RESOLUTION R-5724

A RESOLUTION OF THE CITY OF KIRKLAND APPROVING THE ISSUANCE OF A PROCESS IIB PERMIT FOR AN AMENDED MASTER PLAN (DEVELOPMENT PLAN), AS APPLIED FOR IN THE PLANNING AND BUILDING DEPARTMENT FILE NO. ZON25-00491, EMERSON CAMPUS MASTER PLAN AMENDMENT, AND SETTING FORTH CONDITIONS TO WHICH SUCH PERMIT SHALL BE SUBJECT.

WHEREAS, the Planning and Building Department received an application for a Process IIB permit for the purpose of amending and updating the Emerson Campus Development Plan, filed by Tammy Chuang of Mithun representing the Lake Washington School District (the "District"), the owner of the property described in said application; and

WHEREAS, the subject property is located within a RS 8.5 (Residential Single-family) zone, the City previously approved the Emerson Campus Master Plan (now referred to as a Development Plan) for the District, and this requested Process IIB permit will amend that Plan; and

WHEREAS, pursuant to the City of Kirkland's Concurrency Management System, Title 25 of the Kirkland Municipal Code (KMC), a concurrency application has been submitted to the City of Kirkland, the application has been reviewed by the responsible Public Works official, the concurrency test has been passed, and a concurrency test notice issued; and

WHEREAS, pursuant to the State Environmental Policy Act (SEPA), chapter 43.21C RCW, and the District's Administrative Policy 6890P adopted to implement it, the District, as SEPA Lead Agency, performed a SEPA review for the application and issued a Determination of Non-Significance, and the environmental checklist and SEPA determination have been available and accompanied the application through the entire review process; and

WHEREAS, the application was submitted to the Hearing Examiner, who held a public hearing on February 18, 2026; and

WHEREAS, the Hearing Examiner, after the public hearing and consideration of the recommendations of the Planning and Building Department, did adopt certain findings, conclusions, and a recommendation and did recommend approval of the Process IIB permit subject to the specific conditions of approval set forth in said recommendation; and

WHEREAS, the City Council, in a regular meeting, has considered the findings, conclusions, and recommendation of the Hearing Examiner, together with the environmental documents received from the responsible official, and concludes that the proposal is consistent with all applicable development regulations, the Comprehensive Plan, and the public health, safety, and welfare.

NOW, THEREFORE, be it resolved by the City Council of the City of Kirkland as follows:

Section 1. The findings, conclusions, and recommendation of the Hearing Examiner, as signed by the Hearing Examiner, filed in the Planning and Building Department File No. ZON25-00491, attached to this resolution as Exhibit A, and incorporated herein by reference, are hereby adopted by the Kirkland City Council.

Section 2. The Process IIB permit amending the Emerson Campus Master Plan (Development Plan) shall be issued to the applicant subject to the conditions set forth in the recommendation hereinabove adopted by the City Council.

Section 3. Nothing in this resolution shall be construed as excusing the applicant from compliance with any federal, state, or local statutes, ordinances, or regulations applicable to this project, other than expressly set forth herein.

Section 4. Failure on the part of the holder of the permit to initially meet or maintain strict compliance with the standards and conditions to which the Process IIB permit is subject shall be grounds for revocation in accordance with the Kirkland Zoning Code Section 170.30.

Section 5. A complete copy of this resolution, including findings, conclusions, and recommendation adopted by reference, shall be certified by the City Clerk who shall then forward the certified copy to the King County Department of Assessments.

Section 6. A copy of this resolution, together with the findings, conclusions, and recommendation herein adopted, shall be attached to and become a part of the Process IIB permit.

Passed by majority vote in open meeting of the Kirkland City Council on the 17th day of March, 2026.

Signed in authentication thereof this 17th day of March, 2026.

Kelli Curtis, Mayor

Attest:

Anastasiya Warhol, City Clerk

CITY OF KIRKLAND HEARING EXAMINER
FINDINGS OF FACT, CONCLUSIONS OF LAW AND RECOMMENDATION

Emerson Campus Master Plan Amendment
Process IIB Review, ZON25-00491

February 24, 2026

1. FINDINGS OF FACT

1.1 Proposal. Emerson Campus includes Emerson K-12, Emerson High School, and Northstar Middle School. The Emerson Campus Master Plan Amendment would allow Emerson K-12 and Emerson High School demolition and construction of a new two-story, approximately 51,535 square-foot education building. Northstar Middle School and the existing gym will remain. Site improvements include new field areas, new vehicle and pedestrian circulation, parking, and utility improvements. Northstar Middle School enrollment will remain at 90 students. Emerson Schools' enrollment will increase by 167 students to 345.

Applicant	Lake Washington School District c/o Mithun, Tammy Chuang
Site Location	Lake Washington High School 10903 NE 53rd Street, Kirkland, WA

1.2 Zoning and Surrounding Uses. The 10.07-acre site is zoned RS 8.5 (Residential Single-Family). Schools are an allowed use, subject to approval of a Master Plan. Neighboring properties to the east, west and south are zoned RS 8.5 and developed with single-family residences. The properties to the north are zoned RS 8.5 and Planned Area (PLA) 1 and include Antioch Bible Church, Puget Sound Adventist Academy, and the Northwest University campus.

1.3 State Environmental Policy Act, Ch. 43.21C RCW, Review. Lake Washington School District issued a Determination of Non-significance, which was not appealed.[1]

1.4 Hearing. An open record public hearing was held February 18, 2026. The City Planning and Building Department, through Senior Planner Tony Leavitt, summarized the proposal, with the City Public Works Department, through Transportation Engineer Thang Nguyen, addressing transportation. The District, through Brian Buck, testified. No public testimony was presented, though citizens attended and three comments were submitted.

1.5 Administrative Record. The Department submitted the Staff Report (Exhibit 1), with Attachments 1-17. Three public comments (Exhibit 2) and the Department's power point presentation (Exhibit 3) were received. The record was kept open for one day to allow for District review of newly submitted public comment. The District submitted a letter addressing those comments (Exhibit 4). Exhibits 1 - 4 were admitted without objection.

[1] Ex. 1 (Staff Report), Att. 8 (Environmental Checklist and SEPA Determination).

1.6 Hearing, Written Public Comments and District Response.

Traffic and Circulation. Congestion on 108th Ave NE, insufficient parking, and whether access from NE 53rd Street would have fewer impacts were raised as concerns. In response, the District explained that a Traffic Impact Analysis was prepared and coordinated with City Transportation staff. That analysis found the campus has minimal impact on regional traffic along 108th Ave NE and is below City thresholds requiring public right-of-way improvements. The District stated there is sufficient parking for the added capacity and that a widened entry drive providing expanded on-site queuing length will minimize spillback onto 108th Ave NE. The District emphasized that existing access and the parking lot on 53rd will remain. Expanded access from 53rd was evaluated but reconfiguration would require removal of a substantially greater number of landmark/heritage trees and expanding the lot off 53rd would eliminate the space needed for the replacement playfield, an amenity highly utilized by community groups.

Stormwater and Environmental Performance. Concerns were raised that replacing the existing open stormwater pond with a detention vault may reduce environmental performance, increase thermal impacts, and create a greater maintenance burden. The District responded that the project is designed in accordance with the 2021 King County Surface Water Design Manual and the City of Kirkland Addendum per Policy D-10, which have Department of Ecology approval. The District explained that the existing infiltrating detention pond and the proposed infiltrating detention vault are engineered flow control facilities. Flow control facilities are designed to meet discharge performance criteria and protect downstream properties and resources from increases in peak flow, duration, and runoff volume. The new infiltrating detention vault represents a comparable and code compliant mitigation option. The vault will be covered, which minimizes the collected water's exposure to solar heating. Per King County maintenance requirements, both systems rely on gravity-driven flow control and do not depend on mechanical systems for routine operations. Both open ponds and vaults are typically serviced by vacuum truck, and long-term maintenance performance is expected to be comparable to the existing facility.

Tree Removal and Mitigation. A concern on heritage tree removal reducing environmental function and greenbelt character was raised. The District stated that placement of the new building and supporting facilities was designed to maximize retention of healthy trees. Tree removal was evaluated through SEPA and determined to not result in significant impacts to regional stormwater loads, local habitat connectivity or other environmental criteria. The District elaborated that in compliance with code, landmark trees are replaced at a 3:1 ratio and replacement trees are larger tree species.

Landscaping and Lighting. Previous landscaping maintenance concerns and potential glare from parking lot lighting was raised as a concern. The District stated that site lighting will comply with City lighting standards, including measures to minimize off-site glare through downward-directed fixtures. The District emphasized that landscape design and tree replacement will be completed consistent with code requirements.

1.7 Public Comment to Department. The Department received two public comments, which the District responded to.[2] The Staff Report further details Department responses, but to summarize:

- **108th Ave NE Access Drive Location**. A neighbor expressed concerns about ingress and egress and traffic impacts on neighboring streets. The Department addressed this concern by explaining how current and proposed circulation will operate, and detailing the mitigation being required to address this issue. *See* Findings 1.6 and 1.9 for detail.

- **Parking Adequacy**. A neighbor expressed concern on parking adequacy. The Department responded, identifying how it calculated demand and that parking provided exceeds demand. *See* Findings 1.6 and 1.9 for detail.

- **Sight Distance**. A neighbor expressed concern about site distance at the corner of 108th Ave NE and NE 48TH Street, noting that overgrown vegetation creates visibility issues for pedestrians and vehicles. The Department explained that the intersection is about 325 feet south of the site and appears to be on private property. The overgrown vegetation is an existing issue unrelated to the project, but the comment was forwarded to Public Works and the issue is being further considered.[3]

- **Excavation Impacts**. The Duwamish Tribe requested an inadvertent discovery plan if excavation cuts occur below fill and that it be notified if archaeological work or monitoring is performed. The District provided a Cultural Resources Assessment.[4] The Assessment concluded the project area contains no archaeological resources and no prehistoric archaeological resources were observed within one mile. The District agreed to incorporate an inadvertent discovery plan if excavation cuts occur below fill and to notify the Tribe if archaeological work or monitoring is performed.

- **Lighting**. The Duwamish Tribe requested dark sky compliant lighting. The Department noted the code does not require dark sky fixtures, but the project is subject to KZC 115.85.[5]

- **Native Vegetation**. The Duwamish Tribe requested that native vegetation be used and that existing native trees be preserved on site. The District noted it will utilize native vegetation for new plantings and projected design was guided by tree retention objectives.[6]

1.8 Site. The developed portion of the site is relatively flat with a slight downward grade change from east to west. Along the east property line, a steep embankment contains large trees and shrubs. No improvements are planned here.

[2] Exhibit 1 (Staff Report), Attachments 5 and 6.
[3] Exhibit 1 (Staff Report), § II.C and Testimony, Department.
[4] Exhibit 1 (Staff Report), Attachment 7.
[5] Exhibit 1 (Staff Report), § II.C.
[6] *See* Exhibit 1 (Staff Report), § II.G.10 and Attachment 15 (Arborist Report).

1.9 Development Regulations.

1.9.1 School Location. The site contains an existing school that includes a community recreational field, gymnasium, parking, and other facilities normally associated with a school use. A school use is allowed in the RS zone if not "materially detrimental to the character of the neighborhood," and the "[s]ite and building design minimize impacts on surrounding residential neighborhoods."[7] Building setbacks from property lines are:

- South: 89 feet
- East: 172 feet
- West: 202
- North: 391 feet[8]

In addition to the setbacks, existing and proposed vegetation provide extensive screening.[9] Landscaping and setbacks transition the school into the neighborhood and avoid materially detrimental impacts.

1.9.2 Building Height. School height is limited to 25 feet. Height may be increased to 35 feet, if the school can accommodate 200 or more students; side and rear yards for the portions of the structure exceeding this are increased one foot for each added foot of height; the added height is not specifically inconsistent with the Comprehensive Plan's neighborhood plan and will not be incompatible with surrounding uses or improvements.[10] An additional five feet of height may be allowed for rooftop appurtenances.[11] New construction must, to the extent feasible, visually screen rooftop appurtenances by incorporating them into the roof form or by using architectural designs such as clerestories, or roof wells. With an additional ten feet for the building, coupled with rooftop features, the project's maximum height is 36.75 feet.[12]

Building setbacks range from 89-391 feet, providing significant visual buffering, which is coupled with new landscaping and existing vegetation. The existing landscape buffer along the south property line contains numerous large trees.[13] There are no Comprehensive Plan Central Houghton neighborhood plan provisions limiting school height. Given distance from neighboring residences and the use of an existing landscape buffer to screen the building, the height increase is compatible with surrounding uses and improvements.

The portion of the building exceeding 25 feet includes the mechanical platform and sloped roof. The District is proposing a mechanical attic roof form that exceeds the 35 foot limit by 1.75 feet.[14] The roof form will screen mechanical equipment, meeting KZC 115.120.3 requirements.

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[7] KZC 15.20.130, Special Regulation PU-4.a-c. Access via a collector or arterial does not apply to existing school sites, though the site is accessed from 108th Avenue NE (a minor arterial) and NE 53rd Street (a collector street).
[8] Exhibit 1 (Staff Report), § II.G.1.a.3.
[9] Exhibit 1 (Staff Report), Attachment 3, pp. 8, 9, and 21.
[10] KZC Section 15.30.130, Special Regulation DD-31.
[11] KZC Section 115.120.3.
[12] Exhibit 1 (Staff Report), Attachment 2 and Attachment 3, p. 6.
[13] Exhibit 1 (Staff Report), Attachment 3, p. 9.
[14] Exhibit 1 (Staff Report), Attachment 3, pp. 5 and 6.

1.9.3 Setbacks. The building setback is 50 feet, with 60 feet required along the east and south property lines (KZC 15.30.130 and Finding 1.9.2) for the added height. The building setbacks ranging from 89-391 feet comply.

- **Playfield**. The proposed northwest corner playfield is not a structured play area, so may be closer than 20 feet to the property line.[15] The six foot high fence surrounding the field is 12.75 feet from the west property line and 100 feet from the north property line. On the west side, the fence includes 15 foot high netting.[16] The Department may approve a height modification if necessary due to size, configuration, topography or site location and there is no substantial detrimental effect.[17] The netting is designed to keep balls away from the adjoining 108th Avenue NE right-of-way. The current play field, in the southwest corner, is being relocated to accommodate the proposed building. Relocation will have the least impact on regulated trees and provide easy access to the north parking lot for community use. The proposed field is slightly smaller than the existing field and will have minimal visual impacts.

- **Proposed Southwest Parking Lot**. Vehicle parking areas for schools with over 12 students must be 20 feet from the property line.[18] The proposed southwest parking lot drive aisle is 25-feet from the west property line and 50-feet from the south property line. The lot and drive aisle comply.

- **Existing West Parking Lot**. The existing west gym parking lot is 8.5 feet from the 108th Avenue NE property line. After the required right-of-way dedication for the 108th Avenue NE improvements, the parking lot will be as close as 2.3 feet from the west property line.[19] The lot was permitted as part of the 1999 Master Plan. At that time, a 20-foot setback was not required, but trees and shrubs provide screening.

- **Existing North Parking Lot**. The existing north parking lot is 20 feet from the NE 53rd Street property line. After a required 3.25 foot right-of-way dedication to accommodate right-of-way improvements, the lot will be 16.75 feet away.

Even if new parking lot setback requirements apply,[20] KZC 95.30.5.a.3 allows variations to development standards to preserve high retention value trees. The parking design avoids removal of about 30 high retention value trees, including 7 landmark trees. The parking design complies with these criteria.

1.9.4 Lot Coverage. Lot coverage is limited to 70% for a school use in the RS 8.5 zone. At 35%, the project complies.

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[15] Exhibit 1 (Staff Report), Attachment 3, p. 20; KZC 15.20.130, Special Regulation PU-20.a.
[16] Exhibit 1 (Staff Report), Attachment 3, p. 20 and Attachment 17.
[17] KZC 115.40.1.c.
[18] KZC 115.115.5.b.
[19] Exhibit 1 (Staff Report), Attachment 3, p. 4.
[20] KZC 162.35.13; Exhibit 1 (Staff Report), Attachment 2 (new standards not applicable for work no more than "50 percent of the replacement cost" of existing improvements).

1.9.5 Parking. KZC 15.40.130 does not establish a required parking ratio for school uses, but defers to KZC Section 105.25, which authorizes the Department to establish required parking case by case. The District submitted a parking demand study.[21] The study assessed parking demand based on the current campus student enrollment and associated staff. The City's Transportation Engineer concluded parking demand will be 101 parking stalls,[22] based on a parking demand rate of 0.29 stalls per enrolled high school student (345). This rate includes students that drive and parking for teachers. The proposed 115 stalls exceed this. For parking during construction, the site contains 90 parking stalls with a current demand for 44 stalls. During construction, the 68 north lot stalls will be available. A parking sequencing plan shows adequate parking during each construction phase.[23]

1.9.6 Onsite Passenger Loading Area Design and Location. Required parking and passenger loading area locations[24] must be designed to reduce impacts on nearby residential uses.[25] Loading area size is determined based on attendee number and abutting right-of-way improvements. Carpooling, staggered loading/unloading time, right-of-way improvements or other means may be required to reduce traffic impacts on nearby residential uses. The District prepared a queuing analysis assessing passenger loading and unloading areas within the north and southwest parking lots.[26] The City Transportation Engineer reviewed it and recommended approval subject to these conditions.[27]

- Vehicle queues from the new parking lot off 108th Avenue NE should not block the sidewalk or spill out onto 108th Avenue NE.

- Vehicle queues during drop-off and pick-up should not block the crosswalk or impede traffic flow on NE 53rd Street.

Before building permit approval, a Parking and Circulation Management Plan will be submitted. It will address educating parents on how to circulate through the campus during drop-off and pick-up, staff parking and staff parking overflow, procedures and signage to reduce vehicle queues during drop-off and pick-up, and mitigation to address vehicle queues blocking the sidewalks and/or obstructing traffic flow on 108th Avenue NE and NE 53rd Street. City Transportation Engineer approval is required.

1.9.7 Site Lighting. The project must use energy efficient light sources, comply with the Washington Energy Code, and select, place, and direct light sources so glare, to the maximum extent possible, does not extend to adjacent properties or right-of-way.[28] With its building permit application, the District will provide a lighting plan showing the location, height, fixture type and wattage of all proposed exterior lights consistent with KZC 115.85.

[21] Exhibit 1 (Staff Report), Attachment 10.
[22] Exhibit 1 (Staff Report), Attachment 11.
[23] Exhibit 1 (Staff Report), Attachment 12.
[24] KZC 15.40.130, Special Regulation DS-12.
[25] KZC 15.40.130, Special Regulation DS-8.
[26] Exhibit 1 (Staff Report), Attachment 13.
[27] Exhibit 1 (Staff Report), Attachment 14.
[28] KZC 115.85.

1.9.8 Parking Lot Landscape Buffering. Parking area and driveway buffers from abutting rights-of-way and adjacent property must be planted with a five-foot-wide planting strip. The strip must include a set number of properly space trees, groundcover, and natural drainage landscaping.[29]

- **Proposed Southwest Parking Lot**. This lot and associated driveway meet KZC 95.45.1 perimeter landscape buffer requirements.[30]

- **Existing West Parking Lot**. The existing west buffer includes trees and large shrubs to screen the parking lot from the adjoining street. Trees and shrubs will need to be removed to accommodate right-of-way improvements and utilities. The dedication along 108th Avenue NE results in a portion of the existing parking area buffer (about 35 feet) being reduced to 2.3 feet from the west property line. The rest of the buffer meets the five-foot requirement.

- **Existing Northeast Parking Lot**. Additional landscaping to buffer NE 53rd Street is proposed.[31]

Perimeter landscape buffering for driving and parking areas must be brought into conformance if a structure's floor area increases by 10% or more.[32] The District is proposing to improve the northeast parking lot landscape buffer with trees, shrubs, and ground cover and place shrubs to add landscaping to the west parking lot.[33] KZC 95.46.2.c permits a modification to the perimeter parking lot buffer if a visual screen comparable or superior to the buffer required by KZC 95.45 is provided. The proposed landscape plans[34] show proposed plantings. With the additional landscaping, KZC 95.46.2.c criteria are met.

1.9.9 Landscape Buffer. A school use in the RS 8.5 zone must meet established buffering requirements.[35] As they are adjacent to a street, a land use buffer is not required along the west and north property lines.[36] There is an existing land use buffer along the south and east property lines. Portions, in the southeast corner and east property line, do not comply with the tree spacing requirements within a five foot buffer of the property line. However, existing vegetation outside of the buffer area provide significant screening for the neighboring residential uses.[37] A solid screening fence is not needed due to the dense vegetation in the buffer.

