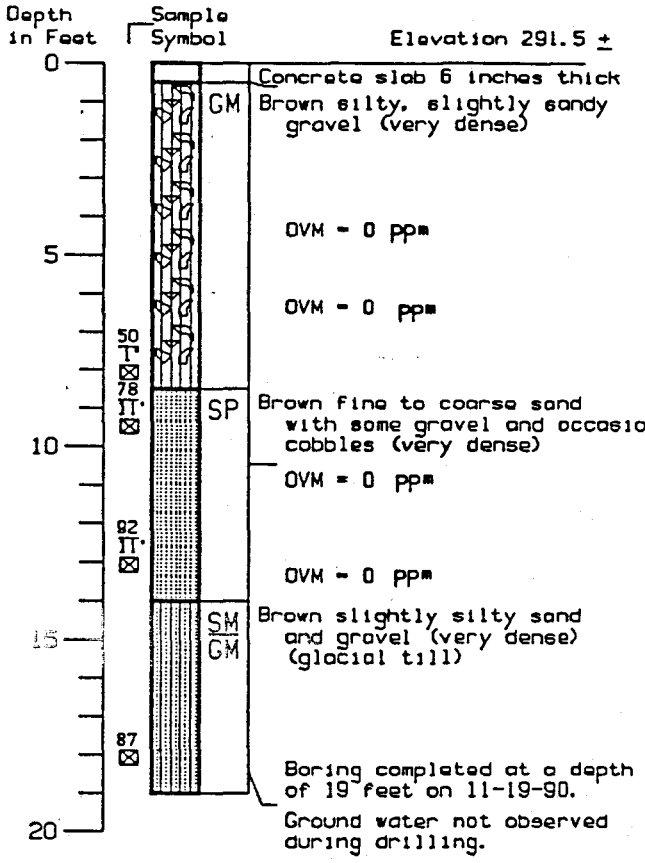
Log of Borings

Dames & Moore

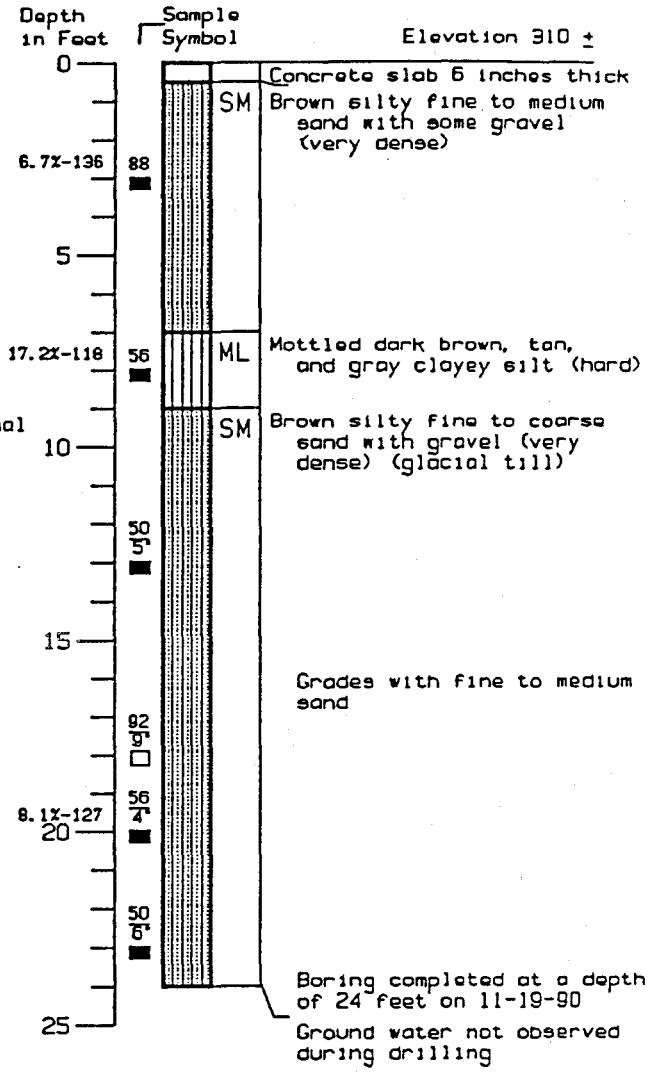
Job No. 05586-043-016

Plate A-4

Boring B-6-90



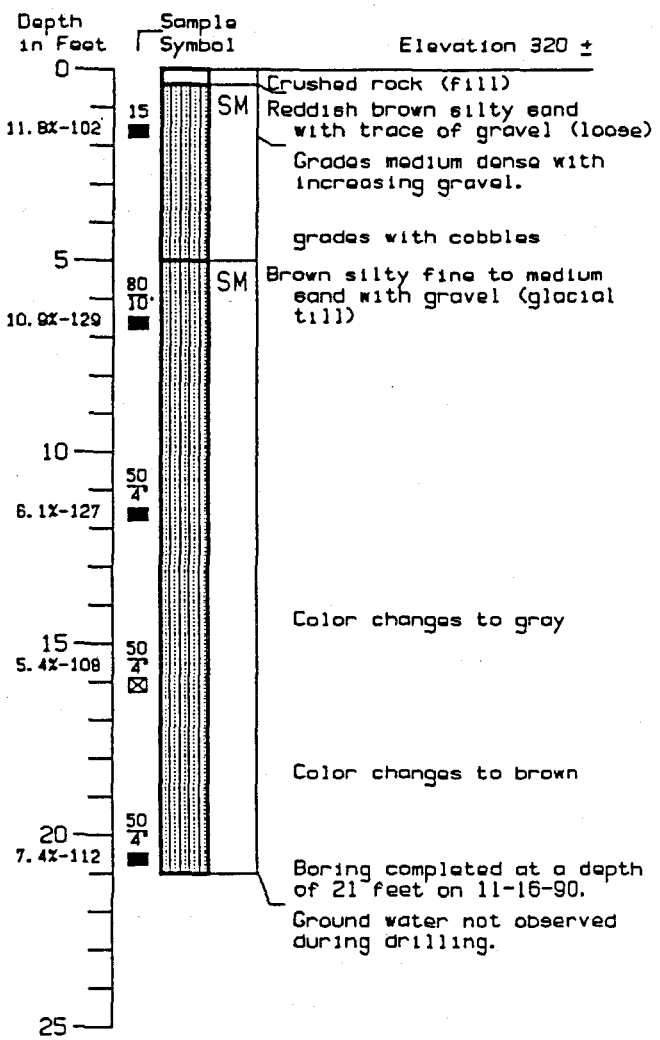
Boring B-7-90



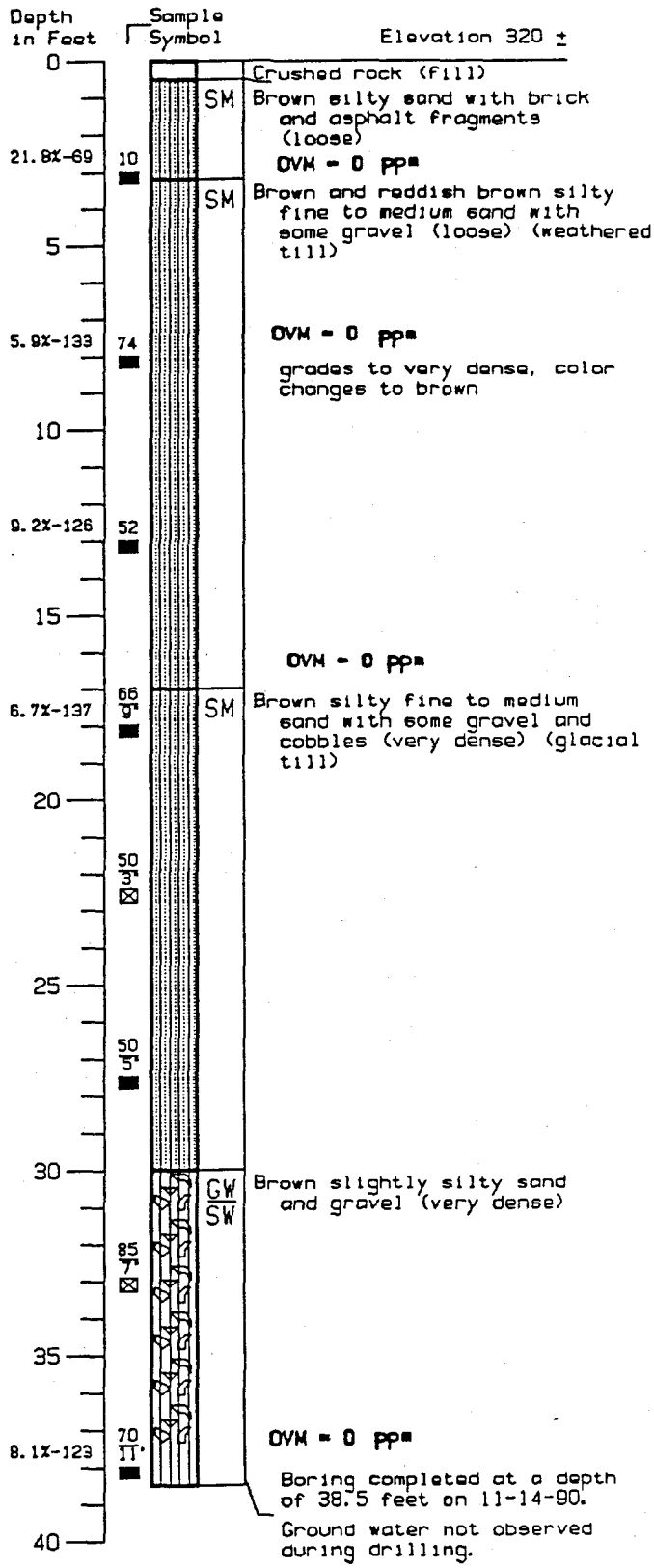
Log of Borings

Dames & Moore

Boring B-8-90



Boring B-9-90



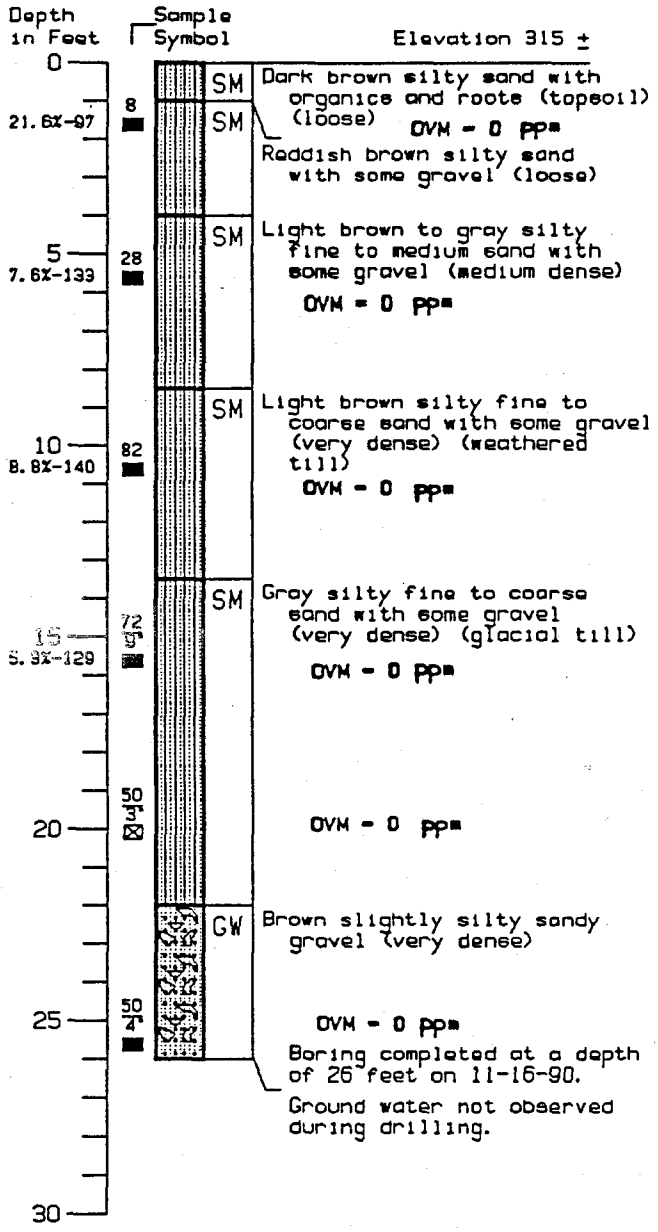
Log of Borings

Dames & Moore

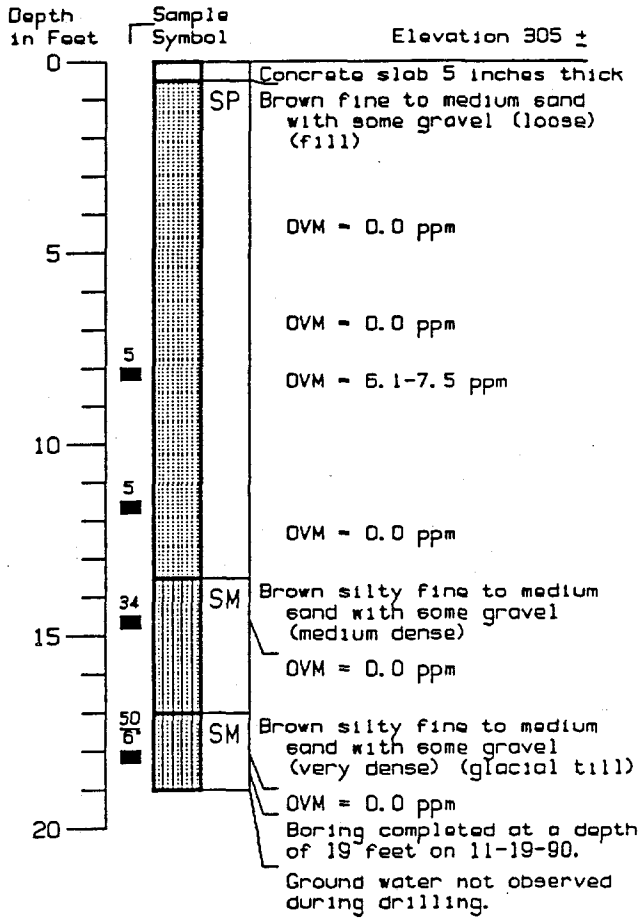
Job No. 05586-043-016

Plate A-5

Boring B-10-90



Boring B-11-90

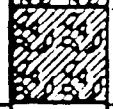
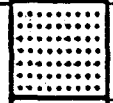
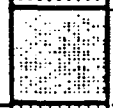
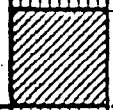
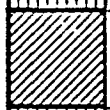
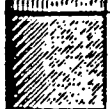
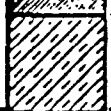
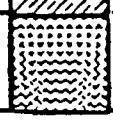


Log of Borings

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		BROWN SILT TOPSOIL
	47				T	GRAY SILTY SAND (SM) dense, moist, with occasional gravel (Glacial Till)
	76/11"	5.8	126.3		T	
				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		
	82/10"				T	BROWN GRAVELLY SAND (SP) very dense, moist, little silt (Outwash)
				30		
	74				T	Piece of gravel in ring
				35		Becomes mottled yellow-brown.
	73				T	Boring terminated at 39.2 foot depth on 12/31/83.
				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		

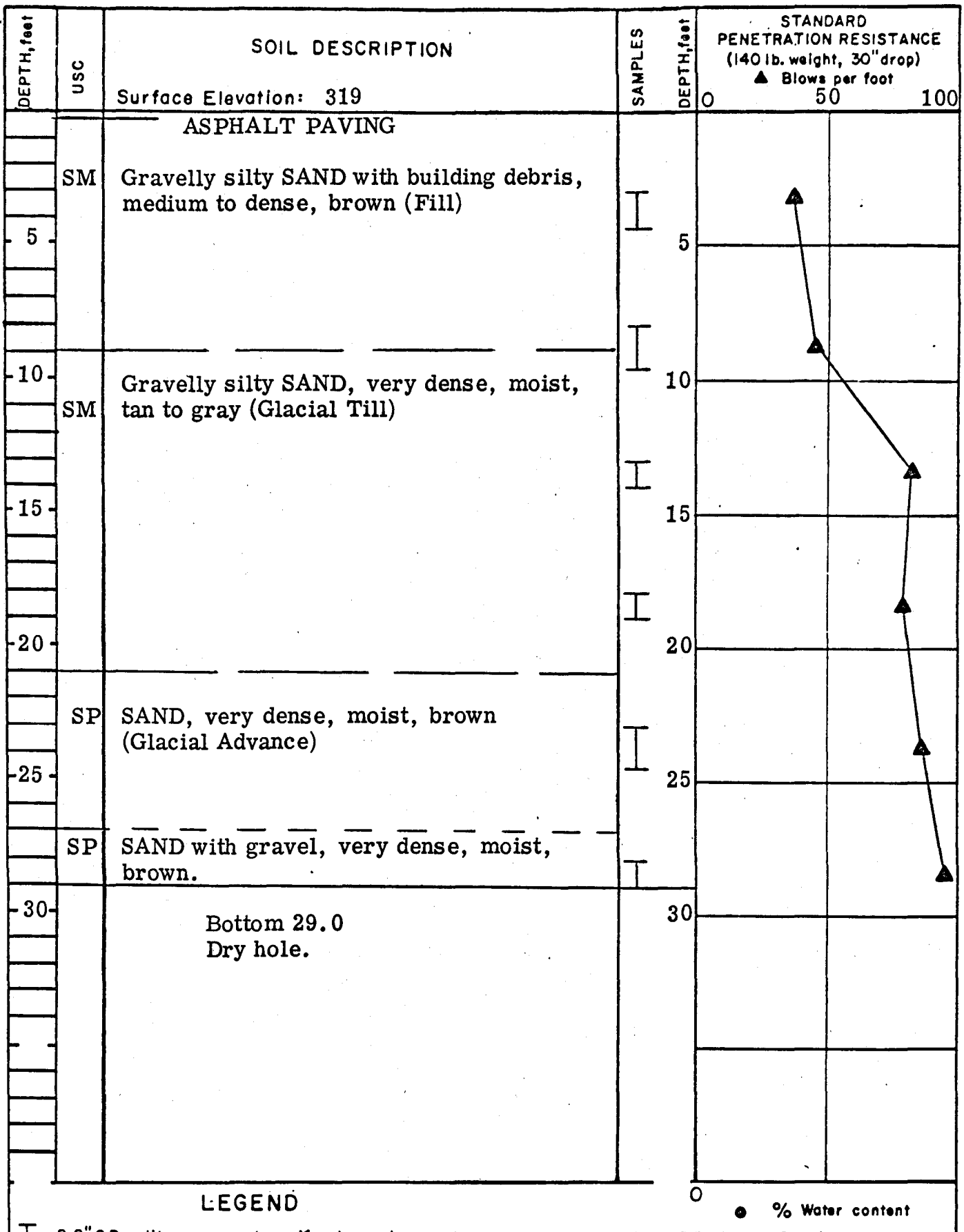
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Log of Boring 3

Harborview Medical Center Addition
Seattle, Washington

PLATE **4**

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
14,621.004	WLT				



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

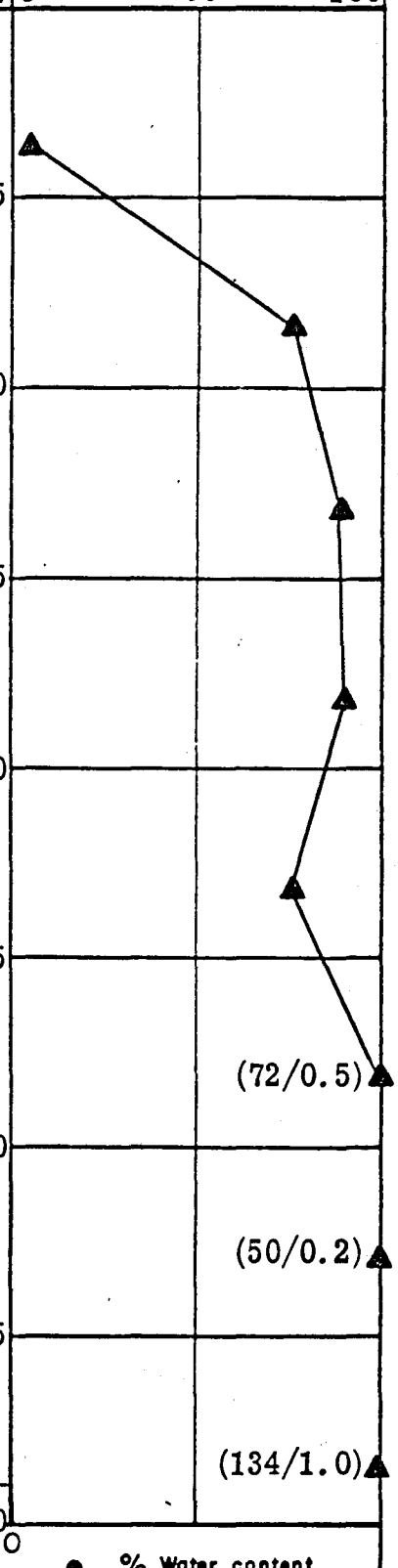
Harborview Medical Center
Community Mental Health Center

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

- 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
Community Mental Health Center

LOG OF BORING NO. B-2
W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate 2-A

DEPTH, feet	USC	SOIL DESCRIPTION Surface Elevation: 320	SAMPLES	DEPTH, feet
		ASPHALT PAVING		
	SP	Gravelly SAND with debris, loose, moist, tan and gray (Fill)		
5				5
	ML	Sandy SILT, hard, tan (Glacial Till)		
10		Bottom 9.5' Dry hole		10

STANDARD PENETRATION RESISTANCE
(140 lb. weight, 30" drop)
▲ Blows per foot

0 50 100

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
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	STANDARD PENETRATION RESISTANCE (140 lb. weight, 30" drop) ▲ Blows per foot 0 50 100
		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	
				0	

● % Water content

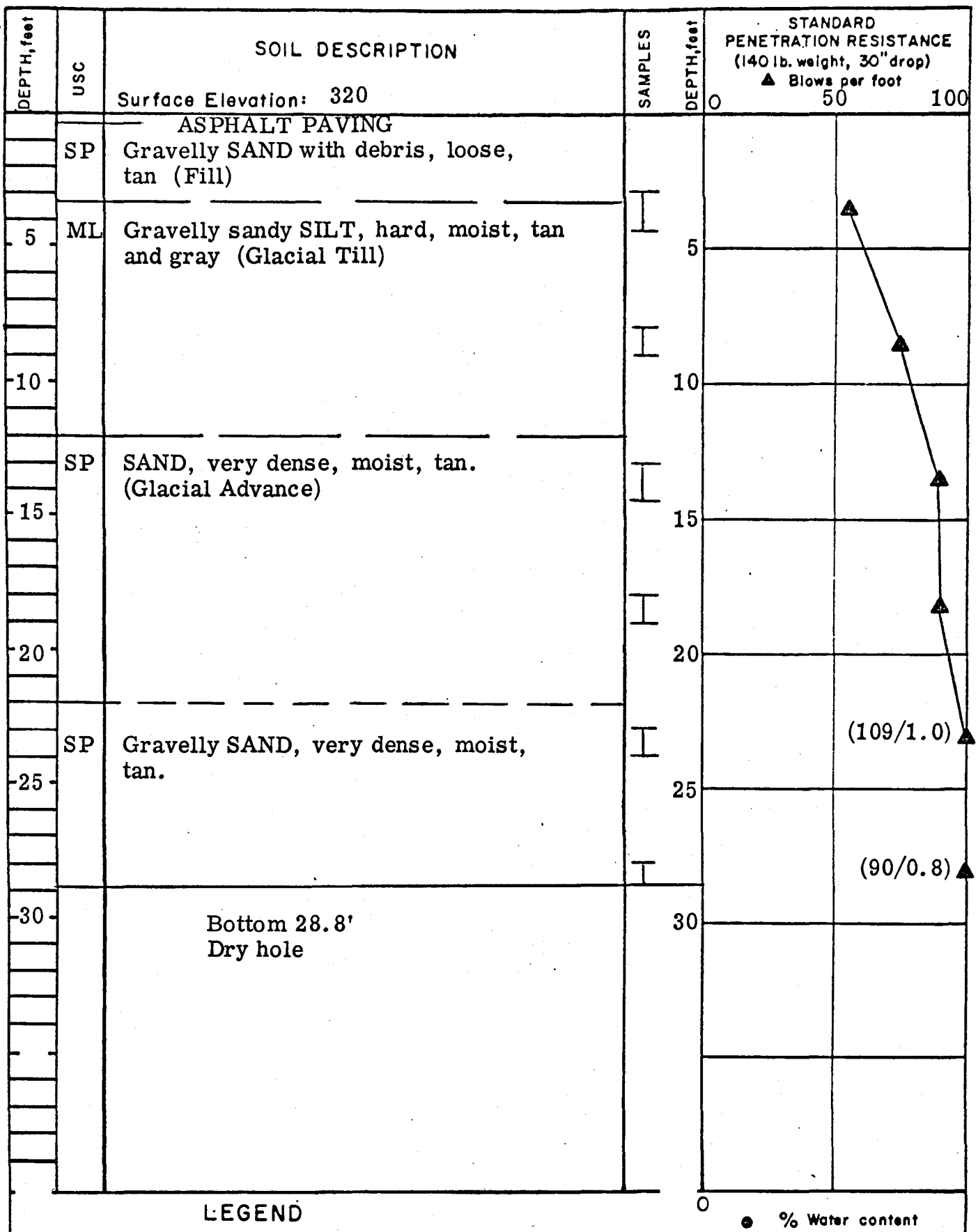
LEGEND

- 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
Community Mental Health Center
LOG OF BORING NO. B-4
W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate 4-A



Harborview Medical Center
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	
				0	

LEGEND

- 2.0" O.D. split spoon sample
- 3.0" O.D. thin-wall sample
- * Sample not recovered
- Impervious seal
- Water level
- Piezometer tip
- P Sampler pushed
- USC Unified Soil Classification
- Atterberg limits: Liquid limit, Natural water content, Plastic limit
- ● % Water content

Harborview Medical Center
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

Harborview Medical Center
Community Mental Health Center
LOG OF BORING NO. B-7
W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate 7-A

DEPTH, feet	USC	SOIL DESCRIPTION Surface Elevation: ±300
	GM	Silty sandy GRAVEL with debris; Fill.
5	ML	Gravelly sandy SILT, hard, moist, gray and tan. Glacial Till.
10		
15	GP	Sandy GRAVEL, medium dense to very dense, wet, gray-brown with organic debris. Glacial Advance.
20	SP	Gravelly SAND, very dense, moist, brown. Glacial Advance
25		
30		Bottom 28.8 Dry hole.

SAMPLES

DEPTH, feet

STANDARD PENETRATION RESISTANCE
(140 lb. weight, 30" drop)
▲ Blows per foot
0 50 100

65/0.5'
139/0.9'
116/1.0'
83/0.8'

● % Water content

LEGEND

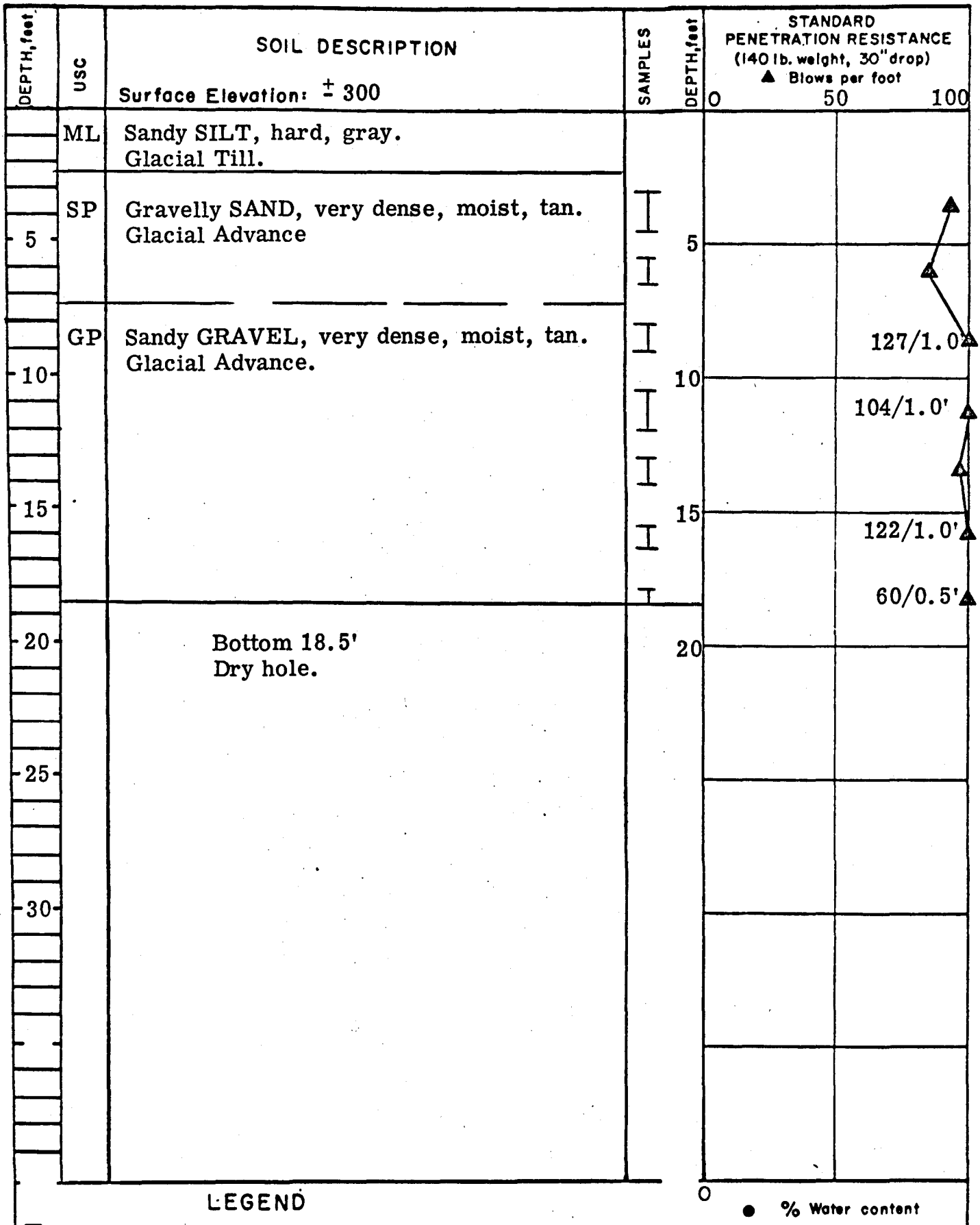
- 2.0" O.D. split spoon sample
- 3.0" O.D. thin-wall sample
- * Sample not recovered
- Atterberg limits: Liquid limit; Natural water content; Plastic limit
- Impervious seal
- Water level
- Piezometer tip
- P Sampler pushed
- USC Unified Soil Classification

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LOG OF BORING NO. B-8
W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-1



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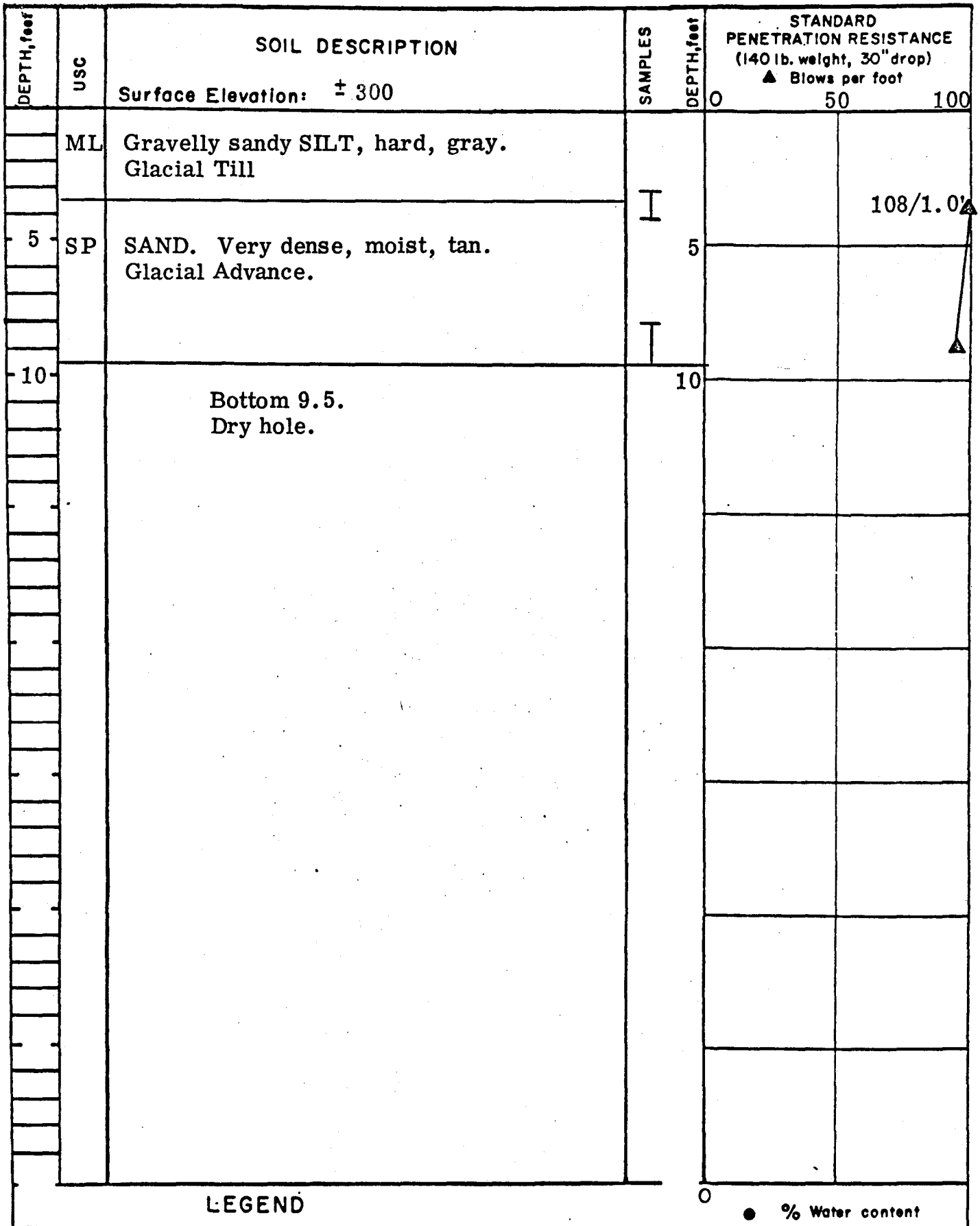
LOG OF BORING NO. B-9

W-490

GEOLABS, INC.

SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-2



Harborview Medical Center

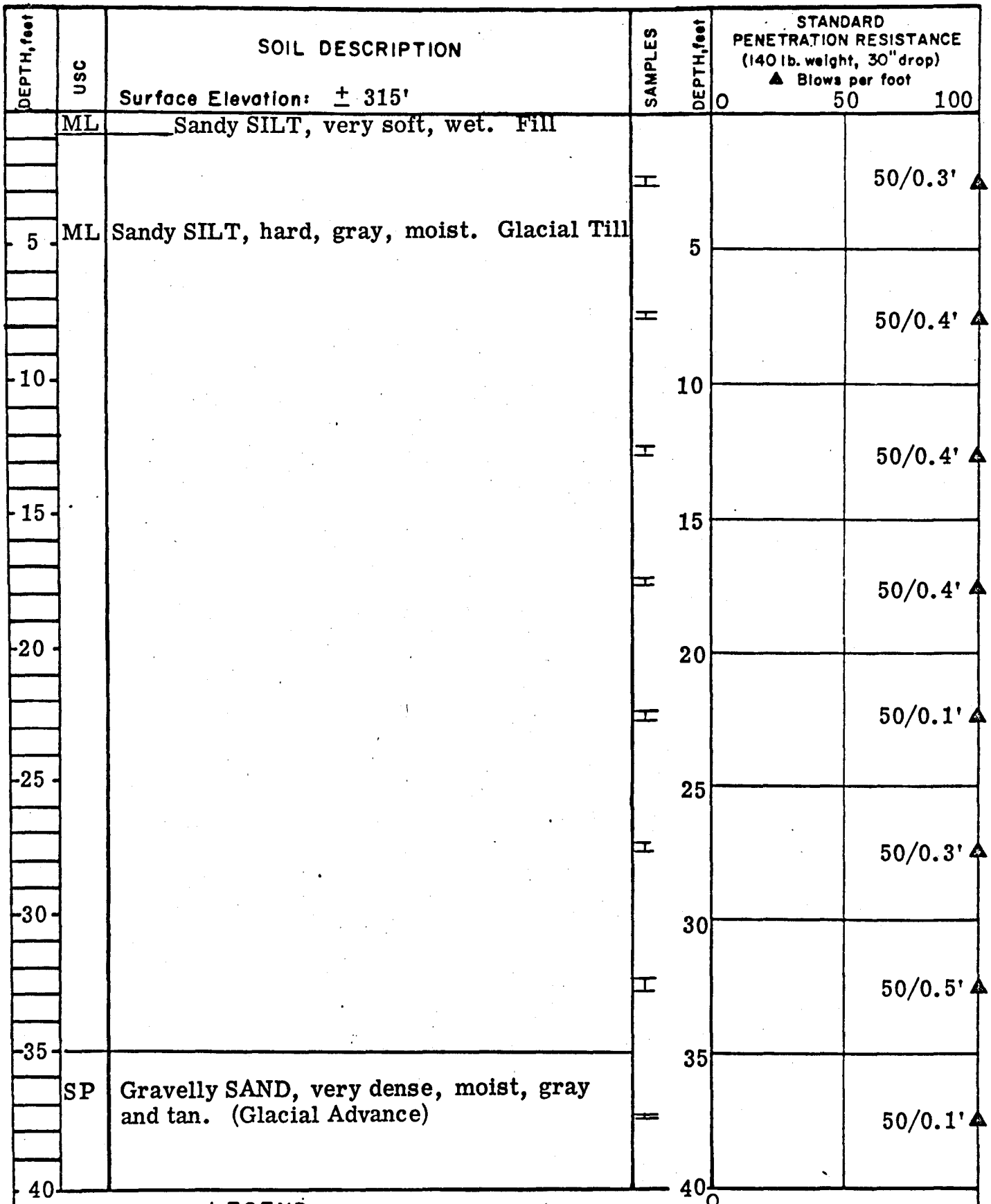
LOG OF BORING NO. B-10

W-490

GEOLABS, INC.

SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-3



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	

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

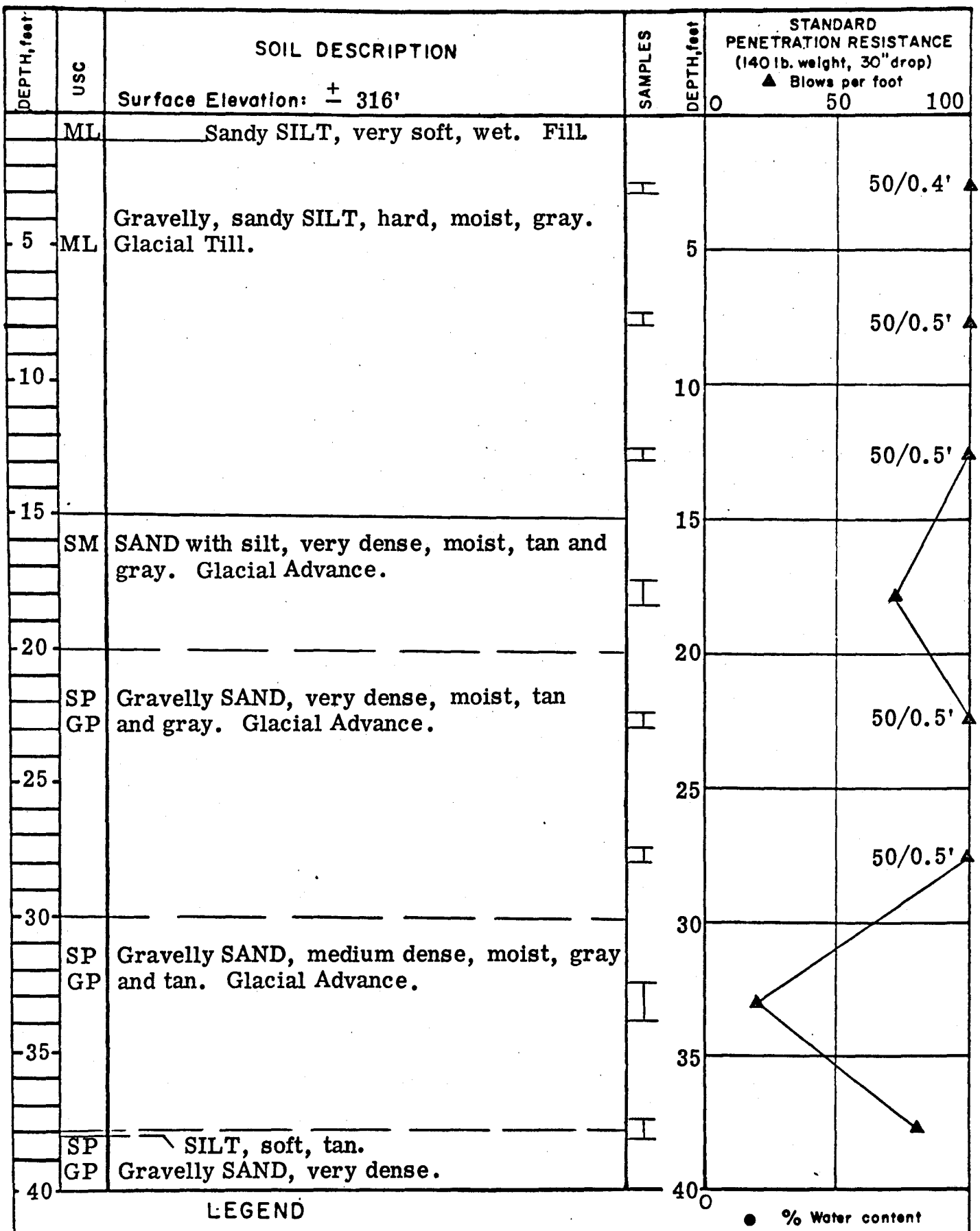
Harborview Medical Center

LOG OF BORING NO. B-11 (cont)

W-490

GEOLABS, INC.

SOIL MECHANICS & FOUNDATION ENGINEERS


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
GP
SILT, soft, tan.
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

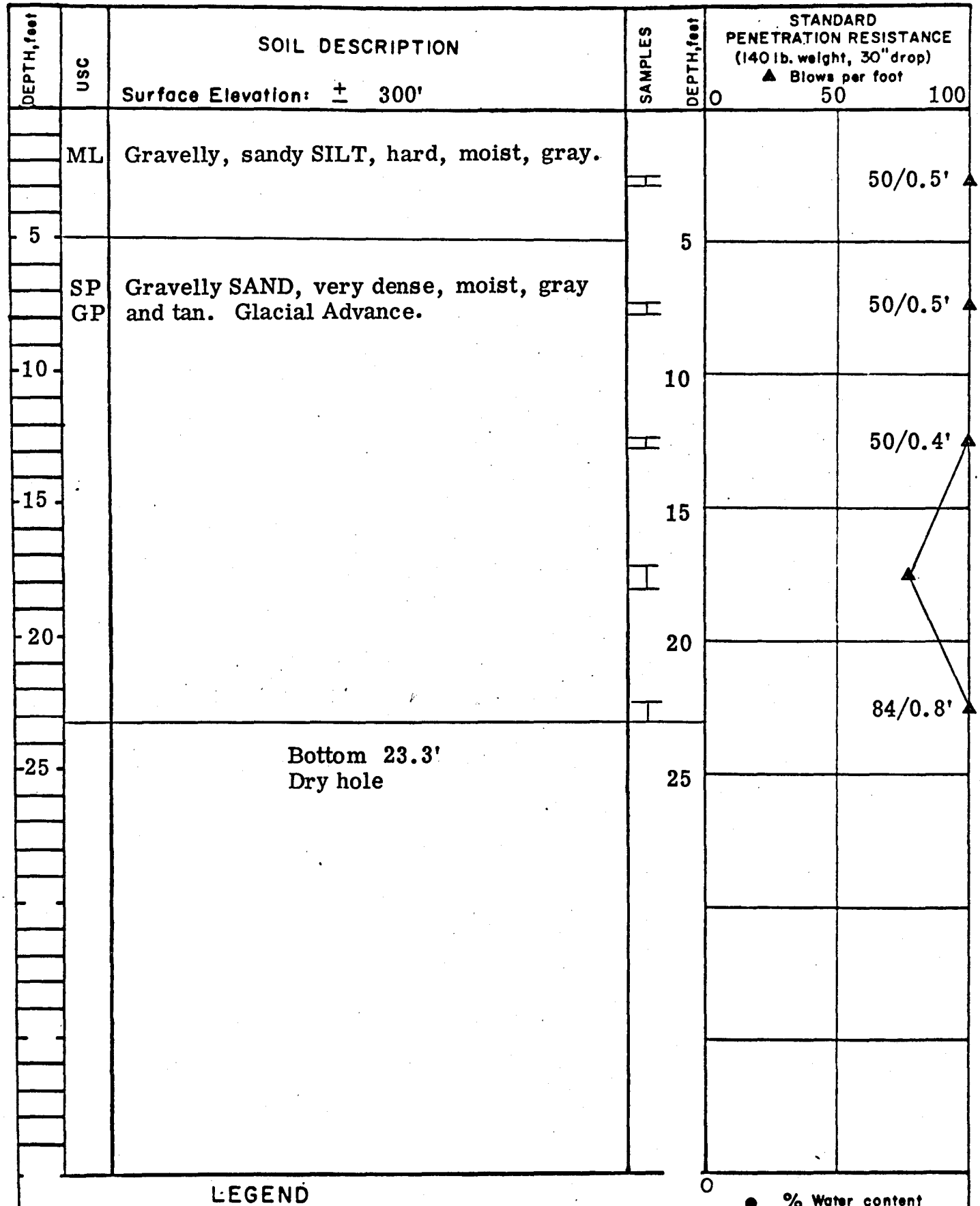
Harborview Medical Center

LOG OF BORING NO. B-12 (cont)

W-490

GEOLABS, INC.
SOIL MECHANICS & FOUNDATION ENGINEERS

Plate A-7



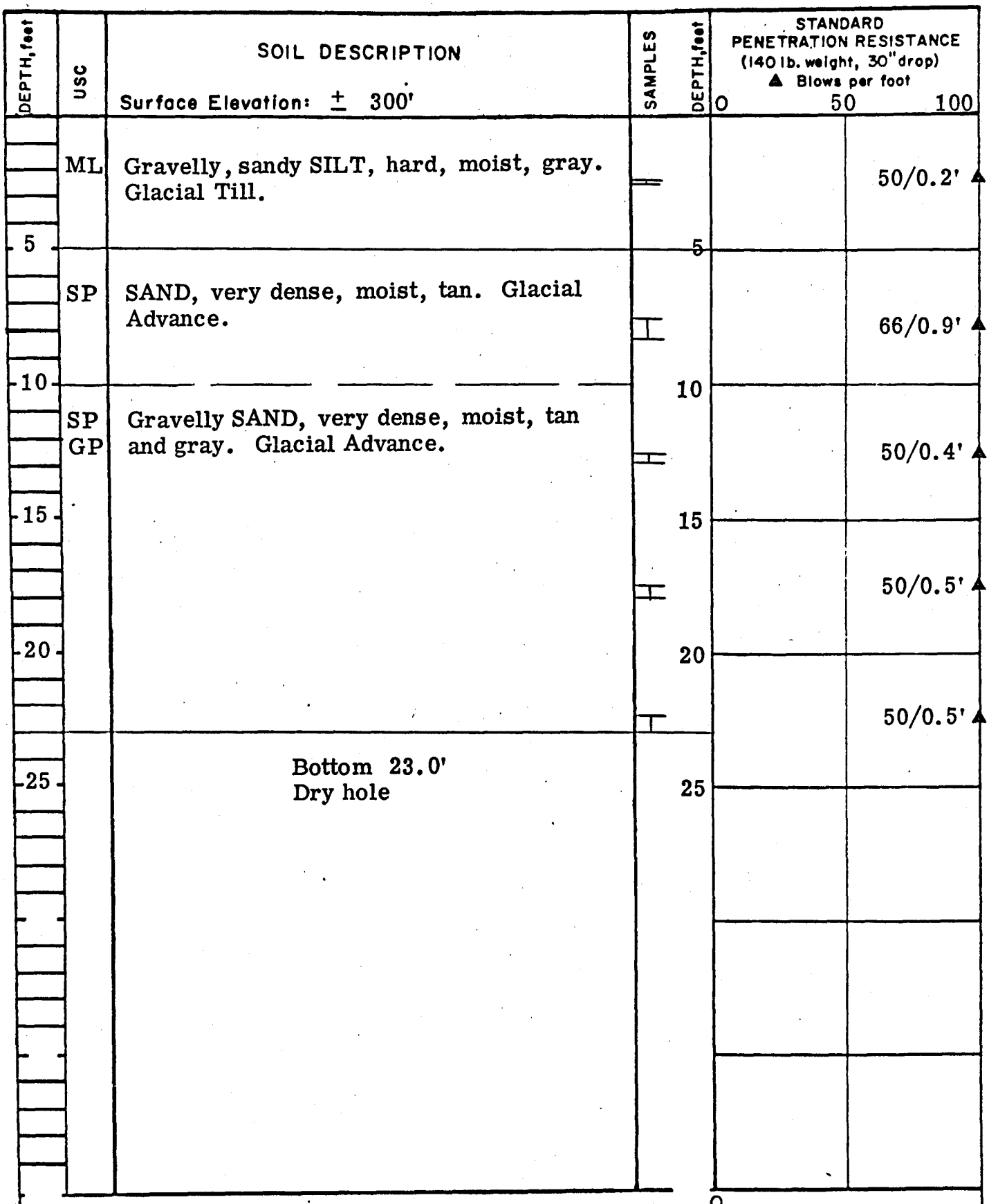
Harborview Medical Center

LOG OF BORING NO. B-13

W-490

GEOLABS, INC.

SOIL MECHANICS & FOUNDATION ENGINEERS



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

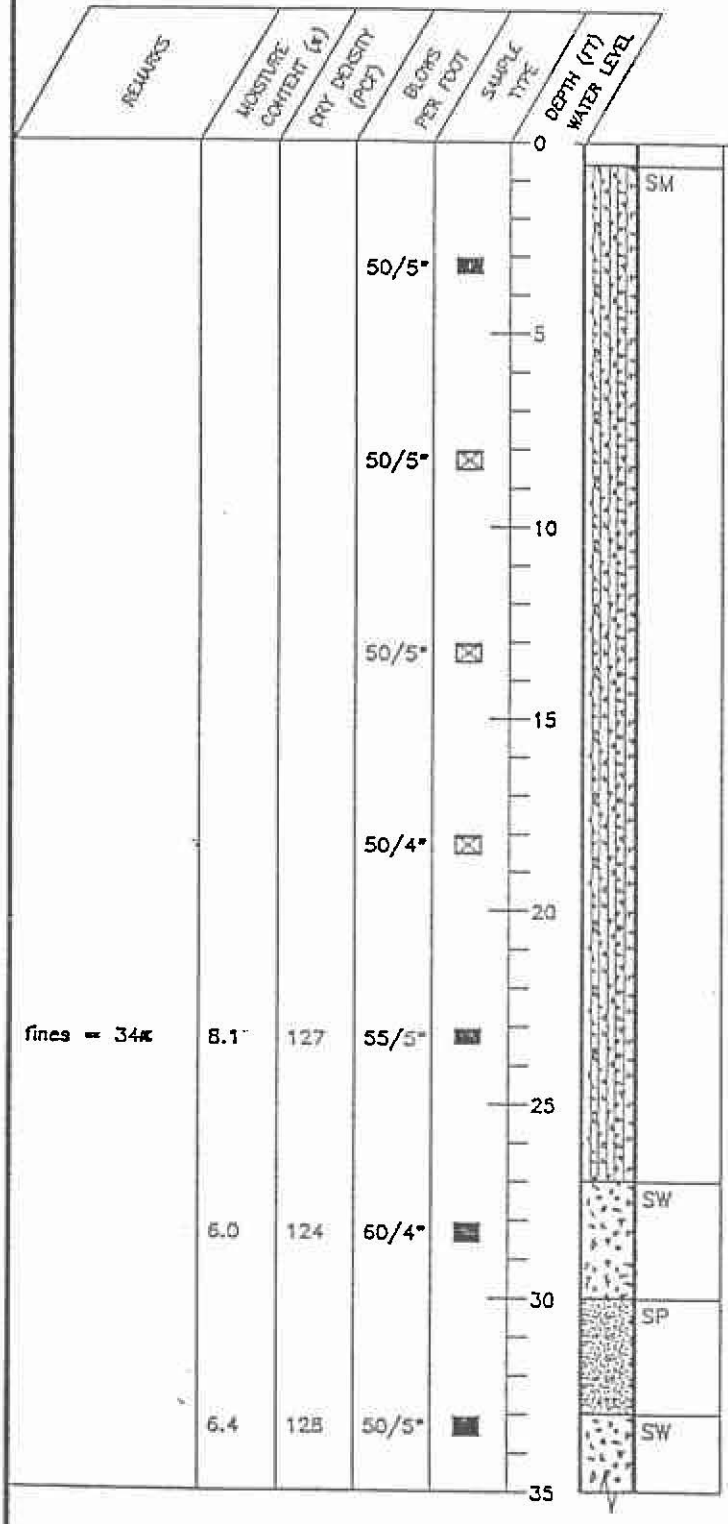
GEOLABS, INC.

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

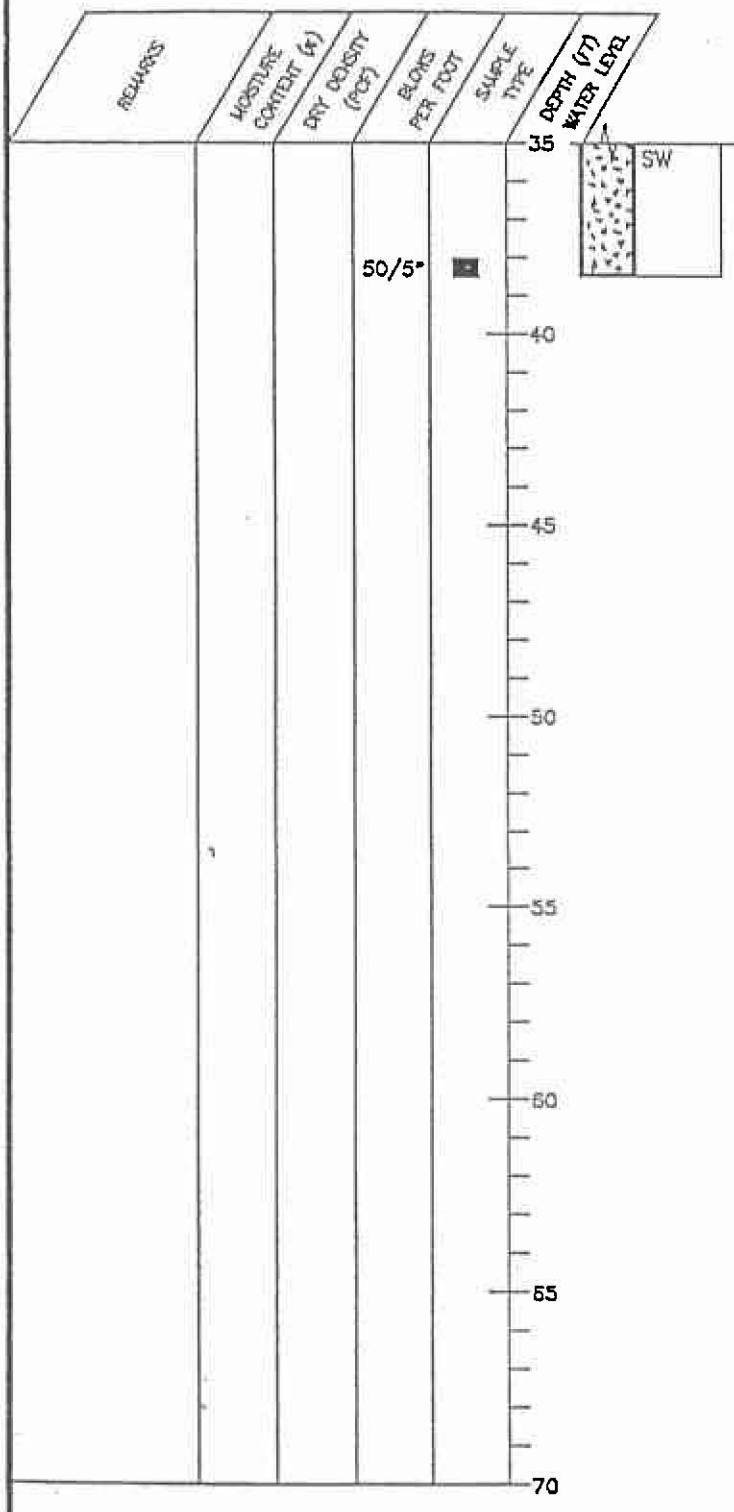
Dames & Moore

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

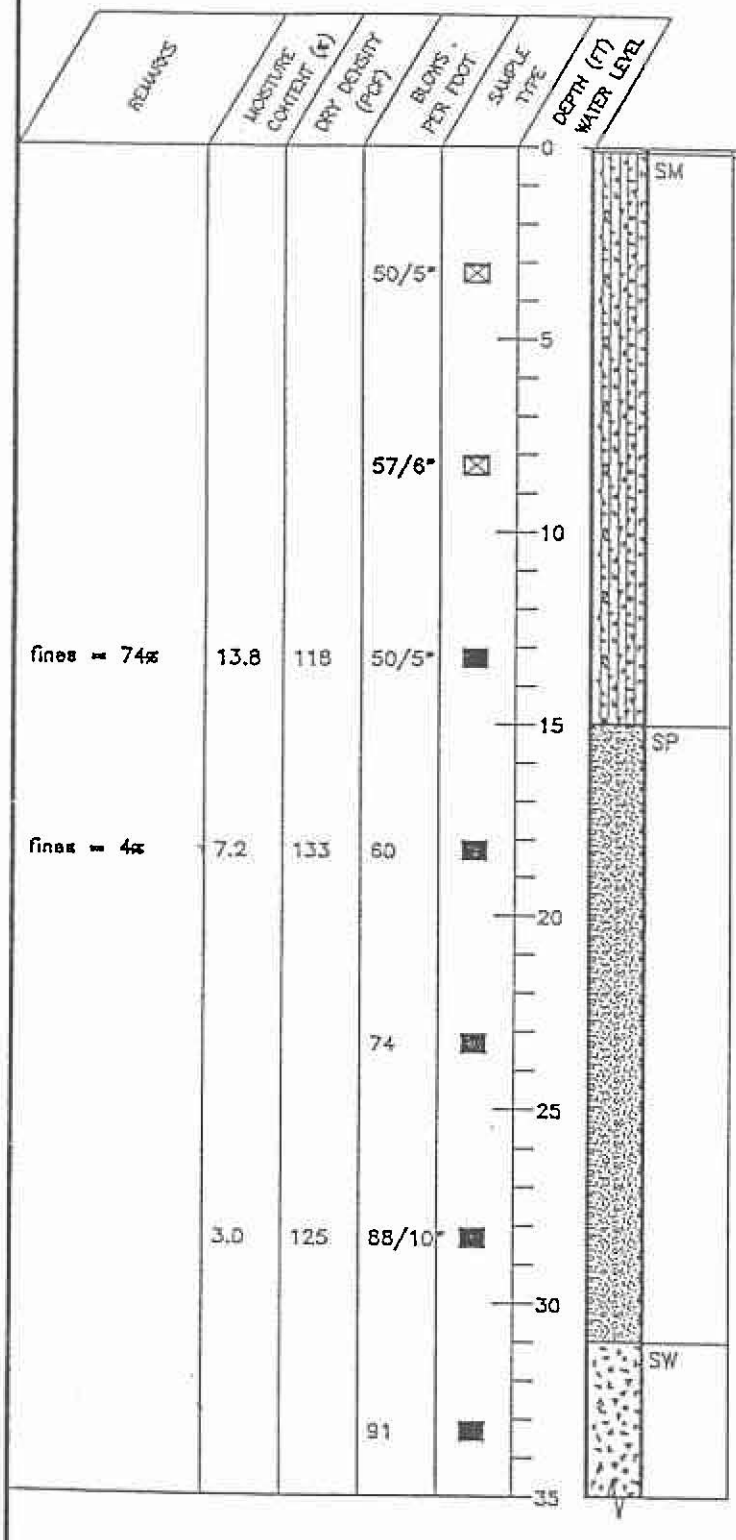
Dames & Moore

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

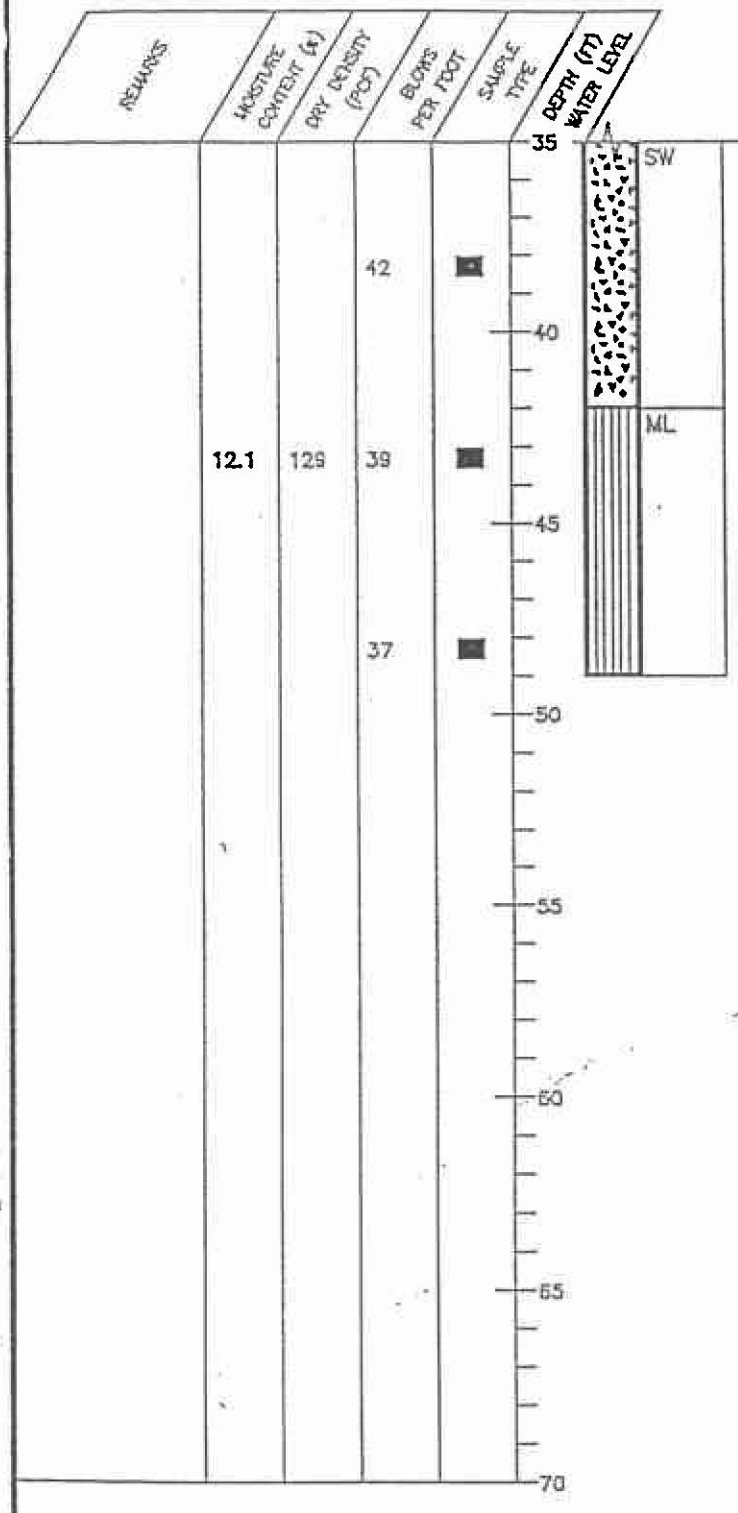
Dames & Moore

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.

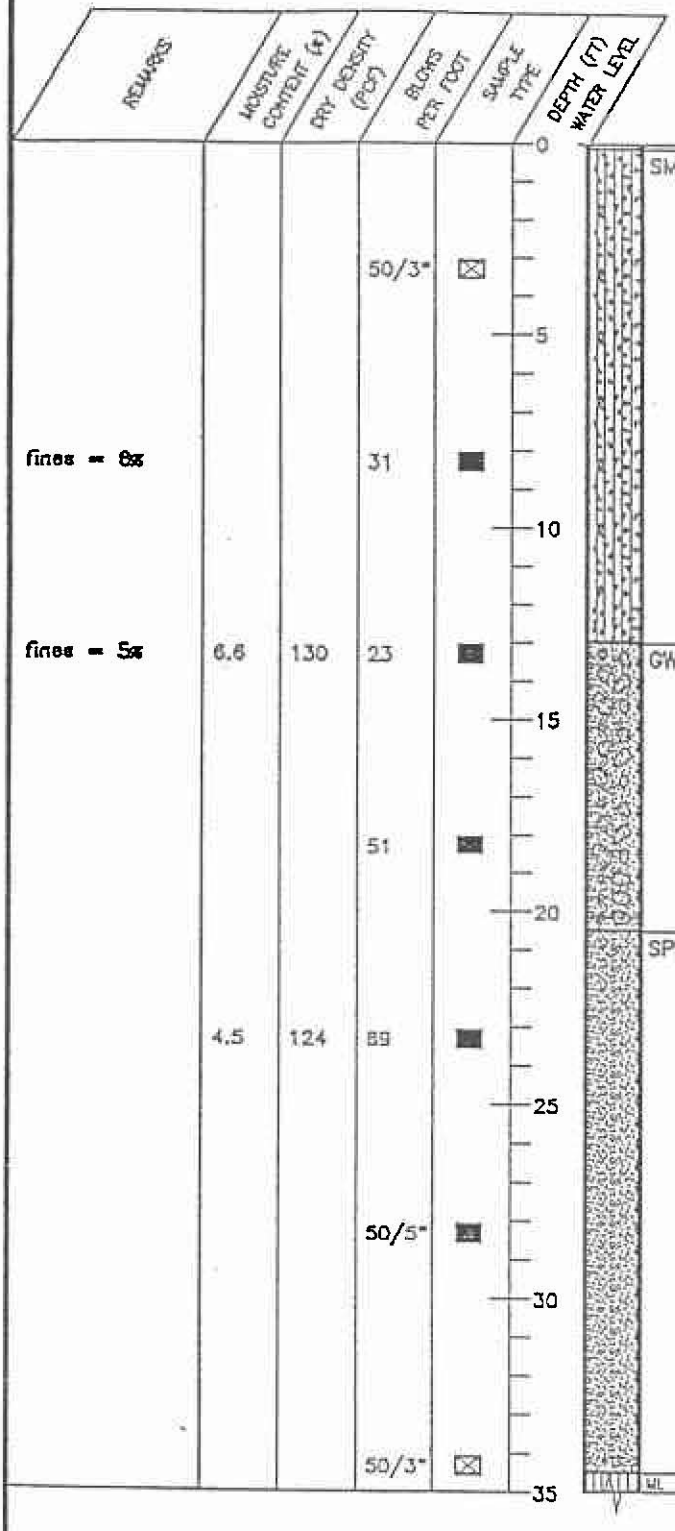
LOG OF BORING — Dames & Moore

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

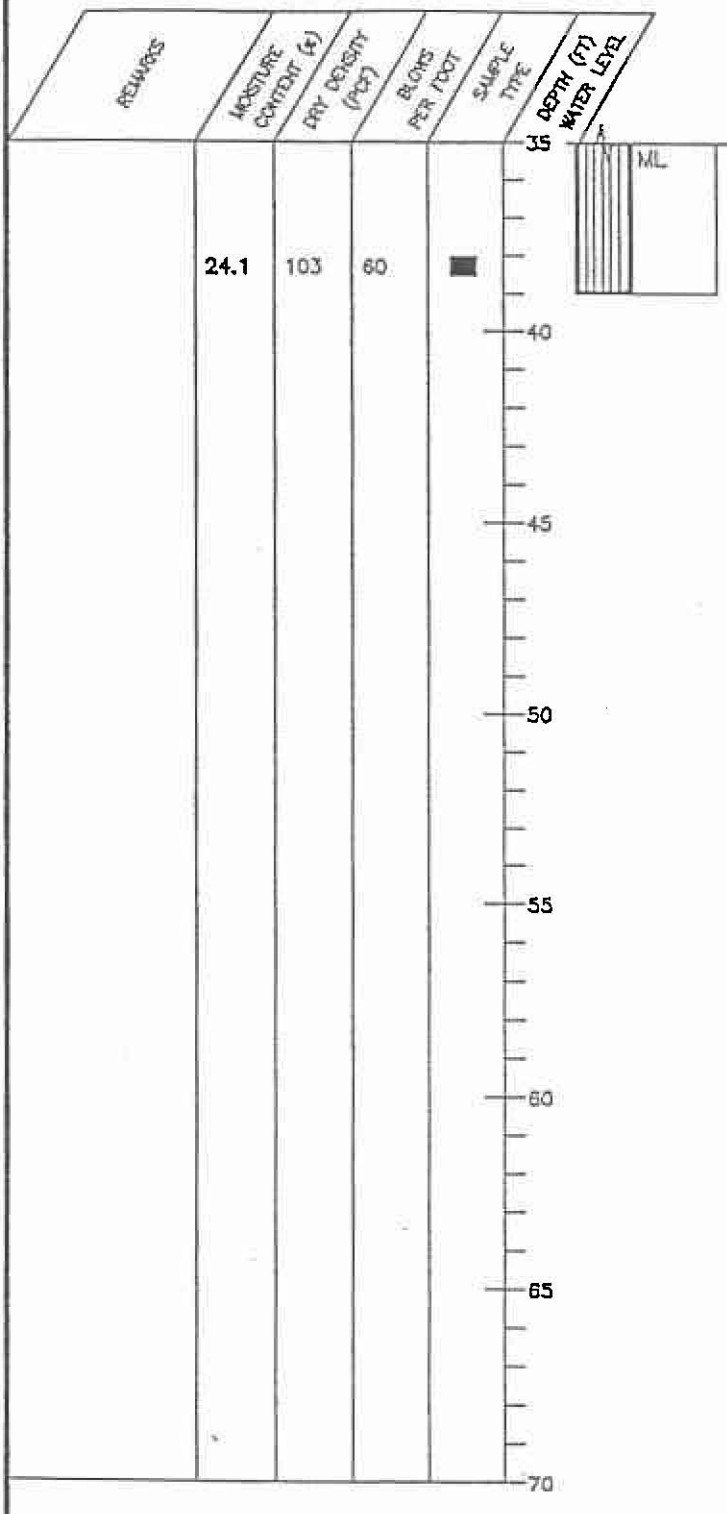
Dames & Moore

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.

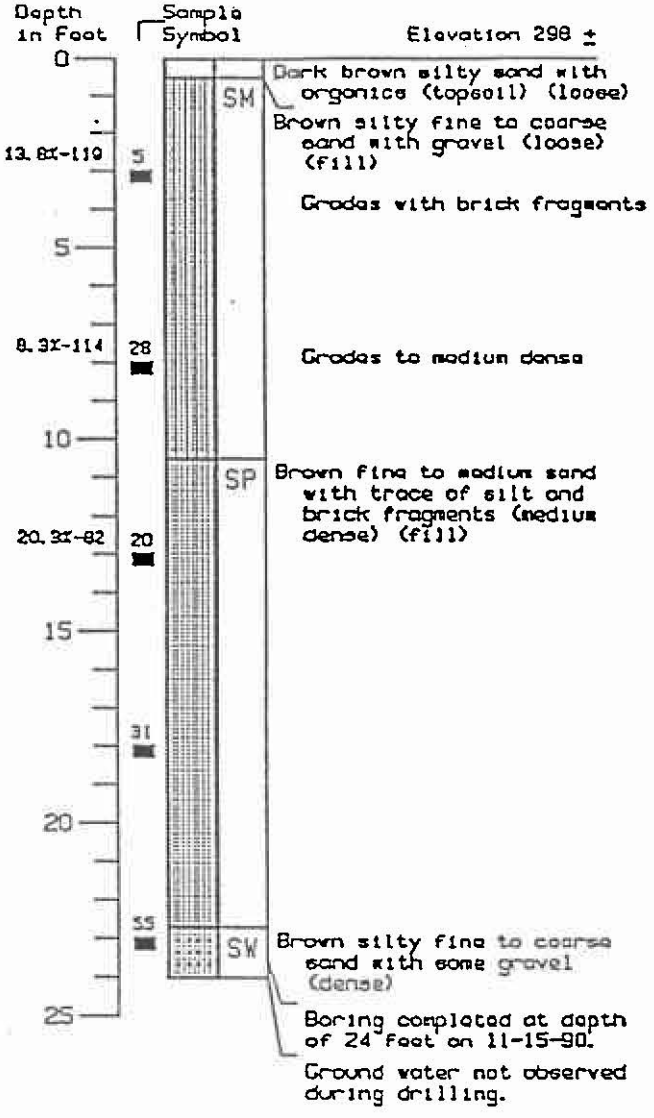
LOG OF BORING

Dames & Moore

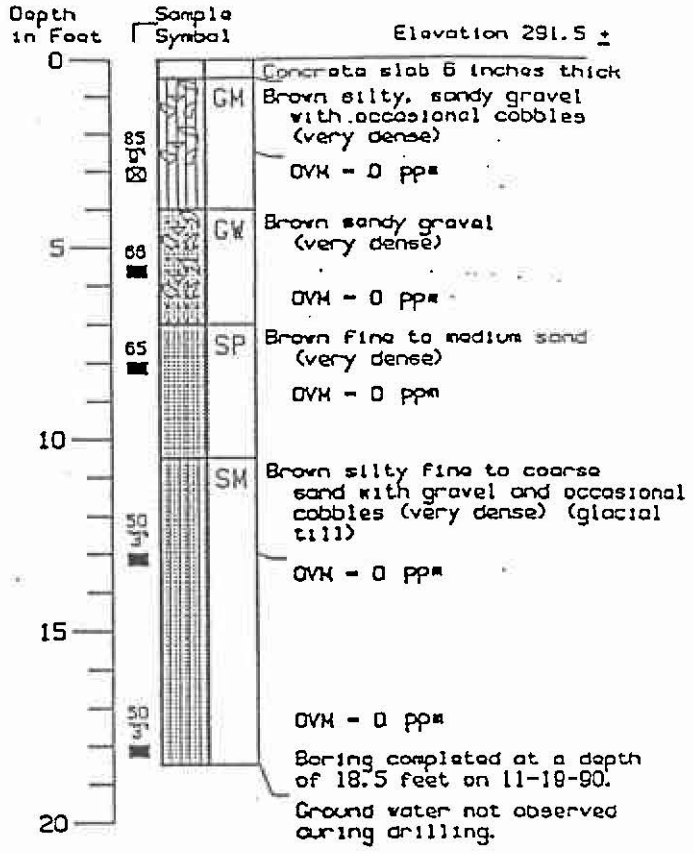
Job No. 05586-044-016

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				
18	18			24				SM		Brown/light brown silty fine to coarse SAND with scattered gravel (medium dense)(damp)(fill)	
						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				
18	18	113.4	3.4	56				GP		Brown fine to medium sandy GRAVEL with a trace of silt (very dense)(moist)(rounded & angular)	%fines = 1.7
						262.0	20				
18	18			40				SP		Brown fine to coarse SAND with scattered gravel and a trace of silt (dense)(moist)	
						257.0	25				
18	18	120.7	5.0	36							
						252.0	30				

NOTES:

LOB 05586056.GPJ 6/15/98

DAMES & MOORE
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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:

DAMES & MOORE
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LOG OF BORING DM-1-98

Figure A-4

LOB 05586056.GPJ 6/15/98

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	
								SP/ SM		Brown slightly silty fine to coarse SAND with some gravel (medium dense)(moist)(fill)	
18	18			25							
						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:

LOB 05586056.GPJ 6/15/98

DAMES & MOORE
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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:

LOG OF BORING DM-2-98

DAMES & MOORE
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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:

LOB 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

DAMES & MOORE
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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:

LOB 05586056.GPJ 6/15/98

DAMES & MOORE GROUP
A DAMES & MOORE GROUP COMPANY

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:

LOB 05586056.GPJ 6/15/98

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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:

LOB 05586056.GPJ 6/15/98

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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

DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

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	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			
						290.0	10		Increased drilling difficulty, brick and concrete debris in cuttings	
9	5	116.0	6.8	50/3"				SP/ GP	Brown gravelly **SAND** and sandy **GRAVEL** with a trace of silt (very dense)(moist)	%fines = 10.0
11	11			50/5"		285.0	15			
						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:

LOB 05586056.GPJ 6/15/98

DAMES & MOORE
A DAMES & MOORE GROUP COMPANY

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:

LOG OF BORING DM-5C-98

DAMES & MOORE
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Figure A-14

LOB 05586056.GPJ 8/15/98

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
	Sand and Sandy Soils	Clean Sand (little or no fines)		SW	Well-Graded Sands, Gravelly Sands, Little or no Fines
More than 50% of Material is Larger than No. 200 Sieve Size				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

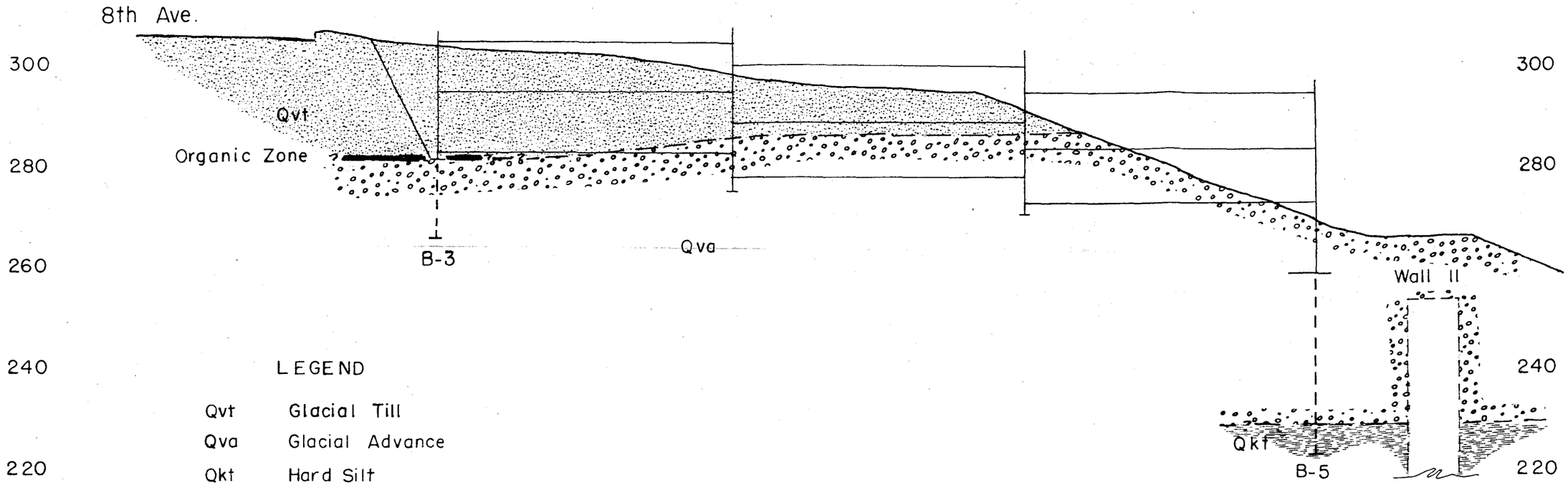
The project is located on the west side of Eighth Avenue between Alder and Jefferson Streets. The easterly half of the site is a slightly sloping area presently used for parking for the adjacent Harborview Hospital. Formerly, housing from the Yesler Terrace development of the Seattle Housing Authority 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

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'

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

		Size					
	2024 MAJOR AMENDMENT PLANNED PROJECTS	**SF**	**InPatient**	**OutPatient**		In	Out
A	NEW PATIENT TOWER	488,000	85%	15%		414800	73200
	2024 MAJOR AMENDMENT POTENTIAL PROJECTS						
B	POTENTIAL FUTURE TOWER @ VPII OVER 240'	488,000	85%	15%		414800	73200
C	POTENTIAL 240' NEW EAST CLINIC IN FOOTPRINT OF EXISTING EAST CLINIC	380,000	0%	100%		0	380000
D	POTENTIAL - EXPAND WSB SITE FOR MULTI-USE BLDG FROM 6 STORIES TO 10 STORES	38,000	0%	100%	Poss Admin	0	38000
	1999 & 2014 EXISTING MIMP PROJECTS TO REMAIN						
E	DEMOLITION OF EAST CLINIC	(119,718)	0%	100%		0	
G	SEISMIC UPGRADE TO HARBORVIEW HALL WITH BUTTRESS BUILDING TO EAST	64,000	0%	100%		0	64000
I	FIRST 6 STORIES OF MULTIUSE (WSB)	62,000	0%	100%		0	62000
J	DEMO SECURITIES *(site of future WSB)*	(8,093)	0%	100%		0	
K	DEMO FACILITIES	(5,616)	0%	100%		0	
						829600	690400

CAMPUS TOTALS	Sq.Ft.	COMMENTS
HMC	1,065,392	
Boren	133,683	Includes Parking
Childcare	5,706	Not part of MIO boundary calc
Facilities	5,616	
Firehouse	8,542	
HHALL	90,799	
Maleng	285,216	
Security Bldg.	8,093	Is this Medic One? Walter Scott?
NJB	764,347	Includes Parking
Pat Steel	287,824	Not part of MIO boundary calc
Pioneer Square	22,074	Not part of MIO boundary calc
R & T	181,930	
VP I	106,890	Includes Parking
VP II	147,078	Includes Parking

Total SF in MIO	**2,797,586**	**2,076,959**
deduct for parking exclusion & ME @ 3.5%	720,627	

TO BE DEMOLISHED	Sq.Ft.	COMMENTS
East Clinic	**Sq.Ft.**	
Total	119,718	
VPI	**Sq.Ft.**	
Total	106,890	
Security Bldg.	**Sq.Ft.**	
Total	8,093	
Facilities Bldg	**Sq.Ft.**	
First	5,616	
Total in existing MIO for demo	240,317	

PARKIN(	Sq.Ft.	COMMENTS
Boren G	**Sq.Ft.**	
Total	133,683	
VP I	**Sq.Ft.**	
Total	106,890	
VP II	**Sq.Ft.**	
Total	147,078	
NJB Gar	**Sq.Ft.**	
Total	311,088	
Maleng I	**Sq.Ft.**	
Total	21,888	

Total in exisitng MIO exclusion 720,627

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)			**Lifespan Emissions (MTCO2e)**
			Embodied	Energy	Transportation	
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		829.6	39	1,938	582	**2122615**
Health Care Outpatient		690.4	39	737	571	**929654**
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: **3052269**

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)**
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Section II: Pavement.....

Pavement.....		0.00				**0**

Total Project Emissions: **169665**

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Total	147,078	
NJB Gar	**Sq.Ft.**	
Total	311,088	
Maleng I	**Sq.Ft.**	
Total	21,888	

Total in exisitng MIO exclusion 720,627

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)			**Lifespan Emissions (MTCO2e)**
			Embodied	Energy	Transportation	
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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		829.6	39	1,938	582	**2122615**
Health Care Outpatient		690.4	39	737	571	**929654**
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: **3052269**

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)**
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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: **169665**

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
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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):	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
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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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☐ 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**
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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
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Seattle, WA 98121
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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.

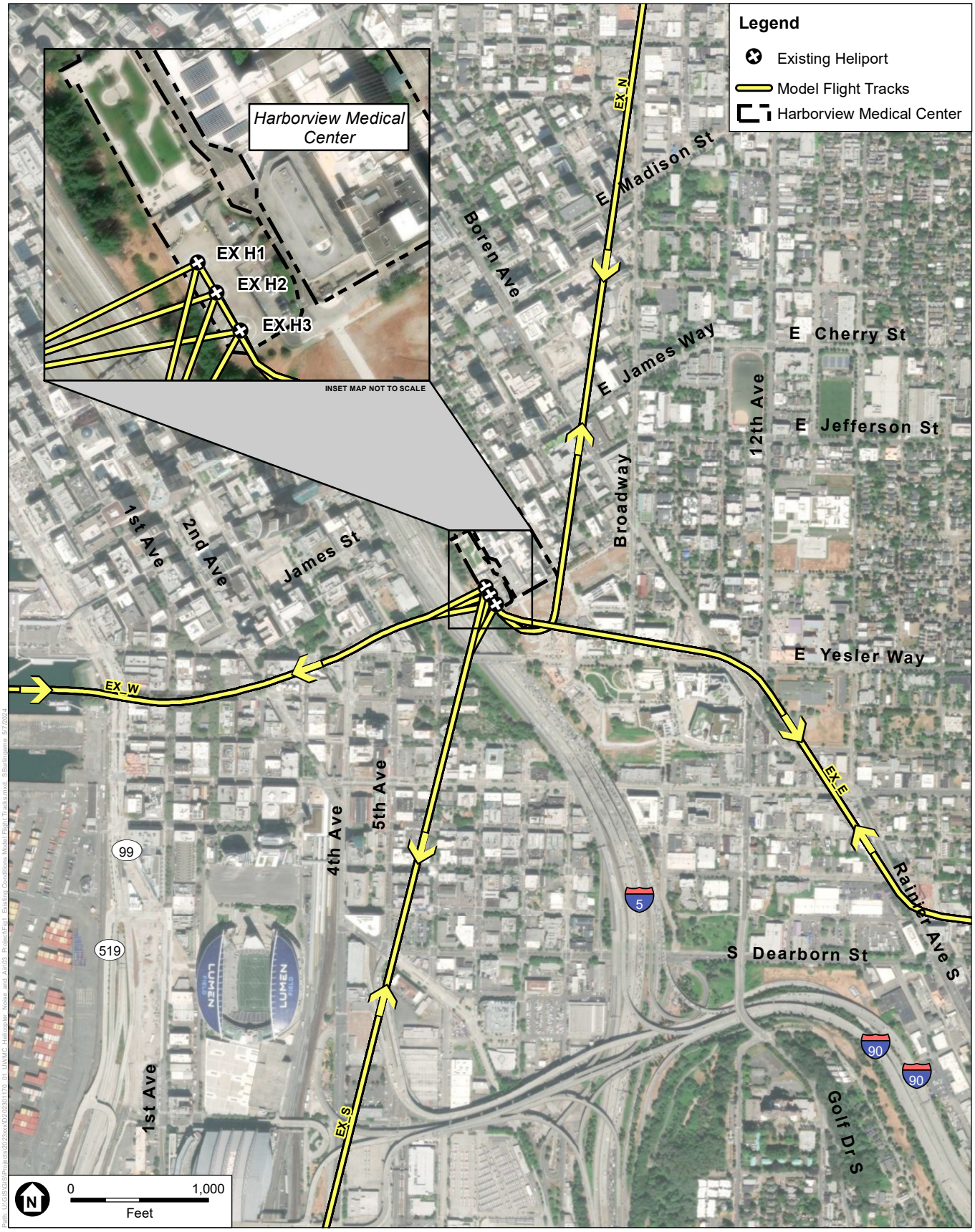
Existing H1 (EX H1)	Existing H1 (EX H2)	Existing H1 (EX_H3)	Total
30%	20%	50%	100%

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.