The Department may approve a buffer modification if the existing topography or other characteristics of the property or the adjoining property, or the distance of development from the neighboring property decreases or eliminates the need for buffering.[38] The proposed building is 89

[29] KZC 95.45.1.
[30] Exhibit 1 (Staff Report), Attachment 3, p. 19.
[31] KZC 95.45.1.
[32] KZC 95.47.
[33] Exhibit 1 (Staff Report), Attachment 3, p. 19.
[34] Exhibit 1 (Staff Report), Attachment 3, p. 21.
[35] KZC 95.42.
[36] KZC 95.42.89.
[37] Exhibit 1 (Staff Report), Attachment 3, p. 9.
[38] KZC 95.46.1, KZC 95.42.

feet from the south property line and 172 feet from the east property line. Within these setback areas, there are numerous high retention trees including multiple tree groves that provide buffering for the neighboring properties.[39] In the southwest corner, there is a current storm water detention pond that will be removed and there will be a small area (approximately 50 feet wide) that will require land use buffer installation.[40] The existing vegetation along the south and east property lines provides a significant land use buffer that screens the existing school use and proposed building from the neighboring residential uses. The modification criteria in KZC 95.46.1 are met.

1.9.10 Tree Retention. The site contains 274 regulated trees, including 64 landmark trees. The District's arborist and the City's Urban Forester identified removal of 34 regulated trees and 9 landmark trees. Tree removal is needed for the proposed southwest parking lot and loading/unloading area, building demolition, and to accommodate right-of-way improvements along NE 53rd street and 108th Avenue NE. The District submitted an arborist report and tree retention plan.[41] Following review, the City's Urban Forester agreed with the proposed removal. Per KZC 95.23.3, if a landmark tree is approved for removal, the District must install mitigation plantings. For each landmark tree removed, the District must plant three large species from the City's Landmark Tree Mitigation List. Mitigation trees are at least six feet tall for a conifer or at least two-inch caliper for a deciduous or broad-leaf evergreen. The District will submit the final tree retention plan with the 27 landmark mitigation trees and maintenance agreement.

1.10 Comprehensive Plan. The site is within the Central Houghton neighborhood. The Central Houghton Land Use Map designates the site as a public facility use.[42] Policies provide for community involvement and coordination with the District to address needed school capacity.

- CH Policy 7.1: Provide opportunities for early community involvement in any expansion plans for, modifications to, or changes in uses within schools and places of worship.

- Public Services Policy 2.4: Coordinate with the Lake Washington School District on the planning, siting, and development of new, replaced or expanded school facilities to address public school capacity needs.

The District held multiple open houses to update the neighborhood on the proposed plan that allowed neighbors to provide comments. The school is a public facility and the project is consistent with the Comprehensive Plan's land use designation and policies.

1.11 Staff Report Incorporation and Conditions. The Staff Report is incorporated as supplemental findings. The Staff Report conditions, which were not objected to, should be included without substantive revision to ensure KZC requirements are met.

[39] Exhibit 1 (Staff Report), Attachment 3, p. 9.
[40] Exhibit 1 (Staff Report), Attachment 3, pp. 13 and 21.
[41] Exhibit 1 (Staff Report), Attachment 15 and Attachment 3, p. 17.
[42] Ex. 1 (Staff Report), Attachment 16.

2. CONCLUSIONS OF LAW

2.1 Jurisdiction. The Hearing Examiner conducts a public hearing and issues a recommendation in a Process IIB review, which applies here. As the site exceeds five acres and is a school use in the RS 8.5 zone, the project requires Master Plan amendment. The City Council then makes the final decision.[43]

2.2 Master Plan Amendment. The District must demonstrate proposal consistency with these criteria:[44]

> It is consistent with all applicable development regulations and, to the extent there is no applicable development regulation, the Comprehensive Plan; and
>
> It is consistent with the public health, safety and welfare.[45]

The project is consistent with City development regulations. As detailed in the Findings, regulatory requirements are complied with.[46] No area was identified lacking regulatory coverage, but the project also follows the Comprehensive Plan, which supports well designed and sited school uses. And, as detailed above, with its careful design, the Master Plan revision supports continuation of the existing school consistent with the public health, safety, and welfare, and should be approved.

RECOMMENDATION

The Hearing Examiner, pursuant to the above Findings of Fact and Conclusions of Law, recommends approval of the Master Plan amendment, subject to these conditions:

1. This application is subject to the applicable requirements contained in the Kirkland Municipal Code, Zoning Code, and Building and Fire Code. It is the responsibility of the applicant to ensure compliance with the various provisions contained in these ordinances. Staff Report, Attachment 4, Development Standards, is provided in this report to familiarize the applicant with some of the additional development regulations. This attachment does not include all of the additional regulations. When a condition of approval conflicts with a development regulation in Attachment 4, the condition of approval shall be followed.

2. As part of the land surface modification permit, the applicant shall:

   a. Submit a final parking sequencing plan and ensure compliance with it during construction (*see* Staff Report, Conclusion II.G.5).

   b. Submit plans showing the installation of parking lot landscape buffers adjacent to the northeast and southwest parking lots that comply with the requirements of KZC Section 95.45.1 (*see* Staff Report, Conclusion II.G.8).

[43] KZC 15.20.130.2b; Ch. 152 KZC.
[44] KZC 152.55 (applicant has the burden of proof).
[45] KZC 152.70.3.
[46] *See also* Exhibit 1 (Staff Report), Attachment 4, identifying various development standards.

c. Submit plans showing the replacement of any trees, shrubs and groundcover removed from the west gym parking lot buffer pursuant to the requirements of KZC Section 95.45.1. The narrow buffer area should be planted with large shrubs that will help to screen the parking area. Trees should be planted on the north and south edges of this area (*see* Staff Report, Conclusion II.G.8).

d. Submit plans showing the installation of a land use buffer in the southwest corner of the campus where the detention pond is being removed. The land use buffer must comply with the requirements of KZC Section 95.42.2- Buffer Standard 2 (*see* Staff Report, Conclusion II.G.9).

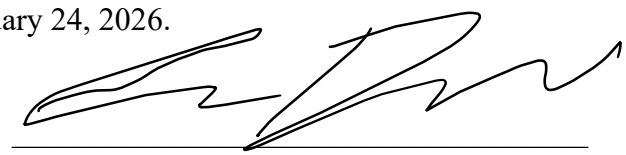
e. Submit the final tree retention plan as approved with this permit. The plan should also include the required 27 landmark mitigation trees (*see* Staff Report, Conclusion II.G.10).

3. As part of its building permit application, the applicant should provide a lighting plan showing the location, height, fixture type and wattage of all proposed exterior lights consistent with the requirements in KZC Section 115.85 (*see* Staff Report, Conclusion II.G.7).

4. Prior to approval of the building permit application, the applicant should prepare a Parking and Circulation Management Plan to address staff parking and circulation during the pick-up and drop-off periods. At a minimum, the management plan shall address educating parents regarding where and how to circulate through the campus during drop-off and pick-up, where staff shall park so that staff parking doesn't conflict with vehicle circulation on campus during pick-up and drop off periods, identify staff parking overflow, include procedures and signage to reduce vehicle queues during drop-off and pick-up, and mitigation to address vehicle queues blocking the sidewalks and/or obstructing traffic flow on 108th Avenue NE and NE 53rd Street. The parking and circulation management plan shall be submitted to City transportation engineer for review and approval prior to the approval of the building permit (*see* Staff Report, Conclusion II.G.6).

5. Prior to final inspection of the land surface modification permit, the applicant should submit a signed five-year maintenance agreement, on a form provided by the City and approved by the City Attorney, to maintain the mitigation trees for a period of five years from final inspection. The agreement shall be recorded with the King County Recorder's office (*see* Staff Report, Conclusion II.G.10).

Entered February 24, 2026.



City of Kirkland Hearing Examiner
Susan Elizabeth Drummond

Notice on Further Review

The applicant, or any party who submitted written or oral comments to the Hearing Examiner, may challenge this recommendation within seven calendar days of distribution, if the challenge is properly made, filed, and served.[47] The City Council makes the final decision. Parties are responsible for determining applicable review requirements.

[47] Ch. 152.85 KZC; Exhibit 1 (Staff Report), p. 20.

CITY OF KIRKLAND
Planning and Building Department
123 5th Avenue, Kirkland, WA 98033
425.587.3600 - www.kirklandwa.gov

ADVISORY REPORT
FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

To: Kirkland Hearing Examiner

From: Tony Leavitt, Project Planner

Adam Weinstein, AICP, Planning and Building Director

Date: February 11, 2026

File: Emerson Campus Master Plan [1] (Development Plan) Amendment, ZON25-00491

Hearing Date and Place: February 18, 2026
City Hall Council Chamber
123 Fifth Avenue, Kirkland

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[1] The City has changed some of its nomenclature for planning documents. One change is that the terminology "Development Plan" is used in lieu of "Master Plan." However, because the City's Zoning Code has not yet been updated to reflect this change in terminology, and to avoid confusion, this staff report refers to "Master Plan."

I. INTRODUCTION

A. APPLICATION

1. Applicant: Tammy Chuang of Mithun representing the Lake Washington School District (LWSD)

2. Site Location: Emerson Campus located at 10903 NE 53rd Street (see Attachment 1)

3. Request: Application for approval of an amendment of an existing Master Plan for the Emerson Campus, which contains Emerson K-12, Emerson High School, and Northstar Middle School. The proposed amendment would allow for the demolition of the existing Emerson buildings (Emerson K-12 and Emerson High School) and construction of a new 2-story, approximately 51,535 square foot education building that will house the Emerson Schools (see Attachments 2 and 3). The existing gym and Northstar Middle School will remain in place (see Attachment 3, page 4). Site improvements include new landscaped and field areas, new vehicle and pedestrian circulation, parking, and associated utility improvements.

   Enrollment for the Emerson Schools will increase by 167 students for a total of 345 students. Enrollment for the Northstar Middle School will remain at 90 students.

4. Review Process: Process IIB, Hearing Examiner conducts public hearing and makes recommendation; City Council makes final decision.

5. Summary of Key Issues and Conclusions:

   - Compliance with Zoning Permit Approval Criteria (see Section II.F.1)
   - Compliance with Development Regulations (see Section II.G)

B. RECOMMENDATIONS

Based on Statements of Fact and Conclusions (Section II), and Attachments in this report, we recommend approval of this application subject to the following conditions:

1. This application is subject to the applicable requirements contained in the Kirkland Municipal Code, Zoning Code, and Building and Fire Code. It is the responsibility of the applicant to ensure compliance with the various provisions contained in these ordinances. Attachment 4, Development Standards, is provided in this report to familiarize the applicant with some of the additional development regulations. This attachment does not include all of the additional regulations. When a condition of approval conflicts with a development regulation in Attachment 4, the condition of approval shall be followed.

2. As part of the land surface modification permit, the applicant shall:

   a. Submit a final parking sequencing plan and ensure compliance with it during construction (see Conclusion II.G.5).

   b. Submit plans showing the installation of parking lot landscape buffers adjacent to the northeast and southwest parking lots that comply with the requirements of KZC Section 95.45.1 (see Conclusion II.G.8).

c. Submit plans showing the replacement of any trees, shrubs and groundcover removed from the west gym parking lot buffer pursuant to the requirements of KZC Section 95.45.1. The narrow buffer area should be planted with large shrubs that will help to screen the parking area. Trees should be planted on the north and south edges of this area (see Conclusion II.G.8).

d. Submit plans showing the installation of a land use buffer in the southwest corner of the campus where the detention pond is being removed. The land use buffer must comply with the requirements of KZC Section 95.42.2- Buffer Standard 2 (see Conclusion II.G.9).

e. Submit the final tree retention plan as approved with this permit. The plan should also include the required 27 landmark mitigation trees (see Conclusion II.G.10).

3. As part of its building permit application, the applicant should provide a lighting plan showing the location, height, fixture type and wattage of all proposed exterior lights consistent with the requirements in KZC Section 115.85 (see Conclusion II.G.7).

4. Prior to approval of the building permit application, the applicant should prepare a Parking and Circulation Management Plan to address staff parking and circulation during the pick-up and drop-off periods. At a minimum, the management plan shall address educating parents regarding where and how to circulate through the campus during drop-off and pick-up, where staff shall park so that staff parking doesn't conflict with vehicle circulation on campus during pick-up and drop off periods, identify staff parking overflow, include procedures and signage to reduce vehicle queues during drop-off and pick-up, and mitigation to address vehicle queues blocking the sidewalks and/or obstructing traffic flow on 108th Avenue NE and NE 53rd Street. The parking and circulation management plan shall be submitted to City transportation engineer for review and approval prior to the approval of the building permit (see Conclusion II.G.6).

5. Prior to final inspection of the land surface modification permit, the applicant should submit a signed five-year maintenance agreement, on a form provided by the City and approved by the City Attorney, to maintain the mitigation trees for a period of five years from final inspection. The agreement shall be recorded with the King County Recorder's office (see II.G.10).

II. FINDINGS OF FACT AND CONCLUSIONS

A. SITE DESCRIPTION

1. Site Development and Zoning:

a. Facts:

(1) Size: 10.07 acres or 438,649.2 sq. ft. prior to right-of-way dedication. After 3,937.2 sq. ft. right-of-way dedication; 9.989 acres or 434,712 sq. ft.

(2) Land Use: The subject property contains the existing Emerson K-12 and High School, and North Star Middle Schools.

(3) Zoning: The subject property is zoned RS 8.5 (Residential Single-family). A "School Use" is an allowed use, subject to approval of a Master Plan, within this zone.

(4) Terrain: The developed portion of the site is relatively flat with a slight downward grade change from east to west. Along the east property line, there is a steep embankment that contains large trees and shrubs. The project is proposing no improvements in this area.

(5) Vegetation: The subject property contains 274 regulated trees including 64 landmark trees. The applicant's arborist and the City's Urban Forester have identified the removal of 34 regulated trees and 9 landmark trees on the site as part of the project.

b. Conclusions:

(1) The topography of the property is not a relevant factor in the review of this application.

(2) The property size, land use and zoning are relevant factors in the review of this application, since a school use in an RS 8.5 zone occupying a property of more than 5 acres must be approved through a Master Plan process (see Section II.G.1).

(3) Tree protection and retention on the subject property is a factor in the review of the proposed development. See Section II.G.10 for analysis of the city's tree retention regulations.

2. Neighboring Development and Zoning:

a. Facts: Neighboring properties to the east, west and south are zoned RS 8.5 and developed with single-family residences. The properties to the north are zoned RS 8.5 and Planned Area (PLA) 1 and contain the existing Antioch Bible Church, Puget Sound Adventist Academy, and the Northwest University campus.

b. Conclusion: The neighboring residential zoning and development and are factors in the review of the proposed Master Plan application. The potential impacts to the neighboring residential uses should be considered as part of this permit. Further discussion of this issue is provided in Section II.G.1.

B. HISTORY

1. Facts:

a. From 1981 to 1996, the subject property contained administrative offices for the LWSD.

b. In 1997, the City approved the relocation of the BEST school (later changed to Emerson in 2012) from Lake Washington High School to the subject property.

c. In 1999, the City approved a master plan to allow the construction of the gymnasium on the campus. As part of the approval, the campus enrollment was limited to 190 students.

d. In 2012, the City approved the relocation of the Northstar school from LWHS to the campus. The project included the construction of four 1,800 square foot portables, a 900 square foot covered classroom area, and associated parking and loading area improvements. Enrollment for the Emerson schools was reduced to 178 students and Northstar enrollment was capped at 90 students for a total of 268 students.

2. Conclusion: The history of the site and previous master plan approvals are relevant factors in the review of the proposed Master Plan application. The applicant is proposing an amendment to the existing Master Plan that would allow for a new and larger Emerson school building and an increase to the maximum student enrollment for the campus.

C. PUBLIC COMMENT

The published/noticed public comment period for the project ran from August 21, 2025 to September 18, 2025. Pursuant to KZC 152.35, a Process IIB Staff Report must include all comments received by the City prior to distribution of the staff report.

The Planning & Building Department received an email and letter during the comment period (see Attachment 5). The comments raised in the correspondence are summarized below by topic and are followed by staff response.

The applicant provided a response to the issues raised in the letters (see Attachment 6).

1. Proposed Location of 108th Access Drive - A neighbor expressed concerns about the proposed location of the ingress and egress from 108th Avenue NE and traffic impacts on neighboring streets.

   Staff Response: Public Works Staff has analyzed the proposed location of the 108th Avenue NE access and concluded that it meets City requirements for safety and sight lines (see Attachment 14). Additionally Staff has reviewed and approved the proposed onsite passenger loading area (see Section II.G.6)

2. Parking - A neighbor is concerned that parking for the project is not adequate.

   Staff Response: Staff addresses required parking for the campus in Section II.G.5.

3. Sight Distance – A neighbor expressed concern about an existing sight distance issue located at the corner of 108th Avenue NE and NE 48TH Street. They state that overgrown vegetation creates visibility issues for pedestrians and vehicles.

   Staff Response: The 108th Avenue NE/ NE 48th Street intersection is located approximately 325 feet south of the subject property. The potential overgrown vegetation is an existing issue not related to the project and appears to be located on private property. Planning Staff forwarded the comment to Public Works Staff to review and address.

4. Potential Impacts of Excavation Work - A letter submitted by the Duwamish Tribe requests that the applicant put in place an inadvertent discovery plan if excavation cuts occur below fill and that if any archaeological work or monitoring is performed that the tribe be notified.

   Staff Response and Conclusion: LWSD reviewed the letter and provided a Cultural Resources Assessment for the site (see Attachment 7). The assessment concluded that there are no archaeological resources within the project area, and no prehistoric archaeological resources were observed within 1 mile of the site. LWSD has agreed to incorporate an inadvertent discovery plan if excavation cuts occur below fill as part of any development permit. Additionally, if any archaeological work or monitoring is performed they will notify the Duwamish Tribe.

5. Lighting – The Duwamish Tribe letter requests that the applicant install dark sky compliant lighting as part of the project.

   Staff Response: The project is not required by City Codes to install dark sky fixtures. As noted in Section II.F.7, the project will be required to comply with lighting requirements in KZC Section 115.85.

6. The Duwamish Tribe letter requests that the applicant install native vegetation and preserve existing native trees on site.

   Staff Response: In their response letter, LWSD states that they will utilize native vegetation for new plantings. Tree retention for the site is discussed in Section II.F.10.

D. STATE ENVIRONMENTAL POLICY ACT (SEPA)

1. Facts:
   a. Pursuant to WAC 197-11-924, LWSD assumed Lead Agency status for the project. A Determination of Non-significance (DNS) was issued by LWSD on January 12, 2026. The Environmental Determination and Checklist are included as Attachment 8.
   b. LWSD received two comments during the SEPA noticing period. The comments and responses from LWSD are included in Attachment 8, pages 18 and 19.
   c. One comment was from the Snoqualmie Tribe and they requested that an archeological review be performed for the project. LWSD responded back that a Cultural Resource Assessment has been completed for the site and that the assessment determined that the potential presence of precontact archaeological deposits is low. During construction, the District will implement an Inadvertent Discovery Plan and will notify all relevant parties in the event that archaeological or cultural resources are encountered.
   d. The second comment was from a neighbor and requested additional information about the project including site plan details. LWSD responded by inviting the commenter to attend a Good Neighbor Open House to review project information and ask questions. LWSD also corrected the project website link for viewing of project documents.
2. Conclusion: LWSD has satisfied the requirements of SEPA.

E. CONCURRENCY

1. Facts: The Public Works Department has reviewed the application for concurrency. A concurrency test was passed for traffic on May 2, 2025 (see Attachment 9).
2. Conclusion: The applicant and City have satisfied Concurrency requirements.

F. APPROVAL CRITERIA

1. Master Plan
   a. Facts:
      (1) Kirkland Zoning Code (KZC) Section 15.20.130, Permitted Use Special Regulation 2, requires that a School Use with a property size of five acres or more receive Master Plan approval through a Process IIB review. The Master Plan must show building placement, building dimensions, roadways, utility locations, land uses within the Master Plan area, parking locations, buffering, and landscaping.

(2) The applicant has submitted development plans that show building locations and dimensions, roadways, utility locations, land uses within the Master Plan area, parking locations, buffering, and landscaping (see Attachment 3).

(3) Zoning Code section 152.70.3 states that a Process IIB application may be approved if:

(a) It is consistent with all applicable development regulations and, to the extent there is no applicable development regulation, the Comprehensive Plan; and

(b) It is consistent with the public health, safety, and welfare.

b. Conclusions:

(1) The application complies with the Master Plan requirements outlined in KZC Section 15.20.130, Permitted Use Special Regulation 2 (see Section II.G.1).

(2) The proposal complies with the criteria in KZC Section 152.70.3. It is consistent with all applicable development regulations (see Section II.G) and the Comprehensive Plan (see Section II.H). The proposal is consistent with the public health, safety, and welfare requirements. The project will provide a new expanded education building on the existing school campus, while minimizing impacts on the surrounding neighborhood.