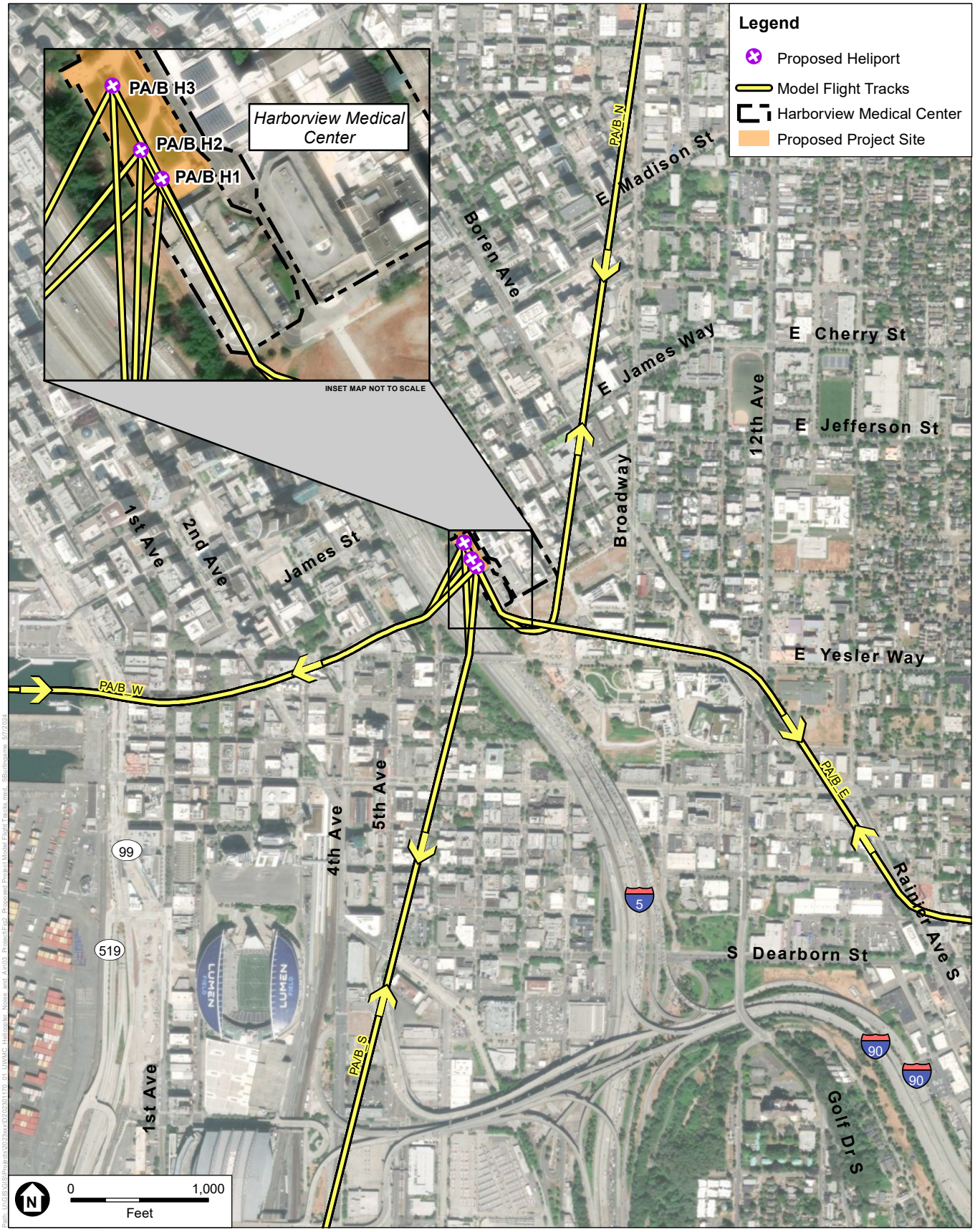


SOURCE: AEDT 3f; ESA, 2024.

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Figure 1
Existing Conditions Model Flight Tracks

ESA



SOURCE: AEDT 3f; ESA, 2024.

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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.

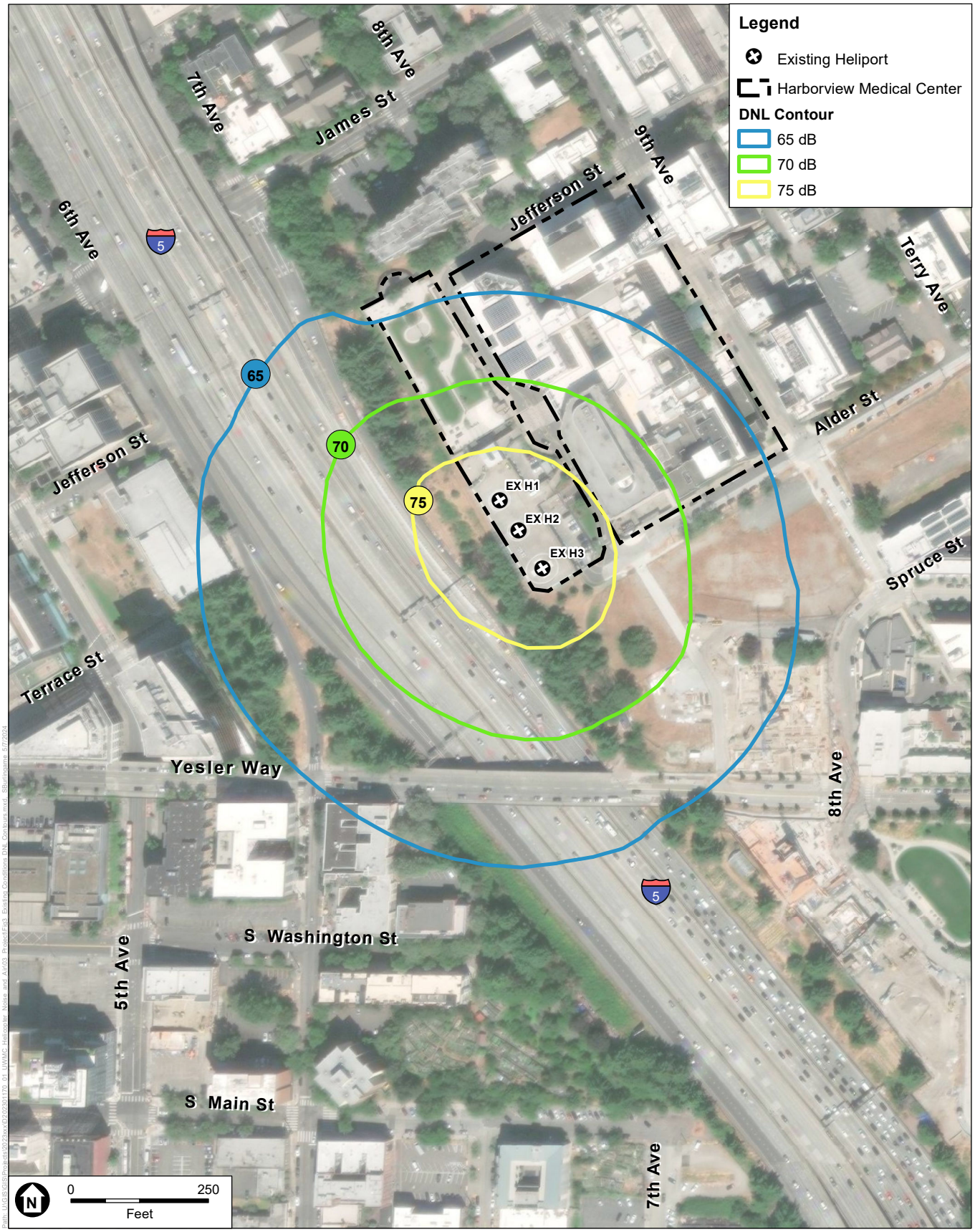
Figure 6 shows a comparison of the 2022 Existing Conditions Scenario and 2028 Proposed Project Scenarios A and B. As can be seen in Figure 6, the most discernable change resulting from Proposed Project Scenarios A and B

[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.

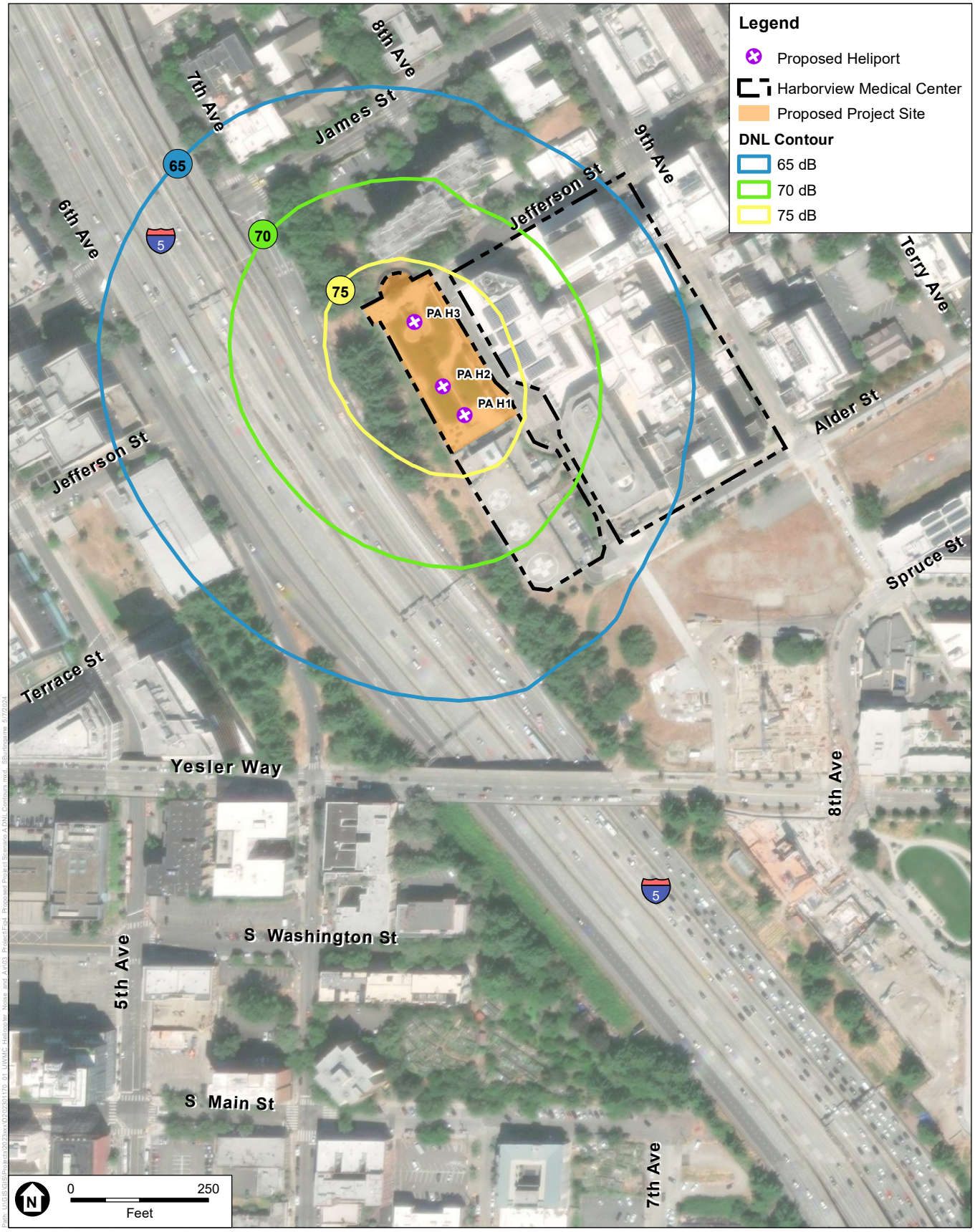


SOURCE: AEDT 3f; ESA, 2024.

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Figure 3
Existing Conditions DNL Noise Contours

ESA

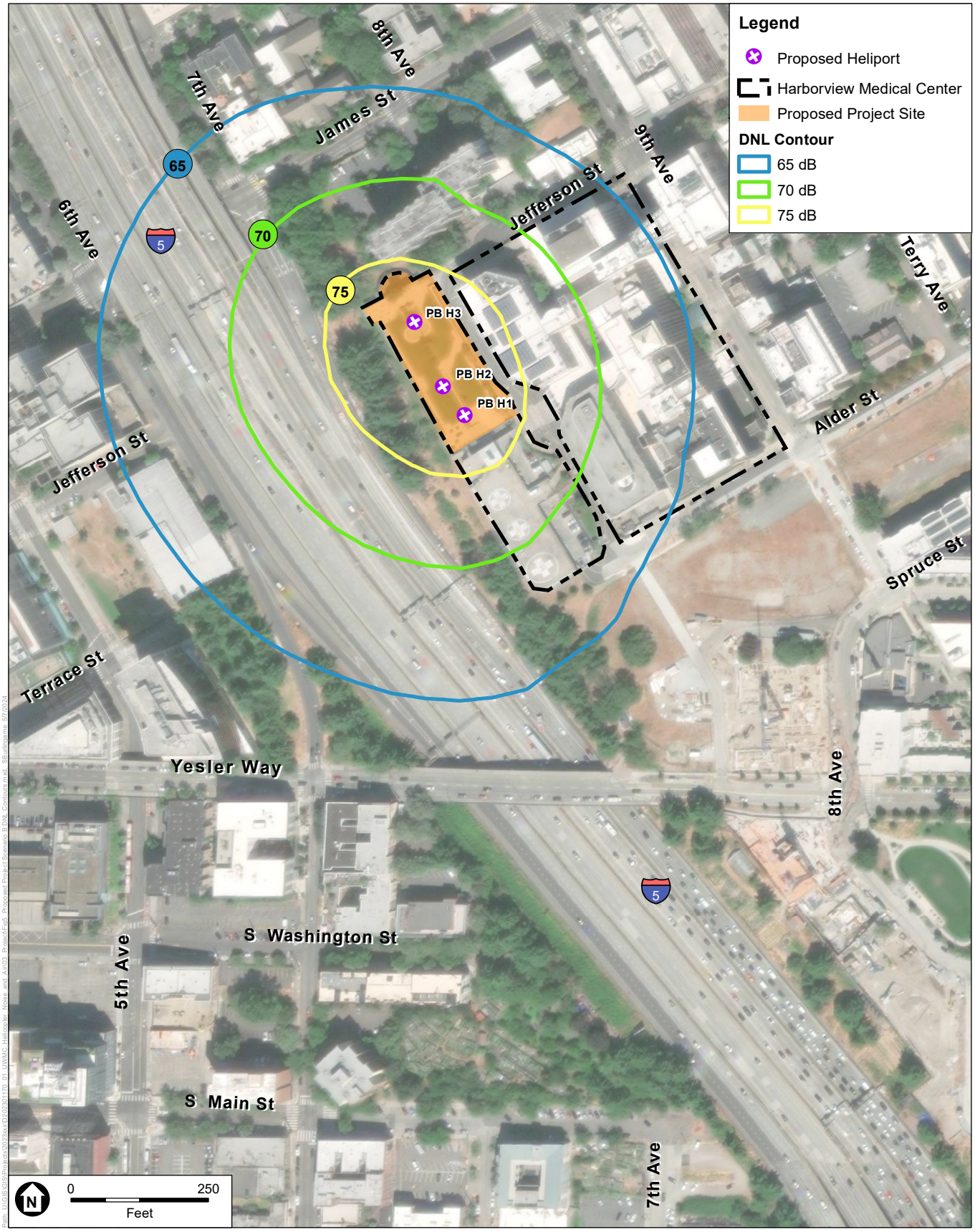


SOURCE: AEDT 3f; ESA, 2024.

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Figure 4
Proposed Project Scenario A DNL Noise Contours

ESA

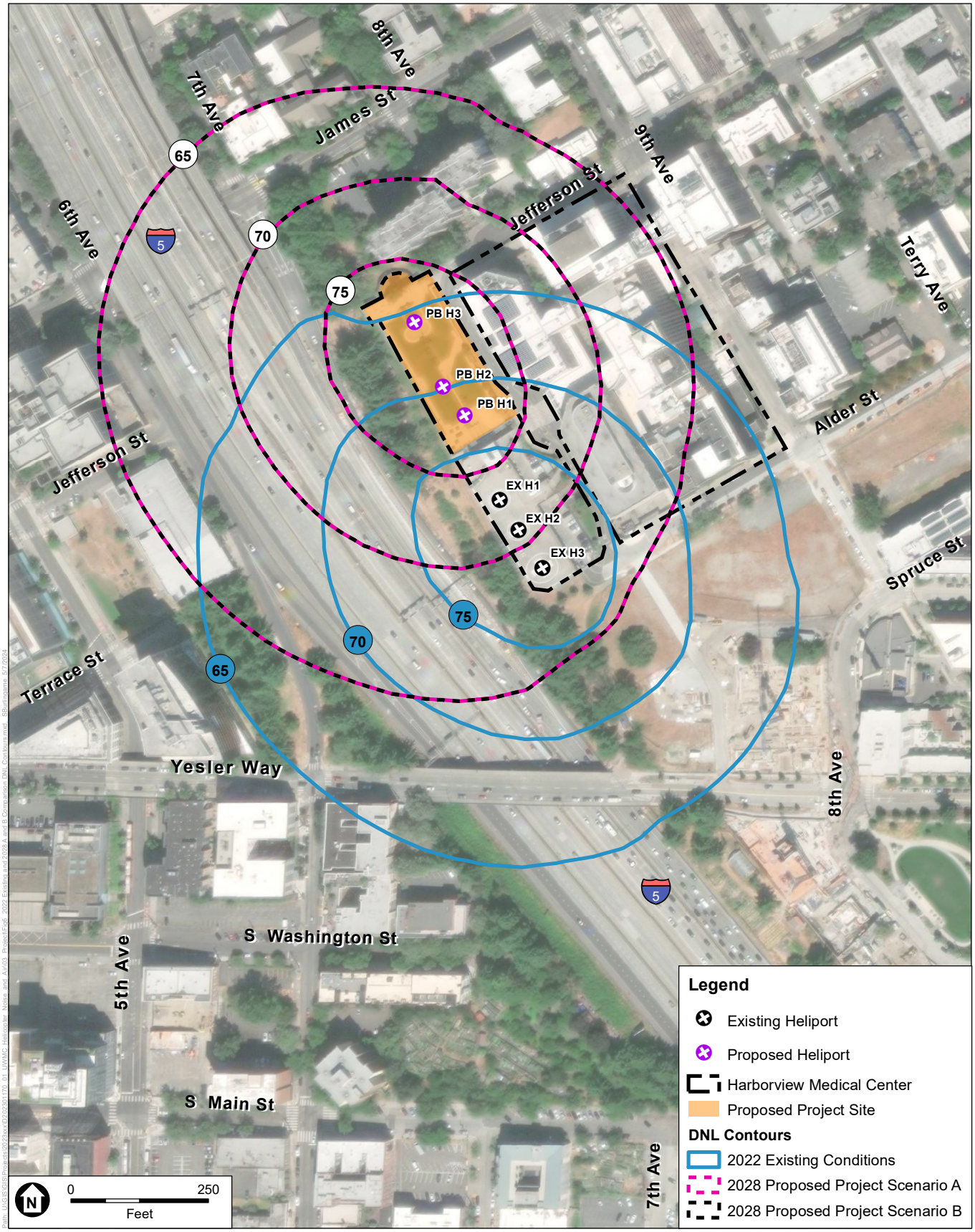


SOURCE: AEDT 3f; ESA, 2024.

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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.

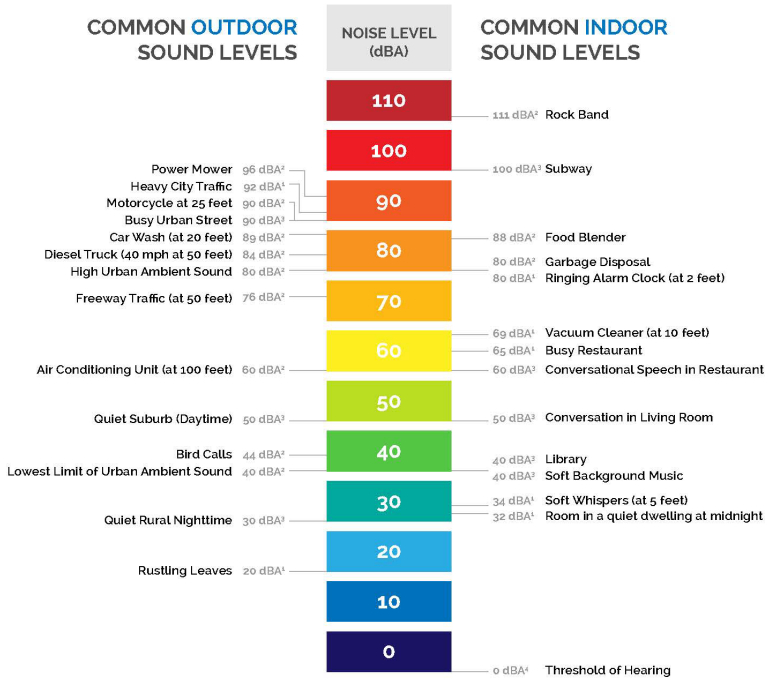
1.3.1 A-Weighted Sound Pressure Level (dBA)

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 1.1
2 Federal Agency Review of Selected Airport Noise Analysis Issues (Federal Interagency Committee on Noise), August 1992, Table B.1
3 Children's health and the environment, A Global Perspective, World Health Organization, 2005, Table 15.1
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)

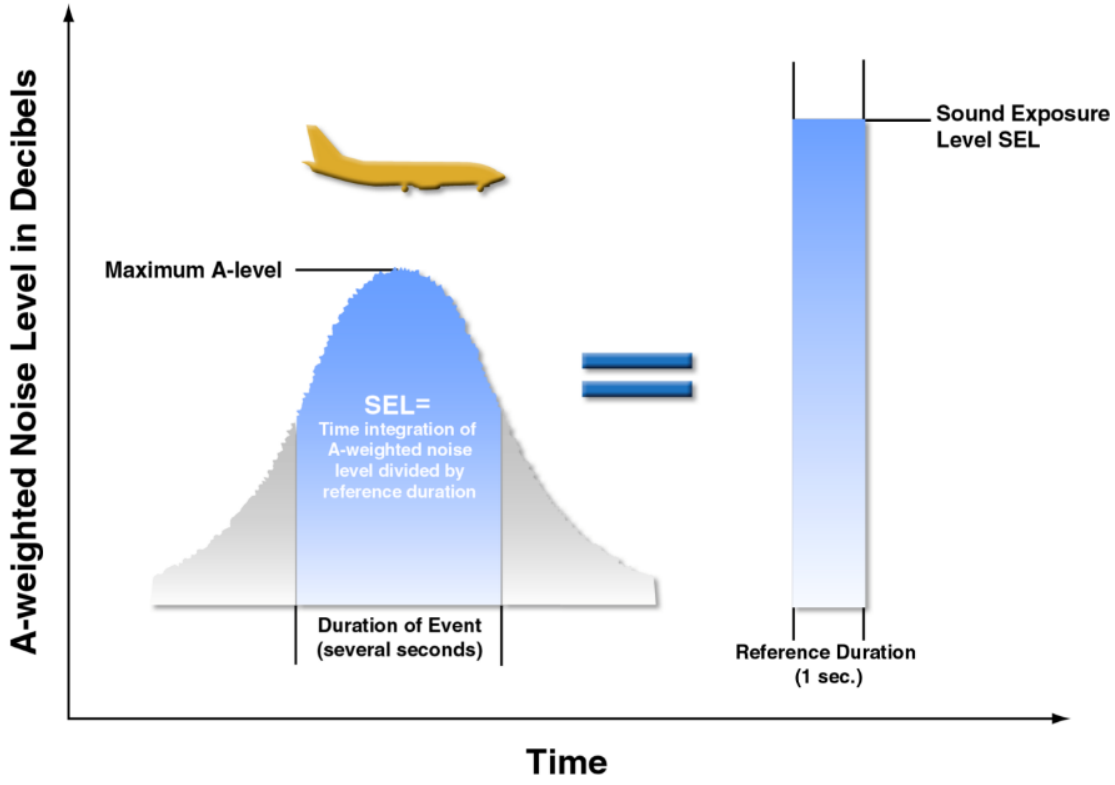
Lmax is the maximum, or peak, sound level during a noise event. The metric only accounts for the highest A-weighted sound level measured during a noise event, not for the duration of the event. For example, as an aircraft approaches, the sound of the aircraft begins to rise above ambient levels. The 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.

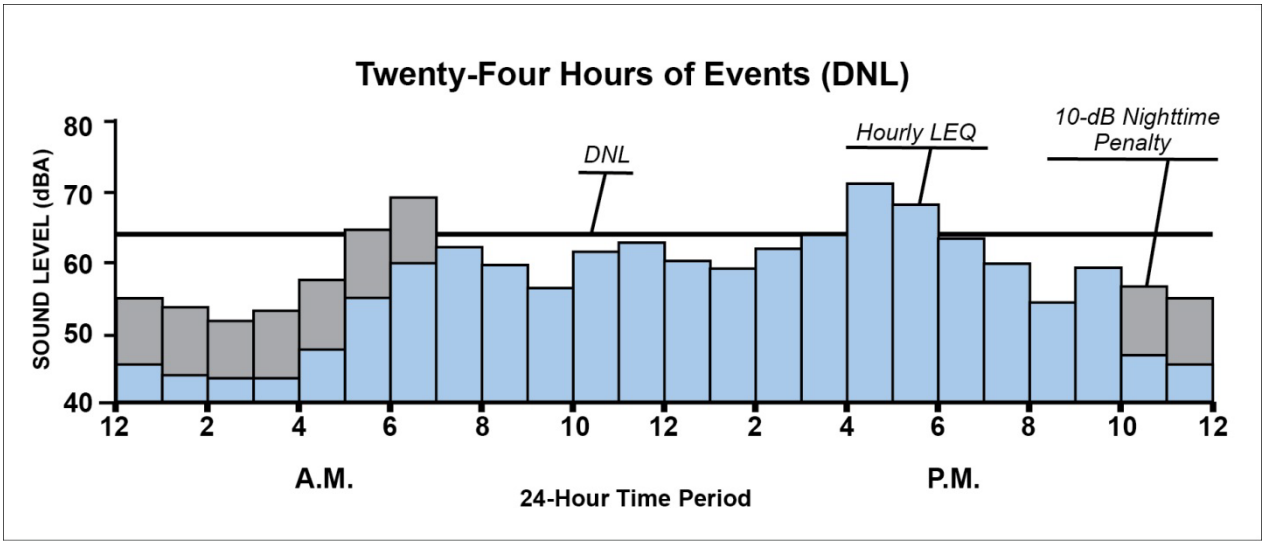
1.3.3 Sound Exposure Level (SEL)

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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Seattle Star, 1/7/45

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

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:	**Date Presented to Mayor:**
3/14/11	3/15/11
Date Signed by Mayor:	**Date Returned to City Clerk:**
3.18.11	3.18.11
Published by Title Only X	**Date Vetoed by Mayor:**
Published in Full Text _____	
Date Veto Published:	**Date Passed Over Veto:**
Date Veto Sustained:	**Date Returned Without Signature:**

The City of Seattle – Legislative Department

Council Bill/Ordinance sponsored by: Sally J. Clark

Committee Action:

Date	Recommendation	Vote
030911	APPROVE	3-0 SC JB KLO

This file is complete and ready for presentation to Full Council. _____

Full Council Action:

Date	Decision	Vote
3/14/11	PASSED	7-0 (excused: Bagshaw, 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

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

DRS 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.

SMS 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.

DPS 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.

SDS 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.

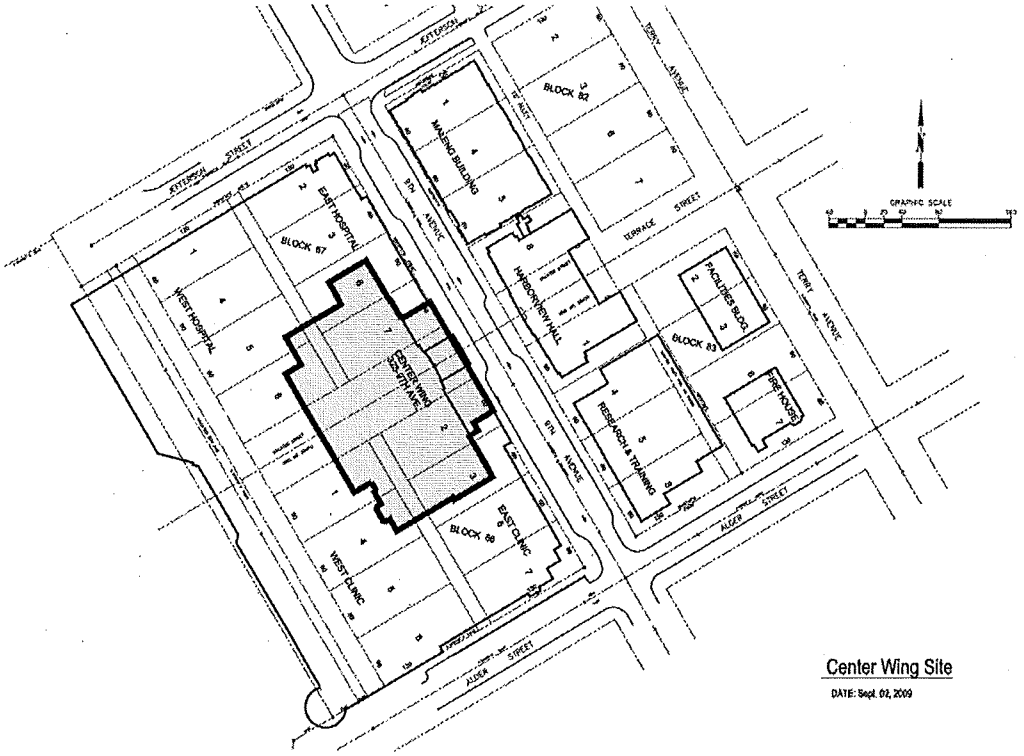
City Clerk

(Seal)

Attachment A – Designated Site Area of Harborview Medical Center (Center Wing of the East Hospital)

SEA CITY CLERK

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)

2011 CITY CLERK

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)

2011 CITY CLERK

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)

SEATTLE 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

2011 CITY CLERK

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.

JENNIFER A. PATZER NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES OCT. 24, 2011

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

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

SMC 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.

SEA 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.

SEATTLE 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 Polaty certify that this is a true and correct copy of Ordinance No. 123557, on file in the records of the City of the Office of the City Clerk

Signed by:
Signature
Title: Information Specialist
Date: March 22, 2011

Attachment A – Designated Site Area of Harborview Medical Center (Center Wing of the East Hospital)

PHS CITY CLERK

JBA: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 Stevenson

address 1922 E. CALHOUN ST.

phone EA9-4381

Reviewed _____ Historic Preservation Officer

date 12/18/74

NOMINATION DATE 12/18/74

DEC 18 1974

OFFICE OF HISTORIC PRESERVATION

BOARD SPONSOR Margaret A. Corley

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	☒ 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

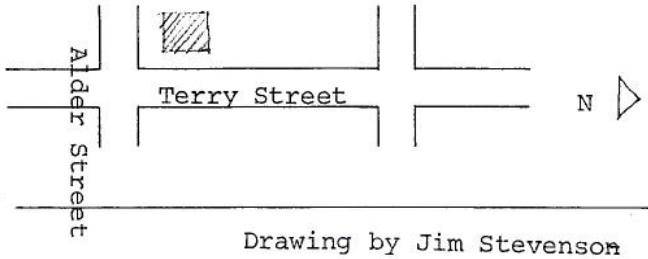
Comments The neighborhood, originally residential, has been much disrupted by recent development of Harborview Hospital, nearby clinics and apartment houses.

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 operable 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

DRAFT Transportation Discipline Report

HARBORVIEW MEDICAL CENTER MAJOR INSTITUTION MASTER PLAN

Prepared for:
Harborview Medical Center

December 2025

Prepared by:

12131 113th Avenue NE Suite 203
Kirkland, WA 98034-7120
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Fax: 425-825-8434
www.transpogroup.com

1.21156.00

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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:

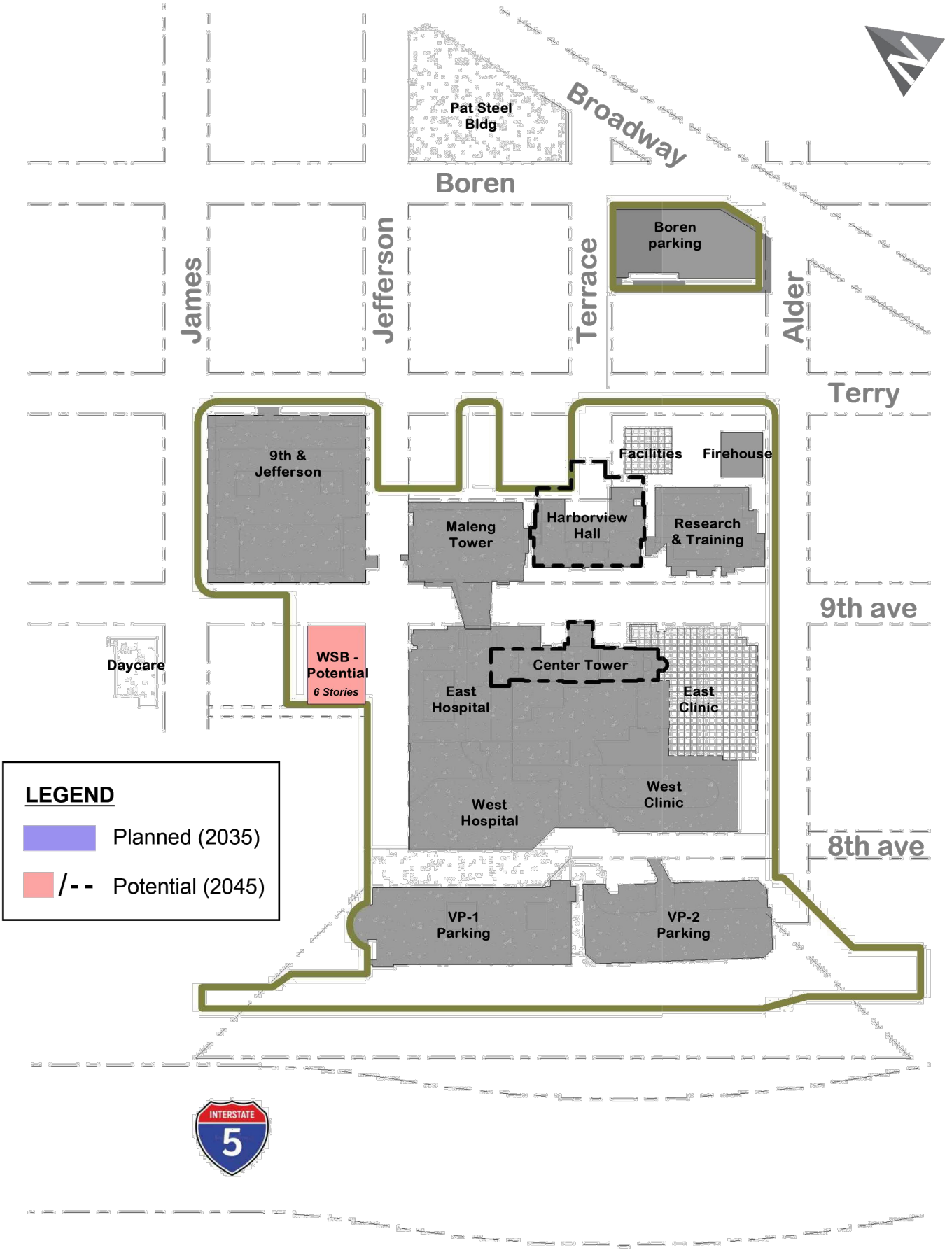
- **Introduction** – This section outlines project alternatives, the overall approach and scope, and provides the methodology of the transportation analysis completed for the project.
- **Affected Environment** – This section documents the existing transportation conditions within the study area defined 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, 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 a reduction of 45,727 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 1,348,273 gsf added to MIO. The planned development includes the new patient tower at VPI. 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.

The summary of development for the Alternatives is summarized in Table 1.

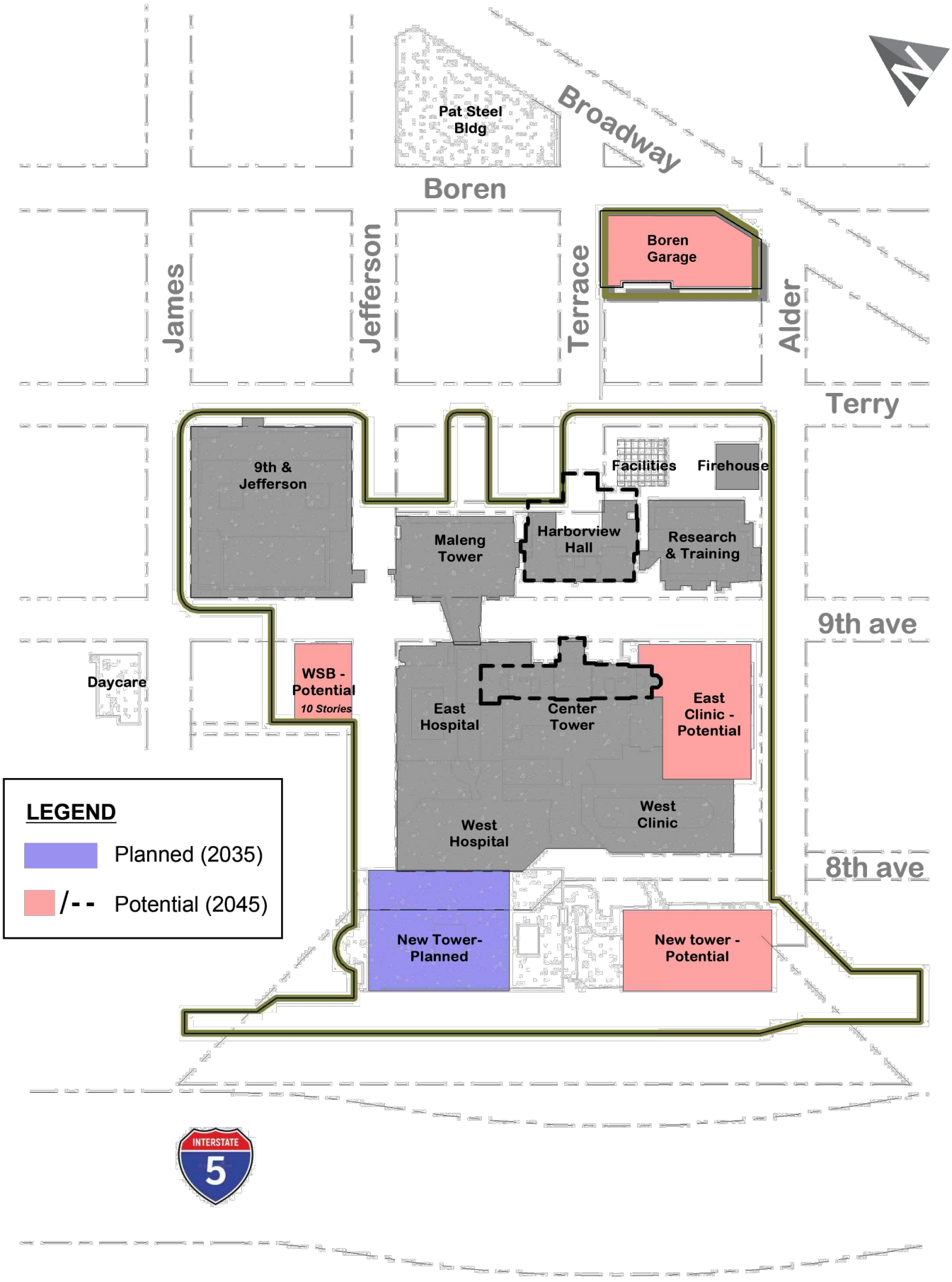


No Action Site Plan

Harborview Medical Center TDR

FIGURE
1

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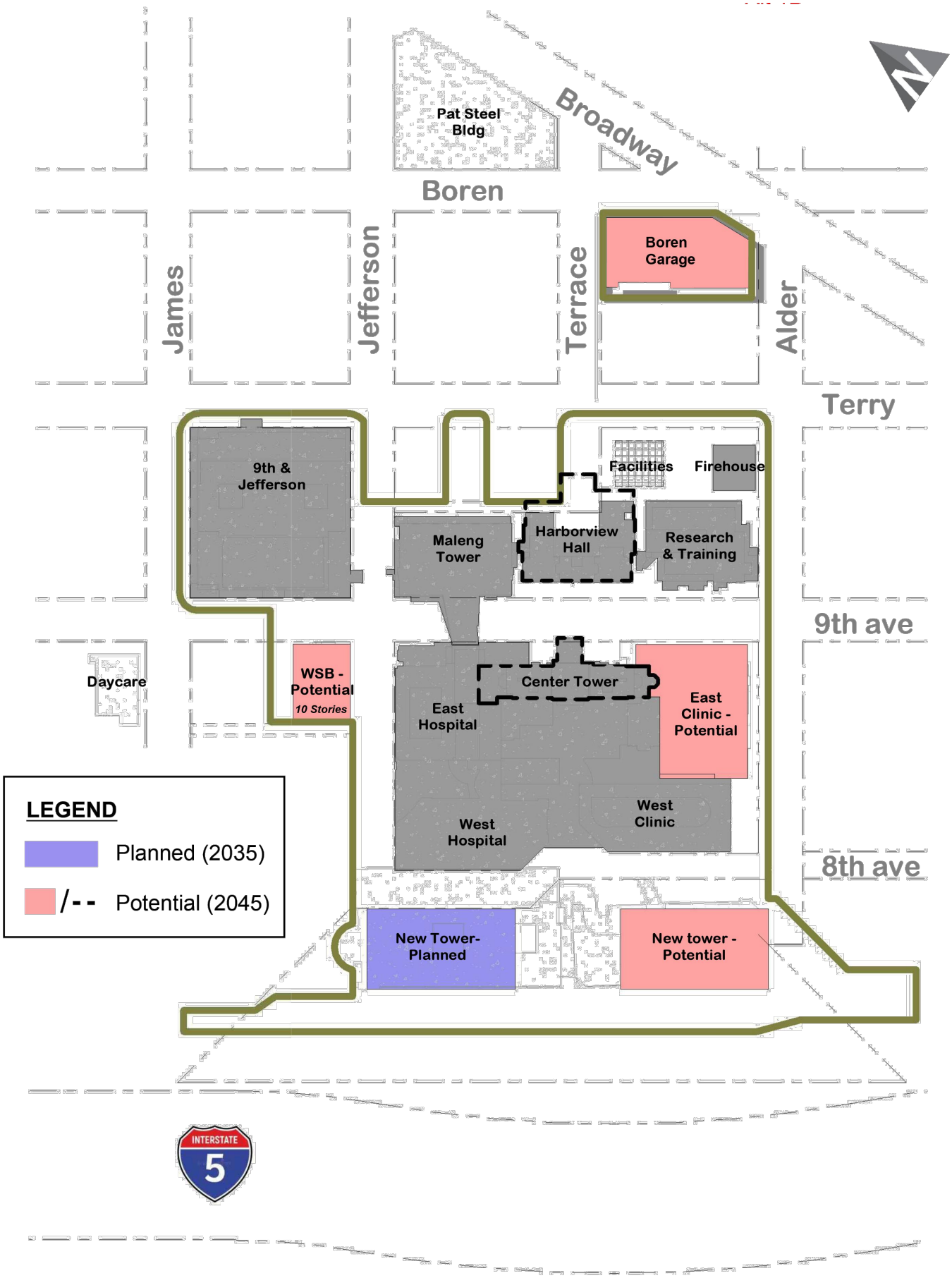


Alternative 1A Site Plan

Harborview Medical Center TDR

FIGURE
2

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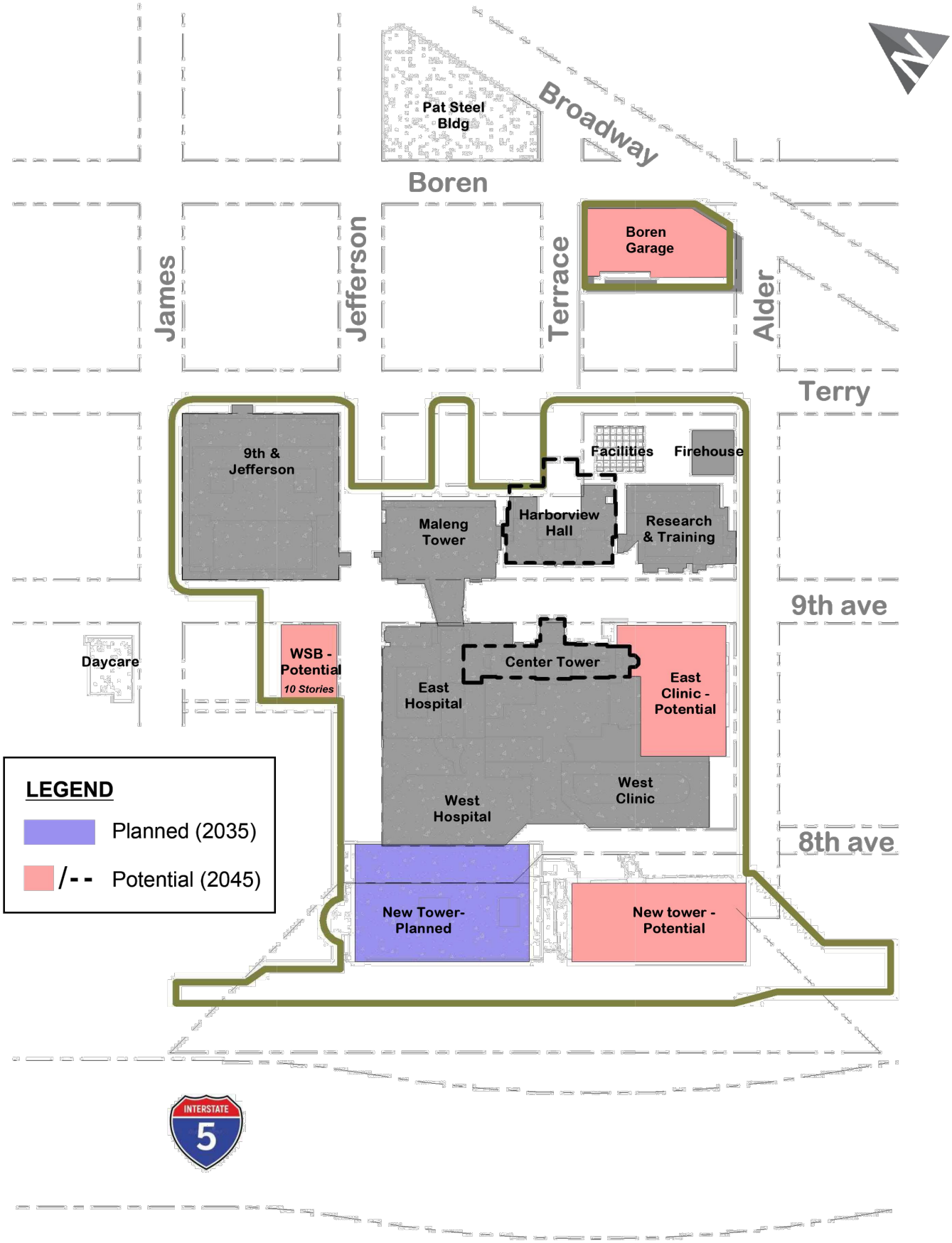


Alternative 1B Site Plan

Harborview Medical Center TDR

FIGURE
3

transpogroup



Action Alternative 2 Site Plan

FIGURE 4

Harborview Medical Center TDR

transpogroup

Table 1. Alternative Summary

Project	Size		
	No Action	**Alternative 1:** Maximum building height of 320'	**Alternative 2:** Maximum building height of 240'
2024 MAJOR AMENDMENT PLANNED PROJECTS			
New Patient Tower	-	488,000 gsf	488,000 gsf
2024 MAJOR AMENDMENT POTENTIAL PROJECTS			
Future Tower	-	488,000 gsf	488,000 gsf
New East Clinic in footprint of Existing East Clinic	-	380,000 gsf	380,000 gsf
Boren Parking Garage Expansion[2]	-	-	-
Expand WSB Site for Multi-Use Building (+ 4 stories)	-	38,000 gsf	38,000 gsf
Subtotal	-	+ 906,000 gsf	+ 906,000 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	64,000 gsf	64,000 gsf	64,000 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	*- 45,727 gsf*	*- 45,727 gsf*	*- 45,727 gsf*
Existing Total	*2,076,959 gsf*	*2,076,959 gsf*	*2,076,959 gsf*
Net New Total (Planned)	-	*+ 488,000 gsf*	*+ 488,000 gsf*
2035 Future Total *(planned only)*	**2,076,959 gsf**	**2,564,959 gsf**	**2,564,959 gsf**
Net New Total (Planned and Potential[1])	*- 45,727 gsf*	+ 1,348,273 gsf	+ 1,348,273 gsf
2045 Future Total *(planned and potential[1])*	**2,031,232 gsf**	**3,425,232 gsf**	**3,425,232 gsf**
Private Roadway known as 8th Avenue to Remain Open?	**Yes**	**Option A – No Option B – Yes**	**No**

Note: gsf = gross square feet.
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.

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). 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
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

transpogroup

Affected Environment

This section provides an overview of the existing conditions within the defined study area. The campus currently consists of 2,076,959 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. 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.

avTrip 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 2,076,959 gsf and includes a variety medical uses such as emergency services, clinic areas, professional services, imagery and diagnostics, and numerous other supportive functions. 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.[1] 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

[1] 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.

higher vehicle mode split usage.[2] 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.[3]

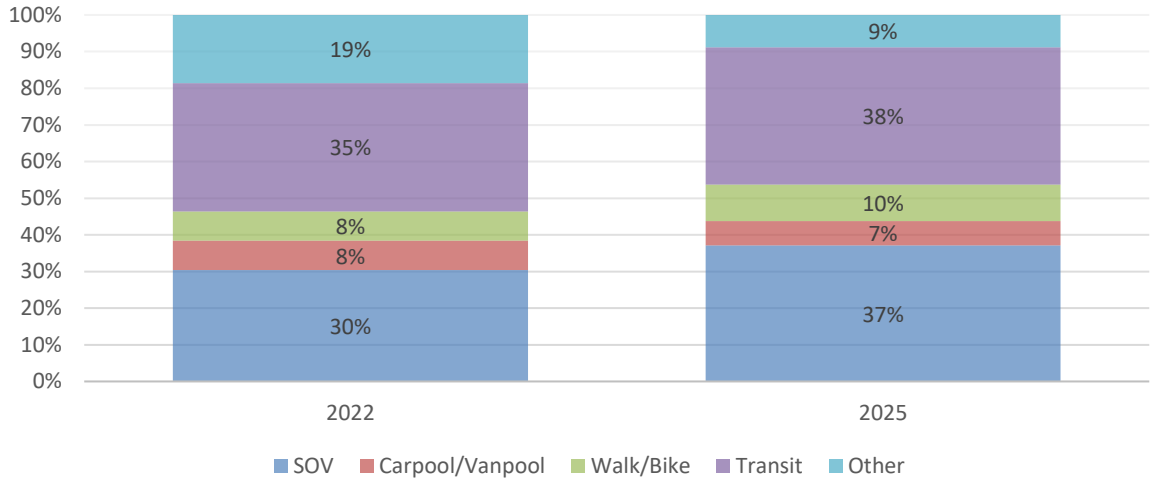


Figure 6. Existing CTR for the Campus

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]	*0.41 trips/1,000 sf*			*0.28 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 size is 2,076,959 gsf relative to the vehicle trips.

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 HMC size of 2,076,959 sf. This resulted in trip generation rates of 0.41 trips/1,000

[2] 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.
[3] The "other" mode split includes remote work, day-off, employer shuttle, taxi, rideshare.

sf and 0.28 trips/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

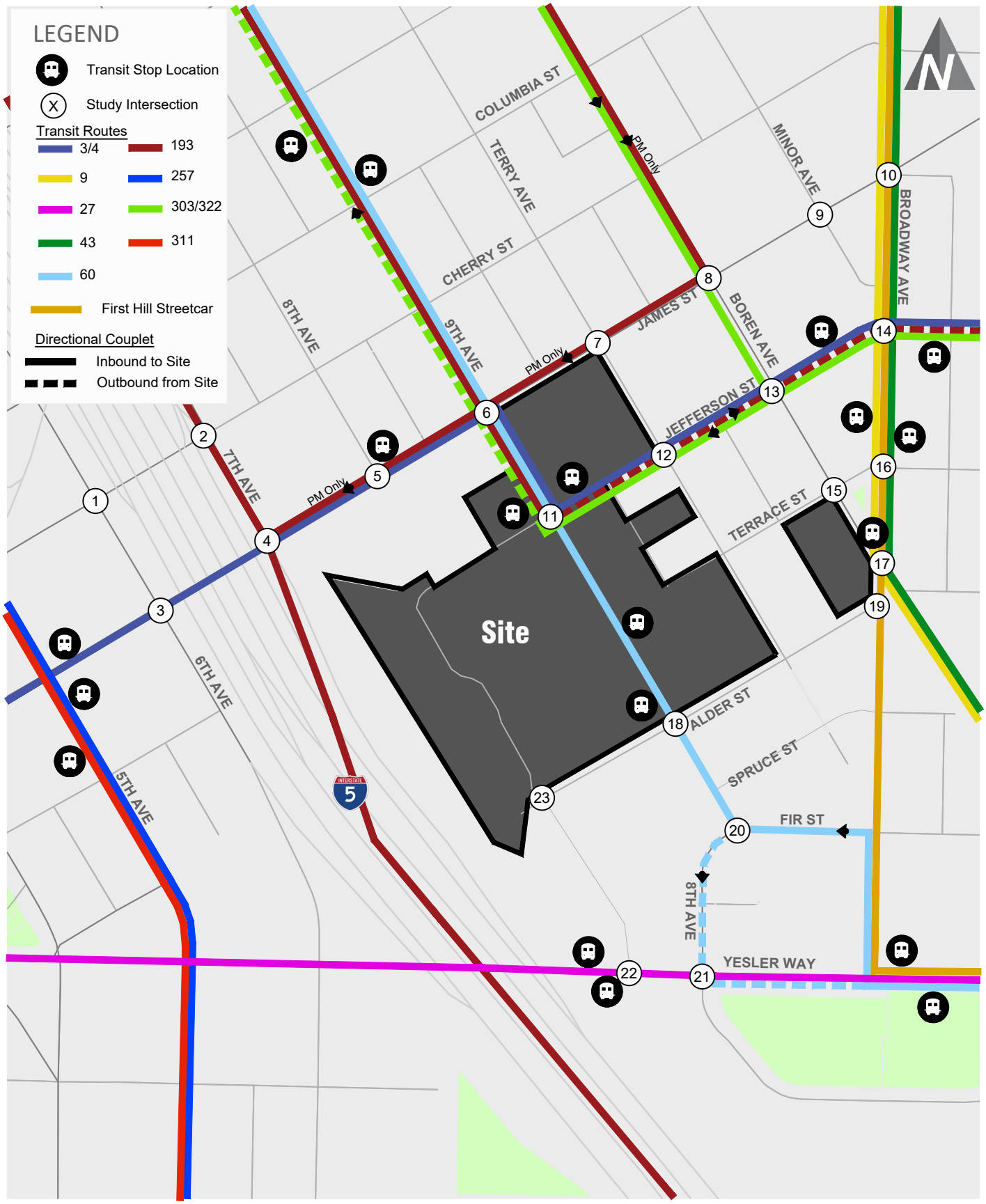
Route	Days of Operation	Hours of Operation		Headway[1]
		Weekdays	Weekends	
3 – Summit, Lower Capitol Hill, Downtown Seattle, First hill, Seattle University, Central District, Madrona	Mon-Sun	5:45 a.m. – 1:00 a.m.	5:40 a.m. – 12:10 a.m.	30
4 – Seattle Pacific University, East Queen Anne, Seattle Center, 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 SeaTac Airport. 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.

In addition to the public transit service in 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.



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.[6] 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).[7] 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

[6] Screenlines can be applied for other forms of transportation as well, such as private vehicles, trucks, or total traffic.
[7] 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.

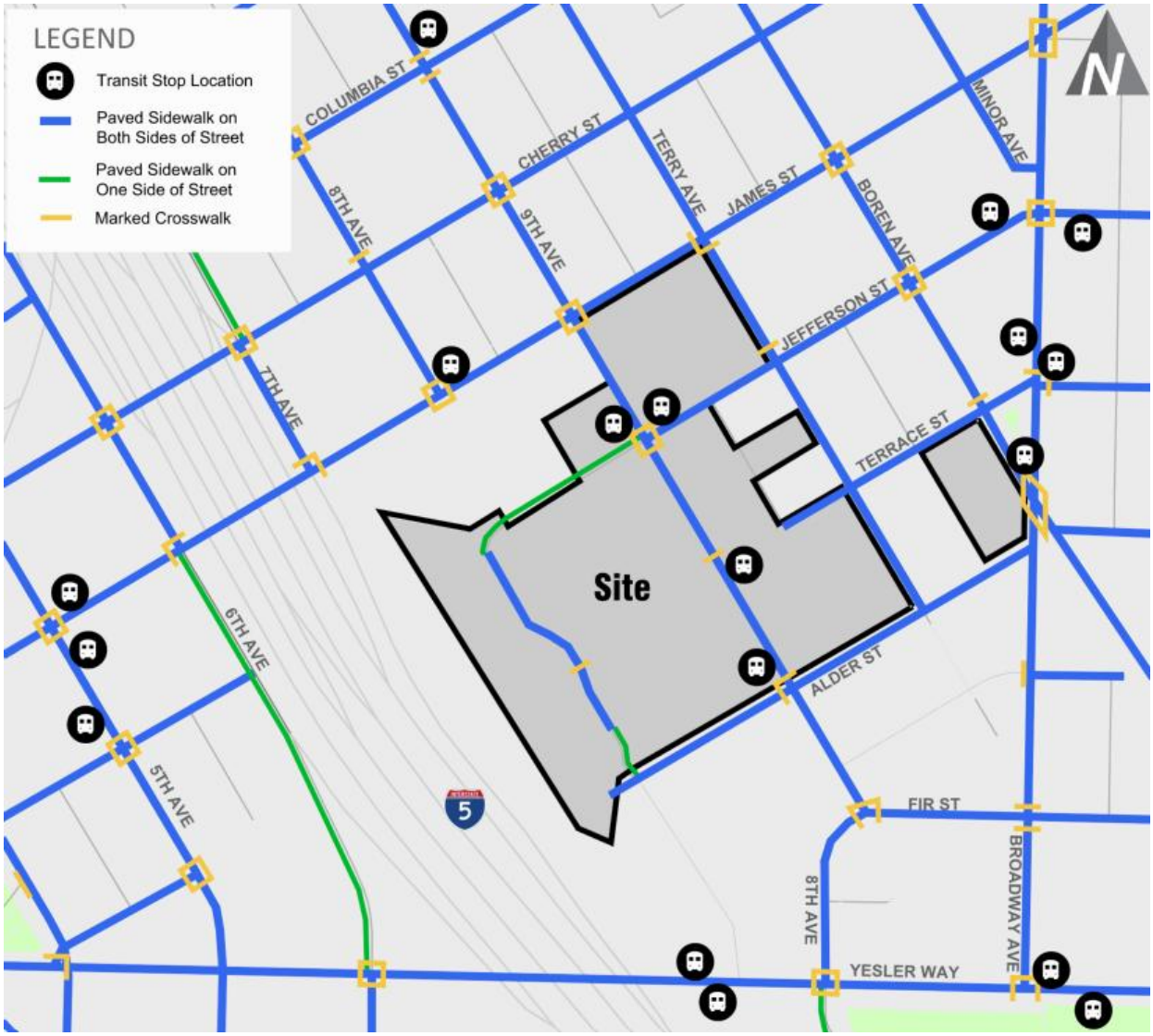


Figure 9. Existing Pedestrian Facilities

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).

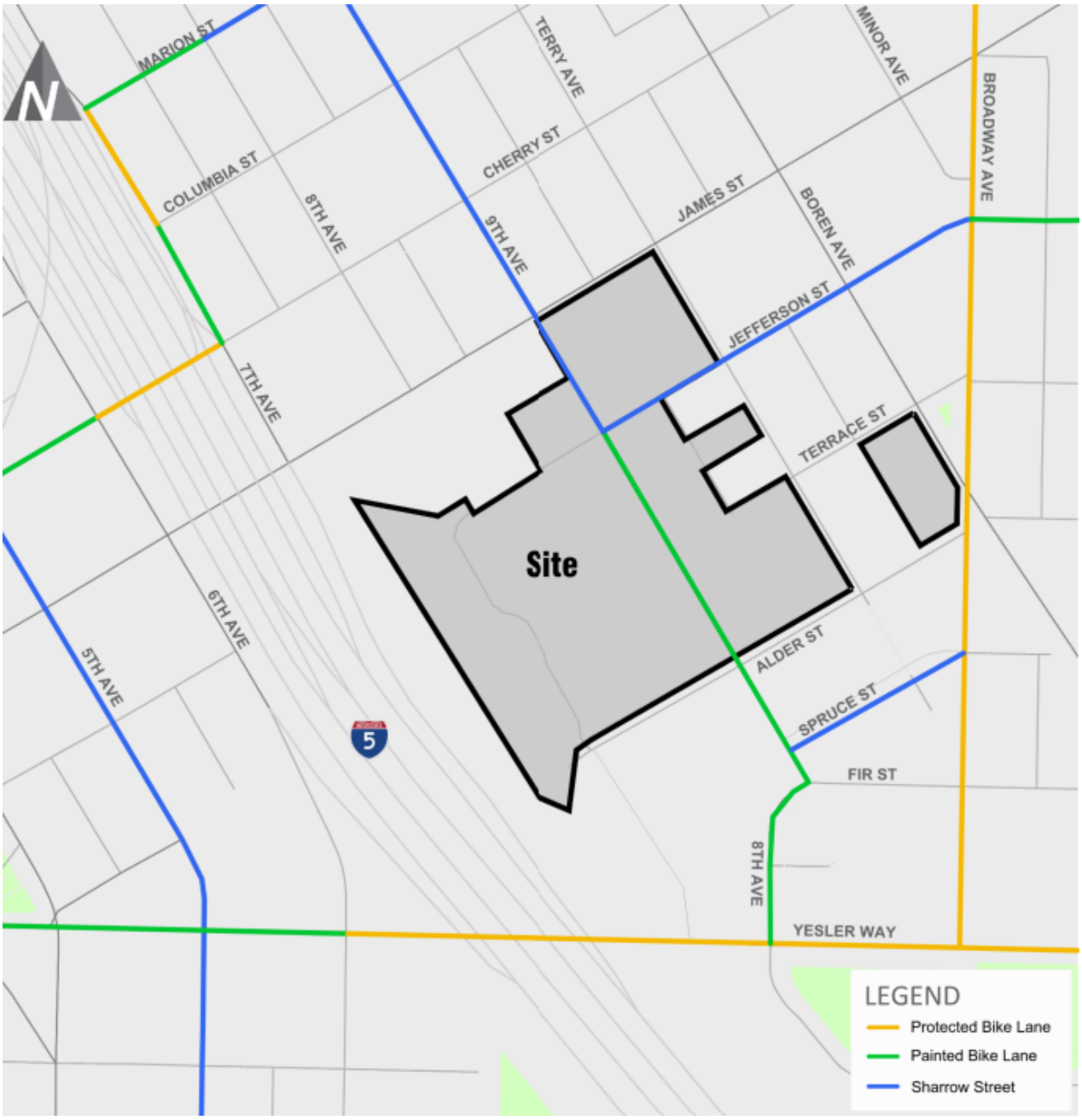


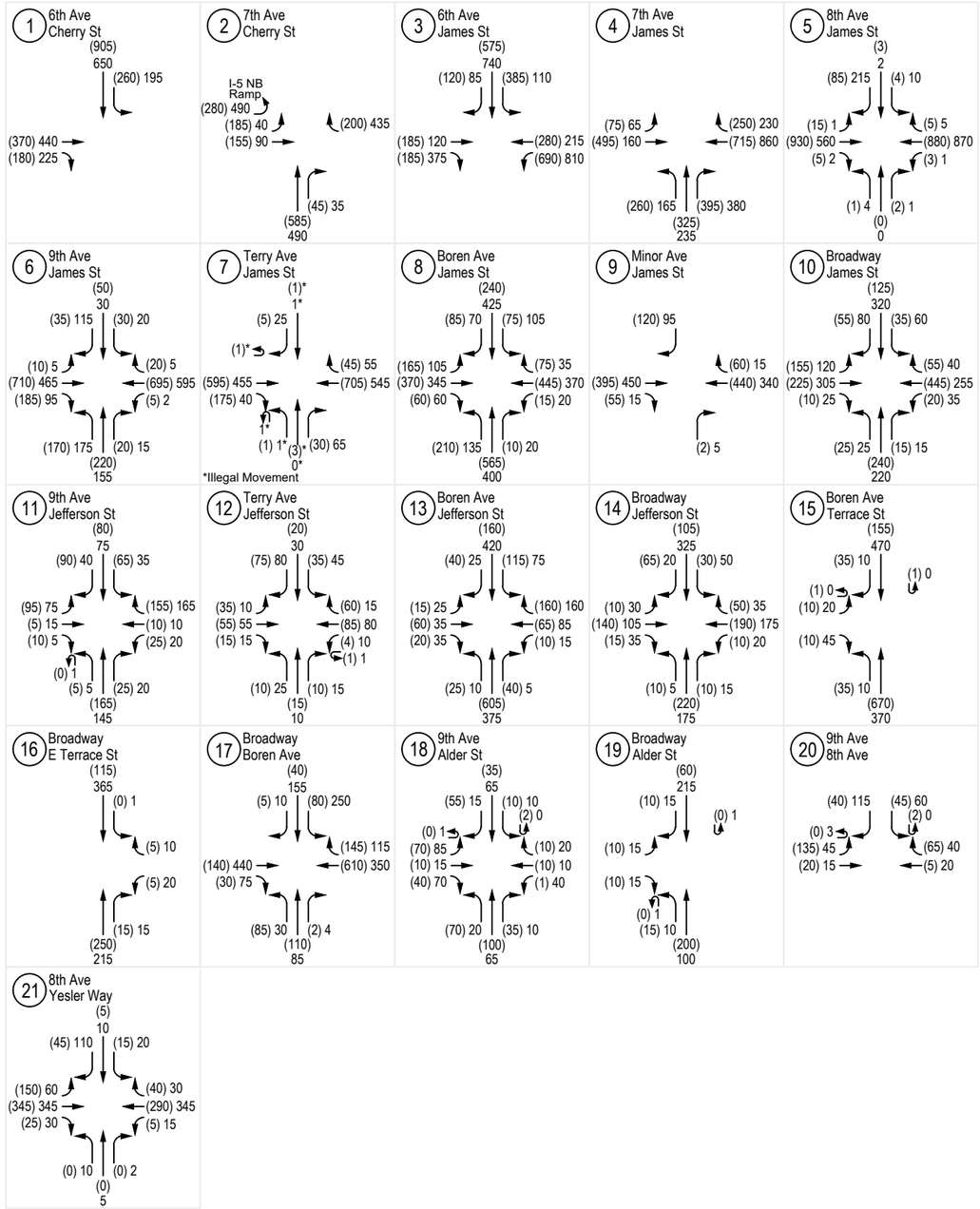
Figure 10. Existing Bike Facilities

Traffic Volumes

Existing traffic volumes at the off-site study intersections were based on traffic counts collected in November 2024.[8] The estimated existing weekday AM and PM peak hour traffic volumes are shown on Figure 11.[9] 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.

[8] 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.
[9] 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). 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	B	17.9	-	C	34.9	-
5. James St/8th Ave	Signal	A	2.5	-	A	5.5	-
6. James St/9th Ave	Signal	B	14.0	-	B	15.8	-
7. James St/Terry Ave	TWSC	B	14.2	NB	B	13.7	NB
8. James St/Boren Ave	Signal	D	40.2	-	D	35.7	-
9. James St/Minor Ave	TWSC	B	12.5	SB	B	11.9	SB
10. James St/Broadway[4]	Signal	D	40.8	-	C	34.5	-
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	12.4	-	C	24.5	-
14. Jefferson St/Broadway[4]	Signal	C	31.3	-	C	28.6	-
15. Terrace St/Boren Ave	SSSC	C	15.6	EB	C	15.8	EB
16. Terrace St/Broadway[4]	Signal	A	4.8	-	A	6.8	-
17. Broadway/Boren Ave	Signal	B	16.6	-	C	24.7	-
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.

The traffic operations at the intersection of Jefferson Street and 9th Avenue are reported based on HCM 7th Edition methodology in Synchro 12. Due to limitations of Synchro 12, the existing operations of the intersection are slightly worse than the LOS and delay reported using Synchro 12. Based on a review of the existing AM and PM peak hour conditions reported using SimTraffic 12, 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, 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 Table 10 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	4	3	3	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	13	7	3	0	5	4	1	1	9	3	0
4. James St/7th Ave	1	2	2	0	0	3	0	0	1	0	1
5. James St/8th Ave	4	2	3	1	0	4	0	1	1	0	2
6. James St/9th Ave	5	4	3	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	0	2	2	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	1	0	0	0	0	1	0	0	0	0	0
11. Jefferson St/9th Ave	0	0	2	0	0	0	0	1	0	0	1
12. Jefferson St/Terry Ave	1	1	1	0	0	0	0	2	1	0	0
13. Jefferson St/Boren Ave	1	1	2	0	2	1	0	1	0	0	0
14. Jefferson St/Broadway	2	1	2	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	0	1	0	0	0	0	0	0	1	0
17. Broadway/Boren Ave	2	2	1	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	0	2	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

The study intersections had an annual average of approximately 8 collisions or fewer reported per year over the last three-year review period. As detailed in Table 10, 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, 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 a reduction of 45,727 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		*2,076,959 sf*
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		64,000 sf
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	*- 45,727 sf*
2045 Future Total *(planned and potential[1])*		**2,031,232 sf**
Private roadway known as 8th Avenue to Remain Open?		**Yes**

1. Potential includes the 1999 & 2014 MIMP projects.

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

			AM Peak Hour Trips			PM Peak Hour Trips		
Land Use		**Size**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Existing		**2,076,959 gsf**	**505**	**348**	**853**	**121**	**462**	**583**
Future (2035)								
No Action		-	0	0	0	0	0	0
	Total	**2,076,959 gsf**	**505**	**348**	**853**	**121**	**462**	**583**
Future (2045)								
No Action		-45,727 gsf	-11	-8	-19	-3	-10	-13
	Total	**2,031,232 gsf**	**494**	**340**	**834**	**118**	**452**	**570**

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 reduction 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			Net New No Action			No Action Total		
	In	Out	Total	In	Out	Total	In	Out	Total
Weekday AM Peak Hour									
Vehicle Trips	*505*	*348*	*853*	*-11*	*-8*	*-19*	*494*	*340*	*834*
Person Trips[2]									
Walk and Bike Trips	87	59	146	-2	-2	-4	85	57	142
Transit Trips	366	254	620	-7	-5	-12	359	249	608
Other	81	55	136	-2	-2	-4	79	53	132
Person Trips by Vehicle[1]	662	456	1,119	-14	-11	-25	648	445	1,094
Total Person Trips	**1,196**	**824**	**2,020**	**-25**	**-20**	**-45**	**1,171**	**804**	**1,975**
Weekday PM Peak Hour									
Vehicle Trips	*121*	*462*	*583*	*-3*	*-10*	*-13*	*118*	*452*	*570*
Person Trips[2]									
Walk and Bike Trips	21	79	100	0	-2	-2	21	77	98
Transit Trips	88	335	423	-2	-6	-8	86	329	415
Other	19	74	93	0	-2	-2	19	72	91
Person Trips by Vehicle[1]	159	606	765	-3	-13	-16	156	593	749
Total Person Trips	**287**	**1,094**	**1,381**	**-5**	**-23**	**-28**	**282**	**1,071**	**1,353**

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 reduction 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 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.

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[10]. 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.[11] 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 is currently not forecast to be met by the Yesler Terrace projects known at this time.

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. Future planned transit improvements include the Sound Transit Link Light Rail Ballard Extension which is anticipated to be operational by 2039. Sound Transit's Link Light Rail Ballard Extension extends the light rail from downtown Seattle to the Ballard neighborhood including a new downtown Seattle rail-only tunnel. As a part of the new tunnel and extension, nine new stations will be constructed with the nearest being the Midtown Station proposed to be located at approximately 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 proposed Ballard Link Extension. 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 no 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[12]. 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 25 percent or less.

[10] *Yesler Terrace Planned Action Ordinance 123962, Exhibit B to Ordinance: Planned Action Mitigation Document* (Table 2. Thresholds for mitigation implementation).
[11] Thresholds established by Planned Action Ordinance 123962, Exhibit B, P. 10, September 4, 2012.
[12] 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.

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	6.3	6	6.6
	EB	James St at 5th Ave	Jefferson St at Broadway	5	5.3	6	6.6
9	NB	Broadway at Terrace St	Broadway at Marion St	4	4.1	-	-
	SB	Broadway at Marion St	Broadway at Terrace St	-	-	4	4.2
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	3.1	3	3.1
60	NB	Yesler Way at Broadway	9th Ave at Cherry St	5	5.7	5	5.7
	SB	9th Ave at Cherry St	Yesler Way at Broadway	3	3.5	3	3.8
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	2.2
303/322	WB/NB	Jefferson St at Broadway	9th Ave at James St	3	3.1	3	3.3

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 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 limited reduction in overall size of the campus and the non-motorized trips are correspondingly anticipated to remain consistent with existing conditions or have a slight reduction relative to existing conditions.

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.

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 12.

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 reduction in 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 13.

The resulting No Action weekday peak hour traffic volumes are shown for the future 2035 and 2045 conditions in Figure 12 and Figure 14, respectively.

Traffic Operations

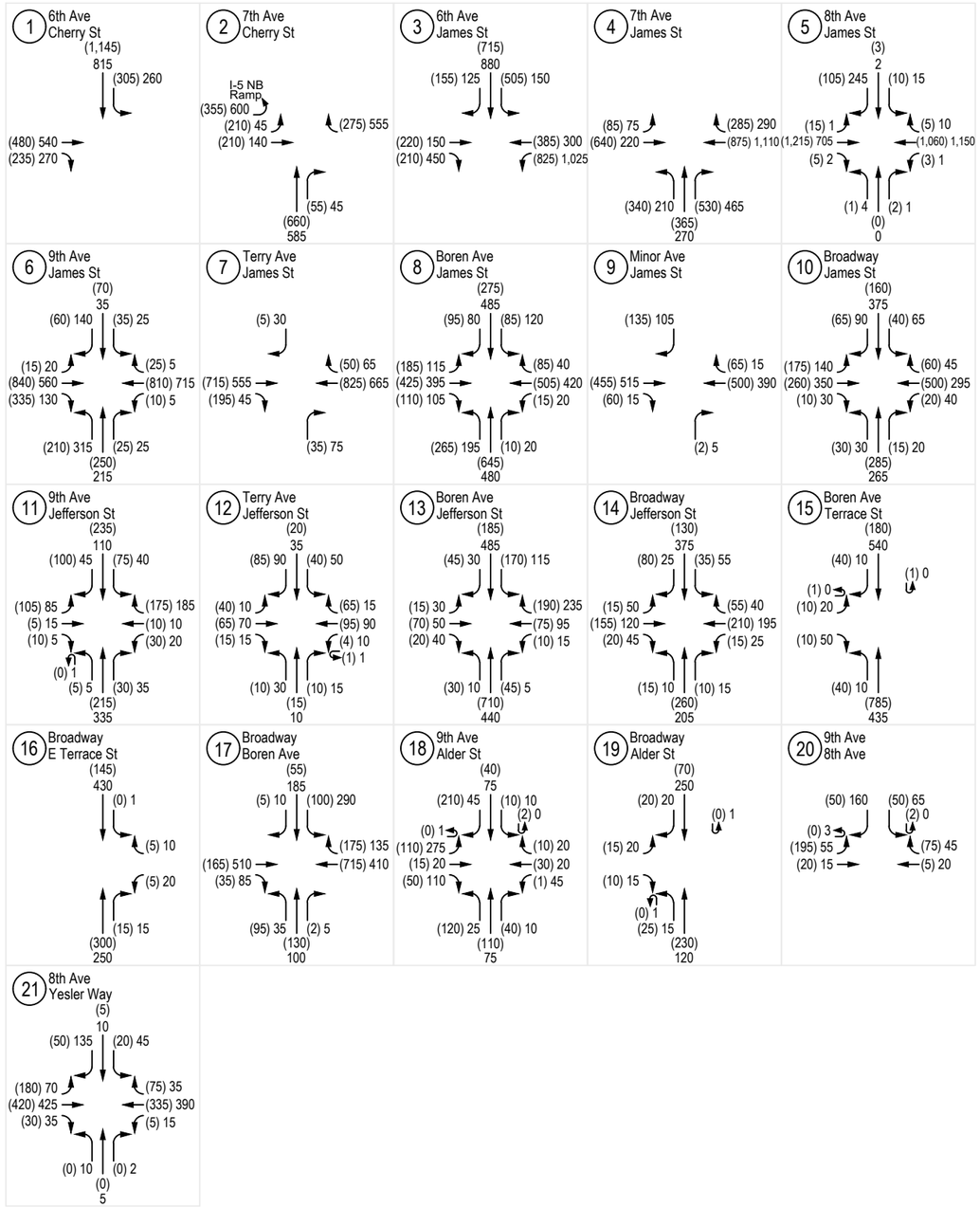
The future 2035 and 2045 No Action operations analysis was conducted using consistent methodology as utilized for the existing conditions analysis. Adjustments of analysis parameters between the existing and No Action (2035) conditions included optimization[14] of signal timing to reflect the continued growth in traffic 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 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 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 0. The detailed LOS worksheets are included in Appendix F.

[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.
[15] WSDOT's criteria identifies adjustment for the PHF for design year conditions.



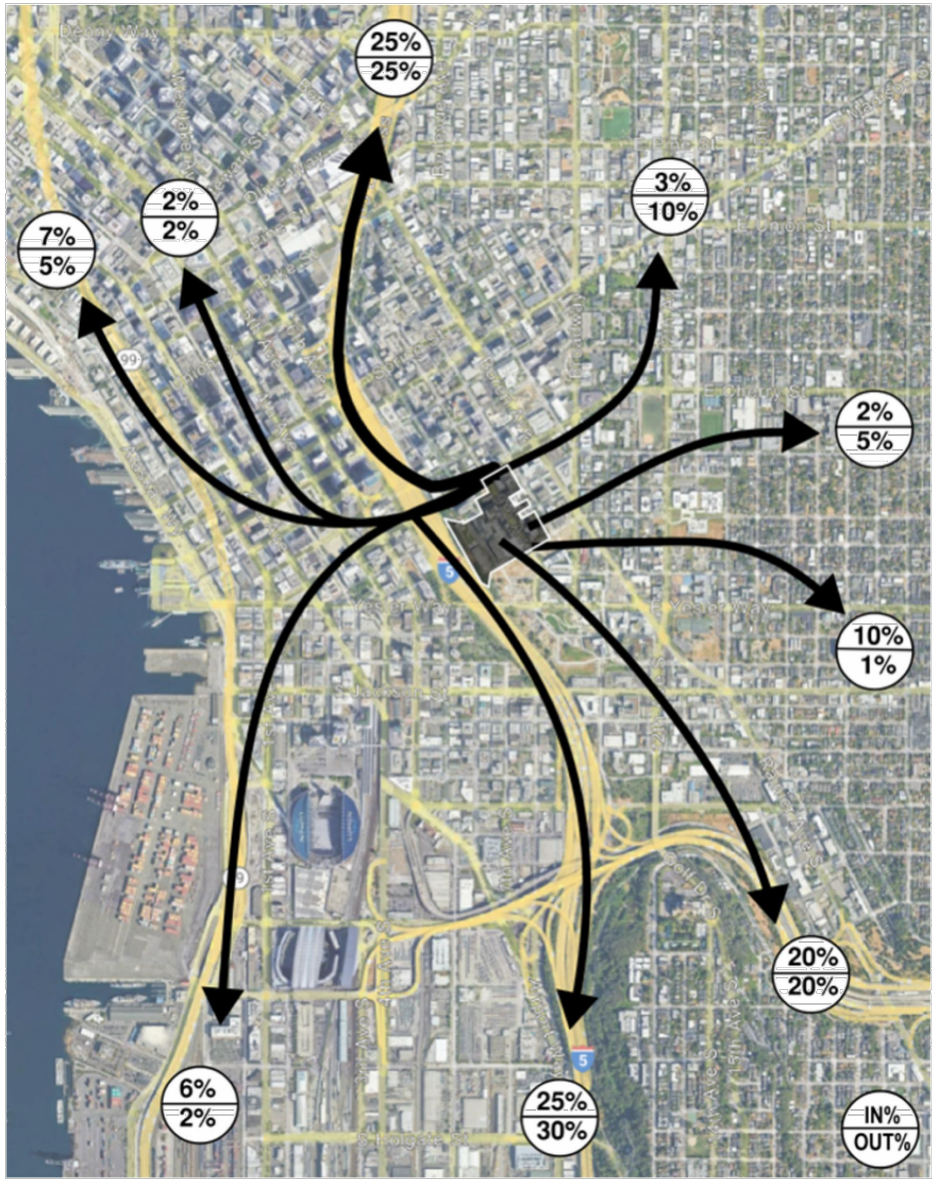


No Action (2035) Weekday AM and PM Peak Hour Traffic Volumes

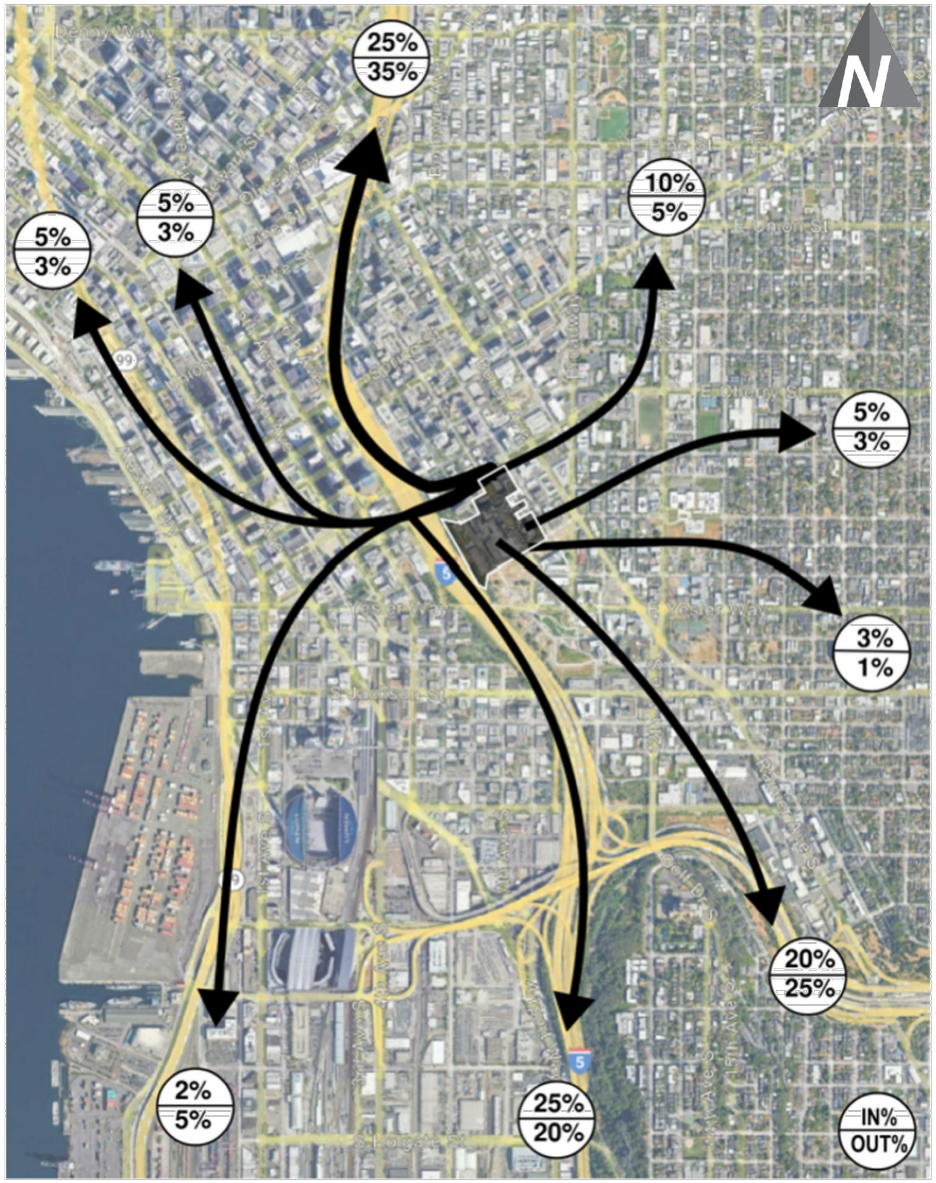
Harborview Medical Center TDR

FIGURE
12

transpogroup



AM Peak Hour



PM Peak Hour

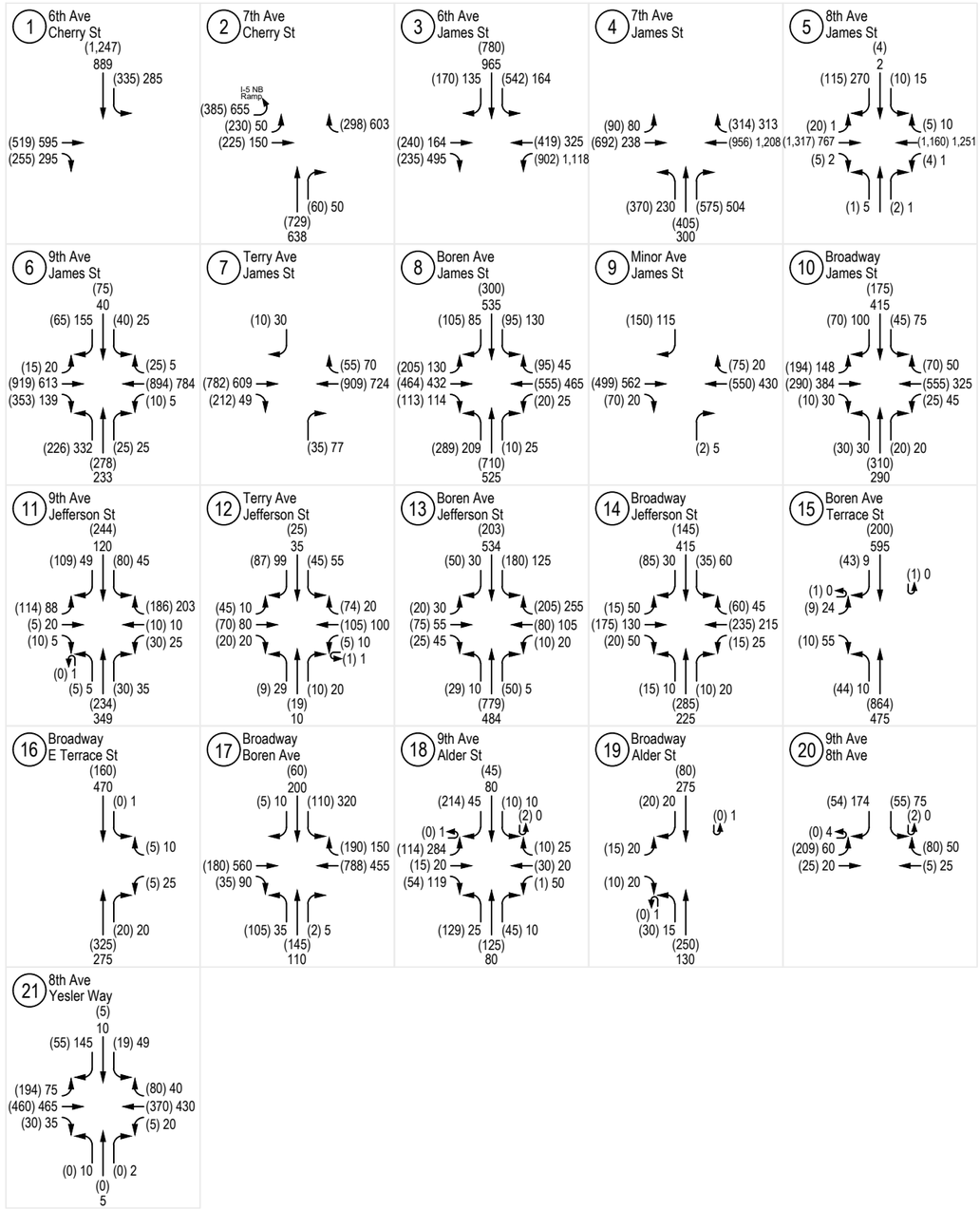
Weekday Peak Hour Trip Distribution

Harborview Medical Center TDR

FIGURE
13

transpogroup





No Action (2045) Weekday AM and PM Peak Hour Traffic Volumes

Harborview Medical Center TDR

FIGURE 14

transpogroup

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	37.4	-	D	37.9	-
4. James St/7th Ave	Signal	B	17.9	-	C	25.4	-	C	29.3	-
5. James St/8th Ave	Signal	A	2.5	-	A	2.7	-	A	2.7	-
6. James St/9th Ave	Signal	B	14.0	-	B	17.1	-	B	17.9	-
7. James St/Terry Ave	TWSC	B	14.2	NB	C	15.6	NB	C	15.7	NB
8. James St/Boren Ave	Signal	D	40.2	-	D	42.9	-	D	44.1	-
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	40.8	-	D	42.5	-	D	43.8	-
11. Jefferson St/9th Ave	AWSC	B	10.5	-	C	16.5	-	C	15.1	-
12. Jefferson St/Terry Ave	TWSC	C	21.4	SB	C	23.8	SB	C	24.9	SB
13. Jefferson St/Boren Ave	Signal	B	12.4	-	B	12.2	-	B	12.2	-
14. Jefferson St/Broadway[4]	Signal	C	31.3	-	C	31.5	-	C	31.7	-
15. Terrace St/Boren Ave	SSSC	C	15.6	EB	C	17.2	EB	C	17.3	EB
16. Terrace St/Broadway[4]	Signal	A	4.8	-	A	4.5	-	A	4.2	-
17. Broadway/Boren Ave	Signal	B	16.6	-	B	18.5	-	B	18.6	-
18. Alder St/9th Ave	TWSC/*AWSC*[5]	C	19.8	EB	B	11.3	-	B	10.6	-
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	6.9	-
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	23.8	-
3. James St/6th Ave	Signal	D	37.0	-	D	39.4	-	C	32.4	-
4. James St/7th Ave	Signal	C	34.9	-	D	43.4	-	D	38.9	-
5. James St/8th Ave	Signal	A	5.5	-	A	5.1	-	A	5.1	-
6. James St/9th Ave	Signal	B	15.8	-	C	29.9	-	C	29.0	-
7. James St/Terry Ave	TWSC	B	13.7	NB	B	15.0	NB	B	14.9	NB
8. James St/Boren Ave	Signal	D	35.7	-	D	37.7	-	D	40.7	-
9. James St/Minor Ave	TWSC	B	11.9	SB	B	12.5	SB	B	12.2	SB
10. James St/Broadway[4]	Signal	C	34.5	-	D	38.0	-	D	37.0	-
11. Jefferson St/9th Ave	AWSC	A	9.3	-	B	13.1	-	B	13.0	-
12. Jefferson St/Terry Ave	TWSC	C	23.1	SB	D	26.6	SB	D	25.7	SB
13. Jefferson St/Boren Ave	Signal	C	24.5	-	C	26.3	-	C	27.0	-
14. Jefferson St/Broadway[4]	Signal	C	28.6	-	C	33.9	-	C	32.8	-
15. Terrace St/Boren Ave	SSSC	C	15.8	EB	C	17.2	EB	C	18.3	EB
16. Terrace St/Broadway[4]	Signal	A	6.8	-	A	6.4	-	A	6.4	-
17. Broadway/Boren Ave	Signal	C	24.7	-	C	28.3	-	C	29.3	-
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 0, 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 1,348,273 gsf added to MIO. The planned development includes the new patient tower at VPI resulting in an increase of 488,000 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, 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	**Action Alternative 1**
Existing Total	*2,076,959 gsf*	*2,076,959 gsf*
2024 MAJOR AMENDMENT PLANNED PROJECTS		
New Patient Tower	-	+488,000 gsf
2035 Future Total *(planned only)*	**2,076,959 gsf**	**2,564,959 gsf**
2024 MAJOR AMENDMENT POTENTIAL PROJECTS		
Future Tower	-	488,000 gsf
New East Clinic in footprint of Existing East Clinic	-	380,000 gsf
Expansion of Boren Parking Garage	-	-
Expand WSB Site for Multi-Use Building (+ 4 stories)	-	38,000 gsf
Subtotal	-	+ 906,000 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	64,000 gsf	64,000 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	*- 45,727 gsf*	*- 45,727 gsf*
Net New Total (Planned and Potential[1])	*- 45,727 gsf*	+ 1,348,273 gsf
2045 Future Total *(planned and potential)*	**2,031,232 gsf**	**3,425,232 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 1,348,273 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 consistent with the existing campus rates of 0.41 trips/1,000 sf and 0.28 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 17.

Table 17. Action Alternative 1 Weekday Vehicle Trip Generation

Condition		Size	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Existing		**2,076,959 gsf**	**505**	**348**	**853**	**121**	**462**	**583**
Future (2035)								
Action Alternative 1		+ 488,000 gsf[1]	118	82	200	28	109	137
	Total	**2,564,959 gsf**	**623**	**430**	**1,053**	**149**	**571**	**720**
Future (2045)								
Action Alternative 1		+ 1,348,273 gsf[1]	328	226	554	79	300	379
	Total	**3,425,232 gsf**	**833**	**574**	**1,407**	**200**	**762**	**962**

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 200 vehicle trips during the weekday AM peak hour and 137 vehicle trips during the weekday PM peak hours. Under future (2045) action conditions the planned and potential projects result in an increase of 554 vehicle trips during the weekday AM peak hours and 379 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 Table 18.

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*	*328*	*226*	*554*	*833*	*574*	*1,407*
Person Trips[1]									
Walk and Bike Trips	87	59	146	56	38	95	143	97	241
Transit Trips	366	254	620	238	166	404	604	420	1,024
Other	81	55	136	53	36	88	134	91	224
Person Trips by Vehicle[2]	662	456	1,119	429	296	726	1,091	752	1,845
Total Person Trips	**1,196**	**824**	**2,020**	**776**	**536**	**1,312**	**1,972**	**1,360**	**3,332**
Weekday PM Peak Hour									
Vehicle Trips	*121*	*462*	*583*	*79*	*300*	*379*	200	762	962
Person Trips[1]									
Walk and Bike Trips	21	79	100	14	51	65	35	130	165
Transit Trips	88	335	423	58	218	276	146	553	699
Other	19	74	93	13	48	60	32	122	153
Person Trips by Vehicle[2]	159	606	765	104	391	495	263	997	1,260
Total Person Trips	**287**	**1,094**	**1,381**	**189**	**708**	**897**	**476**	**1,802**	**2,278**

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 the table, under the future (2045) Alternative 1 conditions, there are estimated to be a total of 1,026 and 702 transit trips in the AM and PM peak hours, respectively and 241 and 165 non-motorized trips (walk, bike, other) in the AM and PM peak hours, respectively.

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	63	43	106	160	109	269
Transit Trips	405	281	686	264	183	447	669	464	1,133
Other	90	61	151	59	40	99	149	101	250
Person Trips by Vehicle	604	416	1,020	390	269	659	994	685	1,679
Total Person Trips	**1,196**	**824**	**2,020**	**776**	**536**	**1,312**	**1,972**	**1,360**	**3,332**
Weekday PM Peak Hour									
Walk and Bike Trips	23	89	112	15	58	73	38	147	185
Transit Trips	97	371	468	65	242	307	162	613	775
Other	22	82	104	14	53	67	36	135	171
Person Trips by Vehicle	145	552	697	95	356	451	240	908	1,148
Total Person Trips	**287**	**1,094**	**1,381**	**189**	**708**	**897**	**476**	**1,802**	**2,278**

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 109 and 76, respectively or approximately a 10 percent increase. The non-motorized trips are estimated to increase by 28 and 20 trips during the AM and PM peak hours, respectively, or an increase of approximately 12 percent.

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 Table 18and 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	76%	85%	53%	56%
		SB	73%	79%	74%	79%
9th Avenue between Jefferson Street and Alder Street	60	NB	69%	75%	44%	46%
		SB	46%	52%	58%	61%
Broadway	9, 43	NB	17%	19%	No PM Period Trips	
		SB	46%	58%	54%	62%
Yesler Way	27	EB	39%	47%	58%	62%
		WB	77%	86%	39%	44%
5th Avenue	257, 311	SB	31%	38%	No PM Period Trips	
		NB	No AM Period Trips		26%	29%

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 86 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 less than 1 minute or a percent increase of less than 20 percent.

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	6.3	6.7	6.6	6.5
	EB	James St at 5th Ave	Jefferson St at Broadway	5.3	6.2	6.6	6.9
9	NB	Broadway at Terrace St	Broadway at Marion St	4.1	4.2	-	-
	SB	Broadway at Marion St	Broadway at Terrace St	-	-	4.2	4.2
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	2.1	3.1	3.1
	SB	Broadway at Marion St	Broadway at Terrace St	3.1	3.1	3.1	3.1
60	NB	Yesler Way at Broadway	9th Ave at Cherry St	5.7	6.2	5.7	5.6
	SB	9th Ave at Cherry St	Yesler Way at Broadway	3.5	3.8	3.8	3.9
193	EB	9th Ave at Cherry St	Jefferson St at Broadway	3.1	3.7	-	-
	WB	Jefferson St at Broadway	Jefferson St at 9th Ave	-	-	2.2	2.3
303/322	WB/NB	Jefferson St at Broadway	9th Ave at James St	3.1	3.2	3.3	3.3

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 turnaround mid-block is anticipated to be maintained.
- **Option 1B:** The private roadway known as 8th Avenue between Alder Street and Jefferson Street is to remain open.

Both options assume a loop road is constructed along the west side of 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. The loop road will connect to the existing roadway network at the intersection of Alder Street and the private roadway known as 8th Avenue. Additional potential connections of the loop road reviewed in the analysis include Jefferson Street at the private roadway known as 8th Avenue and a connection extending to the south to Yesler Way. The road connection options are illustrated in Figure 15. As illustrated in the figure, the options reviewed include the following:

- **Option 1A** – The private roadway known as 8th Avenue Closure. Loop Road Connections 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. Loop Road Connections 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 13) with the local roadway connections for each option as defined above (see Figure 15). 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 loop road connection)*
23. Loop Road/Yesler Way *(only included in options which extend the Loop Rd 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 16 - Figure 19. The Alternative 1 trip assignment volumes were added to the existing volumes. The resulting Alternative 1 peak hour traffic volumes are shown on Figure 20 - Figure 23 for the 2035 and 2045 conditions.

This primary analysis assumes the planned new tower includes parking accessed via the proposed loop road and the trips are assigned accordingly. A sensitivity analysis is conducted that considers the possibility of parking not being located within the planned new tower. The results of this analysis are presented in a subsequent section.



1 6th Ave Cherry St
(30) 7
(8) 1

2 7th Ave Cherry St
(12) 22
(8) 1
(8) 16

3 6th Ave James St
(30) 7
(2) 1
(6) 8
(33) 38

4 7th Ave James St
(8) 16
(32) 8
(39) 46
(41) 10

5 8th Ave James St
(73) 18
(47) 62

6 9th Ave James St
(8) 1
(73) 18
(2) 3
(47) 62
(5) 3
(12) 22

7 Terry Ave James St
(5) 3
(2) 3

8 Boren Ave James St
(5) 3
(2) 3

9 Minor Ave James St
(5) 3
(2) 3

10 Broadway James St
(2) 1
(1) 1
(4) 2
(1) 1
(2) 1
(4) 3

11 9th Ave Jefferson St
See Figure 17 - Road Connection Options Trip Assignment

12 Terry Ave Jefferson St
(7) 5

13 Boren Ave Jefferson St
(7) 5

14 Broadway Jefferson St
(2) 1
(6) 4
(1) 1
(2) 1

15 Boren Ave Terrace St

16 Broadway E Terrace St
(4) 2

17 Broadway Boren Ave
(4) 2
(5) 2

18 9th Ave Alder St
See Figure 17 - Road Connection Options Trip Assignment

19 Broadway Alder St
(9) 4

20 9th Ave 8th Ave
See Figure 17 - Road Connection Options Trip Assignment

21 8th Ave Yesler Way
See Figure 17 - Road Connection Options Trip Assignment

22 8th Ave Alder St
See Figure 17 - Road Connection Options Trip Assignment

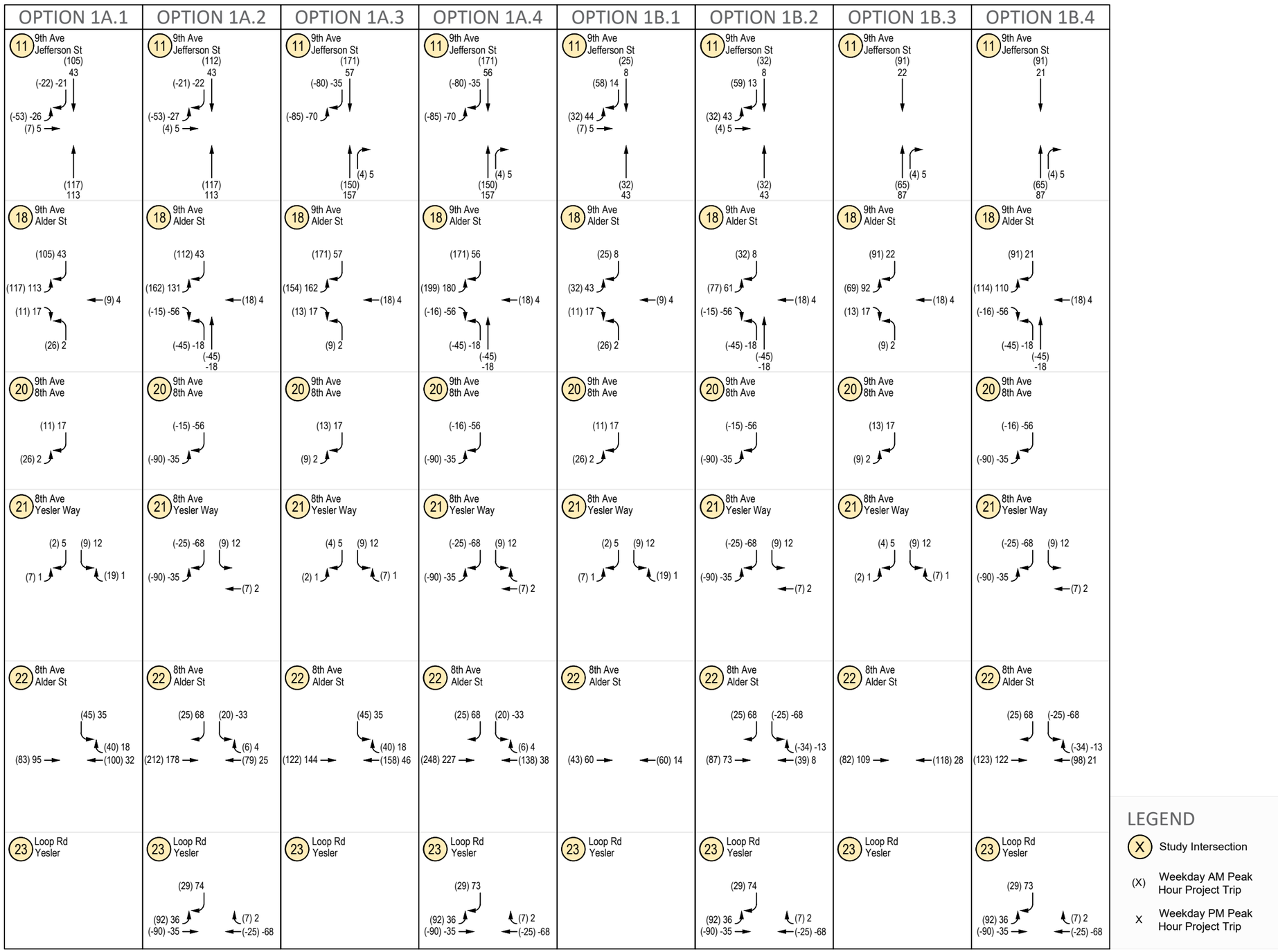
23 Loop Rd Yesler Way
See Figure 17 - Road Connection Options Trip Assignment

Alternative 1 - (2035) Weekday AM and PM Peak Hour Trip Assignment

Harborview Medical Center TDR

FIGURE
16

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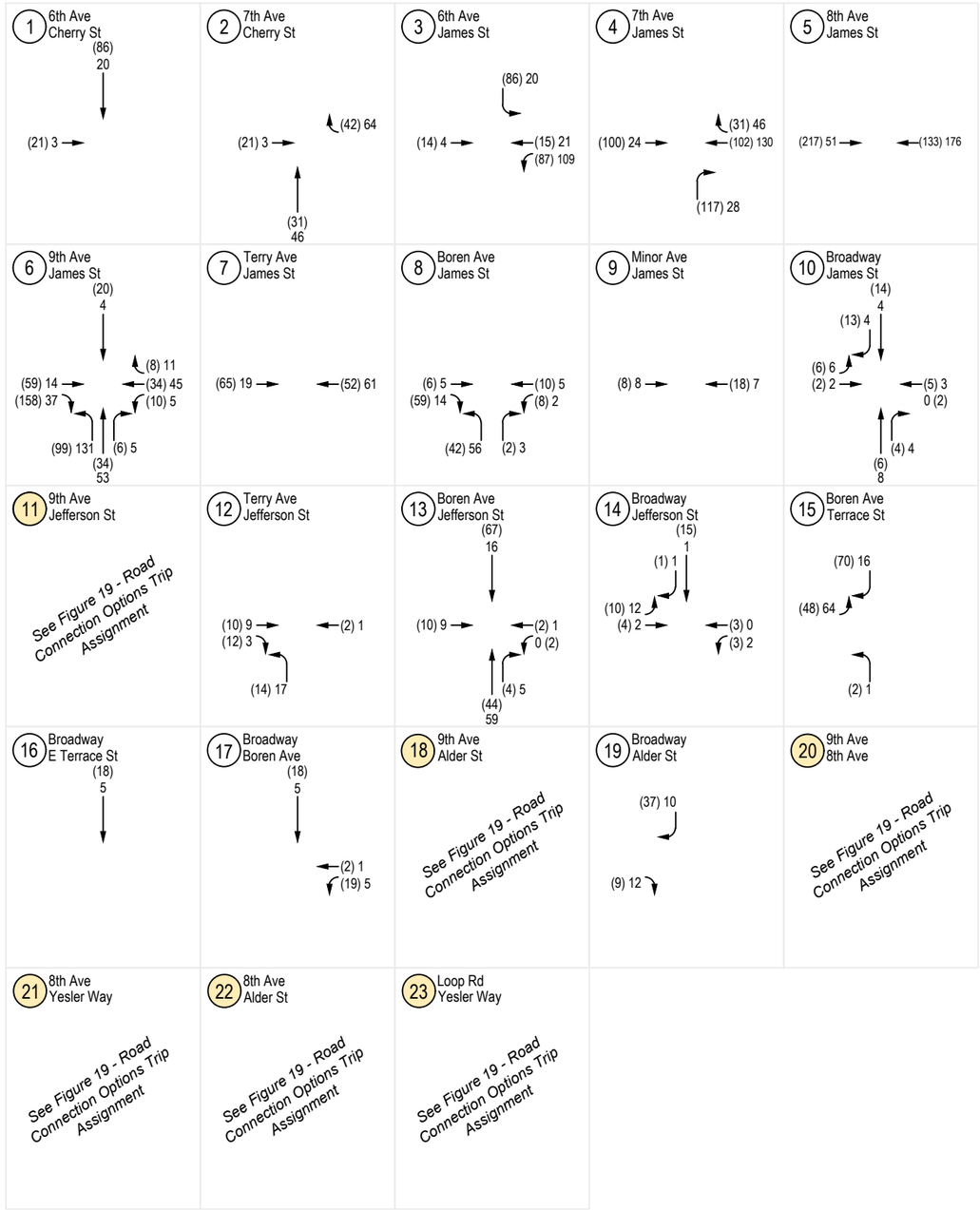
Alternative 1 - (2035) Weekday AM and PM Peak Hour Trip Assignment (Road Connection Options)

Harborview Medical Center TDR

FIGURE 17

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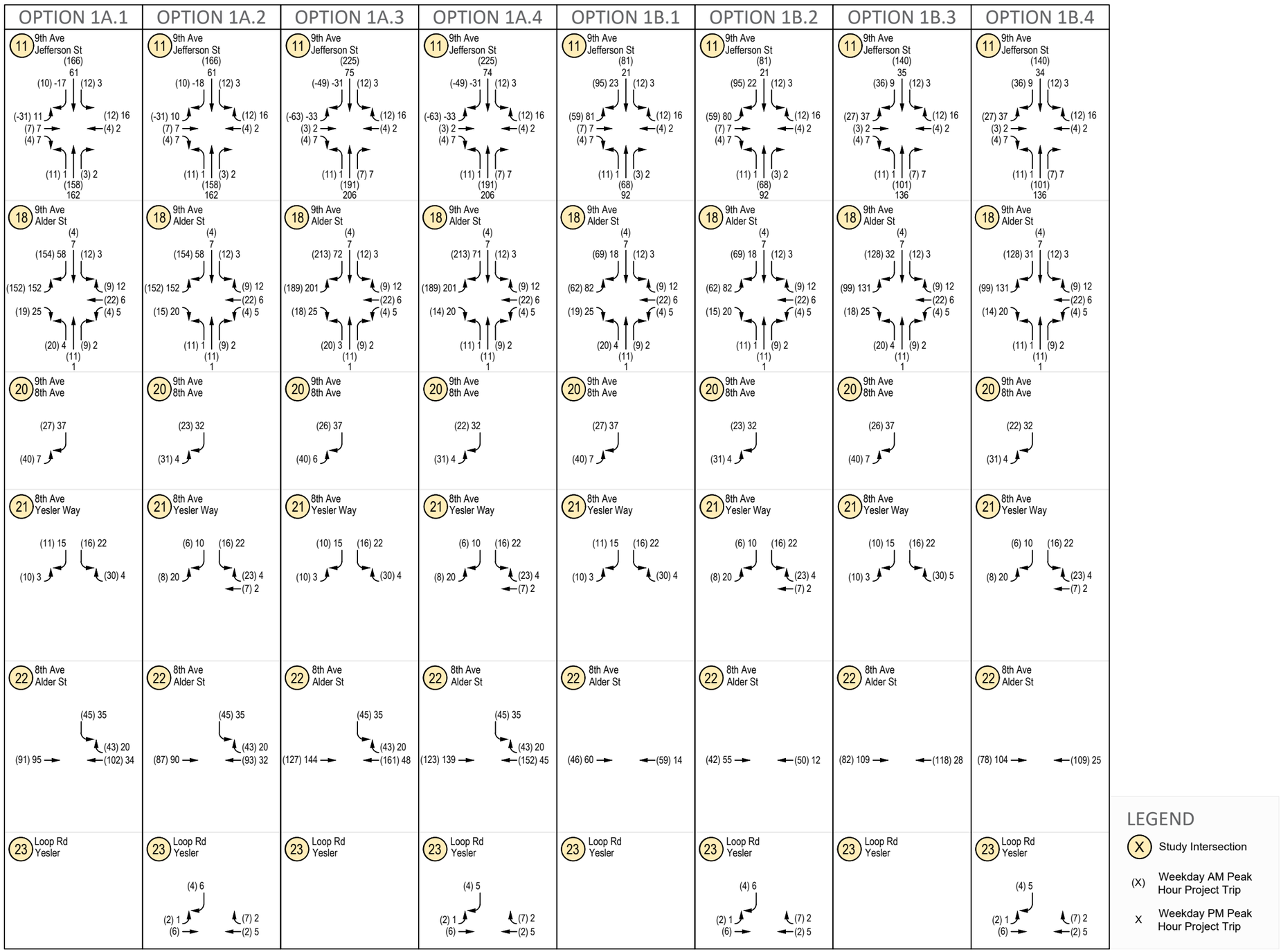


Alternative 1 - (2045) Weekday AM and PM Peak Hour Trip Assignment

Harborview Medical Center TDR

FIGURE
18

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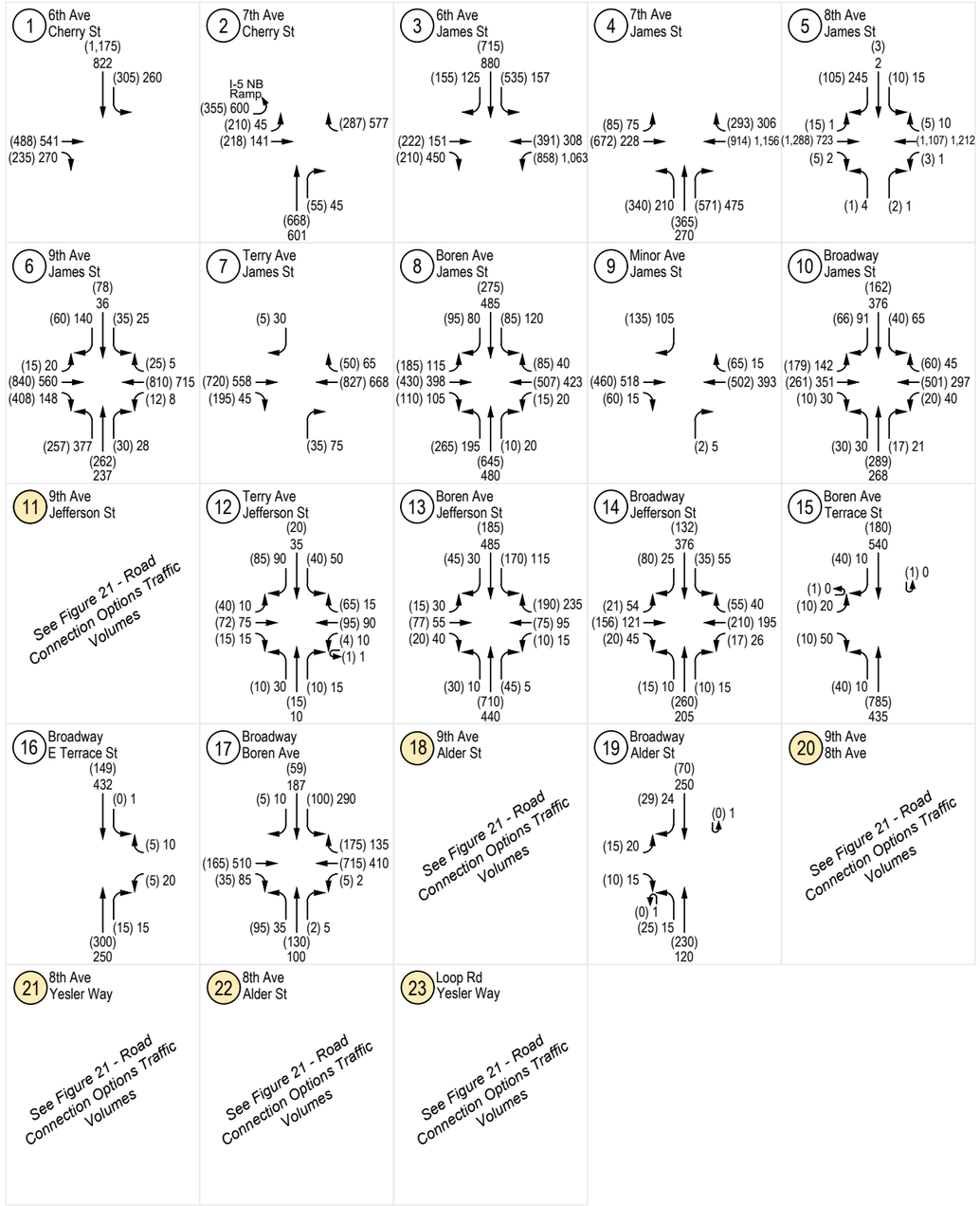
Alternative 1 - (2045) Weekday AM and PM Peak Hour Trip Assignment (Road Connection Options)

Harborview Medical Center TDR

FIGURE 19

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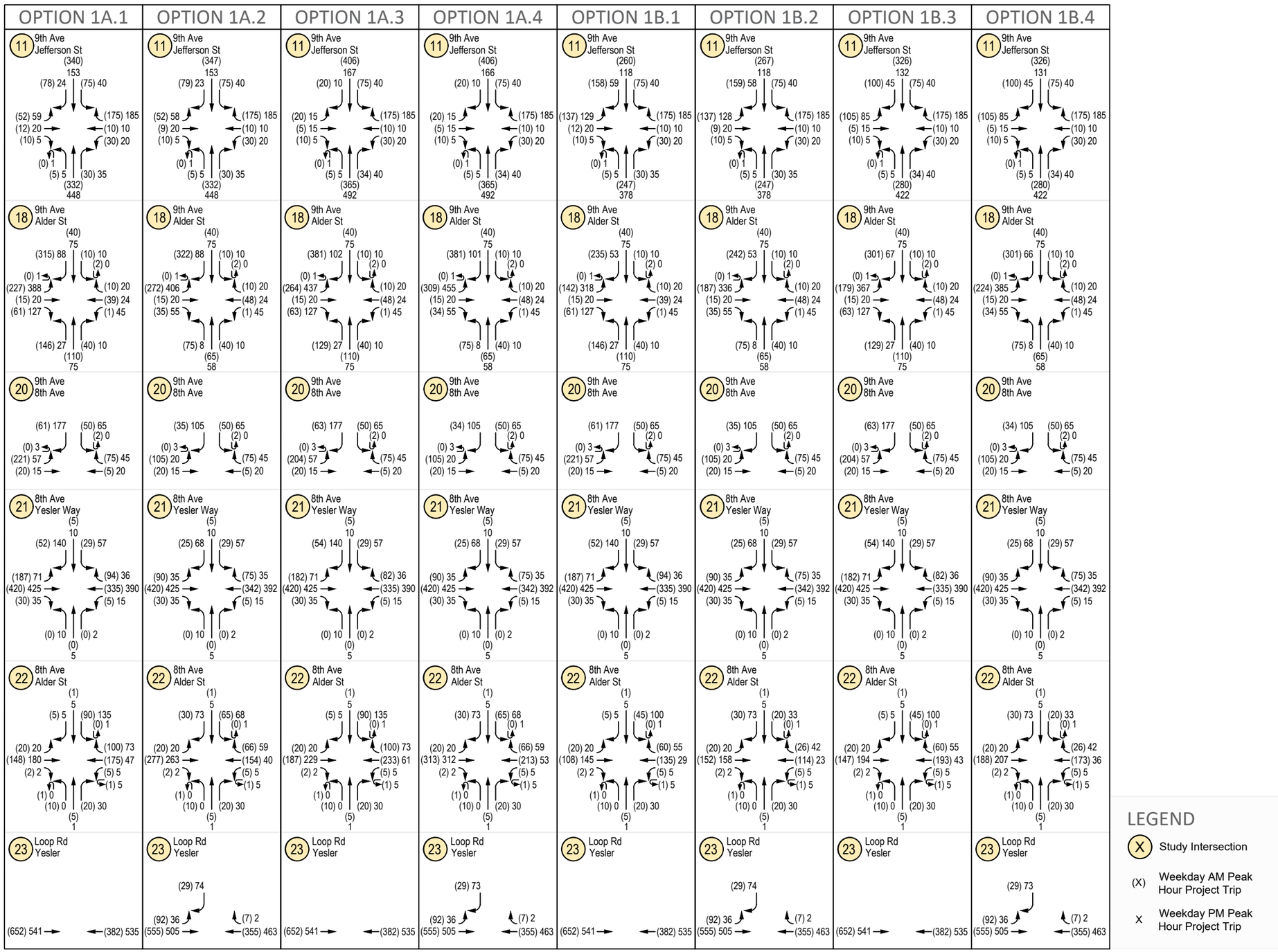


Alternative 1 - (2035) Weekday AM and PM Peak Hour Traffic Volumes

Harborview Medical Center TDR

FIGURE **20**

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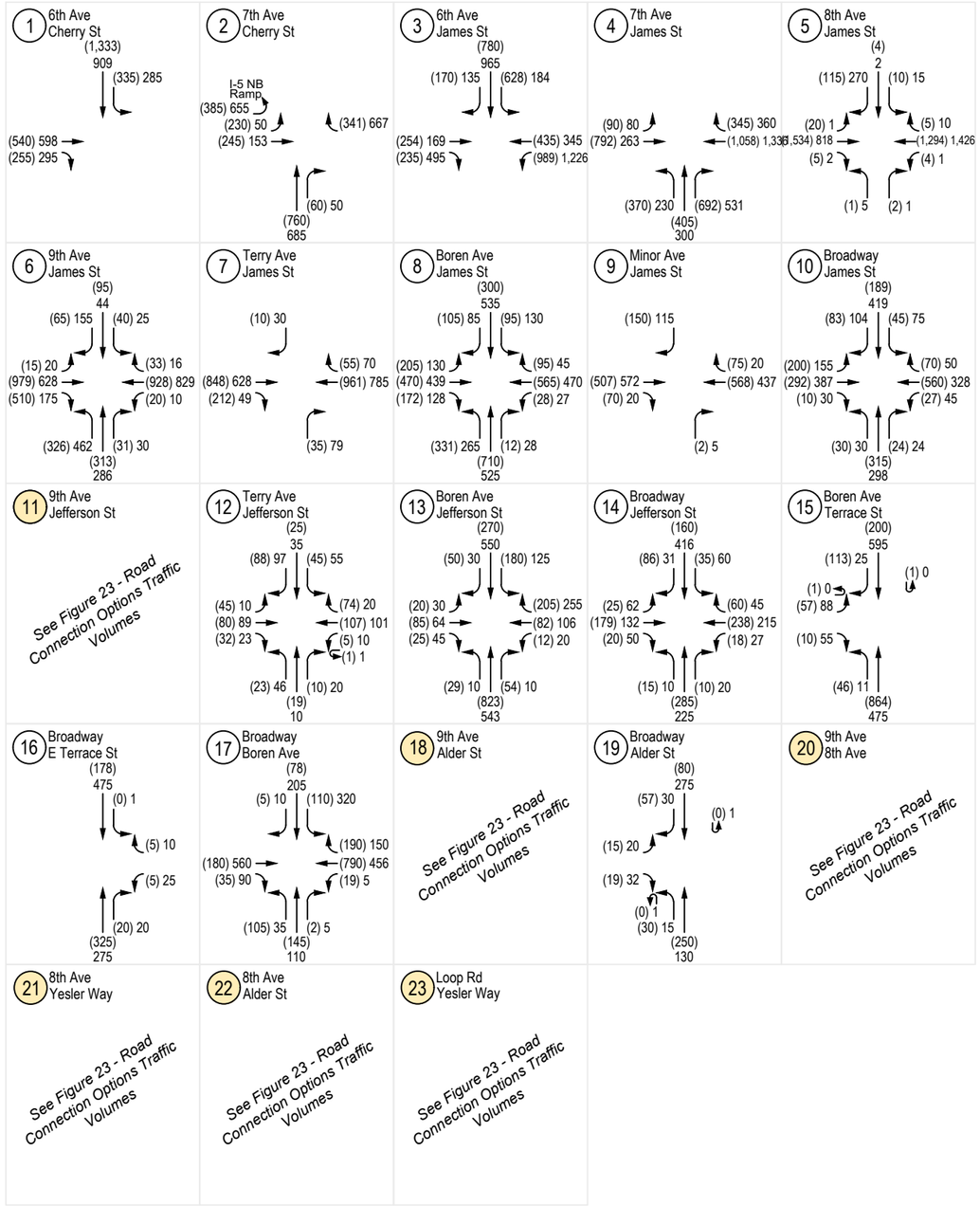
Alternative 1 - (2035) Weekday AM and PM Peak Hour Traffic Volumes (Road Connection Options)

Harborview Medical Center TDR

FIGURE 21

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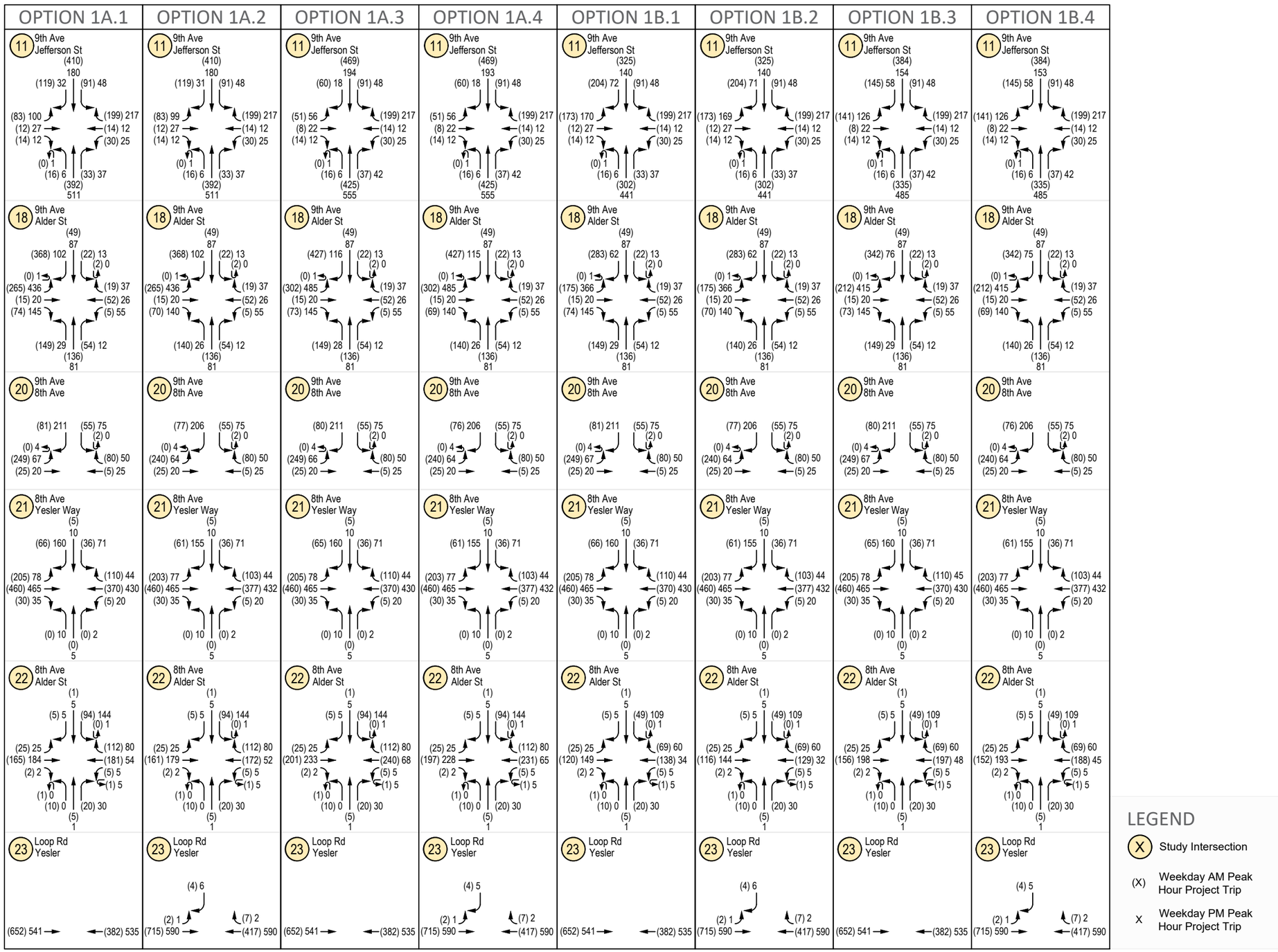


Alternative 1 - (2045) Weekday AM and PM Peak Hour Traffic Volumes

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FIGURE **22**

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Alternative 1 - (2045) Weekday AM and PM Peak Hour Traffic Volumes (Road Connection Options)

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FIGURE **23**

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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.[18] 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					
		No Action			Alternative 1			No Action			Alternative 1		
Intersection	Traffic 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	18.1	-	C	20.8	-	C	20.8	-
2. Cherry St/7th Ave	Signal	C	25.9	-	C	25.8	-	C	22.6	-	C	23.1	-
3. James St/6th Ave	Signal	D	37.4	-	D	38.4	-	D	39.4	-	D	39.4	-
4. James St/7th Ave	Signal	C	25.4	-	C	30.4	-	D	43.4	-	D	45.5	-
5. James St/8th Ave	Signal	A	2.7	-	A	2.6	-	A	5.1	-	A	4.9	-
6. James St/9th Ave	Signal	B	17.1	-	C	22.3	-	C	29.9	-	D	45.6	-
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	42.9	-	D	42.9	-	D	37.7	-	D	37.7	-
9. James St/Minor Ave	TWSC	B	13.3	SB	B	13.3	SB	B	12.5	SB	B	12.5	SB
10. James St/Broadway[4]	Signal	D	42.5	-	D	42.6	-	D	38.0	-	D	38.1	-
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	24.1	SB	D	26.6	SB	D	26.8	SB
13. Jefferson St/Boren Ave	Signal	B	12.2	-	B	12.4	-	C	26.3	-	C	26.3	-
14. Jefferson St/Broadway[4]	Signal	C	31.5	-	C	31.7	-	C	33.9	-	D	35.9	-
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	4.5	-	A	4.4	-	A	6.4	-	A	6.3	-
17. Broadway/Boren Ave	Signal	B	18.5	-	B	18.6	-	C	28.3	-	C	28.4	-
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	11.3	EB	B	12.8	EB	B	12.9	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.

[18] 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. Loop 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	D	26.3	C	18.1	A	9.1	A	7.0	B	10.1	-	-	-
Option 1A.2	D	27.2	C	16.1	A	8.0	A	6.1	B	10.9	B	10.7	SB
Option 1A.3	D	27.2	C	24.8	A	8.9	A	7.0	B	11.4	-	-	-
Option 1A.4	D	27.2	C	22.1	A	8.0	A	6.1	B	12.3	B	10.7	SB
Option 1B.1	D	27.5	B	13.0	A	9.1	A	7.0	A	8.7	-	-	-
Option 1B.2	D	28.5	B	11.8	A	8.0	A	6.1	B	8.6	B	10.7	SB
Option 1B.3	D	28.6	C	15.1	A	8.9	A	7.0	A	9.5	-	-	-
Option 1B.4	D	28.6	B	13.8	A	8.0	A	6.1	A	9.3	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	18.1	C	17.4	A	8.4	A	9.0	A	9.0	-	-	-
Option 1A.2	C	18.0	B	14.6	A	7.9	A	8.2	A	9.5	B	12.6	SB
Option 1A.3	C	20.2	C	22.1	A	8.4	A	9.0	A	9.5	-	-	-
Option 1A.4	C	20.2	C	17.5	A	7.9	A	8.2	B	10.2	B	12.6	SB
Option 1B.1	C	15.9	B	13.2	A	8.4	A	9.0	A	8.4	-	-	-
Option 1B.2	C	15.9	B	11.8	A	7.9	A	8.2	A	8.2	B	12.6	SB
Option 1B.3	C	17.2	C	15.8	A	8.4	A	9.0	A	8.8	-	-	-
Option 1B.4	C	17.2	B	13.3	A	7.9	A	8.2	A	8.7	B	12.6	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. Loop Road Connections assumed at the following locations:
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. Loop Road Connections assumed at the following locations:
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

		AM Peak Hour						PM Peak Hour					
		No Action			Alternative 1			No Action			Alternative 1		
Intersection	Traffic Control	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	18.9	-	C	20.8	-	C	21.0	-
2. Cherry St/7th Ave	Signal	C	25.9	-	C	25.6	-	C	23.8	-	C	25.2	-
3. James St/6th Ave	Signal	D	37.9	-	D	46.5	-	C	32.4	-	D	31.3	-
4. James St/7th Ave	Signal	C	29.3	-	D	48.1	-	D	38.9	-	D	46.2	-
5. James St/8th Ave	Signal	A	2.7	-	A	2.4	-	A	5.1	-	A	4.7	-
6. James St/9th Ave	Signal	B	17.9	-	C	35.7	-	C	29.0	-	C	30.3	-
7. James St/Terry Ave	TWSC	C	15.7	NB	C	16.3	NB	B	14.9	NB	C	15.1	NB
8. James St/Boren Ave	Signal	D	44.1	-	D	45.4	-	D	40.7	-	D	42.7	-
9. James St/Minor Ave	TWSC	B	13.7	SB	B	13.9	SB	B	12.2	SB	B	12.3	SB
10. James St/Broadway[4]	Signal	D	43.8	-	D	43.4	-	D	37.0	-	D	37.4	-
11. Jefferson St/9th Ave	AWSC	C	15.1	-	*See Road Connection Options*			B	13.0	-	*See Road Connection Options*		
12. Jefferson St/Terry Ave	TWSC	C	24.9	SB	D	25.6	NB	D	25.7	SB	D	26.1	SB
13. Jefferson St/Boren Ave	Signal	B	12.2	-	B	11.8	-	C	27.0	-	C	24.5	-
14. Jefferson St/Broadway[4]	Signal	C	31.7	-	C	31.9	-	C	32.8	-	D	35.3	-
15. Terrace St/Boren Ave	SSSC	C	17.3	EB	D	29.7	EB	C	18.3	EB	E	36.1	EB
16. Terrace St/Broadway[4]	Signal	A	4.2	-	A	4.0	-	A	6.4	-	A	6.2	-
17. Broadway/Boren Ave	Signal	B	18.6	-	B	19.1	-	C	29.3	-	C	29.3	-
18. Alder St/9th Ave	AWSC	B	10.6	-	*See Road Connection Options*			B	11.8	-	*See Road Connection Options*		
19. Alder St/Broadway	SSSC	B	11.2	EB	B	11.0	EB	B	12.7	EB	B	12.6	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	6.9	-	*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 D or better.

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 Table 25. One exception was identified which includes the all-way stop controlled intersections 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 with the exception of the options with the partial loop road and the closure of the private roadway known as 8th Avenue (Options 1A.3-4) which are forecast to operate at LOS E. 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. 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 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 have not indicated this threshold was met such that the signal was not assumed in the analysis.

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. Loop 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	15.1	B	10.6	A	8.7	A	6.9	A	7.8	-	-	-
Option 1A.1	**F**	**50.1**	C	19.6	A	9.4	A	7.4	A	9.3	-	-	-
Option 1A.2	**F**	**50.1**	C	19.1	A	9.2	A	7.3	A	9.2	B	10.7	SB
Option 1A.3	E	49.0	D	26.5	B	9.3	A	7.4	B	10.1	-	-	-
Option 1A.4	E	49.0	D	25.6	A	9.1	A	7.3	A	10.0	B	10.7	SB
Option 1B.1	**F**	**53.5**	B	13.9	A	9.4	A	7.4	A	8.4	-	-	-
Option 1B.2	**F**	**53.5**	C	13.5	B	9.2	A	7.3	A	8.3	B	10.7	SB
Option 1B.3	**F**	**53.9**	C	16.0	B	9.3	A	7.4	A	8.9	-	-	-
Option 1B.4	**F**	**53.9**	C	15.7	A	9.1	A	7.3	A	8.8	B	10.7	SB
PM Peak Hour													
No Action	B	13.0	B	11.8	A	8.4	A	8.8	A	8.0	-	-	-
Option 1A.1	D	26.9	C	23.0	A	8.7	A	9.0	A	8.9	-	-	-
Option 1A.2	D	26.7	C	22.3	A	8.6	A	9.0	B	8.9	B	12.2	SB
Option 1A.3	D	31.8	D	31.5	A	8.7	A	9.0	A	9.4	-	-	-
Option 1A.4	D	31.7	D	30.3	A	8.6	A	9.0	A	9.3	B	12.2	SB
Option 1B.1	C	22.1	C	16.1	A	8.7	A	9.0	A	8.4	-	-	-
Option 1B.2	C	22.0	C	15.9	A	8.6	A	9.0	B	8.3	B	12.2	SB
Option 1B.3	D	25.1	C	19.8	A	8.7	A	9.0	A	8.7	-	-	-
Option 1B.4	C	25.0	C	19.3	A	8.6	A	9.0	A	8.7	B	12.2	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. Loop Road Connections assumed at the following locations:
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. Loop Road Connections assumed at the following locations:
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.

Sensitivity Review – Alternative Trip Assignment

As noted above, the analysis of Alternative 1 assumes the planned new tower includes parking accessed via the proposed loop road and the trips are assigned accordingly. A sensitivity analysis was conducted that considers the possibility of limiting the parking 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:

1. 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.

2. 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 also 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 1[1]	*Sensitivity*[2]		Alternative 1	*Sensitivity*	
Parking Location		**Boren Garage**	**Yesler Terrace**		**Boren Garage**	**Yesler Terrace**
New Tower	✓	*Limited*	*Limited*	✓	*Limited*	*Limited*
Redeveloped Boren Garage	-	✓	-	✓	✓	✓
Yesler Terrace	-	-	✓	-	-	✓

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 operating standard. The resulting weekday AM and PM peak hour traffic volumes for the sensitivity analysis are shown in Figure 24.



BOREN GARAGE OPTION

2035		2045	
OPTION 1B.1	OPTION 1B.2	OPTION 1B.1	OPTION 1B.2
11 9th Ave / Jefferson St (247) 113 (100) 45 (87) 43 (105) 85 (187) 202 (5) 15 (10) 10 (10) 5 (30) 20 (0) 1 (5) 5 (30) 35 (223) 346	11 9th Ave / Jefferson St (247) 113 (100) 45 (87) 43 (105) 85 (187) 202 (5) 15 (10) 10 (10) 5 (30) 20 (0) 1 (5) 5 (30) 35 (223) 346	11 9th Ave / Jefferson St (353) 148 (169) 64 (91) 48 (173) 170 (199) 218 (15) 27 (14) 12 (14) 12 (30) 25 (0) 1 (16) 6 (33) 37 (301) 440	11 9th Ave / Jefferson St (360) 147 (169) 64 (91) 48 (173) 169 (199) 218 (12) 27 (14) 12 (14) 12 (30) 25 (0) 1 (16) 6 (33) 37 (302) 441
18 9th Ave / Alder St (40) 75 (210) 45 (22) 13 (0) 1 (2) 0 (110) 275 (18) 31 (15) 20 (30) 20 (50) 110 (5) 50 (120) 25 (49) 12 (110) 75	18 9th Ave / Alder St (40) 75 (210) 45 (22) 13 (0) 1 (2) 0 (155) 293 (18) 31 (15) 20 (30) 20 (25) 43 (5) 50 (75) 8 (49) 12 (65) 58	18 9th Ave / Alder St (49) 87 (311) 70 (22) 13 (0) 1 (2) 0 (175) 366 (18) 36 (15) 20 (43) 26 (71) 145 (5) 55 (165) 28 (54) 12 (136) 81	18 9th Ave / Alder St (49) 87 (318) 69 (22) 13 (0) 1 (2) 0 (176) 367 (18) 36 (15) 20 (52) 26 (69) 140 (5) 55 (147) 28 (54) 12 (136) 81

YESLER TERRACE GARAGE OPTION

2035		2045	
OPTION 1B.1	OPTION 1B.2	OPTION 1B.1	OPTION 1B.2
11 9th Ave / Jefferson St (302) 126 (124) 51 (75) 40 (113) 97 (175) 185 (9) 20 (10) 10 (10) 5 (30) 20 (0) 1 (5) 5 (30) 35 (272) 410	11 9th Ave / Jefferson St (302) 126 (124) 50 (75) 40 (113) 96 (175) 185 (9) 20 (10) 10 (10) 5 (30) 20 (0) 1 (5) 5 (30) 35 (272) 410	11 9th Ave / Jefferson St (374) 153 (181) 67 (84) 47 (177) 176 (203) 222 (17) 30 (14) 12 (14) 12 (30) 25 (0) 1 (16) 6 (33) 37 (321) 467	11 9th Ave / Jefferson St (382) 152 (181) 67 (84) 46 (177) 174 (203) 222 (14) 30 (14) 12 (14) 12 (30) 25 (0) 1 (16) 6 (33) 37 (322) 468
18 9th Ave / Alder St (40) 75 (277) 61 (10) 10 (0) 1 (2) 0 (167) 350 (10) 20 (15) 20 (47) 24 (63) 127 (1) 45 (130) 27 (40) 10 (110) 75	18 9th Ave / Alder St (40) 75 (277) 61 (10) 10 (0) 1 (2) 0 (212) 368 (10) 20 (15) 20 (48) 24 (34) 55 (1) 45 (75) 8 (40) 10 (65) 58	18 9th Ave / Alder St (49) 87 (344) 78 (10) 10 (0) 1 (2) 0 (203) 404 (10) 25 (15) 20 (52) 28 (78) 153 (3) 53 (170) 29 (46) 10 (136) 81	18 9th Ave / Alder St (49) 87 (352) 77 (10) 10 (0) 1 (2) 0 (204) 405 (10) 25 (15) 20 (61) 28 (74) 146 (3) 53 (147) 28 (46) 10 (136) 81

Sensitivity Weekday Peak Hour Traffic Volumes

Harborview Medical Center TDR

FIGURE **24**

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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.

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**
Boren Garage Option								
2035								
Option 1B.1	C	18.8	B	11.7	B	13.7	B	11.7
Option 1B.2	C	18.8	B	10.9	B	13.7	B	10.7
2045								
Option 1B.1	**F**	**53.7**	B	14.5	C	22.1	C	16.2
Option 1B.2	**F**	**54.3**	B	14.3	C	22.1	C	16.0
Yesler Terrace Garage Option								
2035								
Option 1B.1	D	28.6	B	14.1	C	16.7	B	14.9
Option 1B.2	D	28.6	B	12.9	C	16.6	B	12.7
2045								
Option 1B.1	**F**	**65.4**	C	15.7	D	27.9	C	19.2
Option 1B.2	**F**	**67.8**	C	15.5	D	27.8	C	18.8

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. Loop Road Connections assumed at the following locations:
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 below standard 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 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.

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 loop drive 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. Construction haul routes and activities would be coordinated with City staff through a Construction Management Plan (CMP).

To support construction traffic, a connection between Jefferson Street and James Street is anticipated to be made on the western side of campus extending north of the planned loop road connection. This would be used for construction purposes only and would be removed once construction is completed.

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.

Intersection Improvements

Only the intersection of Jefferson Street/9th Avenue was identified to degrade to operating below standard. This intersection is forecast to operate below standard under future (2045) Action Alternatives during the AM peak hour under five roadway connection options as described in greater detail 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 with the exception of the options with the partial loop road and the closure of the private roadway known as 8th Avenue (Options 1A.3-4) which are forecast to operate at LOS E. 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 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. Note that Yesler Terrace has 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.

As this intersection is all-way stop controlled, a signal warrant was reviewed to mitigate the operations of the intersection for the applicable options. The signal warrant analysis was completed based on the *HCS7 Software* for the 2045 horizon year for the Alternative Options identified to operate below standard. 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) and are proposed as mitigation at the intersection for the applicable options pending approval from SDOT.

With the identified traffic signal at the intersection of Jefferson Street/9th Avenue, the LOS, queuing, and transit travel time impacts were reviewed and are summarized in the sections below.

Level of Service

The LOS with the proposed 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 with the exception of the Options 1A.3-4 which are forecast to operate acceptably. 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 given the high pedestrian volumes on campus.

Table 28. Future (2045) Weekday Peak Hour Mitigation LOS Summary

	No Action (AWSC)		Action Alternative[3,4] 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	15.1	**F**	**53.9**	B	13.1
PM Peak Hour	B	13.0	D	25.1	B	16.1

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 with the exception of 1A.3-4 during the AM peak hour. The operations reflect Option 1B.3 as it had the highest forecast delay at the intersection.

As shown in the table, the intersection is forecast to improve to operating acceptably at LOS B 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.

Table 29. Future (2045) 95th Percentile Queuing Summary 9th Ave at Jefferson St and James St

	AM Peak Hour 95th Percentile Queues (Vehicles)			PM Peak Hour 95th Percentile Queues (Vehicles)		
Intersection/*Movement*	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	80	155	155	60	205	210
Eastbound Through-Right	90	225	225	60	185	185
Westbound Through-Left	295	345	345	265	355	355
Westbound Through-Right	280	310	310	250	335	340
Northbound Left-Turn	270	595	560	495	470	465
Northbound Through-Right	200	220	105	155	150	210
Southbound	160	180	180	205	210	210
11. Jefferson St/9th Ave						
Eastbound	25	40	165	20	35	160
Westbound	45	65	215	40	60	230
Northbound	55	150	140	95	260	215
Southbound	125	490	30	35	65	10

Note: Queues evaluated using Synchro for Alternative 1 assuming Option 1B.3 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.

As shown in Table 29, the 95th percentile queues between the intersections of Jefferson Street and James Street along 9th Avenue are forecast to exceed the available vehicular queue storage of approximately 220 feet for the northbound approach extending from the James Street intersection under all future (2045) conditions including both the No Action and Action Alternative during both the AM and PM peak hours. Additionally, with the Action Alternative, the southbound queue extending from the Jefferson Street/9th Avenue intersection is forecast to exceed the available storage between the intersections. With the proposed installation of the signal, the 95th percentile southbound queue is

reduced such that it is accommodated between the intersection during both the weekday AM and PM peak hours.

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

		Stop Location		AM Peak Hour Travel Time (minutes)		PM Peak Hour Travel Time (minutes)	
Route	Direction of Travel	From	To	Action Alternative WITHOUT Mitigation (AWSC)	Action Alternative WITH Mitigation (Traffic Signal)	Action Alternative WITHOUT Mitigation (AWSC)	Action Alternative WITH Mitigation (Traffic Signal)
3/4	WB	Jefferson St at Broadway	James St at 5th Ave	6.7	6.9	6.5	7.5
	EB	James St at 5th Ave	Jefferson St at Broadway	6.2	5.8	6.9	6.4
60	NB	Yesler Way at Broadway	9th Ave at Cherry St	6.2	6.5	5.6	6.4
	SB	9th Ave at Cherry St	Yesler Way at Broadway	3.8	4.2	3.9	3.9
193	EB	9th Ave at Cherry St	Jefferson St at Broadway	3.7	3.1	-	-
	WB	Jefferson St at Broadway	Jefferson St at 9th Ave	-	-	2.3	2.3
303/322	WB/NB	Jefferson St at Broadway	9th Ave at James St	3.2	3.0	3.3	3.1

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 as a result of the change in traffic control from all-way stop controlled to a traffic signal result in reductions of a half minute of travel times to increases of up to 1 minute on the routes through the 9th Avenue/Jefferson Street intersection. This equates to changes of 14 percent less to 15 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
- 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
- Haul Routes

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.

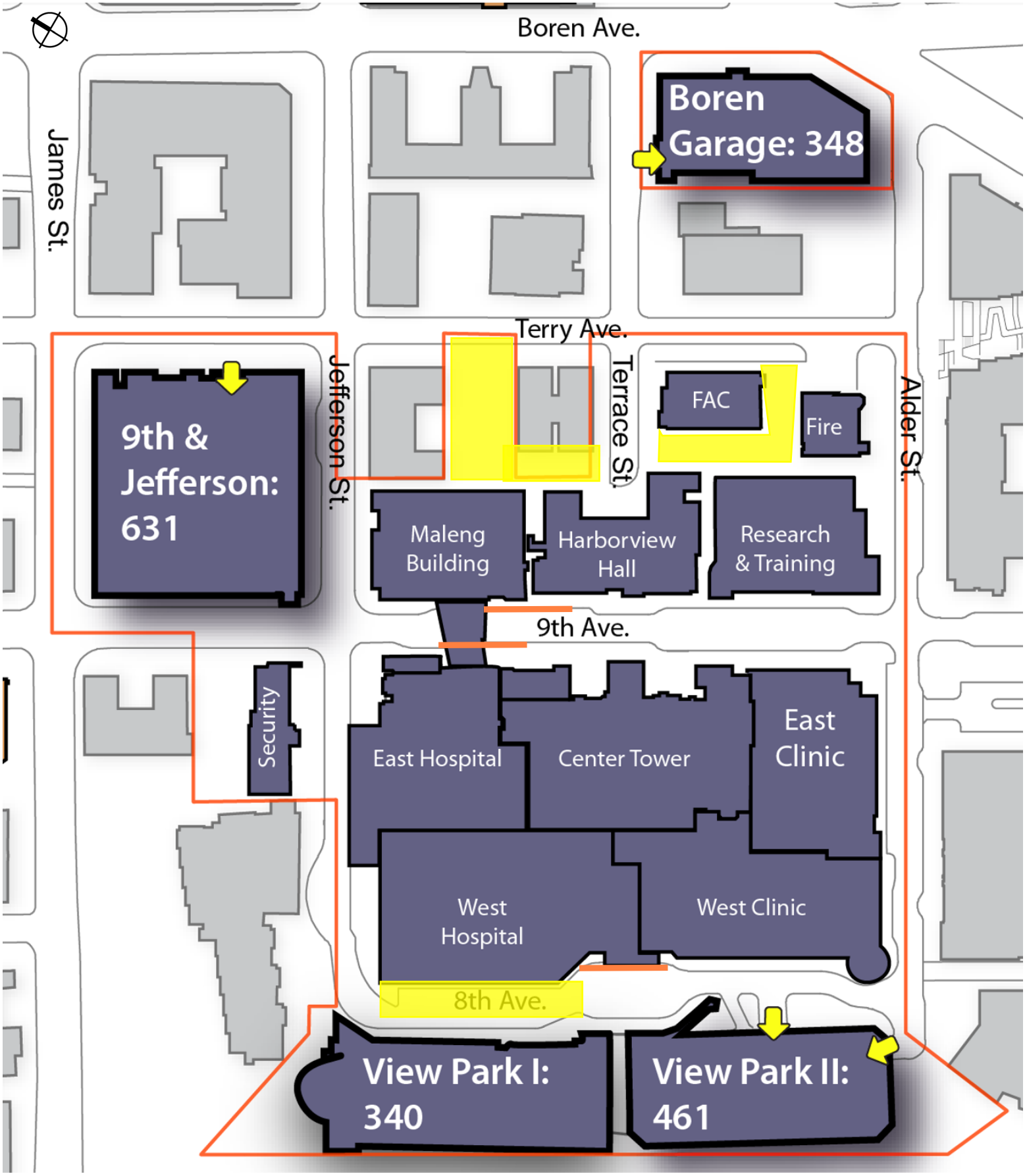
Appendix A Existing Vehicle Counts (Trip Generation)

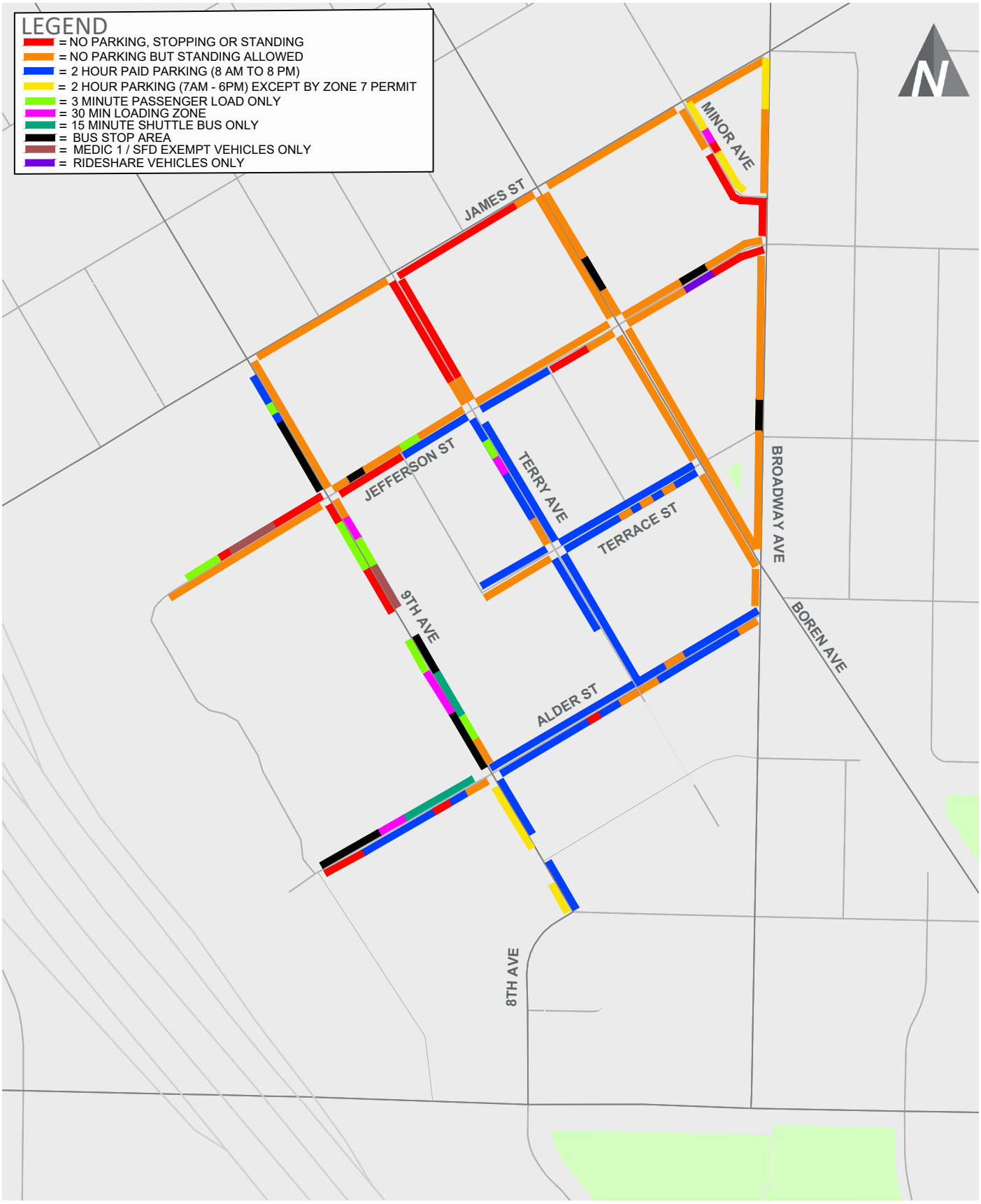
Existing

		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.*


Boren Ave.
James St.
Boren Garage: 348
Terry Ave.
Jefferson St.
Terrace St.
Alder St.
9th & Jefferson: 631
FAC
Fire
Maleng Building
Harborview Hall
Research & Training
9th Ave.
Security
East Hospital
Center Tower
East Clinic
West Hospital
West Clinic
8th Ave.
View Park I: 340
View Park II: 461
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	238	58
Out	166	218
Total	404	276

Adjusted SOV (change from existing with current SOV)

	AM	PM
In	303	74
Out	210	278
Total	513	352

2,024 — 2045

			Existing			GROWTH	Action Alternative								Action Alternative					
AM			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%	101	1,300	589	404	993	76%	25%	128	1,300	589	512	1,101	85%
12910	**3, 4, 193**	**S**	1,872	707	38%	966.78	25%	101	1,872	967	404	1,371	73%	25%	128	1,872	967	512	1,479	79%
41930	**60**	**N**	714	245	34%	334.93	10%	40	714	335	160	495	69%	10%	51	714	335	204	539	75%
42010	**60**	**S**	714	122	17%	166.51	10%	40	714	167	160	327	46%	10%	51	714	167	204	371	52%
41904	**9, 43**	**N**	776	68	9%	93.37	3%	10	776	93	40	133	17%	3%	13	776	93	52	145	19%
41987	**9, 43**	**S**	104	6	6%	7.93	3%	10	104	8	40	48	46%	3%	13	104	8	52	60	58%
27500	**27**	**E**	357	44	12%	60.29	5%	20	357	60	80	140	39%	5%	27	357	60	108	168	47%
27430	**27**	**W**	306	113	37%	154.20	5%	20	306	154	80	234	77%	5%	27	306	154	108	262	86%
820	**257,311**	**S**	384	27	7%	37.18	5%	20	384	37	80	117	31%	5%	27	384	37	108	145	38%
860	**257,311**	**N**		PM Only		-	-				PM Only			-				PM Only		
Total			**6,527**	**1,763**			**90%**	**362**	**6,527**	**2,410**	**1,448**	**3,858**	**59%**	**90%**	**465**	**6,527**	**2,410**	**1,860**	**4,270**	**65%**
													77%							86%

2045

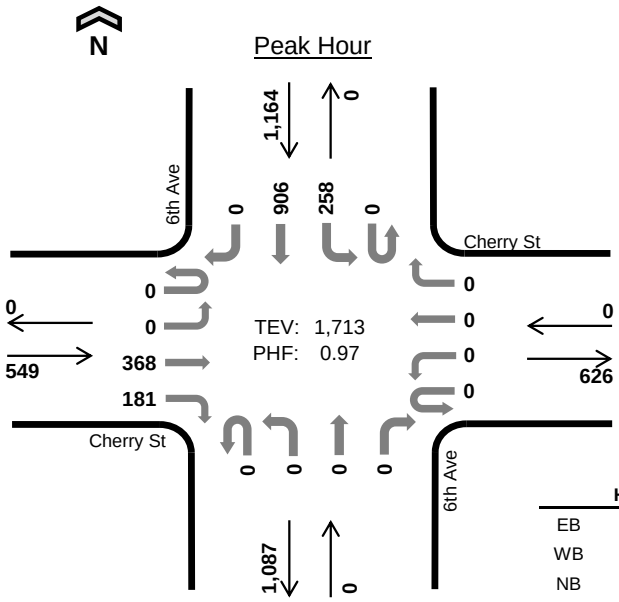
			Existing			GROWTH	Action Alternative								Action Alternative					
PM			Onboard Capacity Analysis						Onboard Capacity Analysis								Onboard Capacity Analysis				
	Route	**Direction**	**Total Capacity**	Bus Passenger Load	**Utilization**	**1.50%**	Dist	Total TG (Peak Hour)	**Total Capacity**	**Without-Project 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%	70	2,412	998	280	1,278	53%	25%	88	2,412	998	352	1,350	56%
12910	**3, 4, 193**	**S**	1,560	639	41%	874.10	25%	69	1,560	874	276	1,150	74%	25%	88	1,560	874	352	1,226	79%
41930	**60**	**N**	1,020	244	24%	333.56	10%	28	1,020	334	112	446	44%	10%	35	1,020	334	140	474	46%
42010	**60**	**S**	969	333	34%	454.55	10%	28	969	455	112	567	58%	10%	35	969	455	140	595	61%
41904	**9, 43**	**N**		AM Only		-		0			AM Only				0			AM Only		
41987	**9, 43**	**S**	255	60	24%	82.02	5%	14	255	82	56	138	54%	5%	19	255	82	76	158	62%
27500	**27**	**E**	459	154	34%	210.39	5%	14	459	210	56	266	58%	5%	19	459	210	76	286	62%
27430	**27**	**W**	408	77	19%	104.99	5%	14	408	105	56	161	39%	5%	19	408	105	76	181	44%
820	**257,311**	**S**		AM Only		-		0			AM Only				0			AM Only		
860	**257,311**	**N**	432	40	9%	54.41	5%	14	432	54	56	110	26%	5%	18	432	54	72	126	29%
Total			**7,515**	**2,276**			**90%**	**251**	**7,515**	**3,112**	**1,004**	**4,116**	**55%**	**90%**	**321**	**7,515**	**3,112**	**1,284**	**4,396**	**58%**
													74%							79%

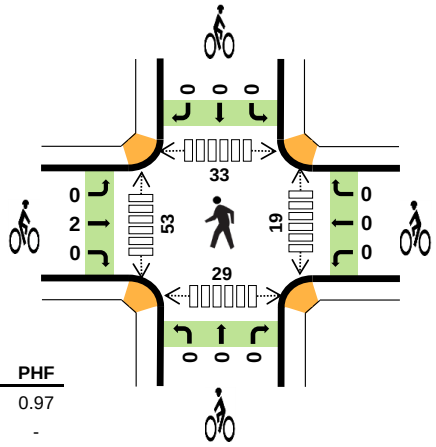
10% assumed to be assigned to other transit - light rail, street car, etc.

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**

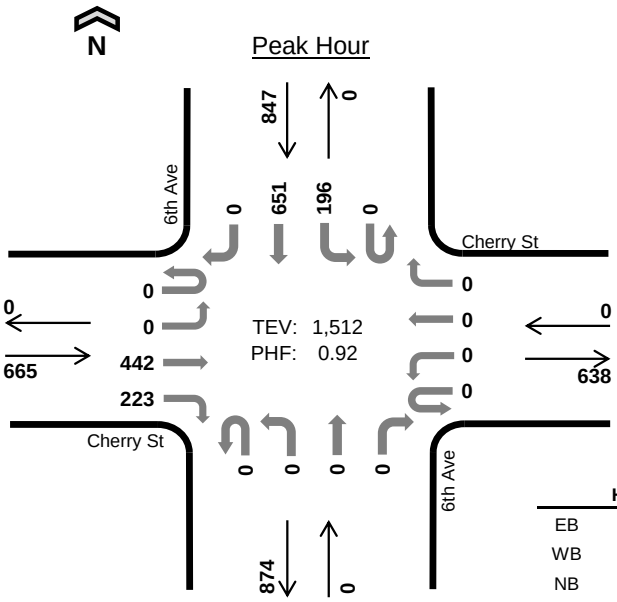
Two-Hour Count Summaries - Bikes

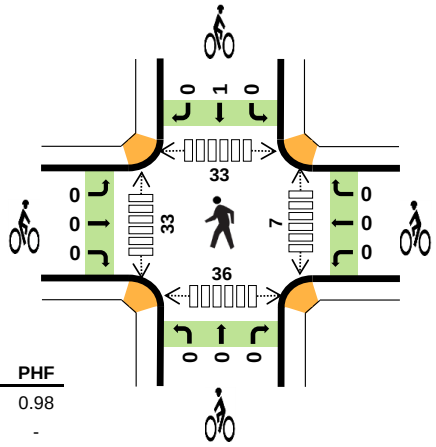
Interval Start	Cherry St Eastbound			Cherry St Westbound			6th Ave Northbound			6th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**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***

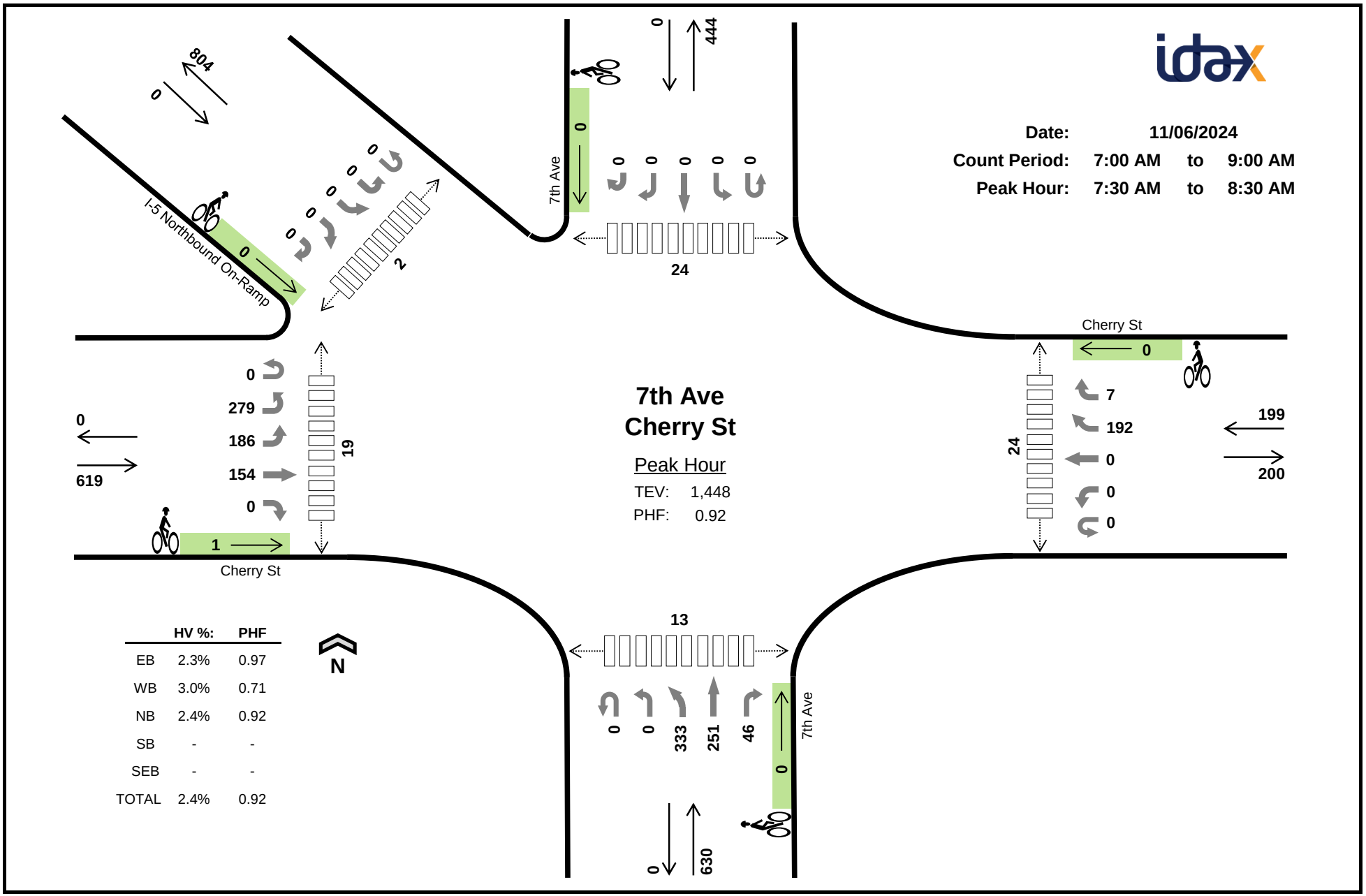
Two-Hour Count Summaries - Heavy Vehicles

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**
Peak Hour 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**
Peak Hour 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.