G. DEVELOPMENT REGULATIONS

1. School Location Criteria

a. Facts:

(1) KZC Section 15.20.130, Permitted Use Special Regulation 4, states that a school use may be located in a RS zone only if:

(a) It will not be materially detrimental to the character of the neighborhood in which it is located.

(b) Site and building design minimize adverse impacts on surrounding residential neighborhoods.

(c) The property is served by a collector or arterial street (does not apply to existing school sites).

(2) The site contains an existing school that includes a community recreational field, gymnasium, parking, and other facilities normally associated with a school use.

(3) The proposed building is setback 89 feet from the south property line, 172 feet from the east property line, 202 feet from the west property line and 391 feet from the north property line.

(4) Existing and proposed vegetation along the south property line will screen the proposed building from neighbors to the south (see Attachment 3, page 21).

(5) The applicant has provided project renderings of the proposed building and photos showing the existing views in each direction from the proposed building site (see Attachment 3, pages 8 and 9).

(6) 108th Avenue NE is designated as a minor arterial street and NE 53rd Street is designated as a collector street. The site is accessed via driveways from both of these streets.

b. Conclusions: The proposal is consistent with the criteria established in KZC Section 15.20.130 Permitted Use Special Regulation 4 as follows:

(1) The proposal will not introduce new facilities or activities which would materially impact the character of the neighborhood.

(2) The proposed building has been designed to minimize impacts on the surrounding residential development through the provision of substantial property line setbacks. Additionally, existing and proposed landscaping will help to minimize visual impacts for the residential uses to the south.

(3) The existing school site is served by a minor arterial street and a collector street, 108th Ave NE and NE 53rd Street respectively.

2. Building Height

a. Facts:

(1) The RS 8.5 zone establishes a maximum height of 25 feet above ABE for a school use.

(2) KZC Section 15.30.130, Density Dimensions Special Regulation 31 permits the structure height of schools to be increased to up to 35 feet, if:

(a) The school use can accommodate 200 or more students; and

(b) The required side and rear yards for the portions of the structure exceeding the basic maximum structure height are increased by 1 foot for each additional 1 foot of structure height; and

(c) The increased height is not specifically inconsistent with the applicable neighborhood plan provisions of the Comprehensive Plan; and

(d) The increased height will not result in a structure that is incompatible with surrounding uses or improvements.

(3) Additional height is allowed per KZC Section 115.120.3 for rooftop appurtenances. This code section states that new construction shall, to the extent feasible, visually screen rooftop appurtenances by incorporating them into the roof form, or by using architectural designs such as clerestories having a slope of at least 3 feet vertical to 12 feet horizontal, or roof wells. Such roof forms and architectural designs may extend 5 feet above the height limit.

(4) The applicant is requesting to increase the maximum allowed height for the proposed building from 25 feet to 36.75 feet (see Attachment 2 and Attachment 3, page 6). The request utilizes the increases height provisions of KZC Section 15.30.130, Density Dimensions Special Regulation 31 to increase the allowed height to 35 feet and KZC Section 115.120.3 to increase the allowed height an additional 1.75 feet for a total height of 36.75 feet.

(5) The portion of the building that exceeds 25 feet includes the mechanical platform and sloped roof of the building.

(6) The applicant is proposing a mechanical attic roof form that exceeds the maximum allowed height of 35 feet by 1.75 feet (see Attachment 3, pages 5 and 6). The roof form will be used to screen mechanical equipment for the building.

(7) The proposed building is designed to accommodate 345 students.

(8) The required setback for a school use in the RS 8.5 district is 50 feet from a side property line. The proposed height increase of 10 feet requires a 60-foot setback from a side property line.

(9) The proposed school building is setback 89 feet from the south side property line and 172 feet from the east side property line. The north and west property lines are considered front property lines and do not require an additional setback as a result of the proposed height increase.

(10) There are no Central Houghton neighborhood plan provisions in the Comprehensive Plan that limit the height of school buildings.

(11) An existing landscape buffer along the south property line contains numerous large trees (see Attachment 3, page 9).

b. Conclusion:

(1) The proposed height increase from 25 feet to 35 feet is approved as it complies with the requirements of Section 15.30.130; Density Dimensions Special Regulation 31. The proposal is consistent with the criteria a through c. Additionally, the proposal complies with criterion d, as the increase in height is compatible with surrounding uses and improvements given distance from neighboring residences and the use of an existing landscape buffer to screen the building.

(2) The proposed height increase of 1.75 for the mechanical attic roof form complies with the requirements of KZC Section 115.120.3 and is approved.

(3) The maximum overall height of the building is 36.75 feet above ABE.

3. Setbacks

a. Facts:

(1) The RS 8.5 zone has a required building setback of 50 feet from all property lines for the proposed school use.

(2) Pursuant to KZC Section 15.30.130, Density Dimensions Special Regulation 31, The required side yards for the portions of the structure exceeding the basic maximum structure height are increased by 1 foot for each additional 1 of structure height. The applicant has proposed an increase to the maximum height limit. See Section II.G.2 above for an analysis of the side yard setback requirement as it relates to the proposed height increase. This analysis determined that a 60-foot setback is required along the east and south property lines.

(3) The proposed building is 202 feet from the west property line and 391 feet from the north property line.

(4) KZC Section 15.20.130 Permitted Uses Special Regulation 20 requires that all structured play areas must be set back 20 feet from all property lines. A structured play area is defined as an area designed, constructed, and intended for active recreation and/or congregation of users and/or observers. Structured play areas include, but are not limited to: tot lots, climber toys, swing sets, hard-surfaced playgrounds, sport courts, swimming pools, baseball infields, viewing stands or bleachers, and similar facilities. Structured play areas do not include baseball outfields, passive recreation areas, lawns, or similar areas.

(5) A fence that exceeds 6 feet is allowed for a structured play area if it meets the 20 foot setback requirement.

(6) The proposed play field area in the northwest corner does not meet the definition of a structured play area, so it can be located closer than 20 feet (see Attachment 3, page 20). The permitted six foot high fence surrounding the field is 12.75 feet from the west property line and 100 feet from the north property line.

(7) The project plans show the installation of a 15 foot high netting on the west side of the field area (see Attachment 3, page 20 and Attachment 17). The fence and netting are located approximately 12.75 feet from the west property line. The proposed 15 foot high netting fence would not be permitted in the proposed location since it does not comply with the required setback along 108th Ave NE.

(8) KZC Section 115.40.1.c states that The Planning Official may approve a modification to the fence height requirements if:

(a) The modification is necessary because of the size, configuration, topography or location of the subject property; and

(b) The modification will not have any substantial detrimental effect on abutting properties or the City as a whole.

(9) The intent of the netting is to keep balls from the field contained onsite and away from the adjoining 108th Avenue NE right-of-way. The proposed field is slightly smaller than the existing field, so the netting will help to minimize balls going into 108th Avenue NE.

(10) The netting will including 15 foot high poles that project above the fence line with netting between them. The visual impacts of the netting will be minimal.

(11) The current play field, located in the southwest corner of the site, needs to be relocated to accommodate the proposed building. Locating the play field in the northwest corner will have the least impact on regulated trees and provide easy access to the north parking lot for community use.

(12) KZC Section 115.115.5.b requires that all vehicle parking areas for schools and day-care centers greater than 12 students have a minimum 20-foot setback from all property lines.

(13) The proposed southwest parking lot and drive aisle comply with the 20-foot vehicle parking area setback requirement. The drive aisle is 25 feet from the west property line and 50 feet from the south property line.

(14) The existing west gym parking lot contains 17 parking stalls and is 8.5 feet from the 108th Avenue NE property line. After the required right-of-way dedication to accommodate 108th Avenue NE right-of-way improvements, the parking lot will be as close as 2.3 feet from the west property line (see Attachment 3, page 4).

(15) The west gym parking lot was permitted by the City as part of the 1999 master plan. At that time, a 20-foot parking lot setback was not required. The parking lot was required to be screened from the adjoining right-of-way and is screened by trees and shrubs.

(16) The west gym parking lot drive aisle south of parking stalls is being modified to eliminate the southern drive exit to 108th Avenue NE. The drive aisle will connect to the new driveway that leads to the southwest parking lot and the loading/unloading area. No changes to the existing parking stalls are being proposed.

(17) The existing north parking lots are 20 feet from the NE 53rd Street property line. After a required 3.25 foot right-of-way dedication to accommodate improvements within the NE 53rd Street right-of-way, the parking lot will be 16.75 feet from the NE 53rd Street property line.

(18) The right-of-way dedications will increase the vehicle parking area setback nonconformance for the west parking lot and create a new nonconformance for the north parking lots.

(19) KZC Section 162.45 states that a nonconformance cannot in any way be enlarged, expanded, increased, intensified, compounded or in any other way made greater, except as permitted in this chapter.

(20) KZC Section 162.35.13 would require that the west parking lot conform with the 20-foot vehicle parking area setback requirement if the applicant is making any alteration or change or doing any other work in a consecutive 12-month period to an improvement that is nonconforming or houses, supports or is supported by the nonconformance, and the cost of the alteration, change or other work exceeds 50 percent of the replacement cost of that improvement.

(21) For this project, the replacement costs of the improvements are tied to the square footage of the existing structures on the campus. The campus currently contains 46,638 sq. ft. of building square footage (see Attachment 2). This includes the existing gym, Northstar school and Emerson School. The proposed Emerson building will increase the onsite square footage to 67,973 sq. ft., which is a 45.75 percent increase in square footage.

(22) KZC Section 95.30.5.a.3 allows variations to development standards to accommodate retention of high retention value trees. As part of the development review process, high retention value trees (including trees located groves, landmark trees and trees located in required yards and buffers) are identified. The tree retention plan focuses on retaining these trees and give the Planning Official the ability to permit variations to accomplish this.

(23) The required right-of-way dedications and the fact that compliance with the 20-foot parking area setback is required would result in 21 parking stalls having to be relocated on the subject property in order to comply with minimum parking requirements. The relocation of the 21 parking stalls to the new south parking area would subsequently require the relocation of the proposed building further to the east. The result of this site redesign would require the removal of approximately 30 high retention value trees including 7 landmark trees.

b. Conclusion:

(1) The proposed building complies with the required 50-foot setbacks from the north and west property lines. The building also complies with the increased required side yard setback of 60 feet along the east and south property lines that resulted from the analysis in Section II.G.2 above regarding the proposed building height increase.

(2) The 15-foot high netting along the west edge of the playfield is approved. The approval is for a taller fence within the required setback from 108th Avenue NE. The proposed fence modification is necessary due to the proximity of the field to 108th Avenue NE right-of-way and will not have a substantial detrimental effect on abutting properties or the City as a whole.

(3) The proposed southwest parking lot and drive aisle comply with the 20-foot vehicle parking area setback requirement.

(4) KZC Section 162.35.13, which establishes thresholds for when a nonconformance must be corrected, applies to the existing nonconforming west parking lot since it does not comply with the required 20 foot setback from 108th Avenue NE. The parking lot is not required to be brought into conformance with the setback requirement as the proposed project does not exceed the threshold of 50 percent of the replacement cost of the onsite improvements.

(5) The existing north parking lots complies with 20 foot setback from the north property lines, but the property dedication required to accommodate right-of-way improvements results in a 16.75 foot setback.

(6) The reduced parking lot setbacks for the west and north parking lots are approved pursuant to KZC Section 95.30.5.a.3. The setback reduction will allow for the retention of high retention trees in the southeast corner of the site. The setback is reduced to 2.3 feet for the west parking lot and 16.75 for the north parking lot.

4. Lot Coverage

a. Facts:

(1) The RS 8.5 zone limits lot coverage to 70 percent of the lot size for a school use.

(2) The proposed project results in 35% lot coverage.

b. Conclusion: The proposal is consistent with the lot coverage limitation of 70% for a school use in the RS 8.5 zone. Staff will confirm lot coverage compliance as part of the building permit application for the new school building.

5. Parking

a. Facts:

(1) KZC Section 15.40.130 does not establish a required parking ratio for school uses. Instead, it defers to KZC Section 105.25, which authorizes the Planning Official to establish required parking on a case-by-case basis.

(2) The applicant submitted a parking demand study that was prepared by TENW dated December 19, 2025 for staff review (see Attachment 10).

(3) The parking demand study looked at current parking demand based on the current campus student enrollment and associated staff. Enrollment at Northstar and Emerson K-12 will not increase as part of this proposal.

(4) The City's Transportation Engineer has concluded that the total parking demand for the completed project will be 101 parking stalls (see Attachment 11). This is based on a parking demand rate of 0.29 stalls per enrolled high school student. This rate includes students that drive and also parking for teachers for all three schools on the subject property. Given an enrollment of 345 high school students, a total of 101 parking stalls is needed.

(5) The completed project will have a total of 115 parking stalls.

(6) The site currently contains 90 parking stalls. The current parking demand for the site is 44 stalls.

(7) During construction of the new building, the 68 stalls in the north lot will be available for use by the existing schools. The applicant has submitted a parking sequencing plan that shows adequate parking during each phase of construction (see Attachment 12).

b. Conclusion:

(1) The approved parking demand rate is 0.29 stalls per high school student enrolled. Based on the proposed enrollment of 345 students, a total of 101 stalls is required. The proposed supply of 115 parking stalls is sufficient given the approved parking rate.

(2) As part of the land surface modification permit, the applicant should submit a final parking sequencing plan and ensure compliance with it during construction.

6. Onsite Passenger Loading Area Design and Location

a. Facts:

(1) KZC Section 15.40.130, Development Standard 8 requires that the location of parking and passenger loading areas shall be designed to reduce impacts on nearby residential uses.

(2) KZC Section 15.40.130, Development Standard 13, requires that an on-site passenger loading area must be provided. The City shall determine the appropriate size of the loading area on a case-by-case basis, depending on the number of attendees and the extent of the abutting right-of-way improvements. Carpooling, staggered loading/unloading time, right-of-way improvements or other means may be required to reduce traffic impacts on nearby residential uses.

(3) The applicant prepared a queuing analysis for the site that looked at passenger loading and unloading areas within the north and southwest parking lots (see Attachment 13).

(4) The City's Transportation Engineer has reviewed the queuing analysis and recommends approval subject to following conditions (see Attachment 14):

(a) Vehicle queues from the new parking lot off 108th Avenue NE should not block the sidewalk or spill out onto 108th Avenue NE.

(b) Vehicle queues during drop-off and pick-up should not block the crosswalk or impede traffic flow on NE 53rd Street.

(c) Prior to approval of the building permit application, the applicant should prepare a Parking and Circulation Management Plan to address staff parking and circulation during the pick-up and drop-off periods. At a minimum, the management plan shall address educating parents regarding where and how to circulate through the campus during drop-off and pick-up, where staff shall park so that staff parking doesn't conflict with vehicle circulation on campus during pick-up and drop off periods, identify staff parking overflow, include procedures and signage to reduce vehicle queues during drop-off and pick-up, and mitigation to address vehicle queues blocking the sidewalks and/or obstructing traffic flow on 108th Avenue NE and NE 53rd Street. The parking and circulation management plan shall be submitted to City transportation engineer for review and approval prior to the approval of the building permit.

b. Conclusions: The proposed passenger loading and unloading areas and associated parking lot improvements are approved subject to the following conditions:

(1) Vehicle queues from the new parking lot off 108th Avenue NE should not block the sidewalk or spill out onto 108th Avenue NE.

(2) Vehicle queues during drop-off and pick-up should not block the crosswalk or impede traffic flow on NE 53rd Street.

(3) Prior to approval of the building permit application, the applicant should prepare a Parking and Circulation Management Plan to address staff parking and circulation during the pick-up and drop-off periods. At a minimum, the management plan shall address educating parents regarding where and how to circulate through the campus during drop-off and pick-up, where staff shall park so that staff parking doesn't conflict with vehicle circulation on campus during pick-up and drop off periods, identify staff parking overflow, include procedures and signage to reduce vehicle queues during drop-off and pick-up, and mitigation to address vehicle queues blocking the sidewalks and/or obstructing traffic flow on 108th Avenue NE and NE 53rd Street. The parking and circulation management plan shall be submitted to City transportation engineer for review and approval prior to the approval of the building permit.

7. Site Lighting

a. Facts: KZC Section 115.85 requires that the applicant use energy efficient light sources, comply with the Washington Energy Code with respect to the selection and regulation of light sources, and select, place, and direct light sources both directable and nondirectable so that glare produced by any light source, to the maximum extent possible, does not extend to adjacent properties or to the right-of-way. The current submittal does not contain a detailed lighting plan that would show the location, height, fixture type, and wattage of proposed lights.

b. Conclusion: As part of its building permit application, the applicant should provide a lighting plan showing the location, height, fixture type and wattage of all proposed exterior lights consistent with the requirements in KZC Section 115.85.

8. Parking Lot Landscape Buffering

a. Facts:

(1) KZC Section 95.45.1 requires the buffering of all parking areas and driveways from abutting rights-of-way and from adjacent property with a five-foot-wide strip along the perimeter of the parking areas and driveways, planted as follows:

(a) One row of trees, two inches in caliper for deciduous trees or six-foot tall for conifer trees and planted 30 feet on center along the entire length of the strip.

(b) Living groundcover planted to attain coverage of at least 60 percent of the strip area within two years.

(c) Natural drainage landscapes (such as rain gardens, bio-infiltration swales and bioretention planters) are allowed when designed in compliance with the stormwater design manual adopted in KMC 15.52.060. Perimeter landscape buffering requirements for trees in driving and parking areas still apply. Refer to Public Works Pre-Approved Plans.

(2) The existing northwest and west gym parking lots comply with this requirement.

(3) The existing west buffer uses a combination of trees and large shrubs to screen the parking lot from the adjoining street. The trees and shrubs will need to be removed to accommodate right-of-way improvements and utilities.

(4) The required dedication along 108th Avenue NE results in a portion of the existing parking area buffer (approximately 35 feet in length) being reduced down to 2.3 feet from the west property line. The rest of the buffer will meet the 5-foot requirement.

(5) KZC Section 95.46.2.c permits a modification to the perimeter parking lot buffer if the modification provides a visual screen that is comparable or superior to the buffer required by KZC 95.45.

(6) The proposed landscape plans (see Attachment 3, page 21) show the planting of shrubs within the west parking lot buffer area. The use of shrubs (similar to the ones that exist now) will help to screen the parking lot from the street. The shrubs are not a requirement of KZC Section 95.45.

(7) The proposed southwest parking lot and associated driveway have been designed to meet the perimeter landscape buffer requirements in KZC Section 95.45.1 (see Attachment 3, page 19).

(8) The existing northeast parking lot screening from NE 53rd Street does not conform to the perimeter landscape buffer requirements of KZC Section 95.45.1.

(9) KZC Section 95.47 requires that perimeter landscape buffering for driving and parking areas must be brought into conformance if there is an increase of at least 10 percent in gross floor area of any structure. The proposed Emerson school building will increase the existing gross floor area by over 70 percent.

(10) In order to conform with the requirements of KZC Section 95.45.1, the applicant is proposing to improve the northeast parking lot landscape buffer with trees, shrubs, and ground cover (see Attachment 3, page 19).

b. Conclusions:

(1) The proposed plans are consistent with the requirements of parking lot landscape buffering requirements of KZC Section 95.45.1 for the southwest and north parking lots.

(2) With the installation of shrubs within the narrow portion of the west parking lot, the parking lot buffer meets the modification requirements of KZC Section 95.46.2.c.

(3) As part of the land surface modification permit application, the applicant should submit plans showing the installation of parking lot landscape buffers adjacent to the northeast and southwest parking lots that comply with the requirements of KZC Section 95.45.1.

(4) As part of the land surface modification permit application, the applicant should submit plans showing the replacement of any trees, shrubs and groundcover removed from the west gym parking lot buffer pursuant to the requirements of KZC Section 95.45.1. The narrow buffer area should be planted with large shrubs that will help to screen the parking area. Trees should be planted on the north and south edges of this area.

9. Landscape Buffer

a. Facts:

(1) A school use in the RS 8.5 zone requires compliance with Landscape Category D. Based on Landscape Category D, KZC Section 95.42 requires Land Use Buffer Standard 2 along the south and east property lines on the subject property. A land use buffer is not required along the west and north property lines because KZC Section 95.42.89 states that a landscape buffer is not required along property lines that are adjacent to a street for a school use.

(2) KZC Section 95.42.2 states that for Buffering Standard 2, the applicant shall provide a five-foot-wide landscaped strip with a six-foot-high solid screening fence or wall. Except for public utilities, the fence or wall must be placed on the outside edge of the land use buffer or on the property line when adjacent to private property. The landscaped strip must be planted as follows:

(a) One row of trees planted no more than 10 feet apart on center along the entire length of the buffer, with deciduous trees of two-inch caliper, minimum, and/or coniferous trees at least six feet in height, minimum. The spacing may be increased to 15 feet to accommodate larger species and avoid long-term crowding. At least 50 percent of the required trees shall be evergreen.