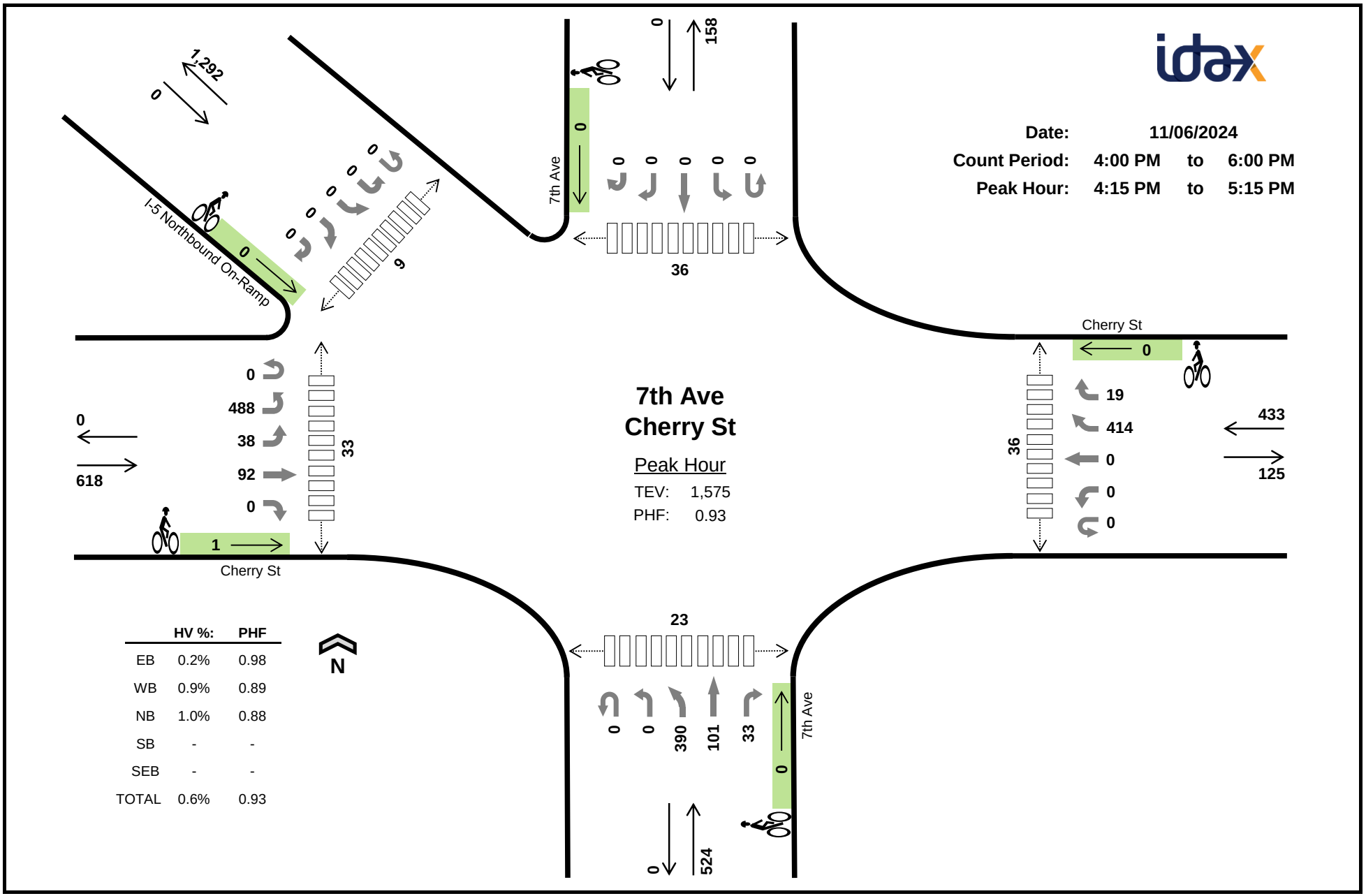
Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	SEB	Total	EB	WB	NB	SB	SEB	Total	East	West	North	South	Northwest	Total
7:00 AM	1	2	3	0	0	*6*	0	0	0	0	0	*0*	4	3	4	0	0	*11*
7:15 AM	1	0	3	0	0	*4*	0	0	0	0	0	*0*	4	3	4	0	0	*11*
7:30 AM	**1**	**4**	**2**	**0**	**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**
	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**
	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

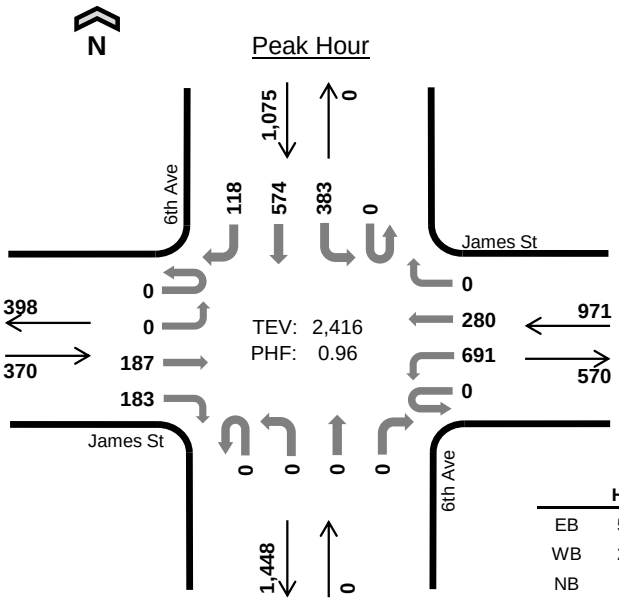
Interval Start	Cherry St					Cherry St					7th Ave					7th Ave					n/a					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Southeastbound						
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	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**

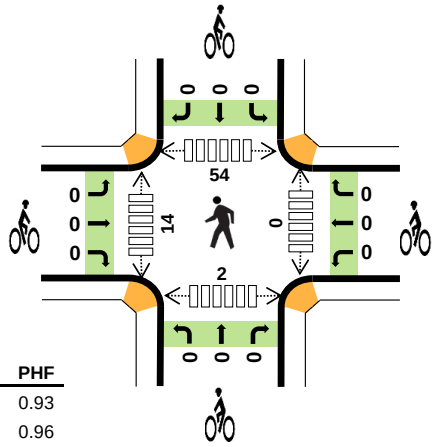
Two-Hour Count Summaries - Bikes

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**
	HV	**0**	**0**	**15**	**6**	**0**	**13**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**16**	**3**	**71**	**0**
	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**

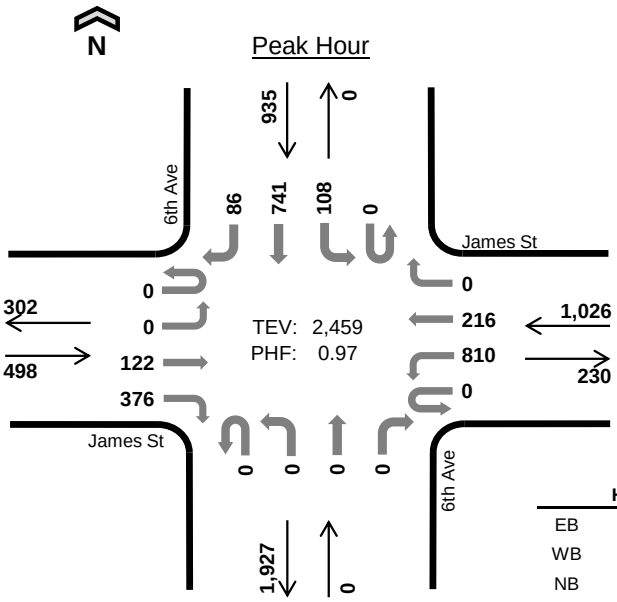
Two-Hour Count Summaries - Bikes

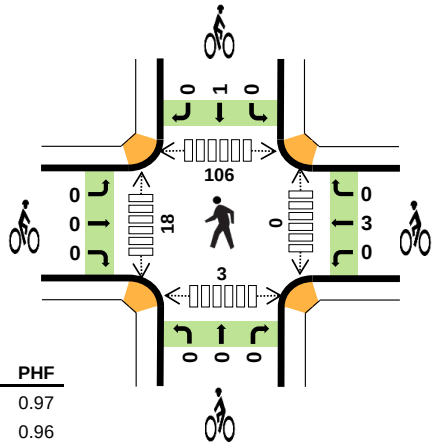
Interval Start	James St Eastbound			James St Westbound			6th Ave Northbound			6th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**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**

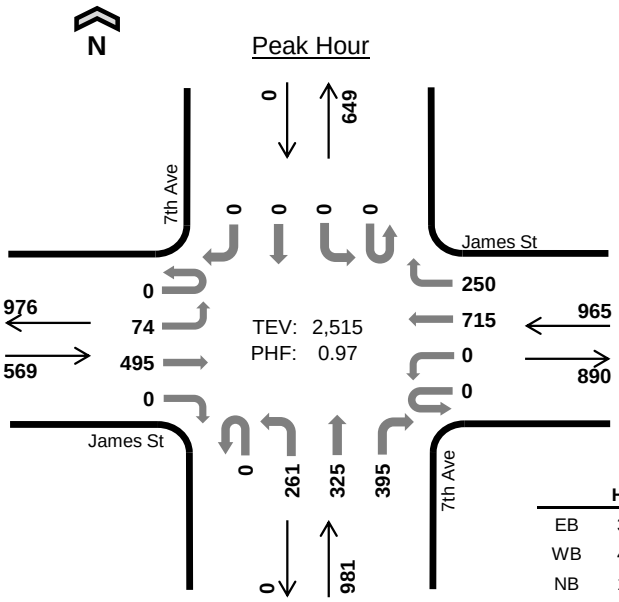
Two-Hour Count Summaries - Bikes

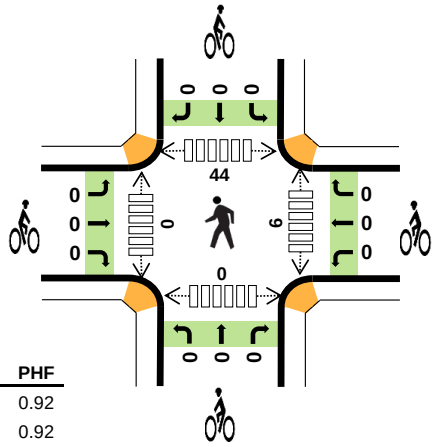
Interval Start	James St Eastbound			James St Westbound			6th Ave Northbound			6th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**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**

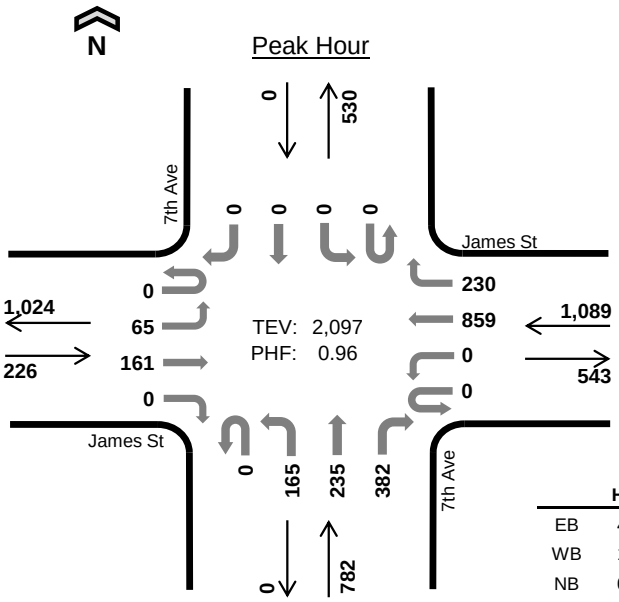
Two-Hour Count Summaries - Bikes

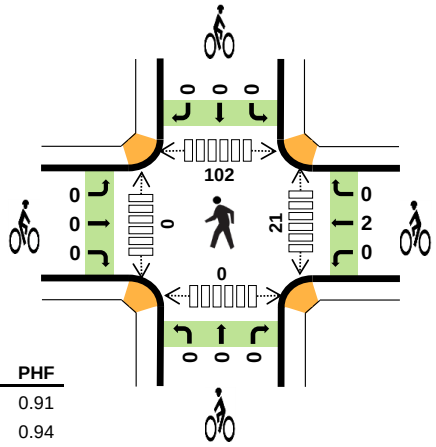
Interval Start	James St Eastbound			James St Westbound			7th Ave Northbound			7th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**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**
Peak Hour HV	**0**	**0**	**11**	**0**	**0**	**0**	**18**	**2**	**0**	**3**	**1**	**2**	**0**	**0**	**0**	**0**	**37**	**0**
Peak Hour 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**

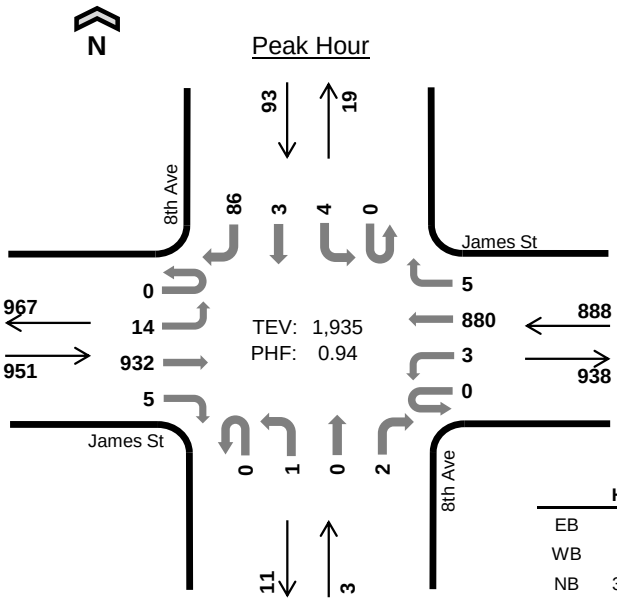
Two-Hour Count Summaries - Bikes

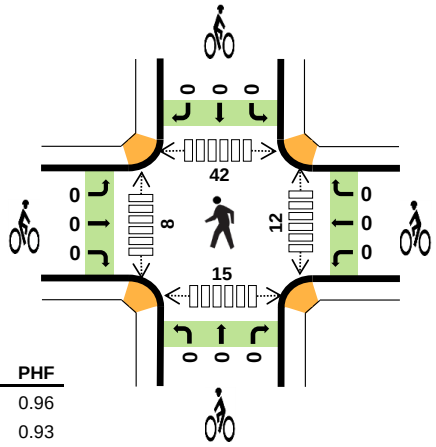
Interval Start	James St Eastbound			James St Westbound			7th Ave Northbound			7th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**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**

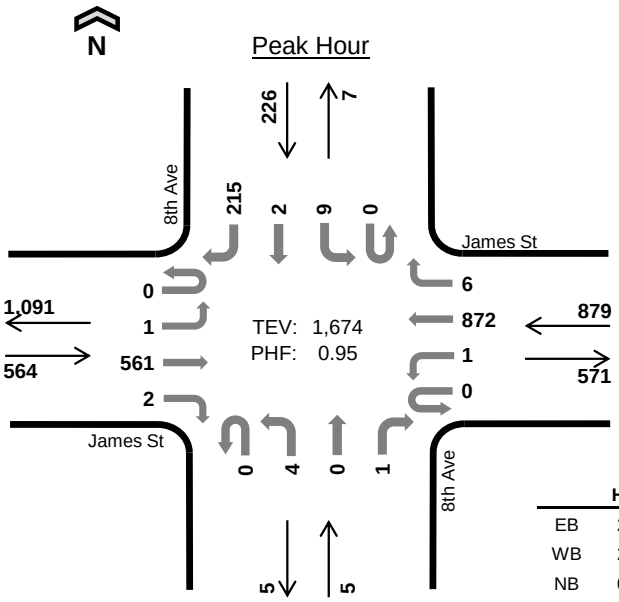
Two-Hour Count Summaries - Bikes

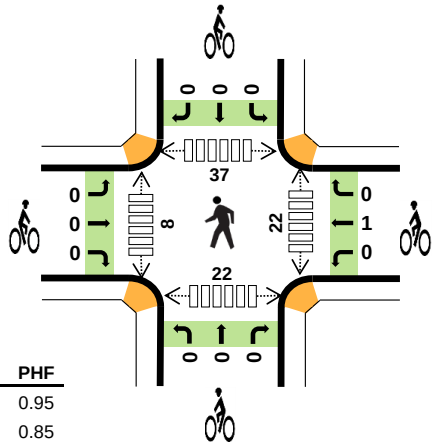
Interval Start	James St Eastbound			James St Westbound			8th Ave Northbound			8th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**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**

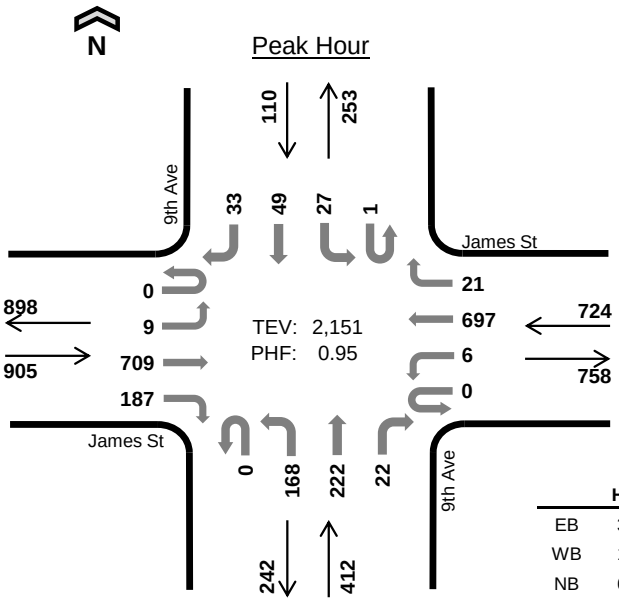
Two-Hour Count Summaries - Bikes

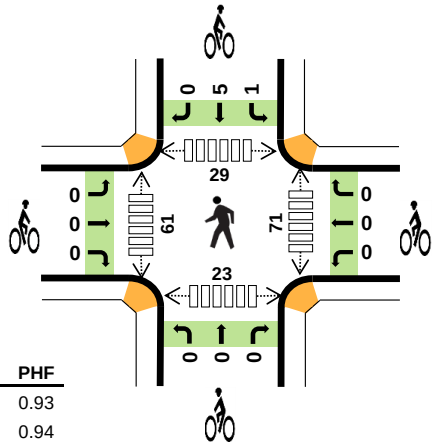
Interval Start	James St Eastbound			James St Westbound			8th Ave Northbound			8th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	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**

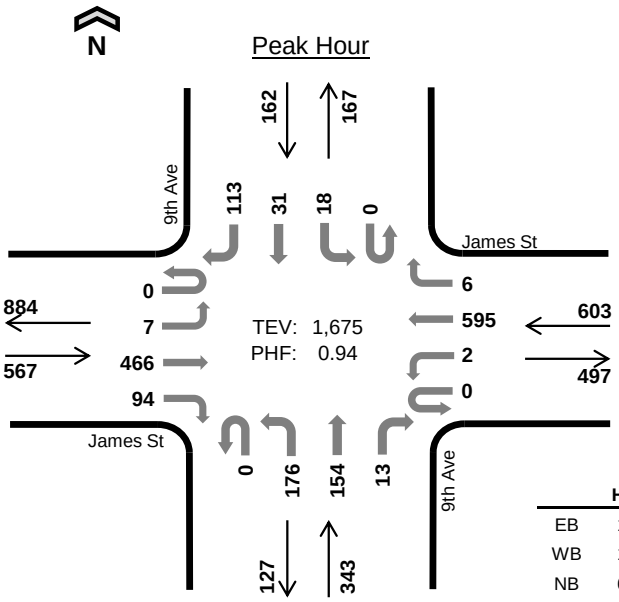
Two-Hour Count Summaries - Bikes

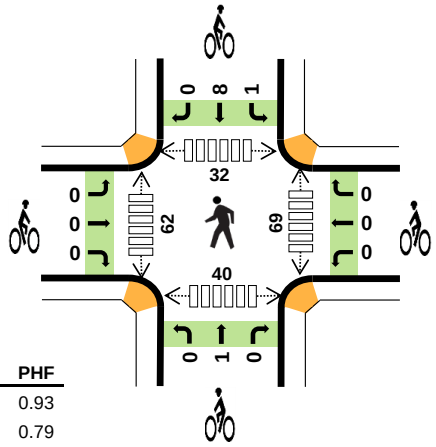
Interval Start	James St Eastbound			James St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
7:30 AM	**0**	**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**

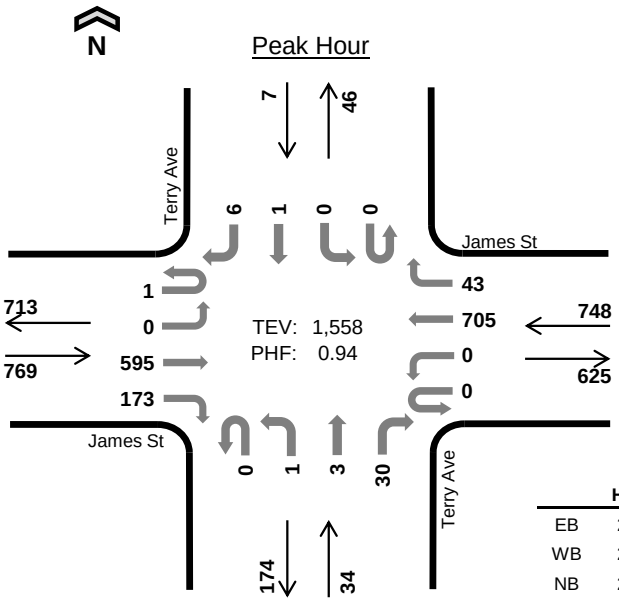
Two-Hour Count Summaries - Bikes

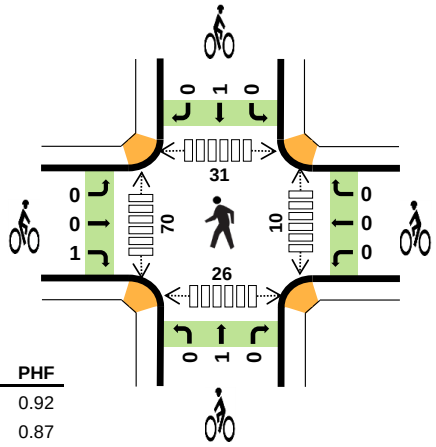
Interval Start	James St Eastbound			James St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:15 PM	0	0	0	0	0	0	0	2	0	0	1	0	3	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	1	0	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**

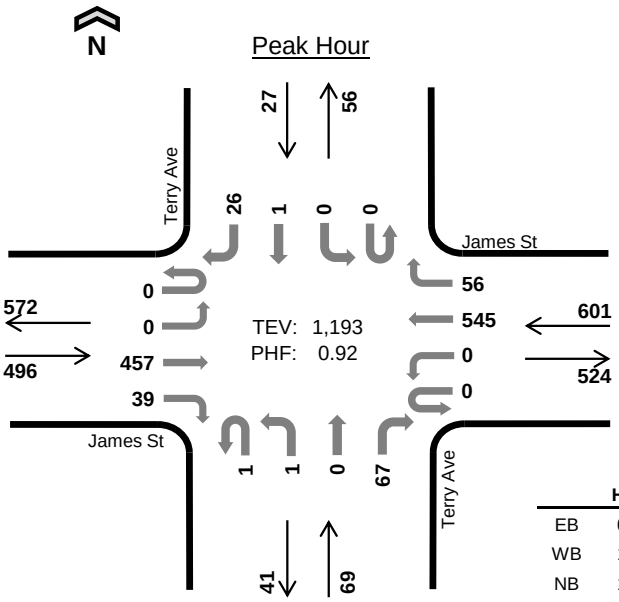
Two-Hour Count Summaries - Bikes

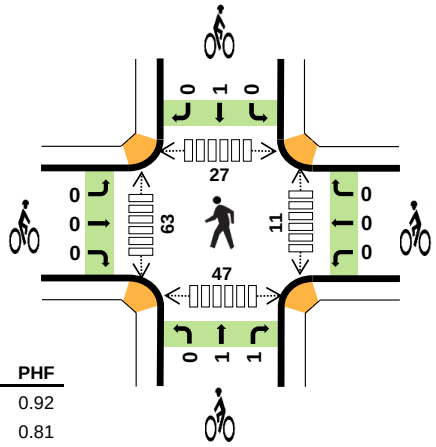
Interval Start	James St Eastbound			James St Westbound			Terry Ave Northbound			Terry Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**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

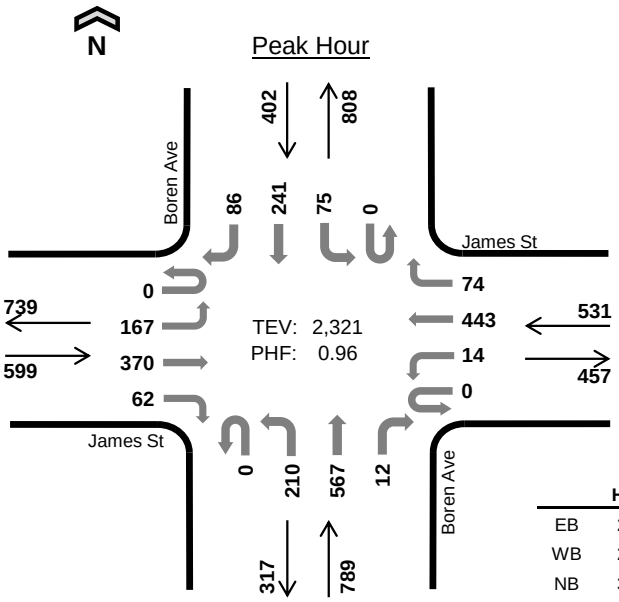
Interval Start	James St Eastbound				James St Westbound				Terry Ave Northbound				Terry Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	7	0
4:15 PM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5	0
4:30 PM	0	0	1	0	0	0	2	0	0	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

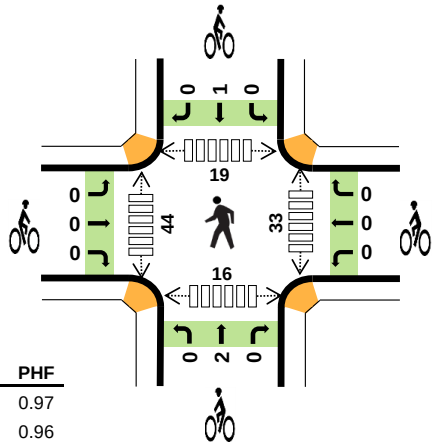
Interval Start	James St Eastbound			James St Westbound			Terry Ave Northbound			Terry Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	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**

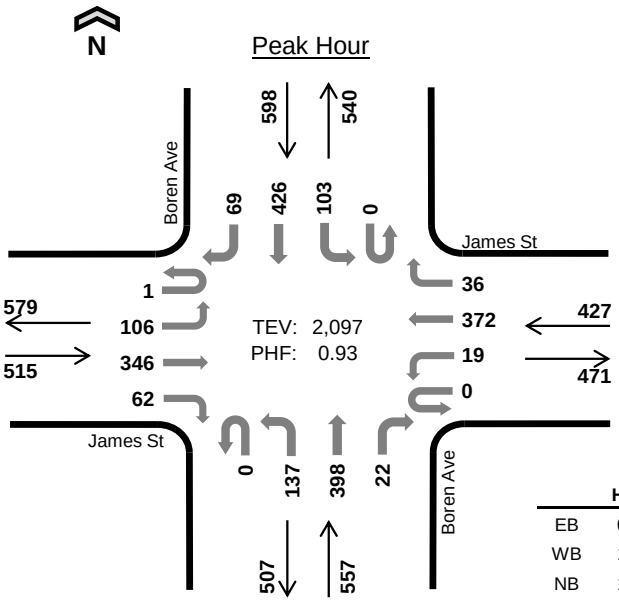
Two-Hour Count Summaries - Bikes

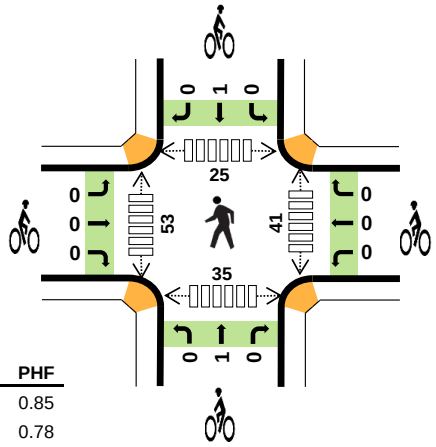
Interval Start	James St Eastbound			James St Westbound			Boren Ave Northbound			Boren Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	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**

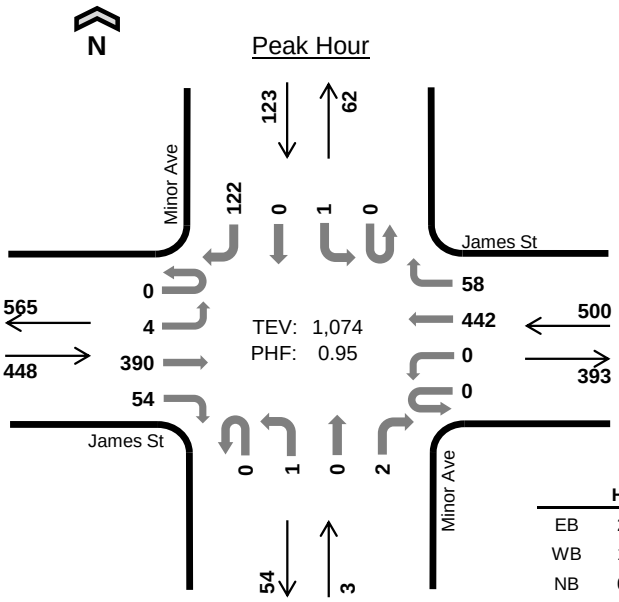
Two-Hour Count Summaries - Bikes

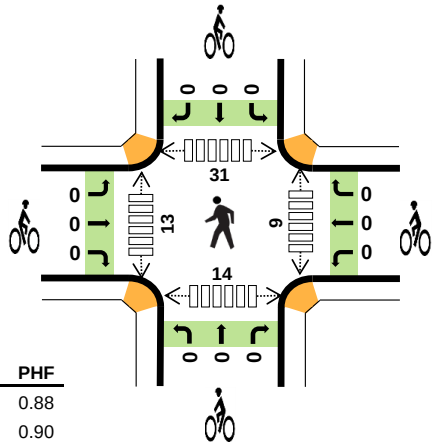
Interval Start	James St Eastbound			James St Westbound			Boren Ave Northbound			Boren Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	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**

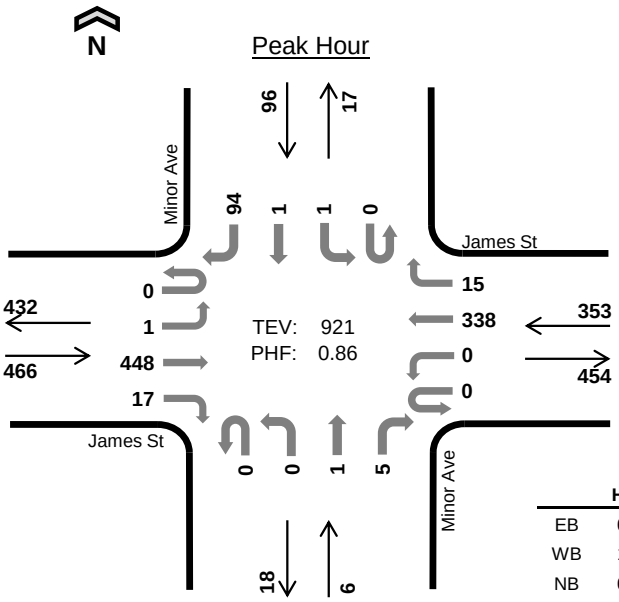
Two-Hour Count Summaries - Bikes

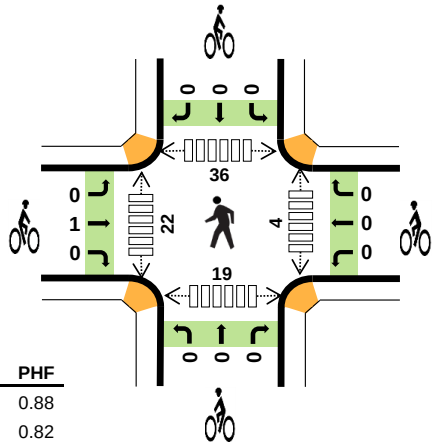
Interval Start	James St Eastbound			James St Westbound			Minor Ave Northbound			Minor Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**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

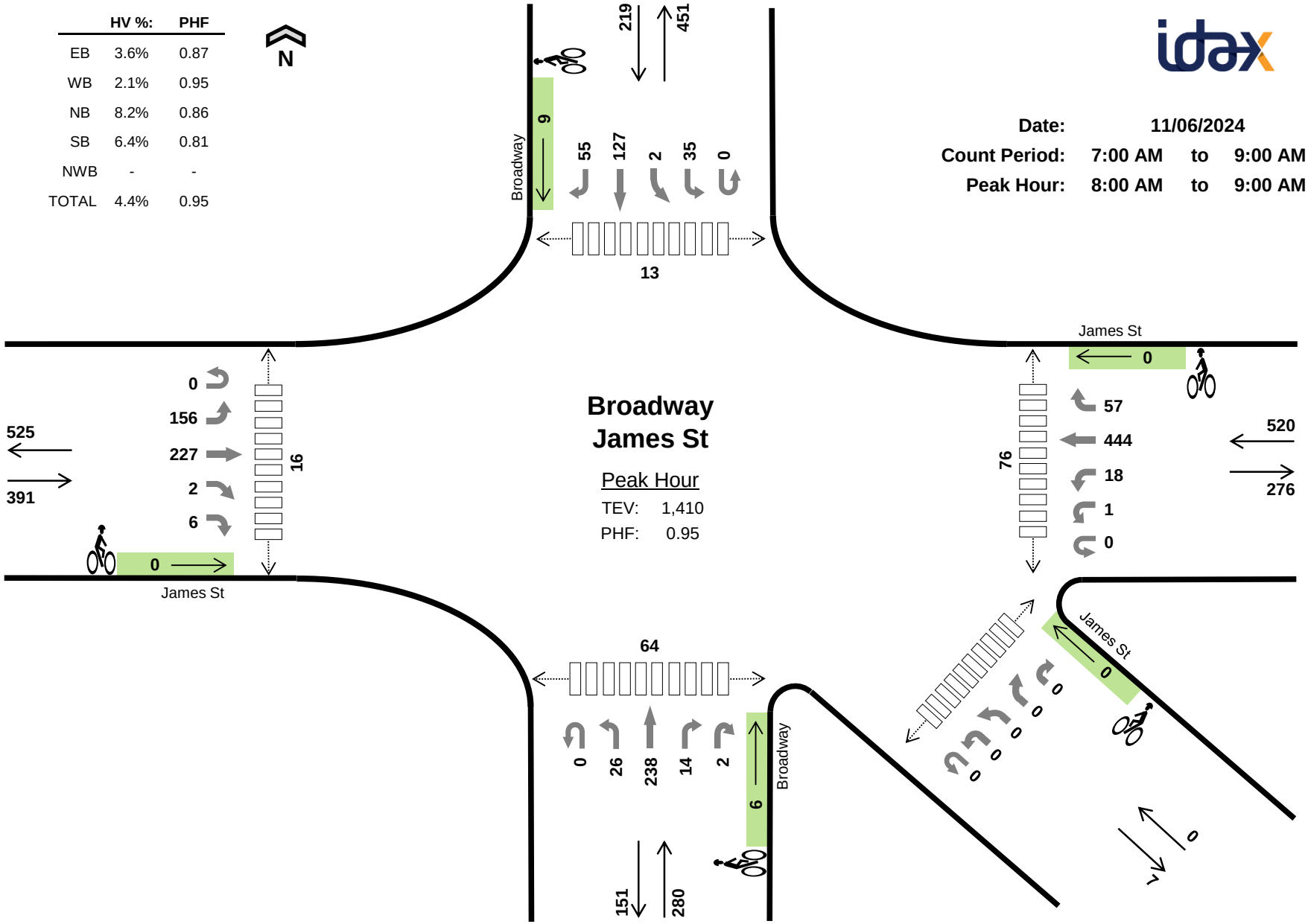
Interval Start	James St Eastbound				James St Westbound				Minor Ave Northbound				Minor Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	1	4	0
4:15 PM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	5	0
4:30 PM	0	0	3	0	0	0	1	0	0	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



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*

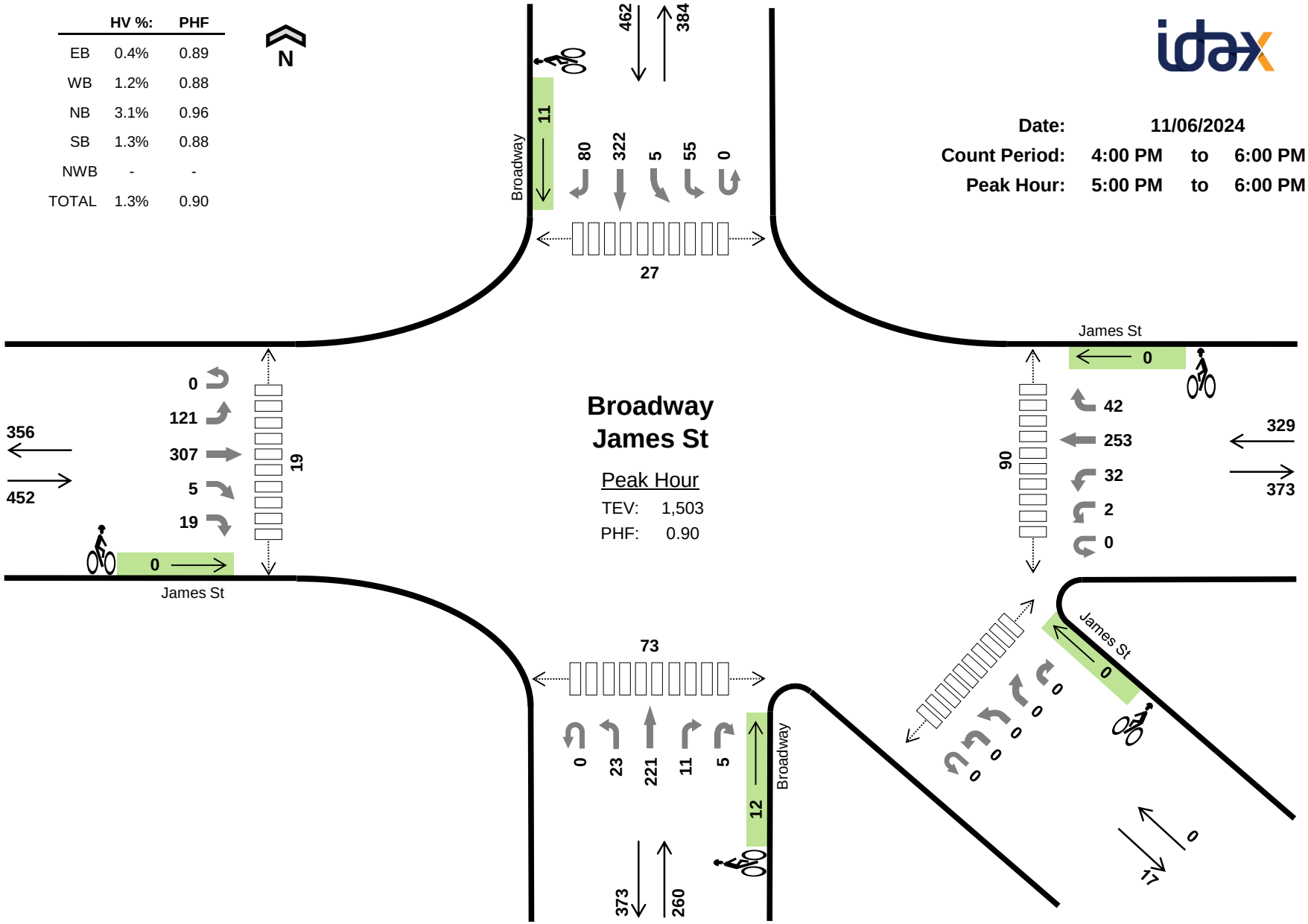
Two-Hour Count Summaries - Heavy Vehicles

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**
Peak Hour 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**
Peak Hour 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*

Two-Hour Count Summaries - Heavy Vehicles

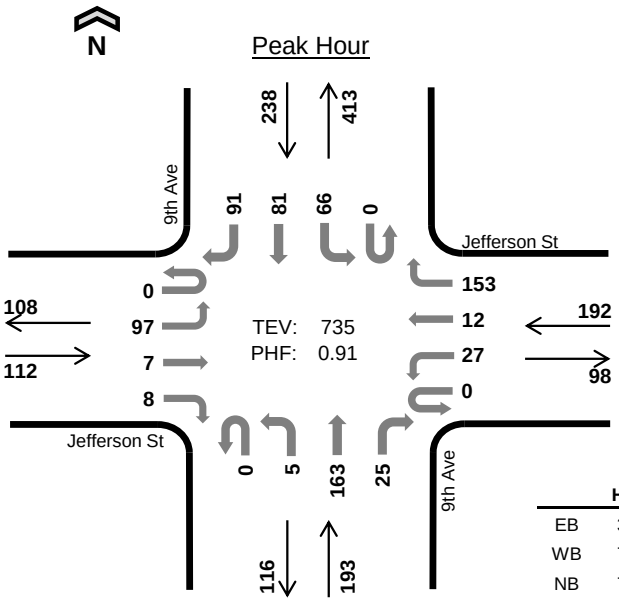
Interval Start	James St Eastbound					James St Westbound					Broadway Northbound					Broadway Southbound					James St Northwestbound					15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	1	0	0	0	0	0	1	0	0	0	2	0	0	0	1	0	4	0	0	0	0	0	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**

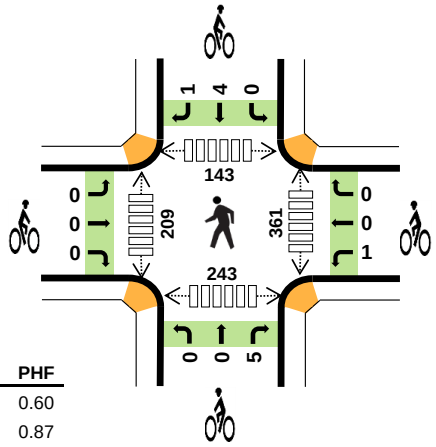
Two-Hour Count Summaries - Bikes

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**

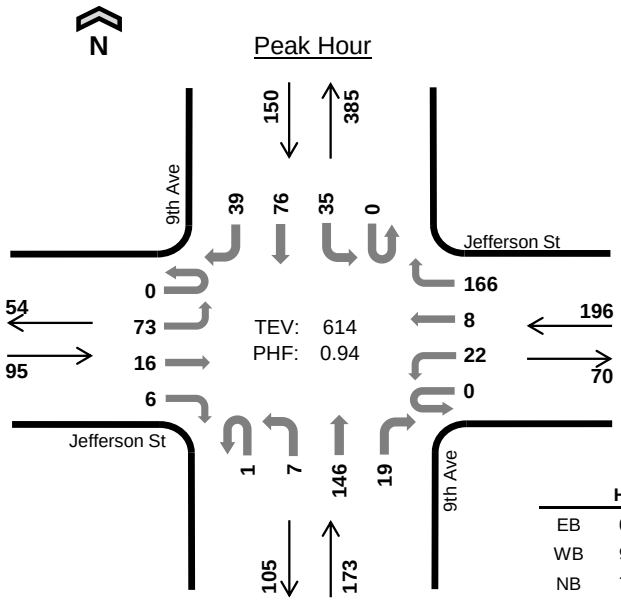
Two-Hour Count Summaries - Bikes

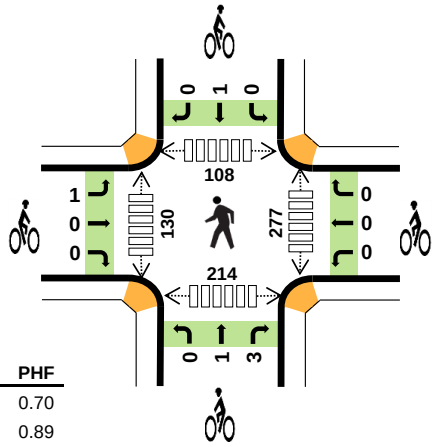
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	1	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 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**

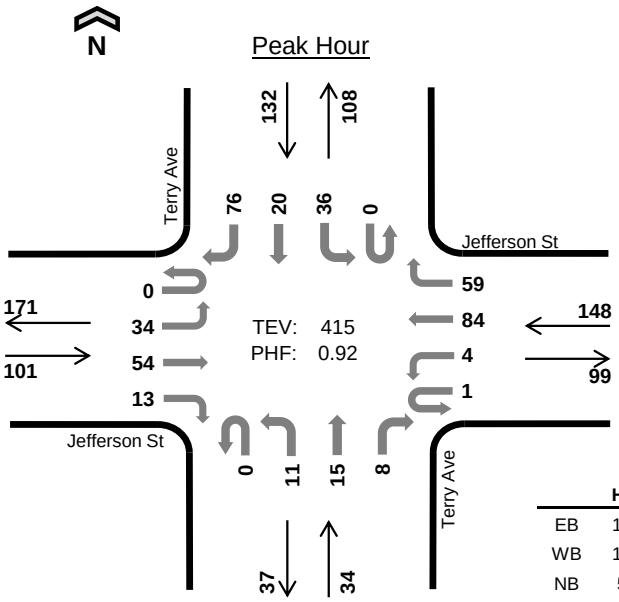
Two-Hour Count Summaries - Bikes

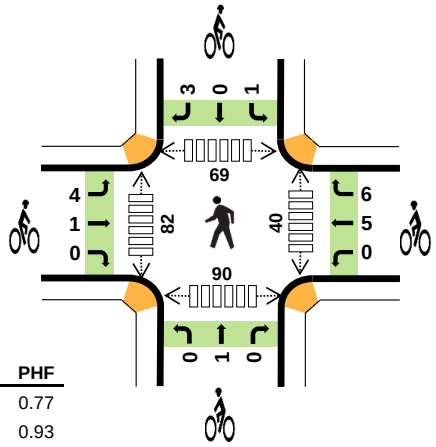
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:15 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:30 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





	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

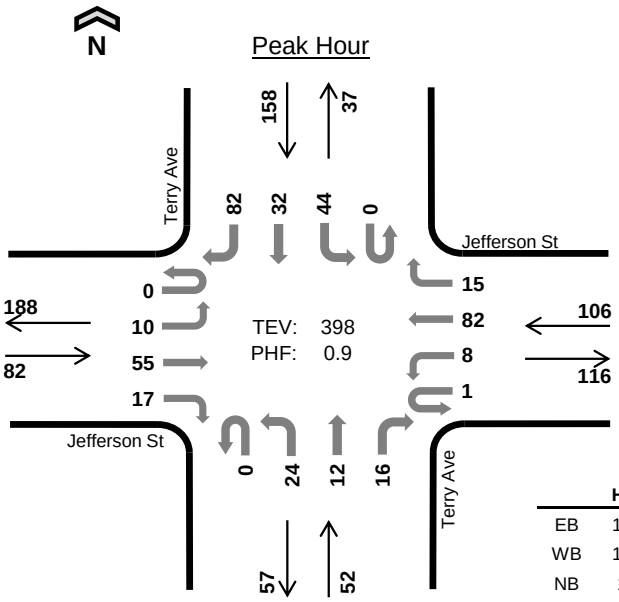
Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Terry Ave Northbound				Terry Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	4	0	0	0	3	0	0	0	0	0	0	0	1	0	8	0
7:15 AM	0	0	3	0	0	0	1	0	0	1	0	0	0	0	0	0	5	0
7:30 AM	**0**	**0**	**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

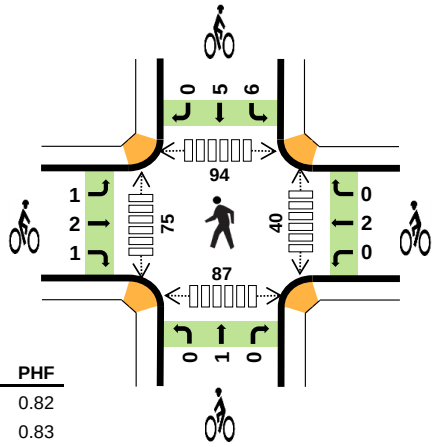
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Terry Ave Northbound			Terry Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	1	0	0	1	0	0	0	0	3	0
7:15 AM	0	0	0	0	1	2	0	2	0	0	0	0	5	0
7:30 AM	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**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**

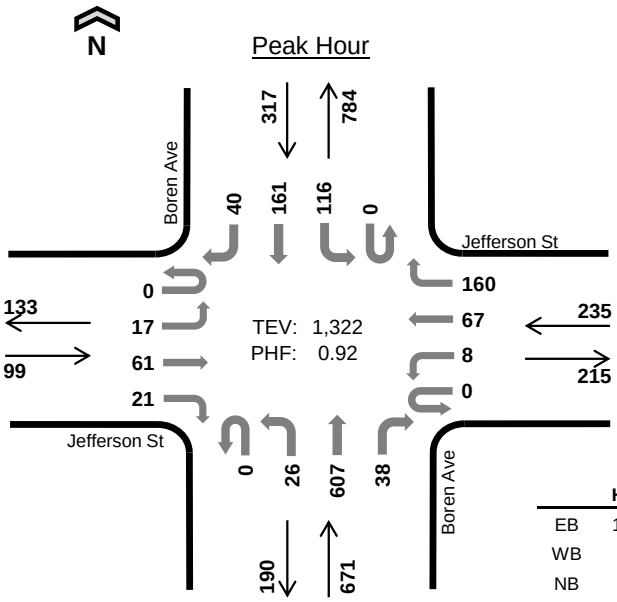
Two-Hour Count Summaries - Bikes

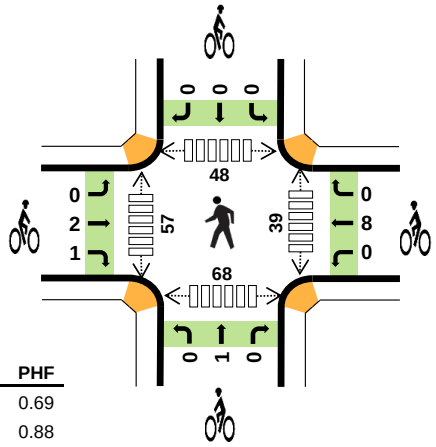
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Terry Ave Northbound			Terry Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:15 PM	**1**	**0**	**0**	**0**	**0**	**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**

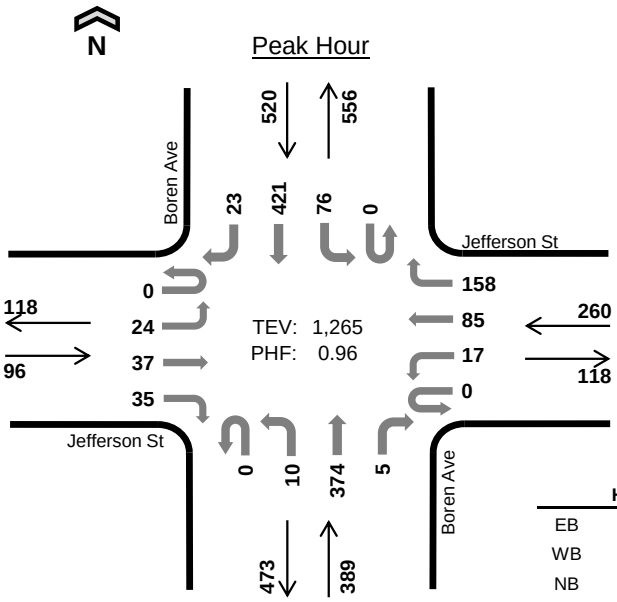
Two-Hour Count Summaries - Bikes

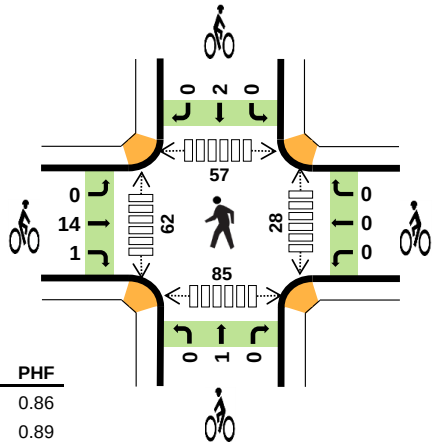
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Boren Ave Northbound			Boren Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	1	0	0	1	0	0	0	0	2	0
7:15 AM	0	0	0	0	3	0	0	0	0	0	0	0	3	0
7:30 AM	0	0	0	0	4	0	0	0	0	0	0	0	4	0
7:45 AM	0	0	0	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**

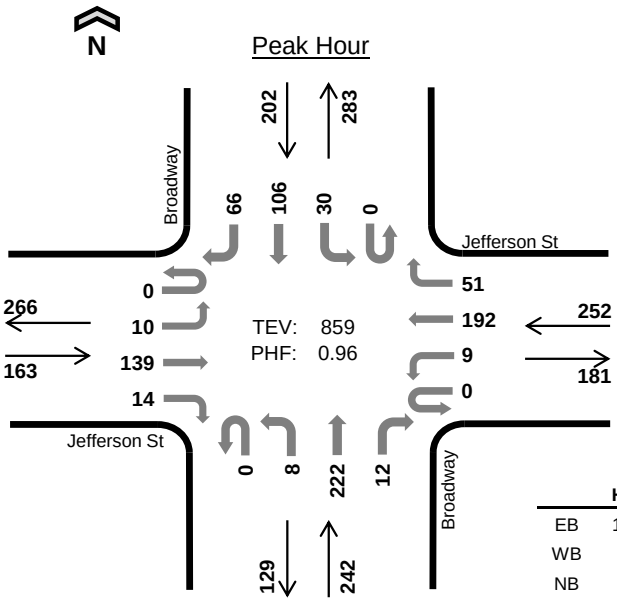
Two-Hour Count Summaries - Bikes

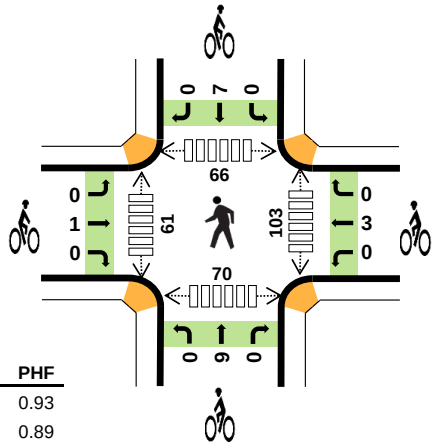
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Boren Ave Northbound			Boren Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**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**

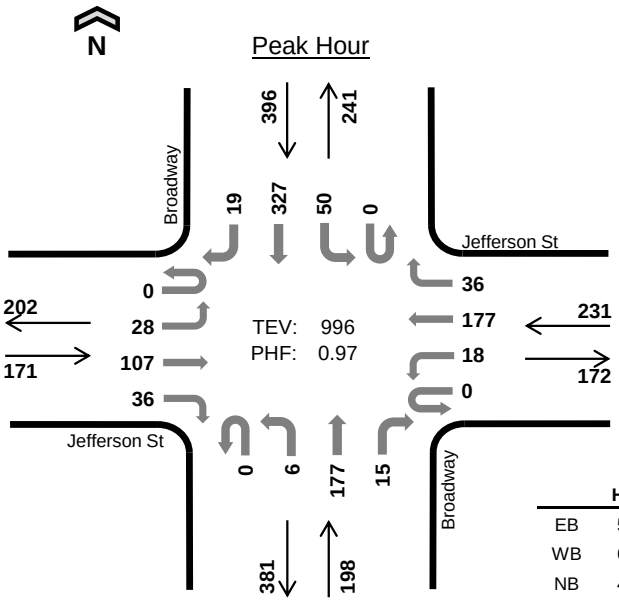
Two-Hour Count Summaries - Bikes

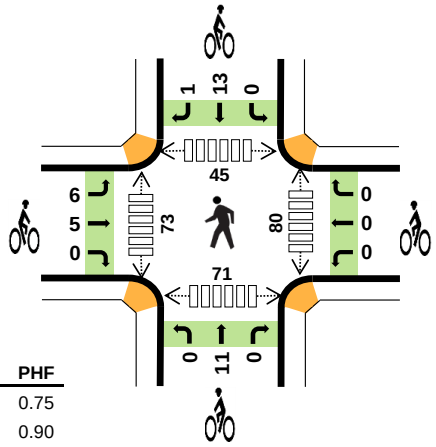
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	1	0	0	5	0	0	1	0	7	0
7:15 AM	0	0	0	0	2	0	0	2	0	0	0	0	4	0
7:30 AM	0	0	0	0	3	2	0	2	0	0	2	1	10	0
7:45 AM	0	0	0	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**
Peak Hour HV	**0**	**0**	**9**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**6**	**0**	**39**	**0**
Peak Hour 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

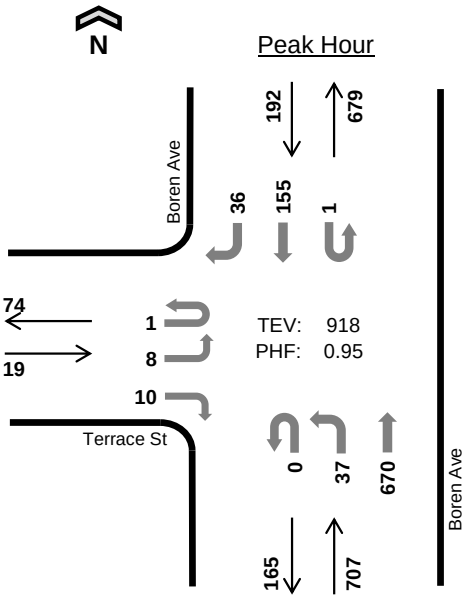
Interval Start	Jefferson St Eastbound				Jefferson St Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	0	0	0	6	1	0	0	2	0	0	0	5	0	17	0
4:15 PM	0	0	2	0	0	0	5	0	0	0	3	0	0	0	1	0	11	0
4:30 PM	0	0	2	0	0	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

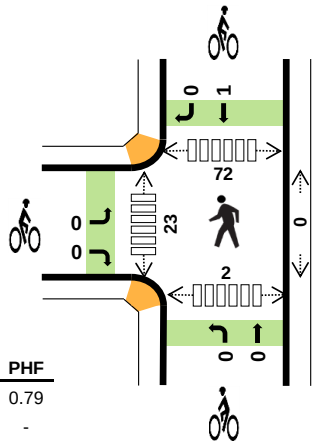
Interval Start	Jefferson St Eastbound			Jefferson St Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	2	0	0	0	0	0	5	0	0	1	0	8	0
4:15 PM	0	1	0	0	0	0	0	5	0	0	4	0	10	0
4:30 PM	1	0	0	0	0	0	0	3	0	0	3	1	8	0
4:45 PM	**0**	**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 EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) 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

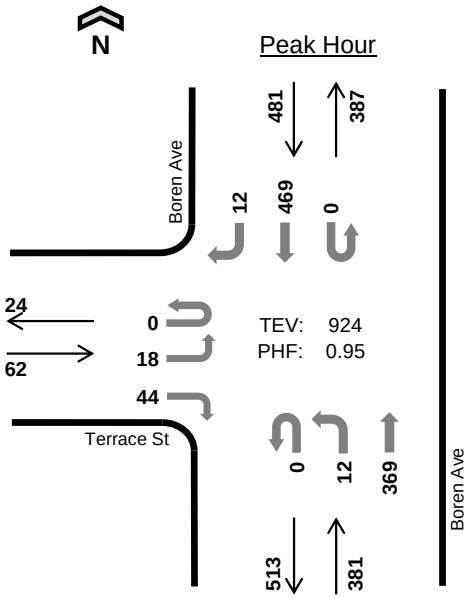
Interval Start	Terrace St				0				Boren Ave				Boren Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	2	0	9	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	7	0
7:30 AM	0	0	0	0	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

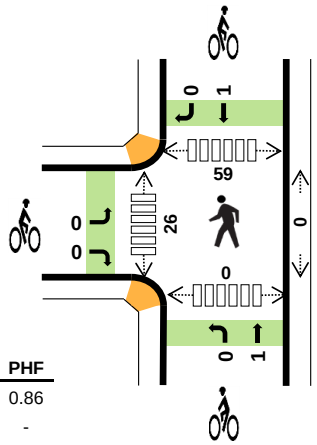
Interval Start	Terrace St			0			Boren Ave			Boren Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	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**

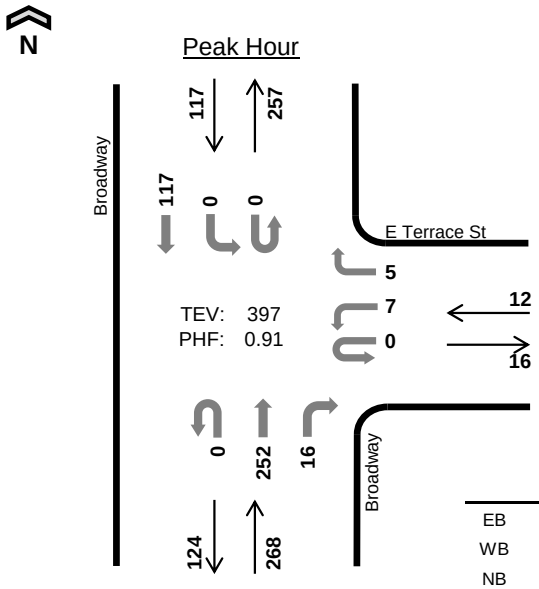
Two-Hour Count Summaries - Bikes

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**

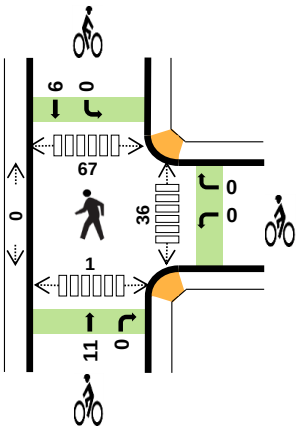
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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



	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**

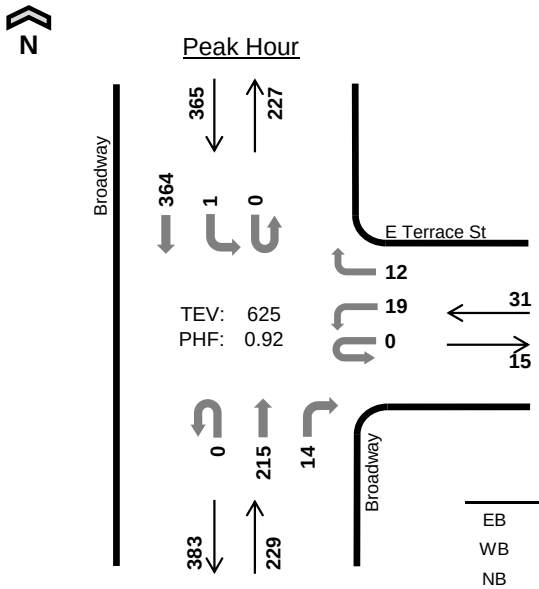
Two-Hour Count Summaries - Bikes

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**

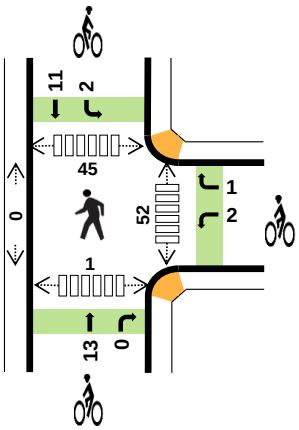
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**4**	**0**	**11**	**0**
Peak Hour 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**

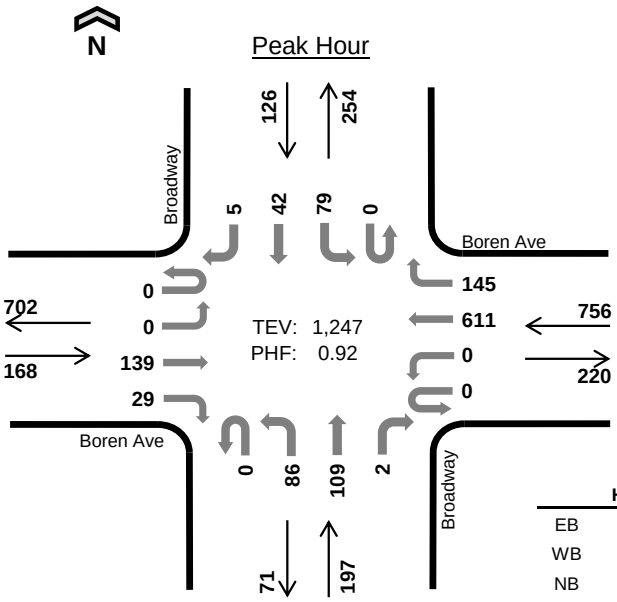
Two-Hour Count Summaries - Bikes

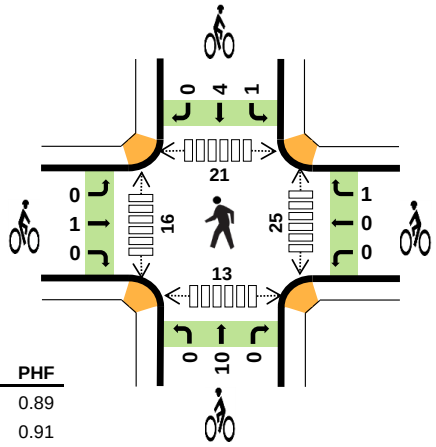
Interval Start	0			E Terrace St			Broadway			Broadway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	4	0	0	1	0	5	0
4:15 PM	0	0	0	1	0	0	0	7	0	0	4	0	12	0
4:30 PM	0	0	0	0	0	0	0	2	0	0	3	0	5	0
4:45 PM	0	0	0	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**

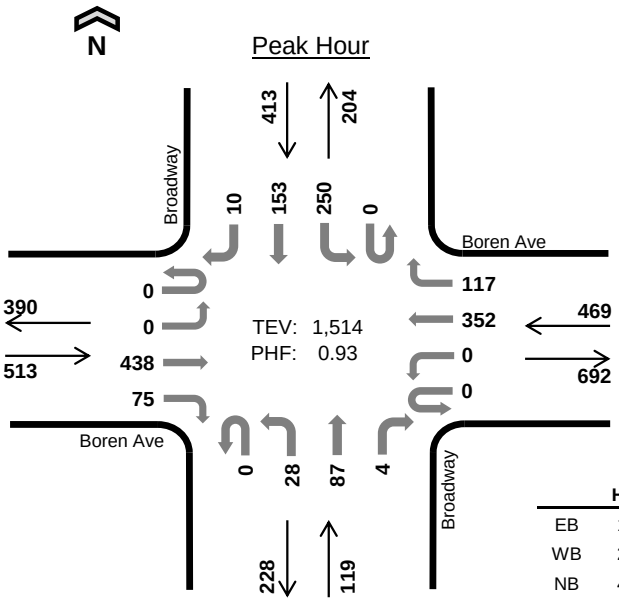
Two-Hour Count Summaries - Bikes

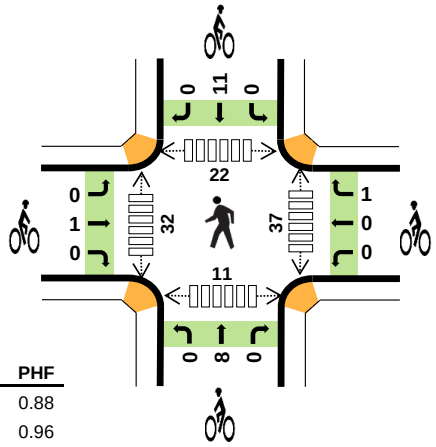
Interval Start	Boren Ave Eastbound			Boren Ave Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	1	5	0	1	0	0	7	0
7:15 AM	0	0	0	0	0	0	1	2	0	0	0	0	3	0
7:30 AM	0	0	0	0	0	0	0	2	0	1	1	0	4	0
7:45 AM	0	0	0	0	1	1	0	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**

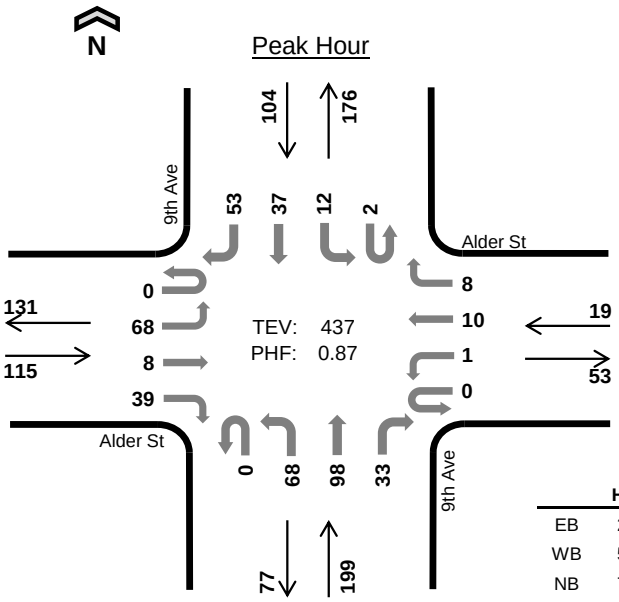
Two-Hour Count Summaries - Bikes

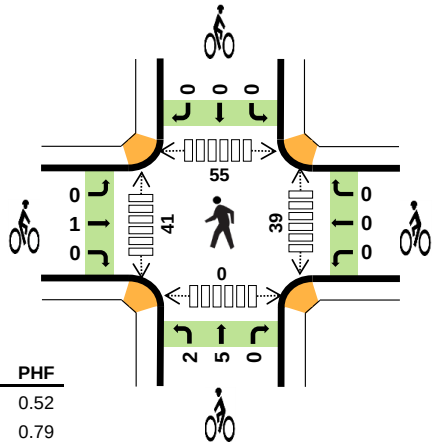
Interval Start	Boren Ave Eastbound			Boren Ave Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	4	0	0	2	0	6	0
4:15 PM	0	0	0	0	1	0	0	6	0	0	4	0	11	0
4:30 PM	0	1	0	0	0	0	0	2	0	0	5	0	8	0
4:45 PM	**0**	**1**	**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**

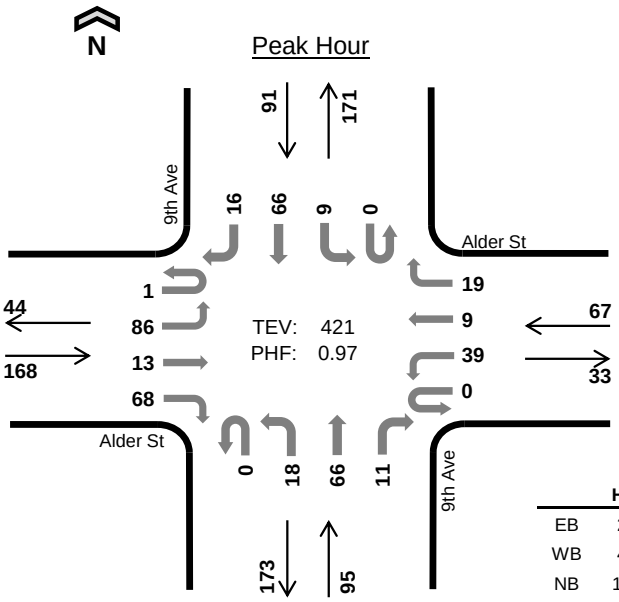
Two-Hour Count Summaries - Bikes

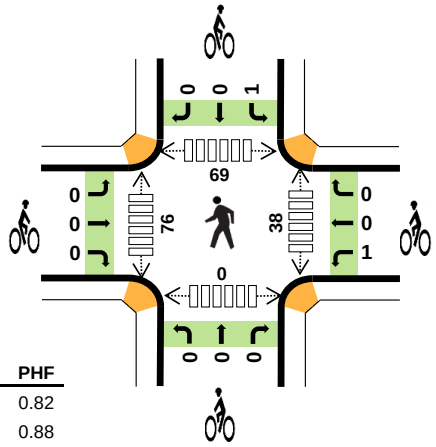
Interval Start	Alder St Eastbound			Alder St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**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**

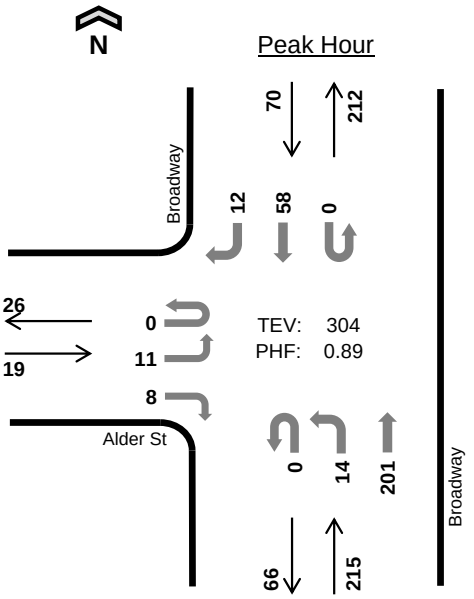
Two-Hour Count Summaries - Bikes

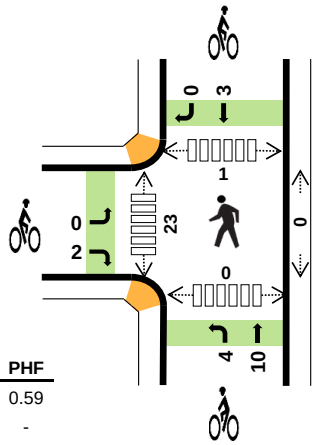
Interval Start	Alder St Eastbound			Alder St Westbound			9th Ave Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:30 PM	**0**	**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**

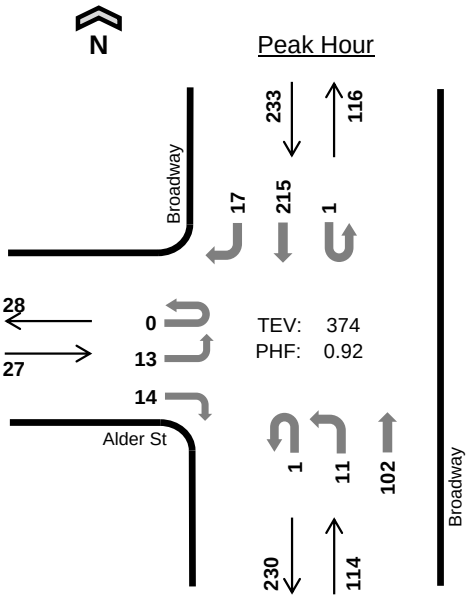
Two-Hour Count Summaries - Bikes

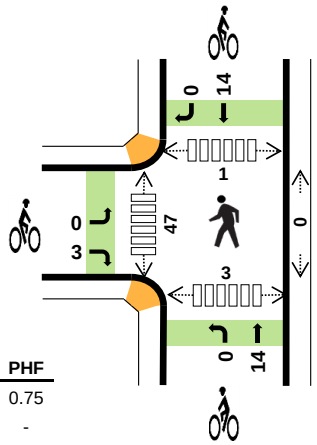
Interval Start	Alder St Eastbound			0 Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	1	8	0	0	1	0	10	0
7:15 AM	0	0	0	0	0	0	1	2	0	0	0	0	3	0
7:30 AM	0	0	0	0	0	0	1	0	0	0	1	0	2	0
7:45 AM	**0**	**0**	**1**	**0**	**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

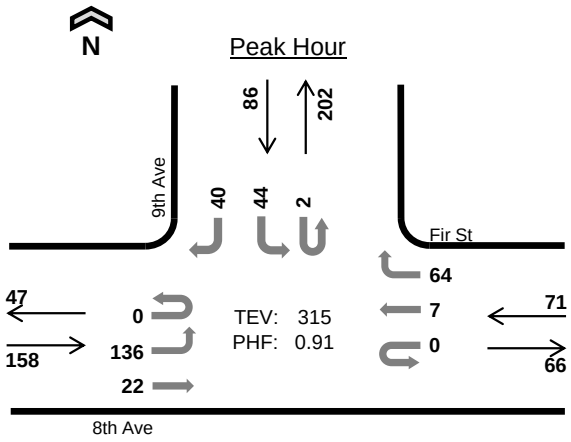
Interval Start	Alder St				0				Broadway				Broadway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	5	0
4:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**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

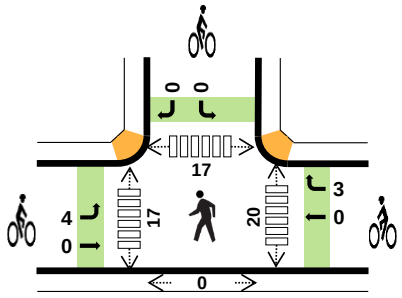
Interval Start	Alder St			0			Broadway			Broadway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	4	0	0	2	0	6	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**5**	**0**	**11**	0
4:30 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

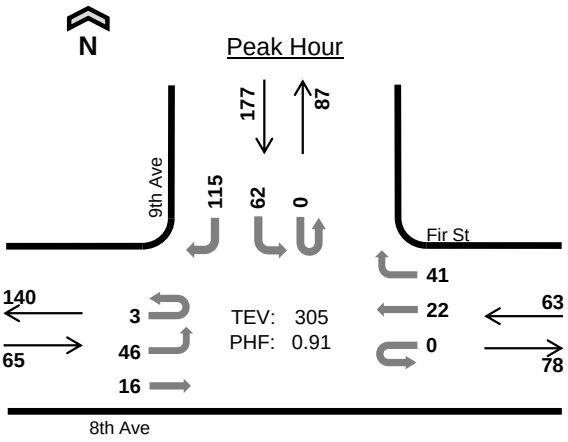
Interval Start	8th Ave Eastbound				Fir St Westbound				0 Northbound				9th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	2	5	0
7:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**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

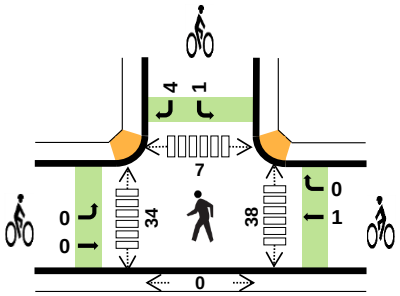
Interval Start	8th Ave Eastbound			Fir St Westbound			0 Northbound			9th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**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

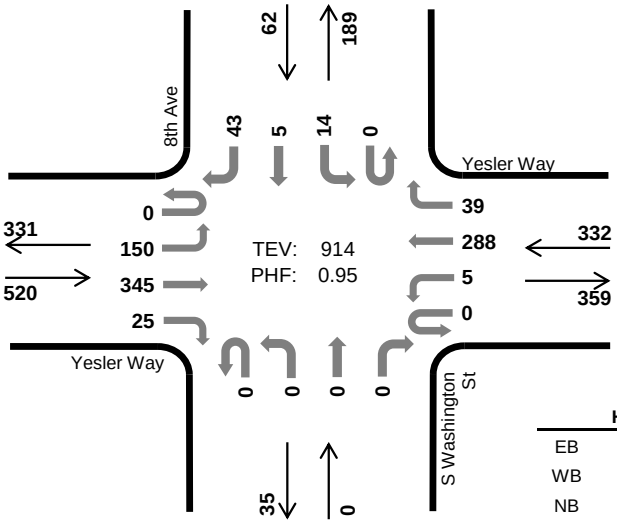
Interval Start	8th Ave			Fir St			0			9th Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	2	0
4:15 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**4**	0
4:30 PM	**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**

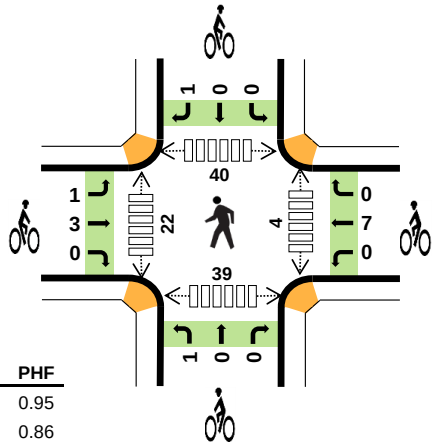
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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**

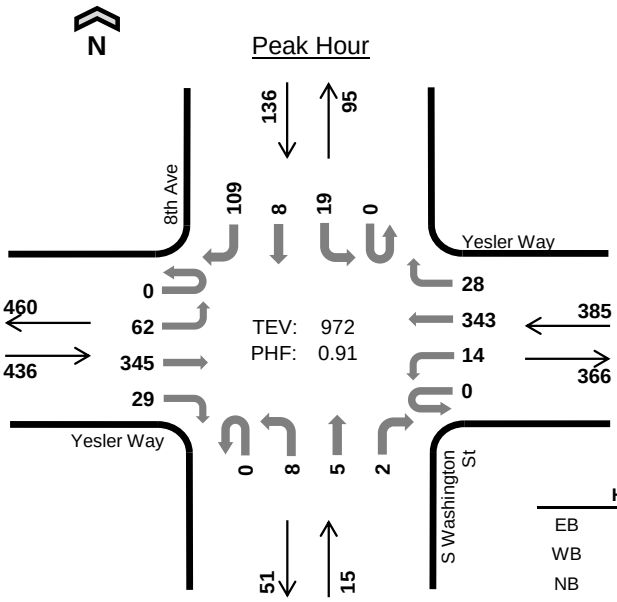
Two-Hour Count Summaries - Bikes

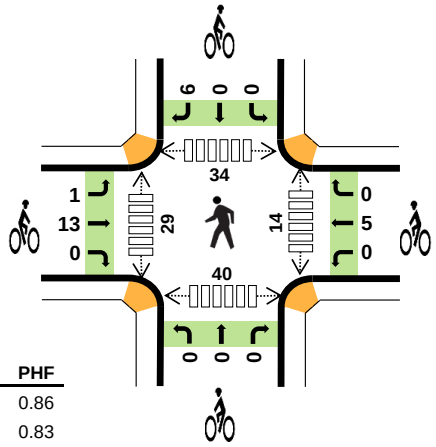
Interval Start	Yesler Way Eastbound			Yesler Way Westbound			S Washington St Northbound			8th Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**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

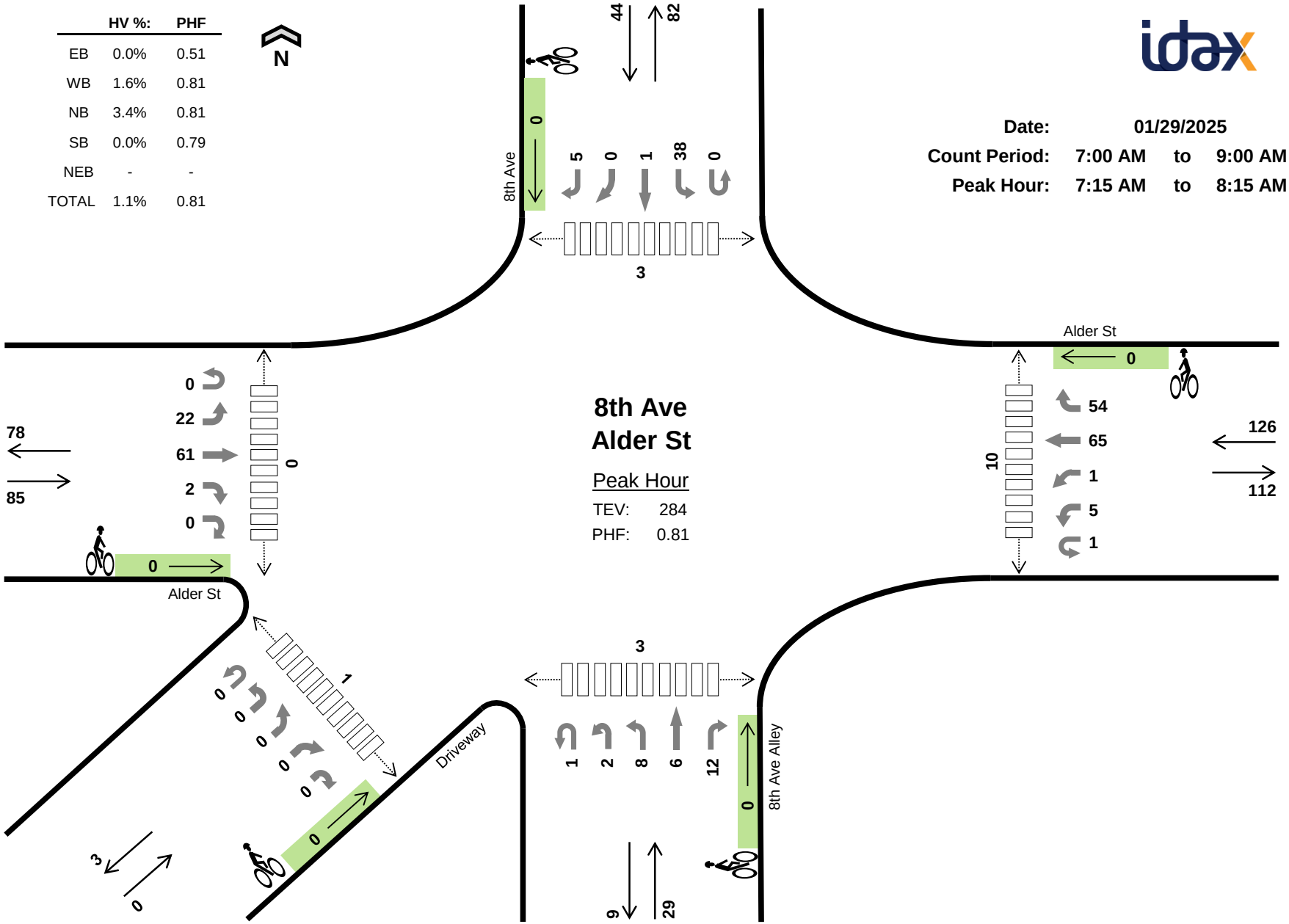
Interval Start	Yesler Way Eastbound				Yesler Way Westbound				S Washington St Northbound				8th Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	1	0	0	0	1	0	0	0	0	0	0	1	0	1	5	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0
4:30 PM	0	1	2	0	0	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**
Peak Hour 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**
Peak Hour 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*

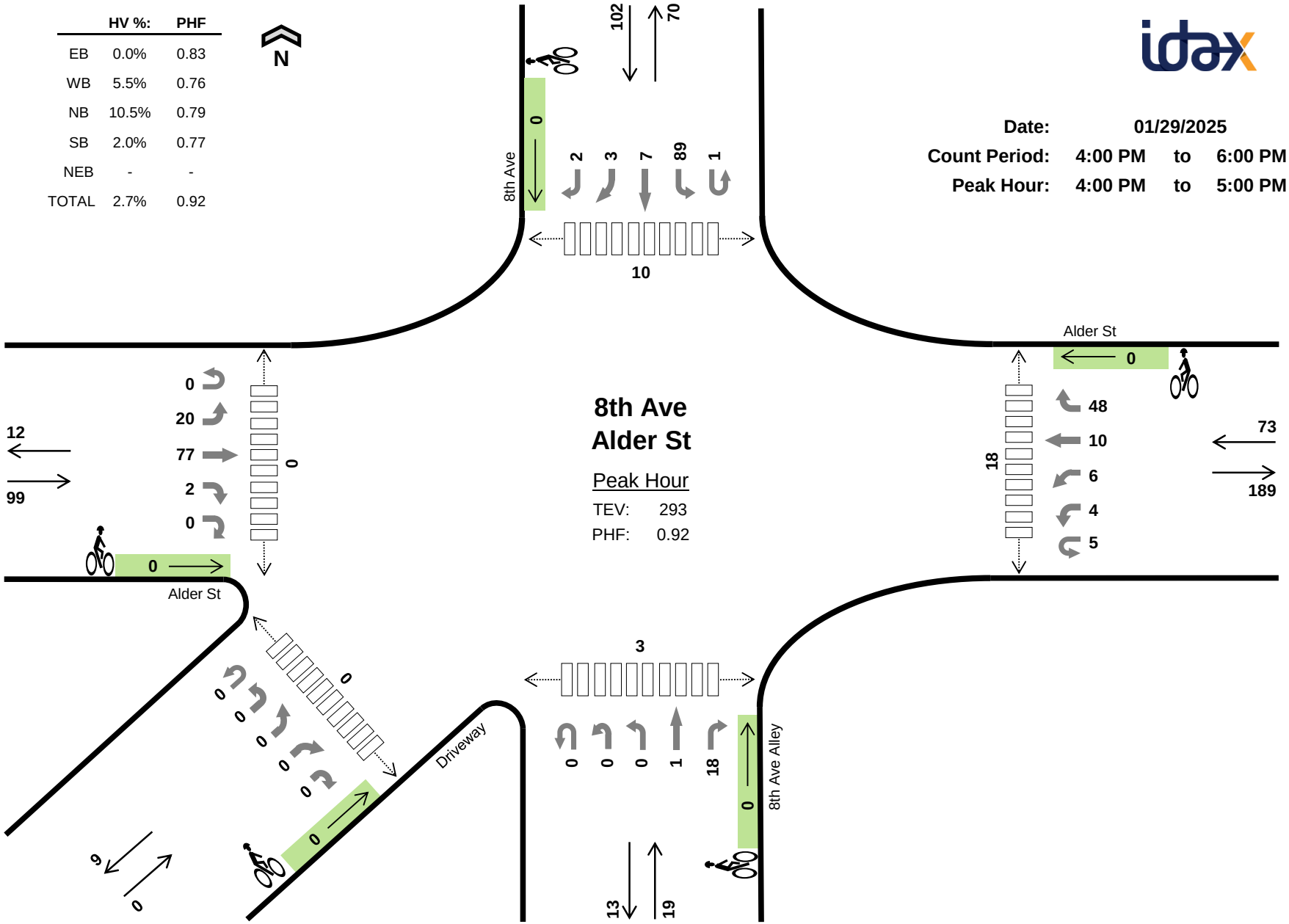
Two-Hour Count Summaries - Heavy Vehicles

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



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**
	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**
	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.

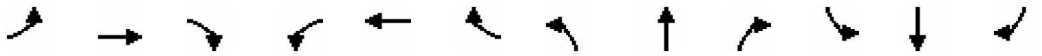
Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. 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.

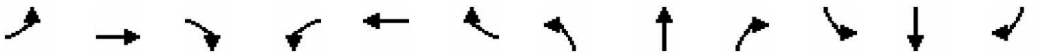
Appendix F LOS Worksheets



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				

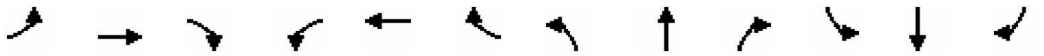
Intersection Summary												
HCM 7th Control Delay, s/veh			16.5									
HCM 7th LOS			B									



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									



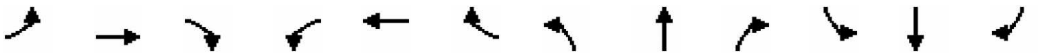
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	185	185	690	280	0	0	0	0	385	575	120
Future Volume (veh/h)	0	185	185	690	280	0	0	0	0	385	575	120
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	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	0.80	0.80	0.00				0.90	0.90	0.90
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				5.6	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				45.0	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	1.00	1.00	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	0.0	0.0	11.3	13.9	22.2			
Cycle Q Clear(g_c), s	3.9	5.9	0.0	0.0	0.0	0.0	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	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.75	0.75	0.00	0.00	0.92	0.92	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.9	7.8	0.0	0.0	0.0	0.0	27.1	28.0	31.0			
Incr Delay (d2), s/veh	3.8	0.2	0.0	0.0	2.5	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	0.6	0.6	4.6	6.1	10.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	45.7	8.0	0.0	0.0	2.5	2.6	27.4	28.9	47.1			
LnGrp LOS	D	A			A	A	C	C	D			
Approach Vol, veh/h		587			995			1010				
Approach Delay, s/veh		12.9			2.5			35.9				
Approach LOS		B			A			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	2.0				
Green Ext Time (p_c), s		1.4		2.7			0.0	5.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			17.9									
HCM 7th LOS			B									

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)	0.99		0.97	0.99		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	59	2816	14	42	2844	15	77	15	78	44	8	139
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.10	0.00	0.10	0.10	0.10	0.10
Sat Flow, veh/h	22	3482	17	2	3516	19	247	156	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	1823	0	1698	1852	0	1685	1207	0	0	1551	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	5.4	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	1516	0	1374	1538	0	1363	170	0	0	191	0	0
V/C Ratio(X)	0.35	0.00	0.35	0.32	0.00	0.33	0.02	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	1516	0	1374	1538	0	1363	318	0	0	402	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.00	0.92	0.84	0.00	0.84	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0	0.0	39.2	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.7	0.5	0.0	0.5	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	0.2	0.0	0.3	0.2	0.0	0.2	0.1	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.6	0.0	0.7	0.5	0.0	0.5	36.8	0.0	0.0	39.9	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		1010			944			3			97	
Approach Delay, s/veh		0.6			0.5			36.8			39.9	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		77.3		12.7		77.3		12.7				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		60.5		21.0		60.5		21.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		2.0		7.4				
Green Ext Time (p_c), s		5.5		0.0		4.9		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	2.5
HCM 7th LOS	A

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	0.99		0.97	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	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	47	1375	356	43	1770	51	212	618	56	100	147	86
Arrive On Green	1.00	1.00	1.00	0.51	0.51	0.51	0.12	0.38	0.38	0.20	0.20	0.20
Sat Flow, veh/h	13	2671	691	5	3437	98	1725	1627	147	248	733	427
Grp Volume(v), veh/h	518	0	435	398	0	360	179	0	253	122	0	0
Grp Sat Flow(s),veh/h/ln	1834	0	1541	1859	0	1681	1725	0	1774	1408	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	11.9	9.1	0.0	9.3	0.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	11.8	0.0	11.9	9.1	0.0	9.3	6.1	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	985	0	793	998	0	865	212	0	674	333	0	0
V/C Ratio(X)	0.53	0.00	0.55	0.40	0.00	0.42	0.84	0.00	0.38	0.37	0.00	0.00
Avail Cap(c_a), veh/h	985	0	793	998	0	865	268	0	789	377	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)	0.90	0.00	0.90	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	13.5	0.0	13.5	38.6	0.0	20.2	31.1	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	2.4	1.2	0.0	1.5	14.6	0.0	0.1	0.2	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	0.5	0.0	0.5	5.1	0.0	4.7	4.7	0.0	3.8	2.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	1.8	0.0	2.4	14.6	0.0	15.0	53.2	0.0	20.3	31.4	0.0	0.0
LnGrp LOS	A		A	B		B	D		C	C		
Approach Vol, veh/h		953			758			432			122	
Approach Delay, s/veh		2.1			14.8			34.0			31.4	
Approach LOS		A			B			C			C	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		50.8		39.2		50.8	16.1	23.1				
Change Period (Y+Rc), s		4.5		5.0		4.5	5.0	5.0				
Max Green Setting (Gmax), s		40.5		40.0		40.5	14.0	21.0				
Max Q Clear Time (g_c+I1), s		2.0		11.3		13.9	11.1	8.1				
Green Ext Time (p_c), s		1.4		1.1		0.9	0.1	0.1				

Intersection Summary	
HCM 7th Control Delay, s/veh	14.0
HCM 7th LOS	B

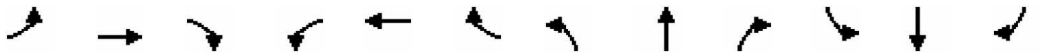
Intersection	
Int Delay, s/veh	0.3

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		0.96
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	1856	1856	1856	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	172	385	62	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	846	135	30	551	92	244	1196	20	347	998	344
Arrive On Green	0.11	0.28	0.28	0.01	0.06	0.06	0.28	0.68	0.68	0.20	0.40	0.40
Sat Flow, veh/h	1767	3035	484	1767	3007	502	1767	3543	60	1739	2498	860
Grp Volume(v), veh/h	172	222	225	16	271	271	219	293	306	78	171	168
Grp Sat Flow(s),veh/h/ln	1767	1763	1756	1767	1763	1746	1767	1763	1841	1739	1735	1623
Q Serve(g_s), s	11.5	12.5	12.7	1.1	18.2	18.5	14.3	9.7	9.7	4.5	7.9	8.3
Cycle Q Clear(g_c), s	11.5	12.5	12.7	1.1	18.2	18.5	14.3	9.7	9.7	4.5	7.9	8.3
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	491	490	30	323	320	244	595	621	347	693	648
V/C Ratio(X)	0.86	0.45	0.46	0.53	0.84	0.85	0.90	0.49	0.49	0.22	0.25	0.26
Avail Cap(c_a), veh/h	258	521	520	155	419	415	405	595	621	347	693	648
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	35.7	35.8	59.2	54.6	54.7	42.6	14.5	14.5	40.2	24.0	24.1
Incr Delay (d2), s/veh	17.3	0.2	0.3	5.1	9.0	9.9	8.3	2.8	2.7	0.1	0.8	1.0
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	6.1	5.5	5.5	0.5	9.5	9.6	6.0	3.5	3.6	2.0	3.5	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	69.6	36.0	36.0	64.3	63.6	64.7	50.9	17.3	17.2	40.3	24.9	25.1
LnGrp LOS	E	D	D	E	E	E	D	B	B	D	C	C
Approach Vol, veh/h		619			558			818			417	
Approach Delay, s/veh		45.3			64.1			26.2			27.9	
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	53.4	18.0	26.5	29.5	46.0	6.6	38.0
Change Period (Y+Rc), s	5.5	5.5	4.5	4.5	5.5	5.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	26.5	17.5	28.5	13.5	40.5	10.5	35.5
Max Q Clear Time (g_c+I1), s	16.3	10.3	13.5	20.5	6.5	11.7	3.1	14.7
Green Ext Time (p_c), s	0.2	1.3	0.1	1.5	0.0	2.6	0.0	1.8

Intersection Summary	
HCM 7th Control Delay, s/veh	40.2
HCM 7th LOS	D

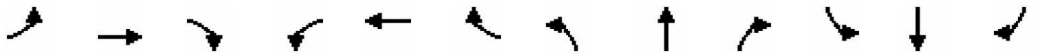
Intersection	
Int Delay, s/veh	1.4

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)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
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)		3369			3405		1671	1730		1703	1792	1456
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3369			3405		1671	1730		1703	1792	1456
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	24
Lane Group Flow (vph)	0	409	0	0	547	0	26	268	0	37	132	34
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)		19.2			24.1		4.5	42.5		5.0	50.2	69.4
Effective Green, g (s)		19.2			24.1		4.5	42.5		5.0	50.2	69.4
Actuated g/C Ratio		0.16			0.20		0.04	0.35		0.04	0.42	0.58
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		539			683		62	612		70	749	842
v/s Ratio Prot		c0.12			c0.16		0.02	c0.15		c0.02	c0.07	0.01
v/s Ratio Perm												0.02
v/c Ratio		0.76			0.80		0.42	0.44		0.53	0.18	0.04
Uniform Delay, d1		48.2			45.7		56.5	29.6		56.3	21.9	10.9
Progression Factor		0.84			1.00		1.36	0.61		1.00	1.00	1.00
Incremental Delay, d2		5.1			6.3		1.5	2.1		3.3	0.5	0.0
Delay (s)		45.6			52.0		78.3	20.1		59.6	22.4	10.9
Level of Service		D			D		E	C		E	C	B
Approach Delay (s/veh)		45.6			52.0			25.2			25.6	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	40.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	82.3%	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

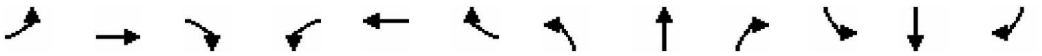
Intersection	
Int Delay, s/veh	9.1

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	97	2283	148	563	969	243
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	124	1009	308	28	441	996	89	3116	201	690	1322	332
Grp Volume(v), veh/h	103	0	0	256	0	0	381	0	347	137	0	205
Grp Sat Flow(s),veh/h/ln	1440	0	0	1466	0	0	1783	0	1624	759	0	1586
Q Serve(g_s), s	0.0	0.0	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.7	0.0	0.0	20.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.16		0.21	0.04		0.68	0.07		0.12	0.91		0.21
Lane Grp Cap(c), veh/h	312	0	0	313	0	0	1338	0	1190	613	0	1162
V/C Ratio(X)	0.33	0.00	0.00	0.82	0.00	0.00	0.28	0.00	0.29	0.22	0.00	0.18
Avail Cap(c_a), veh/h	462	0	0	463	0	0	1338	0	1190	613	0	1162
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.63	0.00	0.00	1.00	0.00	1.00	0.97	0.00	0.97
Uniform Delay (d), s/veh	41.8	0.0	0.0	47.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	2.8	0.0	0.0	0.5	0.0	0.6	0.8	0.0	0.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	7.8	0.0	0.0	0.2	0.0	0.2	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.1	0.0	0.0	50.1	0.0	0.0	0.5	0.0	0.6	0.8	0.0	0.3
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		103			256			728			342	
Approach Delay, s/veh		42.1			50.1			0.6			0.5	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	92.4	27.6	92.4	27.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	75.5	35.5	75.5	35.5
Max Q Clear Time (g_c+I1), s	2.0	8.7	2.0	22.5
Green Ext Time (p_c), s	0.9	0.2	0.8	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	12.4
HCM 7th LOS	B

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)		5.5			5.5		5.5	5.5		5.5	5.5	
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		1.00			1.00		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			1692		1671	1734		1719	1543	
Flt Permitted		0.97			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1576			1672		1671	1734		1719	1543	
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	4	0	0	9	0	0	1	0	0	11	0
Lane Group Flow (vph)	0	168	0	0	251	0	10	238	0	31	166	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)		24.8			24.8		1.3	36.3		4.7	77.4	
Effective Green, g (s)		24.8			24.8		1.3	36.3		4.7	77.4	
Actuated g/C Ratio		0.21			0.21		0.01	0.30		0.04	0.65	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		325			345		18	524		67	995	
v/s Ratio Prot							0.01	c0.14		c0.02	c0.11	
v/s Ratio Perm		0.11			c0.15							
v/c Ratio		0.52			0.73		0.56	0.45		0.46	0.17	
Uniform Delay, d1		42.3			44.5		59.1	33.8		56.4	8.5	
Progression Factor		0.92			1.00		1.36	0.35		1.10	0.56	
Incremental Delay, d2		1.4			7.5		19.0	2.8		1.8	0.4	
Delay (s)		40.1			51.9		99.2	14.8		63.8	5.1	
Level of Service		D			D		F	B		E	A	
Approach Delay (s/veh)		40.1			51.9			18.2			13.9	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	48.8%	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)	4.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.89		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)	1427		1741			3406
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	1427		1741			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			90.5
Effective Green, g (s)	20.0		78.0			90.5
Actuated g/C Ratio	0.17		0.65			0.75
Clearance Time (s)	4.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	237		1131			2568
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			3.8
Progression Factor	1.00		0.35			1.22
Incremental Delay, d2	0.0		0.5			0.0
Delay (s)	41.9		3.5			4.6
Level of Service	D		A			A
Approach Delay (s/veh)	41.9		3.5			4.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	4.8	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)	13.5
Intersection Capacity Utilization	38.8%	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		0.97	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	2062	435	0	1990	474	270	334	6	213	295	34
Arrive On Green	0.00	0.72	0.72	0.00	0.72	0.72	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	1.8	1.9	0.0	10.6	10.6	7.8	0.0	7.0	8.2	0.0	2.7
Cycle Q Clear(g_c), s	0.0	1.8	1.9	0.0	10.6	10.6	10.5	0.0	7.0	15.2	0.0	2.7
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	1262	1235	0	1252	1212	270	0	339	213	0	329
V/C Ratio(X)	0.00	0.07	0.08	0.00	0.33	0.33	0.34	0.00	0.36	0.41	0.00	0.15
Avail Cap(c_a), veh/h	0	1262	1235	0	1252	1212	366	0	477	323	0	493
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	4.9	4.9	0.0	6.1	6.1	45.2	0.0	42.5	49.2	0.0	40.8
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	0.7	0.7	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	0.7	0.0	3.9	3.8	2.6	0.0	3.3	2.5	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	5.0	5.0	0.0	6.8	6.9	46.8	0.0	43.9	49.7	0.0	40.9
LnGrp LOS		A	A		A	A	D		D	D		D
Approach Vol, veh/h		185			821			214			135	
Approach Delay, s/veh		5.0			6.8			45.1			46.5	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	92.1	27.9	92.1	27.9
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	38.5	31.5	38.5	33.5
Max Q Clear Time (g_c+I1), s	3.9	12.5	12.6	17.2
Green Ext Time (p_c), s	0.2	1.8	1.1	0.3

Intersection Summary	
HCM 7th Control Delay, s/veh	16.6
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		

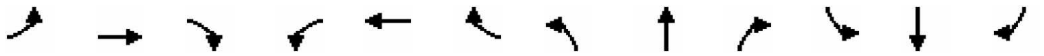
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1431	-	679	-	-
HCM Lane V/C Ratio	0.012	-	0.033	-	-
HCM Ctrl Dly (s/v)	7.5	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

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

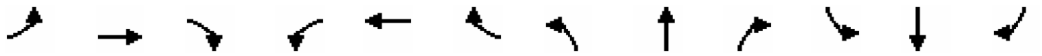


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	345	25	5	290	40	0	0	0	15	5	45
Future Volume (veh/h)	150	345	25	5	290	40	0	0	0	15	5	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	

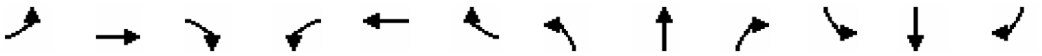
Notes
User approved pedestrian interval to be less than phase max green.



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				

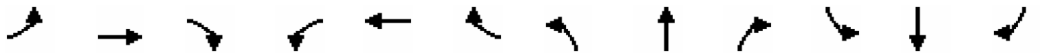
Intersection Summary												
HCM 7th Control Delay, s/veh			18.8									
HCM 7th LOS			B									



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									



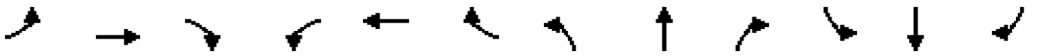
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	120	375	810	215	0	0	0	0	110	740	85
Future Volume (veh/h)	0	120	375	810	215	0	0	0	0	110	740	85
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	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				0.89	0.89	0.89
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	44.3	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

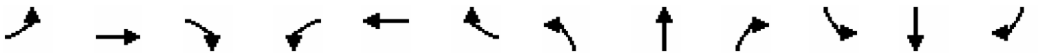
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



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	0.92	0.92	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	2.2	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	2.2	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				

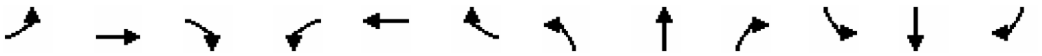
Intersection Summary												
HCM 7th Control Delay, s/veh			34.9									
HCM 7th LOS			C									



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)	0.99		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	41	2554	9	40	2528	14	185	8	30	48	10	276
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.19	0.00	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1	3556	12	0	3520	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	0.0	0.0	0.0	0.0	3.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	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	1383	0	1221	1372	0	1209	224	0	0	334	0	0
V/C Ratio(X)	0.22	0.00	0.23	0.35	0.00	0.36	0.02	0.00	0.00	0.72	0.00	0.00
Avail Cap(c_a), veh/h	1383	0	1221	1372	0	1209	442	0	0	611	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.00	0.87	0.87	0.00	0.87	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	29.8	0.0	0.0	35.1	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.6	0.0	0.7	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	0.2	0.0	0.2	0.1	0.0	0.0	5.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.3	0.0	0.4	0.6	0.0	0.7	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			0.7			29.8			36.1	
Approach LOS		A			A			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.1		20.9		69.1		20.9				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		48.5		33.0		48.5		33.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		2.0		15.2				
Green Ext Time (p_c), s		2.7		0.0		4.7		1.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	5.5
HCM 7th LOS	A



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		0.96	0.98		0.96	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	44	1438	289	41	1781	14	220	625	61	64	72	209
Arrive On Green	1.00	1.00	1.00	0.50	0.50	0.50	0.13	0.39	0.39	0.21	0.21	0.21
Sat Flow, veh/h	6	2852	574	2	3535	28	1711	1601	155	92	347	1011
Grp Volume(v), veh/h	324	0	277	335	0	305	186	0	181	175	0	0
Grp Sat Flow(s),veh/h/ln	1862	0	1571	1868	0	1696	1711	0	1756	1450	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	9.8	9.6	0.0	6.3	1.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	9.8	0.0	9.8	9.6	0.0	6.3	9.5	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	979	0	792	982	0	855	220	0	685	344	0	0
V/C Ratio(X)	0.33	0.00	0.35	0.34	0.00	0.36	0.85	0.00	0.26	0.51	0.00	0.00
Avail Cap(c_a), veh/h	979	0	792	982	0	855	304	0	839	398	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)	0.98	0.00	0.98	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	13.5	0.0	13.5	38.3	0.0	18.6	32.1	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	1.2	0.9	0.0	1.2	11.1	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	0.2	0.0	0.3	4.2	0.0	3.9	4.7	0.0	2.6	3.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.9	0.0	1.2	14.4	0.0	14.7	49.4	0.0	18.7	32.5	0.0	0.0
LnGrp LOS	A		A	B		B	D		B	C		
Approach Vol, veh/h		601			640			367			175	
Approach Delay, s/veh		1.0			14.5			34.3			32.5	
Approach LOS		A			B			C			C	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		49.9		40.1		49.9	16.6	23.6				
Change Period (Y+Rc), s		4.5		5.0		4.5	5.0	5.0				
Max Green Setting (Gmax), s		37.5		43.0		37.5	16.0	22.0				
Max Q Clear Time (g_c+I1), s		2.0		8.3		11.8	11.6	11.5				
Green Ext Time (p_c), s		0.8		0.7		0.8	0.1	0.2				

Intersection Summary		
HCM 7th Control Delay, s/veh	15.8	
HCM 7th LOS	B	

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		0.94	1.00		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	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	658	114	39	528	50	171	1214	62	428	1513	247
Arrive On Green	0.08	0.22	0.22	0.01	0.05	0.05	0.19	0.71	0.71	0.24	0.50	0.50
Sat Flow, veh/h	1795	3027	524	1781	3258	309	1781	3429	175	1781	3037	495
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	1760	1781	1777	1790	1781	1777	1827	1781	1777	1755
Q Serve(g_s), s	7.4	13.0	13.3	1.5	14.4	14.6	9.4	5.8	5.9	6.2	10.6	10.8
Cycle Q Clear(g_c), s	7.4	13.0	13.3	1.5	14.4	14.6	9.4	5.8	5.9	6.2	10.6	10.8
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	389	383	39	288	290	171	629	647	428	885	874
V/C Ratio(X)	0.82	0.56	0.57	0.57	0.75	0.76	0.85	0.35	0.36	0.26	0.30	0.30
Avail Cap(c_a), veh/h	172	470	462	186	481	485	408	629	647	428	885	874
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	41.8	41.9	59.0	54.4	54.5	47.7	12.2	12.2	37.0	17.8	17.8
Incr Delay (d2), s/veh	17.6	0.5	0.5	4.8	1.5	1.5	4.4	1.5	1.5	0.1	0.9	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(50%),veh/ln	4.1	5.9	5.9	0.7	7.0	7.2	4.0	2.3	2.3	2.7	4.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	72.2	42.3	42.4	63.9	55.9	56.0	52.1	13.7	13.7	37.1	18.6	18.7
LnGrp LOS	E	D	D	E	E	E	D	B	B	D	B	B
Approach Vol, veh/h		549			458			597			645	
Approach Delay, s/veh		48.5			56.3			23.0			21.9	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	65.3	13.7	24.0	34.3	48.0	7.1	30.6
Change Period (Y+Rc), s	5.5	5.5	4.5	4.5	5.5	5.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	28.5	11.5	32.5	13.5	42.5	12.5	31.5
Max Q Clear Time (g_c+I1), s	11.4	12.8	9.4	16.6	8.2	7.9	3.5	15.3
Green Ext Time (p_c), s	0.2	2.1	0.0	1.6	0.1	1.9	0.0	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	35.7
HCM 7th LOS	D

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)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
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)		3480			3387		1752	1808		1787	1881	1497
Flt Permitted		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3480			3387		1752	1808		1787	1881	1497
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	27
Lane Group Flow (vph)	0	497	0	0	366	0	28	259	0	67	356	62
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)		21.9			17.4		4.5	41.8		7.9	54.2	76.1
Effective Green, g (s)		21.9			17.4		4.5	41.8		7.9	54.2	76.1
Actuated g/C Ratio		0.18			0.14		0.04	0.35		0.07	0.45	0.63
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		635			491		65	629		117	849	949
v/s Ratio Prot		c0.14			c0.11		0.02	0.14		c0.04	c0.19	0.01
v/s Ratio Perm												0.03
v/c Ratio		0.78			0.75		0.43	0.41		0.57	0.42	0.07
Uniform Delay, d1		46.8			49.2		56.5	29.7		54.4	22.3	8.4
Progression Factor		0.50			1.00		1.10	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.3			5.3		1.6	1.9		4.2	1.5	0.0
Delay (s)		28.6			54.5		63.6	31.7		58.6	23.8	8.4
Level of Service		C			D		E	C		E	C	A
Approach Delay (s/veh)		28.6			54.5			34.8			25.7	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	82.8%	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

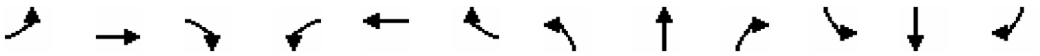
Intersection	
Int Delay, s/veh	12.3

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

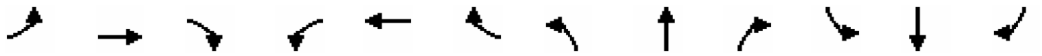
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	283	216	-	-	181	-	-	368
HCM Lane V/C Ratio	0.196	0.011	-	-	0.012	-	-	0.468
HCM Ctrl Dly (s/v)	20.8	8.5	0	-	8.5	0	-	23.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	2.4



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	0.99		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	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	67	2441	31	326	1835	111
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.48	0.48	0.48	0.24	0.24	0.24
Sat Flow, veh/h	215	518	426	44	520	897	50	3390	43	398	2548	154
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	1805	0	1677	1438	0	1662
Q Serve(g_s), s	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	7.8	11.4	0.0	16.3
Cycle Q Clear(g_c), s	6.9	0.0	0.0	21.8	0.0	0.0	7.7	0.0	7.8	19.2	0.0	16.3
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	1331	0	1208	1075	0	1197
V/C Ratio(X)	0.36	0.00	0.00	0.82	0.00	0.00	0.16	0.00	0.16	0.24	0.00	0.23
Avail Cap(c_a), veh/h	513	0	0	583	0	0	1331	0	1208	1075	0	1197
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	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	0.95	0.00	0.95
Uniform Delay (d), s/veh	40.5	0.0	0.0	46.5	0.0	0.0	10.7	0.0	10.7	20.2	0.0	19.0
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	0.4
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	2.5	0.0	0.0	8.1	0.0	0.0	3.4	0.0	3.1	7.0	0.0	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.8	0.0	0.0	47.8	0.0	0.0	10.9	0.0	11.0	20.7	0.0	19.5
LnGrp LOS	D			D			B		B	C		B
Approach Vol, veh/h		98			272			406			542	
Approach Delay, s/veh		40.8			47.8			11.0			20.1	
Approach LOS		D			D			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		90.9		29.1		90.9		29.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		65.5		45.5		65.5		45.5				
Max Q Clear Time (g_c+I1), s		9.8		8.9		21.2		23.8				
Green Ext Time (p_c), s		0.5		0.3		0.8		0.8				

Intersection Summary	
HCM 7th Control Delay, s/veh	24.5
HCM 7th LOS	C



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)		5.5			5.5		5.5	5.5		5.5	5.5	
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)		1641			1675		1736	1787		1770	1814	
Flt Permitted		0.82			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1365			1620		1736	1787		1770	1814	
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	9	0	0	6	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	166	0	0	231	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)		24.0			24.0		1.2	43.4		7.0	78.3	
Effective Green, g (s)		24.0			24.0		1.2	43.4		7.0	78.3	
Actuated g/C Ratio		0.20			0.20		0.01	0.36		0.06	0.65	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		273			324		17	646		103	1183	
v/s Ratio Prot							0.00	0.11		c0.03	c0.20	
v/s Ratio Perm		0.12			c0.14							
v/c Ratio		0.61			0.71		0.29	0.30		0.50	0.30	
Uniform Delay, d1		43.7			44.8		59.0	27.4		54.8	9.0	
Progression Factor		1.21			1.00		1.21	0.27		1.23	0.36	
Incremental Delay, d2		3.8			7.2		3.4	1.2		1.3	0.6	
Delay (s)		56.6			52.0		75.0	8.6		69.0	3.8	
Level of Service		E			D		E	A		E	A	
Approach Delay (s/veh)		56.6			52.0			10.3			12.1	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
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	-	-	-	-	-

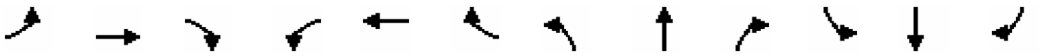
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	15.8	0.35	0
HCM LOS	C		

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)	4.5		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)	1663		1821			3574
Flt Permitted	0.97		1.00			0.95
Satd. Flow (perm)	1663		1821			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			90.5
Effective Green, g (s)	20.0		76.0			90.5
Actuated g/C Ratio	0.17		0.63			0.75
Clearance Time (s)	4.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	277		1153			2573
v/s Ratio Prot	c0.01		c0.14			
v/s Ratio Perm						c0.12
v/c Ratio	0.09		0.21			0.15
Uniform Delay, d1	42.3		9.3			4.1
Progression Factor	1.00		0.81			0.72
Incremental Delay, d2	0.0		0.4			0.1
Delay (s)	42.3		8.0			3.1
Level of Service	D		A			A
Approach Delay (s/veh)	42.3		8.0			3.1
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.8	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)	12.5
Intersection Capacity Utilization	37.1%	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	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	1927	328	0	1650	535	268	473	21	350	468	31
Arrive On Green	0.00	0.64	0.64	0.00	0.64	0.64	0.27	0.27	0.27	0.09	0.09	0.09
Sat Flow, veh/h	0	3116	514	0	2682	840	1156	1745	77	1258	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	1156	0	1821	1258	0	1841
Q Serve(g_s), s	0.0	8.0	8.1	0.0	7.3	7.5	2.8	0.0	4.8	25.5	0.0	10.9
Cycle Q Clear(g_c), s	0.0	8.0	8.1	0.0	7.3	7.5	13.7	0.0	4.8	30.3	0.0	10.9
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	1133	1122	0	1124	1062	268	0	493	350	0	499
V/C Ratio(X)	0.00	0.24	0.25	0.00	0.23	0.23	0.12	0.00	0.19	0.77	0.00	0.36
Avail Cap(c_a), veh/h	0	1133	1122	0	1124	1062	268	0	493	361	0	514
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)	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	9.3	9.4	0.0	9.2	9.3	41.5	0.0	33.7	56.0	0.0	44.8
Incr Delay (d2), s/veh	0.0	0.5	0.5	0.0	0.5	0.5	0.4	0.0	0.4	8.3	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(50%),veh/ln	0.0	3.3	3.3	0.0	2.9	2.9	0.8	0.0	2.2	9.5	0.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	9.9	9.9	0.0	9.7	9.8	41.9	0.0	34.1	64.3	0.0	45.0
LnGrp LOS		A	A		A	A	D		C	E		D
Approach Vol, veh/h		554			500			127			447	
Approach Delay, s/veh		9.9			9.7			36.0			56.6	
Approach LOS		A			A			D			E	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.0		38.0		82.0		38.0				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		38.5		31.5		38.5		33.5				
Max Q Clear Time (g_c+I1), s		10.1		15.7		9.5		32.3				
Green Ext Time (p_c), s		0.7		0.9		0.6		0.2				

Intersection Summary		
HCM 7th Control Delay, s/veh	24.7	
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	490	631	1179	-	-	-
Mov Cap-2 Maneuver	490	-	-	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	805	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.94	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1179	-	551	-	-
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

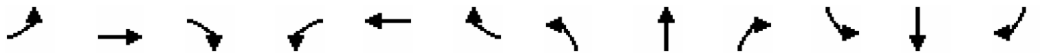
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	345	30	15	345	30	10	5	2	20	10	110
Future Volume (veh/h)	60	345	30	15	345	30	10	5	2	20	10	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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

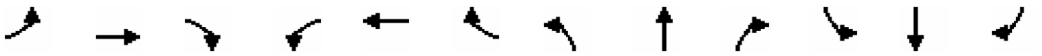
User approved pedestrian interval to be less than phase max green.



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				

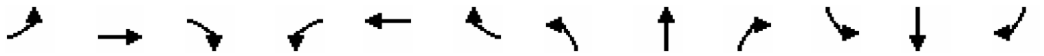
Intersection Summary												
HCM 7th Control Delay, s/veh			18.0									
HCM 7th LOS			B									



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									



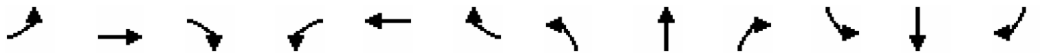
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	220	210	825	385	0	0	0	0	505	715	155
Future Volume (veh/h)	0	220	210	825	385	0	0	0	0	505	715	155
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	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	0.64	0.64	0.00				0.82	0.82	0.82
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				11.1	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	41.1	23.6	0.0				49.7	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				

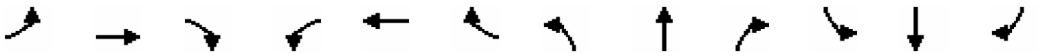
Intersection Summary	
HCM 7th Control Delay, s/veh	37.4
HCM 7th LOS	D

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



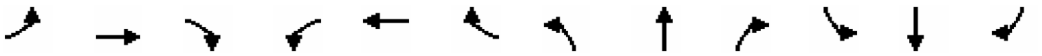
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	640	0	0	875	285	340	365	530	0	0	0
Future Volume (veh/h)	85	640	0	0	875	285	340	365	530	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	0.89	0.89	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	11.1	11.3	14.5	14.8	30.5			
Cycle Q Clear(g_c), s	4.5	9.2	0.0	0.0	11.1	11.3	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	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.62	0.62	0.00	0.00	0.86	0.86	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.5	10.7	0.0	0.0	3.2	3.2	24.4	24.6	29.8			
Incr Delay (d2), s/veh	8.5	0.3	0.0	0.0	6.7	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	2.8	2.8	5.9	6.4	17.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.1	11.0	0.0	0.0	9.9	10.4	25.3	25.5	72.0			
LnGrp LOS	D	B			A	B	C	C	F			
Approach Vol, veh/h		748			1196			1273				
Approach Delay, s/veh		15.6			10.1			45.4				
Approach LOS		B			B			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	13.3				
Green Ext Time (p_c), s		0.0		3.6			0.0	6.6				
Intersection Summary												
HCM 7th Control Delay, s/veh			25.4									
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)	0.99		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	54	2763	11	41	2782	12	84	16	94	51	12	159
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.11	0.00	0.11	0.11	0.11	0.11
Sat Flow, veh/h	16	3494	13	1	3519	16	271	139	820	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	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	1484	0	1343	1503	0	1332	195	0	0	223	0	0
V/C Ratio(X)	0.46	0.00	0.47	0.40	0.00	0.41	0.02	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	1484	0	1343	1503	0	1332	322	0	0	405	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.00	0.80	0.73	0.00	0.73	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	35.3	0.0	0.0	38.3	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.9	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	0.3	0.0	0.4	0.2	0.0	0.2	0.1	0.0	0.0	2.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.8	0.0	0.9	0.6	0.0	0.7	35.3	0.0	0.0	39.2	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		1314			1136			3			126	
Approach Delay, s/veh		0.9			0.6			35.3			39.2	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		75.7		14.3		75.7		14.3				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		60.5		21.0		60.5		21.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		2.0		9.0				
Green Ext Time (p_c), s		8.4		0.0		6.4		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			2.7									
HCM 7th LOS			A									



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		0.97	1.00		0.97	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	49	1146	450	48	1642	50	254	661	65	88	148	106
Arrive On Green	0.97	0.97	0.97	0.48	0.48	0.48	0.15	0.41	0.41	0.21	0.21	0.21
Sat Flow, veh/h	17	2364	929	14	3389	102	1725	1613	159	191	714	513
Grp Volume(v), veh/h	688	0	565	464	0	426	221	0	289	174	0	0
Grp Sat Flow(s),veh/h/ln	1822	0	1488	1826	0	1680	1725	0	1772	1418	0	0
Q Serve(g_s), s	0.0	0.0	4.4	0.0	0.0	15.8	11.3	0.0	10.3	3.2	0.0	0.0
Cycle Q Clear(g_c), s	4.0	0.0	4.4	15.3	0.0	15.8	11.3	0.0	10.3	9.5	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	924	0	721	926	0	814	254	0	726	342	0	0
V/C Ratio(X)	0.74	0.00	0.78	0.50	0.00	0.52	0.87	0.00	0.40	0.51	0.00	0.00
Avail Cap(c_a), veh/h	924	0	721	926	0	814	268	0	788	377	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)	0.80	0.00	0.80	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.8	0.0	0.8	15.9	0.0	16.0	37.5	0.0	18.7	31.9	0.0	0.0
Incr Delay (d2), s/veh	4.4	0.0	6.8	1.9	0.0	2.4	23.0	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	1.6	0.0	1.7	6.8	0.0	6.4	6.4	0.0	4.2	3.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	5.1	0.0	7.6	17.8	0.0	18.4	60.5	0.0	18.9	32.3	0.0	0.0
LnGrp LOS	A		A	B		B	E		B	C		
Approach Vol, veh/h		1253			890			510			174	
Approach Delay, s/veh		6.2			18.1			36.9			32.3	
Approach LOS		A			B			D			C	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		48.1		41.9		48.1	18.3	23.6				
Change Period (Y+Rc), s		4.5		5.0		4.5	5.0	5.0				
Max Green Setting (Gmax), s		40.5		40.0		40.5	14.0	21.0				
Max Q Clear Time (g_c+I1), s		6.4		12.3		17.8	13.3	11.5				
Green Ext Time (p_c), s		2.0		1.2		1.2	0.0	0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			17.1									
HCM 7th LOS			B									

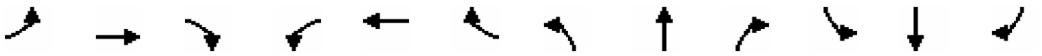
Intersection	
Int Delay, s/veh	0.3

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	856	220	30	609	103	299	1199	18	294	846	285
Arrive On Green	0.12	0.31	0.31	0.01	0.07	0.07	0.34	0.68	0.68	0.17	0.34	0.34
Sat Flow, veh/h	1767	2764	711	1767	3004	506	1767	3553	53	1739	2511	844
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	1843	1739	1735	1620
Q Serve(g_s), s	12.9	15.7	16.0	1.1	20.7	20.9	18.0	11.9	11.9	5.4	10.1	10.6
Cycle Q Clear(g_c), s	12.9	15.7	16.0	1.1	20.7	20.9	18.0	11.9	11.9	5.4	10.1	10.6
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	546	530	30	357	354	299	595	622	294	585	546
V/C Ratio(X)	0.88	0.51	0.52	0.53	0.86	0.87	0.92	0.56	0.56	0.30	0.33	0.35
Avail Cap(c_a), veh/h	258	546	530	155	419	415	405	595	622	294	585	546
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	34.0	34.1	59.2	54.3	54.4	38.9	14.8	14.8	43.7	29.7	29.9
Incr Delay (d2), s/veh	22.4	0.4	0.4	5.1	13.2	14.1	18.4	3.6	3.4	0.2	1.5	1.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	6.9	6.8	0.5	11.2	11.3	8.2	4.1	4.2	2.4	4.5	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.1	34.4	34.5	64.3	67.6	68.5	57.3	18.4	18.3	43.9	31.2	31.6
LnGrp LOS	E	C	C	E	E	E	E	B	B	D	C	C
Approach Vol, veh/h		751			631			958			474	
Approach Delay, s/veh		44.6			68.0			29.6			33.8	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.8	46.0	19.4	28.8	25.8	46.0	6.6	41.7
Change Period (Y+Rc), s	5.5	5.5	4.5	4.5	5.5	5.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	26.5	17.5	28.5	13.5	40.5	10.5	35.5
Max Q Clear Time (g_c+I1), s	20.0	12.6	14.9	22.9	7.4	13.9	3.1	18.0
Green Ext Time (p_c), s	0.3	1.4	0.1	1.4	0.0	3.0	0.0	2.3

Intersection Summary	
HCM 7th Control Delay, s/veh	42.9
HCM 7th LOS	D

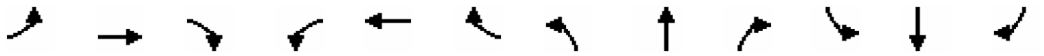
Intersection	
Int Delay, s/veh	1.5

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)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
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			3409		1671	1733		1703	1792	1459
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3374			3409		1671	1733		1703	1792	1459
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	30
Lane Group Flow (vph)	0	467	0	0	610	0	32	315	0	42	168	38
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)		20.7			26.2		4.8	37.6		6.3	46.3	67.0
Effective Green, g (s)		20.7			26.2		4.8	37.6		6.3	46.3	67.0
Actuated g/C Ratio		0.17			0.22		0.04	0.31		0.05	0.39	0.56
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		582			744		66	543		89	691	814
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		0.80			0.82		0.48	0.58		0.47	0.24	0.05
Uniform Delay, d1		47.7			44.7		56.4	34.6		55.2	25.0	12.0
Progression Factor		0.93			1.00		1.42	0.53		1.00	1.00	1.00
Incremental Delay, d2		6.7			6.7		1.8	4.0		1.4	0.8	0.0
Delay (s)		50.9			51.3		82.1	22.3		56.7	25.8	12.0
Level of Service		D			D		F	C		E	C	B
Approach Delay (s/veh)		50.9			51.3			27.8			27.1	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	82.5%	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

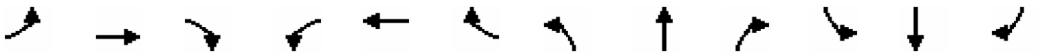
Intersection	
Int Delay, s/veh	9.9

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

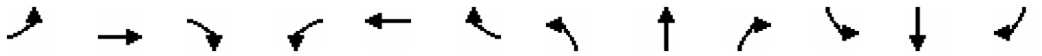
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	261	578	-	-	50	-	-	346
HCM Lane V/C Ratio	0.146	0.043	-	-	0.005	-	-	0.456
HCM Ctrl Dly (s/v)	21.1	8.7	0	-	8.4	0	-	23.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	2.3



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	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	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	97	2195	138	513	901	220
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	109	1040	275	24	435	1022	93	3113	195	642	1278	312
Grp Volume(v), veh/h	114	0	0	300	0	0	446	0	408	185	0	250
Grp Sat Flow(s),veh/h/ln	1424	0	0	1481	0	0	1776	0	1625	642	0	1590
Q Serve(g_s), s	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.1	0.0	0.0	23.8	0.0	0.0	0.0	0.0	0.0	0.0	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	1284	0	1146	513	0	1121
V/C Ratio(X)	0.33	0.00	0.00	0.84	0.00	0.00	0.35	0.00	0.36	0.36	0.00	0.22
Avail Cap(c_a), veh/h	459	0	0	468	0	0	1284	0	1146	513	0	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	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	0.93	0.00	0.93
Uniform Delay (d), s/veh	39.3	0.0	0.0	45.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	5.0	0.0	0.0	0.7	0.0	0.9	1.8	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	2.9	0.0	0.0	9.3	0.0	0.0	0.3	0.0	0.3	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	39.5	0.0	0.0	50.7	0.0	0.0	0.7	0.0	0.9	1.8	0.0	0.4
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		114			300			854			435	
Approach Delay, s/veh		39.5			50.7			0.8			1.0	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		89.1		30.9		89.1		30.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		75.5		35.5		75.5		35.5				
Max Q Clear Time (g_c+I1), s		2.0		9.1		2.0		25.8				
Green Ext Time (p_c), s		1.1		0.3		1.4		0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.2									
HCM 7th LOS			B									



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)		5.5			5.5		5.5	5.5		5.5	5.5	
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)		1602			1691		1671	1738		1719	1545	
Flt Permitted		0.94			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1511			1659		1671	1738		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)	16	161	21	16	219	57	16	271	10	36	135	83
RTOR Reduction (vph)	0	4	0	0	9	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	194	0	0	283	0	16	280	0	36	206	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)		26.7			26.7		2.8	36.2		5.0	74.0	
Effective Green, g (s)		26.7			26.7		2.8	36.2		5.0	74.0	
Actuated g/C Ratio		0.22			0.22		0.02	0.30		0.04	0.62	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		336			369		38	524		71	952	
v/s Ratio Prot							0.01	c0.16		c0.02	c0.13	
v/s Ratio Perm		0.13			c0.17							
v/c Ratio		0.58			0.77		0.42	0.53		0.51	0.22	
Uniform Delay, d1		41.6			43.7		57.8	34.9		56.3	10.2	
Progression Factor		0.94			1.00		1.36	0.33		1.09	0.51	
Incremental Delay, d2		2.3			9.3		2.6	3.7		2.0	0.5	
Delay (s)		41.3			53.0		81.1	15.4		63.5	5.7	
Level of Service		D			D		F	B		E	A	
Approach Delay (s/veh)		41.3			53.0			19.0			13.9	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	51.7%	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	-	-	-	-	-

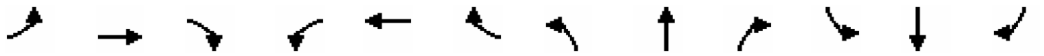
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.19	0.77	0
HCM LOS	C		

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	145
Future Volume (vph)	5	5	300	15	0	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.89		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)	1427		1744			3406
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	1427		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			90.5
Effective Green, g (s)	20.0		78.0			90.5
Actuated g/C Ratio	0.17		0.65			0.75
Clearance Time (s)	4.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	237		1133			2568
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			3.8
Progression Factor	1.00		0.31			1.23
Incremental Delay, d2	0.0		0.6			0.0
Delay (s)	41.9		3.4			4.7
Level of Service	D		A			A
Approach Delay (s/veh)	41.9		3.4			4.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	4.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	41.4%	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	0.98		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	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	2007	415	0	1918	469	280	374	5	226	342	29
Arrive On Green	0.00	0.70	0.70	0.00	0.70	0.70	0.21	0.21	0.21	0.07	0.07	0.07
Sat Flow, veh/h	0	2960	593	0	2832	670	1266	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	1713	0	1735	1676	1266	0	1819	1176	0	1778
Q Serve(g_s), s	0.0	2.4	2.5	0.0	14.2	14.2	8.8	0.0	8.1	10.9	0.0	4.1
Cycle Q Clear(g_c), s	0.0	2.4	2.5	0.0	14.2	14.2	12.9	0.0	8.1	19.0	0.0	4.1
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	1224	1199	0	1214	1173	280	0	379	226	0	371
V/C Ratio(X)	0.00	0.09	0.09	0.00	0.41	0.41	0.37	0.00	0.38	0.48	0.00	0.18
Avail Cap(c_a), veh/h	0	1224	1199	0	1214	1173	349	0	478	309	0	496
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)	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	5.8	5.8	0.0	7.5	7.5	44.6	0.0	40.8	57.1	0.0	46.2
Incr Delay (d2), s/veh	0.0	0.1	0.2	0.0	1.0	1.0	1.7	0.0	1.3	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	0.9	0.9	0.0	5.4	5.2	2.9	0.0	3.8	3.5	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	5.9	5.9	0.0	8.5	8.6	46.3	0.0	42.1	57.7	0.0	46.2
LnGrp LOS		A	A		A	A	D		D	E		D
Approach Vol, veh/h		217			967			246			174	
Approach Delay, s/veh		5.9			8.6			43.9			53.4	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	89.5	30.5	89.5	30.5
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	38.5	31.5	38.5	33.5
Max Q Clear Time (g_c+I1), s	4.5	14.9	16.2	21.0
Green Ext Time (p_c), s	0.3	2.0	1.3	0.3

Intersection Summary	
HCM 7th Control Delay, s/veh	18.5
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		

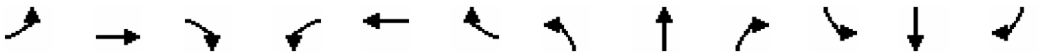
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1404	-	600	-	-
HCM Lane V/C Ratio	0.02	-	0.047	-	-
HCM Ctrl Dly (s/v)	7.6	-	11.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBU	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	195	20	5	75	2	50	50
Future Vol, veh/h	195	20	5	75	2	50	50
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	5	5	13	13	8	8	8
Mvmt Flow	214	22	5	82	2	55	55
Number of Lanes	0	1	1	0	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%	50%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	50%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	215	80	102
LT Vol	195	0	51
Through Vol	20	5	0
RT Vol	0	75	51
Lane Flow Rate	236	88	112
Geometry Grp	1	1	1
Degree of Util (X)	0.298	0.1	0.142
Departure Headway (Hd)	4.537	4.086	4.572
Convergence, Y/N	Yes	Yes	Yes
Cap	796	879	786
Service Time	2.537	2.103	2.593
HCM Lane V/C Ratio	0.296	0.1	0.142
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



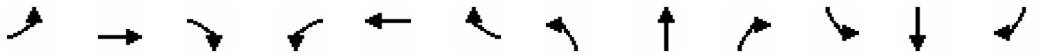
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	420	30	5	335	75	0	0	0	20	5	50
Future Volume (veh/h)	180	420	30	5	335	75	0	0	0	20	5	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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

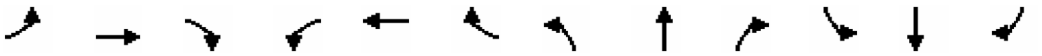
User approved pedestrian interval to be less than phase max green.



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				

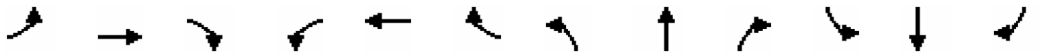
Intersection Summary												
HCM 7th Control Delay, s/veh			20.8									
HCM 7th LOS			C									



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									



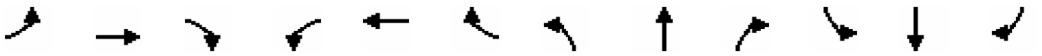
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	150	450	1025	300	0	0	0	0	150	880	125
Future Volume (veh/h)	0	150	450	1025	300	0	0	0	0	150	880	125
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				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	0.62	0.62	0.00				0.79	0.79	0.79
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	7.2	0.4	0.0				0.1	7.3	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(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	26.5	0.4	0.0				32.6	46.7	32.5
LnGrp LOS		C		C	A					C	D	C
Approach Vol, veh/h		155			1366						1191	
Approach Delay, s/veh		27.8			20.6						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				

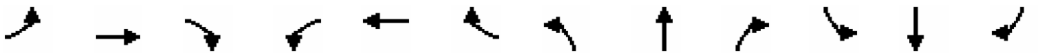
Intersection Summary	
HCM 7th Control Delay, s/veh	31.0
HCM 7th LOS	C

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



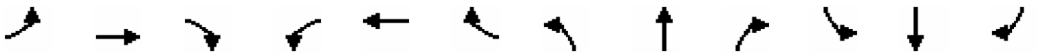
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	220	0	0	1110	290	210	270	465	0	0	0
Future Volume (veh/h)	75	220	0	0	1110	290	210	270	465	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	0.82	0.82	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	4.4	5.1	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	4.4	5.1	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			4.7			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			43.4									
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	2489	7	40	2451	22	184	8	30	51	12	301
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	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	0.0	0.0	0.0	0.0	5.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	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	1347	0	1189	1338	0	1176	222	0	0	365	0	0
V/C Ratio(X)	0.29	0.00	0.30	0.48	0.00	0.49	0.02	0.00	0.00	0.76	0.00	0.00
Avail Cap(c_a), veh/h	1347	0	1189	1338	0	1176	412	0	0	613	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	0.65	0.00	0.65	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	28.4	0.0	0.0	34.4	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.5	0.8	0.0	1.0	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	0.3	0.0	0.3	0.1	0.0	0.0	5.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.5	0.0	0.5	0.8	0.0	1.0	28.5	0.0	0.0	35.6	0.0	0.0
LnGrp LOS	A		A	A		A	C			D		
Approach Vol, veh/h		745			1223			5			276	
Approach Delay, s/veh		0.5			0.9			28.5			35.6	
Approach LOS		A			A			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		67.5		22.5		67.5		22.5				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		48.5		33.0		48.5		33.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		2.0		17.3				
Green Ext Time (p_c), s		3.5		0.0		7.1		1.1				

Intersection Summary	
HCM 7th Control Delay, s/veh	5.1
HCM 7th LOS	A



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)	1.00		0.96	0.99		0.96	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	61	1215	276	43	1588	10	304	696	82	67	69	212
Arrive On Green	0.90	0.90	0.90	0.45	0.45	0.45	0.18	0.44	0.44	0.21	0.21	0.21
Sat Flow, veh/h	42	2701	614	5	3530	23	1711	1565	185	105	327	1005
Grp Volume(v), veh/h	405	0	350	404	0	367	335	0	256	213	0	0
Grp Sat Flow(s),veh/h/ln	1799	0	1558	1862	0	1697	1711	0	1750	1437	0	0
Q Serve(g_s), s	0.0	0.0	3.7	0.0	0.0	13.7	16.0	0.0	8.6	4.4	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	3.7	13.6	0.0	13.7	16.0	0.0	8.6	12.1	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	851	0	701	878	0	763	304	0	778	349	0	0
V/C Ratio(X)	0.48	0.00	0.50	0.46	0.00	0.48	1.10	0.00	0.33	0.61	0.00	0.00
Avail Cap(c_a), veh/h	851	0	701	878	0	763	304	0	836	395	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)	0.95	0.00	0.95	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.7	0.0	2.7	17.4	0.0	17.4	37.0	0.0	16.3	32.7	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	2.4	1.7	0.0	2.2	81.6	0.0	0.1	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	1.3	0.0	1.2	6.1	0.0	5.7	13.5	0.0	3.4	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	4.5	0.0	5.1	19.1	0.0	19.6	118.6	0.0	16.3	33.9	0.0	0.0
LnGrp LOS	A		A	B		B	F		B	C		
Approach Vol, veh/h		755			771			591			213	
Approach Delay, s/veh		4.8			19.3			74.3			33.9	
Approach LOS		A			B			E			C	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		45.0		45.0		45.0	21.0	24.0				
Change Period (Y+Rc), s		4.5		5.0		4.5	5.0	5.0				
Max Green Setting (Gmax), s		37.5		43.0		37.5	16.0	22.0				
Max Q Clear Time (g_c+I1), s		5.7		10.6		15.7	18.0	14.1				
Green Ext Time (p_c), s		1.1		1.1		0.9	0.0	0.2				

Intersection Summary		
HCM 7th Control Delay, s/veh	29.9	
HCM 7th LOS	C	

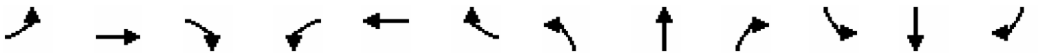
Intersection	
Int Delay, s/veh	1.1

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	642	169	39	553	52	235	1226	52	403	1359	223
Arrive On Green	0.08	0.23	0.23	0.01	0.06	0.06	0.26	0.71	0.71	0.23	0.45	0.45
Sat Flow, veh/h	1795	2775	729	1781	3259	308	1781	3463	147	1781	3032	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	1713	1781	1777	1791	1781	1777	1833	1781	1777	1752
Q Serve(g_s), s	8.2	16.6	16.9	1.5	16.4	16.6	13.6	7.4	7.5	7.3	13.7	13.9
Cycle Q Clear(g_c), s	8.2	16.6	16.9	1.5	16.4	16.6	13.6	7.4	7.5	7.3	13.7	13.9
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	414	396	39	301	304	235	629	649	403	796	785
V/C Ratio(X)	0.83	0.66	0.67	0.57	0.81	0.82	0.89	0.42	0.42	0.32	0.38	0.39
Avail Cap(c_a), veh/h	172	470	450	186	481	485	408	629	649	403	796	785
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.1	41.8	41.9	59.0	54.8	54.9	43.3	12.4	12.4	38.7	22.1	22.1
Incr Delay (d2), s/veh	21.8	1.9	2.2	4.8	2.5	2.8	6.0	2.0	2.0	0.2	1.4	1.4
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	4.6	7.6	7.5	0.7	8.1	8.3	5.7	2.8	2.9	3.2	6.1	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	76.0	43.7	44.2	63.9	57.2	57.7	49.3	14.4	14.4	38.9	23.4	23.5
LnGrp LOS	E	D	D	E	E	E	D	B	B	D	C	C
Approach Vol, veh/h		662			517			748			737	
Approach Delay, s/veh		49.9			57.7			24.2			26.2	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.3	59.3	14.5	24.9	32.6	48.0	7.1	32.3
Change Period (Y+Rc), s	5.5	5.5	4.5	4.5	5.5	5.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	28.5	11.5	32.5	13.5	42.5	12.5	31.5
Max Q Clear Time (g_c+I1), s	15.6	15.9	10.2	18.6	9.3	9.5	3.5	18.9
Green Ext Time (p_c), s	0.2	2.2	0.0	1.8	0.1	2.4	0.0	1.9

Intersection Summary	
HCM 7th Control Delay, s/veh	37.7
HCM 7th LOS	D

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)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.98			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)		3478			3389		1752	1803		1787	1881	1505
Flt Permitted		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3478			3389		1752	1803		1787	1881	1505
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	4	0	0	0	0	0	2	0	0	0	28
Lane Group Flow (vph)	0	574	0	0	422	0	33	314	0	72	417	72
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)		25.0			19.6		4.8	37.0		7.4	48.6	73.6
Effective Green, g (s)		25.0			19.6		4.8	37.0		7.4	48.6	73.6
Actuated g/C Ratio		0.21			0.16		0.04	0.31		0.06	0.41	0.61
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		724			553		70	555		110	761	923
v/s Ratio Prot		c0.17			c0.12		0.02	0.17		c0.04	c0.22	0.02
v/s Ratio Perm												0.03
v/c Ratio		0.79			0.76		0.47	0.57		0.65	0.55	0.08
Uniform Delay, d1		45.0			48.0		56.4	34.8		55.1	27.3	9.4
Progression Factor		0.59			1.00		1.18	1.02		1.00	1.00	1.00
Incremental Delay, d2		4.8			5.6		1.7	3.9		10.2	2.8	0.0
Delay (s)		31.3			53.6		68.2	39.3		65.2	30.1	9.4
Level of Service		C			D		E	D		E	C	A
Approach Delay (s/veh)		31.3			53.6			42.0			30.9	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	85.1%	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

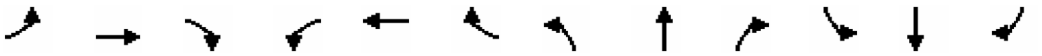
Intersection	
Int Delay, s/veh	13.9

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

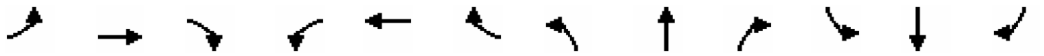
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	253	183	-	-	166	-	-	357
HCM Lane V/C Ratio	0.241	0.011	-	-	0.012	-	-	0.545
HCM Ctrl Dly (s/v)	23.7	8.6	0	-	8.5	0	-	26.6
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	3.1



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	56	2262	25	364	1534	96
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.66	0.66	0.66	0.22	0.22	0.22
Sat Flow, veh/h	181	508	349	33	438	1002	37	3417	37	487	2317	145
Grp Volume(v), veh/h	125	0	0	360	0	0	246	0	227	299	0	357
Grp Sat Flow(s),veh/h/ln	1037	0	0	1472	0	0	1812	0	1679	1285	0	1664
Q Serve(g_s), s	0.0	0.0	0.0	12.9	0.0	0.0	0.0	0.0	6.3	18.9	0.0	21.6
Cycle Q Clear(g_c), s	9.0	0.0	0.0	28.6	0.0	0.0	6.2	0.0	6.3	25.3	0.0	21.6
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	1231	0	1111	892	0	1101
V/C Ratio(X)	0.40	0.00	0.00	0.86	0.00	0.00	0.20	0.00	0.20	0.34	0.00	0.32
Avail Cap(c_a), veh/h	469	0	0	588	0	0	1231	0	1111	892	0	1101
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	0.57	0.00	0.00	1.00	0.00	1.00	0.90	0.00	0.90
Uniform Delay (d), s/veh	35.4	0.0	0.0	43.1	0.0	0.0	7.9	0.0	7.9	26.2	0.0	24.3
Incr Delay (d2), s/veh	0.3	0.0	0.0	4.1	0.0	0.0	0.4	0.0	0.4	0.9	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.0	10.9	0.0	0.0	2.6	0.0	2.4	8.4	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.7	0.0	0.0	47.1	0.0	0.0	8.3	0.0	8.3	27.1	0.0	25.0
LnGrp LOS	D			D			A		A	C		C
Approach Vol, veh/h		125			360			473			656	
Approach Delay, s/veh		35.7			47.1			8.3			26.0	
Approach LOS		D			D			A			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		83.9		36.1		83.9		36.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		65.5		45.5		65.5		45.5				
Max Q Clear Time (g_c+I1), s		8.3		11.0		27.3		30.6				
Green Ext Time (p_c), s		0.6		0.4		1.0		1.0				

Intersection Summary		
HCM 7th Control Delay, s/veh		26.3
HCM 7th LOS		C



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)		5.5			5.5		5.5	5.5		5.5	5.5	
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)		1632			1675		1736	1792		1770	1811	
Flt Permitted		0.70			0.94		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1149			1579		1736	1792		1770	1811	
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	9	0	0	6	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	213	0	0	262	0	10	224	0	57	412	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)		25.7			25.7		1.3	43.5		7.3	76.5	
Effective Green, g (s)		25.7			25.7		1.3	43.5		7.3	76.5	
Actuated g/C Ratio		0.21			0.21		0.01	0.36		0.06	0.64	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		246			338		18	649		107	1154	
v/s Ratio Prot							0.01	0.13		c0.03	c0.23	
v/s Ratio Perm		c0.19			0.17							
v/c Ratio		0.87			0.77		0.56	0.35		0.53	0.36	
Uniform Delay, d1		45.5			44.4		59.1	27.9		54.7	10.2	
Progression Factor		1.17			1.00		1.26	0.25		1.17	0.33	
Incremental Delay, d2		25.4			10.6		19.1	1.4		2.2	0.7	
Delay (s)		78.5			55.0		93.3	8.5		66.1	4.1	
Level of Service		E			D		F	A		E	A	
Approach Delay (s/veh)		78.5			55.0			12.1			11.6	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	63.0%	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	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	-	-	-	-	-

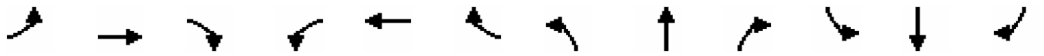
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.2	0.34	0
HCM LOS	C		

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)	4.5		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)	1663		1824			3574
Flt Permitted	0.97		1.00			0.95
Satd. Flow (perm)	1663		1824			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			90.5
Effective Green, g (s)	20.0		76.0			90.5
Actuated g/C Ratio	0.17		0.63			0.75
Clearance Time (s)	4.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	277		1155			2573
v/s Ratio Prot	c0.01		c0.16			
v/s Ratio Perm						c0.14
v/c Ratio	0.09		0.25			0.18
Uniform Delay, d1	42.3		9.6			4.2
Progression Factor	1.00		0.74			0.70
Incremental Delay, d2	0.0		0.5			0.1
Delay (s)	42.3		7.6			3.1
Level of Service	D		A			A
Approach Delay (s/veh)	42.3		7.6			3.1
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.4	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)	12.5
Intersection Capacity Utilization	38.9%	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	0.98		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	1911	316	0	1628	529	254	486	22	347	488	27
Arrive On Green	0.00	0.63	0.63	0.00	0.63	0.63	0.28	0.28	0.28	0.09	0.09	0.09
Sat Flow, veh/h	0	3130	502	0	2680	841	1127	1740	81	1241	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	1127	0	1820	1241	0	1846
Q Serve(g_s), s	0.0	9.8	9.8	0.0	9.1	9.3	3.5	0.0	5.7	27.8	0.0	12.9
Cycle Q Clear(g_c), s	0.0	9.8	9.8	0.0	9.1	9.3	16.3	0.0	5.7	33.5	0.0	12.9
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	1118	1109	0	1109	1048	254	0	508	347	0	515
V/C Ratio(X)	0.00	0.29	0.29	0.00	0.27	0.27	0.15	0.00	0.22	0.90	0.00	0.41
Avail Cap(c_a), veh/h	0	1118	1109	0	1109	1048	254	0	508	347	0	515
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)	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	9.9	10.0	42.6	0.0	33.2	58.4	0.0	45.1
Incr Delay (d2), s/veh	0.0	0.6	0.7	0.0	0.6	0.6	0.6	0.0	0.5	24.2	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	3.5	1.0	0.0	2.6	12.5	0.0	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.7	10.7	0.0	10.5	10.6	43.2	0.0	33.7	82.6	0.0	45.3
LnGrp LOS		B	B		B	B	D		C	F		D
Approach Vol, veh/h		639			586			151			522	
Approach Delay, s/veh		10.7			10.6			36.1			67.6	
Approach LOS		B			B			D			E	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		81.0		39.0		81.0		39.0				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		38.5		31.5		38.5		33.5				
Max Q Clear Time (g_c+I1), s		11.8		18.3		11.3		35.5				
Green Ext Time (p_c), s		0.8		1.0		0.8		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			28.3									
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	251	20
Future Vol, veh/h	20	15	16	120	251	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	92	92	92	92	92	92
Heavy Vehicles, %	4	4	6	6	3	3
Mvmt Flow	22	16	17	130	273	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	547	384	345	0	-	0
Stage 1	334	-	-	-	-	-
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	659	1192	-	-	-
Stage 1	721	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	442	598	1136	-	-	-
Mov Cap-2 Maneuver	442	-	-	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	779	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.83	0.97	0
HCM LOS	B		

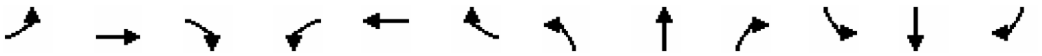
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1136	-	498	-	-
HCM Lane V/C Ratio	0.015	-	0.076	-	-
HCM Ctrl Dly (s/v)	8.2	-	12.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

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



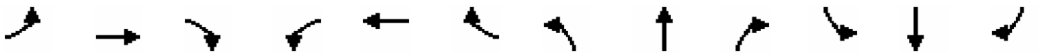
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	425	35	15	390	35	10	5	2	45	10	135
Future Volume (veh/h)	70	425	35	15	390	35	10	5	2	45	10	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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

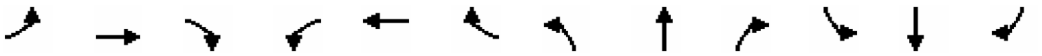
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	519	255	0	0	0	0	0	0	335	1247	0
Future Volume (veh/h)	0	519	255	0	0	0	0	0	0	335	1247	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	519	255							335	1247	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							571	2126	0
Arrive On Green	0.00	0.38	0.38							0.52	0.52	0.00
Sat Flow, veh/h	0	3618	1517							1105	4282	0
Grp Volume(v), veh/h	0	519	255							550	1032	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							18.9	18.9	0.0
Cycle Q Clear(g_c), s	0.0	9.6	11.2							18.9	18.9	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	0.38	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	1.4	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	4.0	4.3							8.1	7.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.9	23.0							17.8	16.5	0.0
LnGrp LOS		C	C							B	B	
Approach Vol, veh/h		774									1582	
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		20.9				
Green Ext Time (p_c), s						0.8		2.7				

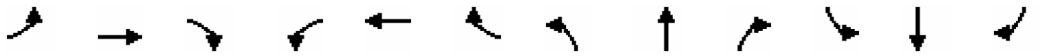
Intersection Summary												
HCM 7th Control Delay, s/veh			18.5									
HCM 7th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	224	0	0	0	299	0	729	60	0	0	0
Future Volume (veh/h)	230	224	0	0	0	299	0	729	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	224	0	0	0	299	0	729	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	259	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	504	544	0	0	0	1530		0				
Grp Volume(v), veh/h	454	0	0	0	0	299		0.0				
Grp Sat Flow(s),veh/h/ln	1048	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	38.4	0.0	0.0	0.0	0.0	11.5						
Prop In Lane	0.51		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	559	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	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	26.5	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	9.9	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		454			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				40.4				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									



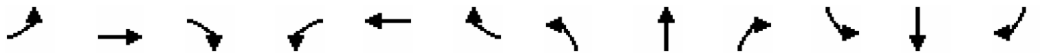
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	240	235	902	420	0	0	0	0	542	780	170
Future Volume (veh/h)	0	240	235	902	420	0	0	0	0	542	780	170
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	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	902	420	0				542	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	676		1063	1033	0				602	1201	529
Arrive On Green	0.00	0.20	0.00	0.10	0.18	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	902	420	0				542	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	23.3	18.0	0.0				27.0	18.9	9.0
Cycle Q Clear(g_c), s	0.0	5.4	0.0	23.3	18.0	0.0				27.0	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	676		1063	1033	0				602	1201	529
V/C Ratio(X)	0.00	0.36		0.85	0.41	0.00				0.90	0.65	0.32
Avail Cap(c_a), veh/h	0	676		1063	1033	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	0.58	0.58	0.00				0.79	0.79	0.79
Uniform Delay (d), s/veh	0.0	31.2	0.0	38.3	23.6	0.0				38.5	34.9	30.5
Incr Delay (d2), s/veh	0.0	0.1	0.0	3.8	0.7	0.0				11.7	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(50%),veh/ln	0.0	2.3	0.0	11.2	9.1	0.0				14.8	9.1	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	31.4	0.0	42.1	24.3	0.0				50.2	35.5	30.6
LnGrp LOS		C		D	C					D	D	C
Approach Vol, veh/h		240			1322						1492	
Approach Delay, s/veh		31.4			36.4						40.2	
Approach LOS		C			D						D	

Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		35.4	32.4	22.2				54.6				
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		29.0	25.3	7.4				20.0				
Green Ext Time (p_c), s		1.4	0.0	0.5				1.0				

Intersection Summary	
HCM 7th Control Delay, s/veh	37.9
HCM 7th LOS	D

Notes

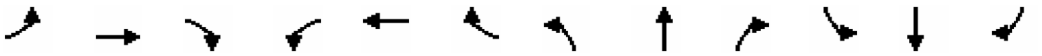
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	692	0	0	956	314	370	405	575	0	0	0
Future Volume (veh/h)	90	692	0	0	956	314	370	405	575	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	90	692	0	0	956	314	370	405	575			
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	114	1962	0	0	1146	374	608	639	539			
Arrive On Green	0.07	0.56	0.00	0.00	0.89	0.89	0.34	0.34	0.34			
Sat Flow, veh/h	1753	3589	0	0	2662	839	1795	1885	1589			
Grp Volume(v), veh/h	90	692	0	0	649	621	370	405	575			
Grp Sat Flow(s),veh/h/ln	1753	1749	0	0	1749	1660	1795	1885	1589			
Q Serve(g_s), s	4.6	9.7	0.0	0.0	14.0	14.5	15.4	16.3	30.5			
Cycle Q Clear(g_c), s	4.6	9.7	0.0	0.0	14.0	14.5	15.4	16.3	30.5			
Prop In Lane	1.00		0.00	0.00		0.51	1.00		1.00			
Lane Grp Cap(c), veh/h	114	1962	0	0	780	740	608	639	539			
V/C Ratio(X)	0.79	0.35	0.00	0.00	0.83	0.84	0.61	0.63	1.07			
Avail Cap(c_a), veh/h	127	1962	0	0	780	740	608	639	539			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.61	0.61	0.00	0.00	0.85	0.85	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.5	10.8	0.0	0.0	3.4	3.5	24.8	25.0	29.8			
Incr Delay (d2), s/veh	14.5	0.3	0.0	0.0	8.7	9.5	1.3	1.6	58.1			
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	2.4	3.7	0.0	0.0	3.4	3.4	6.4	7.1	19.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	56.0	11.1	0.0	0.0	12.2	13.0	26.0	26.6	87.9			
LnGrp LOS	E	B			B	B	C	C	F			
Approach Vol, veh/h		782			1270			1350				
Approach Delay, s/veh		16.3			12.6			52.5				
Approach LOS		B			B			D				

Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		35.0		55.0			10.4	44.6				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		30.5		50.5			6.5	39.5				
Max Q Clear Time (g_c+I1), s		32.5		11.7			6.6	16.5				
Green Ext Time (p_c), s		0.0		3.8			0.0	7.0				

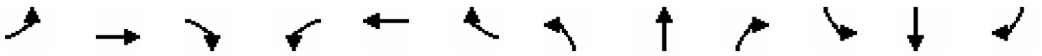
Intersection Summary												
HCM 7th Control Delay, s/veh			29.3									
HCM 7th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1317	5	4	1161	5	1	0	2	10	4	115
Future Volume (veh/h)	20	1317	5	4	1161	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)	0.99		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	1317	5	4	1161	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	59	2737	10	42	2773	12	85	16	96	50	13	162
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.12	0.00	0.12	0.12	0.12	0.12
Sat Flow, veh/h	22	3470	13	2	3516	15	273	138	822	59	111	1392
Grp Volume(v), veh/h	693	0	649	612	0	558	3	0	0	129	0	0
Grp Sat Flow(s),veh/h/ln	1806	0	1699	1848	0	1685	1232	0	0	1561	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	7.1	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	1466	0	1340	1498	0	1329	197	0	0	225	0	0
V/C Ratio(X)	0.47	0.00	0.48	0.41	0.00	0.42	0.02	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	1466	0	1340	1498	0	1329	323	0	0	405	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.00	0.77	0.70	0.00	0.70	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	35.2	0.0	0.0	38.2	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	1.0	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(50%),veh/ln	0.3	0.0	0.4	0.2	0.0	0.3	0.1	0.0	0.0	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.8	0.0	1.0	0.6	0.0	0.7	35.2	0.0	0.0	39.1	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		1342			1170			3			129	
Approach Delay, s/veh		0.9			0.6			35.2			39.1	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		75.5		14.5		75.5		14.5				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		60.5		21.0		60.5		21.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		2.0		9.1				
Green Ext Time (p_c), s		8.8		0.0		6.7		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			2.7									
HCM 7th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	920	352	10	894	25	227	279	25	40	75	65
Future Volume (veh/h)	15	920	352	10	894	25	227	279	25	40	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		0.97	1.00		0.97	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	920	352	10	894	25	227	279	25	40	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	48	1152	433	46	1636	45	260	675	60	91	145	106
Arrive On Green	0.96	0.96	0.96	0.48	0.48	0.48	0.15	0.41	0.41	0.21	0.21	0.21
Sat Flow, veh/h	15	2399	903	12	3407	95	1725	1629	146	203	695	508
Grp Volume(v), veh/h	705	0	582	485	0	444	227	0	304	180	0	0
Grp Sat Flow(s),veh/h/ln	1824	0	1493	1832	0	1682	1725	0	1775	1405	0	0
Q Serve(g_s), s	0.0	0.0	6.3	0.0	0.0	16.8	11.6	0.0	10.9	4.0	0.0	0.0
Cycle Q Clear(g_c), s	5.6	0.0	6.3	16.4	0.0	16.8	11.6	0.0	10.9	10.0	0.0	0.0
Prop In Lane	0.02		0.60	0.02		0.06	1.00		0.08	0.22		0.36
Lane Grp Cap(c), veh/h	917	0	717	921	0	808	260	0	735	341	0	0
V/C Ratio(X)	0.77	0.00	0.81	0.53	0.00	0.55	0.87	0.00	0.41	0.53	0.00	0.00
Avail Cap(c_a), veh/h	917	0	717	921	0	808	268	0	789	375	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)	0.78	0.00	0.78	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	16.4	0.0	16.5	37.4	0.0	18.6	32.0	0.0	0.0
Incr Delay (d2), s/veh	4.9	0.0	7.7	2.2	0.0	2.7	24.1	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(95%),veh/ln	3.2	0.0	3.6	11.7	0.0	11.1	10.8	0.0	7.9	6.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	5.9	0.0	8.8	18.6	0.0	19.2	61.5	0.0	18.8	32.5	0.0	0.0
LnGrp LOS	A		A	B		B	E		B	C		
Approach Vol, veh/h		1287			929			531			180	
Approach Delay, s/veh		7.2			18.9			37.0			32.5	
Approach LOS		A			B			D			C	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		47.7		42.3		47.7	18.6	23.7				
Change Period (Y+Rc), s		4.5		5.0		4.5	5.0	5.0				
Max Green Setting (Gmax), s		40.5		40.0		40.5	14.0	21.0				
Max Q Clear Time (g_c+I1), s		8.3		12.9		18.8	13.6	12.0				
Green Ext Time (p_c), s		2.1		1.3		1.2	0.0	0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			17.9									
HCM 7th LOS			B									

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	783	212	0	909	55	0	0	35	0	0	10
Future Vol, veh/h	0	783	212	0	909	55	0	0	35	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	783	212	0	909	55	0	0	35	0	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	630	-	-	624
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	422	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	-	-	-	-	-	-	-	-	371	-	-	376
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	15.73	14.83
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	371	-	-	-	-	376
HCM Lane V/C Ratio	0.094	-	-	-	-	0.027
HCM Ctrl Dly (s/v)	15.7	-	-	-	-	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	464	113	20	555	95	289	710	10	95	300	105
Future Volume (veh/h)	205	464	113	20	555	95	289	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		0.95
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	205	464	113	20	555	95	289	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	903	218	36	633	108	311	1200	17	267	787	268
Arrive On Green	0.13	0.32	0.32	0.01	0.07	0.07	0.35	0.68	0.68	0.15	0.31	0.31
Sat Flow, veh/h	1767	2804	678	1767	2998	511	1767	3556	50	1739	2499	851
Grp Volume(v), veh/h	205	290	287	20	325	325	289	352	368	95	206	199
Grp Sat Flow(s),veh/h/ln	1767	1763	1719	1767	1763	1747	1767	1763	1843	1739	1735	1616
Q Serve(g_s), s	13.7	16.0	16.3	1.4	21.9	22.1	18.9	13.0	13.0	5.9	11.1	11.6
Cycle Q Clear(g_c), s	13.7	16.0	16.3	1.4	21.9	22.1	18.9	13.0	13.0	5.9	11.1	11.6
Prop In Lane	1.00		0.39	1.00		0.29	1.00		0.03	1.00		0.53
Lane Grp Cap(c), veh/h	232	568	554	36	372	369	311	595	622	267	546	509
V/C Ratio(X)	0.89	0.51	0.52	0.56	0.87	0.88	0.93	0.59	0.59	0.36	0.38	0.39
Avail Cap(c_a), veh/h	258	568	554	155	419	415	405	595	622	267	546	509
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	33.0	33.1	59.1	54.2	54.3	38.1	15.0	15.0	45.5	32.0	32.1
Incr Delay (d2), s/veh	25.1	0.3	0.4	5.0	15.5	16.4	20.3	4.0	3.9	0.3	2.0	2.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	7.0	6.9	0.7	12.1	12.1	8.7	4.4	4.5	2.6	5.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	76.4	33.4	33.5	64.0	69.8	70.7	58.5	19.1	18.9	45.8	33.9	34.4
LnGrp LOS	E	C	C	E	E	E	E	B	B	D	C	C
Approach Vol, veh/h		782			670			1009			500	
Approach Delay, s/veh		44.7			70.0			30.3			36.4	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.6	43.3	20.2	29.9	23.9	46.0	6.9	43.1
Change Period (Y+Rc), s	5.5	5.5	4.5	4.5	5.5	5.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	26.5	17.5	28.5	13.5	40.5	10.5	35.5
Max Q Clear Time (g_c+I1), s	20.9	13.6	15.7	24.1	7.9	15.0	3.4	18.3
Green Ext Time (p_c), s	0.3	1.4	0.1	1.3	0.0	3.2	0.0	2.3

Intersection Summary	
HCM 7th Control Delay, s/veh	44.1
HCM 7th LOS	D

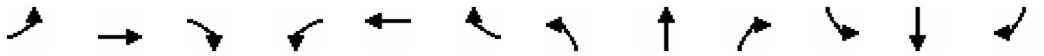
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↱			↑↑↱				↱			↱
Traffic Vol, veh/h	0	499	70	0	550	75	0	0	2	0	0	150
Future Vol, veh/h	0	499	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	499	70	0	550	75	0	0	2	0	0	150

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	335	-	-	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	667	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	-	-	-	-	-	-	-	-	636	-	-	561
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	10.68	13.75
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	636	-	-	-	-	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)	194	290	10	25	555	70	30	309	20	45	175	70
Future Volume (vph)	194	290	10	25	555	70	30	309	20	45	175	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
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)		3378			3403		1671	1727		1703	1792	1460
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3378			3403		1671	1727		1703	1792	1460
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)	194	290	10	25	555	70	30	309	20	45	175	70
RTOR Reduction (vph)	0	1	0	0	0	0	0	1	0	0	0	32
Lane Group Flow (vph)	0	493	0	0	650	0	30	328	0	45	175	38
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)		21.2			27.5		4.7	35.6		6.5	44.6	65.8
Effective Green, g (s)		21.2			27.5		4.7	35.6		6.5	44.6	65.8
Actuated g/C Ratio		0.18			0.23		0.04	0.30		0.05	0.37	0.55
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		596			779		65	512		92	666	800
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		0.83			0.83		0.46	0.64		0.49	0.26	0.05
Uniform Delay, d1		47.6			44.1		56.4	36.6		55.1	26.3	12.6
Progression Factor		0.97			1.00		1.46	0.50		1.00	1.00	1.00
Incremental Delay, d2		7.9			7.4		1.6	5.2		1.5	1.0	0.0
Delay (s)		53.9			51.4		84.2	23.4		56.6	27.2	12.6
Level of Service		D			D		F	C		E	C	B
Approach Delay (s/veh)		53.9			51.4			28.5			28.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	114	5	10	30	10	187	5	234	30	79	244	109
Future Vol, veh/h	114	5	10	30	10	187	5	234	30	79	244	109
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	114	5	10	30	10	187	5	234	30	79	244	109
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	12.2	13.3	18.7
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	88%	13%	18%
Vol Thru, %	87%	4%	4%	56%
Vol Right, %	11%	8%	82%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	269	129	227	432
LT Vol	5	114	30	79
Through Vol	234	5	10	244
RT Vol	30	10	187	109
Lane Flow Rate	269	129	227	432
Geometry Grp	1	1	1	1
Degree of Util (X)	0.432	0.237	0.364	0.659
Departure Headway (Hd)	5.778	6.62	5.766	5.488
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	619	546	617	652
Service Time	3.869	4.62	3.86	3.566
HCM Lane V/C Ratio	0.435	0.236	0.368	0.663
HCM Control Delay, s/veh	13.3	11.7	12.2	18.7
HCM Lane LOS	B	B	B	C
HCM 95th-tile Q	2.2	0.9	1.7	4.9

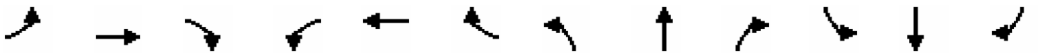
Intersection	
Int Delay, s/veh	10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	45	70	20	6	105	74	9	19	10	45	25	88
Future Vol, veh/h	45	70	20	6	105	74	9	19	10	45	25	88
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	74	9	19	10	45	25	88

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	330	0	0	262	0	0	644	684	382	605	657	465
Stage 1	-	-	-	-	-	-	342	342	-	305	305	-
Stage 2	-	-	-	-	-	-	302	342	-	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	1181	-	-	1252	-	-	381	366	657	411	386	599
Stage 1	-	-	-	-	-	-	665	631	-	707	664	-
Stage 2	-	-	-	-	-	-	699	631	-	712	633	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1011	-	-	1047	-	-	182	248	481	265	262	429
Mov Cap-2 Maneuver	-	-	-	-	-	-	182	248	-	265	262	-
Stage 1	-	-	-	-	-	-	530	503	-	601	565	-
Stage 2	-	-	-	-	-	-	441	537	-	560	505	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.91	0.27	21.28	24.87
HCM LOS			C	C

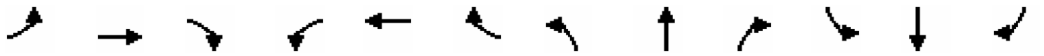
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	259	574	-	-	54	-	-	336
HCM Lane V/C Ratio	0.147	0.045	-	-	0.006	-	-	0.47
HCM Ctrl Dly (s/v)	21.3	8.7	0	-	8.5	0	-	24.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	2.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	75	25	10	80	205	29	779	50	180	203	50
Future Volume (veh/h)	20	75	25	10	80	205	29	779	50	180	203	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)	1.00		0.89	0.94		0.89	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	20	75	25	10	80	205	29	779	50	180	203	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
Percent Heavy Veh, %	13	13	13	5	5	5	4	4	4	5	5	5
Cap, veh/h	64	203	61	36	93	223	86	2219	141	511	903	222
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	131	934	280	21	430	1027	77	3134	199	638	1275	314
Grp Volume(v), veh/h	120	0	0	295	0	0	450	0	408	180	0	253
Grp Sat Flow(s),veh/h/ln	1345	0	0	1478	0	0	1786	0	1624	638	0	1589
Q Serve(g_s), s	0.0	0.0	0.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.6	0.0	0.0	23.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.17		0.21	0.03		0.69	0.06		0.12	1.00		0.20
Lane Grp Cap(c), veh/h	327	0	0	352	0	0	1296	0	1150	511	0	1125
V/C Ratio(X)	0.37	0.00	0.00	0.84	0.00	0.00	0.35	0.00	0.36	0.35	0.00	0.22
Avail Cap(c_a), veh/h	441	0	0	467	0	0	1296	0	1150	511	0	1125
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	0.00	0.56	0.00	0.00	1.00	0.00	1.00	0.91	0.00	0.91
Uniform Delay (d), s/veh	39.8	0.0	0.0	45.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	4.5	0.0	0.0	0.7	0.0	0.9	1.7	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	3.1	0.0	0.0	9.1	0.0	0.0	0.3	0.0	0.3	0.2	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.0	0.0	0.0	50.4	0.0	0.0	0.7	0.0	0.9	1.7	0.0	0.4
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		120			295			858			433	
Approach Delay, s/veh		40.0			50.4			0.8			1.0	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		89.5		30.5		89.5		30.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		75.5		35.5		75.5		35.5				
Max Q Clear Time (g_c+I1), s		2.0		9.6		2.0		25.4				
Green Ext Time (p_c), s		1.1		0.3		1.4		0.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.2									
HCM 7th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	175	20	15	235	60	15	285	10	35	145	85
Future Volume (vph)	15	175	20	15	235	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)		5.5			5.5		5.5	5.5		5.5	5.5	
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)		1611			1694		1671	1739		1719	1553	
Flt Permitted		0.95			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1532			1665		1671	1739		1719	1553	
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	175	20	15	235	60	15	285	10	35	145	85
RTOR Reduction (vph)	0	4	0	0	8	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	206	0	0	302	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)		27.7			27.7		2.7	36.3		4.9	73.1	
Effective Green, g (s)		27.7			27.7		2.7	36.3		4.9	73.1	
Actuated g/C Ratio		0.23			0.23		0.02	0.30		0.04	0.61	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		353			384		37	526		70	946	
v/s Ratio Prot							0.01	c0.17		c0.02	c0.14	
v/s Ratio Perm		0.13			c0.18							
v/c Ratio		0.58			0.79		0.41	0.56		0.50	0.23	
Uniform Delay, d1		41.0			43.4		57.9	35.1		56.4	10.7	
Progression Factor		0.94			1.00		1.40	0.33		1.08	0.53	
Incremental Delay, d2		2.4			10.1		2.5	4.1		2.0	0.6	
Delay (s)		40.8			53.5		83.4	15.7		62.8	6.2	
Level of Service		D			D		F	B		E	A	
Approach Delay (s/veh)		40.8			53.5			19.0			13.7	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	54.8%	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	10	10	44	864	201	43
Future Vol, veh/h	10	10	44	864	201	43
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	10	10	44	864	201	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	933	242	339	0	-	0
Stage 1	318	-	-	-	-	-
Stage 2	615	-	-	-	-	-
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	260	750	1203	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	203	666	1094	-	-	-
Mov Cap-2 Maneuver	203	-	-	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	449	-	-	-	-	-

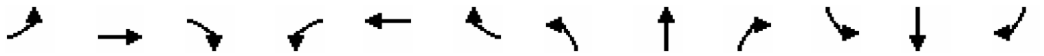
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.34	0.79	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	174	-	312	-	-
HCM Lane V/C Ratio	0.04	-	0.064	-	-
HCM Ctrl Dly (s/v)	8.4	0.4	17.3	-	-
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)	4.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.89		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)	1427		1740			3406
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	1427		1740			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			90.5
Effective Green, g (s)	20.0		78.0			90.5
Actuated g/C Ratio	0.17		0.65			0.75
Clearance Time (s)	4.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	237		1131			2568
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			3.8
Progression Factor	1.00		0.29			1.09
Incremental Delay, d2	0.0		0.5			0.0
Delay (s)	41.9		3.2			4.2
Level of Service	D		A			A
Approach Delay (s/veh)	41.9		3.2			4.2
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
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	180	35	0	788	190	105	145	2	110	60	5
Future Volume (veh/h)	0	180	35	0	788	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	788	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	2035	386	0	1919	463	283	378	5	225	345	29
Arrive On Green	0.00	0.70	0.70	0.00	0.70	0.70	0.21	0.21	0.21	0.07	0.07	0.07
Sat Flow, veh/h	0	3008	554	0	2841	663	1266	1795	25	1172	1641	137
Grp Volume(v), veh/h	0	106	109	0	497	481	105	0	147	110	0	65
Grp Sat Flow(s),veh/h/ln	0	1749	1721	0	1735	1678	1266	0	1820	1172	0	1778
Q Serve(g_s), s	0.0	2.3	2.4	0.0	14.6	14.6	8.9	0.0	8.3	11.1	0.0	4.1
Cycle Q Clear(g_c), s	0.0	2.3	2.4	0.0	14.6	14.6	13.1	0.0	8.3	19.4	0.0	4.1
Prop In Lane	0.00		0.32	0.00		0.40	1.00		0.01	1.00		0.08
Lane Grp Cap(c), veh/h	0	1220	1201	0	1211	1171	283	0	383	225	0	374
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	0.17
Avail Cap(c_a), veh/h	0	1220	1201	0	1211	1171	349	0	478	306	0	496
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)	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	5.8	5.8	0.0	7.7	7.7	44.4	0.0	40.7	57.2	0.0	46.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	0.0	1.0	1.1	1.7	0.0	1.3	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	0.9	0.9	0.0	5.5	5.3	3.0	0.0	3.9	3.5	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	6.0	6.0	0.0	8.7	8.7	46.2	0.0	42.0	57.8	0.0	46.1
LnGrp LOS		A	A		A	A	D		D	E		D
Approach Vol, veh/h		215			978			252			175	
Approach Delay, s/veh		6.0			8.7			43.8			53.5	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		89.2		30.8		89.2		30.8				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		38.5		31.5		38.5		33.5				
Max Q Clear Time (g_c+I1), s		4.4		15.1		16.6		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	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	113	15	55	1	30	10	129	125	45	12	45	214
Future Vol, veh/h	113	15	55	1	30	10	129	125	45	12	45	214
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	113	15	55	1	30	10	129	125	45	12	45	214
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	8.9	11.4	10.1
HCM LOS	B	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	43%	62%	2%	4%
Vol Thru, %	42%	8%	73%	17%
Vol Right, %	15%	30%	24%	79%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	299	183	41	271
LT Vol	129	113	1	12
Through Vol	125	15	30	45
RT Vol	45	55	10	214
Lane Flow Rate	299	183	41	271
Geometry Grp	1	1	1	1
Degree of Util (X)	0.408	0.267	0.063	0.345
Departure Headway (Hd)	4.917	5.261	5.567	4.584
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	727	675	647	778
Service Time	2.994	3.354	3.567	2.659
HCM Lane V/C Ratio	0.411	0.271	0.063	0.348
HCM Control Delay, s/veh	11.4	10.3	8.9	10.1
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	2	1.1	0.2	1.5

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		

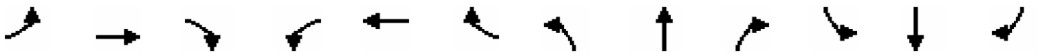
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1405	-	602	-	-
HCM Lane V/C Ratio	0.021	-	0.042	-	-
HCM Ctrl Dly (s/v)	7.6	-	11.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	209	25	5	80	57	54
Future Vol, veh/h	209	25	5	80	57	54
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	209	25	5	80	57	54
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	234	85	111
LT Vol	209	0	57
Through Vol	25	5	0
RT Vol	0	80	54
Lane Flow Rate	234	85	111
Geometry Grp	1	1	1
Degree of Util (X)	0.294	0.096	0.141
Departure Headway (Hd)	4.528	4.077	4.572
Convergence, Y/N	Yes	Yes	Yes
Cap	798	881	786
Service Time	2.528	2.095	2.589
HCM Lane V/C Ratio	0.293	0.096	0.141
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



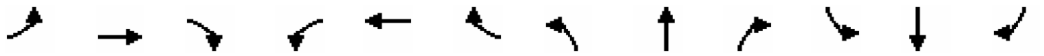
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	460	30	5	370	80	0	0	0	20	5	55
Future Volume (veh/h)	195	460	30	5	370	80	0	0	0	20	5	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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(50%),veh/ln	0.8	0.0	1.0	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	9.7	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

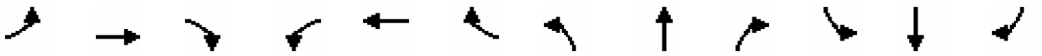
User approved pedestrian interval to be less than phase max green.