(b) Living ground covers planted from either four-inch pot with 12-inch spacing or one-gallon pot with 18-inch spacing to cover within two years 60 percent of the land use buffer not needed for viability of the trees.

(3) The campus has an existing land use buffer along the south and east property lines. Portions of the land use buffer in the southeast corner and east property line do not comply with the tree spacing requirements within a five foot buffer of the property line. However, existing vegetation (including tree and shrubs) outside of the buffer area provides significant screening for the neighboring residential uses (see Attachment 3, page 9). A solid screening fence is not needed due to the dense vegetation in the buffer. The plans show no changes or impacts to the vegetation in these buffer areas.

(4) KZC Section 95.46.1 permits a modification of the buffering standards in KZC Section 95.42. The Planning Official may approve a modification if the existing topography or other characteristics of the subject property or the adjoining property, or the distance of development from the neighboring property decreases or eliminates the need for buffering.

(5) The proposed building is 89 feet from the south property line and 172 feet from the east property line. Within these setback areas, there are numerous high retention trees including multiple tree groves that provide buffering for the neighboring properties (see Attachment 3, page 9).

(6) In the southwest corner of the campus, there is a current storm water detention pond that the applicant is proposing to remove (see Attachment 3, page 13). With the removal of the pond, there will be a small area (approximately 50 feet wide) that will require the installation of a land use buffer (see Attachment 3, page 21).

b. Conclusions:

(1) The existing vegetation along the south and east property lines provides a significant land use buffer that screens the existing school use and proposed building from the neighboring residential uses. No changes to the land use buffer are required since it satisfies the modification criteria in KZC 95.46.1.

(2) As part of the land surface modification permit, the applicant should submit plans showing the installation of a land use buffer in the southwest corner of the campus where the detention pond is being removed. The land use buffer must comply with the requirements of KZC Section 95.42.2 (Buffer Standard 2).

10. Tree Retention

a. Facts:

(1) Regulations regarding the retention of trees can be found in Chapter 95 of the Kirkland Zoning Code. KZC Section 95.30 outlines the tree retention associated with development activity requirements.

(2) The applicant has submitted an arborist report prepared by a certified arborist (see Attachment 15) and a tree retention plan (see Attachment 3, page 17) per the requirements of KZC Section 95.30.

(3) The project is proposing to remove a total of 34 regulated trees and 9 landmark trees. Tree removal is needed for the proposed southwest parking lot and loading/ unloading area, to accommodate right-of-way improvements along NE 53rd street and 108th Avenue NE and as part of the demolition of the existing building.

(4) The City's Urban Forester reviewed the report and agreed with the proposed removal. Pursuant to KZC Section 95.23.3, if a landmark tree is approved for removal, the applicant is required to install mitigation plantings on the subject property. For each landmark tree removed, the applicant shall plant three large species selected from the City's Approved Landmark Tree Mitigation List. Mitigation trees shall be a minimum of six feet tall for a conifer or a minimum of two-inch caliper for a deciduous or broad-leaf evergreen tree at the time of planting. The code also requires a five year maintenance agreement.

b. Conclusion:

(1) The proposed tree retention plan is approved and permits the removal of 34 regulated trees and 9 landmark trees.

(2) As part of land surface modification permit, the applicant should submit the final tree retention plan as approved with this permit. The plan should also include the required 27 landmark mitigation trees.

(3) Prior to final inspection of the land surface modification permit, the applicant should submit a signed five-year maintenance agreement, on a form provided by the City and approved by the City Attorney, to maintain the mitigation trees for a period of five years from final inspection. The agreement shall be recorded with the King County Recorder's office.

H. COMPREHENSIVE PLAN

1. Facts:

a. The subject property is located within the Central Houghton neighborhood. The Central Houghton Land Use Map designates the subject property as a public facility use (see Attachment 16).

b. Central Houghton Policy 7.1 states: "provide opportunities for early community involvement in any expansion plans for, modifications to, or changes in uses within schools and places of worship".

c. LWSD held multiple open houses to update the neighborhood on the proposed plan that allowed neighbors to provide comments.

d. Public Services Policy 2.4 states: "coordinate with the Lake Washington School District on the planning, siting, and development of new, replaced or expanded school facilities to address public school capacity needs".

2. Conclusion: The proposal is consistent with the public facility use designation and policies contained in the Comprehensive Plan.

I. DEVELOPMENT STANDARDS

1. Fact: Additional comments and requirements placed on the project are found in the Development Standards, Attachment 4.

2. Conclusion: The applicant should follow the requirements set forth in Attachment 4.

III. SUBSEQUENT MODIFICATIONS

Modifications to the approval may be requested and reviewed pursuant to the applicable modification procedures and criteria in effect at the time of the requested modification.

IV. CHALLENGES AND JUDICIAL REVIEW

The following is a summary of the deadlines and procedures for challenges. Any person wishing to file or respond to a challenge should contact the Planning & Building Department for further procedural information.

A. CHALLENGE

Section 152.85 of the Zoning Code allows the Hearing Examiner's recommendation to be challenged by the applicant or any person who submitted written or oral comments or testimony to the Hearing Examiner. A party who signed a petition may not challenge unless such party also submitted independent written comments or information. The challenge must be in writing and must be delivered, along with any fees set by ordinance, to the Planning and Building Department by 5:00 p.m., March 3, 2026, seven (7) calendar days following distribution of the Hearing Examiner's written recommendation on the application. Within this same time period, the person making the challenge must also mail or personally deliver to the applicant and all other people who submitted comments or testimony to the Hearing Examiner, a copy of the challenge together with notice of the deadline and procedures for responding to the challenge.

Any response to the challenge must be delivered to the Planning and Building Department within seven (7) calendar days after the challenge letter was filed with the Planning and Building Department. Within the same time period, the person making the response must deliver a copy of the response to the applicant and all other people who submitted comments or testimony to the Hearing Examiner.

Proof of such mail or personal delivery must be made by affidavit, available from the Planning and Building Department. The affidavit must be attached to the challenge and response letters, and delivered to the Planning and Building Department. The challenge will be considered by the City Council at the time it acts upon the recommendation of the Hearing Examiner.

B. JUDICIAL REVIEW

Section 152.110 of the Zoning Code allows the action of the City in granting or denying this zoning permit to be reviewed in King County Superior Court. The petition for review must be filed within twenty-one (21) calendar days of the issuance of the final land use decision by the City.

V. LAPSE OF APPROVAL

Under KZC 152.115 of the Zoning Code, the applicant must begin construction or submit to the City a complete building permit application for the development activity, use of land or other actions approved under this chapter within five (5) years after the final approval of the City of Kirkland on the matter, or the decision becomes void; provided, however, that in the event judicial review is initiated per KZC, KZC 152.110, the running of the five (5) years is tolled for any period of time during which a court order in said judicial review proceeding prohibits the required development activity, use of land, or other actions.

The applicant must substantially complete construction for the development activity, use of land, or other actions approved under this chapter and complete the applicable conditions listed on the notice of decision within seven (7) years after the final approval on the matter, or the decision becomes void.

VI. APPENDICES

Attachments 1 through 17 are attached.

1. Vicinity Map
2. Projective Narrative
3. Project Plans
4. Development Standards
5. Public Comments
6. LWSD Response
7. Cultural Resource Assessment
8. SEPA Determination and Environmental Checklist
9. Concurrency Test Memo
10. Parking Demand Study
11. Parking Demand Study Review Memo
12. Parking Sequence Plan
13. Traffic Impact Analysis
14. PW Review
15. Arborist Report
16. Central Houghton Land Use Map
17. Fence Netting Image

VII. PARTIES OF RECORD

Applicant
Planning and Building Department
Department of Public Works

A written recommendation will be issued by the Hearing Examiner within eight calendar days of the date of the open record hearing.


EMERSON MASTER PLAN
ZON25-00491
106TH AV
NE 55T
NE 55TH
Seventh Day Adventist School
110TH WAY NE
WAY NE
Subject Property
NE 53RD S
108th AVE NE
Emerson High School
111TH AVE NE
NE 49TH ST
109TH AVE NE
NE 48TH ST
E 47TH PL
N

LAKE WASHINGTON SCHOOL DISTRICT
LEASE CRUTCHER LEWIS | MITHUN

To:	Tony Leavitt, City of Kirkland Planning and Building Department	**Date:**	February 02, 2026
		Mithun Project #:	2422400
From:	Tammy Chuang, Mithun	**Permit #:**	ZON25-00491
Re:	**Master Use Permit Application**	**Project:**	Emerson Schools

---

The proposed project includes the construction of a new 2-story approximately 50,000 square foot public education building. The project will demolish the existing Emerson Building and Portable classroom building. The existing gym and Northstar Middle School buildings will remain in place. Site Improvements include new landscaped areas, new vehicle and pedestrian circulation, parking, service and utility yard and a geothermal Loop to support the new building's mechanical system. The project statistics are provided in the tables below:

BUILDING SQUARE FOOTAGE		
Building	Existing SF	Proposed SF
Existing Gym Building	9,270	9,270 (no change)
Existing NorthStar Middle School	7,168	7,168 (no change)
Existing Emerson School	30,200	0 (demolished)
New Emerson School	-	51,535
TOTAL	**46,638**	**67,973**

ENROLLMENT		
Program	Existing	Proposed
Emerson K12	(count included in Emerson HS)	(count included in Emerson HS)
Emerson High School	178	345
NorthStar Middle School	90	90 (no change)
TOTAL	**268**	**435**

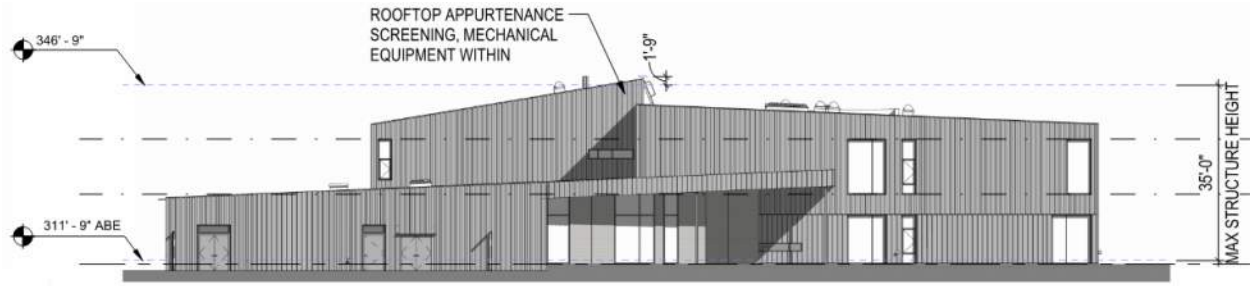
PARKING		
	Existing	Proposed
TOTAL	**90**	**115**

The project meets KZC 15.30, D-31 criteria to increase the structure height up to 35 feet.

KZC 15.30, DD-31	
Criteria	Compliance Notes
a. The school can accommodate 200 or more students; and	The school accommodates 345 students.
b. The required side and rear yards for the portions of the structure exceeding the basic maximum structure height are increased by one foot for each additional one foot of structure height; and	KZC 15.30.130 requires 50' yards and 25' maximum structure height. To increase structure height from 25' to 35', a 60' yard is required. The smallest proposed yard is 89' on south side of the building, which exceeds the requirement.

c. The increased height is not specifically inconsistent with the applicable neighborhood plan provisions of the Comprehensive Plan; and	The increased height is not prohibited by the Comprehensive Plan.
d. The increased height will not result in a structure that is incompatible with surrounding uses or improvements.	The building is set back more than 200' from the west and north property line and buffered from east and south neighbors by mature trees, reducing visual impact of a height increase.

The proposed structure is less than 35 feet maximum height (less rooftop appurtenance).



AVE. GRADE - WEST ELEVATION

Mechanical equipment is screened from view to comply with KZC 115.120.3.a. This is done by incorporating a mechanical attic into the building roof form rather than other architectural designs such as a clerestory. The mechanical attic portion of the roof form extends above the height limit by 1'-9", which is less than the 5' allowed by this code section.

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San Francisco, CA 94105 / 415.956.0688

LOS ANGELES / 758 New High Street #100B
Los Angeles, CA 90012 / 323.937.2150

mithun.com

EMERSON SCHOOLS

LAKE WASHINGTON SCHOOL DISTRICT

10903 NE 53RD ST
KIRKLAND, WA 98033

LAND USE PERMIT SUBMITTAL
07/03/2025

Sheet List

7/2/2025 7:05:15 PM

ABBREVIATIONS

A

AB	ANCHOR BOLT
AC	AIR CONDITIONING
ACC	ACCESSIBLE
ACOUS	ACOUSTICAL
AD	AREA DRAIN
ADJ	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
ANCH	ANCHOR
ANOD	ANODIZED
ACP	ACOUSTICAL CEILING PANEL
APPD	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
AUTO	AUTOMATIC
AV	AUDIO VISUAL
AVB	AIR VAPOR BARRIER

B

BD	BOARD
BLDG	BUILDING
BM	BEAM
BOT	BOTTOM
BSMT	BASEMENT
BT	BOLT

C

CAB	CABINET
CAT	CATEGORY
CB	CATCH BASIN
CBU	CEMENTITIOUS BACKER UNIT
CER	CERAMIC
CG	CORNER GUARD
CH	CHILLER
CHAN	CHANNEL
CI	CAST IRON
CIP	CASTINPLACE
CJ	CONTROL JOINT / CONSTRUCTION JOINT
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR
CNTR	COUNTER
CO	CLEANOUT
COL	COLUMN
CONC	CONCRETE
COND	CONDITION
CONN	CONNECTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR
CT	CERAMIC TILE
CTR	CENTER
CTSK	COUNTER SUNK
CW	COLD WATER (PIPING)

D

D	DEEP, DEPTH
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DISP	DISPENSER
DMPF	DAMPPROOFING
DN	DOWN
DO	DOOR OPENING
DR	DOOR
DRN	DRAIN
DW	DISHWASHER
DWG	DRAWING
DWR	DRAWER

E

(E)	EXISTING
E	EAST
EA	EACH
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMERG	EMERGENCY
EP	ELECTRICAL PANELBOARD
EQ	EQUAL
EQUIP	EQUIPMENT
EXH	EXHAUST
EXP	EXPANSION
EXIST	EXISTING
EXT	EXTERIOR

F

FA	FIRE ALARM
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FND	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF&E	FURNITURE, FINISHES & EQUIPMENT
FFEL	FINISH FLOOR ELEVATION
FIN	FINISH
FIXT	FIXTURE
FL	FLOOR
FLASH	FLASHING
FO	FACE OF
FP	FIRE PROTECTION
FPG	FIREPROOFING
FR	FRAME
FT	FEET
FRT	FIRE RETARDANT TREATED
FTG	FOOTING
FURN	FURNITURE

G

GA	GAUGE / GAGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACT(OR)
GFRC	GLASS FIBER REINFORCED CONCRETE
GFRG	GLASS FIBER REINFORCED GYPSUM
GL	GLASS
GR	GRADE
GRD	GROUND
GWB	GYPSUM WALLBOARD

H

H	HIGH / HEIGHT
HB	HOSE BIB
HC	HOLLOW CORE
HDW	HARDWARE
HS	HEAT STRENGTHEND (GLASS)
HM	HOLLOW METAL (STEEL FRAME)
HNDRL	HANDRAIL
HO	HOLDOPEN
HORIZ	HORIZONTAL
HT	HEIGHT
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HW	HOT WATER
HYDR	HYDRAULIC

I

ID	INSIDE DIAMETER
IN	INCH
INCL	INCLUDED / INCLUDING
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
IPS	INTERNATIONAL PIPE STANDARD

J

JAN	JANITOR
JC	JANITOR'S CLOSET
JST	JOIST
JT	JOINT

K

KIT	KITCHEN
KO	KNOCKOUT

L

LDG	LANDING
LAM	LAMINATE / LAMINATION
LAV	LAVATORY
LB	POUND
LF	LINEAR FOOT
LKR	LOCKER
LN	LINE
LT	LIGHT

M

MACH	MACHINE
MAINT	MAINTENANCE
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MDF	MEDIUM DENSITY FIBERBOARD
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MDO	MEDIUM DENSITY OVERLAY PLYWOOD
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MS	MACHINE SCREW
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MULL	MULLION

N

N	NORTH
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE

O

OA	OUTSIDE AIR
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OFF	OFFICE
OH	OVER HEAD
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OPPHD	OPPOSITE HAND
ORD	OVERFLOW ROOF DRAIN
OUTS	OUTSIDE
OVHD	OVERHEAD

P

P	PAINT
PAV	PAVING
PARTN	PARTITION
PBD	PARTICLEBOARD
PDF	POWER DRIVEN FASTENER
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PL	PLATE
PLAM	PLAM
PLBG	PLUMBING
PLYWD	PLYWOOD
PNL	PANEL
POL	POLISHED
PR	PAIR
PREFAB	PREFABRICATED
PROJ	PROJECT
PSF	POUNDS PER SQUARE FOOT
PT	POINT / PRESSURETREATED
PTD	PAPER TOWEL DISPENSER / PAINTED
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE

Q

Q	QUARRY TILE
QTY	QUANTITY

R

(R)	RELOCATED
R	RADIUS OR RISER (PIPING)
RA	RETURN AIR
RAD	RADIUS
RB	RESILIENT BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RECOM	RECOMMENDED
RECPT	RECEPTACLE
REC	RECESSED
REF	REFERENCE
REFL	REFLECTED / REFLECTIVE / REFLECT
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCED / REINFORCING
REL	RELOCATE
REM	REMOVABLE
REQ	REQUIRE / REQUIRED
RESIL	RESILIENT
REV	REVISION / REVISED
RM	ROOM
RO	ROUGH OPENING
RTD	RATED
RTG	RATING
RWL	RAIN WATER LEADER

S

S	SOUTH
SA	SUPPLY AIR
SAF	SELFADHERED FLASHING
SAM	SELFADHERED MEMBRANE
SAN	SANITARY AIR
SC	SOLID CORE
SCHED	SCHEDULE
SD	STORM DRAIN / SOAP DISPENSER
SECT	SECTION
STS	SELF TAP METAL SCREW
SF	SQUARE FEET/FOOT
SH	SPRINKLER HEAD
SHT	SHEET
SHR	SHOWER
SIM	SIMILAR
SM	SHEET METAL OR SQUARE METER (METRIC DOCS)
SND	SANITARY NAPKIN DISPENSER
SP	STANDPIPE
SPEC	SPECIFICATION
SPR	SPRINKLER
SPKR	SPEAKER
SQ	SQUARE
SSE	STRUCTURE SLAB ELEVATION
SST	STAINLESS STEEL
SSK	SERVICE SINK
STA	STATION
STD	STANDARD
STL	STEEL
STLJST	STEEL JOIST
STOR	STORAGE
STRG	STRINGER
STRL	STRUCTURAL
STRUCT	STRUCTURAL
SUBCAT	SUBCATEGORY
SUSP	SUSPENDED
SYMM	SYMMETRICAL
SYS	SYSTEM

T

T&G	TONGUE AND GROOVE
T	TREAD / THERMOSTAT
TB	TOWEL BAR
TC	TOP OF CURB
TCONC	TOP OF CONCRETE
TEL	TELEPHONE OR TELECOM
TEMP	TEMPERATURE
TER	TERRAZZO
TGB	TOGGLE BOLT
THK	THICKNESS
THRES	THRESHOLD
THRU	THROUGH
TKBD	TACKBOARD
TMPD	TEMPERED
TO	TOP OF (SEE OTHER WORD)
TOS	TOP OF SLAB, TOP OF STRUCT
TOSTL	TOP OF STEEL
TP	TOP OF PAVEMENT
TPD	TOILET PAPER DISPENSER
TRACT	TRACTION
TV	TELEVISION
TW	TOP OF WALL
TYP	TYPICAL

U

UNFIN	UNFINISHED
UON	UNLESS OTHERWISE NOTED
UNO	UNLESS NOTED OTHERWISE
UR	URINAL

V

VAC	VENTILATION AND AIR CONDITIONING
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VR	VAPOR RETARDER
VT	VINYL TILE
VWC	VINYL WALL COVERING

W

W/	WITH
W	WIDE, WIDTH/WEST
WC	WATER CLOSET
WD	WOOD
WDS	WOOD SCREW
WDW	WINDOW
W/O	WITHOUT
WP	WATERPROOFING
WPM	WATERPROOF MEMBRANE
WPT	WORK POINT
WR	WATER RESISTANT/REPELLANT
WRB	WEATHER RESISTANT BARRIER
WS	WEATHERSTRIPPING
WSCT	WAINSCOT
WT	WEIGHT
WW	WALL TO WALL

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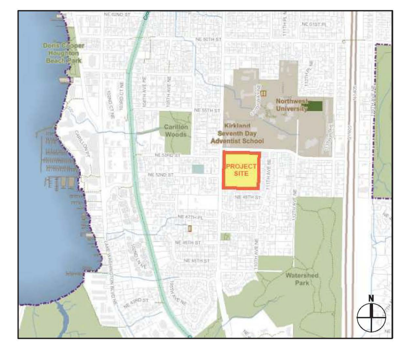

1 Location Map
/ G1.00 | NTS

2 Vicinity Map
/ G1.00 | NTS

GENERAL NOTES

1. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS TAKE PRECEDENCE.
2. DRAWINGS HAVE BEEN PREPARED ON AN ORIGINAL SHEET SIZE OF 36" x 48".
3. HORIZONTAL DIMENSIONS SHOWN INDICATE FACE OF (F.O.) CONCRETE, F.O. FINISH OR CENTERLINE OF COLUMN GRIDLINE, UNLESS OTHERWISE NOTED. VERTICAL DIMENSIONS INDICATE TOP OF (T.O.) SLAB, T.O. SUBFLOOR, UNLESS OTHERWISE NOTED.
4. CRITICAL CLEARANCES ARE DESIGNATED "CLEAR", "CLR" AND ARE TO FINISH FACE OF PARTITION.
5. WHERE PARTITIONS AND WALLS OF DIFFERING WIDTHS ARE CONTINUOUS AND WHERE THE PLANS DO NOT INDICATE WHICH SURFACE TAKES PRECEDENCE FOR ALIGNMENT, CONTACT ARCHITECT FOR CLARIFICATION PRIOR TO LAYOUT.
6. INFORMATION REGARDING EXISTING CONDITIONS USED TO PREPARE THESE DRAWINGS HAS BEEN PROVIDED BY OTHERS.
7. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, DATUM, LEVELS AND CONDITIONS PERTAINING TO THE WORK PRIOR TO COMMENCING CONSTRUCTION. PROVIDE WRITTEN NOTIFICATION TO THE ARCHITECT OF ANY DISCREPANCIES WITH THE DOCUMENTS. THE ARCHITECT WILL ISSUE A WRITTEN DIRECTIVE IF FURTHER CLARIFICATION IS REQUIRED.
8. THESE DRAWINGS ARE THE EXCLUSIVE PROPERTY OF MITHUN, INC. AND HAVE BEEN PREPARED FOR USE IN THE EXECUTION OF THE ENCLOSED PROJECT. USE OR REPRODUCTION FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION OF MITHUN, INC. IS PROHIBITED.