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	889	0
Future Volume (veh/h)	0	595	295	0	0	0	0	0	0	285	889	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	889	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	1403	0
Arrive On Green	0.00	0.55	0.55							0.35	0.35	0.00
Sat Flow, veh/h	0	3705	1579							1284	4181	0
Grp Volume(v), veh/h	0	595	295							407	767	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							0.63	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	3.2	3.4							8.0	7.1	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									1174	
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				

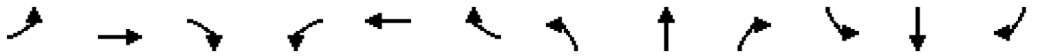
Intersection Summary												
HCM 7th Control Delay, s/veh			20.8									
HCM 7th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	150	0	0	0	603	0	639	50	0	0	0
Future Volume (veh/h)	50	150	0	0	0	603	0	639	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	603	0	639	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	674	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	63	606	0	0	0	1517		0				
Grp Volume(v), veh/h	200	0	0	0	0	603		0.0				
Grp Sat Flow(s),veh/h/ln	669	0	0	0	0	1517						
Q Serve(g_s), s	2.6	0.0	0.0	0.0	0.0	22.0						
Cycle Q Clear(g_c), s	24.6	0.0	0.0	0.0	0.0	22.0						
Prop In Lane	0.25		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	372	0	0	0	0	674						
V/C Ratio(X)	0.54	0.00	0.00	0.00	0.00	0.89						
Avail Cap(c_a), veh/h	476	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	15.4						
Incr Delay (d2), s/veh	1.2	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(50%),veh/ln	1.6	0.0	0.0	0.0	0.0	8.8						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.1	0.0	0.0	0.0	0.0	27.0						
LnGrp LOS	B					C						
Approach Vol, veh/h		200			603							
Approach Delay, s/veh		14.1			27.0							
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				26.6				24.0				
Green Ext Time (p_c), s				0.5				2.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			23.8									
HCM 7th LOS			C									



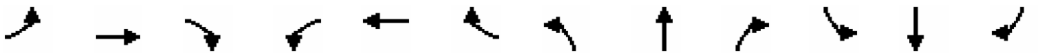
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	165	495	1117	324	0	0	0	0	164	965	135
Future Volume (veh/h)	0	165	495	1117	324	0	0	0	0	164	965	135
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				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	1117	324	0				164	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	743		1173	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	1117	324	0				164	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	27.4	0.0	0.0				7.7	24.0	7.3
Cycle Q Clear(g_c), s	0.0	3.5	0.0	27.4	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	743		1173	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	743		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	0.55	0.55	0.00				0.79	0.79	0.79
Uniform Delay (d), s/veh	0.0	29.4	0.0	18.8	0.0	0.0				32.1	39.5	32.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	9.0	0.4	0.0				0.1	9.5	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	1.5	0.0	9.2	0.1	0.0				3.6	12.9	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	29.5	0.0	27.8	0.4	0.0				32.2	49.0	32.1
LnGrp LOS		C		C	A					C	D	C
Approach Vol, veh/h		165			1441						1264	
Approach Delay, s/veh		29.5			21.6						45.0	
Approach LOS		C			C						D	

Timer - Assigned Phs	2	3	4					8				
Phs Duration (G+Y+Rc), s	31.5	35.0	23.5					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	29.4	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	32.4
HCM 7th LOS	C

Notes

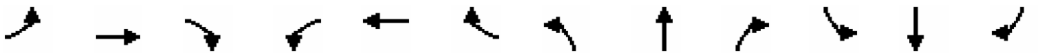
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	239	0	0	1206	314	230	300	503	0	0	0
Future Volume (veh/h)	80	239	0	0	1206	314	230	300	503	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	239	0	0	1206	314	230	300	503			
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	239	0	0	769	751	230	300	503			
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	0.84	0.49	0.61	1.24			
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	0.80	0.80	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	7.8	0.3	1.6	125.6			
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(50%),veh/ln	1.9	0.8	0.0	0.0	1.6	1.9	4.0	5.6	22.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	46.6	6.4	0.0	0.0	6.3	7.8	28.5	30.8	158.8			
LnGrp LOS	D	A			A	A	C	C	F			
Approach Vol, veh/h		319			1520			1033				
Approach Delay, s/veh		16.5			7.0			92.6				
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	10.9				

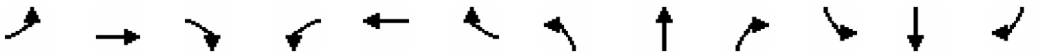
Intersection Summary												
HCM 7th Control Delay, s/veh			38.9									
HCM 7th LOS			D									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	767	2	1	1250	10	5	0	1	15	2	270
Future Volume (veh/h)	1	767	2	1	1250	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	767	2	1	1250	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	2469	6	40	2434	19	186	7	24	50	11	312
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	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	403	0	367	661	0	600	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	0.0	0.0	0.0	0.0	5.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	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	1337	0	1179	1327	0	1167	216	0	0	374	0	0
V/C Ratio(X)	0.30	0.00	0.31	0.50	0.00	0.51	0.03	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	1337	0	1179	1327	0	1167	397	0	0	614	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	0.64	0.00	0.64	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	28.0	0.0	0.0	34.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.6	0.9	0.0	1.0	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(50%),veh/ln	0.2	0.0	0.2	0.3	0.0	0.3	0.1	0.0	0.0	6.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.5	0.0	0.6	0.9	0.0	1.0	28.1	0.0	0.0	35.5	0.0	0.0
LnGrp LOS	A		A	A		A	C			D		
Approach Vol, veh/h		770			1261			6			287	
Approach Delay, s/veh		0.5			0.9			28.1			35.5	
Approach LOS		A			A			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		66.9		23.1		66.9		23.1				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		48.5		33.0		48.5		33.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		2.0		17.9				
Green Ext Time (p_c), s		3.7		0.0		7.5		1.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			5.1									
HCM 7th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	614	138	5	784	5	331	233	25	25	40	155
Future Volume (veh/h)	20	614	138	5	784	5	331	233	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		0.96	0.99		0.96	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	20	614	138	5	784	5	331	233	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	59	1223	270	43	1585	10	304	705	76	64	71	216
Arrive On Green	0.90	0.90	0.90	0.45	0.45	0.45	0.18	0.45	0.45	0.21	0.21	0.21
Sat Flow, veh/h	39	2724	601	5	3531	22	1711	1583	170	92	335	1017
Grp Volume(v), veh/h	414	0	358	416	0	378	331	0	258	220	0	0
Grp Sat Flow(s),veh/h/ln	1803	0	1561	1862	0	1697	1711	0	1753	1443	0	0
Q Serve(g_s), s	0.0	0.0	3.9	0.0	0.0	14.2	16.0	0.0	8.6	4.4	0.0	0.0
Cycle Q Clear(g_c), s	3.7	0.0	3.9	14.2	0.0	14.2	16.0	0.0	8.6	12.5	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	851	0	701	876	0	762	304	0	781	351	0	0
V/C Ratio(X)	0.49	0.00	0.51	0.47	0.00	0.50	1.09	0.00	0.33	0.63	0.00	0.00
Avail Cap(c_a), veh/h	851	0	701	876	0	762	304	0	838	396	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)	0.95	0.00	0.95	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.7	0.0	2.7	17.6	0.0	17.6	37.0	0.0	16.2	32.8	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.0	2.5	1.8	0.0	2.3	77.3	0.0	0.1	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	2.4	0.0	2.3	10.5	0.0	9.9	19.9	0.0	6.1	8.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	4.6	0.0	5.3	19.4	0.0	19.9	114.3	0.0	16.3	34.3	0.0	0.0
LnGrp LOS	A		A	B		B	F		B	C		
Approach Vol, veh/h		772			794			589			220	
Approach Delay, s/veh		4.9			19.6			71.4			34.3	
Approach LOS		A			B			E			C	

Timer - Assigned Phs	2	4	6	7	8
Phs Duration (G+Y+Rc), s	44.9	45.1	44.9	21.0	24.1
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	5.0
Max Green Setting (Gmax), s	37.5	43.0	37.5	16.0	22.0
Max Q Clear Time (g_c+I1), s	5.9	10.6	16.2	18.0	14.5
Green Ext Time (p_c), s	1.1	1.1	1.0	0.0	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	29.0
HCM 7th LOS	C

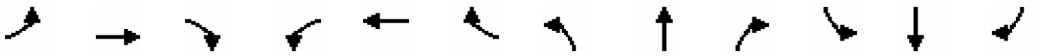
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	609	49	0	724	70	0	0	79	0	0	30
Future Vol, veh/h	0	609	49	0	724	70	0	0	79	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	609	49	0	724	70	0	0	79	0	0	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	497	-	-	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	521	0	0	502
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	441	-	-	443
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	14.94	13.72
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	441	-	-	-	-	443
HCM Lane V/C Ratio	0.179	-	-	-	-	0.068
HCM Ctrl Dly (s/v)	14.9	-	-	-	-	13.7
HCM Lane LOS	B	-	-	-	-	B
HCM 95th %tile Q(veh)	0.6	-	-	-	-	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	434	114	25	465	45	209	525	25	130	535	85
Future Volume (veh/h)	130	434	114	25	465	45	209	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	434	114	25	465	45	209	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	661	172	42	566	55	237	1219	58	389	1340	212
Arrive On Green	0.09	0.24	0.24	0.01	0.06	0.06	0.18	0.47	0.47	0.22	0.44	0.44
Sat Flow, veh/h	1795	2783	723	1781	3254	313	1781	3443	164	1781	3050	482
Grp Volume(v), veh/h	130	278	270	25	253	257	209	270	280	130	311	309
Grp Sat Flow(s),veh/h/ln	1795	1791	1716	1781	1777	1790	1781	1777	1829	1781	1777	1755
Q Serve(g_s), s	8.6	16.8	17.1	1.7	16.9	17.1	13.7	12.1	12.2	7.4	14.3	14.4
Cycle Q Clear(g_c), s	8.6	16.8	17.1	1.7	16.9	17.1	13.7	12.1	12.2	7.4	14.3	14.4
Prop In Lane	1.00		0.42	1.00		0.17	1.00		0.09	1.00		0.27
Lane Grp Cap(c), veh/h	156	425	407	42	309	312	237	629	648	389	781	771
V/C Ratio(X)	0.83	0.65	0.66	0.60	0.82	0.83	0.88	0.43	0.43	0.33	0.40	0.40
Avail Cap(c_a), veh/h	172	470	450	186	481	485	408	629	648	389	781	771
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	41.3	41.4	59.0	54.7	54.7	48.5	23.7	23.7	39.6	22.9	22.9
Incr Delay (d2), s/veh	24.0	1.9	2.3	4.9	3.2	3.6	5.2	2.1	2.1	0.2	1.5	1.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	7.7	7.6	0.8	8.4	8.6	6.3	5.1	5.3	3.3	6.4	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	77.9	43.2	43.7	63.9	57.8	58.3	53.7	25.8	25.8	39.8	24.4	24.4
LnGrp LOS	E	D	D	E	E	E	D	C	C	D	C	C
Approach Vol, veh/h		678			535			759			750	
Approach Delay, s/veh		50.1			58.3			33.5			27.1	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.5	58.2	14.9	25.4	31.7	48.0	7.3	33.0
Change Period (Y+Rc), s	5.5	5.5	4.5	4.5	5.5	5.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	28.5	11.5	32.5	13.5	42.5	12.5	31.5
Max Q Clear Time (g_c+I1), s	15.7	16.4	10.6	19.1	9.4	14.2	3.7	19.1
Green Ext Time (p_c), s	0.2	2.2	0.0	1.8	0.1	2.4	0.0	2.0

Intersection Summary	
HCM 7th Control Delay, s/veh	40.7
HCM 7th LOS	D

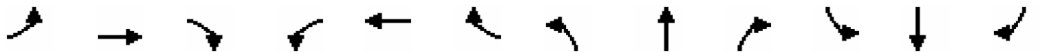
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↱			↑↑↱				↱			↱
Traffic Vol, veh/h	0	564	20	0	430	20	0	0	5	0	0	115
Future Vol, veh/h	0	564	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	564	20	0	430	20	0	0	5	0	0	115

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	356	-	-	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)	149	385	30	45	325	50	30	290	20	75	415	100
Future Volume (vph)	149	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)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
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)		3485			3388		1752	1807		1787	1881	1504
Flt Permitted		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3485			3388		1752	1807		1787	1881	1504
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)	149	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	28
Lane Group Flow (vph)	0	561	0	0	420	0	30	308	0	75	415	72
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	37.4		7.6	49.4	73.9
Effective Green, g (s)		24.5			19.5		4.6	37.4		7.6	49.4	73.9
Actuated g/C Ratio		0.20			0.16		0.04	0.31		0.06	0.41	0.62
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		711			550		67	563		113	774	926
v/s Ratio Prot		c0.16			c0.12		0.02	0.17		c0.04	c0.22	0.02
v/s Ratio Perm												0.03
v/c Ratio		0.79			0.76		0.45	0.55		0.66	0.54	0.08
Uniform Delay, d1		45.3			48.0		56.5	34.3		55.0	26.7	9.3
Progression Factor		0.54			1.00		1.18	1.01		1.00	1.00	1.00
Incremental Delay, d2		4.4			5.6		1.6	3.5		10.8	2.7	0.0
Delay (s)		29.1			53.7		68.0	38.1		65.7	29.3	9.3
Level of Service		C			D		E	D		E	C	A
Approach Delay (s/veh)		29.1			53.7			40.7			30.5	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	89	20	5	25	10	201	6	349	35	45	119	49
Future Vol, veh/h	89	20	5	25	10	201	6	349	35	45	119	49
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	89	20	5	25	10	201	6	349	35	45	119	49
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	10.7	11.5	15.5	11.4
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	78%	11%	21%
Vol Thru, %	89%	18%	4%	56%
Vol Right, %	9%	4%	85%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	390	114	236	213
LT Vol	6	89	25	45
Through Vol	349	20	10	119
RT Vol	35	5	201	49
Lane Flow Rate	390	114	236	213
Geometry Grp	1	1	1	1
Degree of Util (X)	0.579	0.194	0.356	0.331
Departure Headway (Hd)	5.345	6.118	5.424	5.591
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	675	584	661	641
Service Time	3.394	4.187	3.483	3.648
HCM Lane V/C Ratio	0.578	0.195	0.357	0.332
HCM Control Delay, s/veh	15.5	10.7	11.5	11.4
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.7	0.7	1.6	1.4

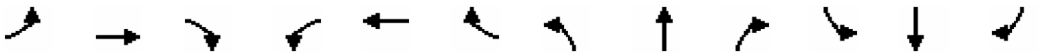
Intersection	
Int Delay, s/veh	12.9

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	29	10	20	55	35	97
Future Vol, veh/h	10	80	20	11	100	20	29	10	20	55	35	97
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	29	10	20	55	35	97

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	-	-	203	294	488	303	296	433
Mov Cap-2 Maneuver	-	-	-	-	-	-	203	294	-	303	296	-
Stage 1	-	-	-	-	-	-	614	573	-	591	554	-
Stage 2	-	-	-	-	-	-	423	546	-	625	570	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.78	0.72	21.98	25.67
HCM LOS			C	D

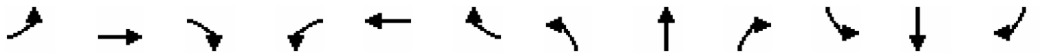
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	271	157	-	-	146	-	-	357
HCM Lane V/C Ratio	0.218	0.01	-	-	0.011	-	-	0.524
HCM Ctrl Dly (s/v)	22	8.6	0	-	8.6	0	-	25.7
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	2.9



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	484	5	125	534	30
Future Volume (veh/h)	30	55	45	20	105	255	10	484	5	125	534	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	484	5	125	534	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	53	2224	23	351	1503	86
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.65	0.65	0.65	0.21	0.21	0.21
Sat Flow, veh/h	171	523	367	42	444	991	34	3425	35	476	2315	132
Grp Volume(v), veh/h	130	0	0	380	0	0	260	0	239	311	0	378
Grp Sat Flow(s),veh/h/ln	1061	0	0	1477	0	0	1814	0	1679	1256	0	1667
Q Serve(g_s), s	0.0	0.0	0.0	15.1	0.0	0.0	0.0	0.0	7.0	20.4	0.0	23.1
Cycle Q Clear(g_c), s	8.7	0.0	0.0	30.1	0.0	0.0	6.8	0.0	7.0	27.4	0.0	23.1
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	1209	0	1090	858	0	1082
V/C Ratio(X)	0.39	0.00	0.00	0.87	0.00	0.00	0.21	0.00	0.22	0.36	0.00	0.35
Avail Cap(c_a), veh/h	472	0	0	590	0	0	1209	0	1090	858	0	1082
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	0.55	0.00	0.00	1.00	0.00	1.00	0.90	0.00	0.90
Uniform Delay (d), s/veh	34.3	0.0	0.0	42.3	0.0	0.0	8.6	0.0	8.6	28.0	0.0	25.6
Incr Delay (d2), s/veh	0.3	0.0	0.0	4.7	0.0	0.0	0.4	0.0	0.5	1.1	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	3.1	0.0	0.0	11.6	0.0	0.0	2.9	0.0	2.7	8.9	0.0	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.6	0.0	0.0	47.0	0.0	0.0	9.0	0.0	9.1	29.0	0.0	26.4
LnGrp LOS	C			D			A		A	C		C
Approach Vol, veh/h		130			380			499			689	
Approach Delay, s/veh		34.6			47.0			9.0			27.6	
Approach LOS		C			D			A			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.4		37.6		82.4		37.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		65.5		45.5		65.5		45.5				
Max Q Clear Time (g_c+I1), s		9.0		10.7		29.4		32.1				
Green Ext Time (p_c), s		0.6		0.4		1.1		1.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			27.0									
HCM 7th LOS			C									



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)		5.5			5.5		5.5	5.5		5.5	5.5	
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)		1630			1675		1736	1784		1770	1807	
Flt Permitted		0.71			0.95		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1166			1593		1736	1784		1770	1807	
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	9	0	0	6	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	221	0	0	279	0	10	242	0	60	444	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)		26.7			26.7		1.3	43.4		7.5	75.5	
Effective Green, g (s)		26.7			26.7		1.3	43.4		7.5	75.5	
Actuated g/C Ratio		0.22			0.22		0.01	0.36		0.06	0.63	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		259			354		18	645		110	1136	
v/s Ratio Prot							0.01	0.14		c0.03	c0.25	
v/s Ratio Perm		c0.19			0.18							
v/c Ratio		0.85			0.79		0.56	0.38		0.55	0.39	
Uniform Delay, d1		44.8			44.0		59.1	28.3		54.6	10.9	
Progression Factor		1.15			1.00		1.28	0.25		1.20	0.34	
Incremental Delay, d2		22.2			11.0		19.0	1.6		2.6	0.9	
Delay (s)		73.7			55.0		94.7	8.6		68.3	4.6	
Level of Service		E			D		F	A		E	A	
Approach Delay (s/veh)		73.7			55.0			12.0			12.2	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	67.0%	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	24	55	10	475	595	9
Future Vol, veh/h	24	55	10	475	595	9
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	24	55	10	475	595	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1027	413	689	0	-	0
Stage 1	685	-	-	-	-	-
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	234	594	895	-	-	-
Stage 1	468	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	195	532	822	-	-	-
Mov Cap-2 Maneuver	195	-	-	-	-	-
Stage 1	424	-	-	-	-	-
Stage 2	640	-	-	-	-	-

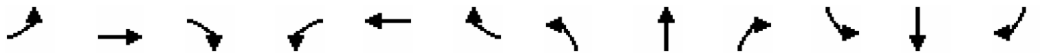
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	18.33	0.32	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	74	-	349	-	-
HCM Lane V/C Ratio	0.012	-	0.227	-	-
HCM Ctrl Dly (s/v)	9.4	0.1	18.3	-	-
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)	4.5		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)	1684		1819			3574
Flt Permitted	0.97		1.00			0.95
Satd. Flow (perm)	1684		1819			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			90.5
Effective Green, g (s)	20.0		76.0			90.5
Actuated g/C Ratio	0.17		0.63			0.75
Clearance Time (s)	4.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	280		1152			2573
v/s Ratio Prot	c0.02		c0.16			
v/s Ratio Perm						c0.14
v/c Ratio	0.10		0.25			0.18
Uniform Delay, d1	42.3		9.6			4.2
Progression Factor	1.00		0.74			0.66
Incremental Delay, d2	0.1		0.5			0.1
Delay (s)	42.4		7.6			2.9
Level of Service	D		A			A
Approach Delay (s/veh)	42.4		7.6			2.9
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.4	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)	12.5
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	560	90	0	455	150	35	110	5	320	200	10
Future Volume (veh/h)	0	560	90	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	0.98		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	90	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	1921	308	0	1626	531	254	486	22	346	491	25
Arrive On Green	0.00	0.63	0.63	0.00	0.63	0.63	0.28	0.28	0.28	0.09	0.09	0.09
Sat Flow, veh/h	0	3147	489	0	2677	843	1127	1742	79	1239	1760	88
Grp Volume(v), veh/h	0	325	325	0	309	296	35	0	115	320	0	210
Grp Sat Flow(s),veh/h/ln	0	1777	1765	0	1763	1665	1127	0	1821	1239	0	1848
Q Serve(g_s), s	0.0	10.0	10.0	0.0	9.5	9.6	3.2	0.0	5.8	27.7	0.0	12.9
Cycle Q Clear(g_c), s	0.0	10.0	10.0	0.0	9.5	9.6	16.0	0.0	5.8	33.5	0.0	12.9
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	1118	1111	0	1109	1047	254	0	508	346	0	516
V/C Ratio(X)	0.00	0.29	0.29	0.00	0.28	0.28	0.14	0.00	0.23	0.93	0.00	0.41
Avail Cap(c_a), veh/h	0	1118	1111	0	1109	1047	254	0	508	346	0	516
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)	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	42.5	0.0	33.3	58.9	0.0	45.1
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.0	0.6	0.7	0.5	0.0	0.5	29.5	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	4.1	4.1	0.0	3.8	3.7	0.9	0.0	2.7	13.2	0.0	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.8	10.8	0.0	10.6	10.7	43.0	0.0	33.8	88.4	0.0	45.3
LnGrp LOS		B	B		B	B	D		C	F		D
Approach Vol, veh/h		650			605			150			530	
Approach Delay, s/veh		10.8			10.7			35.9			71.3	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	81.0	39.0	81.0	39.0
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	38.5	31.5	38.5	33.5
Max Q Clear Time (g_c+I1), s	12.0	18.0	11.6	35.5
Green Ext Time (p_c), s	0.8	1.0	0.8	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	29.3
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	285	20	120	50	20	25	25	80	10	10	80	44
Future Vol, veh/h	285	20	120	50	20	25	25	80	10	10	80	44
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	285	20	120	50	20	25	25	80	10	10	80	44
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	9.1	9.8	9.8
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	67%	53%	7%
Vol Thru, %	70%	5%	21%	60%
Vol Right, %	9%	28%	26%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	425	95	134
LT Vol	25	285	50	10
Through Vol	80	20	20	80
RT Vol	10	120	25	44
Lane Flow Rate	115	425	95	134
Geometry Grp	1	1	1	1
Degree of Util (X)	0.179	0.553	0.138	0.201
Departure Headway (Hd)	5.615	4.68	5.224	5.397
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	642	761	691	667
Service Time	3.625	2.761	3.224	3.406
HCM Lane V/C Ratio	0.179	0.558	0.137	0.201
HCM Control Delay, s/veh	9.8	13.5	9.1	9.8
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.6	3.4	0.5	0.7

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	20	15	130	276	20
Future Vol, veh/h	20	20	15	130	276	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	15	130	276	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	544	386	346	0	-	0
Stage 1	336	-	-	-	-	-
Stage 2	208	-	-	-	-	-
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	497	657	1191	-	-	-
Stage 1	719	-	-	-	-	-
Stage 2	822	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	444	596	1134	-	-	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.67	0.85	0
HCM LOS	B		

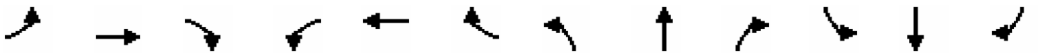
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1134	-	509	-	-
HCM Lane V/C Ratio	0.013	-	0.079	-	-
HCM Ctrl Dly (s/v)	8.2	-	12.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

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	174
Future Vol, veh/h	64	20	25	50	75	174
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	174
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	249
LT Vol	64	0	75
Through Vol	20	25	0
RT Vol	0	50	174
Lane Flow Rate	84	75	249
Geometry Grp	1	1	1
Degree of Util (X)	0.111	0.09	0.278
Departure Headway (Hd)	4.756	4.323	4.017
Convergence, Y/N	Yes	Yes	Yes
Cap	755	831	896
Service Time	2.773	2.339	2.028
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



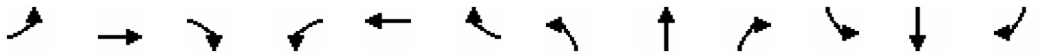
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	465	35	20	430	40	10	5	2	49	10	145
Future Volume (veh/h)	75	465	35	20	430	40	10	5	2	49	10	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	49	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	379	656	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	628	526	154	1313	94	1363
Grp Volume(v), veh/h	75	0	500	20	0	470	17	0	0	49	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	0.6	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	379	0	705	360	0	697	619	0	0	695	0	489
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	761	0	1480	730	0	1463	830	0	0	893	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(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	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.1	0.0	8.8	11.7	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			204	
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		16.6		15.2		16.6		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

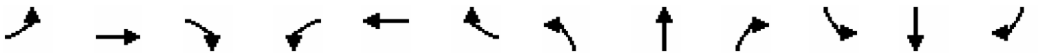
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	488	235	0	0	0	0	0	0	305	1175	0
Future Volume (veh/h)	0	488	235	0	0	0	0	0	0	305	1175	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	503	242							314	1211	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							555	2142	0
Arrive On Green	0.00	0.38	0.38							0.52	0.52	0.00
Sat Flow, veh/h	0	3618	1517							1075	4314	0
Grp Volume(v), veh/h	0	503	242							531	994	0
Grp Sat Flow(s),veh/h/ln	0	1763	1517							1817	1702	0
Q Serve(g_s), s	0.0	9.2	10.5							18.0	17.9	0.0
Cycle Q Clear(g_c), s	0.0	9.2	10.5							18.0	17.9	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	0.37	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(50%),veh/ln	0.0	3.9	4.0							7.7	6.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	20.7	22.5							17.3	16.2	0.0
LnGrp LOS		C	C							B	B	
Approach Vol, veh/h		745									1525	
Approach Delay, s/veh		21.3									16.6	
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		20.0				
Green Ext Time (p_c), s						0.7		2.6				

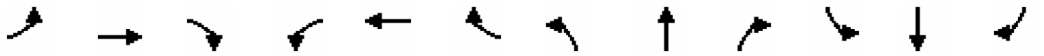
Intersection Summary												
HCM 7th Control Delay, s/veh			18.1									
HCM 7th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	218	0	0	0	287	0	668	55	0	0	0
Future Volume (veh/h)	210	218	0	0	0	287	0	668	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	237	0	0	0	312	0	726	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	273	0	0	0	743	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	486	563	0	0	0	1530		0				
Grp Volume(v), veh/h	465	0	0	0	0	312		0.0				
Grp Sat Flow(s),veh/h/ln	1048	0	0	0	0	1530						
Q Serve(g_s), s	27.4	0.0	0.0	0.0	0.0	11.9						
Cycle Q Clear(g_c), s	39.3	0.0	0.0	0.0	0.0	11.9						
Prop In Lane	0.49		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	569	0	0	0	0	743						
V/C Ratio(X)	0.82	0.00	0.00	0.00	0.00	0.42						
Avail Cap(c_a), veh/h	679	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	26.2	0.0	0.0	0.0	0.0	15.0						
Incr Delay (d2), s/veh	6.7	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	10.2	0.0	0.0	0.0	0.0	4.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.8	0.0	0.0	0.0	0.0	15.3						
LnGrp LOS	C					B						
Approach Vol, veh/h		465			312							
Approach Delay, s/veh		32.8			15.3							
Approach LOS		C			B							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				48.7				48.7				
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				41.3				13.9				
Green Ext Time (p_c), s				2.4				2.5				

Intersection Summary												
HCM 7th Control Delay, s/veh			25.8									
HCM 7th LOS			C									



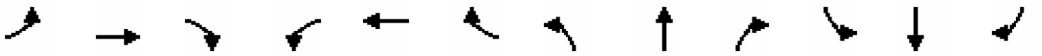
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	222	210	858	391	0	0	0	0	535	715	155
Future Volume (veh/h)	0	222	210	858	391	0	0	0	0	535	715	155
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	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	231	0	894	407	0				557	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	681		1038	1022	0				612	1222	538
Arrive On Green	0.00	0.20	0.00	0.10	0.18	0.00				0.11	0.11	0.11
Sat Flow, veh/h	0	3532	1535	3428	1856	0				1781	3554	1566
Grp Volume(v), veh/h	0	231	0	894	407	0				557	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	23.1	17.4	0.0				27.8	18.0	8.5
Cycle Q Clear(g_c), s	0.0	5.2	0.0	23.1	17.4	0.0				27.8	18.0	8.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	681		1038	1022	0				612	1222	538
V/C Ratio(X)	0.00	0.34		0.86	0.40	0.00				0.91	0.61	0.30
Avail Cap(c_a), veh/h	0	681		1038	1022	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	0.59	0.59	0.00				0.81	0.81	0.81
Uniform Delay (d), s/veh	0.0	31.0	0.0	38.6	23.7	0.0				38.5	34.1	29.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	4.4	0.7	0.0				13.2	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(50%),veh/ln	0.0	2.2	0.0	11.2	8.8	0.0				15.5	8.6	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	31.1	0.0	43.1	24.4	0.0				51.7	34.5	30.0
LnGrp LOS		C		D	C					D	C	C
Approach Vol, veh/h		231			1301						1463	
Approach Delay, s/veh		31.1			37.2						40.6	
Approach LOS		C			D						D	

Timer - Assigned Phs	2	3	4					8				
Phs Duration (G+Y+Rc), s	35.9	31.7	22.3					54.1				
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	29.8	25.1	7.2					19.4				
Green Ext Time (p_c), s	1.1	0.1	0.4					1.0				

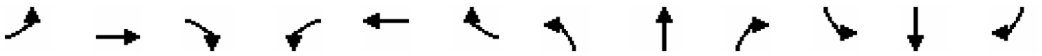
Intersection Summary	
HCM 7th Control Delay, s/veh	38.4
HCM 7th LOS	D

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



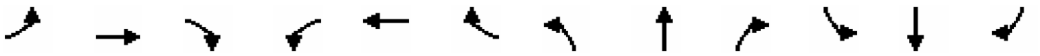
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	672	0	0	914	293	340	365	571	0	0	0
Future Volume (veh/h)	85	672	0	0	914	293	340	365	571	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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	693	0	0	942	302	351	376	589			
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	1157	369	608	639	539			
Arrive On Green	0.06	0.56	0.00	0.00	0.89	0.89	0.34	0.34	0.34			
Sat Flow, veh/h	1753	3589	0	0	2678	825	1795	1885	1589			
Grp Volume(v), veh/h	88	693	0	0	635	609	351	376	589			
Grp Sat Flow(s),veh/h/ln	1753	1749	0	0	1749	1663	1795	1885	1589			
Q Serve(g_s), s	4.5	9.8	0.0	0.0	12.6	13.0	14.5	14.8	30.5			
Cycle Q Clear(g_c), s	4.5	9.8	0.0	0.0	12.6	13.0	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	744	608	639	539			
V/C Ratio(X)	0.79	0.35	0.00	0.00	0.81	0.82	0.58	0.59	1.09			
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	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.59	0.59	0.00	0.00	0.85	0.85	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.5	10.8	0.0	0.0	3.3	3.3	24.4	24.6	29.8			
Incr Delay (d2), s/veh	8.2	0.3	0.0	0.0	7.8	8.4	0.9	1.0	66.8			
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	2.2	3.7	0.0	0.0	3.1	3.1	5.9	6.4	20.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.7	11.1	0.0	0.0	11.0	11.7	25.3	25.5	96.5			
LnGrp LOS	D	B			B	B	C	C	F			
Approach Vol, veh/h		781			1244			1316				
Approach Delay, s/veh		15.5			11.4			57.3				
Approach LOS		B			B			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		11.8			6.5	15.0				
Green Ext Time (p_c), s		0.0		3.8			0.0	6.8				
Intersection Summary												
HCM 7th Control Delay, s/veh			30.4									
HCM 7th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	1288	5	3	1107	5	1	0	2	10	3	105
Future Volume (veh/h)	15	1288	5	3	1107	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)	0.99		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	1370	5	3	1178	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	53	2764	10	41	2782	12	84	16	94	51	12	159
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.11	0.00	0.11	0.11	0.11	0.11
Sat Flow, veh/h	15	3496	13	1	3519	15	271	139	820	69	105	1385
Grp Volume(v), veh/h	722	0	669	621	0	565	3	0	0	126	0	0
Grp Sat Flow(s),veh/h/ln	1825	0	1699	1850	0	1685	1231	0	0	1558	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	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	1484	0	1343	1503	0	1332	195	0	0	223	0	0
V/C Ratio(X)	0.49	0.00	0.50	0.41	0.00	0.42	0.02	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	1484	0	1343	1503	0	1332	322	0	0	405	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.00	0.76	0.64	0.00	0.64	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	35.3	0.0	0.0	38.3	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	1.0	0.5	0.0	0.6	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	0.4	0.0	0.4	0.2	0.0	0.2	0.1	0.0	0.0	2.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.9	0.0	1.0	0.5	0.0	0.6	35.3	0.0	0.0	39.2	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		1391			1186			3			126	
Approach Delay, s/veh		0.9			0.6			35.3			39.2	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	75.7	14.3	75.7	14.3
Change Period (Y+Rc), s	4.5	4.0	4.5	4.0
Max Green Setting (Gmax), s	60.5	21.0	60.5	21.0
Max Q Clear Time (g_c+I1), s	2.0	2.2	2.0	9.0
Green Ext Time (p_c), s	9.3	0.0	6.9	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	2.6
HCM 7th LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	840	408	12	810	25	257	262	30	35	78	60
Future Volume (veh/h)	15	840	408	12	810	25	257	262	30	35	78	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		0.97	1.00		0.97	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	429	13	853	26	271	276	32	37	82	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	49	1054	500	50	1602	48	268	663	77	86	156	103
Arrive On Green	0.95	0.95	0.95	0.48	0.48	0.48	0.16	0.42	0.42	0.21	0.21	0.21
Sat Flow, veh/h	16	2217	1051	18	3369	102	1725	1583	184	183	749	494
Grp Volume(v), veh/h	733	0	596	463	0	429	271	0	308	182	0	0
Grp Sat Flow(s),veh/h/ln	1824	0	1460	1808	0	1680	1725	0	1766	1426	0	0
Q Serve(g_s), s	0.0	0.0	9.8	0.0	0.0	16.2	14.0	0.0	11.0	3.7	0.0	0.0
Cycle Q Clear(g_c), s	8.3	0.0	9.8	15.5	0.0	16.2	14.0	0.0	11.0	9.9	0.0	0.0
Prop In Lane	0.02		0.72	0.03		0.06	1.00		0.10	0.20		0.35
Lane Grp Cap(c), veh/h	908	0	694	901	0	799	268	0	740	345	0	0
V/C Ratio(X)	0.81	0.00	0.86	0.51	0.00	0.54	1.01	0.00	0.42	0.53	0.00	0.00
Avail Cap(c_a), veh/h	908	0	694	901	0	799	268	0	785	379	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)	0.76	0.00	0.76	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.4	0.0	1.4	16.5	0.0	16.6	38.0	0.0	18.4	32.0	0.0	0.0
Incr Delay (d2), s/veh	5.9	0.0	10.3	2.1	0.0	2.6	57.5	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(95%),veh/ln	4.0	0.0	4.7	11.3	0.0	10.8	15.4	0.0	7.9	6.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.3	0.0	11.7	18.5	0.0	19.2	95.5	0.0	18.5	32.5	0.0	0.0
LnGrp LOS	A		B	B		B	F		B	C		
Approach Vol, veh/h		1329			892			579			182	
Approach Delay, s/veh		9.2			18.9			54.6			32.5	
Approach LOS		A			B			D			C	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		47.3		42.7		47.3	19.0	23.7				
Change Period (Y+Rc), s		4.5		5.0		4.5	5.0	5.0				
Max Green Setting (Gmax), s		40.5		40.0		40.5	14.0	21.0				
Max Q Clear Time (g_c+I1), s		11.8		13.0		18.2	16.0	11.9				
Green Ext Time (p_c), s		2.2		1.3		1.2	0.0	0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			22.3									
HCM 7th LOS			C									

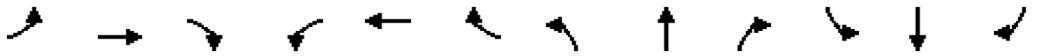
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↱			↑↱				↱			↱
Traffic Vol, veh/h	0	720	195	0	827	50	0	0	35	0	0	5
Future Vol, veh/h	0	720	195	0	827	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	766	207	0	880	53	0	0	37	0	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	619	-	-	608
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	-	-	-	-	-	-	-	-	377	-	-	385
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	15.6	14.48
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	377	-	-	-	-	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	430	110	15	507	85	265	645	10	85	275	95
Future Volume (veh/h)	185	430	110	15	507	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	448	115	16	528	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	860	219	30	611	102	299	1199	18	293	845	284
Arrive On Green	0.12	0.31	0.31	0.01	0.07	0.07	0.34	0.68	0.68	0.17	0.34	0.34
Sat Flow, veh/h	1767	2771	705	1767	3006	504	1767	3553	53	1739	2511	844
Grp Volume(v), veh/h	193	284	279	16	309	308	276	333	349	89	195	190
Grp Sat Flow(s),veh/h/ln	1767	1763	1713	1767	1763	1748	1767	1763	1843	1739	1735	1620
Q Serve(g_s), s	12.9	15.9	16.1	1.1	20.8	21.0	18.0	11.9	11.9	5.4	10.1	10.6
Cycle Q Clear(g_c), s	12.9	15.9	16.1	1.1	20.8	21.0	18.0	11.9	11.9	5.4	10.1	10.6
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	547	532	30	358	355	299	595	622	293	584	545
V/C Ratio(X)	0.88	0.52	0.53	0.53	0.86	0.87	0.92	0.56	0.56	0.30	0.33	0.35
Avail Cap(c_a), veh/h	258	547	532	155	419	415	405	595	622	293	584	545
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	0.94	0.94	0.94	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	34.0	34.1	59.2	54.3	54.4	38.9	14.8	14.8	43.7	29.7	29.9
Incr Delay (d2), s/veh	22.4	0.4	0.5	5.1	13.4	14.3	18.4	3.6	3.4	0.2	1.5	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	7.1	6.9	6.9	0.5	11.2	11.3	8.2	4.1	4.2	2.4	4.5	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	74.1	34.4	34.6	64.3	67.7	68.7	57.3	18.4	18.3	44.0	31.3	31.7
LnGrp LOS	E	C	C	E	E	E	E	B	B	D	C	C
Approach Vol, veh/h		756			633			958			474	
Approach Delay, s/veh		44.6			68.1			29.6			33.8	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.8	45.9	19.4	28.9	25.7	46.0	6.6	41.7
Change Period (Y+Rc), s	5.5	5.5	4.5	4.5	5.5	5.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	26.5	17.5	28.5	13.5	40.5	10.5	35.5
Max Q Clear Time (g_c+I1), s	20.0	12.6	14.9	23.0	7.4	13.9	3.1	18.1
Green Ext Time (p_c), s	0.3	1.4	0.1	1.4	0.0	3.0	0.0	2.3

Intersection Summary	
HCM 7th Control Delay, s/veh	42.9
HCM 7th LOS	D

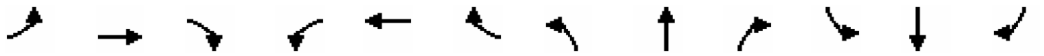
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↱			↑↱				↱			↱
Traffic Vol, veh/h	0	460	60	0	502	65	0	0	2	0	0	135
Future Vol, veh/h	0	460	60	0	502	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	484	63	0	528	68	0	0	2	0	0	142

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	324	-	-	382
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	678	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	-	-	-	-	-	-	-	-	646	-	-	573
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	10.59	13.35
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	646	-	-	-	-	573
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)	179	261	10	20	501	60	30	289	17	40	162	66
Future Volume (vph)	179	261	10	20	501	60	30	289	17	40	162	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
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)		3373			3409		1671	1730		1703	1792	1459
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3373			3409		1671	1730		1703	1792	1459
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)	188	275	11	21	527	63	32	304	18	42	171	69
RTOR Reduction (vph)	0	2	0	0	0	0	0	1	0	0	0	31
Lane Group Flow (vph)	0	472	0	0	611	0	32	321	0	42	171	38
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			26.3		4.8	37.4		6.3	46.1	66.9
Effective Green, g (s)		20.8			26.3		4.8	37.4		6.3	46.1	66.9
Actuated g/C Ratio		0.17			0.22		0.04	0.31		0.05	0.38	0.56
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		584			747		66	539		89	688	813
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		0.81			0.82		0.48	0.59		0.47	0.25	0.05
Uniform Delay, d1		47.7			44.6		56.4	34.9		55.2	25.2	12.1
Progression Factor		0.93			1.00		1.42	0.54		1.00	1.00	1.00
Incremental Delay, d2		6.9			6.6		1.8	4.2		1.4	0.9	0.0
Delay (s)		51.4			51.2		81.6	23.0		56.7	26.0	12.1
Level of Service		D			D		F	C		E	C	B
Approach Delay (s/veh)		51.4			51.2			28.3			27.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

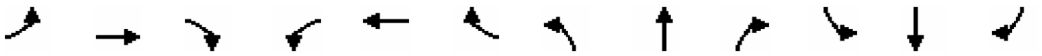
Intersection	
Int Delay, s/veh	9.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	72	15	5	95	65	10	15	10	40	20	85
Future Vol, veh/h	40	72	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	78	16	5	103	71	11	16	11	43	22	92

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	325	0	0	267	0	0	642	681	388	604	654	462
Stage 1	-	-	-	-	-	-	345	345	-	300	300	-
Stage 2	-	-	-	-	-	-	297	336	-	303	354	-
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	-	-	1247	-	-	381	368	651	412	387	602
Stage 1	-	-	-	-	-	-	662	629	-	711	667	-
Stage 2	-	-	-	-	-	-	703	635	-	708	632	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1015	-	-	1043	-	-	183	250	477	269	263	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	183	250	-	269	263	-
Stage 1	-	-	-	-	-	-	529	502	-	605	568	-
Stage 2	-	-	-	-	-	-	442	540	-	560	505	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.74	0.26	21.35	24.05
HCM LOS			C	C

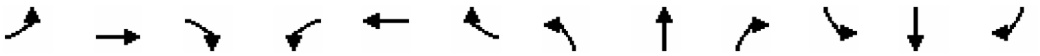
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	258	548	-	-	50	-	-	344
HCM Lane V/C Ratio	0.147	0.043	-	-	0.005	-	-	0.459
HCM Ctrl Dly (s/v)	21.3	8.7	0	-	8.5	0	-	24.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	2.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	77	20	10	75	190	30	710	45	170	185	45
Future Volume (veh/h)	15	77	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	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	84	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	56	240	58	36	96	225	97	2194	138	513	901	220
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	101	1091	262	24	435	1022	93	3113	195	642	1278	312
Grp Volume(v), veh/h	122	0	0	300	0	0	446	0	408	185	0	250
Grp Sat Flow(s),veh/h/ln	1455	0	0	1481	0	0	1776	0	1625	642	0	1590
Q Serve(g_s), s	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.7	0.0	0.0	23.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.13		0.18	0.04		0.69	0.07		0.12	1.00		0.20
Lane Grp Cap(c), veh/h	354	0	0	357	0	0	1284	0	1146	513	0	1121
V/C Ratio(X)	0.34	0.00	0.00	0.84	0.00	0.00	0.35	0.00	0.36	0.36	0.00	0.22
Avail Cap(c_a), veh/h	466	0	0	468	0	0	1284	0	1146	513	0	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	0.00	0.58	0.00	0.00	1.00	0.00	1.00	0.93	0.00	0.93
Uniform Delay (d), s/veh	39.5	0.0	0.0	45.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	4.9	0.0	0.0	0.7	0.0	0.9	1.8	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	3.1	0.0	0.0	9.3	0.0	0.0	0.3	0.0	0.3	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	39.7	0.0	0.0	50.6	0.0	0.0	0.7	0.0	0.9	1.8	0.0	0.4
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		122			300			854			435	
Approach Delay, s/veh		39.7			50.6			0.8			1.0	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		89.1		30.9		89.1		30.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		75.5		35.5		75.5		35.5				
Max Q Clear Time (g_c+I1), s		2.0		9.7		2.0		25.8				
Green Ext Time (p_c), s		1.1		0.3		1.4		0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.4									
HCM 7th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	156	20	17	210	55	15	260	10	35	132	80
Future Volume (vph)	21	156	20	17	210	55	15	260	10	35	132	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
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)		1600			1690		1671	1738		1719	1549	
Flt Permitted		0.90			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1441			1654		1671	1738		1719	1549	
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)	22	162	21	18	219	57	16	271	10	36	138	83
RTOR Reduction (vph)	0	4	0	0	9	0	0	1	0	0	12	0
Lane Group Flow (vph)	0	202	0	0	285	0	16	280	0	36	209	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)		26.9			26.9		2.8	36.2		5.0	73.8	
Effective Green, g (s)		26.9			26.9		2.8	36.2		5.0	73.8	
Actuated g/C Ratio		0.22			0.22		0.02	0.30		0.04	0.62	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		323			370		38	524		71	952	
v/s Ratio Prot							0.01	c0.16		c0.02	c0.13	
v/s Ratio Perm		0.14			c0.17							
v/c Ratio		0.63			0.77		0.42	0.53		0.51	0.22	
Uniform Delay, d1		42.0			43.7		57.8	34.9		56.3	10.3	
Progression Factor		0.91			1.00		1.37	0.33		1.10	0.51	
Incremental Delay, d2		3.6			9.6		2.6	3.7		2.0	0.5	
Delay (s)		41.9			53.3		82.1	15.2		63.7	5.7	
Level of Service		D			D		F	B		E	A	
Approach Delay (s/veh)		41.9			53.3			18.8			13.9	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	51.3%	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	-	-	-	-	-

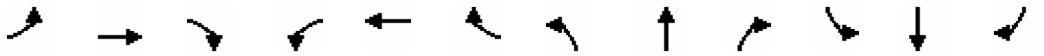
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.19	0.77	0
HCM LOS	C		

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	149
Future Volume (vph)	5	5	300	15	0	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.89		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)	1427		1744			3406
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	1427		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	164
RTOR Reduction (vph)	4	0	1	0	0	0
Lane Group Flow (vph)	6	0	345	0	0	164
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			90.5
Effective Green, g (s)	20.0		78.0			90.5
Actuated g/C Ratio	0.17		0.65			0.75
Clearance Time (s)	4.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	237		1133			2568
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			3.8
Progression Factor	1.00		0.29			1.23
Incremental Delay, d2	0.0		0.5			0.0
Delay (s)	41.9		3.2			4.7
Level of Service	D		A			A
Approach Delay (s/veh)	41.9		3.2			4.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	41.4%	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	5	715	175	95	130	2	100	59	5
Future Volume (veh/h)	0	165	35	5	715	175	95	130	2	100	59	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	0.98		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	1826	1826	1826	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	0	179	38	5	777	190	103	141	2	109	64	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	2007	415	33	1877	457	277	374	5	226	344	27
Arrive On Green	0.00	0.70	0.70	0.70	0.70	0.70	0.21	0.21	0.21	0.07	0.07	0.07
Sat Flow, veh/h	0	2960	593	4	2682	653	1261	1794	25	1176	1651	129
Grp Volume(v), veh/h	0	107	110	531	0	441	103	0	143	109	0	69
Grp Sat Flow(s),veh/h/ln	0	1749	1713	1823	0	1516	1261	0	1819	1176	0	1779
Q Serve(g_s), s	0.0	2.4	2.5	0.0	0.0	14.8	8.8	0.0	8.1	10.9	0.0	4.4
Cycle Q Clear(g_c), s	0.0	2.4	2.5	14.8	0.0	14.8	13.2	0.0	8.1	19.0	0.0	4.4
Prop In Lane	0.00		0.35	0.01		0.43	1.00		0.01	1.00		0.07
Lane Grp Cap(c), veh/h	0	1224	1198	1306	0	1061	277	0	379	226	0	371
V/C Ratio(X)	0.00	0.09	0.09	0.41	0.00	0.42	0.37	0.00	0.38	0.48	0.00	0.19
Avail Cap(c_a), veh/h	0	1224	1198	1306	0	1061	345	0	478	309	0	497
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)	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	5.8	5.8	7.6	0.0	7.6	44.8	0.0	40.8	57.1	0.0	46.3
Incr Delay (d2), s/veh	0.0	0.1	0.2	0.9	0.0	1.2	1.8	0.0	1.3	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	0.9	0.9	5.8	0.0	4.9	2.9	0.0	3.8	3.5	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	5.9	5.9	8.6	0.0	8.8	46.6	0.0	42.1	57.7	0.0	46.4
LnGrp LOS		A	A	A		A	D		D	E		D
Approach Vol, veh/h		217			972			246			178	
Approach Delay, s/veh		5.9			8.7			44.0			53.3	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	89.5	30.5	89.5	30.5
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	38.5	31.5	38.5	33.5
Max Q Clear Time (g_c+I1), s	4.5	15.2	16.8	21.0
Green Ext Time (p_c), s	0.3	1.9	1.3	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	18.6
HCM 7th LOS	B

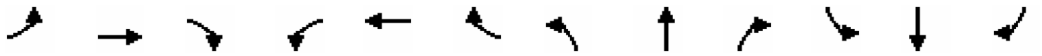
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	10	25	230	70	29
Future Vol, veh/h	15	10	25	230	70	29
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	33

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	458	142	135	0	-	0
Stage 1	119	-	-	-	-	-
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	536	870	1425	-	-	-
Stage 1	873	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	502	831	1392	-	-	-
Mov Cap-2 Maneuver	502	-	-	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.34	0.75	0
HCM LOS	B		

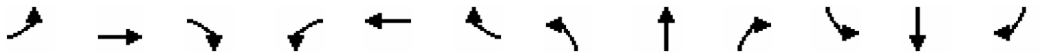
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1392	-	596	-	-
HCM Lane V/C Ratio	0.02	-	0.047	-	-
HCM Ctrl Dly (s/v)	7.6	-	11.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	541	270	0	0	0	0	0	0	260	822	0
Future Volume (veh/h)	0	541	270	0	0	0	0	0	0	260	822	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	588	293							283	893	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							446	1407	0
Arrive On Green	0.00	0.55	0.55							0.35	0.35	0.00
Sat Flow, veh/h	0	3705	1579							1273	4192	0
Grp Volume(v), veh/h	0	588	293							408	768	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							16.7	16.7	0.0
Cycle Q Clear(g_c), s	0.0	7.9	9.2							16.7	16.7	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	0.63	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							8.0	7.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	11.3	12.2							29.2	27.0	0.0
LnGrp LOS		B	B							C	C	
Approach Vol, veh/h		881									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						11.2		18.7				
Green Ext Time (p_c), s						0.9		1.7				

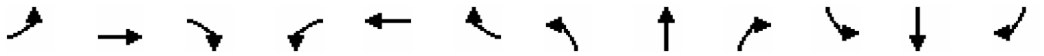
Intersection Summary												
HCM 7th Control Delay, s/veh			20.8									
HCM 7th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	141	0	0	0	577	0	601	45	0	0	0
Future Volume (veh/h)	45	141	0	0	0	577	0	601	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	152	0	0	0	620	0	646	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	103	285	0	0	0	693	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	62	624	0	0	0	1519		0				
Grp Volume(v), veh/h	200	0	0	0	0	620		0.0				
Grp Sat Flow(s),veh/h/ln	686	0	0	0	0	1519						
Q Serve(g_s), s	2.6	0.0	0.0	0.0	0.0	22.5						
Cycle Q Clear(g_c), s	25.1	0.0	0.0	0.0	0.0	22.5						
Prop In Lane	0.24		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	387	0	0	0	0	693						
V/C Ratio(X)	0.52	0.00	0.00	0.00	0.00	0.89						
Avail Cap(c_a), veh/h	498	0	0	0	0	810						
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	12.5	0.0	0.0	0.0	0.0	15.0						
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	11.3						
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	0.0	0.0	8.9						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.6	0.0	0.0	0.0	0.0	26.2						
LnGrp LOS	B					C						
Approach Vol, veh/h		200			620							
Approach Delay, s/veh		13.6			26.2							
Approach LOS		B			C							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				32.4				32.4				
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				27.1				24.5				
Green Ext Time (p_c), s				0.5				2.9				

Intersection Summary												
HCM 7th Control Delay, s/veh			23.1									
HCM 7th LOS			C									



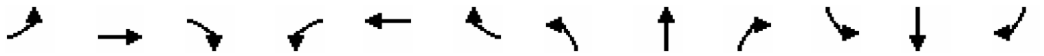
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	151	450	1063	308	0	0	0	0	157	880	125
Future Volume (veh/h)	0	151	450	1063	308	0	0	0	0	157	880	125
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				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	156	0	1096	318	0				162	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	782		1172	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	156	0	1096	318	0				162	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	26.3	0.0	0.0				7.6	22.5	7.0
Cycle Q Clear(g_c), s	0.0	3.2	0.0	26.3	0.0	0.0				7.6	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	782		1172	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	782		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	0.58	0.58	0.00				0.79	0.79	0.79
Uniform Delay (d), s/veh	0.0	28.5	0.0	18.6	0.0	0.0				32.7	39.4	32.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	7.5	0.4	0.0				0.1	7.3	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(50%),veh/ln	0.0	1.4	0.0	8.7	0.1	0.0				3.5	11.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	28.6	0.0	26.1	0.4	0.0				32.8	46.7	32.5
LnGrp LOS		C		C	A					C	D	C
Approach Vol, veh/h		156			1414						1198	
Approach Delay, s/veh		28.6			20.3						43.3	
Approach LOS		C			C						D	

Timer - Assigned Phs	2	3	4				8					
Phs Duration (G+Y+Rc), s	30.5	35.0	24.5				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	28.3	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	30.7
HCM 7th LOS	C

Notes

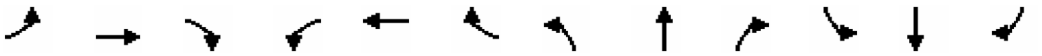
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	228	0	0	1156	306	210	270	475	0	0	0
Future Volume (veh/h)	75	228	0	0	1156	306	210	270	475	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	238	0	0	1204	319	219	281	495			
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	1521	395	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	2840	712	1795	1885	1555			
Grp Volume(v), veh/h	78	238	0	0	770	753	219	281	495			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1777	1682	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	0.78	0.81	0.51	0.62	1.33			
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	5.0	6.1	0.4	2.0	166.9			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	0.8	0.0	0.0	1.4	1.6	4.0	5.4	24.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.7	5.6	0.0	0.0	5.0	6.1	30.1	32.7	201.1			
LnGrp LOS	D	A			A	A	C	C	F			
Approach Vol, veh/h		316			1523			995				
Approach Delay, s/veh		16.8			5.5			115.9				
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		1.2			0.0	11.1				

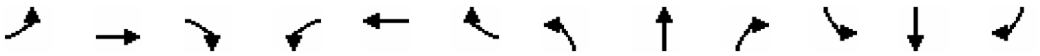
Intersection Summary	
HCM 7th Control Delay, s/veh	45.5
HCM 7th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	723	2	1	1212	10	4	0	1	15	2	245
Future Volume (veh/h)	1	723	2	1	1212	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	761	2	1	1276	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	2490	7	40	2452	21	184	8	30	51	12	301
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.21	0.00	0.21	0.21	0.21	0.21
Sat Flow, veh/h	0	3559	9	0	3506	30	541	39	145	44	58	1462
Grp Volume(v), veh/h	400	0	364	676	0	612	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	0.0	0.0	0.0	0.0	5.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	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	1347	0	1189	1338	0	1176	222	0	0	365	0	0
V/C Ratio(X)	0.30	0.00	0.31	0.51	0.00	0.52	0.02	0.00	0.00	0.76	0.00	0.00
Avail Cap(c_a), veh/h	1347	0	1189	1338	0	1176	412	0	0	613	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	0.49	0.00	0.49	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	28.4	0.0	0.0	34.4	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.6	0.7	0.0	0.8	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	0.2	0.0	0.3	0.1	0.0	0.0	5.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.5	0.0	0.6	0.7	0.0	0.8	28.5	0.0	0.0	35.6	0.0	0.0
LnGrp LOS	A		A	A		A	C			D		
Approach Vol, veh/h		764			1288			5			276	
Approach Delay, s/veh		0.5			0.7			28.5			35.6	
Approach LOS		A			A			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		67.5		22.5		67.5		22.5				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		48.5		33.0		48.5		33.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		2.0		17.3				
Green Ext Time (p_c), s		3.6		0.0		7.7		1.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			4.9									
HCM 7th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	560	148	8	715	5	377	237	28	25	36	140
Future Volume (veh/h)	20	560	148	8	715	5	377	237	28	25	36	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)	1.00		0.95	0.99		0.95	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	21	596	157	9	761	5	401	252	30	27	38	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	58	978	253	46	1312	9	434	815	97	67	70	211
Arrive On Green	0.75	0.75	0.75	0.37	0.37	0.37	0.25	0.52	0.52	0.21	0.21	0.21
Sat Flow, veh/h	42	2616	677	13	3510	23	1711	1565	186	104	332	999
Grp Volume(v), veh/h	418	0	356	405	0	370	401	0	282	214	0	0
Grp Sat Flow(s),veh/h/ln	1800	0	1535	1849	0	1696	1711	0	1751	1435	0	0
Q Serve(g_s), s	0.0	0.0	9.8	0.0	0.0	15.8	20.6	0.0	8.3	4.4	0.0	0.0
Cycle Q Clear(g_c), s	9.2	0.0	9.8	15.6	0.0	15.8	20.6	0.0	8.3	12.2	0.0	0.0
Prop In Lane	0.05		0.44	0.02		0.01	1.00		0.11	0.13		0.70
Lane Grp Cap(c), veh/h	715	0	574	732	0	634	434	0	912	349	0	0
V/C Ratio(X)	0.58	0.00	0.62	0.55	0.00	0.58	0.92	0.00	0.31	0.61	0.00	0.00
Avail Cap(c_a), veh/h	715	0	574	732	0	634	494	0	992	363	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)	0.95	0.00	0.95	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.3	0.0	8.4	22.5	0.0	22.6	32.7	0.0	12.3	32.7	0.0	0.0
Incr Delay (d2), s/veh	3.3	0.0	4.7	3.0	0.0	3.9	20.5	0.0	0.1	2.0	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	5.5	0.0	5.1	11.8	0.0	11.1	16.3	0.0	5.7	7.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.6	0.0	13.1	25.5	0.0	26.5	53.3	0.0	12.4	34.7	0.0	0.0
LnGrp LOS	B		B	C		C	D		B	C		
Approach Vol, veh/h		774			775			683			214	
Approach Delay, s/veh		12.3			26.0			36.4			34.7	
Approach LOS		B			C			D			C	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		38.1		51.9		38.1	27.8	24.0				
Change Period (Y+Rc), s		4.5		5.0		4.5	5.0	5.0				
Max Green Setting (Gmax), s		29.5		51.0		29.5	26.0	20.0				
Max Q Clear Time (g_c+I1), s		11.8		10.3		17.8	22.6	14.2				
Green Ext Time (p_c), s		1.1		1.3		0.9	0.3	0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			25.3									
HCM 7th LOS			C									

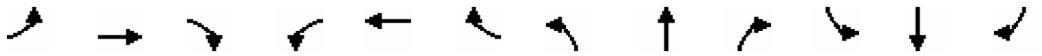
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↱			↑↱				↱			↱
Traffic Vol, veh/h	0	558	45	0	668	65	0	0	75	0	0	30
Future Vol, veh/h	0	558	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	607	49	0	726	71	0	0	82	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	496	-	-	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	522	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	-	-	-	-	-	-	-	-	442	-	-	442
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	14.99	13.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	442	-	-	-	-	442
HCM Lane V/C Ratio	0.185	-	-	-	-	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	398	105	20	423	40	195	480	20	120	485	80
Future Volume (veh/h)	115	398	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	428	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	646	169	39	556	52	235	1226	52	401	1356	222
Arrive On Green	0.08	0.23	0.23	0.01	0.06	0.06	0.26	0.71	0.71	0.23	0.45	0.45
Sat Flow, veh/h	1795	2780	725	1781	3262	307	1781	3463	147	1781	3032	497
Grp Volume(v), veh/h	124	274	267	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	1752
Q Serve(g_s), s	8.2	16.6	17.0	1.5	16.5	16.7	13.6	7.4	7.5	7.3	13.7	13.9
Cycle Q Clear(g_c), s	8.2	16.6	17.0	1.5	16.5	16.7	13.6	7.4	7.5	7.3	13.7	13.9
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	416	398	39	303	305	235	629	649	401	795	784
V/C Ratio(X)	0.83	0.66	0.67	0.57	0.81	0.82	0.89	0.42	0.42	0.32	0.38	0.39
Avail Cap(c_a), veh/h	172	470	450	186	481	485	408	629	649	401	795	784
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.1	41.7	41.9	59.0	54.7	54.8	43.3	12.4	12.4	38.8	22.1	22.2
Incr Delay (d2), s/veh	21.8	1.9	2.3	4.8	2.6	3.0	6.0	2.0	2.0	0.2	1.4	1.4
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	4.6	7.6	7.5	0.7	8.1	8.3	5.7	2.8	2.9	3.2	6.1	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	76.0	43.7	44.2	63.9	57.4	57.8	49.3	14.4	14.4	39.0	23.5	23.6
LnGrp LOS	E	D	D	E	E	E	D	B	B	D	C	C
Approach Vol, veh/h		665			520			748			737	
Approach Delay, s/veh		49.9			57.9			24.2			26.3	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.3	59.2	14.5	25.0	32.5	48.0	7.1	32.4
Change Period (Y+Rc), s	5.5	5.5	4.5	4.5	5.5	5.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	28.5	11.5	32.5	13.5	42.5	12.5	31.5
Max Q Clear Time (g_c+I1), s	15.6	15.9	10.2	18.7	9.3	9.5	3.5	19.0
Green Ext Time (p_c), s	0.2	2.2	0.0	1.8	0.1	2.4	0.0	1.9

Intersection Summary	
HCM 7th Control Delay, s/veh	37.7
HCM 7th LOS	D

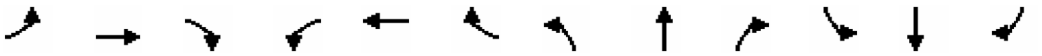
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↱			↑↱				↱			↱
Traffic Vol, veh/h	0	518	15	0	393	15	0	0	5	0	0	105
Future Vol, veh/h	0	518	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	602	17	0	457	17	0	0	6	0	0	122

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	374	-	-	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	629	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	-	-	-	-	-	-	-	-	591	-	-	603
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	11.15	12.48
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	591	-	-	-	-	603
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	-	-	-	-	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	351	30	40	297	45	30	268	21	65	376	91
Future Volume (vph)	142	351	30	40	297	45	30	268	21	65	376	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.98			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)		3478			3390		1752	1802		1787	1881	1505
Flt Permitted		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3478			3390		1752	1802		1787	1881	1505
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)	158	390	33	44	330	50	33	298	23	72	418	101
RTOR Reduction (vph)	0	4	0	0	0	0	0	2	0	0	0	28
Lane Group Flow (vph)	0	577	0	0	424	0	33	319	0	72	418	73
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)		25.0			19.6		4.8	37.0		7.4	48.6	73.6
Effective Green, g (s)		25.0			19.6		4.8	37.0		7.4	48.6	73.6
Actuated g/C Ratio		0.21			0.16		0.04	0.31		0.06	0.41	0.61
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		724			553		70	555		110	761	923
v/s Ratio Prot		c0.17			c0.13		0.02	0.18		c0.04	c0.22	0.02
v/s Ratio Perm												0.03
v/c Ratio		0.80			0.77		0.47	0.57		0.65	0.55	0.08
Uniform Delay, d1		45.1			48.0		56.4	34.9		55.1	27.3	9.4
Progression Factor		0.59			1.00		1.18	1.02		1.00	1.00	1.00
Incremental Delay, d2		4.9			5.7		1.7	4.0		10.2	2.8	0.0
Delay (s)		31.6			53.7		68.1	39.7		65.2	30.2	9.4
Level of Service		C			D		E	D		E	C	A
Approach Delay (s/veh)		31.6			53.7			42.4			30.9	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

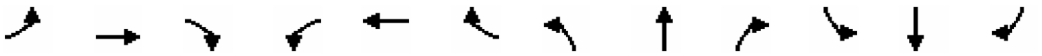
Intersection	
Int Delay, s/veh	13.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	75	15	11	90	15	30	10	15	50	35	90
Future Vol, veh/h	10	75	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	83	17	12	100	17	33	11	17	56	39	100

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	286	0	0	262	0	0	589	586	388	547	586	446
Stage 1	-	-	-	-	-	-	276	276	-	302	302	-
Stage 2	-	-	-	-	-	-	313	310	-	245	284	-
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	-	-	1210	-	-	420	422	660	451	425	616
Stage 1	-	-	-	-	-	-	730	682	-	712	668	-
Stage 2	-	-	-	-	-	-	698	659	-	763	680	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1025	-	-	1023	-	-	195	292	487	300	294	434
Mov Cap-2 Maneuver	-	-	-	-	-	-	195	292	-	300	294	-
Stage 1	-	-	-	-	-	-	611	570	-	590	553	-
Stage 2	-	-	-	-	-	-	413	546	-	623	568	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.86	0.81	23.88	26.79
HCM LOS			C	D

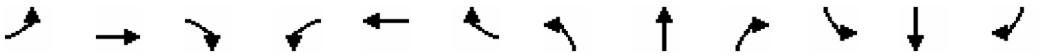
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	251	174	-	-	166	-	-	355
HCM Lane V/C Ratio	0.243	0.011	-	-	0.012	-	-	0.548
HCM Ctrl Dly (s/v)	23.9	8.6	0	-	8.6	0	-	26.8
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	3.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	55	40	15	95	235	10	440	5	115	485	30
Future Volume (veh/h)	30	55	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	57	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	84	143	90	40	115	264	56	2262	25	364	1534	96
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.66	0.66	0.66	0.22	0.22	0.22
Sat Flow, veh/h	177	544	344	33	438	1002	37	3417	37	487	2317	145
Grp Volume(v), veh/h	130	0	0	360	0	0	246	0	227	299	0	357
Grp Sat Flow(s),veh/h/ln	1064	0	0	1472	0	0	1812	0	1679	1285	0	1664
Q Serve(g_s), s	0.0	0.0	0.0	12.9	0.0	0.0	0.0	0.0	6.3	18.9	0.0	21.6
Cycle Q Clear(g_c), s	9.2	0.0	0.0	28.6	0.0	0.0	6.2	0.0	6.3	25.3	0.0	21.6
Prop In Lane	0.24		0.32	0.04		0.68	0.04		0.02	0.40		0.09
Lane Grp Cap(c), veh/h	317	0	0	419	0	0	1231	0	1111	892	0	1101
V/C Ratio(X)	0.41	0.00	0.00	0.86	0.00	0.00	0.20	0.00	0.20	0.34	0.00	0.32
Avail Cap(c_a), veh/h	477	0	0	588	0	0	1231	0	1111	892	0	1101
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	0.58	0.00	0.00	1.00	0.00	1.00	0.90	0.00	0.90
Uniform Delay (d), s/veh	35.5	0.0	0.0	43.1	0.0	0.0	7.9	0.0	7.9	26.2	0.0	24.3
Incr Delay (d2), s/veh	0.3	0.0	0.0	4.1	0.0	0.0	0.4	0.0	0.4	0.9	0.0	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	0.0	10.9	0.0	0.0	2.6	0.0	2.4	8.4	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	35.8	0.0	0.0	47.2	0.0	0.0	8.3	0.0	8.3	27.1	0.0	25.0
LnGrp LOS	D			D			A		A	C		C
Approach Vol, veh/h		130			360			473			656	
Approach Delay, s/veh		35.8			47.2			8.3			26.0	
Approach LOS		D			D			A			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		83.9		36.1		83.9		36.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		65.5		45.5		65.5		45.5				
Max Q Clear Time (g_c+I1), s		8.3		11.2		27.3		30.6				
Green Ext Time (p_c), s		0.6		0.4		1.0		1.0				

Intersection Summary		
HCM 7th Control Delay, s/veh		26.3
HCM 7th LOS		C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	121	45	26	195	40	10	205	15	55	376	25
Future Volume (vph)	54	121	45	26	195	40	10	205	15	55	376	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
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)		1633			1674		1736	1792		1770	1811	
Flt Permitted		0.68			0.94		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1130			1574		1736	1792		1770	1811	
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)	56	125	46	27	201	41	10	211	15	57	388	26
RTOR Reduction (vph)	0	9	0	0	6	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	218	0	0	263	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)		26.2			26.2		1.3	43.4		7.3	76.0	
Effective Green, g (s)		26.2			26.2		1.3	43.4		7.3	76.0	
Actuated g/C Ratio		0.22			0.22		0.01	0.36		0.06	0.63	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		246			343		18	648		107	1146	
v/s Ratio Prot							0.01	0.13		c0.03	c0.23	
v/s Ratio Perm		c0.19			0.17							
v/c Ratio		0.89			0.77		0.56	0.35		0.53	0.36	
Uniform Delay, d1		45.5			44.0		59.1	27.9		54.7	10.4	
Progression Factor		1.18			1.00		1.27	0.25		1.18	0.33	
Incremental Delay, d2		29.0			9.8		19.1	1.4		2.2	0.8	
Delay (s)		82.5			53.8		94.2	8.5		66.7	4.2	
Level of Service		F			D		F	A		E	A	
Approach Delay (s/veh)		82.5			53.8			12.1			11.8	
Approach LOS		F			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	63.9%	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	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	-	-	-	-	-

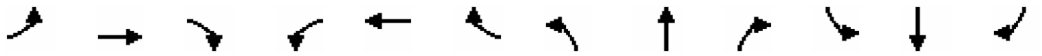
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.2	0.34	0
HCM LOS	C		

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	432
Future Volume (vph)	20	10	250	15	1	432
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		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)	1663		1824			3574
Flt Permitted	0.97		1.00			0.95
Satd. Flow (perm)	1663		1824			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	470
RTOR Reduction (vph)	9	0	2	0	0	0
Lane Group Flow (vph)	24	0	286	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			90.5
Effective Green, g (s)	20.0		76.0			90.5
Actuated g/C Ratio	0.17		0.63			0.75
Clearance Time (s)	4.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	277		1155			2573
v/s Ratio Prot	c0.01		c0.16			
v/s Ratio Perm						c0.14
v/c Ratio	0.09		0.25			0.18
Uniform Delay, d1	42.3		9.6			4.2
Progression Factor	1.00		0.72			0.69
Incremental Delay, d2	0.0		0.5			0.1
Delay (s)	42.3		7.4			3.0
Level of Service	D		A			A
Approach Delay (s/veh)	42.3		7.4			3.0
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.3	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)	12.5
Intersection Capacity Utilization	38.9%	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	2	410	135	35	100	5	290	187	10
Future Volume (veh/h)	0	510	85	2	410	135	35	100	5	290	187	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	0.98		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	2	441	145	38	108	5	312	201	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	1911	316	31	1595	516	252	486	22	347	489	27
Arrive On Green	0.00	0.63	0.63	0.63	0.63	0.63	0.28	0.28	0.28	0.09	0.09	0.09
Sat Flow, veh/h	0	3130	502	2	2535	820	1125	1740	81	1241	1750	96
Grp Volume(v), veh/h	0	320	319	322	0	266	38	0	113	312	0	212
Grp Sat Flow(s),veh/h/ln	0	1777	1762	1853	0	1503	1125	0	1820	1241	0	1846
Q Serve(g_s), s	0.0	9.8	9.8	0.0	0.0	9.6	3.5	0.0	5.7	27.8	0.0	13.0
Cycle Q Clear(g_c), s	0.0	9.8	9.8	9.4	0.0	9.6	16.5	0.0	5.7	33.5	0.0	13.0
Prop In Lane	0.00		0.29	0.01		0.55	1.00		0.04	1.00		0.05
Lane Grp Cap(c), veh/h	0	1118	1109	1196	0	946	252	0	508	347	0	515
V/C Ratio(X)	0.00	0.29	0.29	0.27	0.00	0.28	0.15	0.00	0.22	0.90	0.00	0.41
Avail Cap(c_a), veh/h	0	1118	1109	1196	0	946	252	0	508	347	0	515
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)	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	10.0	42.7	0.0	33.2	58.4	0.0	45.2
Incr Delay (d2), s/veh	0.0	0.6	0.7	0.6	0.0	0.7	0.6	0.0	0.5	24.2	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	4.0	0.0	3.3	1.0	0.0	2.6	12.5	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.7	10.7	10.5	0.0	10.8	43.3	0.0	33.7	82.6	0.0	45.4
LnGrp LOS		B	B	B		B	D		C	F		D
Approach Vol, veh/h		639			588			151			524	
Approach Delay, s/veh		10.7			10.6			36.1			67.5	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	81.0	39.0	81.0	39.0
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	38.5	31.5	38.5	33.5
Max Q Clear Time (g_c+I1), s	11.8	18.5	11.6	35.5
Green Ext Time (p_c), s	0.8	1.0	0.8	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	28.4
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	15	16	120	251	24
Future Vol, veh/h	20	15	16	120	251	24
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	273	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	549	386	349	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	1188	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	818	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	441	596	1131	-	-	-
Mov Cap-2 Maneuver	441	-	-	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	779	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.86	0.97	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1131	-	496	-	-
HCM Lane V/C Ratio	0.015	-	0.077	-	-
HCM Ctrl Dly (s/v)	8.2	-	12.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	26.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	12	10	30	10	175	5	332	30	75	340	78
Future Vol, veh/h	52	12	10	30	10	175	5	332	30	75	340	78
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	57	13	11	33	11	192	5	365	33	82	374	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	12.1	14.3	21.2	37.4
HCM LOS	B	B	C	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	70%	14%	15%
Vol Thru, %	90%	16%	5%	69%
Vol Right, %	8%	14%	81%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	367	74	215	493
LT Vol	5	52	30	75
Through Vol	332	12	10	340
RT Vol	30	10	175	78
Lane Flow Rate	403	81	236	542
Geometry Grp	1	1	1	1
Degree of Util (X)	0.681	0.169	0.426	0.881
Departure Headway (Hd)	6.082	7.494	6.494	5.853
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	593	477	553	618
Service Time	4.131	5.569	4.549	3.898
HCM Lane V/C Ratio	0.68	0.17	0.427	0.877
HCM Control Delay, s/veh	21.2	12.1	14.3	37.4
HCM Lane LOS	C	B	B	E
HCM 95th-tile Q	5.2	0.6	2.1	10.4

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	227	15	61	1	39	10	146	110	40	12	40	315
Future Vol, veh/h	227	15	61	1	39	10	146	110	40	12	40	315
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	261	17	70	1	45	11	168	126	46	14	46	362
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	18.8	11	17.5	18.9
HCM LOS	C	B	C	C

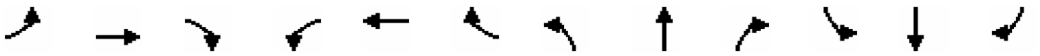
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	49%	75%	2%	3%
Vol Thru, %	37%	5%	78%	11%
Vol Right, %	14%	20%	20%	86%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	296	303	50	367
LT Vol	146	227	1	12
Through Vol	110	15	39	40
RT Vol	40	61	10	315
Lane Flow Rate	340	348	57	422
Geometry Grp	1	1	1	1
Degree of Util (X)	0.582	0.612	0.112	0.659
Departure Headway (Hd)	6.163	6.321	7.029	5.624
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	585	571	508	645
Service Time	4.212	4.345	5.101	3.651
HCM Lane V/C Ratio	0.581	0.609	0.112	0.654
HCM Control Delay, s/veh	17.5	18.8	11	18.9
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	3.7	4.1	0.4	4.9

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	221	20	5	75	52	61
Future Vol, veh/h	221	20	5	75	52	61
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	243	22	5	82	57	67
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	9.9	7.6	8.5
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	92%	0%	46%
Vol Thru, %	8%	6%	0%
Vol Right, %	0%	94%	54%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	241	80	113
LT Vol	221	0	52
Through Vol	20	5	0
RT Vol	0	75	61
Lane Flow Rate	265	88	124
Geometry Grp	1	1	1
Degree of Util (X)	0.335	0.101	0.159
Departure Headway (Hd)	4.556	4.151	4.612
Convergence, Y/N	Yes	Yes	Yes
Cap	792	864	779
Service Time	2.574	2.172	2.632
HCM Lane V/C Ratio	0.335	0.102	0.159
HCM Control Delay, s/veh	9.9	7.6	8.5
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)	187	420	30	5	335	94	0	0	0	29	5	52
Future Volume (veh/h)	187	420	30	5	335	94	0	0	0	29	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	197	442	32	5	353	99	0	0	0	31	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	493	798	58	486	638	179	0	452	0	613	28	313
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	914	1700	123	890	1359	381	0	1900	0	1591	120	1316
Grp Volume(v), veh/h	197	0	474	5	0	452	0	0	0	31	0	60
Grp Sat Flow(s),veh/h/ln	914	0	1823	890	0	1740	0	1900	0	1591	0	1436
Q Serve(g_s), s	6.0	0.0	5.7	0.1	0.0	5.7	0.0	0.0	0.0	0.5	0.0	1.0
Cycle Q Clear(g_c), s	11.8	0.0	5.7	5.9	0.0	5.7	0.0	0.0	0.0	0.5	0.0	1.0
Prop In Lane	1.00		0.07	1.00		0.22	0.00		0.00	1.00		0.92
Lane Grp Cap(c), veh/h	493	0	856	486	0	817	0	452	0	613	0	341
V/C Ratio(X)	0.40	0.00	0.55	0.01	0.00	0.55	0.00	0.00	0.00	0.05	0.00	0.18
Avail Cap(c_a), veh/h	823	0	1513	807	0	1444	0	959	0	1037	0	724
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	10.1	0.0	5.8	7.9	0.0	5.8	0.0	0.0	0.0	9.1	0.0	9.3
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	0.8	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	10.3	0.0	6.1	7.9	0.0	6.1	0.0	0.0	0.0	9.1	0.0	9.4
LnGrp LOS	B		A	A		A				A		A
Approach Vol, veh/h		671			457			0			91	
Approach Delay, s/veh		7.3			6.1			0.0			9.3	
Approach LOS		A			A						A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.9		11.8		18.9		11.8				
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		7.9		0.0		13.8		3.0				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	7.0
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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	148	2	6	175	100	11	5	20	90	1	5
Future Vol, veh/h	20	148	2	6	175	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	183	2	7	216	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	9.6	10.7	8.5	9.6
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	170	281	96
LT Vol	11	20	6	90
Through Vol	5	148	175	1
RT Vol	20	2	100	5
Lane Flow Rate	44	210	347	119
Geometry Grp	1	1	1	1
Degree of Util (X)	0.063	0.276	0.424	0.176
Departure Headway (Hd)	5.106	4.727	4.401	5.356
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	695	756	815	665
Service Time	3.187	2.779	2.446	3.428
HCM Lane V/C Ratio	0.063	0.278	0.426	0.179
HCM Control Delay, s/veh	8.5	9.6	10.7	9.6
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	1.1	2.1	0.6

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	59	20	5	20	10	185	6	448	35	40	153	24
Future Vol, veh/h	59	20	5	20	10	185	6	448	35	40	153	24
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	63	21	5	21	11	197	6	477	37	43	163	26
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	24.4	12.4
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	70%	9%	18%
Vol Thru, %	92%	24%	5%	71%
Vol Right, %	7%	6%	86%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	489	84	215	217
LT Vol	6	59	20	40
Through Vol	448	20	10	153
RT Vol	35	5	185	24
Lane Flow Rate	520	89	229	231
Geometry Grp	1	1	1	1
Degree of Util (X)	0.774	0.163	0.367	0.373
Departure Headway (Hd)	5.356	6.552	5.782	5.818
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	671	543	618	614
Service Time	3.413	4.647	3.859	3.891
HCM Lane V/C Ratio	0.775	0.164	0.371	0.376
HCM Control Delay, s/veh	24.4	10.9	12.2	12.4
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	7.4	0.6	1.7	1.7

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	389	20	127	45	24	20	27	75	10	10	75	88
Future Vol, veh/h	389	20	127	45	24	20	27	75	10	10	75	88
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	401	21	131	46	25	21	28	77	10	10	77	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	22.1	9.6	10.7	11
HCM LOS	C	A	B	B

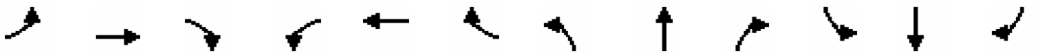
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	73%	51%	6%
Vol Thru, %	67%	4%	27%	43%
Vol Right, %	9%	24%	22%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	536	89	173
LT Vol	27	389	45	10
Through Vol	75	20	24	75
RT Vol	10	127	20	88
Lane Flow Rate	115	553	92	178
Geometry Grp	1	1	1	1
Degree of Util (X)	0.196	0.762	0.144	0.282
Departure Headway (Hd)	6.111	4.965	5.637	5.691
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	587	729	635	630
Service Time	4.161	2.994	3.685	3.735
HCM Lane V/C Ratio	0.196	0.759	0.145	0.283
HCM Control Delay, s/veh	10.7	22.1	9.6	11
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	0.7	7.2	0.5	1.2

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	15	20	45	65	177
Future Vol, veh/h	60	15	20	45	65	177
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	66	16	22	49	71	195
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, %	80%	0%	27%
Vol Thru, %	20%	31%	0%
Vol Right, %	0%	69%	73%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	75	65	242
LT Vol	60	0	65
Through Vol	15	20	0
RT Vol	0	45	177
Lane Flow Rate	82	71	266
Geometry Grp	1	1	1
Degree of Util (X)	0.11	0.086	0.294
Departure Headway (Hd)	4.792	4.338	3.981
Convergence, Y/N	Yes	Yes	Yes
Cap	750	828	907
Service Time	2.809	2.355	1.992
HCM Lane V/C Ratio	0.109	0.086	0.293
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	1.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	425	35	15	390	36	10	5	2	57	10	140
Future Volume (veh/h)	71	425	35	15	390	36	10	5	2	57	10	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)	0.98		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	40	11	5	2	63	11	154
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	375	651	53	352	637	59	395	163	47	700	33	464
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	913	1706	139	878	1671	156	635	476	139	1314	97	1359
Grp Volume(v), veh/h	78	0	505	16	0	469	18	0	0	63	0	165
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1827	1250	0	0	1314	0	1456
Q Serve(g_s), s	2.5	0.0	7.6	0.5	0.0	6.9	0.0	0.0	0.0	0.0	0.0	2.7
Cycle Q Clear(g_c), s	9.5	0.0	7.6	8.1	0.0	6.9	2.8	0.0	0.0	0.8	0.0	2.7
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	375	0	704	352	0	697	605	0	0	700	0	497
V/C Ratio(X)	0.21	0.00	0.72	0.05	0.00	0.67	0.03	0.00	0.00	0.09	0.00	0.33
Avail Cap(c_a), veh/h	743	0	1449	706	0	1434	792	0	0	878	0	695
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	12.3	0.0	8.6	12.0	0.0	8.4	7.1	0.0	0.0	7.3	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	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	12.4	0.0	9.1	12.0	0.0	8.8	7.2	0.0	0.0	7.3	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		583			485			18			228	
Approach Delay, s/veh		9.5			8.9			7.2			7.9	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.9		15.6		16.9		15.6				
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		10.1		4.8		11.5		4.7				
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	
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	180	2	10	47	73	0	1	30	136	5	5
Future Vol, veh/h	20	180	2	10	47	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	196	2	11	51	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	9.3	8.4	7.8	9.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	10%	8%	93%
Vol Thru, %	3%	89%	36%	3%
Vol Right, %	97%	1%	56%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	202	130	146
LT Vol	0	20	10	136
Through Vol	1	180	47	5
RT Vol	30	2	73	5
Lane Flow Rate	34	220	141	159
Geometry Grp	1	1	1	1
Degree of Util (X)	0.042	0.278	0.173	0.218
Departure Headway (Hd)	4.537	4.552	4.414	4.956
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	785	788	811	722
Service Time	2.588	2.582	2.448	2.997
HCM Lane V/C Ratio	0.043	0.279	0.174	0.22
HCM Control Delay, s/veh	7.8	9.3	8.4	9.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.1	0.6	0.8

Intersection	
Intersection Delay, s/veh	27.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	9	10	30	10	175	5	332	30	75	347	79
Future Vol, veh/h	52	9	10	30	10	175	5	332	30	75	347	79
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	57	10	11	33	11	192	5	365	33	82	381	87
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	12.1	14.4	21.3	39.2
HCM LOS	B	B	C	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	73%	14%	15%
Vol Thru, %	90%	13%	5%	69%
Vol Right, %	8%	14%	81%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	367	71	215	501
LT Vol	5	52	30	75
Through Vol	332	9	10	347
RT Vol	30	10	175	79
Lane Flow Rate	403	78	236	551
Geometry Grp	1	1	1	1
Degree of Util (X)	0.682	0.163	0.427	0.894
Departure Headway (Hd)	6.085	7.526	6.505	5.843
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	593	475	553	622
Service Time	4.134	5.601	4.56	3.887
HCM Lane V/C Ratio	0.68	0.164	0.427	0.886
HCM Control Delay, s/veh	21.3	12.1	14.4	39.2
HCM Lane LOS	C	B	B	E
HCM 95th-tile Q	5.3	0.6	2.1	10.8

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	272	15	35	1	48	10	75	65	40	12	40	322
Future Vol, veh/h	272	15	35	1	48	10	75	65	40	12	40	322
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	313	17	40	1	55	11	86	75	46	14	46	370
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	17.9	10.5	12.4	17.2
HCM LOS	C	B	B	C

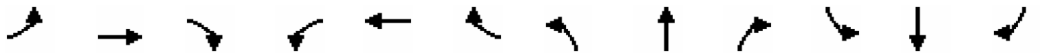
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	84%	2%	3%
Vol Thru, %	36%	5%	81%	11%
Vol Right, %	22%	11%	17%	86%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	322	59	374
LT Vol	75	272	1	12
Through Vol	65	15	48	40
RT Vol	40	35	10	322
Lane Flow Rate	207	370	68	430
Geometry Grp	1	1	1	1
Degree of Util (X)	0.347	0.61	0.123	0.633
Departure Headway (Hd)	6.038	5.933	6.553	5.304
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	590	603	551	675
Service Time	4.131	4.008	4.553	3.381
HCM Lane V/C Ratio	0.351	0.614	0.123	0.637
HCM Control Delay, s/veh	12.4	17.9	10.5	17.2
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.5	4.1	0.4	4.5

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	35
Future Vol, veh/h	105	20	5	75	52	35
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	38
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%	60%
Vol Thru, %	16%	6%	0%
Vol Right, %	0%	94%	40%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	80	87
LT Vol	105	0	52
Through Vol	20	5	0
RT Vol	0	75	35
Lane Flow Rate	137	88	96
Geometry Grp	1	1	1
Degree of Util (X)	0.167	0.096	0.117
Departure Headway (Hd)	4.389	3.935	4.413
Convergence, Y/N	Yes	Yes	Yes
Cap	808	916	816
Service Time	2.469	1.935	2.417
HCM Lane V/C Ratio	0.17	0.096	0.118
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	342	75	0	0	0	29	5	25
Future Volume (veh/h)	90	420	30	5	342	75	0	0	0	29	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	360	79	0	0	0	31	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	509	709	51	492	600	132	0	388	0	625	48	251
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.00	0.00	0.00	0.20	0.20	0.20
Sat Flow, veh/h	924	1699	123	888	1439	316	0	1900	0	1578	237	1230
Grp Volume(v), veh/h	95	0	474	5	0	439	0	0	0	31	0	31
Grp Sat Flow(s),veh/h/ln	924	0	1822	888	0	1755	0	1900	0	1578	0	1467
Q Serve(g_s), s	2.1	0.0	4.9	0.1	0.0	4.6	0.0	0.0	0.0	0.4	0.0	0.4
Cycle Q Clear(g_c), s	6.7	0.0	4.9	5.0	0.0	4.6	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	509	0	760	492	0	732	0	388	0	625	0	299
V/C Ratio(X)	0.19	0.00	0.62	0.01	0.00	0.60	0.00	0.00	0.00	0.05	0.00	0.10
Avail Cap(c_a), veh/h	1115	0	1956	1075	0	1883	0	1240	0	1333	0	957
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	8.0	0.0	5.5	7.4	0.0	5.4	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	0.2	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.1	0.0	5.8	7.4	0.0	5.7	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			444			0			62	
Approach Delay, s/veh		6.2			5.7			0.0			7.7	
Approach LOS		A			A						A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	14.4	9.3	14.4	9.3
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	7.0	0.0	8.7	2.4
Green Ext Time (p_c), s	0.5	0.0	0.6	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	6.1
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	277	2	6	154	66	11	5	20	65	1	30
Future Vol, veh/h	20	277	2	6	154	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	342	2	7	190	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	10.3	8.8	9.6
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	7%	3%	68%
Vol Thru, %	14%	93%	68%	1%
Vol Right, %	56%	1%	29%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	299	226	96
LT Vol	11	20	6	65
Through Vol	5	277	154	1
RT Vol	20	2	66	30
Lane Flow Rate	44	369	279	119
Geometry Grp	1	1	1	1
Degree of Util (X)	0.067	0.478	0.358	0.177
Departure Headway (Hd)	5.437	4.657	4.621	5.368
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	663	768	773	661
Service Time	3.437	2.72	2.687	3.459
HCM Lane V/C Ratio	0.066	0.48	0.361	0.18
HCM Control Delay, s/veh	8.8	12	10.3	9.6
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.2	2.6	1.6	0.6

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	92	555	355	7	0	29
Future Vol, veh/h	92	555	355	7	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	98	590	378	7	0	31

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	385	0	-	0	1168	381
Stage 1	-	-	-	-	381	-
Stage 2	-	-	-	-	786	-
Critical Hdwy	4.13	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.227	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1168	-	-	-	214	666
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	449	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1168	-	-	-	187	666
Mov Cap-2 Maneuver	-	-	-	-	187	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	449	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.19	0	10.67
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	256	-	-	-	666
HCM Lane V/C Ratio	0.084	-	-	-	0.046
HCM Ctrl Dly (s/v)	8.4	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1

Intersection	
Intersection Delay, s/veh	18
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	58	20	5	20	10	185	6	448	35	40	153	23
Future Vol, veh/h	58	20	5	20	10	185	6	448	35	40	153	23
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	62	21	5	21	11	197	6	477	37	43	163	24
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	24.3	12.3
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	70%	9%	19%
Vol Thru, %	92%	24%	5%	71%
Vol Right, %	7%	6%	86%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	489	83	215	216
LT Vol	6	58	20	40
Through Vol	448	20	10	153
RT Vol	35	5	185	23
Lane Flow Rate	520	88	229	230
Geometry Grp	1	1	1	1
Degree of Util (X)	0.773	0.161	0.367	0.371
Departure Headway (Hd)	5.351	6.547	5.775	5.815
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	676	544	620	616
Service Time	3.406	4.64	3.851	3.888
HCM Lane V/C Ratio	0.769	0.162	0.369	0.373
HCM Control Delay, s/veh	24.3	10.9	12.2	12.3
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	7.4	0.6	1.7	1.7

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	407	20	55	45	24	20	8	58	10	10	75	88
Future Vol, veh/h	407	20	55	45	24	20	8	58	10	10	75	88
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	57	46	25	21	8	60	10	10	77	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	17.8	9.3	9.8	10.5
HCM LOS	C	A	A	B

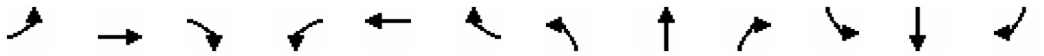
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	84%	51%	6%
Vol Thru, %	76%	4%	27%	43%
Vol Right, %	13%	11%	22%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	482	89	173
LT Vol	8	407	45	10
Through Vol	58	20	24	75
RT Vol	10	55	20	88
Lane Flow Rate	78	497	92	178
Geometry Grp	1	1	1	1
Degree of Util (X)	0.128	0.681	0.137	0.27
Departure Headway (Hd)	5.874	4.934	5.381	5.441
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	610	735	666	660
Service Time	3.916	2.934	3.416	3.477
HCM Lane V/C Ratio	0.128	0.676	0.138	0.27
HCM Control Delay, s/veh	9.8	17.8	9.3	10.5
HCM Lane LOS	A	C	A	B
HCM 95th-tile Q	0.4	5.4	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	105
Future Vol, veh/h	23	15	20	45	65	105
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	115
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%	38%
Vol Thru, %	39%	31%	0%
Vol Right, %	0%	69%	62%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	38	65	170
LT Vol	23	0	65
Through Vol	15	20	0
RT Vol	0	45	105
Lane Flow Rate	42	71	187
Geometry Grp	1	1	1
Degree of Util (X)	0.052	0.08	0.202
Departure Headway (Hd)	4.491	4.032	3.901
Convergence, Y/N	Yes	Yes	Yes
Cap	787	876	912
Service Time	2.579	2.117	1.962
HCM Lane V/C Ratio	0.053	0.081	0.205
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	57	10	68
Future Volume (veh/h)	35	425	35	15	392	35	10	5	2	57	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	63	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	393	640	52	370	630	56	439	180	53	661	60	408
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	913	1706	139	878	1681	148	760	570	166	1303	190	1292
Grp Volume(v), veh/h	38	0	505	16	0	469	18	0	0	63	0	86
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1829	1496	0	0	1303	0	1482
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	7.3	0.0	6.9	7.3	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	393	0	692	370	0	686	672	0	0	661	0	468
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	849	0	1615	809	0	1601	983	0	0	942	0	788
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	10.7	0.0	7.8	11.0	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	1.6	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	10.8	0.0	8.4	11.0	0.0	8.1	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			149	
Approach Delay, s/veh		8.6			8.2			6.9			7.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.4		13.7		15.4		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		9.3		2.2		9.3		3.2				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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	20	263	2	10	40	59	0	1	30	69	5	73
Future Vol, veh/h	20	263	2	10	40	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	286	2	11	43	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	10.4	8.3	8	9.1
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	7%	9%	47%
Vol Thru, %	3%	92%	37%	3%
Vol Right, %	97%	1%	54%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	285	109	147
LT Vol	0	20	10	69
Through Vol	1	263	40	5
RT Vol	30	2	59	73
Lane Flow Rate	34	310	118	160
Geometry Grp	1	1	1	1
Degree of Util (X)	0.044	0.388	0.148	0.211
Departure Headway (Hd)	4.693	4.508	4.511	4.745
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	758	796	791	754
Service Time	2.749	2.544	2.557	2.789
HCM Lane V/C Ratio	0.045	0.389	0.149	0.212
HCM Control Delay, s/veh	8	10.4	8.3	9.1
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	1.8	0.5	0.8

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	505	463	2	0	74
Future Vol, veh/h	36	505	463	2	0	74
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	40	567	520	2	0	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	522	0	-	0	1170	521
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	648	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1049	-	-	-	213	555
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1049	-	-	-	201	555
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.57	0	12.62
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	120	-	-	-	555
HCM Lane V/C Ratio	0.039	-	-	-	0.15
HCM Ctrl Dly (s/v)	8.6	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	27.2
Intersection LOS	D

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	365	34	75	406	20
Future Vol, veh/h	20	5	10	30	10	175	5	365	34	75	406	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	401	37	82	446	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	11.2	14	22.9	37.5
HCM LOS	B	B	C	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	57%	14%	15%
Vol Thru, %	90%	14%	5%	81%
Vol Right, %	8%	29%	81%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	404	35	215	501
LT Vol	5	20	30	75
Through Vol	365	5	10	406
RT Vol	34	10	175	20
Lane Flow Rate	444	38	236	551
Geometry Grp	1	1	1	1
Degree of Util (X)	0.726	0.08	0.419	0.885
Departure Headway (Hd)	5.887	7.456	6.388	5.787
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	617	479	562	628
Service Time	3.903	5.526	4.435	3.803
HCM Lane V/C Ratio	0.72	0.079	0.42	0.877
HCM Control Delay, s/veh	22.9	11.2	14	37.5
HCM Lane LOS	C	B	B	E
HCM 95th-tile Q	6.1	0.3	2.1	10.6

Intersection	
Intersection Delay, s/veh	24.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	264	15	63	1	48	10	129	110	40	12	40	381
Future Vol, veh/h	264	15	63	1	48	10	129	110	40	12	40	381
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	303	17	72	1	55	11	148	126	46	14	46	438
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	25.3	12	19	30
HCM LOS	D	B	C	D

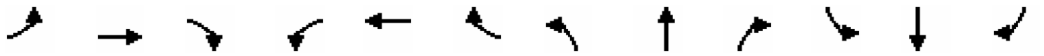
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	46%	77%	2%	3%
Vol Thru, %	39%	4%	81%	9%
Vol Right, %	14%	18%	17%	88%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	279	342	59	433
LT Vol	129	264	1	12
Through Vol	110	15	48	40
RT Vol	40	63	10	381
Lane Flow Rate	321	393	68	498
Geometry Grp	1	1	1	1
Degree of Util (X)	0.592	0.724	0.145	0.815
Departure Headway (Hd)	6.65	6.63	7.693	5.897
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	539	542	469	612
Service Time	4.73	4.699	5.693	3.965
HCM Lane V/C Ratio	0.596	0.725	0.145	0.814
HCM Control Delay, s/veh	19	25.3	12	30
HCM Lane LOS	C	D	B	D
HCM 95th-tile Q	3.8	6	0.5	8.3

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	204	20	5	75	52	63
Future Vol, veh/h	204	20	5	75	52	63
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	224	22	5	82	57	69
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	9.6	7.6	8.5
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	45%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	55%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	224	80	115
LT Vol	204	0	52
Through Vol	20	5	0
RT Vol	0	75	63
Lane Flow Rate	246	88	126
Geometry Grp	1	1	1
Degree of Util (X)	0.312	0.101	0.16
Departure Headway (Hd)	4.557	4.132	4.562
Convergence, Y/N	Yes	Yes	Yes
Cap	790	869	787
Service Time	2.575	2.153	2.582
HCM Lane V/C Ratio	0.311	0.101	0.16
HCM Control Delay, s/veh	9.6	7.6	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.3	0.3	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	420	30	5	335	82	0	0	0	29	5	54
Future Volume (veh/h)	182	420	30	5	335	82	0	0	0	29	5	54
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	192	442	32	5	353	86	0	0	0	31	5	57
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	496	781	57	478	646	157	0	460	0	625	28	320
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.00	0.00	0.00	0.24	0.24	0.24
Sat Flow, veh/h	925	1700	123	889	1407	343	0	1900	0	1593	116	1320
Grp Volume(v), veh/h	192	0	474	5	0	439	0	0	0	31	0	62
Grp Sat Flow(s),veh/h/ln	925	0	1823	889	0	1749	0	1900	0	1593	0	1436
Q Serve(g_s), s	5.7	0.0	5.7	0.1	0.0	5.5	0.0	0.0	0.0	0.5	0.0	1.0
Cycle Q Clear(g_c), s	11.2	0.0	5.7	5.9	0.0	5.5	0.0	0.0	0.0	0.5	0.0	1.0
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	496	0	837	478	0	803	0	460	0	625	0	348
V/C Ratio(X)	0.39	0.00	0.57	0.01	0.00	0.55	0.00	0.00	0.00	0.05	0.00	0.18
Avail Cap(c_a), veh/h	854	0	1543	822	0	1481	0	977	0	1058	0	739
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	9.9	0.0	6.0	8.1	0.0	5.9	0.0	0.0	0.0	8.8	0.0	9.0
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	1.1	0.0	0.0	1.0	0.0	0.0	0.0	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.1	0.0	6.2	8.1	0.0	6.1	0.0	0.0	0.0	8.8	0.0	9.1
LnGrp LOS	B		A	A		A				A		A
Approach Vol, veh/h		666			444			0			93	
Approach Delay, s/veh		7.3			6.1			0.0			9.0	
Approach LOS		A			A						A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	18.3	11.8	18.3	11.8
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	7.9	0.0	13.2	3.0
Green Ext Time (p_c), s	0.5	0.0	0.6	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.0
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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	187	2	6	233	100	11	5	20	90	1	5
Future Vol, veh/h	20	187	2	6	233	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	231	2	7	288	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	10.5	12.5	8.9	10.1
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	10%	2%	94%
Vol Thru, %	14%	89%	69%	1%
Vol Right, %	56%	1%	29%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	209	339	96
LT Vol	11	20	6	90
Through Vol	5	187	233	1
RT Vol	20	2	100	5
Lane Flow Rate	44	258	419	119
Geometry Grp	1	1	1	1
Degree of Util (X)	0.068	0.346	0.525	0.189
Departure Headway (Hd)	5.515	4.829	4.516	5.735
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	653	738	791	629
Service Time	3.519	2.911	2.585	3.735
HCM Lane V/C Ratio	0.067	0.35	0.53	0.189
HCM Control Delay, s/veh	8.9	10.5	12.5	10.1
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.2	1.5	3.1	0.7

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	15	15	5	20	10	185	6	492	40	40	167	10
Future Vol, veh/h	15	15	5	20	10	185	6	492	40	40	167	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	523	43	43	178	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	10.1	12	27.5	12
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	43%	9%	18%
Vol Thru, %	91%	43%	5%	77%
Vol Right, %	7%	14%	86%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	538	35	215	217
LT Vol	6	15	20	40
Through Vol	492	15	10	167
RT Vol	40	5	185	10
Lane Flow Rate	572	37	229	231
Geometry Grp	1	1	1	1
Degree of Util (X)	0.821	0.068	0.363	0.365
Departure Headway (Hd)	5.163	6.532	5.719	5.696
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	698	545	627	630
Service Time	3.204	4.612	3.777	3.75
HCM Lane V/C Ratio	0.819	0.068	0.365	0.367
HCM Control Delay, s/veh	27.5	10.1	12	12
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	8.8	0.2	1.7	1.7

Intersection	
Intersection Delay, s/veh	22.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	438	20	127	45	24	20	27	75	10	10	75	102
Future Vol, veh/h	438	20	127	45	24	20	27	75	10	10	75	102
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	452	21	131	46	25	21	28	77	10	10	77	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	29.4	9.9	11	11.6
HCM LOS	D	A	B	B

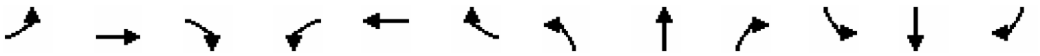
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	75%	51%	5%
Vol Thru, %	67%	3%	27%	40%
Vol Right, %	9%	22%	22%	55%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	585	89	187
LT Vol	27	438	45	10
Through Vol	75	20	24	75
RT Vol	10	127	20	102
Lane Flow Rate	115	603	92	193
Geometry Grp	1	1	1	1
Degree of Util (X)	0.203	0.846	0.148	0.313
Departure Headway (Hd)	6.318	5.049	5.804	5.837
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	566	718	615	613
Service Time	4.381	3.087	3.866	3.894
HCM Lane V/C Ratio	0.203	0.84	0.15	0.315
HCM Control Delay, s/veh	11	29.4	9.9	11.6
HCM Lane LOS	B	D	A	B
HCM 95th-tile Q	0.8	9.6	0.5	1.3

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	15	20	45	65	177
Future Vol, veh/h	60	15	20	45	65	177
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	66	16	22	49	71	195
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, %	80%	0%	27%
Vol Thru, %	20%	31%	0%
Vol Right, %	0%	69%	73%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	75	65	242
LT Vol	60	0	65
Through Vol	15	20	0
RT Vol	0	45	177
Lane Flow Rate	82	71	266
Geometry Grp	1	1	1
Degree of Util (X)	0.11	0.086	0.294
Departure Headway (Hd)	4.792	4.338	3.981
Convergence, Y/N	Yes	Yes	Yes
Cap	750	828	907
Service Time	2.809	2.355	1.992
HCM Lane V/C Ratio	0.109	0.086	0.293
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	1.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	425	35	15	390	36	10	5	2	57	10	140
Future Volume (veh/h)	71	425	35	15	390	36	10	5	2	57	10	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)	0.98		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	40	11	5	2	63	11	154
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	375	651	53	352	637	59	395	163	47	700	33	464
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	913	1706	139	878	1671	156	635	476	139	1314	97	1359
Grp Volume(v), veh/h	78	0	505	16	0	469	18	0	0	63	0	165
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1827	1250	0	0	1314	0	1456
Q Serve(g_s), s	2.5	0.0	7.6	0.5	0.0	6.9	0.0	0.0	0.0	0.0	0.0	2.7
Cycle Q Clear(g_c), s	9.5	0.0	7.6	8.1	0.0	6.9	2.8	0.0	0.0	0.8	0.0	2.7
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	375	0	704	352	0	697	605	0	0	700	0	497
V/C Ratio(X)	0.21	0.00	0.72	0.05	0.00	0.67	0.03	0.00	0.00	0.09	0.00	0.33
Avail Cap(c_a), veh/h	743	0	1449	706	0	1434	792	0	0	878	0	695
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	12.3	0.0	8.6	12.0	0.0	8.4	7.1	0.0	0.0	7.3	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	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	12.4	0.0	9.1	12.0	0.0	8.8	7.2	0.0	0.0	7.3	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		583			485			18			228	
Approach Delay, s/veh		9.5			8.9			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	16.9	15.6	16.9	15.6
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	10.1	4.8	11.5	4.7
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	
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	20	229	2	10	61	73	0	1	30	136	5	5
Future Vol, veh/h	20	229	2	10	61	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	249	2	11	66	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	10.1	8.7	8	9.7
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	8%	7%	93%
Vol Thru, %	3%	91%	42%	3%
Vol Right, %	97%	1%	51%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	251	144	146
LT Vol	0	20	10	136
Through Vol	1	229	61	5
RT Vol	30	2	73	5
Lane Flow Rate	34	273	157	159
Geometry Grp	1	1	1	1
Degree of Util (X)	0.044	0.347	0.196	0.226
Departure Headway (Hd)	4.71	4.581	4.519	5.116
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	754	783	790	698
Service Time	2.775	2.622	2.566	3.169
HCM Lane V/C Ratio	0.045	0.349	0.199	0.228
HCM Control Delay, s/veh	8	10.1	8.7	9.7
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	1.6	0.7	0.9

Intersection	
Intersection Delay, s/veh	27.2
Intersection LOS	D

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	365	34	75	406	20
Future Vol, veh/h	20	5	10	30	10	175	5	365	34	75	406	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	401	37	82	446	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	11.2	14	22.9	37.5
HCM LOS	B	B	C	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	57%	14%	15%
Vol Thru, %	90%	14%	5%	81%
Vol Right, %	8%	29%	81%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	404	35	215	501
LT Vol	5	20	30	75
Through Vol	365	5	10	406
RT Vol	34	10	175	20
Lane Flow Rate	444	38	236	551
Geometry Grp	1	1	1	1
Degree of Util (X)	0.726	0.08	0.419	0.885
Departure Headway (Hd)	5.887	7.456	6.388	5.787
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	617	479	562	628
Service Time	3.903	5.526	4.435	3.803
HCM Lane V/C Ratio	0.72	0.079	0.42	0.877
HCM Control Delay, s/veh	22.9	11.2	14	37.5
HCM Lane LOS	C	B	B	E
HCM 95th-tile Q	6.1	0.3	2.1	10.6

Intersection	
Intersection Delay, s/veh	22.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	309	15	34	1	48	10	75	65	40	12	40	381
Future Vol, veh/h	309	15	34	1	48	10	75	65	40	12	40	381
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	355	17	39	1	55	11	86	75	46	14	46	438
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	24.2	11.2	13.5	25.4
HCM LOS	C	B	B	D

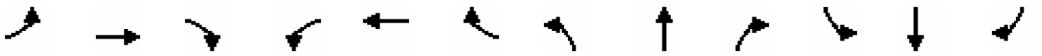
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	86%	2%	3%
Vol Thru, %	36%	4%	81%	9%
Vol Right, %	22%	9%	17%	88%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	358	59	433
LT Vol	75	309	1	12
Through Vol	65	15	48	40
RT Vol	40	34	10	381
Lane Flow Rate	207	411	68	498
Geometry Grp	1	1	1	1
Degree of Util (X)	0.375	0.724	0.132	0.775
Departure Headway (Hd)	6.527	6.337	7.032	5.607
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	550	576	507	642
Service Time	4.589	4.337	5.107	3.657
HCM Lane V/C Ratio	0.376	0.714	0.134	0.776
HCM Control Delay, s/veh	13.5	24.2	11.2	25.4
HCM Lane LOS	B	C	B	D
HCM 95th-tile Q	1.7	6	0.5	7.3

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	34
Future Vol, veh/h	105	20	5	75	52	34
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	37
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%	60%
Vol Thru, %	16%	6%	0%
Vol Right, %	0%	94%	40%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	80	86
LT Vol	105	0	52
Through Vol	20	5	0
RT Vol	0	75	34
Lane Flow Rate	137	88	95
Geometry Grp	1	1	1
Degree of Util (X)	0.167	0.096	0.116
Departure Headway (Hd)	4.387	3.933	4.419
Convergence, Y/N	Yes	Yes	Yes
Cap	808	917	816
Service Time	2.467	1.933	2.423
HCM Lane V/C Ratio	0.17	0.096	0.116
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	342	75	0	0	0	29	5	25
Future Volume (veh/h)	90	420	30	5	342	75	0	0	0	29	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	360	79	0	0	0	31	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	509	709	51	492	600	132	0	388	0	625	48	251
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.00	0.00	0.00	0.20	0.20	0.20
Sat Flow, veh/h	924	1699	123	888	1439	316	0	1900	0	1578	237	1230
Grp Volume(v), veh/h	95	0	474	5	0	439	0	0	0	31	0	31
Grp Sat Flow(s),veh/h/ln	924	0	1822	888	0	1755	0	1900	0	1578	0	1467
Q Serve(g_s), s	2.1	0.0	4.9	0.1	0.0	4.6	0.0	0.0	0.0	0.4	0.0	0.4
Cycle Q Clear(g_c), s	6.7	0.0	4.9	5.0	0.0	4.6	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	509	0	760	492	0	732	0	388	0	625	0	299
V/C Ratio(X)	0.19	0.00	0.62	0.01	0.00	0.60	0.00	0.00	0.00	0.05	0.00	0.10
Avail Cap(c_a), veh/h	1115	0	1956	1075	0	1883	0	1240	0	1333	0	957
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	8.0	0.0	5.5	7.4	0.0	5.4	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	0.2	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.1	0.0	5.8	7.4	0.0	5.7	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			444			0			62	
Approach Delay, s/veh		6.2			5.7			0.0			7.7	
Approach LOS		A			A						A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	14.4	9.3	14.4	9.3
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	7.0	0.0	8.7	2.4
Green Ext Time (p_c), s	0.5	0.0	0.6	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	6.1
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	313	2	6	213	66	11	5	20	65	1	30
Future Vol, veh/h	20	313	2	6	213	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	386	2	7	263	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	13.6	11.9	9.2	10.1
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	6%	2%	68%
Vol Thru, %	14%	93%	75%	1%
Vol Right, %	56%	1%	23%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	335	285	96
LT Vol	11	20	6	65
Through Vol	5	313	213	1
RT Vol	20	2	66	30
Lane Flow Rate	44	414	352	119
Geometry Grp	1	1	1	1
Degree of Util (X)	0.071	0.547	0.462	0.189
Departure Headway (Hd)	5.759	4.763	4.731	5.755
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	625	749	753	627
Service Time	3.764	2.852	2.823	3.758
HCM Lane V/C Ratio	0.07	0.553	0.467	0.19
HCM Control Delay, s/veh	9.2	13.6	11.9	10.1
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.2	3.4	2.5	0.7

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	92	555	355	7	0	29
Future Vol, veh/h	92	555	355	7	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	98	590	378	7	0	31

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	385	0	-	0	1168	381
Stage 1	-	-	-	-	381	-
Stage 2	-	-	-	-	786	-
Critical Hdwy	4.13	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.227	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1168	-	-	-	214	666
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	449	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1168	-	-	-	187	666
Mov Cap-2 Maneuver	-	-	-	-	187	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	449	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.19	0	10.67
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	256	-	-	-	666
HCM Lane V/C Ratio	0.084	-	-	-	0.046
HCM Ctrl Dly (s/v)	8.4	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1

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	15	15	5	20	10	185	6	492	40	40	166	10
Future Vol, veh/h	15	15	5	20	10	185	6	492	40	40	166	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	523	43	43	177	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	10.1	12	27.5	12
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	43%	9%	19%
Vol Thru, %	91%	43%	5%	77%
Vol Right, %	7%	14%	86%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	538	35	215	216
LT Vol	6	15	20	40
Through Vol	492	15	10	166
RT Vol	40	5	185	10
Lane Flow Rate	572	37	229	230
Geometry Grp	1	1	1	1
Degree of Util (X)	0.821	0.068	0.363	0.364
Departure Headway (Hd)	5.161	6.527	5.714	5.695
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	698	545	627	630
Service Time	3.203	4.61	3.776	3.75
HCM Lane V/C Ratio	0.819	0.068	0.365	0.365
HCM Control Delay, s/veh	27.5	10.1	12	12
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	8.8	0.2	1.7	1.7

Intersection	
Intersection Delay, s/veh	17.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	456	20	55	45	24	20	8	58	10	10	75	101
Future Vol, veh/h	456	20	55	45	24	20	8	58	10	10	75	101
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	470	21	57	46	25	21	8	60	10	10	77	104
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	22.2	9.5	10.1	11
HCM LOS	C	A	B	B

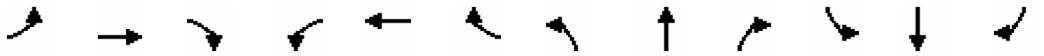
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	86%	51%	5%
Vol Thru, %	76%	4%	27%	40%
Vol Right, %	13%	10%	22%	54%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	531	89	186
LT Vol	8	456	45	10
Through Vol	58	20	24	75
RT Vol	10	55	20	101
Lane Flow Rate	78	547	92	192
Geometry Grp	1	1	1	1
Degree of Util (X)	0.132	0.762	0.141	0.297
Departure Headway (Hd)	6.069	5.008	5.53	5.579
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	589	728	648	642
Service Time	4.122	3.008	3.572	3.624
HCM Lane V/C Ratio	0.132	0.751	0.142	0.299
HCM Control Delay, s/veh	10.1	22.2	9.5	11
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	0.5	7.2	0.5	1.2

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	105
Future Vol, veh/h	23	15	20	45	65	105
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	115
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%	38%
Vol Thru, %	39%	31%	0%
Vol Right, %	0%	69%	62%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	38	65	170
LT Vol	23	0	65
Through Vol	15	20	0
RT Vol	0	45	105
Lane Flow Rate	42	71	187
Geometry Grp	1	1	1
Degree of Util (X)	0.052	0.08	0.202
Departure Headway (Hd)	4.491	4.032	3.901
Convergence, Y/N	Yes	Yes	Yes
Cap	787	876	912
Service Time	2.579	2.117	1.962
HCM Lane V/C Ratio	0.053	0.081	0.205
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	57	10	68
Future Volume (veh/h)	35	425	35	15	392	35	10	5	2	57	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	63	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	393	640	52	370	630	56	439	180	53	661	60	408
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	913	1706	139	878	1681	148	760	570	166	1303	190	1292
Grp Volume(v), veh/h	38	0	505	16	0	469	18	0	0	63	0	86
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1829	1496	0	0	1303	0	1482
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	7.3	0.0	6.9	7.3	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	393	0	692	370	0	686	672	0	0	661	0	468
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	849	0	1615	809	0	1601	983	0	0	942	0	788
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	10.7	0.0	7.8	11.0	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	1.6	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	10.8	0.0	8.4	11.0	0.0	8.1	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			149	
Approach Delay, s/veh		8.6			8.2			6.9			7.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.4		13.7		15.4		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		9.3		2.2		9.3		3.2				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	312	2	10	53	59	0	1	30	69	5	73
Future Vol, veh/h	20	312	2	10	53	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	339	2	11	58	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	11.4	8.6	8.2	9.3
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	6%	8%	47%
Vol Thru, %	3%	93%	43%	3%
Vol Right, %	97%	1%	48%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	334	122	147
LT Vol	0	20	10	69
Through Vol	1	312	53	5
RT Vol	30	2	59	73
Lane Flow Rate	34	363	133	160
Geometry Grp	1	1	1	1
Degree of Util (X)	0.046	0.457	0.17	0.218
Departure Headway (Hd)	4.864	4.536	4.619	4.902
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	730	791	772	729
Service Time	2.934	2.582	2.675	2.958
HCM Lane V/C Ratio	0.047	0.459	0.172	0.219
HCM Control Delay, s/veh	8.2	11.4	8.6	9.3
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.1	2.4	0.6	0.8

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	505	463	2	0	73
Future Vol, veh/h	36	505	463	2	0	73
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	40	567	520	2	0	82

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	522	0	-	0	1170	521
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	648	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1049	-	-	-	213	555
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1049	-	-	-	201	555
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.57	0	12.61
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	120	-	-	-	555
HCM Lane V/C Ratio	0.039	-	-	-	0.148
HCM Ctrl Dly (s/v)	8.6	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	27.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	12	10	30	10	175	5	247	30	75	260	158
Future Vol, veh/h	137	12	10	30	10	175	5	247	30	75	260	158
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	151	13	11	33	11	192	5	271	33	82	286	174
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	14.7	15	17.9	42.5
HCM LOS	B	B	C	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	86%	14%	15%
Vol Thru, %	88%	8%	5%	53%
Vol Right, %	11%	6%	81%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	282	159	215	493
LT Vol	5	137	30	75
Through Vol	247	12	10	260
RT Vol	30	10	175	158
Lane Flow Rate	310	175	236	542
Geometry Grp	1	1	1	1
Degree of Util (X)	0.565	0.359	0.44	0.908
Departure Headway (Hd)	6.56	7.407	6.697	6.031
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	545	482	534	596
Service Time	4.645	5.507	4.787	4.101
HCM Lane V/C Ratio	0.569	0.363	0.442	0.909
HCM Control Delay, s/veh	17.9	14.7	15	42.5
HCM Lane LOS	C	B	B	E
HCM 95th-tile Q	3.5	1.6	2.2	11.2

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	142	15	61	1	39	10	146	110	40	12	40	235
Future Vol, veh/h	142	15	61	1	39	10	146	110	40	12	40	235
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	163	17	70	1	45	11	168	126	46	14	46	270
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	9.9	14.2	12.5
HCM LOS	B	A	B	B

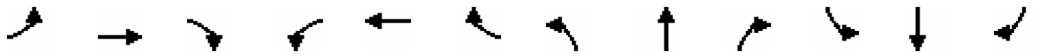
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	49%	65%	2%	4%
Vol Thru, %	37%	7%	78%	14%
Vol Right, %	14%	28%	20%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	296	218	50	287
LT Vol	146	142	1	12
Through Vol	110	15	39	40
RT Vol	40	61	10	235
Lane Flow Rate	340	251	57	330
Geometry Grp	1	1	1	1
Degree of Util (X)	0.515	0.401	0.098	0.464
Departure Headway (Hd)	5.448	5.763	6.148	5.064
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	660	624	580	709
Service Time	3.494	3.813	4.219	3.111
HCM Lane V/C Ratio	0.515	0.402	0.098	0.465
HCM Control Delay, s/veh	14.2	12.6	9.9	12.5
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	3	1.9	0.3	2.5

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	221	20	5	75	52	61
Future Vol, veh/h	221	20	5	75	52	61
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	243	22	5	82	57	67
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	9.9	7.6	8.5
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	92%	0%	46%
Vol Thru, %	8%	6%	0%
Vol Right, %	0%	94%	54%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	241	80	113
LT Vol	221	0	52
Through Vol	20	5	0
RT Vol	0	75	61
Lane Flow Rate	265	88	124
Geometry Grp	1	1	1
Degree of Util (X)	0.335	0.101	0.159
Departure Headway (Hd)	4.556	4.151	4.612
Convergence, Y/N	Yes	Yes	Yes
Cap	792	864	779
Service Time	2.574	2.172	2.632
HCM Lane V/C Ratio	0.335	0.102	0.159
HCM Control Delay, s/veh	9.9	7.6	8.5
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)	187	420	30	5	335	94	0	0	0	29	5	52
Future Volume (veh/h)	187	420	30	5	335	94	0	0	0	29	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	197	442	32	5	353	99	0	0	0	31	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	493	798	58	486	638	179	0	452	0	613	28	313
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	914	1700	123	890	1359	381	0	1900	0	1591	120	1316
Grp Volume(v), veh/h	197	0	474	5	0	452	0	0	0	31	0	60
Grp Sat Flow(s),veh/h/ln	914	0	1823	890	0	1740	0	1900	0	1591	0	1436
Q Serve(g_s), s	6.0	0.0	5.7	0.1	0.0	5.7	0.0	0.0	0.0	0.5	0.0	1.0
Cycle Q Clear(g_c), s	11.8	0.0	5.7	5.9	0.0	5.7	0.0	0.0	0.0	0.5	0.0	1.0
Prop In Lane	1.00		0.07	1.00		0.22	0.00		0.00	1.00		0.92
Lane Grp Cap(c), veh/h	493	0	856	486	0	817	0	452	0	613	0	341
V/C Ratio(X)	0.40	0.00	0.55	0.01	0.00	0.55	0.00	0.00	0.00	0.05	0.00	0.18
Avail Cap(c_a), veh/h	823	0	1513	807	0	1444	0	959	0	1037	0	724
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	10.1	0.0	5.8	7.9	0.0	5.8	0.0	0.0	0.0	9.1	0.0	9.3
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	0.8	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	10.3	0.0	6.1	7.9	0.0	6.1	0.0	0.0	0.0	9.1	0.0	9.4
LnGrp LOS	B		A	A		A				A		A
Approach Vol, veh/h		671			457			0			91	
Approach Delay, s/veh		7.3			6.1			0.0			9.3	
Approach LOS		A			A						A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	18.9	11.8	18.9	11.8
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	7.9	0.0	13.8	3.0
Green Ext Time (p_c), s	0.5	0.0	0.6	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.0
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	108	2	6	135	60	11	5	20	45	1	5
Future Vol, veh/h	20	108	2	6	135	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	133	2	7	167	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	8.6	8.9	8	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	15%	3%	88%
Vol Thru, %	14%	83%	67%	2%
Vol Right, %	56%	2%	30%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	130	201	51
LT Vol	11	20	6	45
Through Vol	5	108	135	1
RT Vol	20	2	60	5
Lane Flow Rate	44	160	248	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.057	0.198	0.29	0.087
Departure Headway (Hd)	4.657	4.441	4.2	4.968
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	768	809	859	721
Service Time	2.689	2.461	2.217	2.998
HCM Lane V/C Ratio	0.057	0.198	0.289	0.087
HCM Control Delay, s/veh	8	8.6	8.9	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.7	1.2	0.3

Intersection	
Intersection Delay, s/veh	15.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	129	20	5	20	10	185	6	378	35	40	118	59
Future Vol, veh/h	129	20	5	20	10	185	6	378	35	40	118	59
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	137	21	5	21	11	197	6	402	37	43	126	63
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	12.3	12.5	20.6	12.8
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	84%	9%	18%
Vol Thru, %	90%	13%	5%	54%
Vol Right, %	8%	3%	86%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	419	154	215	217
LT Vol	6	129	20	40
Through Vol	378	20	10	118
RT Vol	35	5	185	59
Lane Flow Rate	446	164	229	231
Geometry Grp	1	1	1	1
Degree of Util (X)	0.693	0.298	0.377	0.386
Departure Headway (Hd)	5.712	6.546	5.93	6.013
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	637	550	608	600
Service Time	3.712	4.57	3.943	4.029
HCM Lane V/C Ratio	0.7	0.298	0.377	0.385
HCM Control Delay, s/veh	20.6	12.3	12.5	12.8
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	5.5	1.2	1.8	1.8

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	319	20	127	45	24	20	27	75	10	10	75	53
Future Vol, veh/h	319	20	127	45	24	20	27	75	10	10	75	53
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	329	21	131	46	25	21	28	77	10	10	77	55
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	9.2	10.1	10.1
HCM LOS	C	A	B	B

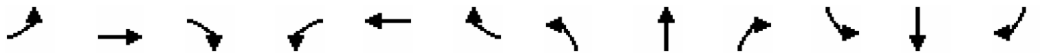
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	68%	51%	7%
Vol Thru, %	67%	4%	27%	54%
Vol Right, %	9%	27%	22%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	466	89	138
LT Vol	27	319	45	10
Through Vol	75	20	24	75
RT Vol	10	127	20	53
Lane Flow Rate	115	480	92	142
Geometry Grp	1	1	1	1
Degree of Util (X)	0.186	0.63	0.137	0.218
Departure Headway (Hd)	5.791	4.719	5.358	5.519
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	622	754	671	653
Service Time	3.801	2.815	3.376	3.53
HCM Lane V/C Ratio	0.185	0.637	0.137	0.217
HCM Control Delay, s/veh	10.1	15.6	9.2	10.1
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	0.7	4.5	0.5	0.8

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	15	20	45	65	177
Future Vol, veh/h	60	15	20	45	65	177
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	66	16	22	49	71	195
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, %	80%	0%	27%
Vol Thru, %	20%	31%	0%
Vol Right, %	0%	69%	73%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	75	65	242
LT Vol	60	0	65
Through Vol	15	20	0
RT Vol	0	45	177
Lane Flow Rate	82	71	266
Geometry Grp	1	1	1
Degree of Util (X)	0.11	0.086	0.294
Departure Headway (Hd)	4.792	4.338	3.981
Convergence, Y/N	Yes	Yes	Yes
Cap	750	828	907
Service Time	2.809	2.355	1.992
HCM Lane V/C Ratio	0.109	0.086	0.293
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	1.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	425	35	15	390	36	10	5	2	57	10	140
Future Volume (veh/h)	71	425	35	15	390	36	10	5	2	57	10	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)	0.98		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	40	11	5	2	63	11	154
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	375	651	53	352	637	59	395	163	47	700	33	464
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	913	1706	139	878	1671	156	635	476	139	1314	97	1359
Grp Volume(v), veh/h	78	0	505	16	0	469	18	0	0	63	0	165
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1827	1250	0	0	1314	0	1456
Q Serve(g_s), s	2.5	0.0	7.6	0.5	0.0	6.9	0.0	0.0	0.0	0.0	0.0	2.7
Cycle Q Clear(g_c), s	9.5	0.0	7.6	8.1	0.0	6.9	2.8	0.0	0.0	0.8	0.0	2.7
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	375	0	704	352	0	697	605	0	0	700	0	497
V/C Ratio(X)	0.21	0.00	0.72	0.05	0.00	0.67	0.03	0.00	0.00	0.09	0.00	0.33
Avail Cap(c_a), veh/h	743	0	1449	706	0	1434	792	0	0	878	0	695
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	12.3	0.0	8.6	12.0	0.0	8.4	7.1	0.0	0.0	7.3	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	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	12.4	0.0	9.1	12.0	0.0	8.8	7.2	0.0	0.0	7.3	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		583			485			18			228	
Approach Delay, s/veh		9.5			8.9			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.9		15.6		16.9		15.6				
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		10.1		4.8		11.5		4.7				
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	
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	145	2	10	29	55	0	1	30	101	5	5
Future Vol, veh/h	20	145	2	10	29	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	158	2	11	32	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	8.7	7.8	7.5	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	12%	11%	91%
Vol Thru, %	3%	87%	31%	5%
Vol Right, %	97%	1%	59%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	167	94	111
LT Vol	0	20	10	101
Through Vol	1	145	29	5
RT Vol	30	2	55	5
Lane Flow Rate	34	182	102	121
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.222	0.12	0.16
Departure Headway (Hd)	4.289	4.396	4.241	4.76
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	835	819	846	754
Service Time	2.316	2.416	2.264	2.782
HCM Lane V/C Ratio	0.041	0.222	0.121	0.16
HCM Control Delay, s/veh	7.5	8.7	7.8	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.8	0.4	0.6

Intersection	
Intersection Delay, s/veh	28.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	9	10	30	10	175	5	247	30	75	267	159
Future Vol, veh/h	137	9	10	30	10	175	5	247	30	75	267	159
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	151	10	11	33	11	192	5	271	33	82	293	175
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	14.6	15.1	17.9	44.6
HCM LOS	B	C	C	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	88%	14%	15%
Vol Thru, %	88%	6%	5%	53%
Vol Right, %	11%	6%	81%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	282	156	215	501
LT Vol	5	137	30	75
Through Vol	247	9	10	267
RT Vol	30	10	175	159
Lane Flow Rate	310	171	236	551
Geometry Grp	1	1	1	1
Degree of Util (X)	0.565	0.354	0.441	0.921
Departure Headway (Hd)	6.567	7.44	6.714	6.025
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	545	480	534	600
Service Time	4.652	5.538	4.802	4.094
HCM Lane V/C Ratio	0.569	0.356	0.442	0.918
HCM Control Delay, s/veh	17.9	14.6	15.1	44.6
HCM Lane LOS	C	B	C	E
HCM 95th-tile Q	3.5	1.6	2.2	11.7

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	187	15	35	1	48	10	75	65	40	12	40	242
Future Vol, veh/h	187	15	35	1	48	10	75	65	40	12	40	242
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	215	17	40	1	55	11	86	75	46	14	46	278
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	9.6	11	12.1
HCM LOS	B	A	B	B

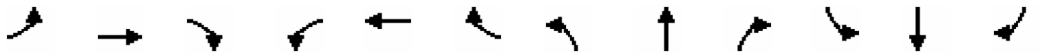
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	79%	2%	4%
Vol Thru, %	36%	6%	81%	14%
Vol Right, %	22%	15%	17%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	237	59	294
LT Vol	75	187	1	12
Through Vol	65	15	48	40
RT Vol	40	35	10	242
Lane Flow Rate	207	272	68	338
Geometry Grp	1	1	1	1
Degree of Util (X)	0.313	0.42	0.109	0.461
Departure Headway (Hd)	5.444	5.544	5.801	4.912
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	660	648	616	733
Service Time	3.486	3.582	3.854	2.949
HCM Lane V/C Ratio	0.314	0.42	0.11	0.461
HCM Control Delay, s/veh	11	12.6	9.6	12.1
HCM Lane LOS	B	B	A	B
HCM 95th-tile Q	1.3	2.1	0.4	2.4

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	35
Future Vol, veh/h	105	20	5	75	52	35
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	38
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%	60%
Vol Thru, %	16%	6%	0%
Vol Right, %	0%	94%	40%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	80	87
LT Vol	105	0	52
Through Vol	20	5	0
RT Vol	0	75	35
Lane Flow Rate	137	88	96
Geometry Grp	1	1	1
Degree of Util (X)	0.167	0.096	0.117
Departure Headway (Hd)	4.389	3.935	4.413
Convergence, Y/N	Yes	Yes	Yes
Cap	808	916	816
Service Time	2.469	1.935	2.417
HCM Lane V/C Ratio	0.17	0.096	0.118
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	342	75	0	0	0	29	5	25
Future Volume (veh/h)	90	420	30	5	342	75	0	0	0	29	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	360	79	0	0	0	31	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	509	709	51	492	600	132	0	388	0	625	48	251
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.00	0.00	0.00	0.20	0.20	0.20
Sat Flow, veh/h	924	1699	123	888	1439	316	0	1900	0	1578	237	1230
Grp Volume(v), veh/h	95	0	474	5	0	439	0	0	0	31	0	31
Grp Sat Flow(s),veh/h/ln	924	0	1822	888	0	1755	0	1900	0	1578	0	1467
Q Serve(g_s), s	2.1	0.0	4.9	0.1	0.0	4.6	0.0	0.0	0.0	0.4	0.0	0.4
Cycle Q Clear(g_c), s	6.7	0.0	4.9	5.0	0.0	4.6	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	509	0	760	492	0	732	0	388	0	625	0	299
V/C Ratio(X)	0.19	0.00	0.62	0.01	0.00	0.60	0.00	0.00	0.00	0.05	0.00	0.10
Avail Cap(c_a), veh/h	1115	0	1956	1075	0	1883	0	1240	0	1333	0	957
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	8.0	0.0	5.5	7.4	0.0	5.4	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	0.2	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.0	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.1	0.0	5.8	7.4	0.0	5.7	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			444			0			62	
Approach Delay, s/veh		6.2			5.7			0.0			7.7	
Approach LOS		A			A						A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	14.4	9.3	14.4	9.3
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	7.0	0.0	8.7	2.4
Green Ext Time (p_c), s	0.5	0.0	0.6	0.1

Intersection Summary	
HCM 7th Control Delay, s/veh	6.1
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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	152	2	6	114	26	11	5	20	20	1	30
Future Vol, veh/h	20	152	2	6	114	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	188	2	7	141	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	8.9	8.5	7.9	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	11%	4%	39%
Vol Thru, %	14%	87%	78%	2%
Vol Right, %	56%	1%	18%	59%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	174	146	51
LT Vol	11	20	6	20
Through Vol	5	152	114	1
RT Vol	20	2	26	30
Lane Flow Rate	44	215	180	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.057	0.26	0.216	0.08
Departure Headway (Hd)	4.63	4.356	4.313	4.553
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	773	827	833	787
Service Time	2.658	2.375	2.334	2.58
HCM Lane V/C Ratio	0.057	0.26	0.216	0.08
HCM Control Delay, s/veh	7.9	8.9	8.5	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	1	0.8	0.3

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	92	555	355	7	0	29
Future Vol, veh/h	92	555	355	7	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	98	590	378	7	0	31

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	385	0	-	0	1168	381
Stage 1	-	-	-	-	381	-
Stage 2	-	-	-	-	786	-
Critical Hdwy	4.13	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.227	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1168	-	-	-	214	666
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	449	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1168	-	-	-	187	666
Mov Cap-2 Maneuver	-	-	-	-	187	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	449	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.19	0	10.67
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	256	-	-	-	666
HCM Lane V/C Ratio	0.084	-	-	-	0.046
HCM Ctrl Dly (s/v)	8.4	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1

Intersection	
Intersection Delay, s/veh	15.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	128	20	5	20	10	185	6	378	35	40	118	58
Future Vol, veh/h	128	20	5	20	10	185	6	378	35	40	118	58
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	136	21	5	21	11	197	6	402	37	43	126	62
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	12.3	12.5	20.6	12.7
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	84%	9%	19%
Vol Thru, %	90%	13%	5%	55%
Vol Right, %	8%	3%	86%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	419	153	215	216
LT Vol	6	128	20	40
Through Vol	378	20	10	118
RT Vol	35	5	185	58
Lane Flow Rate	446	163	229	230
Geometry Grp	1	1	1	1
Degree of Util (X)	0.693	0.296	0.376	0.384
Departure Headway (Hd)	5.704	6.541	5.923	6.01
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	637	550	611	602
Service Time	3.704	4.564	3.936	4.024
HCM Lane V/C Ratio	0.7	0.296	0.375	0.382
HCM Control Delay, s/veh	20.6	12.3	12.5	12.7
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	5.5	1.2	1.7	1.8

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	337	20	55	45	24	20	8	58	10	10	75	53
Future Vol, veh/h	337	20	55	45	24	20	8	58	10	10	75	53
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	57	46	25	21	8	60	10	10	77	55
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	8.9	9.3	9.7
HCM LOS	B	A	A	A

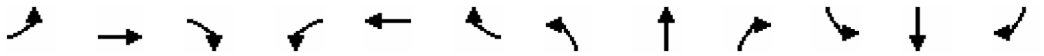
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	82%	51%	7%
Vol Thru, %	76%	5%	27%	54%
Vol Right, %	13%	13%	22%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	412	89	138
LT Vol	8	337	45	10
Through Vol	58	20	24	75
RT Vol	10	55	20	53
Lane Flow Rate	78	425	92	142
Geometry Grp	1	1	1	1
Degree of Util (X)	0.119	0.556	0.129	0.206
Departure Headway (Hd)	5.479	4.709	5.045	5.207
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	647	760	704	683
Service Time	3.571	2.767	3.127	3.289
HCM Lane V/C Ratio	0.121	0.559	0.131	0.208
HCM Control Delay, s/veh	9.3	13.6	8.9	9.7
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.4	3.5	0.4	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	105
Future Vol, veh/h	23	15	20	45	65	105
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	115
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%	38%
Vol Thru, %	39%	31%	0%
Vol Right, %	0%	69%	62%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	38	65	170
LT Vol	23	0	65
Through Vol	15	20	0
RT Vol	0	45	105
Lane Flow Rate	42	71	187
Geometry Grp	1	1	1
Degree of Util (X)	0.052	0.08	0.202
Departure Headway (Hd)	4.491	4.032	3.901
Convergence, Y/N	Yes	Yes	Yes
Cap	787	876	912
Service Time	2.579	2.117	1.962
HCM Lane V/C Ratio	0.053	0.081	0.205
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	57	10	68
Future Volume (veh/h)	35	425	35	15	392	35	10	5	2	57	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	63	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	393	640	52	370	630	56	439	180	53	661	60	408
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	913	1706	139	878	1681	148	760	570	166	1303	190	1292
Grp Volume(v), veh/h	38	0	505	16	0	469	18	0	0	63	0	86
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1829	1496	0	0	1303	0	1482
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	7.3	0.0	6.9	7.3	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	393	0	692	370	0	686	672	0	0	661	0	468
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	849	0	1615	809	0	1601	983	0	0	942	0	788
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	10.7	0.0	7.8	11.0	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	1.6	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	10.8	0.0	8.4	11.0	0.0	8.1	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			149	
Approach Delay, s/veh		8.6			8.2			6.9			7.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.4		13.7		15.4		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		9.3		2.2		9.3		3.2				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	158	2	10	23	42	0	1	30	34	5	73
Future Vol, veh/h	20	158	2	10	23	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	172	2	11	25	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	8.7	7.7	7.5	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	11%	13%	30%
Vol Thru, %	3%	88%	31%	4%
Vol Right, %	97%	1%	56%	65%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	180	75	112
LT Vol	0	20	10	34
Through Vol	1	158	23	5
RT Vol	30	2	42	73
Lane Flow Rate	34	196	82	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.237	0.096	0.144
Departure Headway (Hd)	4.262	4.36	4.246	4.26
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	841	830	845	844
Service Time	2.284	2.36	2.266	2.279
HCM Lane V/C Ratio	0.04	0.236	0.097	0.145
HCM Control Delay, s/veh	7.5	8.7	7.7	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.9	0.3	0.5

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	505	463	2	0	74
Future Vol, veh/h	36	505	463	2	0	74
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	40	567	520	2	0	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	522	0	-	0	1170	521
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	648	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1049	-	-	-	213	555
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1049	-	-	-	201	555
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.57	0	12.62
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	120	-	-	-	555
HCM Lane V/C Ratio	0.039	-	-	-	0.15
HCM Ctrl Dly (s/v)	8.6	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	28.6
Intersection LOS	D

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	280	34	75	326	100
Future Vol, veh/h	105	5	10	30	10	175	5	280	34	75	326	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	308	37	82	358	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	13.5	14.9	19.4	43.9
HCM LOS	B	B	C	E

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	88%	14%	15%
Vol Thru, %	88%	4%	5%	65%
Vol Right, %	11%	8%	81%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	319	120	215	501
LT Vol	5	105	30	75
Through Vol	280	5	10	326
RT Vol	34	10	175	100
Lane Flow Rate	351	132	236	551
Geometry Grp	1	1	1	1
Degree of Util (X)	0.621	0.276	0.437	0.918
Departure Headway (Hd)	6.375	7.526	6.658	6
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	564	475	539	600
Service Time	4.447	5.618	4.737	4.061
HCM Lane V/C Ratio	0.622	0.278	0.438	0.918
HCM Control Delay, s/veh	19.4	13.5	14.9	43.9
HCM Lane LOS	C	B	B	E
HCM 95th-tile Q	4.2	1.1	2.2	11.6

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	179	15	63	1	48	10	129	110	40	12	40	301
Future Vol, veh/h	179	15	63	1	48	10	129	110	40	12	40	301
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	206	17	72	1	55	11	148	126	46	14	46	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	10.6	15	15.9
HCM LOS	B	B	B	C

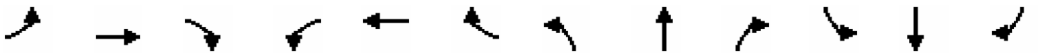
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	46%	70%	2%	3%
Vol Thru, %	39%	6%	81%	11%
Vol Right, %	14%	25%	17%	85%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	279	257	59	353
LT Vol	129	179	1	12
Through Vol	110	15	48	40
RT Vol	40	63	10	301
Lane Flow Rate	321	295	68	406
Geometry Grp	1	1	1	1
Degree of Util (X)	0.517	0.495	0.125	0.594
Departure Headway (Hd)	5.808	6.03	6.65	5.271
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	616	594	543	678
Service Time	3.891	4.111	4.65	3.35
HCM Lane V/C Ratio	0.521	0.497	0.125	0.599
HCM Control Delay, s/veh	15	15	10.6	15.9
HCM Lane LOS	B	B	B	C
HCM 95th-tile Q	3	2.7	0.4	3.9

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	204	20	5	75	52	63
Future Vol, veh/h	204	20	5	75	52	63
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	224	22	5	82	57	69
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	9.6	7.6	8.5
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	45%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	55%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	224	80	115
LT Vol	204	0	52
Through Vol	20	5	0
RT Vol	0	75	63
Lane Flow Rate	246	88	126
Geometry Grp	1	1	1
Degree of Util (X)	0.312	0.101	0.16
Departure Headway (Hd)	4.557	4.132	4.562
Convergence, Y/N	Yes	Yes	Yes
Cap	790	869	787
Service Time	2.575	2.153	2.582
HCM Lane V/C Ratio	0.311	0.101	0.16
HCM Control Delay, s/veh	9.6	7.6	8.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.3	0.3	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	420	30	5	335	82	0	0	0	29	5	54
Future Volume (veh/h)	182	420	30	5	335	82	0	0	0	29	5	54
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	192	442	32	5	353	86	0	0	0	31	5	57
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	496	781	57	478	646	157	0	460	0	625	28	320
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.00	0.00	0.00	0.24	0.24	0.24
Sat Flow, veh/h	925	1700	123	889	1407	343	0	1900	0	1593	116	1320
Grp Volume(v), veh/h	192	0	474	5	0	439	0	0	0	31	0	62
Grp Sat Flow(s),veh/h/ln	925	0	1823	889	0	1749	0	1900	0	1593	0	1436
Q Serve(g_s), s	5.7	0.0	5.7	0.1	0.0	5.5	0.0	0.0	0.0	0.5	0.0	1.0
Cycle Q Clear(g_c), s	11.2	0.0	5.7	5.9	0.0	5.5	0.0	0.0	0.0	0.5	0.0	1.0
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	496	0	837	478	0	803	0	460	0	625	0	348
V/C Ratio(X)	0.39	0.00	0.57	0.01	0.00	0.55	0.00	0.00	0.00	0.05	0.00	0.18
Avail Cap(c_a), veh/h	854	0	1543	822	0	1481	0	977	0	1058	0	739
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	9.9	0.0	6.0	8.1	0.0	5.9	0.0	0.0	0.0	8.8	0.0	9.0
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	1.1	0.0	0.0	1.0	0.0	0.0	0.0	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.1	0.0	6.2	8.1	0.0	6.1	0.0	0.0	0.0	8.8	0.0	9.1
LnGrp LOS	B		A	A		A				A		A
Approach Vol, veh/h		666			444			0			93	
Approach Delay, s/veh		7.3			6.1			0.0			9.0	
Approach LOS		A			A						A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	18.3	11.8	18.3	11.8
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	7.9	0.0	13.2	3.0
Green Ext Time (p_c), s	0.5	0.0	0.6	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.0
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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	20	147	2	6	193	60	11	5	20	45	1	5
Future Vol, veh/h	20	147	2	6	193	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	181	2	7	238	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	9.2	10	8.3	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	12%	2%	88%
Vol Thru, %	14%	87%	75%	2%
Vol Right, %	56%	1%	23%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	169	259	51
LT Vol	11	20	6	45
Through Vol	5	147	193	1
RT Vol	20	2	60	5
Lane Flow Rate	44	209	320	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.061	0.262	0.382	0.092
Departure Headway (Hd)	4.93	4.525	4.303	5.238
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	724	793	835	682
Service Time	2.981	2.558	2.332	3.286
HCM Lane V/C Ratio	0.061	0.264	0.383	0.092
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	1.8	0.3

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	85	15	5	20	10	185	6	422	40	40	132	45
Future Vol, veh/h	85	15	5	20	10	185	6	422	40	40	132	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	449	43	43	140	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	11.3	12.3	23.1	12.4
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	18%
Vol Thru, %	90%	14%	5%	61%
Vol Right, %	9%	5%	86%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	468	105	215	217
LT Vol	6	85	20	40
Through Vol	422	15	10	132
RT Vol	40	5	185	45
Lane Flow Rate	498	112	229	231
Geometry Grp	1	1	1	1
Degree of Util (X)	0.75	0.203	0.368	0.373
Departure Headway (Hd)	5.424	6.532	5.795	5.818
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	662	545	615	614
Service Time	3.486	4.63	3.879	3.899
HCM Lane V/C Ratio	0.752	0.206	0.372	0.376
HCM Control Delay, s/veh	23.1	11.3	12.3	12.4
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	6.8	0.8	1.7	1.7

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	368	20	127	45	24	20	27	75	10	10	75	67
Future Vol, veh/h	368	20	127	45	24	20	27	75	10	10	75	67
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	379	21	131	46	25	21	28	77	10	10	77	69
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	19.6	9.5	10.5	10.5
HCM LOS	C	A	B	B

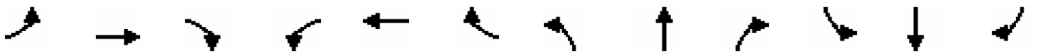
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	71%	51%	7%
Vol Thru, %	67%	4%	27%	49%
Vol Right, %	9%	25%	22%	44%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	515	89	152
LT Vol	27	368	45	10
Through Vol	75	20	24	75
RT Vol	10	127	20	67
Lane Flow Rate	115	531	92	157
Geometry Grp	1	1	1	1
Degree of Util (X)	0.192	0.723	0.14	0.246
Departure Headway (Hd)	5.983	4.905	5.509	5.647
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	599	743	650	635
Service Time	4.028	2.905	3.551	3.69
HCM Lane V/C Ratio	0.192	0.715	0.142	0.247
HCM Control Delay, s/veh	10.5	19.6	9.5	10.5
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	0.7	6.3	0.5	1

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	60	15	20	45	65	177
Future Vol, veh/h	60	15	20	45	65	177
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	66	16	22	49	71	195
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, %	80%	0%	27%
Vol Thru, %	20%	31%	0%
Vol Right, %	0%	69%	73%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	75	65	242
LT Vol	60	0	65
Through Vol	15	20	0
RT Vol	0	45	177
Lane Flow Rate	82	71	266
Geometry Grp	1	1	1
Degree of Util (X)	0.11	0.086	0.294
Departure Headway (Hd)	4.792	4.338	3.981
Convergence, Y/N	Yes	Yes	Yes
Cap	750	828	907
Service Time	2.809	2.355	1.992
HCM Lane V/C Ratio	0.109	0.086	0.293
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	1.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	425	35	15	390	36	10	5	2	57	10	140
Future Volume (veh/h)	71	425	35	15	390	36	10	5	2	57	10	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)	0.98		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	40	11	5	2	63	11	154
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	375	651	53	352	637	59	395	163	47	700	33	464
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	913	1706	139	878	1671	156	635	476	139	1314	97	1359
Grp Volume(v), veh/h	78	0	505	16	0	469	18	0	0	63	0	165
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1827	1250	0	0	1314	0	1456
Q Serve(g_s), s	2.5	0.0	7.6	0.5	0.0	6.9	0.0	0.0	0.0	0.0	0.0	2.7
Cycle Q Clear(g_c), s	9.5	0.0	7.6	8.1	0.0	6.9	2.8	0.0	0.0	0.8	0.0	2.7
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	375	0	704	352	0	697	605	0	0	700	0	497
V/C Ratio(X)	0.21	0.00	0.72	0.05	0.00	0.67	0.03	0.00	0.00	0.09	0.00	0.33
Avail Cap(c_a), veh/h	743	0	1449	706	0	1434	792	0	0	878	0	695
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	12.3	0.0	8.6	12.0	0.0	8.4	7.1	0.0	0.0	7.3	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	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	12.4	0.0	9.1	12.0	0.0	8.8	7.2	0.0	0.0	7.3	0.0	8.1
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		583			485			18			228	
Approach Delay, s/veh		9.5			8.9			7.2			7.9	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.9		15.6		16.9		15.6				
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		10.1		4.8		11.5		4.7				
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	
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	194	2	10	43	55	0	1	30	101	5	5
Future Vol, veh/h	20	194	2	10	43	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	211	2	11	47	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	9.2	8.1	7.7	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	9%	9%	91%
Vol Thru, %	3%	90%	40%	5%
Vol Right, %	97%	1%	51%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	216	108	111
LT Vol	0	20	10	101
Through Vol	1	194	43	5
RT Vol	30	2	55	5
Lane Flow Rate	34	235	117	121
Geometry Grp	1	1	1	1
Degree of Util (X)	0.042	0.288	0.142	0.165
Departure Headway (Hd)	4.456	4.421	4.354	4.919
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	802	812	823	729
Service Time	2.492	2.446	2.382	2.949
HCM Lane V/C Ratio	0.042	0.289	0.142	0.166
HCM Control Delay, s/veh	7.7	9.2	8.1	8.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.2	0.5	0.6

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	85	15	5	20	10	185	6	422	40	40	131	45
Future Vol, veh/h	85	15	5	20	10	185	6	422	40	40	131	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	449	43	43	139	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	11.3	12.3	23.1	12.3
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	19%
Vol Thru, %	90%	14%	5%	61%
Vol Right, %	9%	5%	86%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	468	105	215	216
LT Vol	6	85	20	40
Through Vol	422	15	10	131
RT Vol	40	5	185	45
Lane Flow Rate	498	112	229	230
Geometry Grp	1	1	1	1
Degree of Util (X)	0.75	0.203	0.368	0.371
Departure Headway (Hd)	5.421	6.528	5.791	5.818
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	662	545	615	614
Service Time	3.484	4.626	3.875	3.899
HCM Lane V/C Ratio	0.752	0.206	0.372	0.375
HCM Control Delay, s/veh	23.1	11.3	12.3	12.3
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	6.8	0.8	1.7	1.7

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	386	20	55	45	24	20	8	58	10	10	75	66
Future Vol, veh/h	386	20	55	45	24	20	8	58	10	10	75	66
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	398	21	57	46	25	21	8	60	10	10	77	68
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	15.7	9.1	9.6	10.1
HCM LOS	C	A	A	B

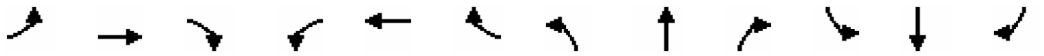
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	84%	51%	7%
Vol Thru, %	76%	4%	27%	50%
Vol Right, %	13%	12%	22%	44%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	461	89	151
LT Vol	8	386	45	10
Through Vol	58	20	24	75
RT Vol	10	55	20	66
Lane Flow Rate	78	475	92	156
Geometry Grp	1	1	1	1
Degree of Util (X)	0.125	0.629	0.134	0.234
Departure Headway (Hd)	5.75	4.766	5.262	5.413
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	626	751	684	668
Service Time	3.76	2.851	3.275	3.413
HCM Lane V/C Ratio	0.125	0.632	0.135	0.234
HCM Control Delay, s/veh	9.6	15.7	9.1	10.1
HCM Lane LOS	A	C	A	B
HCM 95th-tile Q	0.4	4.5	0.5	0.9

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	105
Future Vol, veh/h	23	15	20	45	65	105
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	115
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%	38%
Vol Thru, %	39%	31%	0%
Vol Right, %	0%	69%	62%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	38	65	170
LT Vol	23	0	65
Through Vol	15	20	0
RT Vol	0	45	105
Lane Flow Rate	42	71	187
Geometry Grp	1	1	1
Degree of Util (X)	0.052	0.08	0.202
Departure Headway (Hd)	4.491	4.032	3.901
Convergence, Y/N	Yes	Yes	Yes
Cap	787	876	912
Service Time	2.579	2.117	1.962
HCM Lane V/C Ratio	0.053	0.081	0.205
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	57	10	68
Future Volume (veh/h)	35	425	35	15	392	35	10	5	2	57	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	63	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	393	640	52	370	630	56	439	180	53	661	60	408
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	913	1706	139	878	1681	148	760	570	166	1303	190	1292
Grp Volume(v), veh/h	38	0	505	16	0	469	18	0	0	63	0	86
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1829	1496	0	0	1303	0	1482
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	7.3	0.0	6.9	7.3	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	393	0	692	370	0	686	672	0	0	661	0	468
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	849	0	1615	809	0	1601	983	0	0	942	0	788
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	10.7	0.0	7.8	11.0	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	1.6	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	10.8	0.0	8.4	11.0	0.0	8.1	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			149	
Approach Delay, s/veh		8.6			8.2			6.9			7.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.4		13.7		15.4		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		9.3		2.2		9.3		3.2				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	207	2	10	36	42	0	1	30	34	5	73
Future Vol, veh/h	20	207	2	10	36	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	225	2	11	39	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	9.3	8	7.6	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	9%	11%	30%
Vol Thru, %	3%	90%	41%	4%
Vol Right, %	97%	1%	48%	65%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	229	88	112
LT Vol	0	20	10	34
Through Vol	1	207	36	5
RT Vol	30	2	42	73
Lane Flow Rate	34	249	96	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.041	0.302	0.116	0.149
Departure Headway (Hd)	4.425	4.368	4.36	4.415
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	809	824	823	813
Service Time	2.454	2.387	2.384	2.439
HCM Lane V/C Ratio	0.042	0.302	0.117	0.15
HCM Control Delay, s/veh	7.6	9.3	8	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.3	0.4	0.5

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	505	463	2	0	73
Future Vol, veh/h	36	505	463	2	0	73
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	40	567	520	2	0	82

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	522	0	-	0	1170	521
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	648	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1049	-	-	-	213	555
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1049	-	-	-	201	555
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.57	0	12.61
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	120	-	-	-	555
HCM Lane V/C Ratio	0.039	-	-	-	0.148
HCM Ctrl Dly (s/v)	8.6	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

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	85	15	5	20	10	185	6	422	40	40	131	45
Future Vol, veh/h	85	15	5	20	10	185	6	422	40	40	131	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	449	43	43	139	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	11.3	12.3	23.1	12.3
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	81%	9%	19%
Vol Thru, %	90%	14%	5%	61%
Vol Right, %	9%	5%	86%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	468	105	215	216
LT Vol	6	85	20	40
Through Vol	422	15	10	131
RT Vol	40	5	185	45
Lane Flow Rate	498	112	229	230
Geometry Grp	1	1	1	1
Degree of Util (X)	0.75	0.203	0.368	0.371
Departure Headway (Hd)	5.421	6.528	5.791	5.818
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	662	545	615	614
Service Time	3.484	4.626	3.875	3.899
HCM Lane V/C Ratio	0.752	0.206	0.372	0.375
HCM Control Delay, s/veh	23.1	11.3	12.3	12.3
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	6.8	0.8	1.7	1.7

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	386	20	55	45	24	20	8	58	10	10	75	66
Future Vol, veh/h	386	20	55	45	24	20	8	58	10	10	75	66
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	398	21	57	46	25	21	8	60	10	10	77	68
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	15.7	9.1	9.6	10.1
HCM LOS	C	A	A	B

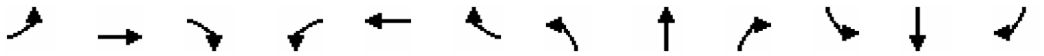
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	84%	51%	7%
Vol Thru, %	76%	4%	27%	50%
Vol Right, %	13%	12%	22%	44%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	461	89	151
LT Vol	8	386	45	10
Through Vol	58	20	24	75
RT Vol	10	55	20	66
Lane Flow Rate	78	475	92	156
Geometry Grp	1	1	1	1
Degree of Util (X)	0.125	0.629	0.134	0.234
Departure Headway (Hd)	5.75	4.766	5.262	5.413
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	626	751	684	668
Service Time	3.76	2.851	3.275	3.413
HCM Lane V/C Ratio	0.125	0.632	0.135	0.234
HCM Control Delay, s/veh	9.6	15.7	9.1	10.1
HCM Lane LOS	A	C	A	B
HCM 95th-tile Q	0.4	4.5	0.5	0.9

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	105
Future Vol, veh/h	23	15	20	45	65	105
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	115
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%	38%
Vol Thru, %	39%	31%	0%
Vol Right, %	0%	69%	62%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	38	65	170
LT Vol	23	0	65
Through Vol	15	20	0
RT Vol	0	45	105
Lane Flow Rate	42	71	187
Geometry Grp	1	1	1
Degree of Util (X)	0.052	0.08	0.202
Departure Headway (Hd)	4.491	4.032	3.901
Convergence, Y/N	Yes	Yes	Yes
Cap	787	876	912
Service Time	2.579	2.117	1.962
HCM Lane V/C Ratio	0.053	0.081	0.205
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	57	10	68
Future Volume (veh/h)	35	425	35	15	392	35	10	5	2	57	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	63	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	393	640	52	370	630	56	439	180	53	661	60	408
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	913	1706	139	878	1681	148	760	570	166	1303	190	1292
Grp Volume(v), veh/h	38	0	505	16	0	469	18	0	0	63	0	86
Grp Sat Flow(s),veh/h/ln	913	0	1845	878	0	1829	1496	0	0	1303	0	1482
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	7.3	0.0	6.9	7.3	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	393	0	692	370	0	686	672	0	0	661	0	468
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	849	0	1615	809	0	1601	983	0	0	942	0	788
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	10.7	0.0	7.8	11.0	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	1.6	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	10.8	0.0	8.4	11.0	0.0	8.1	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			149	
Approach Delay, s/veh		8.6			8.2			6.9			7.2	
Approach LOS		A			A			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.4		13.7		15.4		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		9.3		2.2		9.3		3.2				
Green Ext Time (p_c), s		0.5		0.0		0.6		0.3				

Intersection Summary	
HCM 7th Control Delay, s/veh	8.2
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	207	2	10	36	42	0	1	30	34	5	73
Future Vol, veh/h	20	207	2	10	36	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	225	2	11	39	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	9.3	8	7.6	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	9%	11%	30%
Vol Thru, %	3%	90%	41%	4%
Vol Right, %	97%	1%	48%	65%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	229	88	112
LT Vol	0	20	10	34
Through Vol	1	207	36	5
RT Vol	30	2	42	73
Lane Flow Rate	34	249	96	122
Geometry Grp	1	1	1	1
Degree of Util (X)	0.041	0.302	0.116	0.149
Departure Headway (Hd)	4.425	4.368	4.36	4.415
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	809	824	823	813
Service Time	2.454	2.387	2.384	2.439
HCM Lane V/C Ratio	0.042	0.302	0.117	0.15
HCM Control Delay, s/veh	7.6	9.3	8	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.3	0.4	0.5

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	505	463	2	0	73
Future Vol, veh/h	36	505	463	2	0	73
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	40	567	520	2	0	82

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	522	0	-	0	1170	521
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	648	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1049	-	-	-	213	555
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1049	-	-	-	201	555
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.57	0	12.61
HCM LOS			B

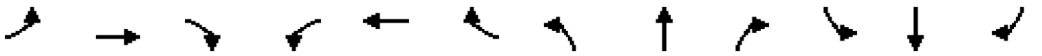
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	120	-	-	-	555
HCM Lane V/C Ratio	0.039	-	-	-	0.148
HCM Ctrl Dly (s/v)	8.6	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	540	255	0	0	0	0	0	0	335	1333	0
Future Volume (veh/h)	0	540	255	0	0	0	0	0	0	335	1333	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	540	255							335	1333	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							542	2156	0
Arrive On Green	0.00	0.38	0.38							0.52	0.52	0.00
Sat Flow, veh/h	0	3618	1517							1048	4342	0
Grp Volume(v), veh/h	0	540	255							581	1087	0
Grp Sat Flow(s),veh/h/ln	0	1763	1517							1818	1702	0
Q Serve(g_s), s	0.0	10.0	11.2							20.4	20.4	0.0
Cycle Q Clear(g_c), s	0.0	10.0	11.2							20.4	20.4	0.0
Prop In Lane	0.00		1.00							0.58		0.00
Lane Grp Cap(c), veh/h	0	1351	581							939	1759	0
V/C Ratio(X)	0.00	0.40	0.44							0.62	0.62	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	20.2	20.6							15.4	15.4	0.0
Incr Delay (d2), s/veh	0.0	0.9	2.4							3.1	1.6	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	7.6	7.7							13.7	12.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	21.1	23.0							18.5	17.1	0.0
LnGrp LOS		C	C							B	B	
Approach Vol, veh/h		795									1668	
Approach Delay, s/veh		21.7									17.6	
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		22.4				
Green Ext Time (p_c), s						0.8		2.9				

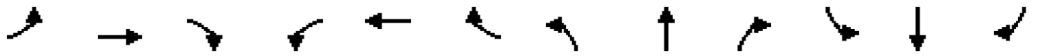
Intersection Summary												
HCM 7th Control Delay, s/veh			18.9									
HCM 7th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	245	0	0	0	341	0	760	60	0	0	0
Future Volume (veh/h)	230	245	0	0	0	341	0	760	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	245	0	0	0	341	0	760	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	295	280	0	0	0	772	0	0	0			
Arrive On Green	0.50	0.50	0.00	0.00	0.00	0.50	0.00	0.00	0.00			
Sat Flow, veh/h	467	556	0	0	0	1532		0				
Grp Volume(v), veh/h	475	0	0	0	0	341		0.0				
Grp Sat Flow(s),veh/h/ln	1023	0	0	0	0	1532						
Q Serve(g_s), s	28.4	0.0	0.0	0.0	0.0	12.8						
Cycle Q Clear(g_c), s	41.2	0.0	0.0	0.0	0.0	12.8						
Prop In Lane	0.48		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	575	0	0	0	0	772						
V/C Ratio(X)	0.83	0.00	0.00	0.00	0.00	0.44						
Avail Cap(c_a), veh/h	659	0	0	0	0	868						
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	25.8	0.0	0.0	0.0	0.0	14.3						
Incr Delay (d2), s/veh	7.6	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	15.9	0.0	0.0	0.0	0.0	7.8						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	33.4	0.0	0.0	0.0	0.0	14.7						
LnGrp LOS	C					B						
Approach Vol, veh/h		475			341							
Approach Delay, s/veh		33.4			14.7							
Approach LOS		C			B							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				50.3				50.3				
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				43.2				14.8				
Green Ext Time (p_c), s				2.2				2.8				

Intersection Summary												
HCM 7th Control Delay, s/veh			25.6									
HCM 7th LOS			C									



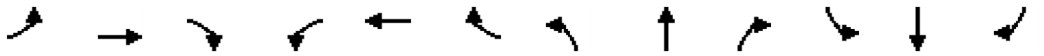
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	254	235	989	435	0	0	0	0	628	780	170
Future Volume (veh/h)	0	254	235	989	435	0	0	0	0	628	780	170
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				1.00	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	254	0	989	435	0				628	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	669		971	979	0				653	1303	575
Arrive On Green	0.00	0.19	0.00	0.09	0.17	0.00				0.12	0.12	0.12
Sat Flow, veh/h	0	3532	1535	3428	1856	0				1781	3554	1567
Grp Volume(v), veh/h	0	254	0	989	435	0				628	780	170
Grp Sat Flow(s),veh/h/ln	0	1721	1535	1714	1856	0				1781	1777	1567
Q Serve(g_s), s	0.0	5.8	0.0	25.5	18.9	0.0				31.6	18.7	8.9
Cycle Q Clear(g_c), s	0.0	5.8	0.0	25.5	18.9	0.0				31.6	18.7	8.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	669		971	979	0				653	1303	575
V/C Ratio(X)	0.00	0.38		1.02	0.44	0.00				0.96	0.60	0.30
Avail Cap(c_a), veh/h	0	669		971	979	0				653	1303	575
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	0.39	0.39	0.00				0.76	0.76	0.76
Uniform Delay (d), s/veh	0.0	31.5	0.0	40.8	25.3	0.0				38.9	33.3	29.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	22.7	0.6	0.0				21.6	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	4.3	0.0	18.9	12.6	0.0				25.1	13.2	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	31.7	0.0	63.5	25.9	0.0				60.5	33.7	29.0
LnGrp LOS		C		F	C					E	C	C
Approach Vol, veh/h		254			1424						1578	
Approach Delay, s/veh		31.7			52.0						43.9	
Approach LOS		C			D						D	

Timer - Assigned Phs	2	3	4					8				
Phs Duration (G+Y+Rc), s	38.0	30.0	22.0					52.0				
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	33.6	27.5	7.8					20.9				
Green Ext Time (p_c), s	0.0	0.0	0.5					1.1				

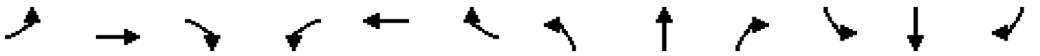
Intersection Summary	
HCM 7th Control Delay, s/veh	46.5
HCM 7th LOS	D

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	792	0	0	1058	345	370	405	692	0	0	0
Future Volume (veh/h)	90	792	0	0	1058	345	370	405	692	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	90	792	0	0	1058	345	370	405	692			
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	114	1962	0	0	1150	370	608	639	539			
Arrive On Green	0.07	0.56	0.00	0.00	0.89	0.89	0.34	0.34	0.34			
Sat Flow, veh/h	1753	3589	0	0	2672	830	1795	1885	1589			
Grp Volume(v), veh/h	90	792	0	0	713	690	370	405	692			
Grp Sat Flow(s),veh/h/ln	1753	1749	0	0	1749	1661	1795	1885	1589			
Q Serve(g_s), s	4.6	11.6	0.0	0.0	21.4	23.9	15.4	16.3	30.5			
Cycle Q Clear(g_c), s	4.6	11.6	0.0	0.0	21.4	23.9	15.4	16.3	30.5			
Prop In Lane	1.00		0.00	0.00		0.50	1.00		1.00			
Lane Grp Cap(c), veh/h	114	1962	0	0	780	741	608	639	539			
V/C Ratio(X)	0.79	0.40	0.00	0.00	0.91	0.93	0.61	0.63	1.28			
Avail Cap(c_a), veh/h	127	1962	0	0	780	741	608	639	539			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.50	0.50	0.00	0.00	0.80	0.80	1.00	1.00	1.00			
Uniform Delay (d), s/veh	41.5	11.2	0.0	0.0	3.9	4.0	24.8	25.0	29.8			
Incr Delay (d2), s/veh	12.2	0.3	0.0	0.0	14.3	17.0	1.3	1.6	141.9			
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	4.1	6.7	0.0	0.0	8.0	8.5	10.5	11.4	47.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	53.6	11.5	0.0	0.0	18.2	21.0	26.0	26.6	171.6			
LnGrp LOS	D	B			B	C	C	C	F			
Approach Vol, veh/h		882			1403			1467				
Approach Delay, s/veh		15.8			19.6			94.9				
Approach LOS		B			B			F				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		35.0		55.0			10.4	44.6				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		30.5		50.5			6.5	39.5				
Max Q Clear Time (g_c+I1), s		32.5		13.6			6.6	25.9				
Green Ext Time (p_c), s		0.0		4.5			0.0	6.3				
Intersection Summary												
HCM 7th Control Delay, s/veh			48.1									
HCM 7th LOS			D									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1534	5	4	1294	5	1	0	2	10	4	115
Future Volume (veh/h)	20	1534	5	4	1294	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	1534	5	4	1294	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	56	2741	9	42	2774	11	85	16	96	50	13	162
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.12	0.00	0.12	0.12	0.12	0.12
Sat Flow, veh/h	19	3475	11	2	3517	14	273	138	822	59	111	1392
Grp Volume(v), veh/h	808	0	751	681	0	622	3	0	0	129	0	0
Grp Sat Flow(s),veh/h/ln	1805	0	1700	1847	0	1686	1232	0	0	1561	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	7.1	0.0	0.0
Prop In Lane	0.02		0.01	0.01		0.01	0.33		0.67	0.08		0.89
Lane Grp Cap(c), veh/h	1465	0	1341	1497	0	1330	197	0	0	225	0	0
V/C Ratio(X)	0.55	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	1465	0	1341	1497	0	1330	323	0	0	405	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.64	0.00	0.64	0.30	0.00	0.30	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	35.2	0.0	0.0	38.2	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	1.1	0.3	0.0	0.4	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	0.7	0.0	0.7	0.2	0.0	0.2	0.1	0.0	0.0	5.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	1.0	0.0	1.1	0.3	0.0	0.4	35.2	0.0	0.0	39.1	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		1559			1303			3			129	
Approach Delay, s/veh		1.0			0.3			35.2			39.1	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		75.5		14.5		75.5		14.5				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		60.5		21.0		60.5		21.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		2.0		9.1				
Green Ext Time (p_c), s		11.7		0.0		8.1		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			2.4									
HCM 7th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	979	510	20	928	33	326	313	31	40	95	65
Future Volume (veh/h)	15	979	510	20	928	33	326	313	31	40	95	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		0.97	1.00		0.97	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	979	510	20	928	33	326	313	31	40	95	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	47	1030	515	47	1334	55	268	679	67	87	163	97
Arrive On Green	0.95	0.95	0.95	0.47	0.47	0.47	0.16	0.42	0.42	0.21	0.21	0.21
Sat Flow, veh/h	13	2177	1089	10	2819	115	1725	1613	160	185	777	463
Grp Volume(v), veh/h	824	0	680	501	0	480	326	0	344	200	0	0
Grp Sat Flow(s),veh/h/ln	1827	0	1452	1268	0	1677	1725	0	1772	1425	0	0
Q Serve(g_s), s	0.0	0.0	35.6	5.8	0.0	19.0	14.0	0.0	12.5	5.1	0.0	0.0
Cycle Q Clear(g_c), s	19.2	0.0	35.6	41.4	0.0	19.0	14.0	0.0	12.5	11.1	0.0	0.0
Prop In Lane	0.02		0.75	0.04		0.07	1.00		0.09	0.20		0.32
Lane Grp Cap(c), veh/h	905	0	687	642	0	794	268	0	747	348	0	0
V/C Ratio(X)	0.91	0.00	0.99	0.78	0.00	0.61	1.22	0.00	0.46	0.58	0.00	0.00
Avail Cap(c_a), veh/h	905	0	687	642	0	794	268	0	788	379	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)	0.67	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	1.8	0.0	2.2	18.4	0.0	17.5	38.0	0.0	18.7	32.3	0.0	0.0
Incr Delay (d2), s/veh	10.7	0.0	25.7	9.1	0.0	3.4	125.9	0.0	0.2	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	6.2	0.0	8.9	13.7	0.0	12.4	23.6	0.0	8.8	7.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.5	0.0	27.9	27.5	0.0	20.9	163.9	0.0	18.9	33.2	0.0	0.0
LnGrp LOS	B		C	C		C	F		B	C		
Approach Vol, veh/h		1504			981			670			200	
Approach Delay, s/veh		19.5			24.3			89.4			33.2	
Approach LOS		B			C			F			C	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		47.1		42.9		47.1	19.0	23.9				
Change Period (Y+Rc), s		4.5		5.0		4.5	5.0	5.0				
Max Green Setting (Gmax), s		40.5		40.0		40.5	14.0	21.0				
Max Q Clear Time (g_c+I1), s		37.6		14.5		43.4	16.0	13.1				
Green Ext Time (p_c), s		1.1		1.5		0.0	0.0	0.2				

Intersection Summary	
HCM 7th Control Delay, s/veh	35.7
HCM 7th LOS	D

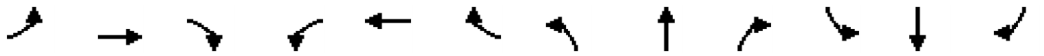
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	848	212	0	961	55	0	0	35	0	0	10
Future Vol, veh/h	0	848	212	0	961	55	0	0	35	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	848	212	0	961	55	0	0	35	0	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	662	-	-	650
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	402	0	0	417
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	353	-	-	362
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	16.33	15.23
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	353	-	-	-	-	362
HCM Lane V/C Ratio	0.099	-	-	-	-	0.028
HCM Ctrl Dly (s/v)	16.3	-	-	-	-	15.2
HCM Lane LOS	C	-	-	-	-	C
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	470	172	28	565	95	331	710	12	95	300	105
Future Volume (veh/h)	205	470	172	28	565	95	331	710	12	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	470	172	28	565	95	331	710	12	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	805	292	45	642	108	351	1196	20	263	724	246
Arrive On Green	0.13	0.32	0.32	0.01	0.07	0.07	0.40	0.68	0.68	0.15	0.29	0.29
Sat Flow, veh/h	1767	2519	915	1767	3007	504	1767	3544	60	1739	2497	850
Grp Volume(v), veh/h	205	328	314	28	330	330	331	353	369	95	206	199
Grp Sat Flow(s),veh/h/ln	1767	1763	1671	1767	1763	1749	1767	1763	1841	1739	1735	1612
Q Serve(g_s), s	13.7	18.7	18.9	1.9	22.3	22.4	21.6	13.0	13.0	5.9	11.5	12.0
Cycle Q Clear(g_c), s	13.7	18.7	18.9	1.9	22.3	22.4	21.6	13.0	13.0	5.9	11.5	12.0
Prop In Lane	1.00		0.55	1.00		0.29	1.00		0.03	1.00		0.53
Lane Grp Cap(c), veh/h	232	563	534	45	376	373	351	595	621	263	503	467
V/C Ratio(X)	0.89	0.58	0.59	0.63	0.88	0.88	0.94	0.59	0.59	0.36	0.41	0.43
Avail Cap(c_a), veh/h	258	563	534	155	419	415	405	595	621	263	503	467
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	0.93	0.93	0.93	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	34.1	34.2	58.9	54.2	54.3	35.5	15.0	15.0	45.7	34.3	34.5
Incr Delay (d2), s/veh	25.1	1.0	1.2	5.3	16.2	17.0	25.8	4.0	3.9	0.3	2.5	2.8
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	12.3	12.9	12.5	1.7	18.0	18.1	15.4	7.7	7.9	4.7	9.0	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	76.4	35.2	35.4	64.2	70.4	71.3	61.2	19.1	18.9	46.0	36.8	37.4
LnGrp LOS	E	D	D	E	E	E	E	B	B	D	D	D
Approach Vol, veh/h		847			688			1053			500	
Approach Delay, s/veh		45.2			70.6			32.3			38.8	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.4	40.3	20.2	30.1	23.6	46.0	7.5	42.8
Change Period (Y+Rc), s	5.5	5.5	4.5	4.5	5.5	5.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	26.5	17.5	28.5	13.5	40.5	10.5	35.5
Max Q Clear Time (g_c+I1), s	23.6	14.0	15.7	24.4	7.9	15.0	3.9	20.9
Green Ext Time (p_c), s	0.2	1.4	0.1	1.2	0.0	3.2	0.0	2.5

Intersection Summary	
HCM 7th Control Delay, s/veh	45.4
HCM 7th LOS	D

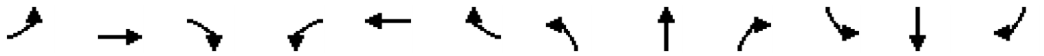
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	507	70	0	568	75	0	0	2	0	0	150
Future Vol, veh/h	0	507	70	0	568	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	507	70	0	568	75	0	0	2	0	0	150