DEMO NOTES

1. SECURE ALL OTHER PERMITS AS NEEDED BY ANY OTHER GOVERNING AUTHORITIES.
2. ALL HAZARDOUS WASTE SHALL BE REMOVED AND DISPOSED OF BY A STATE LICENSED HAZARDOUS MATERIAL REMOVAL CONTRACTOR.
3. SALVAGE ALL RECYCLABLE MATERIAL AND DELIVER TO THE APPROPRIATE RECYCLING VENUES.
4. DEMOLISH EXISTING STRUCTURE PER PLAN AND PROPERLY DISPOSE OF ALL DEBRIS.
5. TERMINATE AND CAP ALL ABANDONED EXISTING UTILITIES, REROUTE EXISTING UTILITIES AFFECTED BY DEMO. UTILITES TO INCLUDE BUT NOT LIMITED TO: ELECTRICITY, DOMESTIC WATER, GAS, SEWER, STORM DRAIN, TELEPHONE.
6. WHERE STRUCTURES ARE TO BE REMOVED, PROTECT ALL ADJACENT EXISTING STRUCTURE AND FINISHES.
7. REPAIR, PATCH AND REFINISH ADJACENT STRUCTURE AFFECTED BY DEMOLITION.
8. PROTECT CITY SIDEWALK AND REPAIR ANY DAMAGES CAUSED BY THE DEMOLITION.

PROJECT SUMMARY

THE PROPOSED PROJECT INCLUDES THE CONSTRUCTION OF A NEW 2-STORY APPROXIMATELY 50,000 GSF PUBLIC EDUCATION BUILDING. THE PROJECT WILL DEMOLISH THE EXISTING EMERSON BUILDING AND PORTABLE CLASSROOM BUILDING. THE EXISTING GYM AND NORTHSTAR MIDDLE SCHOOL WILL REMAIN IN PLACE. SITE IMPROVEMENTS INCLUDE NEW LANDSCAPED AREAS, NEW VEHICLE/ PEDESTRIAN CIRCULATION, PARKING, SERVICE/UTILITY YARD, AND GEOTHERMAL LOOP.

PROJECT ADDRESS

10903 NE 53RD ST
KIRKLAND, WA 98033
COUNTY: KING COUNTY

PARCEL INFORMATION

PARCEL NUMBER
172505-9195

LEGAL DESCRIPTION

N 670 FT OF W 655 FT OF POR OF SW 1/4 OF NE 1/4 LY S OF NE 53RD ST & E OF 108TH AVE NE

PERMIT INFORMATION

JURISDICTION: CITY OF KIRKLAND

RELATED PERMIT NUMBERS:
PRE-APPLICATION PERMIT NO: PRE24-00584
LANDUSE PERMIT NO.: TBD

- 2021 INTERNATIONAL BUILDING CODE (IBC) - WASHINGTON STATE AMENDED
- 2021 WASHINGTON STATE ENERGY CODE - COMMERCIAL PROVISIONS
- 2021 INTERNATIONAL FIRE CODE - WASHINGTON STATE AMENDED
- 2021 INTERNATIONAL MECHANICAL CODE - WASHINGTON STATE AMENDED
- 2021 UNIFORM PLUMBING CODE - WASHINGTON STATE AMENDED
- 2024 KIRKLAND ZONING CODE

CODE AS AMENDED AND ADOPTED BY THE STATE BUILDING CODE COUNCIL AND THE CITY OF KIRKLAND

ZONE CLASSIFICATION:
RS 8.5, LOW DENSITY RESIDENTIAL

OCCUPANCY GROUPS:
EDUCATION (E)

TYPE OF CONTRUCTION:
TYPE VB

FIRE PROTECTION:
SPRINKLERED PER NFPA 13

SEPARATE PERMITS

1. BUILDING PERMIT
2. MASTER USE PERMIT (MUP)
3. LAND SURFACE MODIFICATION PERMIT (LSM)
4. ELECTRICAL PERMIT
5. DEMOLITION PERMIT
6. FIRE SPRINKLER PERMIT
7. UNDERGROUND FIRE PROTECTION PERMIT
8. FIRE ALARM PERMIT

NOT FOR CONSTRUCTION

MITHUN

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Los Angeles, CA 90012 / 323.937.2150

mithun.com

PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST
KIRKLAND, WA 98033

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

PARTNER IN CHARGE
JW
PROJECT MANAGER
SK
PROJECT ARCHITECT
TC, AO
PROJECT DESIGNER

PROJECT TEAM MEMBERS
EGJ, AG
CHECK

8825
REGISTERED ARCHITECT
BRENDAN P. CONNOLLY
STATE OF WASHINGTON

FOR PERMIT ONLY
THIS DOCUMENT HAS BEEN PREPARED FOR PERMIT APPLICATION AND IS SUBJECT TO REVIEW AND MODIFICATION BY GOVERNMENTAL AGENCIES

TITLE
PROJECT INFORMATION

PROJECT NO.
2422400
DATE
07/03/2025

ORIGINAL SHEET SIZE 36" x 48"

SHEET NUMBER
G1.00
LAND USE PERMIT

GOVERNING CODES		KIRKLAND ZONING CODE (KZC)	
ZONING CLASSIFICATION		RS 8.5, LOW DENSITY RESIDENTIAL	
ITEM	**REFERENCE**	**CODE REQUIREMENT / DESCRIPTION**	**COMPLIANCE NOTES**
KIRKLAND ZONING CODE			
CHAPTER 5 - DEFINITIONS			
AVERAGE BUILDING ELEVATION	5.10.045	THE WEIGHTED AVERAGE ELEVATION OF THE TOPOGRAPHY, PRIOR TO ANY DEVELOPMENT ACTIVITY, EITHER (1) UNDER THE FOOTPRINT OF A BUILDING AS MEASURED BY DELINEATING THE SMALLEST RECTANGLE WHICH CAN ENCLOSE THE BUILDING FOOTPRINT AND THEN AVERAGING THE ELEVATIONS TAKEN AT THE MIDPOINT OF EACH SIDE OF THE RECTANGLE, OR (2) AT THE CENTER OF ALL EXTERIOR WALLS OF A BUILDING OR STRUCTURE.	REFER TO SHEET G2.06 FOR CALCULATIONS.
CHAPTER 15 - LOW DENSITY RESIDENTIAL ZONES			
APPLICABLE ZONES	15.05.010	THIS CHAPTER CONTAINS THE REGULATIONS FOR USES IN THE FOLLOWING ZONES OF THE CITY: RS 35, RS 12.5, RS 8.5, RS 7.2, RS 6.3 AND RS 5.0; RSX 35, RSX 12.5, RSX 8.5, RSX 7.2 AND RSX 5.0 ZONES; RSA 1, RSA 4, RSA 6 AND RSA 8 ZONES; WD II ZONES; PLA 3C, PLA 6E, AND PLA 16 ZONES.	PROJECT IS IN RS 8.5, LOW DENSITY RESIDENTIAL.
PERMITTED USES	15.20.130	SCHOOL IS A PERMITTED USE IN RS ZONE	
	15.20 PU-2.B	THE REQUIRED REVIEW PROCESS IS AS FOLLOWS: B. IF THE SUBJECT PROPERTY, INCLUDING ALL CONTIGUOUS PROPERTY OWNED BY THE APPLICANT AND HELD BY OTHERS FOR FUTURE USE BY THE APPLICANT, IS FIVE OR MORE ACRES, A MASTER PLAN, APPROVED THROUGH PROCESS IIB, CHAPTER 152 KZC, IS REQUIRED. THE MASTER PLAN MUST SHOW BUILDING PLACEMENT, BUILDING DIMENSIONS, ROADWAYS, UTILITY LOCATIONS, LAND USES WITHIN THE MASTER PLAN AREA, PARKING LOCATION, BUFFERING, AND LANDSCAPING.	PROJECT IS MORE THAN FIVE ACRES AND WILL BE SUBMITTED FOR PROCESS IIB APPROVAL.
DENSITY/ DIMENSIONS	15.30.130	FOR SCHOOL:	
		MINIMUM LOT SIZE: IN RS 8.5 ZONE IS 8,500 SQUARE FEET.	
		REQUIRED YARDS: IF THIS SCHOOL CAN ACCOMMODATE 50 OR MORE STUDENTS, THEN 50' REQUIRED AT FRONT, BACK, AND REAR.	COMPLIANT. SEE G2.05.
		MAXIMUM LOT COVERAGE: 70%	COMPLIANT. SEE G2.05.
		MAXIMUM HEIGHT OF STRUCTURE: 25' ABOVE AVERAGE BUILDING ELEVATION.	INCREASED PER DD-31.
	15.30.DD-31	FOR SCHOOL USE, STRUCTURE HEIGHT MAY BE INCREASED, UP TO 35 FEET, IF: A. THE SCHOOL CAN ACCOMMODATE 200 OR MORE STUDENTS; AND B. THE REQUIRED SIDE AND REAR YARDS FOR THE PORTIONS OF THE STRUCTURE EXCEEDING THE BASIC MAXIMUM STRUCTURE HEIGHT ARE INCREASED BY ONE FOOT FOR EACH ADDITIONAL ONE FOOT OF STRUCTURE HEIGHT; AND C. THE INCREASED HEIGHT IS NOT SPECIFICALLY INCONSISTENT WITH THE APPLICABLE NEIGHBORHOOD PLAN PROVISIONS OF THE COMPREHENSIVE PLAN; AND D. THE INCREASED HEIGHT WILL NOT RESULT IN A STRUCTURE THAT IS INCOMPATIBLE WITH SURROUNDING USES OR IMPROVEMENTS.	MEETS CRITERIA FOR HEIGHT INCREASE. SEE ALSO SECTION 115.120.3.
DEVELOPMENT STANDARDS	15.40.130	LANDSCAPE CATEGORY: D SIGN CATEGORY: B REQUIRED PARKING SPACES: SEE KZC 105.28	REFER TO TRAFFIC REPORT FOR PARKING.
	15.40.DS-8	THE LOCATION OF PARKING AND PASSENGER LOADING AREAS SHALL BE DESIGNED TO REDUCE IMPACTS ON NEARBY RESIDENTIAL USES.	REFER TO TRAFFIC REPORT.
	15.40.DS-12	AN ON-SITE PASSENGER LOADING AREA MUST BE PROVIDED. THE CITY SHALL DETERMINE THE APPROPRIATE SIZE OF THE LOADING AREA ON A CASE-BY-CASE BASIS, DEPENDING ON THE NUMBER OF ATTENDEES AND THE EXTENT OF THE ABUTTING RIGHT-OF-WAY IMPROVEMENTS. CARPOOLING, STAGGERED LOADING/UNLOADING TIME, RIGHT-OF-WAY IMPROVEMENTS OR OTHER MEANS MAY BE REQUIRED TO REDUCE TRAFFIC IMPACTS ON NEARBY RESIDENTIAL USES.	REFER TO TRAFFIC REPORT.
CHAPTER 95 - TREE MANAGEMENT AND REQUIRED LANDSCAPING			
LANDMARK TREES - MITIGATION REQUIREMENTS	95.23	PROTECT LANDMARK TREES AND COMPLY WITH RETENTION AND REPLACEMENT STANDARDS	PROJECT COMPLIES. REFER TO L0.01 RETENTION PLAN AND L4.01 PLANTING PLAN.
TREE RETENTION ASSOCIATED WITH DEVELOPMENT ACTIVITY	95.30	PROTECT AND RETAIN EXISTING TREES THROUGH INVENTORY, RETENTION PLAN AND REPLACEMENT PLANS	
TREE REPLACEMENT STANDARDS RELATED TO DEVLEOPMENT ACTIVITY	95.34	CONDUCT TREE INVENTORY WITH QUALIFIED ARBORIST, DEVELOP PROTECTION, RETENTION AND REPLACEMENT PLANS.	
STREET TREE LANDSCAPING	95.51	COORDINATE STREET TREES TO COMPLY WITH CITY CODE AND CONSIDERATION OF INFRASTRUCTURE, MAINTENANCE AND UTILITY LOCATIONS	
CHAPTER 100 - SIGNS			
SCOPE AND EXCLUSIONS	100.15	THIS CHAPTER APPLIES TO ALL SIGNS ERECTED OR ALTERED AFTER THE EFFECTIVE DATE OF THIS CODE. THIS CHAPTER DOES NOT APPLY TO THE FOLLOWING:	
		1. TRAFFIC SIGNS, DIRECTIONAL SIGNS NOT EXCEEDING FOUR (4) SQUARE FEET, AND SIGNS DISPLAYING A PUBLIC SERVICE MESSAGE INSTALLED BY A GOVERNMENTAL AGENCY.	
		3. NATIONAL FLAGS AND FLAGS OF POLITICAL SUBDIVISIONS.	
		7. BUILDING ADDRESSES WITH NUMBERS AND LETTERS NOT MORE THAN 10 INCHES IN HEIGHT.	
		8. EXTERIOR SIGNS OR DISPLAYS NOT VISIBLE FROM STREETS OR WAYS OPEN TO THE PUBLIC.	
		9. SIGNS NOT EXCEEDING TWO (2) SQUARE FEET PER SIGN FACE, EITHER PROVIDING PUBLIC INFORMATION ABOUT THE FACILITIES PRESENT ON THE SUBJECT PROPERTY OR ANNOUNCING A RESTRICTION ON THE SUBJECT PROPERTY.	SEPARATE SIGN PERMITS WILL BE SUBMITTED AS NEEDED AND PER PRE-SUBMITTAL MEETING NOTES.
		10. ONE (1) SIGN PER STRUCTURE, NOT EXCEEDING SIX (6) SQUARE FEET IN AREA, INCORPORATED INTO THE FACADE OF A BUILDING AND DENOTING THE DATE OF AND OTHER INFORMATION ABOUT CONSTRUCTION OF THE BUILDING.	
REQUIRED PERMITS	100.25	1. THE FOLLOWING PERMITS MUST BE OBTAINED FOR SIGNS REGULATED BY THIS CHAPTER:	SEPARATE SIGN PERMITS WILL BE SUBMITTED AS NEEDED AND PER PRE-SUBMITTAL MEETING NOTES.
		A. A PERMIT MUST BE OBTAINED FROM THE FIRE DEPARTMENT IN ORDER TO ERECT OR MOVE A SIGN OR ALTER THE STRUCTURAL COMPONENTS OF AN EXISTING SIGN.	
		B. A PERMIT MUST BE OBTAINED FROM THE PLANNING AND BUILDING DEPARTMENT IN ORDER TO DISPLAY ANY SIGN FOR WHICH A PERMIT IS NOT REQUIRED BY SUBSECTION (1)(A) OF THIS SECTION, EXCEPT WHERE THOSE SIGNS ARE EXCLUDED IN KZC 100.15 OR LISTED IN KZC 100.115.	
		2. IF A PROPOSED USE OR SITE PLAN REQUIRES APPROVAL THROUGH PROCESS I, IIA, OR IIB, AS DESCRIBED RESPECTIVELY IN CHAPTERS 145, 150, AND 152 KZC, THE PLANNING OFFICIAL MAY REQUIRE THAT ANY SIGN PROPOSED FOR THAT DEVELOPMENT BE APPROVED THROUGH THE SAME PROCESS IF HE/SHE DETERMINES THAT IT WILL PROVIDE MORE COORDINATED, EFFECTIVE SIGNS.	
CHAPTER 105 - PARKING AREAS, VEHICLE AND PEDESTRIAN ACCESS, AND RELATED IMPROVEMENTS			
MAXIMUM ALLOWABLE GRADE	105.12	THE SLOPE OF VEHICULAR ACCESS EASEMENTS AND TRACTS, AND THE SLOPE OF ENTRANCE AND EXIT DRIVEWAYS, EXCEPT DRIVEWAYS FOR DETACHED SINGLE-FAMILY RESIDENCES, SHALL NOT EXCEED SIX (6) PERCENT FOR THE FIRST 20 FEET FROM THE FACE OF THE ABUTTING RIGHT-OF-WAY CURB. THEREAFTER, THE SLOPE SHALL NOT EXCEED 15 PERCENT. THE DEPARTMENTS OF PUBLIC WORKS AND FIRE ARE AUTHORIZED TO MODIFY THE STANDARDS FOR MAXIMUM ALLOWABLE GRADE ON A CASE-BY-CASE BASIS.	PROJECT COMPLIES, REFER TO CIVIL DRAWINGS.
PEDESTRIAN ACCESS – LOCATION	105.18.2	ALL NEW DEVELOPMENT, EXCEPT DETACHED SINGLE-FAMILY AND DUPLEX USES, SHALL COMPLY WITH THE FOLLOWING PEDESTRIAN ACCESS REQUIREMENTS PURSUANT TO THE STANDARDS IN SUBSECTION (3) OF THIS SECTION:	
	105.18.2.a	FROM BUILDINGS TO SIDEWALKS AND TRANSIT FACILITIES – PROVIDE PEDESTRIAN WALKWAYS DESIGNED TO MINIMIZE WALKING DISTANCE FROM THE PRIMARY ENTRANCES TO ALL BUILDINGS TO THE ABUTTING RIGHT-OF-WAY, PEDESTRIAN WALKWAY AND TRANSIT FACILITIES PURSUANT TO THE APPLICABLE STANDARD IN SUBSECTION (3) OF THIS SECTION.	PROJECT COMPLIES ,REFER TO SITE PLANS.
	105.18.2.b	BETWEEN USES ON SUBJECT PROPERTY – PROVIDE PEDESTRIAN WALKWAYS BETWEEN THE PRIMARY ENTRANCES TO ALL BUSINESSES, USES, AND/OR BUILDINGS ON THE SUBJECT PROPERTY PURSUANT TO THE APPLICABLE STANDARD IN SUBSECTION (3) OF THIS SECTION.	PROJECT COMPLIES ,REFER TO SITE PLANS.
	105.18.2.e	THROUGH PARKING AREAS – ALL PARKING LOTS WHICH CONTAIN MORE THAN 25 STALLS MUST INCLUDE PEDESTRIAN WALKWAYS THROUGH THE PARKING LOT TO THE MAIN BUILDING ENTRANCE OR A CENTRAL LOCATION. THE WALKWAYS MUST MEET THE DEVELOPMENT STANDARDS PURSUANT TO SUBSECTION (3) OF THIS SECTION (SEE FIGURES 105.18.B AND C).	PROJECT COMPLIES ,REFER TO SITE PLANS.
PEDESTRIAN ACCESS – REQUIRED IMPROVEMENTS	105.18.3		
PEDESTRIAN WALKWAY STANDARDS – GENERAL	105.18.3.a	THE APPLICANT SHALL INSTALL PEDESTRIAN WALKWAYS PURSUANT TO THE FOLLOWING STANDARDS: 1) MUST BE AT LEAST FIVE FEET WIDE; 2) MUST BE DISTINGUISHABLE FROM TRAFFIC LANES BY PAINTED MARKINGS, PAVEMENT MATERIAL, TEXTURE, OR RAISED IN ELEVATION; 3) MUST HAVE ADEQUATE LIGHTING FOR SECURITY AND SAFETY. LIGHTS MUST BE NONGLARE AND MOUNTED NO MORE THAN 20 FEET ABOVE THE GROUND; 4) MUST BE CENTRALLY LOCATED ON THE SUBJECT PROPERTY; 5) MUST BE ACCESSIBLE; 6) BARRIERS WHICH LIMIT FUTURE PEDESTRIAN ACCESS BETWEEN THE SUBJECT PROPERTY AND ADJACENT PROPERTIES ARE NOT PERMITTED; 7) EASEMENTS TO PROVIDE RIGHTS OF ACCESS BETWEEN ADJACENT PROPERTIES SHALL BE RECORDED...	PROJECT COMPLIES ,REFER TO SITE PLANS.
OVERHEAD WEATHER PROTECTION – LOCATION	105.18.3.b	THE APPLICANT SHALL PROVIDE PEDESTRIAN OVERHEAD WEATHER PROTECTION IN THE FOLLOWING LOCATIONS: 1) ALONG ANY PORTION OF THE BUILDING WHICH IS ADJACENT TO A PEDESTRIAN WALKWAY OR SIDEWALK; 2) OVER THE PRIMARY EXTERIOR ENTRANCE TO ALL BUILDINGS INCLUDING RESIDENTIAL UNITS.	PROJECT COMPLIES ,REFER TO G2.05.
OVERHEAD WEATHER PROTECTION – CONFIGURATION	105.18.3.c	THE OVERHEAD WEATHER PROTECTION MAY BE COMPOSED OF AWNINGS, MARQUEES, CANOPIES, BUILDING OVERHANGS, COVERED PORCHES, RECESSED ENTRIES OR OTHER SIMILAR FEATURES. THE OVERHEAD WEATHER PROTECTION MUST COVER AT LEAST FIVE (5) FEET OF THE WIDTH OF THE ADJACENT WALKWAY AND MUST BE AT LEAST EIGHT (8) FEET ABOVE THE GROUND IMMEDIATELY BELOW IT.	
PEDESTRIAN WALKWAYS THROUGH PARKIN GAREAS AND PARKING GARAGE STANDARDS	105.18.3.d	THE APPLICANT SHALL INSTALL PEDESTRIAN WALKWAYS THROUGH PARKING AREAS AND PARKING GARAGES PURSUANT TO THE FOLLOWING STANDARDS (SEE FIGURE 105.18.B): 1) MUST BE INSTALLED PURSUANT TO THE STANDARDS DESCRIBED IN SUBSECTION (3)(A) OF THIS SECTION; 2) WALKWAY SHALL NOT USE VEHICLE ENTRANCE OR EXIT DRIVEWAYS FROM THE PARKING AREA TO A PUBLIC RIGHT-OF-WAY; 3) MUST CONNECT FROM THE PARKING SPACES TO THE PEDESTRIAN ENTRANCE OF THE BUILDING SERVED BY THE PARKING. 4) ALL PARKING LOTS THAT CONTAIN MORE THAN 25,000 SQUARE FEET OF PAVED AREA, INCLUDING ACCESS LANES AND DRIVEWAYS, MUST INCLUDE CLEARLY IDENTIFIED PEDESTRIAN ROUTES FROM THE PARKING STALLS TO THE MAIN BUILDING ENTRANCE OR CENTRAL LOCATION (SEE FIGURE 105.18.C). AT A MINIMUM, WALKWAYS MUST BE PROVIDED FOR EVERY THREE (3) DRIVING AISLES OR AT A DISTANCE OF NOT MORE THAN 150-FOOT INTERVALS, WHICHEVER IS LESS, AND MEET THE STANDARDS OF SUBSECTION (3)(A) OF THIS...	

ITEM	REFERENCE	CODE REQUIREMENT / DESCRIPTION	COMPLIANCE NOTES
PUBLIC PEDESTRIAN WALKWAYS	105.19		
NUMBER OF PARKING SPACES - NOT SPECIFIED IN USE ZONES	105.25	IF THIS CODE DOES NOT SPECIFY A PARKING SPACE REQUIREMENT FOR A PARTICULAR USE IN A PARTICULAR ZONE, THE PLANNING OFFICIAL SHALL ESTABLISH A PARKING REQUIREMENT ON A CASE-BY-CASE BASIS. THE PLANNING OFFICIAL SHALL BASE THIS DETERMINATION ON THE ACTUAL PARKING DEMAND ON EXISTING USES SIMILAR TO THE PROPOSED USE; PROVIDED, THAT SHELTERS PERMITTED AS A COMMUNITY FACILITIES USE MAY COUNT AVAILABLE ON-STREET PARKING TOWARD THE PARKING REQUIREMENT AT THE DISCRETION OF THE CITY. THE NUMBER OF AVAILABLE ON-STREET PARKING SPACES SHALL BE DETERMINED BY THE CITY TRAFFIC ENGINEER BASED ON A STUDY PREPARED BY A LICENSED TRANSPORTATION ENGINEER OR OTHER QUALIFIED PROFESSIONAL. THE SCOPE OF THE STUDY SHALL BE PROPOSED BY THE TRANSPORTATION ENGINEER AND APPROVED BY THE CITY TRAFFIC ENGINEER. THE STUDY SHALL PROVIDE AT LEAST TWO (2) DAYS OF DATA FOR MORNING, AFTERNOON AND EVENING HOURS, OR AS OTHERWISE APPROVED OR...	REFER TO TRAFFIC REPORT
BICYCLE PARKING	105.32	BICYCLE PARKING SPACES SHALL BE PROVIDED IN ALL NEW DEVELOPMENT REQUIRED TO PROVIDE SIX (6) OR MORE MOTOR VEHICLE PARKING SPACES TO ENCOURAGE THE USE OF BICYCLES AS A FORM OF TRANSPORTATION BY PROVIDING SAFE AND CONVENIENT PLACES TO PARK BICYCLES. BICYCLE PARKING SPACES SHALL BE PROVIDED AT A RATIO OF ONE (1) BICYCLE SPACE FOR EACH 12 REQUIRED MOTOR VEHICLE PARKING SPACES. THE PLANNING OFFICIAL MAY MODIFY THE NUMBER OF BICYCLE RACKS ACCORDING TO SIZE OF DEVELOPMENT AND ANTICIPATED PEDESTRIAN AND BICYCLE ACTIVITY. BICYCLE PARKING IN THE FORM OF A BIKE RACK OR ENCLOSED STORAGE CONTAINER SHALL BE CONVENIENTLY LOCATED FOR THE USERS, GENERALLY WITHIN 50 FEET OF AN EXTERIOR ENTRANCE OF ALL USES, AND WITHIN 50 FEET OF A RETAIL USE ENTRANCE. BICYCLE RACKS SHALL BE LOCATED IN A VISIBLE, WELL LIT, SHELTERED AREA SUCH AS UNDER AN EAVE, AWNING, OR OTHER SIMILAR ENCLOSURE AND LOCATED TO NOT IMPEDE VEHICLE PARKING OR PEDESTRIAN MOVEMENT. A BIKE RACK(S) SHALL BE INSTALLED WITH THE CAPACITY TO ACCOMMODATE THE REQUIRED NUMBER OF BICYCLE SPACES. FOR BUILDINGS WITH MULTIPLE USES SUCH AS A COMMERCIAL OR MIXED USE RESIDENTIAL-COMMERCIAL CENTERS, BICYCLE SPACES MAY BE CLUSTERED BETWEEN BUSINESSES TO SERVE UP TO SIX (6) BUSINESSES.	PROJECT COMPLIES, REFER TO CALCULATIONS ON G2.05.
CHAPTER 110 - REQUIRED PUBLIC IMPROVEMENTS			
COLLECTOR STREETS	110.40.10	RIGHT-OF-WAY: 60-FOOT MINIMUM RIGHT-OF-WAY WIDTH DETERMINED BY WIDTH OF REQUIRED IMPROVEMENTS, ROUNDED UP TO NEAREST INTERVAL OF 5 FEET. NUMBER OF LANES: 2 CENTER LANE WIDTH: 11-12 FEET THRU LANE WIDTH: TWO 11-FOOT LANES PARKING: ALLOWED ON BOTH SIDES LANDSCAPE STRIP: 4.5-FOOT WIDTH REQUIRED BOTH SIDES WITH OR WITHOUT SIDEWALK SHALL INCLUDE STREET TREES 30 FEET ON CENTER WITH GRASS SOD OR GROUNDCOVER SHALL BE ADJACENT TO THE CURB. CURB AND GUTTER: REQUIRED BOTH SIDES MUST INSTALL VERTICAL CURB, GUTTER, AND STORM WATER COLLECTION AND CONVEYANCE SYSTEMS. SIDEWALKS: 5-FOOT-WIDE SIDEWALKS REQUIRED ON BOTH SIDES OF THE STREET UNLESS OTHERWISE SPECIFIED IN THE LAND USE COMPREHENSIVE PLAN, THE NONMOTORIZED TRANSPORTATION PLAN, A DESIGN REPORT FOR THE SPECIFIC STREET, ELSEWHERE IN THIS CODE, OR AS A SPECIFIC CONDITION OF...	NE 53RD ST IS A COLLECTOR STREET. REFER TO CIVIL FOR PROPOSED RIGHT-OF-WAY IMPROVEMENTS.
MINOR ARTERIAL STREETS	110.45	THE PUBLIC WORKS DIRECTOR SHALL DETERMINE THE EXTENT AND NATURE OF OTHER IMPROVEMENTS REQUIRED IN MINOR ARTERIAL STREETS ON A CASE-BY-CASE BASIS. SEE ALSO KZC 110.65 THROUGH 110.75 FOR OTHER REQUIREMENTS THAT APPLY TO IMPROVEMENTS IN THE RIGHT-OF-WAY.	108TH AVE NE IS A MINOR ARTERIAL. REFER TO CIVIL FOR PROPOSED RIGHT-OF-WAY IMPROVEMENTS.
LANDSCAPE STRIP AND STREET TREES	110.60.4	LANDSCAPE STRIPS WITH 5' BUFFER ALONG R.O.W., AND TREE SPACING 30' O.C., 1.5' FROM R.O.W. LINE.	STREET TREES AND LANDSCAPE BUFFER PROVIDED
UTILITY LINES AND APPURTENANCES	110.60.7.b	ALL OVERHEAD SERVICE UTILITY LINES ON THE SUBJECT PROPERTY MUST BE UNDERGROUNDED TO THE NEAREST PRIMARY SOURCE; UNDERGROUNDING TO A SECONDARY SERVICE POLE WILL NOT BE ALLOWED UNLESS APPROVED BY THE PUBLIC WORKS DIRECTOR. ALL EXISTING OVERHEAD UTILITY LINES IN THE PUBLIC RIGHT-OF-WAY ADJACENT TO THE SUBJECT SITE MUST BE UNDERGROUNDED UNLESS THE PUBLIC WORKS DIRECTOR DETERMINES THAT THIS IS INFEASIBLE. IF UNDERGROUNDING IS DETERMINED TO BE INFEASIBLE, THE PROPERTY OWNER SHALL SIGN AN AGREEMENT, IN A FORM ACCEPTABLE TO THE CITY ATTORNEY, THAT WAIVES THE PROPERTY OWNER'S RIGHT TO PROTEST FORMATION OF A LOCAL IMPROVEMENT DISTRICT (LID) FOR CONVERSION OF OVERHEAD UTILITY LINES TO UNDERGROUND, IN THE PUBLIC RIGHT-OF-WAY ADJACENT TO THE SUBJECT PROPERTY, CONSISTENT WITH RCW 35.43.182.	UTILITY LINES WILL BE UNDERGROUNDED. REFER TO CIVIL PLANS.
CHAPTER 115 - MISCELLANEOUS USE DEVELOPMENT AND PERFORMANCE STANDARDS			
ELECTRIC VEHICLE INFRASTRUCTURE	115.33	3. ALL USE ZONES - LEVEL I AND LEVEL II BATTERY CHARGING STATIONS ARE ALLOWED AS AN ACCESSORY USE TO AN APPROVED USE WITHIN ALL USE ZONES.	REFER TO G2.06 FOR EV CHARGING STATION LOCATIONS
FENCES – GENERAL	115.40.1	A. FENCES NOT OVER SIX (6) FEET IN HEIGHT MAY BE ANYWHERE ON THE SUBJECT PROPERTY EXCEPT: 1) A FENCE MAY NOT BE WITHIN 15 FEET OF ANY STREET CURB, OR THE EDGE OF THE STREET PAVEMENT, IF NO CURB EXISTS; OR 2) IF THE APPLICANT CAN SHOW WITH A SURVEY, OR OTHER REASONABLE MEANS, THE LOCATION OF HIS/HER PROPERTY LINE, THE FENCE CAN BE PLACED ON THE PROPERTY LINE REGARDLESS OF THE DISTANCE FROM A STREET CURB OR THE EDGE OF THE PAVEMENT. 3) A FENCE MAY NOT VIOLATE THE PROVISIONS OF KZC 115.135. B. FENCES OVER SIX (6) FEET IN HEIGHT MAY NOT BE LOCATED IN A REQUIRED SETBACK YARD. SEE KZC 115.115, REQUIRED YARDS, FOR REGULATIONS RELATING TO FENCES ON RETAINING WALLS. C. THE PLANNING OFFICIAL MAY APPROVE A MODIFICATION TO THE FENCE HEIGHT REQUIREMENTS, EXCEPT WITHIN THE SHORELINE SETBACK REGULATED UNDER CHAPTER 83 KZC, IF: 1) THE MODIFICATION IS NECESSARY BECAUSE OF THE SIZE, CONFIGURATION, TOPOGRAPHY OR LOCATION OF THE SUBJECT PROPERTY; AND 2) THE MODIFICATION WILL NOT HAVE ANY SUBSTANTIAL DETRIMENTAL EFFECT ON ABUTTING PROPERTIES...	PROJECT COMPLIES, SEE L1.00
GARBAGE AND RECYCLING RECEPTACLES AND ENCLOSURES	115.45	2. STORAGE SPACE – SPACE PROVIDED FOR GARBAGE AND RECYCLING RECEPTACLES SHALL COMPLY WITH PUBLIC WORKS PRE-APPROVED PLANS AND POLICIES.	COMPLIES. REFER TO G2.06.
		3. PLACEMENT – GARBAGE AND RECYCLING RECEPTACLES MUST COMPLY WITH THE FOLLOWING:	
		A. BE SET BACK A MINIMUM OF FIVE (5) FEET FROM SIDE PROPERTY LINES, 10 FEET FROM REAR PROPERTY LINES AND 10 FEET FROM FRONT PROPERTY LINES; OR	
		B. COMPLY WITH THE SETBACKS ESTABLISHED FOR THE USE WITH WHICH THEY ARE ASSOCIATED;	
		C. BE LOCATED OUTSIDE LANDSCAPE BUFFERS REQUIRED BY CHAPTER 95 KZC;	
		D. BE LOCATED TO MINIMIZE VISIBILITY FROM ANY STREET, PEDESTRIAN WALKWAY, OR PUBLIC PARK; AND	
		E. BE LOCATED TO PROVIDE CONVENIENT AND SAFE ACCESS FOR RESIDENTS, SERVICE VEHICLES AND EMPLOYEES.	
		4. SCREENING – GARBAGE AND RECYCLING RECEPTACLES MUST BE SCREENED FROM VIEW FROM THE STREET AND FROM ADJACENT PROPERTIES BY A SOLID SCREENING ENCLOSURE. THE SCREENING SHALL MEET OR EXCEED THE STANDARDS ESTABLISHED IN THE PUBLIC WORKS PRE-APPROVED PLANS AND...	
LOADING AND SERVICE AREAS PLACEMENT AND SCREENING	115.47	LOADING AND SERVICE AREAS MUST BE LOCATED SO THEY ARE NOT VISIBLE FROM ANY STREET OR PEDESTRIAN WALKWAY. IF THAT LOCATION IS NOT PHYSICALLY POSSIBLE, LOADING AND SERVICE AREAS MUST BE SCREENED FROM PUBLIC VIEW USING A COMPACT EVERGREEN HEDGE, A SOLID WALL OR FENCE, OR IN A MANNER APPROVED BY THE PLANNING OFFICIAL.	COMPLIES. REFER TO G2.06.
HEIGHT REGULATIONS - CALCULATING AVERAGE BUILDING ELEVATION (ABE)	115.59.1	GENERAL – ABE SHALL BE CALCULATED USING THE FOLLOWING FORMULA: ABE = (MID-POINT ELEVATION) X (LENGTH OF SEGMENT) + (MID-POINT ELEVATION) X (LENGTH OF SEGMENT) (LENGTH OF SEGMENT) + (LENGTH OF SEGMENT) FOR BOTH OPTIONS, THE ABE SEGMENTS SHALL INCLUDE DECKS AND PORCHES, UNLESS THE DECK OR PORCH HAS NO WALLS AT OR BELOW THE DECK LEVEL AND NO ROOF ABOVE THE DECK OR PORCH, AS WELL AS CANTILEVERED PORTIONS OF A BUILDING WHICH ENCLOSE INTERIOR SPACE. FOR OPTION 1, THOSE ITEMS ALLOWED TO EXTEND INTO REQUIRED YARDS THROUGH KZC 115.115(3)(D) SHALL NOT BE INCLUDED WITHIN THE SQUARE OR RECTANGLE. FOR CALCULATION OF MID-POINT ELEVATION, EXISTING PREDEVELOPMENT GRADES SHALL BE USED, UNLESS FILL HAS BEEN PLACED ON THE SITE, WHETHER LEGALLY OR ILLEGALLY, WITHIN A 10-YEAR PERIOD PRIOR TO THE DEVELOPMENT APPLICATION, IN WHICH CASE THE GRADES PRIOR TO THE PLACEMENT OF THE FILL SHAL...	REFER TO G2.06 FOR CALCULATIONS
HEIGHT REGULATIONS - EXCEPTIONS.	115.60.1	GENERAL – NO ELEMENT OR FEATURE OF A STRUCTURE, OTHER THAN AS LISTED IN SUBSECTION (2) OF THIS SECTION, MAY EXCEED THE APPLICABLE HEIGHT LIMITATION ESTABLISHED FOR EACH USE IN EACH USE ZONE IN CHAPTERS 15 THROUGH 56 KZC.	COMPLIES (SEE 115.120.3) SEE G2.06
OTHER STRUCTURES	115.60.2.b	3) SKYLIGHTS MAY EXCEED THE HEIGHT LIMIT BY A MAXIMUM OF SIX INCHES. 4) SOLAR PANELS ON SLOPED ROOF FORMS (GREATER THAN OR EQUAL TO 2:12) MAY EXCEED HEIGHT LIMITS BY A MAXIMUM OF SIX INCHES.	SEE G2.06
LIGHTING REGULATIONS	115.85	1. GENERAL REQUIREMENTS – ALL INTERIOR AND EXTERIOR LIGHTING IN ANY ZONE MUST COMPLY WITH THIS SECTION. A. EFFICIENT LIGHT SOURCES – ENERGY-EFFICIENT LIGHT SOURCES SHALL BE USED IN ANY DEVELOPMENT AND USE OF LAND. B. STATE CODE – THE REQUIREMENTS OF THE WASHINGTON STATE ENERGY CODE WITH RESPECT TO THE SELECTION AND REGULATION OF LIGHT SOURCES SHALL BE COMPLIED WITH. C. GLARE FROM SUBJECT PROPERTY PROHIBITED – THE APPLICANT SHALL SELECT, PLACE AND DIRECT LIGHT SOURCES SO THAT GLARE PRODUCED BY ANY LIGHT SOURCE, TO THE MAXIMUM EXTENT POSSIBLE,...	