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	339	-	-	406
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	663	0	0	600
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	632	-	-	553
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	10.71	13.91
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	632	-	-	-	-	553
HCM Lane V/C Ratio	0.003	-	-	-	-	0.271
HCM Ctrl Dly (s/v)	10.7	-	-	-	-	13.9
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)	200	292	10	27	560	70	30	315	24	45	189	83
Future Volume (vph)	200	292	10	27	560	70	30	315	24	45	189	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
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)		3377			3404		1671	1721		1703	1792	1460
Flt Permitted		0.98			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3377			3404		1671	1721		1703	1792	1460
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)	200	292	10	27	560	70	30	315	24	45	189	83
RTOR Reduction (vph)	0	1	0	0	0	0	0	2	0	0	0	38
Lane Group Flow (vph)	0	501	0	0	657	0	30	337	0	45	189	45
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)		21.3			27.6		4.7	35.4		6.5	44.4	65.7
Effective Green, g (s)		21.3			27.6		4.7	35.4		6.5	44.4	65.7
Actuated g/C Ratio		0.18			0.23		0.04	0.30		0.05	0.37	0.55
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		599			782		65	507		92	663	799
v/s Ratio Prot		c0.15			c0.19		0.02	c0.20		c0.03	c0.11	0.01
v/s Ratio Perm												0.02
v/c Ratio		0.84			0.84		0.46	0.66		0.49	0.29	0.06
Uniform Delay, d1		47.7			44.1		56.4	37.1		55.1	26.6	12.7
Progression Factor		0.93			1.00		1.45	0.51		1.00	1.00	1.00
Incremental Delay, d2		8.1			7.8		1.6	5.8		1.5	1.1	0.0
Delay (s)		52.5			51.9		83.3	24.6		56.6	27.7	12.7
Level of Service		D			D		F	C		E	C	B
Approach Delay (s/veh)		52.5			51.9			29.3			27.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	10.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	45	80	32	6	107	74	23	19	10	45	25	88
Future Vol, veh/h	45	80	32	6	107	74	23	19	10	45	25	88
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	80	32	6	107	74	23	19	10	45	25	88

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	332	0	0	284	0	0	662	702	398	617	681	467
Stage 1	-	-	-	-	-	-	358	358	-	307	307	-
Stage 2	-	-	-	-	-	-	304	344	-	310	374	-
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	1179	-	-	1228	-	-	370	358	643	404	374	598
Stage 1	-	-	-	-	-	-	652	621	-	705	663	-
Stage 2	-	-	-	-	-	-	697	630	-	703	619	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1009	-	-	1027	-	-	176	242	471	260	253	428
Mov Cap-2 Maneuver	-	-	-	-	-	-	176	242	-	260	253	-
Stage 1	-	-	-	-	-	-	519	494	-	600	564	-
Stage 2	-	-	-	-	-	-	440	536	-	552	493	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.5	0.27	25.64	25.44
HCM LOS			D	D

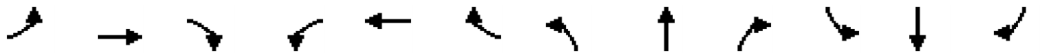
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	226	488	-	-	53	-	-	331
HCM Lane V/C Ratio	0.23	0.045	-	-	0.006	-	-	0.478
HCM Ctrl Dly (s/v)	25.6	8.7	0	-	8.5	0	-	25.4
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.9	0.1	-	-	0	-	-	2.5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	85	25	12	82	205	29	823	54	180	270	50
Future Volume (veh/h)	20	85	25	12	82	205	29	823	54	180	270	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)	1.00		0.89	0.95		0.89	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	20	85	25	12	82	205	29	823	54	180	270	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
Percent Heavy Veh, %	13	13	13	5	5	5	4	4	4	5	5	5
Cap, veh/h	61	219	58	37	96	223	82	2210	143	490	955	177
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	121	998	266	27	438	1015	71	3132	203	610	1353	251
Grp Volume(v), veh/h	130	0	0	299	0	0	475	0	431	180	0	320
Grp Sat Flow(s),veh/h/ln	1385	0	0	1481	0	0	1783	0	1623	610	0	1604
Q Serve(g_s), s	0.0	0.0	0.0	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.2	0.0	0.0	23.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.15		0.19	0.04		0.69	0.06		0.13	1.00		0.16
Lane Grp Cap(c), veh/h	338	0	0	356	0	0	1290	0	1145	490	0	1132
V/C Ratio(X)	0.38	0.00	0.00	0.84	0.00	0.00	0.37	0.00	0.38	0.37	0.00	0.28
Avail Cap(c_a), veh/h	450	0	0	468	0	0	1290	0	1145	490	0	1132
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	0.56	0.00	0.00	1.00	0.00	1.00	0.90	0.00	0.90
Uniform Delay (d), s/veh	39.8	0.0	0.0	45.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	4.7	0.0	0.0	0.8	0.0	0.9	1.9	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.0	0.0	0.0	12.9	0.0	0.0	0.5	0.0	0.5	0.5	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.0	0.0	0.0	50.4	0.0	0.0	0.8	0.0	0.9	1.9	0.0	0.6
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		130			299			906			500	
Approach Delay, s/veh		40.0			50.4			0.9			1.0	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		89.2		30.8		89.2		30.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		75.5		35.5		75.5		35.5				
Max Q Clear Time (g_c+I1), s		2.0		10.2		2.0		25.7				
Green Ext Time (p_c), s		1.2		0.3		1.5		0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			11.8									
HCM 7th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	179	20	18	238	60	15	285	10	35	160	86
Future Volume (vph)	25	179	20	18	238	60	15	285	10	35	160	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
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	0.95	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1607			1694		1671	1739		1719	1566	
Flt Permitted		0.88			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1419			1659		1671	1739		1719	1566	
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)	25	179	20	18	238	60	15	285	10	35	160	86
RTOR Reduction (vph)	0	3	0	0	8	0	0	1	0	0	11	0
Lane Group Flow (vph)	0	221	0	0	308	0	15	294	0	35	235	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)		28.3			28.3		2.7	36.3		4.9	72.5	
Effective Green, g (s)		28.3			28.3		2.7	36.3		4.9	72.5	
Actuated g/C Ratio		0.24			0.24		0.02	0.30		0.04	0.60	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		334			391		37	526		70	946	
v/s Ratio Prot							0.01	c0.17		c0.02	c0.15	
v/s Ratio Perm		0.16			c0.19							
v/c Ratio		0.66			0.79		0.41	0.56		0.50	0.25	
Uniform Delay, d1		41.5			43.0		57.9	35.1		56.4	11.1	
Progression Factor		0.94			1.00		1.41	0.32		1.08	0.53	
Incremental Delay, d2		4.6			10.0		2.5	4.1		2.0	0.6	
Delay (s)		43.5			53.0		84.2	15.5		62.9	6.4	
Level of Service		D			D		F	B		E	A	
Approach Delay (s/veh)		43.5			53.0			18.8			13.5	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	58	10	46	864	201	113
Future Vol, veh/h	58	10	46	864	201	113
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	58	10	46	864	201	113

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	972	277	409	0	-	0
Stage 1	353	-	-	-	-	-
Stage 2	619	-	-	-	-	-
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	245	711	1132	-	-	-
Stage 1	674	-	-	-	-	-
Stage 2	491	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	191	632	1030	-	-	-
Mov Cap-2 Maneuver	191	-	-	-	-	-
Stage 1	577	-	-	-	-	-
Stage 2	447	-	-	-	-	-

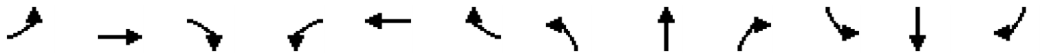
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	29.72	0.87	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	182	-	212	-	-
HCM Lane V/C Ratio	0.045	-	0.32	-	-
HCM Ctrl Dly (s/v)	8.7	0.5	29.7	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.3	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	325	20	0	178
Future Volume (vph)	5	5	325	20	0	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		5.0			5.0
Lane Util. Factor	1.00		1.00			0.95
Frpb, ped/bikes	0.89		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)	1427		1740			3406
Flt Permitted	0.98		1.00			1.00
Satd. Flow (perm)	1427		1740			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	178
RTOR Reduction (vph)	4	0	2	0	0	0
Lane Group Flow (vph)	6	0	343	0	0	178
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			90.5
Effective Green, g (s)	20.0		78.0			90.5
Actuated g/C Ratio	0.17		0.65			0.75
Clearance Time (s)	4.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	237		1131			2568
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			3.8
Progression Factor	1.00		0.27			1.02
Incremental Delay, d2	0.0		0.5			0.1
Delay (s)	41.9		3.0			3.9
Level of Service	D		A			A
Approach Delay (s/veh)	41.9		3.0			3.9
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
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	180	35	19	790	190	105	145	2	110	78	5
Future Volume (veh/h)	0	180	35	19	790	190	105	145	2	110	78	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	0.98		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	1826	1826	1826	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	0	180	35	19	790	190	105	145	2	110	78	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	5	5	5	5	5	5	6	6	6
Cap, veh/h	0	2034	386	53	1857	442	268	378	5	226	354	23
Arrive On Green	0.00	0.70	0.70	0.70	0.70	0.70	0.21	0.21	0.21	0.07	0.07	0.07
Sat Flow, veh/h	0	3008	554	31	2663	633	1247	1795	25	1172	1677	108
Grp Volume(v), veh/h	0	106	109	543	0	456	105	0	147	110	0	83
Grp Sat Flow(s),veh/h/ln	0	1749	1721	1807	0	1520	1247	0	1820	1172	0	1785
Q Serve(g_s), s	0.0	2.3	2.5	0.0	0.0	15.6	9.2	0.0	8.3	11.1	0.0	5.3
Cycle Q Clear(g_c), s	0.0	2.3	2.5	15.4	0.0	15.6	14.5	0.0	8.3	19.4	0.0	5.3
Prop In Lane	0.00		0.32	0.04		0.42	1.00		0.01	1.00		0.06
Lane Grp Cap(c), veh/h	0	1220	1200	1291	0	1060	268	0	384	226	0	376
V/C Ratio(X)	0.00	0.09	0.09	0.42	0.00	0.43	0.39	0.00	0.38	0.49	0.00	0.22
Avail Cap(c_a), veh/h	0	1220	1200	1291	0	1060	333	0	478	306	0	498
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)	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	5.8	5.9	7.8	0.0	7.8	45.5	0.0	40.6	57.2	0.0	46.5
Incr Delay (d2), s/veh	0.0	0.1	0.1	1.0	0.0	1.3	2.0	0.0	1.3	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	1.6	1.6	10.2	0.0	9.0	5.4	0.0	7.1	6.4	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	6.0	6.0	8.8	0.0	9.1	47.5	0.0	42.0	57.8	0.0	46.6
LnGrp LOS		A	A	A		A	D		D	E		D
Approach Vol, veh/h		215			999			252			193	
Approach Delay, s/veh		6.0			9.0			44.3			53.0	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		89.2		30.8		89.2		30.8				
Change Period (Y+Rc), s		5.5		5.5		5.5		5.5				
Max Green Setting (Gmax), s		38.5		31.5		38.5		33.5				
Max Q Clear Time (g_c+I1), s		4.5		16.5		17.6		21.4				
Green Ext Time (p_c), s		0.3		1.9		1.4		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			19.1									
HCM 7th LOS			B									

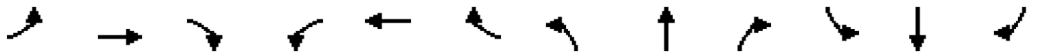
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	19	30	250	80	57
Future Vol, veh/h	15	19	30	250	80	57
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	19	30	250	80	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	467	156	161	0	-	0
Stage 1	133	-	-	-	-	-
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	530	855	1394	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	495	817	1362	-	-	-
Mov Cap-2 Maneuver	495	-	-	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	679	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.99	0.83	0
HCM LOS	B		

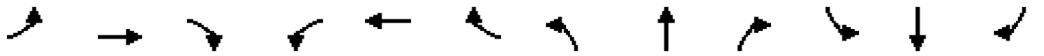
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1362	-	635	-	-
HCM Lane V/C Ratio	0.022	-	0.054	-	-
HCM Ctrl Dly (s/v)	7.7	-	11	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	598	295	0	0	0	0	0	0	285	909	0
Future Volume (veh/h)	0	598	295	0	0	0	0	0	0	285	909	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	598	295							285	909	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							442	1411	0
Arrive On Green	0.00	0.55	0.55							0.35	0.35	0.00
Sat Flow, veh/h	0	3705	1579							1263	4203	0
Grp Volume(v), veh/h	0	598	295							415	779	0
Grp Sat Flow(s),veh/h/ln	0	1805	1579							1837	1729	0
Q Serve(g_s), s	0.0	8.0	9.3							17.0	17.0	0.0
Cycle Q Clear(g_c), s	0.0	8.0	9.3							17.0	17.0	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							24.6	24.5	0.0
Incr Delay (d2), s/veh	0.0	0.4	1.1							4.9	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	5.7	6.1							12.8	11.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	11.3	12.3							29.5	27.2	0.0
LnGrp LOS		B	B							C	C	
Approach Vol, veh/h		893									1194	
Approach Delay, s/veh		11.6									28.0	
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		19.0				
Green Ext Time (p_c), s						0.9		1.8				

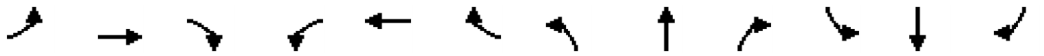
Intersection Summary												
HCM 7th Control Delay, s/veh			21.0									
HCM 7th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	153	0	0	0	667	0	685	50	0	0	0
Future Volume (veh/h)	50	153	0	0	0	667	0	685	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	153	0	0	0	667	0	685	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	101	270	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	54	562	0	0	0	1523		0				
Grp Volume(v), veh/h	203	0	0	0	0	667		0.0				
Grp Sat Flow(s),veh/h/ln	616	0	0	0	0	1523						
Q Serve(g_s), s	3.1	0.0	0.0	0.0	0.0	24.3						
Cycle Q Clear(g_c), s	27.4	0.0	0.0	0.0	0.0	24.3						
Prop In Lane	0.25		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	371	0	0	0	0	731						
V/C Ratio(X)	0.55	0.00	0.00	0.00	0.00	0.91						
Avail Cap(c_a), veh/h	422	0	0	0	0	787						
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	12.3	0.0	0.0	0.0	0.0	14.4						
Incr Delay (d2), s/veh	1.3	0.0	0.0	0.0	0.0	14.3						
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	2.7	0.0	0.0	0.0	0.0	15.2						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.6	0.0	0.0	0.0	0.0	28.7						
LnGrp LOS	B					C						
Approach Vol, veh/h		203			667							
Approach Delay, s/veh		13.6			28.7							
Approach LOS		B			C							

Timer - Assigned Phs				4				8				
Phs Duration (G+Y+Rc), s				33.8				33.8				
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				29.4				26.3				
Green Ext Time (p_c), s				0.2				2.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			25.2									
HCM 7th LOS			C									



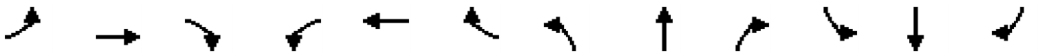
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	169	495	1226	345	0	0	0	0	184	965	135
Future Volume (veh/h)	0	169	495	1226	345	0	0	0	0	184	965	135
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00				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	169	0	1226	345	0				184	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	644		1270	1122	0				528	1054	456
Arrive On Green	0.00	0.18	0.00	0.61	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	169	0	1226	345	0				184	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	3.7	0.0	30.3	0.0	0.0				8.6	24.0	7.3
Cycle Q Clear(g_c), s	0.0	3.7	0.0	30.3	0.0	0.0				8.6	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	644		1270	1122	0				528	1054	456
V/C Ratio(X)	0.00	0.26		0.97	0.31	0.00				0.35	0.92	0.30
Avail Cap(c_a), veh/h	0	644		1286	1122	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	0.40	0.40	0.00				0.78	0.78	0.78
Uniform Delay (d), s/veh	0.0	31.6	0.0	16.8	0.0	0.0				32.6	39.5	32.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	9.1	0.3	0.0				0.1	9.4	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	2.9	0.0	12.6	0.2	0.0				7.0	18.1	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	31.7	0.0	25.9	0.3	0.0				32.7	48.9	32.1
LnGrp LOS		C		C	A					C	D	C
Approach Vol, veh/h		169			1571						1284	
Approach Delay, s/veh		31.7			20.3						44.8	
Approach LOS		C			C						D	

Timer - Assigned Phs	2	3	4					8				
Phs Duration (G+Y+Rc), s	31.5	37.6	20.9					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	32.3	5.7					2.0				
Green Ext Time (p_c), s	0.5	0.3	0.3					0.8				

Intersection Summary	
HCM 7th Control Delay, s/veh	31.3
HCM 7th LOS	C

Notes

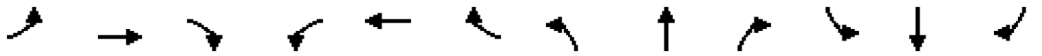
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	263	0	0	1336	360	230	300	531	0	0	0
Future Volume (veh/h)	80	263	0	0	1336	360	230	300	531	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	263	0	0	1336	360	230	300	531			
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	1455	378	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	2837	712	1795	1885	1559			
Grp Volume(v), veh/h	80	263	0	0	847	849	230	300	531			
Grp Sat Flow(s),veh/h/ln	1739	1735	0	0	1777	1680	1795	1885	1559			
Q Serve(g_s), s	4.1	2.7	0.0	0.0	0.0	0.0	9.8	12.6	23.5			
Cycle Q Clear(g_c), s	4.1	2.7	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	891	469	492	407			
V/C Ratio(X)	0.78	0.12	0.00	0.00	0.90	0.95	0.49	0.61	1.30			
Avail Cap(c_a), veh/h	164	2216	0	0	942	891	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)	0.96	0.96	0.00	0.00	0.72	0.72	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	4.7	0.1	0.0	0.0	10.1	16.6	0.3	1.6	153.8			
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(95%),veh/ln	3.4	1.7	0.0	0.0	4.7	6.9	7.2	9.5	39.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	46.5	6.5	0.0	0.0	10.1	16.6	28.5	30.8	187.1			
LnGrp LOS	D	A			B	B	C	C	F			
Approach Vol, veh/h		343			1696			1061				
Approach Delay, s/veh		15.8			13.3			108.5				
Approach LOS		B			B			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		4.7			6.1	2.0				
Green Ext Time (p_c), s		0.0		1.3			0.0	13.5				

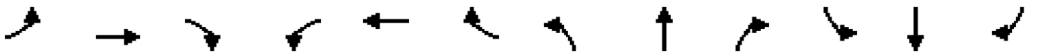
Intersection Summary												
HCM 7th Control Delay, s/veh			46.2									
HCM 7th LOS			D									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	818	2	1	1426	10	5	0	1	15	2	270
Future Volume (veh/h)	1	818	2	1	1426	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	818	2	1	1426	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	2470	6	40	2437	17	186	7	24	50	11	312
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.21	0.00	0.21	0.21	0.21	0.21
Sat Flow, veh/h	0	3560	9	0	3513	25	530	32	112	39	54	1472
Grp Volume(v), veh/h	430	0	391	753	0	684	6	0	0	287	0	0
Grp Sat Flow(s),veh/h/ln	1869	0	1700	1855	0	1683	674	0	0	1565	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	15.9	0.0	0.0
Prop In Lane	0.00		0.01	0.00		0.01	0.83		0.17	0.05		0.94
Lane Grp Cap(c), veh/h	1337	0	1179	1327	0	1167	216	0	0	374	0	0
V/C Ratio(X)	0.32	0.00	0.33	0.57	0.00	0.59	0.03	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	1337	0	1179	1327	0	1167	397	0	0	614	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	0.43	0.00	0.43	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	28.0	0.0	0.0	34.2	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.6	0.8	0.0	0.9	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	0.5	0.0	0.5	0.2	0.0	0.0	10.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.5	0.0	0.6	0.8	0.0	0.9	28.1	0.0	0.0	35.5	0.0	0.0
LnGrp LOS	A		A	A		A	C			D		
Approach Vol, veh/h		821			1437			6			287	
Approach Delay, s/veh		0.6			0.8			28.1			35.5	
Approach LOS		A			A			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		66.9		23.1		66.9		23.1				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		48.5		33.0		48.5		33.0				
Max Q Clear Time (g_c+I1), s		2.0		2.2		2.0		17.9				
Green Ext Time (p_c), s		4.0		0.0		9.4		1.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			4.7									
HCM 7th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	628	175	10	829	16	462	286	30	25	44	155
Future Volume (veh/h)	20	628	175	10	829	16	462	286	30	25	44	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	0.94		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	628	175	10	829	16	462	286	30	25	44	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	52	816	239	46	1169	22	492	883	93	64	75	212
Arrive On Green	0.68	0.68	0.68	0.34	0.34	0.34	0.29	0.56	0.56	0.21	0.21	0.21
Sat Flow, veh/h	29	2409	706	14	3451	66	1711	1589	167	90	355	999
Grp Volume(v), veh/h	446	0	377	447	0	408	462	0	316	224	0	0
Grp Sat Flow(s),veh/h/ln	1622	0	1523	1846	0	1685	1711	0	1756	1443	0	0
Q Serve(g_s), s	3.4	0.0	14.2	0.0	0.0	19.0	23.7	0.0	8.8	4.7	0.0	0.0
Cycle Q Clear(g_c), s	22.4	0.0	14.2	18.7	0.0	19.0	23.7	0.0	8.8	12.8	0.0	0.0
Prop In Lane	0.04		0.46	0.02		0.04	1.00		0.09	0.11		0.69
Lane Grp Cap(c), veh/h	591	0	516	666	0	571	492	0	976	351	0	0
V/C Ratio(X)	0.75	0.00	0.73	0.67	0.00	0.71	0.94	0.00	0.32	0.64	0.00	0.00
Avail Cap(c_a), veh/h	591	0	516	666	0	571	513	0	1015	365	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)	0.94	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	12.0	0.0	11.9	25.9	0.0	26.0	31.3	0.0	10.8	32.8	0.0	0.0
Incr Delay (d2), s/veh	8.2	0.0	8.3	5.3	0.0	7.4	24.4	0.0	0.1	2.6	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	8.2	0.0	7.3	14.1	0.0	13.5	18.8	0.0	5.9	8.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.1	0.0	20.2	31.2	0.0	33.4	55.7	0.0	10.9	35.4	0.0	0.0
LnGrp LOS	C		C	C		C	E		B	D		
Approach Vol, veh/h		823			855			778			224	
Approach Delay, s/veh		20.2			32.2			37.5			35.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs		2		4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0		55.0		35.0	30.9	24.1				
Change Period (Y+Rc), s		4.5		5.0		4.5	5.0	5.0				
Max Green Setting (Gmax), s		28.5		52.0		28.5	27.0	20.0				
Max Q Clear Time (g_c+I1), s		24.4		10.8		21.0	25.7	14.8				
Green Ext Time (p_c), s		0.7		1.4		0.9	0.1	0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			30.3									
HCM 7th LOS			C									

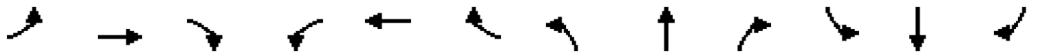
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	628	49	0	785	70	0	0	79	0	0	30
Future Vol, veh/h	0	628	49	0	785	70	0	0	79	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	628	49	0	785	70	0	0	79	0	0	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	507	-	-	556
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	514	0	0	480
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	435	-	-	423
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	15.11	14.16
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	435	-	-	-	-	423
HCM Lane V/C Ratio	0.182	-	-	-	-	0.071
HCM Ctrl Dly (s/v)	15.1	-	-	-	-	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	439	128	27	470	45	265	525	28	130	535	85
Future Volume (veh/h)	130	439	128	27	470	45	265	525	28	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	439	128	27	470	45	265	525	28	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	644	186	44	572	54	292	1211	64	386	1241	196
Arrive On Green	0.09	0.24	0.24	0.01	0.06	0.06	0.22	0.47	0.47	0.22	0.41	0.41
Sat Flow, veh/h	1795	2711	782	1781	3258	310	1781	3420	182	1781	3048	482
Grp Volume(v), veh/h	130	288	279	27	255	260	265	272	281	130	311	309
Grp Sat Flow(s),veh/h/ln	1795	1791	1702	1781	1777	1791	1781	1777	1825	1781	1777	1753
Q Serve(g_s), s	8.6	17.6	17.9	1.8	17.0	17.2	17.4	12.2	12.3	7.4	15.1	15.2
Cycle Q Clear(g_c), s	8.6	17.6	17.9	1.8	17.0	17.2	17.4	12.2	12.3	7.4	15.1	15.2
Prop In Lane	1.00		0.46	1.00		0.17	1.00		0.10	1.00		0.27
Lane Grp Cap(c), veh/h	156	426	405	44	312	314	292	629	646	386	723	714
V/C Ratio(X)	0.83	0.68	0.69	0.61	0.82	0.83	0.91	0.43	0.43	0.34	0.43	0.43
Avail Cap(c_a), veh/h	172	470	447	186	481	485	408	629	646	386	723	714
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	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	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	41.6	41.7	58.9	54.6	54.7	46.0	23.7	23.7	39.7	25.6	25.6
Incr Delay (d2), s/veh	24.0	2.5	3.0	5.0	3.4	3.8	15.4	2.1	2.1	0.2	1.9	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	12.8	12.5	1.6	13.3	13.5	13.5	8.9	9.1	6.0	11.1	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	77.9	44.1	44.7	64.0	58.0	58.5	61.4	25.8	25.8	39.9	27.4	27.5
LnGrp LOS	E	D	D	E	E	E	E	C	C	D	C	C
Approach Vol, veh/h		697			542			818			750	
Approach Delay, s/veh		50.6			58.6			37.4			29.6	
Approach LOS		D			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.2	54.3	14.9	25.6	31.5	48.0	7.5	33.0
Change Period (Y+Rc), s	5.5	5.5	4.5	4.5	5.5	5.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	28.5	11.5	32.5	13.5	42.5	12.5	31.5
Max Q Clear Time (g_c+I1), s	19.4	17.2	10.6	19.2	9.4	14.3	3.8	19.9
Green Ext Time (p_c), s	0.3	2.2	0.0	1.8	0.1	2.4	0.0	2.0

Intersection Summary	
HCM 7th Control Delay, s/veh	42.7
HCM 7th LOS	D

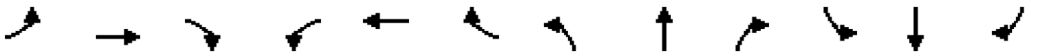
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	572	20	0	437	20	0	0	5	0	0	115
Future Vol, veh/h	0	572	20	0	437	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	572	20	0	437	20	0	0	5	0	0	115

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	360	-	-	327
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	642	0	0	672
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	604	-	-	611
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	11.01	12.26
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	604	-	-	-	-	611
HCM Lane V/C Ratio	0.008	-	-	-	-	0.188
HCM Ctrl Dly (s/v)	11	-	-	-	-	12.3
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)	155	387	30	45	328	50	30	298	24	75	419	104
Future Volume (vph)	155	387	30	45	328	50	30	298	24	75	419	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
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)		3484			3389		1752	1800		1787	1881	1504
Flt Permitted		0.99			0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		3484			3389		1752	1800		1787	1881	1504
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)	155	387	30	45	328	50	30	298	24	75	419	104
RTOR Reduction (vph)	0	3	0	0	0	0	0	2	0	0	0	28
Lane Group Flow (vph)	0	569	0	0	423	0	30	320	0	75	419	76
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)		24.8			19.6		4.6	37.0		7.6	49.0	73.8
Effective Green, g (s)		24.8			19.6		4.6	37.0		7.6	49.0	73.8
Actuated g/C Ratio		0.21			0.16		0.04	0.31		0.06	0.41	0.62
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	5.5
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		720			553		67	555		113	768	924
v/s Ratio Prot		c0.16			c0.12		0.02	0.18		c0.04	c0.22	0.02
v/s Ratio Perm												0.03
v/c Ratio		0.79			0.76		0.45	0.58		0.66	0.55	0.08
Uniform Delay, d1		45.1			48.0		56.5	34.9		55.0	27.0	9.4
Progression Factor		0.56			1.00		1.17	1.02		1.00	1.00	1.00
Incremental Delay, d2		4.5			5.6		1.6	3.9		10.8	2.8	0.0
Delay (s)		29.7			53.6		67.5	39.6		65.7	29.8	9.4
Level of Service		C			D		E	D		E	C	A
Approach Delay (s/veh)		29.7			53.6			42.0			30.8	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

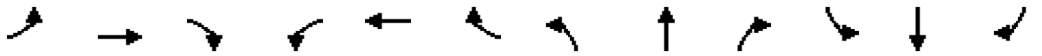
Intersection	
Int Delay, s/veh	13.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	89	23	11	101	20	46	10	20	55	35	97
Future Vol, veh/h	10	89	23	11	101	20	46	10	20	55	35	97
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	89	23	11	101	20	46	10	20	55	35	97

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	290	0	0	274	0	0	592	595	397	550	596	449
Stage 1	-	-	-	-	-	-	283	283	-	302	302	-
Stage 2	-	-	-	-	-	-	310	312	-	248	294	-
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	1217	-	-	1197	-	-	418	418	653	449	420	614
Stage 1	-	-	-	-	-	-	724	677	-	712	668	-
Stage 2	-	-	-	-	-	-	701	658	-	760	673	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1021	-	-	1012	-	-	198	290	482	298	291	432
Mov Cap-2 Maneuver	-	-	-	-	-	-	198	290	-	298	291	-
Stage 1	-	-	-	-	-	-	606	567	-	590	554	-
Stage 2	-	-	-	-	-	-	422	545	-	618	563	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.7	0.72	25.94	26.09
HCM LOS			D	D

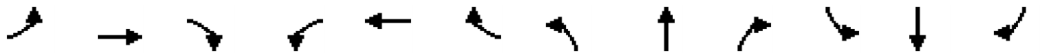
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	247	142	-	-	145	-	-	353
HCM Lane V/C Ratio	0.308	0.01	-	-	0.011	-	-	0.529
HCM Ctrl Dly (s/v)	25.9	8.6	0	-	8.6	0	-	26.1
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1.3	0	-	-	0	-	-	3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	64	45	20	106	255	10	543	10	125	550	30
Future Volume (veh/h)	30	64	45	20	106	255	10	543	10	125	550	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	0.96		0.91	1.00		0.93	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	30	64	45	20	106	255	10	543	10	125	550	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	81	161	99	43	123	273	49	2208	40	353	1515	83
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.86	0.86	0.86	0.21	0.21	0.21
Sat Flow, veh/h	163	584	358	42	447	989	28	3403	62	480	2335	128
Grp Volume(v), veh/h	139	0	0	381	0	0	294	0	269	313	0	392
Grp Sat Flow(s),veh/h/ln	1105	0	0	1478	0	0	1821	0	1672	1274	0	1668
Q Serve(g_s), s	0.0	0.0	0.0	15.1	0.0	0.0	0.0	0.0	3.4	21.0	0.0	24.0
Cycle Q Clear(g_c), s	9.1	0.0	0.0	30.1	0.0	0.0	3.3	0.0	3.4	24.4	0.0	24.0
Prop In Lane	0.22		0.32	0.05		0.67	0.03		0.04	0.40		0.08
Lane Grp Cap(c), veh/h	342	0	0	440	0	0	1212	0	1085	869	0	1082
V/C Ratio(X)	0.41	0.00	0.00	0.87	0.00	0.00	0.24	0.00	0.25	0.36	0.00	0.36
Avail Cap(c_a), veh/h	485	0	0	590	0	0	1212	0	1085	869	0	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	0.00	0.58	0.00	0.00	1.00	0.00	1.00	0.87	0.00	0.87
Uniform Delay (d), s/veh	34.4	0.0	0.0	42.3	0.0	0.0	3.1	0.0	3.1	25.7	0.0	26.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	5.0	0.0	0.0	0.5	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	5.9	0.0	0.0	15.9	0.0	0.0	2.3	0.0	2.1	13.4	0.0	16.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.7	0.0	0.0	47.2	0.0	0.0	3.6	0.0	3.7	26.7	0.0	26.8
LnGrp LOS	C			D			A		A	C		C
Approach Vol, veh/h		139			381			563			705	
Approach Delay, s/veh		34.7			47.2			3.6			26.8	
Approach LOS		C			D			A			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.4		37.6		82.4		37.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		65.5		45.5		65.5		45.5				
Max Q Clear Time (g_c+I1), s		5.4		11.1		26.4		32.1				
Green Ext Time (p_c), s		0.7		0.4		1.2		1.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			24.5									
HCM 7th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	132	50	27	215	45	10	225	20	60	416	31
Future Volume (vph)	62	132	50	27	215	45	10	225	20	60	416	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
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)		1632			1674		1736	1784		1770	1806	
Flt Permitted		0.66			0.94		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1097			1581		1736	1784		1770	1806	
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)	62	132	50	27	215	45	10	225	20	60	416	31
RTOR Reduction (vph)	0	8	0	0	6	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	236	0	0	281	0	10	242	0	60	445	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)		27.8			27.8		1.3	43.4		7.5	74.4	
Effective Green, g (s)		27.8			27.8		1.3	43.4		7.5	74.4	
Actuated g/C Ratio		0.23			0.23		0.01	0.36		0.06	0.62	
Clearance Time (s)		5.5			5.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)		3.0			3.0		2.0	0.2		2.0	0.2	
Lane Grp Cap (vph)		254			366		18	645		110	1119	
v/s Ratio Prot							0.01	0.14		c0.03	c0.25	
v/s Ratio Perm		c0.21			0.18							
v/c Ratio		0.93			0.77		0.56	0.38		0.55	0.40	
Uniform Delay, d1		45.1			43.1		59.1	28.3		54.6	11.5	
Progression Factor		1.13			1.00		1.30	0.25		1.21	0.34	
Incremental Delay, d2		36.2			9.3		19.0	1.6		2.6	0.9	
Delay (s)		87.3			52.4		95.9	8.6		68.8	4.8	
Level of Service		F			D		F	A		E	A	
Approach Delay (s/veh)		87.3			52.4			12.1			12.4	
Approach LOS		F			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.3	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)	18.5
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	88	55	11	475	595	25
Future Vol, veh/h	88	55	11	475	595	25
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	88	55	11	475	595	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1037	421	705	0	-	0
Stage 1	693	-	-	-	-	-
Stage 2	345	-	-	-	-	-
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	230	587	882	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	191	526	811	-	-	-
Mov Cap-2 Maneuver	191	-	-	-	-	-
Stage 1	419	-	-	-	-	-
Stage 2	639	-	-	-	-	-

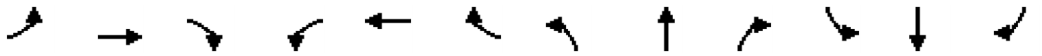
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	36.13	0.35	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	81	-	253	-	-
HCM Lane V/C Ratio	0.014	-	0.564	-	-
HCM Ctrl Dly (s/v)	9.5	0.1	36.1	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	3.2	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	25	10	275	20	1	475
Future Volume (vph)	25	10	275	20	1	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		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)	1684		1819			3574
Flt Permitted	0.97		1.00			0.95
Satd. Flow (perm)	1684		1819			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	475
RTOR Reduction (vph)	8	0	2	0	0	0
Lane Group Flow (vph)	27	0	293	0	0	476
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			90.5
Effective Green, g (s)	20.0		76.0			90.5
Actuated g/C Ratio	0.17		0.63			0.75
Clearance Time (s)	4.5		5.0			5.0
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	280		1152			2573
v/s Ratio Prot	c0.02		c0.16			
v/s Ratio Perm						c0.14
v/c Ratio	0.10		0.25			0.18
Uniform Delay, d1	42.3		9.6			4.2
Progression Factor	1.00		0.71			0.64
Incremental Delay, d2	0.1		0.5			0.1
Delay (s)	42.4		7.3			2.9
Level of Service	D		A			A
Approach Delay (s/veh)	42.4		7.3			2.9
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.2	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)	12.5
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	560	90	5	456	150	35	110	5	320	205	10
Future Volume (veh/h)	0	560	90	5	456	150	35	110	5	320	205	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	0.98		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	560	90	5	456	150	35	110	5	320	205	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	3	3	3	4	4	4	2	2	2
Cap, veh/h	0	1921	308	35	1590	513	250	486	22	346	492	24
Arrive On Green	0.00	0.63	0.63	0.63	0.63	0.63	0.28	0.28	0.28	0.09	0.09	0.09
Sat Flow, veh/h	0	3147	489	7	2528	816	1122	1742	79	1239	1763	86
Grp Volume(v), veh/h	0	325	325	335	0	276	35	0	115	320	0	215
Grp Sat Flow(s),veh/h/ln	0	1777	1765	1846	0	1504	1122	0	1821	1239	0	1849
Q Serve(g_s), s	0.0	10.0	10.0	0.0	0.0	10.0	3.2	0.0	5.8	27.7	0.0	13.2
Cycle Q Clear(g_c), s	0.0	10.0	10.0	9.8	0.0	10.0	16.4	0.0	5.8	33.5	0.0	13.2
Prop In Lane	0.00		0.28	0.01		0.54	1.00		0.04	1.00		0.05
Lane Grp Cap(c), veh/h	0	1118	1111	1192	0	946	250	0	508	346	0	516
V/C Ratio(X)	0.00	0.29	0.29	0.28	0.00	0.29	0.14	0.00	0.23	0.93	0.00	0.42
Avail Cap(c_a), veh/h	0	1118	1111	1192	0	946	250	0	508	346	0	516
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)	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	10.1	0.0	10.1	42.7	0.0	33.3	58.9	0.0	45.2
Incr Delay (d2), s/veh	0.0	0.7	0.7	0.6	0.0	0.8	0.5	0.0	0.5	29.5	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(95%),veh/ln	0.0	7.3	7.3	7.5	0.0	6.3	1.7	0.0	4.8	19.1	0.0	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.8	10.8	10.7	0.0	10.9	43.3	0.0	33.8	88.4	0.0	45.4
LnGrp LOS		B	B	B		B	D		C	F		D
Approach Vol, veh/h		650			611			150			535	
Approach Delay, s/veh		10.8			10.8			36.0			71.1	
Approach LOS		B			B			D			E	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	81.0	39.0	81.0	39.0
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	38.5	31.5	38.5	33.5
Max Q Clear Time (g_c+I1), s	12.0	18.4	12.0	35.5
Green Ext Time (p_c), s	0.8	1.0	0.8	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	29.3
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	32	16	130	276	30
Future Vol, veh/h	20	32	16	130	276	30
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	32	16	130	276	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	551	391	356	0	-	0
Stage 1	341	-	-	-	-	-
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	492	653	1181	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	820	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	440	592	1125	-	-	-
Mov Cap-2 Maneuver	440	-	-	-	-	-
Stage 1	672	-	-	-	-	-
Stage 2	781	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.65	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1125	-	523	-	-
HCM Lane V/C Ratio	0.014	-	0.099	-	-
HCM Ctrl Dly (s/v)	8.2	-	12.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Intersection Delay, s/veh	50.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	12	14	30	14	199	16	392	33	91	410	119
Future Vol, veh/h	83	12	14	30	14	199	16	392	33	91	410	119
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	83	12	14	30	14	199	16	392	33	91	410	119
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	13.8	16.3	29.7	84.3
HCM LOS	B	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	76%	12%	15%
Vol Thru, %	89%	11%	6%	66%
Vol Right, %	7%	13%	82%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	441	109	243	620
LT Vol	16	83	30	91
Through Vol	392	12	14	410
RT Vol	33	14	199	119
Lane Flow Rate	441	109	243	620
Geometry Grp	1	1	1	1
Degree of Util (X)	0.785	0.239	0.466	1.077
Departure Headway (Hd)	6.649	8.258	7.193	6.253
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	547	437	503	583
Service Time	4.649	6.258	5.193	4.253
HCM Lane V/C Ratio	0.806	0.249	0.483	1.063
HCM Control Delay, s/veh	29.7	13.8	16.3	84.3
HCM Lane LOS	D	B	C	F
HCM 95th-tile Q	7.3	0.9	2.4	18.3

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	265	15	74	5	52	19	149	136	54	24	49	368
Future Vol, veh/h	265	15	74	5	52	19	149	136	54	24	49	368
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	265	15	74	5	52	19	149	136	54	24	49	368
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	20.2	11.5	18.4	21.6
HCM LOS	C	B	C	C

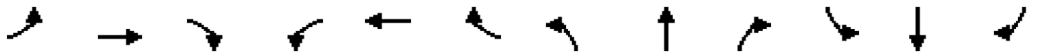
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	75%	7%	5%
Vol Thru, %	40%	4%	68%	11%
Vol Right, %	16%	21%	25%	83%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	339	354	76	441
LT Vol	149	265	5	24
Through Vol	136	15	52	49
RT Vol	54	74	19	368
Lane Flow Rate	339	354	76	441
Geometry Grp	1	1	1	1
Degree of Util (X)	0.596	0.635	0.151	0.707
Departure Headway (Hd)	6.332	6.462	7.175	5.773
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	570	559	497	626
Service Time	4.385	4.513	5.256	3.821
HCM Lane V/C Ratio	0.595	0.633	0.153	0.704
HCM Control Delay, s/veh	18.4	20.2	11.5	21.6
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	3.9	4.4	0.5	5.8

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	249	25	5	80	57	81
Future Vol, veh/h	249	25	5	80	57	81
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	249	25	5	80	57	81
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	10.1	7.7	8.6
HCM LOS	B	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	274	85	138
LT Vol	249	0	57
Through Vol	25	5	0
RT Vol	0	80	81
Lane Flow Rate	274	85	138
Geometry Grp	1	1	1
Degree of Util (X)	0.349	0.099	0.176
Departure Headway (Hd)	4.585	4.194	4.595
Convergence, Y/N	Yes	Yes	Yes
Cap	786	855	782
Service Time	2.605	2.218	2.617
HCM Lane V/C Ratio	0.349	0.099	0.176
HCM Control Delay, s/veh	10.1	7.7	8.6
HCM Lane LOS	B	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)	205	460	30	5	370	110	0	0	0	36	5	66
Future Volume (veh/h)	205	460	30	5	370	110	0	0	0	36	5	66
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	370	110	0	0	0	36	5	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
Percent Heavy Veh, %	3	3	3	4	4	4	0	0	0	10	10	10
Cap, veh/h	471	834	54	475	651	194	0	471	0	608	25	329
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	892	1715	112	879	1338	398	0	1900	0	1594	101	1327
Grp Volume(v), veh/h	205	0	490	5	0	480	0	0	0	36	0	71
Grp Sat Flow(s),veh/h/ln	892	0	1827	879	0	1736	0	1900	0	1594	0	1428
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	13.8	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		0.23	0.00		0.00	1.00		0.93
Lane Grp Cap(c), veh/h	471	0	888	475	0	845	0	471	0	608	0	354
V/C Ratio(X)	0.43	0.00	0.55	0.01	0.00	0.57	0.00	0.00	0.00	0.06	0.00	0.20
Avail Cap(c_a), veh/h	709	0	1374	708	0	1306	0	869	0	941	0	653
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	2.4	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	9.8	0.0	10.2
LnGrp LOS	B		A	A		A				A		B
Approach Vol, veh/h		695			485			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	15.8	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	
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	25	165	2	6	181	112	11	5	20	94	1	5
Future Vol, veh/h	25	165	2	6	181	112	11	5	20	94	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	165	2	6	181	112	11	5	20	94	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	9.7	8.2	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	13%	2%	94%
Vol Thru, %	14%	86%	61%	1%
Vol Right, %	56%	1%	37%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	192	299	100
LT Vol	11	25	6	94
Through Vol	5	165	181	1
RT Vol	20	2	112	5
Lane Flow Rate	36	192	299	100
Geometry Grp	1	1	1	1
Degree of Util (X)	0.049	0.245	0.356	0.144
Departure Headway (Hd)	4.907	4.587	4.281	5.185
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	726	781	840	689
Service Time	2.964	2.622	2.312	3.235
HCM Lane V/C Ratio	0.05	0.246	0.356	0.145
HCM Control Delay, s/veh	8.2	9.1	9.7	9.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	1	1.6	0.5

Intersection	
Intersection Delay, s/veh	26.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	100	27	12	25	12	217	7	511	37	48	180	32
Future Vol, veh/h	100	27	12	25	12	217	7	511	37	48	180	32
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	100	27	12	25	12	217	7	511	37	48	180	32
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	14.7	41.5	15.1
HCM LOS	B	B	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	72%	10%	18%
Vol Thru, %	92%	19%	5%	69%
Vol Right, %	7%	9%	85%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	555	139	254	260
LT Vol	7	100	25	48
Through Vol	511	27	12	180
RT Vol	37	12	217	32
Lane Flow Rate	555	139	254	260
Geometry Grp	1	1	1	1
Degree of Util (X)	0.907	0.276	0.451	0.466
Departure Headway (Hd)	5.882	7.149	6.394	6.447
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	616	500	561	556
Service Time	3.931	5.222	4.457	4.509
HCM Lane V/C Ratio	0.901	0.278	0.453	0.468
HCM Control Delay, s/veh	41.5	13	14.7	15.1
HCM Lane LOS	E	B	B	C
HCM 95th-tile Q	11.3	1.1	2.3	2.5

Intersection	
Intersection Delay, s/veh	23
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	437	20	145	55	26	37	29	81	12	13	87	102
Future Vol, veh/h	437	20	145	55	26	37	29	81	12	13	87	102
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	437	20	145	55	26	37	29	81	12	13	87	102
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	31.5	10.3	11.3	12.1
HCM LOS	D	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	73%	47%	6%
Vol Thru, %	66%	3%	22%	43%
Vol Right, %	10%	24%	31%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	602	118	202
LT Vol	29	437	55	13
Through Vol	81	20	26	87
RT Vol	12	145	37	102
Lane Flow Rate	122	602	118	202
Geometry Grp	1	1	1	1
Degree of Util (X)	0.218	0.86	0.191	0.335
Departure Headway (Hd)	6.436	5.143	5.836	5.972
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	555	704	611	600
Service Time	4.512	3.187	3.907	4.04
HCM Lane V/C Ratio	0.22	0.855	0.193	0.337
HCM Control Delay, s/veh	11.3	31.5	10.3	12.1
HCM Lane LOS	B	D	B	B
HCM 95th-tile Q	0.8	10.1	0.7	1.5

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	71	20	25	50	75	211
Future Vol, veh/h	71	20	25	50	75	211
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	71	20	25	50	75	211
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	91	75	286
LT Vol	71	0	75
Through Vol	20	25	0
RT Vol	0	50	211
Lane Flow Rate	91	75	286
Geometry Grp	1	1	1
Degree of Util (X)	0.122	0.092	0.319
Departure Headway (Hd)	4.84	4.412	4.01
Convergence, Y/N	Yes	Yes	Yes
Cap	742	813	901
Service Time	2.861	2.433	2.021
HCM Lane V/C Ratio	0.123	0.092	0.317
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)	78	465	35	20	430	44	10	5	2	71	10	160
Future Volume (veh/h)	78	465	35	20	430	44	10	5	2	71	10	160
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	465	35	20	430	44	10	5	2	71	10	160
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	370	658	50	355	633	65	383	174	51	701	29	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	909	1719	129	882	1654	169	609	506	149	1314	85	1368
Grp Volume(v), veh/h	78	0	500	20	0	474	17	0	0	71	0	170
Grp Sat Flow(s),veh/h/ln	909	0	1848	882	0	1824	1263	0	0	1314	0	1453
Q Serve(g_s), s	2.6	0.0	7.5	0.6	0.0	7.1	0.0	0.0	0.0	0.0	0.0	2.9
Cycle Q Clear(g_c), s	9.7	0.0	7.5	8.2	0.0	7.1	2.9	0.0	0.0	1.0	0.0	2.9
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	370	0	707	355	0	698	608	0	0	701	0	499
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.10	0.00	0.34
Avail Cap(c_a), veh/h	728	0	1434	702	0	1415	786	0	0	870	0	686
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	12.0	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	3.5	0.2	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	12.6	0.0	9.1	12.1	0.0	8.9	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		578			494			17			241	
Approach Delay, s/veh		9.5			9.0			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	15.8	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	4.9	11.7	4.9
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	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	184	2	10	54	80	0	1	30	145	5	5
Future Vol, veh/h	25	184	2	10	54	80	0	1	30	145	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	184	2	10	54	80	0	1	30	145	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	9.2	8.4	7.7	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	12%	7%	94%
Vol Thru, %	3%	87%	38%	3%
Vol Right, %	97%	1%	56%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	211	144	155
LT Vol	0	25	10	145
Through Vol	1	184	54	5
RT Vol	30	2	80	5
Lane Flow Rate	31	211	144	155
Geometry Grp	1	1	1	1
Degree of Util (X)	0.039	0.266	0.176	0.213
Departure Headway (Hd)	4.516	4.543	4.389	4.94
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	789	791	816	725
Service Time	2.564	2.574	2.422	2.979
HCM Lane V/C Ratio	0.039	0.267	0.176	0.214
HCM Control Delay, s/veh	7.7	9.2	8.4	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.1	0.6	0.8

Intersection	
Intersection Delay, s/veh	50.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	12	14	30	14	199	16	392	33	91	410	119
Future Vol, veh/h	83	12	14	30	14	199	16	392	33	91	410	119
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	83	12	14	30	14	199	16	392	33	91	410	119
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	13.8	16.3	29.7	84.3
HCM LOS	B	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	76%	12%	15%
Vol Thru, %	89%	11%	6%	66%
Vol Right, %	7%	13%	82%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	441	109	243	620
LT Vol	16	83	30	91
Through Vol	392	12	14	410
RT Vol	33	14	199	119
Lane Flow Rate	441	109	243	620
Geometry Grp	1	1	1	1
Degree of Util (X)	0.785	0.239	0.466	1.077
Departure Headway (Hd)	6.649	8.258	7.193	6.253
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	547	437	503	583
Service Time	4.649	6.258	5.193	4.253
HCM Lane V/C Ratio	0.806	0.249	0.483	1.063
HCM Control Delay, s/veh	29.7	13.8	16.3	84.3
HCM Lane LOS	D	B	C	F
HCM 95th-tile Q	7.3	0.9	2.4	18.3

Intersection	
Intersection Delay, s/veh	19.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	265	15	70	5	52	19	140	136	54	24	49	368
Future Vol, veh/h	265	15	70	5	52	19	140	136	54	24	49	368
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	265	15	70	5	52	19	140	136	54	24	49	368
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	19.7	11.4	17.6	21.2
HCM LOS	C	B	C	C

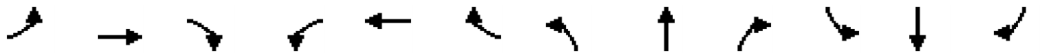
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	76%	7%	5%
Vol Thru, %	41%	4%	68%	11%
Vol Right, %	16%	20%	25%	83%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	330	350	76	441
LT Vol	140	265	5	24
Through Vol	136	15	52	49
RT Vol	54	70	19	368
Lane Flow Rate	330	350	76	441
Geometry Grp	1	1	1	1
Degree of Util (X)	0.577	0.625	0.15	0.701
Departure Headway (Hd)	6.295	6.426	7.108	5.725
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	571	560	502	631
Service Time	4.346	4.477	5.183	3.773
HCM Lane V/C Ratio	0.578	0.625	0.151	0.699
HCM Control Delay, s/veh	17.6	19.7	11.4	21.2
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	3.6	4.3	0.5	5.7

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	240	25	5	80	57	77
Future Vol, veh/h	240	25	5	80	57	77
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	240	25	5	80	57	77
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	9.9	7.7	8.6
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	265	85	134
LT Vol	240	0	57
Through Vol	25	5	0
RT Vol	0	80	77
Lane Flow Rate	265	85	134
Geometry Grp	1	1	1
Degree of Util (X)	0.337	0.099	0.171
Departure Headway (Hd)	4.573	4.172	4.581
Convergence, Y/N	Yes	Yes	Yes
Cap	787	859	784
Service Time	2.594	2.196	2.604
HCM Lane V/C Ratio	0.337	0.099	0.171
HCM Control Delay, s/veh	9.9	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)	203	460	30	5	377	103	0	0	0	36	5	61
Future Volume (veh/h)	203	460	30	5	377	103	0	0	0	36	5	61
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	0.95		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	203	460	30	5	377	103	0	0	0	36	5	61
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	475	832	54	477	664	181	0	464	0	606	26	323
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.00	0.00	0.00	0.24	0.24	0.24
Sat Flow, veh/h	892	1715	112	879	1369	374	0	1900	0	1593	108	1322
Grp Volume(v), veh/h	203	0	490	5	0	480	0	0	0	36	0	66
Grp Sat Flow(s),veh/h/ln	892	0	1826	879	0	1742	0	1900	0	1593	0	1430
Q Serve(g_s), s	7.0	0.0	6.3	0.1	0.0	6.5	0.0	0.0	0.0	0.6	0.0	1.2
Cycle Q Clear(g_c), s	13.5	0.0	6.3	6.4	0.0	6.5	0.0	0.0	0.0	0.6	0.0	1.2
Prop In Lane	1.00		0.06	1.00		0.21	0.00		0.00	1.00		0.92
Lane Grp Cap(c), veh/h	475	0	886	477	0	845	0	464	0	606	0	349
V/C Ratio(X)	0.43	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	726	0	1400	724	0	1335	0	885	0	959	0	666
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	10.9	0.0	6.0	8.3	0.0	6.1	0.0	0.0	0.0	9.7	0.0	10.0
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	1.3	0.0	0.0	1.3	0.0	0.0	0.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.1	0.0	6.2	8.3	0.0	6.3	0.0	0.0	0.0	9.7	0.0	10.1
LnGrp LOS	B		A	A		A				A		B
Approach Vol, veh/h		693			485			0			102	
Approach Delay, s/veh		7.7			6.3			0.0			9.9	
Approach LOS		A			A						A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	20.6	12.6	20.6	12.6
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	8.5	0.0	15.5	3.2
Green Ext Time (p_c), s	0.6	0.0	0.7	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.3
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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	161	2	6	172	112	11	5	20	94	1	5
Future Vol, veh/h	25	161	2	6	172	112	11	5	20	94	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	161	2	6	172	112	11	5	20	94	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	9.5	8.2	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	13%	2%	94%
Vol Thru, %	14%	86%	59%	1%
Vol Right, %	56%	1%	39%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	188	290	100
LT Vol	11	25	6	94
Through Vol	5	161	172	1
RT Vol	20	2	112	5
Lane Flow Rate	36	188	290	100
Geometry Grp	1	1	1	1
Degree of Util (X)	0.049	0.239	0.344	0.143
Departure Headway (Hd)	4.874	4.575	4.268	5.154
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	731	784	841	693
Service Time	2.929	2.609	2.297	3.203
HCM Lane V/C Ratio	0.049	0.24	0.345	0.144
HCM Control Delay, s/veh	8.2	9.1	9.5	9.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.9	1.5	0.5

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	715	417	7	0	4
Future Vol, veh/h	2	715	417	7	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	2	715	417	7	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	424	0	-	0	1140	421
Stage 1	-	-	-	-	421	-
Stage 2	-	-	-	-	719	-
Critical Hdwy	4.13	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.227	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1130	-	-	-	222	633
Stage 1	-	-	-	-	663	-
Stage 2	-	-	-	-	483	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1130	-	-	-	222	633
Mov Cap-2 Maneuver	-	-	-	-	222	-
Stage 1	-	-	-	-	661	-
Stage 2	-	-	-	-	483	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.02	0	10.72
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	5	-	-	-	633
HCM Lane V/C Ratio	0.002	-	-	-	0.006
HCM Ctrl Dly (s/v)	8.2	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Intersection Delay, s/veh	26.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	99	27	12	25	12	217	7	511	37	48	180	31
Future Vol, veh/h	99	27	12	25	12	217	7	511	37	48	180	31
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	99	27	12	25	12	217	7	511	37	48	180	31
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	12.9	14.6	41.1	15
HCM LOS	B	B	E	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	72%	10%	19%
Vol Thru, %	92%	20%	5%	69%
Vol Right, %	7%	9%	85%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	555	138	254	259
LT Vol	7	99	25	48
Through Vol	511	27	12	180
RT Vol	37	12	217	31
Lane Flow Rate	555	138	254	259
Geometry Grp	1	1	1	1
Degree of Util (X)	0.905	0.274	0.45	0.463
Departure Headway (Hd)	5.873	7.14	6.385	6.44
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	616	501	561	557
Service Time	3.921	5.21	4.445	4.502
HCM Lane V/C Ratio	0.901	0.275	0.453	0.465
HCM Control Delay, s/veh	41.1	12.9	14.6	15
HCM Lane LOS	E	B	B	B
HCM 95th-tile Q	11.2	1.1	2.3	2.4

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	437	20	140	55	26	37	26	81	12	13	87	102
Future Vol, veh/h	437	20	140	55	26	37	26	81	12	13	87	102
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	437	20	140	55	26	37	26	81	12	13	87	102
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	10.3	11.2	12
HCM LOS	D	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	73%	47%	6%
Vol Thru, %	68%	3%	22%	43%
Vol Right, %	10%	23%	31%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	597	118	202
LT Vol	26	437	55	13
Through Vol	81	20	26	87
RT Vol	12	140	37	102
Lane Flow Rate	119	597	118	202
Geometry Grp	1	1	1	1
Degree of Util (X)	0.212	0.851	0.19	0.334
Departure Headway (Hd)	6.41	5.132	5.808	5.946
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	557	704	614	602
Service Time	4.484	3.178	3.88	4.012
HCM Lane V/C Ratio	0.214	0.848	0.192	0.336
HCM Control Delay, s/veh	11.2	30.4	10.3	12
HCM Lane LOS	B	D	B	B
HCM 95th-tile Q	0.8	9.8	0.7	1.5

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	68	20	25	50	75	206
Future Vol, veh/h	68	20	25	50	75	206
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	68	20	25	50	75	206
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	8.8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	77%	0%	27%
Vol Thru, %	23%	33%	0%
Vol Right, %	0%	67%	73%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	88	75	281
LT Vol	68	0	75
Through Vol	20	25	0
RT Vol	0	50	206
Lane Flow Rate	88	75	281
Geometry Grp	1	1	1
Degree of Util (X)	0.118	0.092	0.313
Departure Headway (Hd)	4.826	4.396	4.006
Convergence, Y/N	Yes	Yes	Yes
Cap	744	816	899
Service Time	2.847	2.417	2.017
HCM Lane V/C Ratio	0.118	0.092	0.313
HCM Control Delay, s/veh	8.5	7.9	8.8
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)	77	465	35	20	432	44	10	5	2	71	10	155
Future Volume (veh/h)	77	465	35	20	432	44	10	5	2	71	10	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)	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	432	44	10	5	2	71	10	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, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	370	658	50	356	634	65	385	175	51	699	30	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	908	1719	129	882	1655	169	616	510	150	1314	88	1366
Grp Volume(v), veh/h	77	0	500	20	0	476	17	0	0	71	0	165
Grp Sat Flow(s),veh/h/ln	908	0	1848	882	0	1824	1277	0	0	1314	0	1454
Q Serve(g_s), s	2.5	0.0	7.5	0.6	0.0	7.1	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	9.7	0.0	7.5	8.1	0.0	7.1	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	370	0	708	356	0	699	611	0	0	699	0	498
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.10	0.00	0.33
Avail Cap(c_a), veh/h	728	0	1438	704	0	1419	793	0	0	870	0	688
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	8.5	12.0	0.0	8.4	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	1.8	0.1	0.0	0.0	0.2	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	0.0	9.0	12.0	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		577			496			17			236	
Approach Delay, s/veh		9.5			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	17.1	15.7	17.1	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	11.7	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	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	179	2	10	52	80	0	1	30	145	5	5
Future Vol, veh/h	25	179	2	10	52	80	0	1	30	145	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	179	2	10	52	80	0	1	30	145	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	9.2	8.3	7.7	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	12%	7%	94%
Vol Thru, %	3%	87%	37%	3%
Vol Right, %	97%	1%	56%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	206	142	155
LT Vol	0	25	10	145
Through Vol	1	179	52	5
RT Vol	30	2	80	5
Lane Flow Rate	31	206	142	155
Geometry Grp	1	1	1	1
Degree of Util (X)	0.039	0.26	0.173	0.212
Departure Headway (Hd)	4.498	4.537	4.375	4.922
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	792	791	818	728
Service Time	2.546	2.569	2.41	2.962
HCM Lane V/C Ratio	0.039	0.26	0.174	0.213
HCM Control Delay, s/veh	7.7	9.2	8.3	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1	0.6	0.8

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	590	590	2	0	6
Future Vol, veh/h	1	590	590	2	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	1	590	590	2	0	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	592	0	-	0	1183	591
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	592	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	989	-	-	-	209	507
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	553	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	989	-	-	-	209	507
Mov Cap-2 Maneuver	-	-	-	-	209	-
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	553	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.01	0	12.19
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	3	-	-	-	507
HCM Lane V/C Ratio	0.001	-	-	-	0.012
HCM Ctrl Dly (s/v)	8.6	0	-	-	12.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Intersection Delay, s/veh	49
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	51	8	14	30	14	199	16	425	37	91	469	60
Future Vol, veh/h	51	8	14	30	14	199	16	425	37	91	469	60
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	51	8	14	30	14	199	16	425	37	91	469	60
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	12.8	15.9	32.7	78.8
HCM LOS	B	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	70%	12%	15%
Vol Thru, %	89%	11%	6%	76%
Vol Right, %	8%	19%	82%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	478	73	243	620
LT Vol	16	51	30	91
Through Vol	425	8	14	469
RT Vol	37	14	199	60
Lane Flow Rate	478	73	243	620
Geometry Grp	1	1	1	1
Degree of Util (X)	0.825	0.161	0.459	1.061
Departure Headway (Hd)	6.409	8.233	7.035	6.16
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	569	438	515	595
Service Time	4.409	6.233	5.035	4.16
HCM Lane V/C Ratio	0.84	0.167	0.472	1.042
HCM Control Delay, s/veh	32.7	12.8	15.9	78.8
HCM Lane LOS	D	B	C	F
HCM 95th-tile Q	8.4	0.6	2.4	17.6

Intersection	
Intersection Delay, s/veh	26.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	302	15	73	5	52	19	149	136	54	24	49	427
Future Vol, veh/h	302	15	73	5	52	19	149	136	54	24	49	427
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	302	15	73	5	52	19	149	136	54	24	49	427
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	26.3	12.3	20.8	32.7
HCM LOS	D	B	C	D

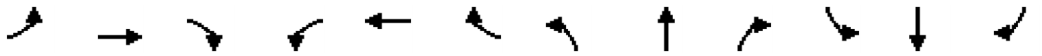
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	44%	77%	7%	5%
Vol Thru, %	40%	4%	68%	10%
Vol Right, %	16%	19%	25%	85%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	339	390	76	500
LT Vol	149	302	5	24
Through Vol	136	15	52	49
RT Vol	54	73	19	427
Lane Flow Rate	339	390	76	500
Geometry Grp	1	1	1	1
Degree of Util (X)	0.633	0.732	0.165	0.836
Departure Headway (Hd)	6.718	6.754	7.81	6.019
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	532	534	462	600
Service Time	4.809	4.837	5.81	4.1
HCM Lane V/C Ratio	0.637	0.73	0.165	0.833
HCM Control Delay, s/veh	20.8	26.3	12.3	32.7
HCM Lane LOS	C	D	B	D
HCM 95th-tile Q	4.4	6.1	0.6	8.8

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	249	25	5	80	57	80
Future Vol, veh/h	249	25	5	80	57	80
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	249	25	5	80	57	80
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	10.1	7.7	8.6
HCM LOS	B	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	91%	0%	42%
Vol Thru, %	9%	6%	0%
Vol Right, %	0%	94%	58%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	274	85	137
LT Vol	249	0	57
Through Vol	25	5	0
RT Vol	0	80	80
Lane Flow Rate	274	85	137
Geometry Grp	1	1	1
Degree of Util (X)	0.349	0.099	0.175
Departure Headway (Hd)	4.583	4.192	4.597
Convergence, Y/N	Yes	Yes	Yes
Cap	786	855	781
Service Time	2.603	2.216	2.619
HCM Lane V/C Ratio	0.349	0.099	0.175
HCM Control Delay, s/veh	10.1	7.7	8.6
HCM Lane LOS	B	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)	205	460	30	5	370	110	0	0	0	36	5	65
Future Volume (veh/h)	205	460	30	5	370	110	0	0	0	36	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		0.93	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	370	110	0	0	0	36	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	472	834	54	475	651	194	0	470	0	607	25	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	892	1715	112	879	1338	398	0	1900	0	1594	102	1326
Grp Volume(v), veh/h	205	0	490	5	0	480	0	0	0	36	0	70
Grp Sat Flow(s),veh/h/ln	892	0	1827	879	0	1736	0	1900	0	1594	0	1428
Q Serve(g_s), s	7.2	0.0	6.4	0.1	0.0	6.6	0.0	0.0	0.0	0.6	0.0	1.3
Cycle Q Clear(g_c), s	13.8	0.0	6.4	6.5	0.0	6.6	0.0	0.0	0.0	0.6	0.0	1.3
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	472	0	889	475	0	845	0	470	0	607	0	353
V/C Ratio(X)	0.43	0.00	0.55	0.01	0.00	0.57	0.00	0.00	0.00	0.06	0.00	0.20
Avail Cap(c_a), veh/h	711	0	1378	711	0	1310	0	871	0	944	0	655
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	1.3	0.0	0.0	1.3	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	9.8	0.0	10.2
LnGrp LOS	B		A	A		A				A		B
Approach Vol, veh/h		695			485			0			106	
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	8.6	0.0	15.8	3.3
Green Ext Time (p_c), s	0.6	0.0	0.7	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.4
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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	25	201	2	6	240	112	11	5	20	94	1	5
Future Vol, veh/h	25	201	2	6	240	112	11	5	20	94	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	201	2	6	240	112	11	5	20	94	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	9.7	10.8	8.5	9.4
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	11%	2%	94%
Vol Thru, %	14%	88%	67%	1%
Vol Right, %	56%	1%	31%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	228	358	100
LT Vol	11	25	6	94
Through Vol	5	201	240	1
RT Vol	20	2	112	5
Lane Flow Rate	36	228	358	100
Geometry Grp	1	1	1	1
Degree of Util (X)	0.051	0.295	0.435	0.15
Departure Headway (Hd)	5.134	4.664	4.373	5.402
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	692	768	820	660
Service Time	3.209	2.709	2.411	3.467
HCM Lane V/C Ratio	0.052	0.297	0.437	0.152
HCM Control Delay, s/veh	8.5	9.7	10.8	9.4
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	1.2	2.2	0.5

Intersection	
Intersection Delay, s/veh	31.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	22	12	25	12	217	7	555	42	48	194	18
Future Vol, veh/h	56	22	12	25	12	217	7	555	42	48	194	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	56	22	12	25	12	217	7	555	42	48	194	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	11.8	14.3	49.5	14.5
HCM LOS	B	B	E	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	62%	10%	18%
Vol Thru, %	92%	24%	5%	75%
Vol Right, %	7%	13%	85%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	604	90	254	260
LT Vol	7	56	25	48
Through Vol	555	22	12	194
RT Vol	42	12	217	18
Lane Flow Rate	604	90	254	260
Geometry Grp	1	1	1	1
Degree of Util (X)	0.957	0.179	0.444	0.455
Departure Headway (Hd)	5.702	7.167	6.293	6.294
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	640	499	572	572
Service Time	3.702	5.241	4.352	4.348
HCM Lane V/C Ratio	0.944	0.18	0.444	0.455
HCM Control Delay, s/veh	49.5	11.8	14.3	14.5
HCM Lane LOS	E	B	B	B
HCM 95th-tile Q	13.5	0.6	2.3	2.4

Intersection	
Intersection Delay, s/veh	31.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	486	20	145	55	26	37	28	81	12	13	87	116
Future Vol, veh/h	486	20	145	55	26	37	28	81	12	13	87	116
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	486	20	145	55	26	37	28	81	12	13	87	116
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	45.1	10.6	11.7	12.8
HCM LOS	E	B	B	B

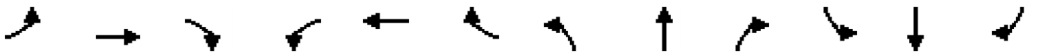
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	75%	47%	6%
Vol Thru, %	67%	3%	22%	40%
Vol Right, %	10%	22%	31%	54%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	121	651	118	216
LT Vol	28	486	55	13
Through Vol	81	20	26	87
RT Vol	12	145	37	116
Lane Flow Rate	121	651	118	216
Geometry Grp	1	1	1	1
Degree of Util (X)	0.223	0.946	0.197	0.367
Departure Headway (Hd)	6.649	5.229	6.008	6.123
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	536	690	592	583
Service Time	4.744	3.28	4.095	4.205
HCM Lane V/C Ratio	0.226	0.943	0.199	0.37
HCM Control Delay, s/veh	11.7	45.1	10.6	12.8
HCM Lane LOS	B	E	B	B
HCM 95th-tile Q	0.8	13.4	0.7	1.7

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	70	20	25	50	75	211
Future Vol, veh/h	70	20	25	50	75	211
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	70	20	25	50	75	211
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	90	75	286
LT Vol	70	0	75
Through Vol	20	25	0
RT Vol	0	50	211
Lane Flow Rate	90	75	286
Geometry Grp	1	1	1
Degree of Util (X)	0.121	0.092	0.318
Departure Headway (Hd)	4.837	4.409	4.008
Convergence, Y/N	Yes	Yes	Yes
Cap	742	814	901
Service Time	2.859	2.43	2.019
HCM Lane V/C Ratio	0.121	0.092	0.317
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)	78	465	35	20	430	44	10	5	2	71	10	160
Future Volume (veh/h)	78	465	35	20	430	44	10	5	2	71	10	160
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	465	35	20	430	44	10	5	2	71	10	160
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	370	658	50	355	633	65	383	174	51	701	29	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	909	1719	129	882	1654	169	609	506	149	1314	85	1368
Grp Volume(v), veh/h	78	0	500	20	0	474	17	0	0	71	0	170
Grp Sat Flow(s),veh/h/ln	909	0	1848	882	0	1824	1263	0	0	1314	0	1453
Q Serve(g_s), s	2.6	0.0	7.5	0.6	0.0	7.1	0.0	0.0	0.0	0.0	0.0	2.9
Cycle Q Clear(g_c), s	9.7	0.0	7.5	8.2	0.0	7.1	2.9	0.0	0.0	1.0	0.0	2.9
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	370	0	707	355	0	698	608	0	0	701	0	499
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.10	0.00	0.34
Avail Cap(c_a), veh/h	728	0	1434	702	0	1415	786	0	0	870	0	686
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	12.0	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	1.8	0.1	0.0	0.0	0.2	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	8.2
LnGrp LOS	B		A	B		A	A			A		A
Approach Vol, veh/h		578			494			17			241	
Approach Delay, s/veh		9.5			9.0			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	15.8	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	4.9	11.7	4.9
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	
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	233	2	10	68	80	0	1	30	145	5	5
Future Vol, veh/h	25	233	2	10	68	80	0	1	30	145	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	233	2	10	68	80	0	1	30	145	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	8.6	7.9	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	10%	6%	94%
Vol Thru, %	3%	90%	43%	3%
Vol Right, %	97%	1%	51%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	260	158	155
LT Vol	0	25	10	145
Through Vol	1	233	68	5
RT Vol	30	2	80	5
Lane Flow Rate	31	260	158	155
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.33	0.197	0.219
Departure Headway (Hd)	4.674	4.566	4.483	5.086
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	761	785	798	704
Service Time	2.736	2.604	2.526	3.137
HCM Lane V/C Ratio	0.041	0.331	0.198	0.22
HCM Control Delay, s/veh	7.9	9.9	8.6	9.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.4	0.7	0.8

Intersection	
Intersection Delay, s/veh	49
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	8	14	30	14	199	16	425	37	91	469	60
Future Vol, veh/h	51	8	14	30	14	199	16	425	37	91	469	60
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	51	8	14	30	14	199	16	425	37	91	469	60
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	12.8	15.9	32.7	78.8
HCM LOS	B	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	70%	12%	15%
Vol Thru, %	89%	11%	6%	76%
Vol Right, %	8%	19%	82%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	478	73	243	620
LT Vol	16	51	30	91
Through Vol	425	8	14	469
RT Vol	37	14	199	60
Lane Flow Rate	478	73	243	620
Geometry Grp	1	1	1	1
Degree of Util (X)	0.825	0.161	0.459	1.061
Departure Headway (Hd)	6.409	8.233	7.035	6.16
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	569	438	515	595
Service Time	4.409	6.233	5.035	4.16
HCM Lane V/C Ratio	0.84	0.167	0.472	1.042
HCM Control Delay, s/veh	32.7	12.8	15.9	78.8
HCM Lane LOS	D	B	C	F
HCM 95th-tile Q	8.4	0.6	2.4	17.6

Intersection	
Intersection Delay, s/veh	25.6
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	302	15	69	5	52	19	140	136	54	24	49	427
Future Vol, veh/h	302	15	69	5	52	19	140	136	54	24	49	427
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	302	15	69	5	52	19	140	136	54	24	49	427
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	25.3	12.2	19.8	31.7
HCM LOS	D	B	C	D

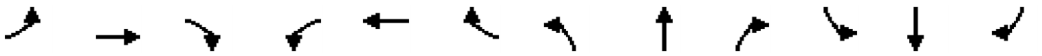
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	78%	7%	5%
Vol Thru, %	41%	4%	68%	10%
Vol Right, %	16%	18%	25%	85%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	330	386	76	500
LT Vol	140	302	5	24
Through Vol	136	15	52	49
RT Vol	54	69	19	427
Lane Flow Rate	330	386	76	500
Geometry Grp	1	1	1	1
Degree of Util (X)	0.612	0.72	0.163	0.829
Departure Headway (Hd)	6.676	6.716	7.722	5.968
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	538	537	467	605
Service Time	4.761	4.795	5.722	4.041
HCM Lane V/C Ratio	0.613	0.719	0.163	0.826
HCM Control Delay, s/veh	19.8	25.3	12.2	31.7
HCM Lane LOS	C	D	B	D
HCM 95th-tile Q	4.1	5.9	0.6	8.7

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	240	25	5	80	57	76
Future Vol, veh/h	240	25	5	80	57	76
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	240	25	5	80	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	9.9	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	265	85	133
LT Vol	240	0	57
Through Vol	25	5	0
RT Vol	0	80	76
Lane Flow Rate	265	85	133
Geometry Grp	1	1	1
Degree of Util (X)	0.336	0.098	0.169
Departure Headway (Hd)	4.571	4.17	4.583
Convergence, Y/N	Yes	Yes	Yes
Cap	790	860	785
Service Time	2.589	2.191	2.603
HCM Lane V/C Ratio	0.335	0.099	0.169
HCM Control Delay, s/veh	9.9	7.6	8.5
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)	203	460	30	5	377	103	0	0	0	36	5	61
Future Volume (veh/h)	203	460	30	5	377	103	0	0	0	36	5	61
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	0.95		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	203	460	30	5	377	103	0	0	0	36	5	61
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	475	832	54	477	664	181	0	464	0	606	26	323
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.00	0.00	0.00	0.24	0.24	0.24
Sat Flow, veh/h	892	1715	112	879	1369	374	0	1900	0	1593	108	1322
Grp Volume(v), veh/h	203	0	490	5	0	480	0	0	0	36	0	66
Grp Sat Flow(s),veh/h/ln	892	0	1826	879	0	1742	0	1900	0	1593	0	1430
Q Serve(g_s), s	7.0	0.0	6.3	0.1	0.0	6.5	0.0	0.0	0.0	0.6	0.0	1.2
Cycle Q Clear(g_c), s	13.5	0.0	6.3	6.4	0.0	6.5	0.0	0.0	0.0	0.6	0.0	1.2
Prop In Lane	1.00		0.06	1.00		0.21	0.00		0.00	1.00		0.92
Lane Grp Cap(c), veh/h	475	0	886	477	0	845	0	464	0	606	0	349
V/C Ratio(X)	0.43	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	726	0	1400	724	0	1335	0	885	0	959	0	666
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	10.9	0.0	6.0	8.3	0.0	6.1	0.0	0.0	0.0	9.7	0.0	10.0
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	1.3	0.0	0.0	1.3	0.0	0.0	0.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.1	0.0	6.2	8.3	0.0	6.3	0.0	0.0	0.0	9.7	0.0	10.1
LnGrp LOS	B		A	A		A				A		B
Approach Vol, veh/h		693			485			0			102	
Approach Delay, s/veh		7.7			6.3			0.0			9.9	
Approach LOS		A			A						A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	20.6	12.6	20.6	12.6
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	8.5	0.0	15.5	3.2
Green Ext Time (p_c), s	0.6	0.0	0.7	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	7.3
HCM 7th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

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	25	197	2	6	231	112	11	5	20	94	1	5
Future Vol, veh/h	25	197	2	6	231	112	11	5	20	94	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	197	2	6	231	112	11	5	20	94	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	9.6	10.6	8.5	9.4
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	11%	2%	94%
Vol Thru, %	14%	88%	66%	1%
Vol Right, %	56%	1%	32%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	224	349	100
LT Vol	11	25	6	94
Through Vol	5	197	231	1
RT Vol	20	2	112	5
Lane Flow Rate	36	224	349	100
Geometry Grp	1	1	1	1
Degree of Util (X)	0.051	0.289	0.423	0.149
Departure Headway (Hd)	5.103	4.65	4.36	5.372
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	696	771	824	664
Service Time	3.175	2.696	2.399	3.435
HCM Lane V/C Ratio	0.052	0.291	0.424	0.151
HCM Control Delay, s/veh	8.5	9.6	10.6	9.4
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.2	1.2	2.1	0.5

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	715	417	7	0	4
Future Vol, veh/h	2	715	417	7	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	2	715	417	7	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	424	0	-	0	1140	421
Stage 1	-	-	-	-	421	-
Stage 2	-	-	-	-	719	-
Critical Hdwy	4.13	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.227	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1130	-	-	-	222	633
Stage 1	-	-	-	-	663	-
Stage 2	-	-	-	-	483	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1130	-	-	-	222	633
Mov Cap-2 Maneuver	-	-	-	-	222	-
Stage 1	-	-	-	-	661	-
Stage 2	-	-	-	-	483	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.02	0	10.72
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	5	-	-	-	633
HCM Lane V/C Ratio	0.002	-	-	-	0.006
HCM Ctrl Dly (s/v)	8.2	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Intersection Delay, s/veh	31.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	22	12	25	12	217	7	555	42	48	193	18
Future Vol, veh/h	56	22	12	25	12	217	7	555	42	48	193	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	56	22	12	25	12	217	7	555	42	48	193	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	11.8	14.3	49.3	14.5
HCM LOS	B	B	E	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	62%	10%	19%
Vol Thru, %	92%	24%	5%	75%
Vol Right, %	7%	13%	85%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	604	90	254	259
LT Vol	7	56	25	48
Through Vol	555	22	12	193
RT Vol	42	12	217	18
Lane Flow Rate	604	90	254	259
Geometry Grp	1	1	1	1
Degree of Util (X)	0.956	0.179	0.444	0.453
Departure Headway (Hd)	5.699	7.163	6.29	6.294
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	640	499	572	570
Service Time	3.699	5.235	4.347	4.347
HCM Lane V/C Ratio	0.944	0.18	0.444	0.454
HCM Control Delay, s/veh	49.3	11.8	14.3	14.5
HCM Lane LOS	E	B	B	B
HCM 95th-tile Q	13.4	0.6	2.3	2.3

Intersection	
Intersection Delay, s/veh	30.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	486	20	140	55	26	37	26	81	12	13	87	115
Future Vol, veh/h	486	20	140	55	26	37	26	81	12	13	87	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
Heavy Vehicles, %	2	2	2	5	5	5	11	11	11	10	10	10
Mvmt Flow	486	20	140	55	26	37	26	81	12	13	87	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	43.3	10.5	11.6	12.7
HCM LOS	E	B	B	B

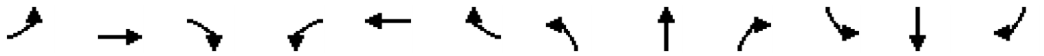
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	75%	47%	6%
Vol Thru, %	68%	3%	22%	40%
Vol Right, %	10%	22%	31%	53%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	646	118	215
LT Vol	26	486	55	13
Through Vol	81	20	26	87
RT Vol	12	140	37	115
Lane Flow Rate	119	646	118	215
Geometry Grp	1	1	1	1
Degree of Util (X)	0.219	0.937	0.196	0.364
Departure Headway (Hd)	6.624	5.22	5.982	6.1
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	538	691	595	585
Service Time	4.716	3.271	4.068	4.181
HCM Lane V/C Ratio	0.221	0.935	0.198	0.368
HCM Control Delay, s/veh	11.6	43.3	10.5	12.7
HCM Lane LOS	B	E	B	B
HCM 95th-tile Q	0.8	13	0.7	1.7

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	68	20	25	50	75	206
Future Vol, veh/h	68	20	25	50	75	206
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	68	20	25	50	75	206
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	8.8
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	77%	0%	27%
Vol Thru, %	23%	33%	0%
Vol Right, %	0%	67%	73%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	88	75	281
LT Vol	68	0	75
Through Vol	20	25	0
RT Vol	0	50	206
Lane Flow Rate	88	75	281
Geometry Grp	1	1	1
Degree of Util (X)	0.118	0.092	0.313
Departure Headway (Hd)	4.826	4.396	4.006
Convergence, Y/N	Yes	Yes	Yes
Cap	744	816	899
Service Time	2.847	2.417	2.017
HCM Lane V/C Ratio	0.118	0.092	0.313
HCM Control Delay, s/veh	8.5	7.9	8.8
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)	77	465	35	20	432	44	10	5	2	71	10	155
Future Volume (veh/h)	77	465	35	20	432	44	10	5	2	71	10	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)	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	432	44	10	5	2	71	10	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, %	1	1	1	2	2	2	0	0	0	6	6	6
Cap, veh/h	370	658	50	356	634	65	385	175	51	699	30	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	908	1719	129	882	1655	169	616	510	150	1314	88	1366
Grp Volume(v), veh/h	77	0	500	20	0	476	17	0	0	71	0	165
Grp Sat Flow(s),veh/h/ln	908	0	1848	882	0	1824	1277	0	0	1314	0	1454
Q Serve(g_s), s	2.5	0.0	7.5	0.6	0.0	7.1	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	9.7	0.0	7.5	8.1	0.0	7.1	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	370	0	708	356	0	699	611	0	0	699	0	498
V/C Ratio(X)	0.21	0.00	0.71	0.06	0.00	0.68	0.03	0.00	0.00	0.10	0.00	0.33
Avail Cap(c_a), veh/h	728	0	1438	704	0	1419	793	0	0	870	0	688
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	8.5	12.0	0.0	8.4	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	1.8	0.1	0.0	0.0	0.2	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.6	0.0	9.0	12.0	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		577			496			17			236	
Approach Delay, s/veh		9.5			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		17.1		15.7		17.1		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		11.7		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	
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	25	228	2	10	65	80	0	1	30	145	5	5
Future Vol, veh/h	25	228	2	10	65	80	0	1	30	145	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	228	2	10	65	80	0	1	30	145	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	8.6	7.9	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	10%	6%	94%
Vol Thru, %	3%	89%	42%	3%
Vol Right, %	97%	1%	52%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	255	155	155
LT Vol	0	25	10	145
Through Vol	1	228	65	5
RT Vol	30	2	80	5
Lane Flow Rate	31	255	155	155
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.323	0.193	0.218
Departure Headway (Hd)	4.655	4.562	4.471	5.068
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	764	785	800	705
Service Time	2.714	2.599	2.511	3.117
HCM Lane V/C Ratio	0.041	0.325	0.194	0.22
HCM Control Delay, s/veh	7.9	9.8	8.6	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.4	0.7	0.8

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	590	590	2	0	5
Future Vol, veh/h	1	590	590	2	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
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	2	2
Mvmt Flow	1	590	590	2	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	592	0	-	0	1183	591
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	592	-
Critical Hdwy	4.11	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.209	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	989	-	-	-	209	507
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	553	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	989	-	-	-	209	507
Mov Cap-2 Maneuver	-	-	-	-	209	-
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	553	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.01	0	12.17
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	3	-	-	-	507
HCM Lane V/C Ratio	0.001	-	-	-	0.01
HCM Ctrl Dly (s/v)	8.6	0	-	-	12.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

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

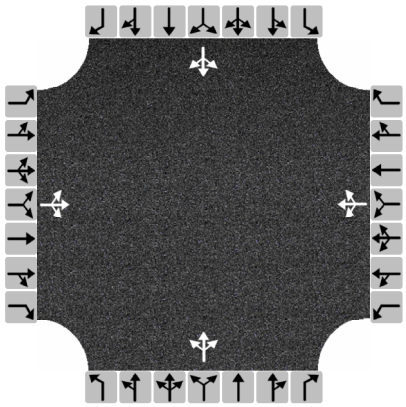
Project Information

Analyst	Transpo Group	Date	7/2/2025
Agency		Analysis Year	Partial Loop Rd, 8th Closed
Jurisdiction	City of Seattle	Time Period Analyzed	Future 2045
Units	U.S. Customary	MUTCD Method	MUTCD 11 (2023)
Project Description	Harborview Medical Center - 9th/Alder		

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)	600
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)	376	13	100	25	32	14	53	73	15	7	55	194
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	724	373	1161	0	0	Yes	Yes	No	Yes	Yes	No	Yes	No	No
8:00 - 9:00	539	277	864	0	0	Yes	Yes	No	No	Yes	No	No	No	No
9:00 - 10:00	390	201	625	0	0	No	No	No	No	No	No	No	No	No
10:00 - 11:00	481	247	771	0	0	No	Yes	No	No	No	No	No	No	No
11:00 - 12:00	558	287	895	0	0	Yes	Yes	No	No	Yes	No	No	No	No
12:00 - 13:00	284	605	973	0	0	No	No	No	No	Yes	No	Yes	No	No
13:00 - 14:00	243	520	835	0	0	No	No	No	No	Yes	No	No	No	No
14:00 - 15:00	265	569	912	0	0	No	No	No	No	Yes	No	Yes	No	No
15:00 - 16:00	347	738	1187	0	0	No	No	No	No	Yes	No	Yes	No	No
16:00 - 17:00	356	760	1221	0	0	No	No	No	No	Yes	No	Yes	No	No
17:00 - 18:00	352	752	1208	0	0	No	No	No	No	Yes	No	Yes	No	No
18:00 - 19:00	260	557	894	0	0	No	No	No	No	Yes	No	No	No	No
Total	4799	5886	11546	0	0	3	4	0	1	10	0	6	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	267	457	724	0	0	0	No	No
8:00 - 9:00	199	340	539	0	0	0	No	No
9:00 - 10:00	144	246	390	0	0	0	No	No
10:00 - 11:00	178	303	481	0	0	0	No	No
11:00 - 12:00	206	352	558	0	0	0	No	No
12:00 - 13:00	97	187	284	0	0	0	No	No
13:00 - 14:00	83	160	243	0	0	0	No	No
14:00 - 15:00	90	175	265	0	0	0	No	No
15:00 - 16:00	118	229	347	0	0	0	No	No
16:00 - 17:00	121	235	356	0	0	0	No	No
17:00 - 18:00	120	232	352	0	0	0	No	No
18:00 - 19:00	88	172	260	0	0	0	No	No
Totals	1711	3088	4799	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.