ITEM	REFERENCE	CODE REQUIREMENT / DESCRIPTION	COMPLIANCE NOTES
CALCULATING LOT COVERAGE	115.90	1. GENERAL – THE AREA OF ALL STRUCTURES AND ANY OTHER HARDSCAPE ON THE SUBJECT PROPERTY WILL BE CALCULATED AS A PERCENTAGE OF TOTAL LOT AREA. IF THE SUBJECT PROPERTY CONTAINS MORE THAN ONE (1) USE, THE MAXIMUM LOT COVERAGE REQUIREMENTS FOR THE PREDOMINANT USE WILL APPLY TO THE ENTIRE DEVELOPMENT. LOT AREA NOT CALCULATED UNDER LOT COVERAGE MUST BE DEVOTED TO OPEN SPACE AS DEFINED IN KZC 5.10.610. THE INTENT OF THESE LOT COVERAGE REGULATIONS IS TO LIMIT AREAS OF HARDSCAPE, PLACE AN EMPHASIS ON LANDSCAPING, AND TO INCREASE VEGETATED SPACES THROUGHOUT THE CITY. 2. EXEMPTIONS – THE FOLLOWING ARE EXEMPT FROM THE LOT COVERAGE CALCULATION: A. AN ACCESS EASEMENT OR TRACT THAT IS NOT INCLUDED IN THE CALCULATION OF LOT SIZE WILL NOT BE USED IN CALCULATING LOT COVERAGE FOR ANY LOT IT SERVES OR CROSSES. B. AREAS OF LANDSCAPING BELOW EAVES, BALCONIES, AND OTHER CANTILEVERED PORTIONS OF BUILDINGS. C. PLANTED AREAS AT LEAST TWO (2) FEET WIDE AND 40 SQUARE FEET IN AREA LOCATED OVER SUBTERRANEAN STRUCTURES, WITH A MINIMUM SOIL DEPTH OF 18 INCHES. D. ROCKERIES AND RETAINING WALLS, UNLESS LOCATED ADJACENT TO OR WITHIN 12 INCHES OF ANOTHER IMPERVIOUS SURFACE SUCH AS A PATIO, BUILDING OR PARKING AREA. E. PUBLIC SIDEWALK IF LOCATED WITHIN A PUBLIC EASEMENT ON PRIVATE PROPERTY. F. HARDSCAPE SURFACE UNDER HVAC AND SIMILAR TYPES OF MECHANICAL EQUIPMENT SERVING ATTACHED OR DETACHED DWELLING UNIT USES. THESE EXEMPT SURFACES MAY NOT EXCEED 10 SQUARE FEET FOR EACH DWELLING UNIT. 3. PARTIALLY EXEMPT MATERIALS – THE FOLLOWING MATERIALS SHALL RECEIVE A 50 PERCENT EXEMPTION FOR THE AREA THEY COVER. HOWEVER, THIS EXEMPTION SHALL NOT EXCEED 10 PERCENT OF THE TOTAL LOT SIZE. A. PAVERS NO LARGER THAN 10 INCHES BY 10 INCHES PER INDIVIDUAL PAVER. B. GRASSED MODULAR GRID PAVEMENT. C. OPEN GRID DECKING OVER NON-HARDSCAPED AREA. D. ARTIFICIAL TURF. NOTE THAT IMPERVIOUS SURFACES MAY BE FURTHER, OR MORE STRINGENTLY, REGULATED BY THE...	COMPLIES. REFER TO G2.06.
REQUIRED YARDS – DRIVEWAYS AND PARKING AREAS	115.115.5	DRIVEWAYS AND PARKING AREAS ARE NOT ALLOWED IN REQUIRED YARDS EXCEPT AS FOLLOWS: B. VEHICLE PARKING AREAS FOR SCHOOLS AND DAY-CARE CENTERS GREATER THAN 12 STUDENTS SHALL HAVE A MINIMUM 20-FOOT SETBACK FROM ALL PROPERTY LINES.	
REQUIRED SCREENING FOR ROOFTOP APPURTENANCES	115.120.3	NEW CONSTRUCTION SHALL, TO THE EXTENT FEASIBLE, VISUALLY SCREEN ROOFTOP APPURTENANCES BY INCORPORATING THEM INTO THE ROOF FORM. SUCH ROOF FORMS AND ARCHITECTURAL DESIGNS MAY EXTEND FIVE (5) FEET ABOVE THE HEIGHT LIMIT.	ROOF FORM EXCEEDING 35' (PER SECTION 15.30) SCREENS MECHANICAL APPURTENANCES

NOT FOR CONSTRUCTION

ORIGINAL SHEET SIZE 36" x 48"

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PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST
KIRKLAND, WA 98033

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

KEYMAP
DATE ISSUE

NO. DATE REVISION

PARTNER IN CHARGE
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PROJECT MANAGER
SK
PROJECT ARCHITECT
TC, AO
PROJECT DESIGNER

PROJECT TEAM MEMBERS
EGJ, AG
CHECK

8825
REGISTERED ARCHITECT
BRENDAN P. CONNOLLY
STATE OF WASHINGTON

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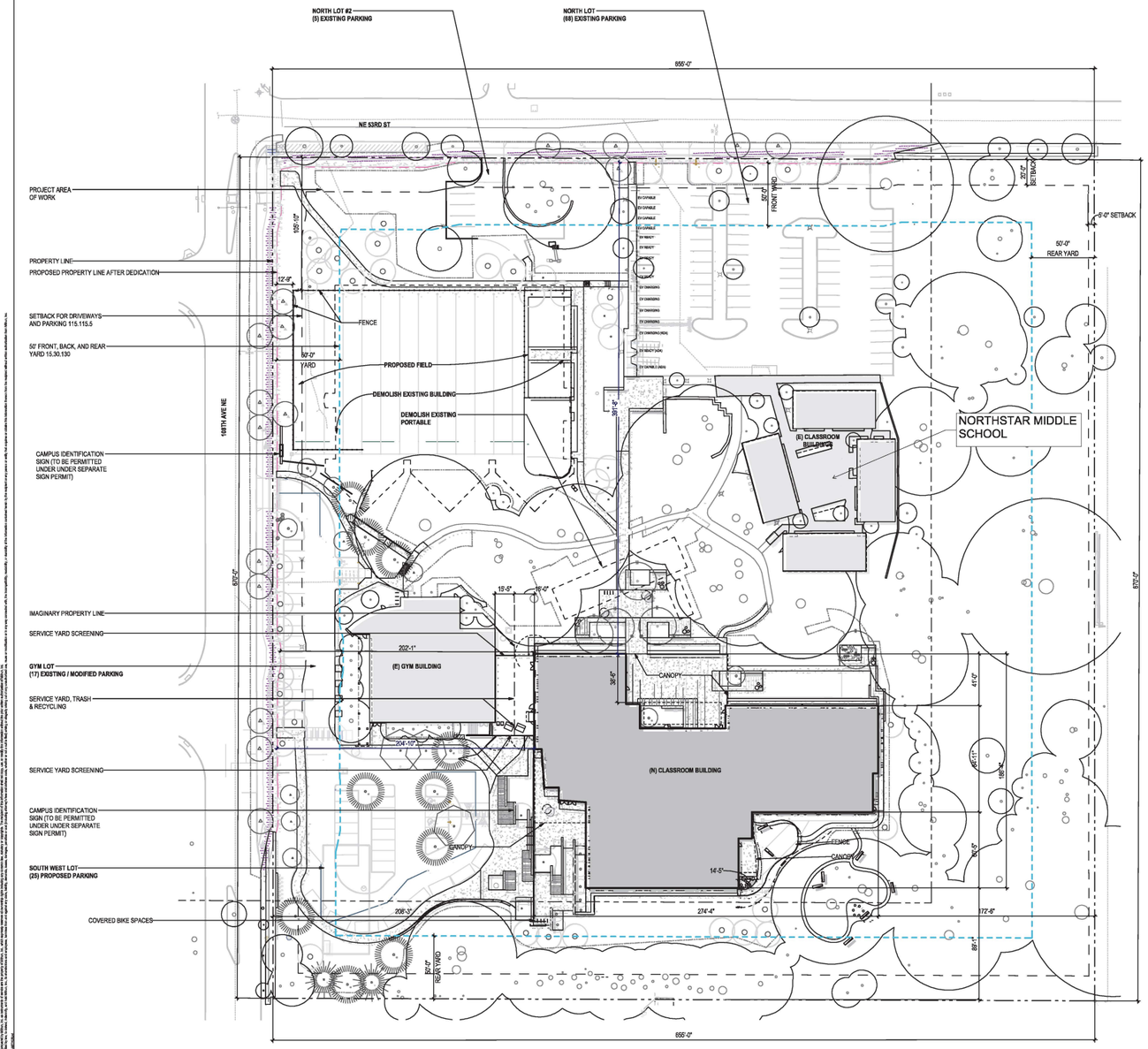
TITLE
LAND USE SUMMARY

PROJECT NO.
2422400
DATE
07/03/2025

SHEET NUMBER
G2.01
LAND USE PERMIT



1 LAND USE - SITE PLAN
1" = 30'-0"

SUMMARY

NOTE: ENTIRE BUILDING IS EDUCATION USE	
BUILDING AREA	
LEVEL 1	30,877.0
LEVEL 2	20,658.0
TOTAL GSF	**51,535.0**
LOT COVERAGE	
LOT AREA (PER SURVEY LESS PROPOSED DEDICATION)	434,712
ALLOWABLE COVERAGE, 70%	304,298
PROPOSED COVERAGE, GSF	151,582
PROPOSED COVERAGE, %	**35%**
VEHICLE PARKING	
NORTH LOT, EXISTING	68
NORTH LOT #2, EXISTING	5
TOTAL ,EXISTING	73
GYM LOT, MODIFIED	17
SW LOT, NEW	25
TOTAL, NEW	42
TOTAL PARKING	115
EV CHARGING INFRASTRUCTURE	
TOTAL NEW PARKING SPACES	42
REQUIRED, EV STATIONS	10%
PROVIDED, EV STATIONS	5
REQUIRED, EV READY STATIONS	
PROVIDED, EV READY STATIONS	5
REQUIRED, EV CAPABLE STATIONS	
PROVIDED, EV CAPABLE STATIONS	5
BIKE PARKING	
115 TOTAL PARKING STALLS. 115/12=10 COVERED BIKE SPACES REQ'D	
REQUIRED, COVERED SPACES	10
EXISTING TO REMAIN, COVERED	13
NEW ,COVERED	8
TOTAL, COVERED SPACES	**21**

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PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST
KIRKLAND, WA 98033

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

SETUP	
DATE	MKR

NO.	DATE	REVISION

FACTORY IN CHARGE
JW
PROJECT MANAGER
SK
PROJECT ARCHITECT
TC, AO
PROJECT DESIGNERS

PROJECT TEAM MEMBERS
EGJ, AG
DRAWN

TITLE
LAND USE SITE PLAN

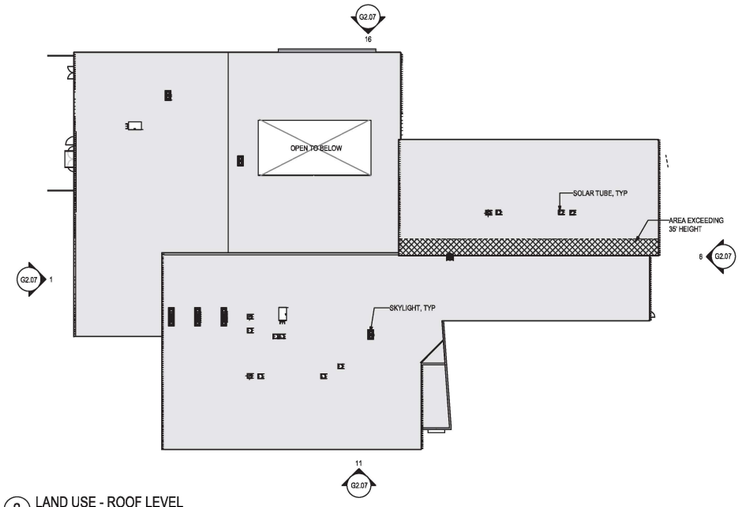
PROJECT NO.
2422400
DATE
02/10/2026

SHEET NUMBER
G2.04
PERMIT SET

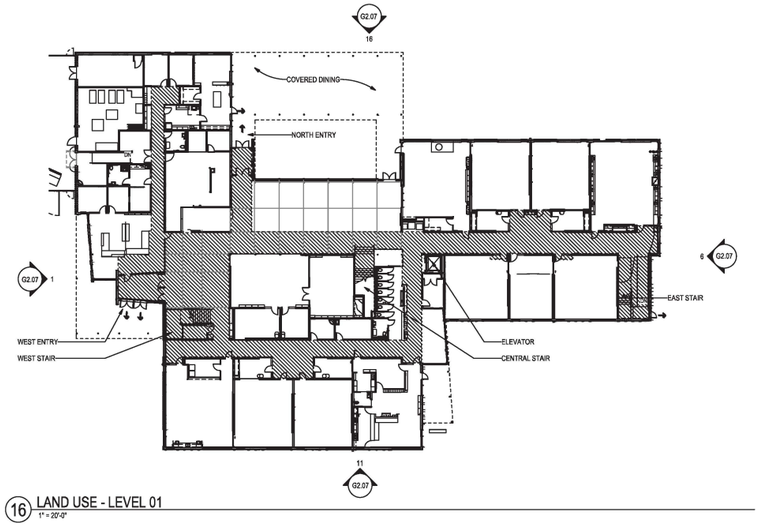
ORIGINAL SHEET SIZE 36" x 48"

2/10/2026 5:23:47 PM

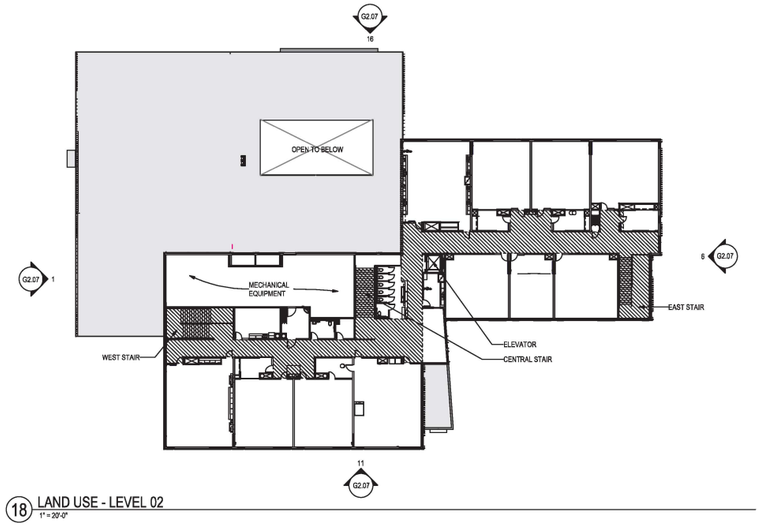
2/10/2026 5:22:53 PM



8 LAND USE - ROOF LEVEL
1" = 20'-0"



16 LAND USE - LEVEL 01
1" = 20'-0"



18 LAND USE - LEVEL 02
1" = 20'-0"

PLAN LEGEND

- BUILDING EXIT
- CIRCULATION

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LEWIS GRUTCHFIELD
Lewis

PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST
KIRKLAND, WA 98033

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

SCHAP
DES — SHEET

NO. — DATE — REVISION

PARTNER IN CHARGE
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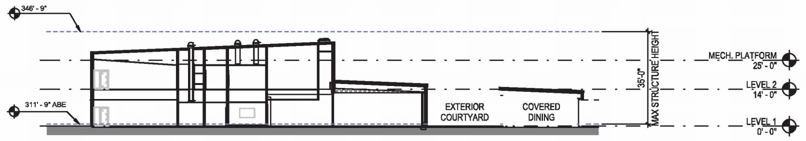
PROJECT MANAGER
SK
PROJECT ARCHITECT
TC, AO
PROJECT DESIGNER
PROJECT TEAM MEMBER
EGJ, AG
TEAM

TITLE
LAND USE PLANS

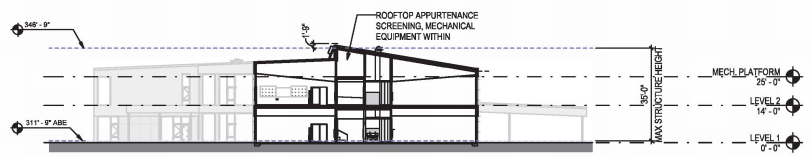
PROJECT NO
2422400
DATE
02/10/2026

SHEET NUMBER
G2.05
PERMIT SET

ORIGINAL SHEET SIZE 36" x 48"

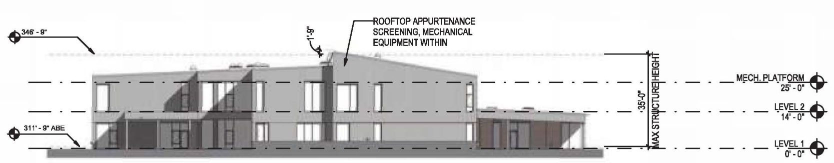


1 N/S SECTION 01
1" = 20'-0"

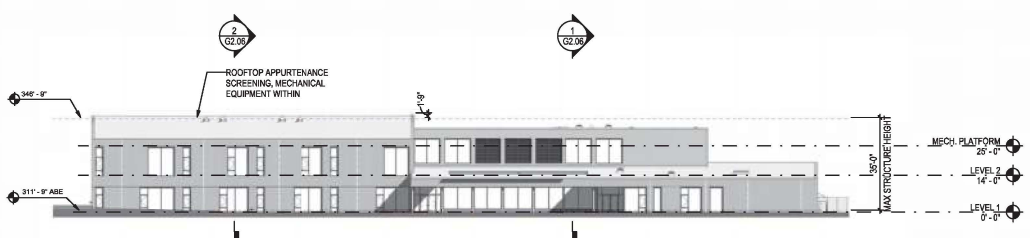


2 N/S SECTION 02
1" = 20'-0"

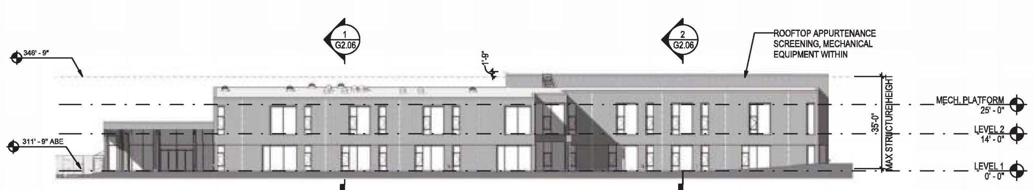
3 AVE. GRADE - WEST ELEVATION
1" = 20'-0"



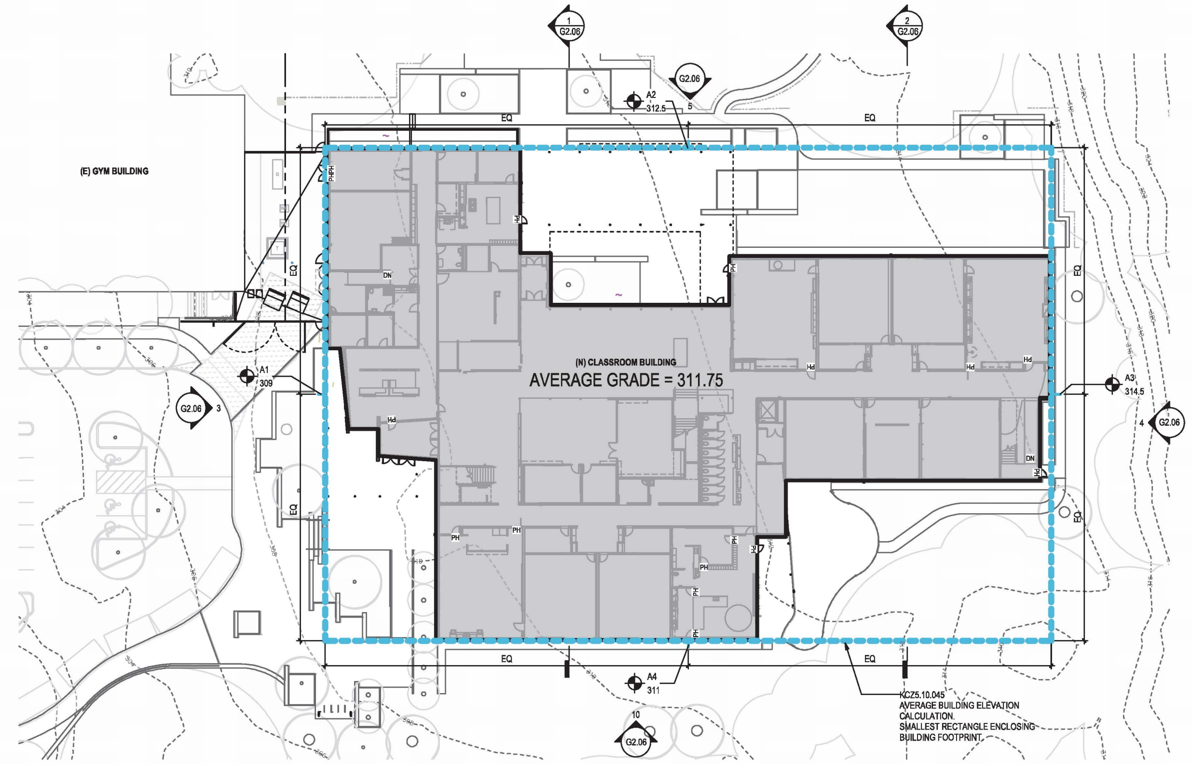
4 AVE. GRADE - EAST ELEVATION
1" = 20'-0"



5 AVE. GRADE - NORTH ELEVATION
1" = 20'-0"



10 AVE. GRADE - SOUTH ELEVATION
1" = 20'-0"



15 LAND USE - BUILDING HEIGHT DIAGRAM
1" = 20'-0"

AVERAGE GRADE PLANE CALCULATION

15.30.130 WITH INCREASE PER DD-31
MAXIMUM HEIGHT OF STRUCTURE ABOVE AVERAGE BUILDING ELEVATION = 35'

SEGMENT NAME	ELEVATION (FT)
A1	309
A2	312.5
A3	314.5
A4	311
AVERAGE...	311.75
35' MAX BUILDING HEIGHT	**346.75**

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PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST
KIRKLAND, WA 98033

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT
Lake Washington School District

KEYMAP
DATE ISSUE

NO. DATE REVISION

PARTNER IN CHARGE
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PROJECT TEAM MEMBERS
EGJ, AG
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8825 REGISTERED ARCHITECT
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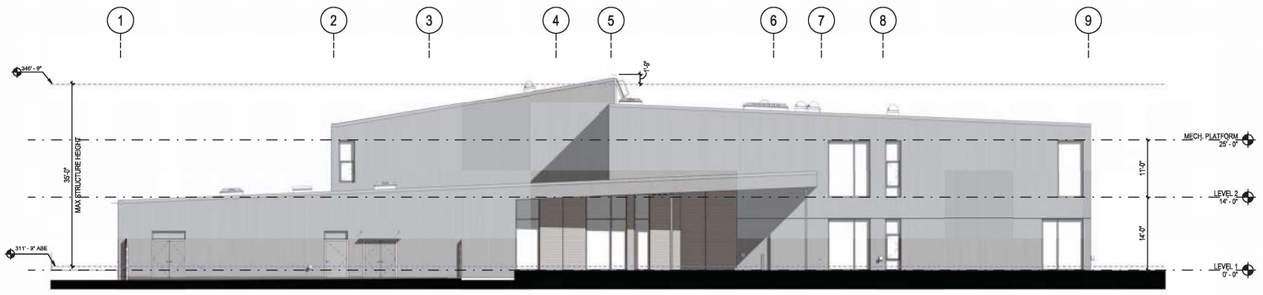
TITLE
BUILDING HEIGHT DIAGRAMS

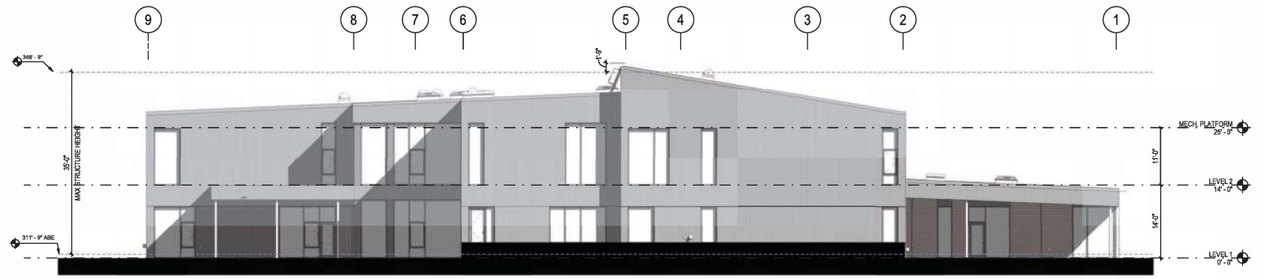
PROJECT NO.
2422400
DATE
08/28/2025

ORIGINAL SHEET SIZE 36" x 48"

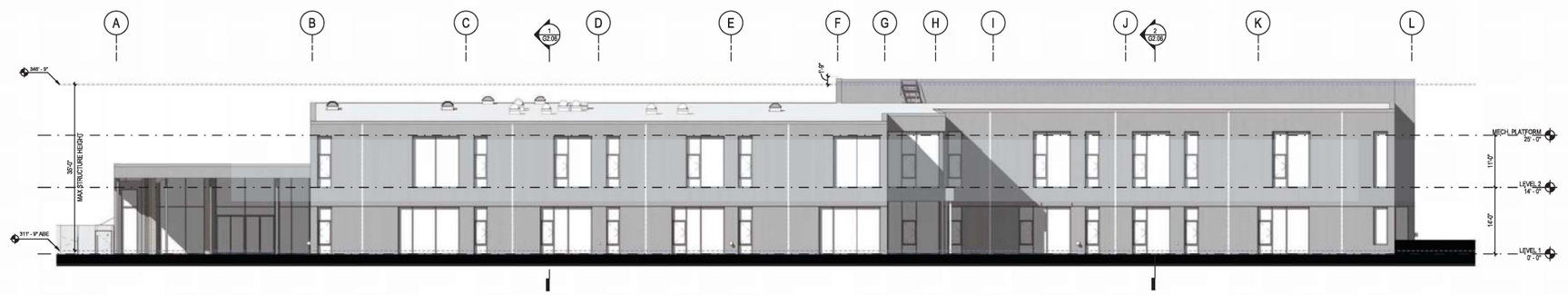
SHEET NUMBER
G2.06
PERMIT SET



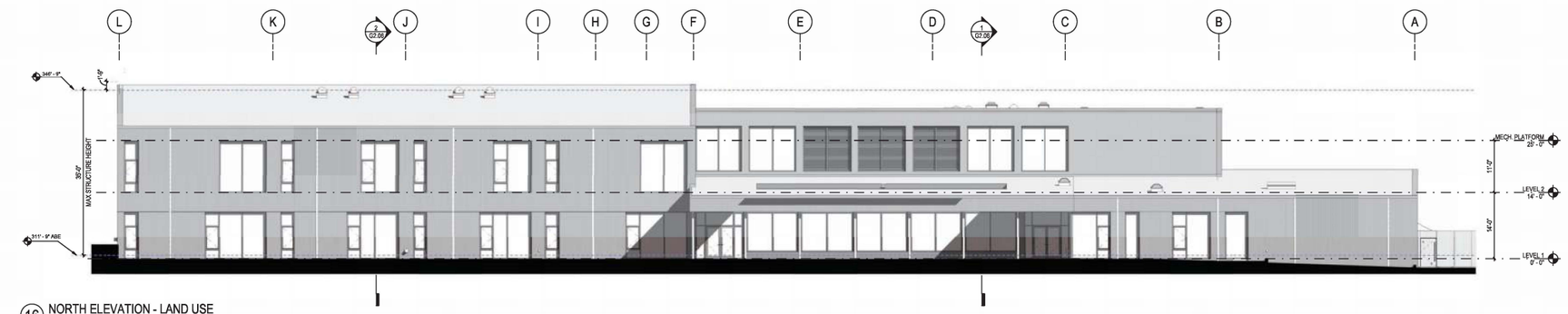
1 WEST ELEVATION - LAND USE
1/8" = 1'-0"



6 EAST ELEVATION - LAND USE
1/8" = 1'-0"



11 SOUTH ELEVATION - LAND USE
1/8" = 1'-0"



16 NORTH ELEVATION - LAND USE
1/8" = 1'-0"

EXTERIOR MATERIAL LEGEND

- METAL PANEL
- CEMENTITIOUS PANEL
- METAL PLATE
- WINDOW/DOOR

NOTES:

1. SEE A5.01 FOR EXTERIOR ASSEMBLY DESCRIPTIONS.
2. SEE A5.01 FOR EXTERIOR FINISH SCHEDULE.
3. SEE A10.06 FOR STOREFRONT AND CURTAINWALL TYPES.
4. REFER TO STRUCTURAL DRAWINGS FOR FOOTING ELEVATIONS.
5. SEE A3.01 FOR ELEVATION NOTES

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HALL CHITWOOD Lewis

PROJECT
EMERSON SCHOOLS

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10903 NE 53RD ST
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PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

REPAP DATE	ISSUE

NO.	DATE	REVISION

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SK
PROJECT ARCHITECT
TC, AO
PROJECT DESIGNER
PROJECT TEAM MEMBERS
EGJ, AG
STATE

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REGISTERED ARCHITECT
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TITLE
LAND USE ELEVATIONS

PROJECT NO.
2422400
DATE
08/28/2025

SHEET NUMBER
G2.07
PERMIT SET

8/27/2025 2:46:47 PM

RENDERS

BIRD'S EYE

WEST ENTRY

NORTH ENTRY

NORTH ELEVATION

EXISTING SITE PHOTOGRAPHS

TOPOGRAPHIC & BOUNDARY SURVEY

LEGAL DESCRIPTION

BEGINNING AT THE NORTHWEST CORNER OF LOT 1, BLOCK 3, KIRKLAND PARK, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 6 OF PLATS, PAGE 28, IN KING COUNTY, WASHINGTON; THENCE SOUTH ALONG THE EAST MARGIN OF 108TH AVENUE NORTHEAST, 670 FEET; THENCE SOUTH 89°47'00" EAST, 655 FEET; THENCE NORTH PARALLEL WITH THE EAST LINE OF 108TH AVENUE NORTHEAST FOR 670 FEET TO THE SOUTH LINE OF NORTHEAST 53RD STREET; THENCE WEST ALONG SAID SOUTH LINE, 655 FEET TO THE TRUE POINT OF BEGINNING;

SITUATE IN THE COUNTY OF KING AND STATE OF WASHINGTON.

BASIS OF BEARINGS

NAD 83(91) WASHINGTON NORTH STATE PLANE COORDINATES PER CITY OF KIRKLAND SURVEY CONTROL POINTS NO. 14 AND 13, BEARS N 89°06'29" W BETWEEN FOUND MONUMENTS.

REFERENCES

R1. RECORD OF SURVEY, VOL. 63, PGS. 34–35, RECORDS OF KING COUNTY, WASHINGTON.

VERTICAL DATUM

NAVD 88 PER CITY OF KIRKLAND BENCHMARK ID# 14
DESCRIPTION: 1/4" BRASS PIN IN CONC MON IN CASE, .9' DEEP
LOCATION: 108TH AVE NE – NE 60TH ST
ELEVATION: 266.756'

SITE TEMP. BENCHMARK
DESCRIPTION: SET PK NAIL W/ RED WASHER
LOCATION: NE QUAD OF INTX NE 53RD ST & 108TH AVE NE IN ASPHALT NEAR SIDEWALK RAMP
ELEVATION: 304.05'

SURVEYOR'S NOTES

1. THE TOPOGRAPHIC SURVEY SHOWN HEREON WAS PERFORMED IN DECEMBER OF 2023, JANUARY OF 2024, AND FEBRUARY OF 2025. THE FIELD DATA WAS COLLECTED AND RECORDED ON MAGNETIC MEDIA THROUGH AN ELECTRONIC THEODOLITE. THE DATA FILE IS ARCHIVED ON DISC OR CD. WRITTEN FIELD NOTES MAY NOT EXIST. CONTOURS ARE SHOWN FOR CONVENIENCE ONLY. DESIGN SHOULD RELY ON SPOT ELEVATIONS.
2. ALL MONUMENTS SHOWN HEREON WERE LOCATED DURING THE COURSE OF THIS SURVEY UNLESS OTHERWISE NOTED.
3. THE TYPES AND LOCATIONS OF ANY UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED TO US, BY OTHERS OR GENERAL INFORMATION READILY AVAILABLE IN THE PUBLIC DOMAIN INCLUDING, AS APPLICABLE, IDENTIFYING MARKINGS PLACED BY UTILITY LOCATE SERVICES AND OBSERVED BY TERRANE IN THE FIELD. AS SUCH, THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY AND SHOULD NOT BE RELIED ON FOR DESIGN OR CONSTRUCTION PURPOSES; TERRANE IS NOT RESPONSIBLE OR LIABLE FOR THE ACCURACY OR COMPLETENESS OF THIS UTILITY INFORMATION. FOR THE ACCURATE LOCATION AND TYPE OF UTILITIES NECESSARY FOR DESIGN AND CONSTRUCTION, PLEASE CONTACT THE SITE OWNER AND THE LOCAL UTILITY LOCATE SERVICE (800–424–5555).
4. SUBJECT PROPERTY TAX PARCEL NO. 172505–9195
5. SUBJECT PROPERTY AREA PER THIS SURVEY IS 438,847 ±S.F. (10.07 ACRES)
6. ALL TITLE INFORMATION SHOWN ON THIS MAP HAS BEEN EXTRACTED FROM FIRST AMERICAN TITLE INSURANCE COMPANY'S "SUBDIVISION GUARANTEE", ORDER NO. NCS–1247478–WA1, DATED JANUARY 10, 2025. IN PREPARING THIS MAP, TERRANE, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS TERRANE, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND DISCLOSED BY THE REFERENCED "SUBDIVISION GUARANTEE". TERRANE, INC. HAS RELIED WHOLLY ON FIRST AMERICAN TITLE INSURANCE COMPANY'S REPRESENTATIONS OF THE TITLE'S CONDITION TO PREPARE THIS SURVEY AND TERRANE, INC. QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
7. EXISTING STRUCTURE(S) LOCATION AND DIMENSIONS ARE MEASURED FROM THE FACE OF THE SIDING UNLESS OTHERWISE NOTED.
8. FIELD DATA FOR THIS SURVEY WAS OBTAINED BY DIRECT FIELD MEASUREMENTS WITH A CALIBRATED ELECTRONIC 3–SECOND TOTAL STATION AND/OR SURVEY GRADE GPS OBSERVATIONS. ALL ANGULAR AND LINEAR RELATIONSHIPS ARE ACCURATE AND MEET THE STANDARDS SET BY WAC 332–130–090.

LEGEND

BENCHMARK	MAINTENANCE HOLE (AS NOTED)
CENTERLINE ROW	POWER HAND HOLE
FENCE LINE (CHAIN LINK)	POWER METER
FENCE LINE (WOOD)	POWER POLE
MONUMENT (IN CASE, FOUND)	POWER POLE W/ LIGHT
NAIL AS NOTED	POWER (OVERHEAD)
PROPERTY LINE (SUBJECT)	POWER (UNDERGROUND)
REBAR AS NOTED (FOUND)	POWER SENTRY
RETAINING WALL	POWER VAULT
RIGHT–OF–WAY LINES	TELEPHONE SENTRY
MAILBOX (RESIDENTIAL)	TELEPHONE (OVERHEAD)
DISABLED PARKING SPACE	TELEPHONE (UNDERGROUND)
BUILDING	TRAFFIC SIGNAL CABINET
BOL O BOLLARD	PEDESTRIAN SIGNAL
PST POST	AREA DRAIN
SIGN (AS NOTED)	CULVERT PIPE
SIZE TYPE TREE (AS NOTED)	INLET (TYPE 1)
HEDGE FOLIAGE LINE	STORM MANHOLE
ASPHALT SURFACE	STORM DRAIN LINE
CONCRETE SURFACE	CLEANOUT
FLAGSTONE SURFACE	SEWER MANHOLE
ROCKERY	SEWER LINE
HANDRAIL	FIRE DEPT CONNECTION
GAS METER	FIRE HYDRANT
GAS VALVE	WATER MARKER
GAS LINE	WATER METER
GUY ANCHOR	IRRIGATION CONTROL BOX
LIGHT POLE	WATER VALVE
LUM LUMINAIRE	WATER LINE

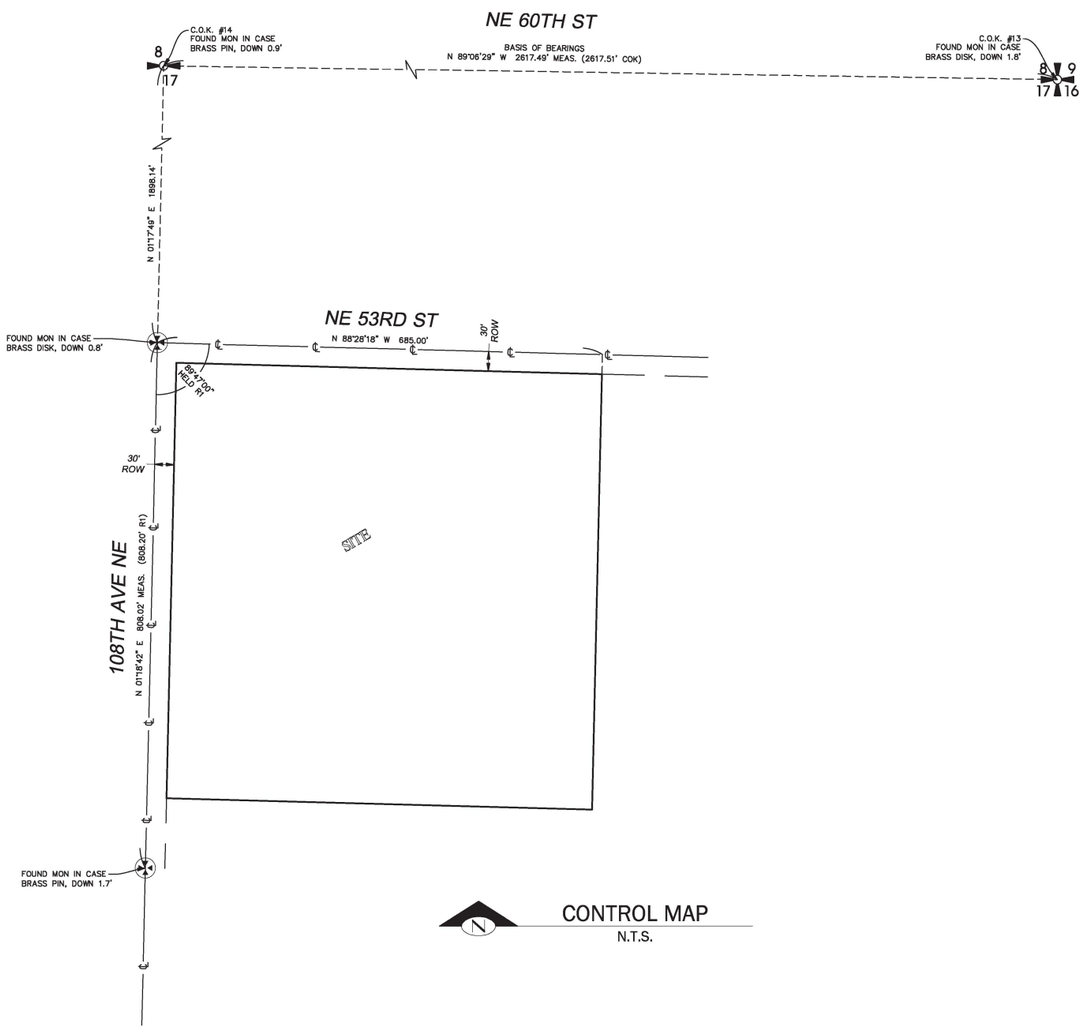
SCHEDULE B ITEMS

5. AN EASEMENT FOR UNDERGROUND ELECTRIC SYSTEM AND INCIDENTAL PURPOSES, RECORDED JUNE 7, 1982 AS 8206070481 OF OFFICIAL RECORDS.
IN FAVOR OF: PUGET SOUND POWER & LIGHT COMPANY
AFFECTS: AS DESCRIBED THEREIN
SAID INSTRUMENT IS A RE–RECORD OF RECORDING NO(S). 8203300380, RECORDED MARCH 30, 1982.
(AS CONSTRUCTED)

6. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "CONCOMITANT AGREEMENT RELATING TO CONSTRUCTION OR INSTALLATION OF PUBLIC IMPROVEMENTS" RECORDED MAY 4, 1983 AS 8305040442 OF OFFICIAL RECORDS.
(BLANKET IN NATURE)

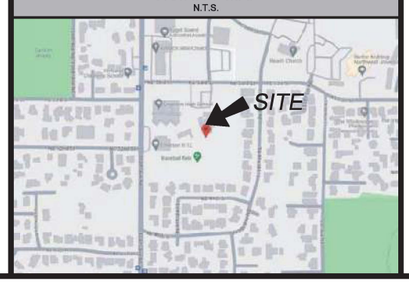
7. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "LICENSE TO ENTER PROPERTY" RECORDED OCTOBER 20, 1983 AS 8310200638 OF OFFICIAL RECORDS.
(BLANKET IN NATURE)

8. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "PRIVATE MAINTENANCE AGREEMENT FOR A STORMWATER FACILITY INCLUDING LOW IMPACT DEVELOPMENT (LID) FACILITY" RECORDED JUNE 2, 2014 AS 20140602001739 OF OFFICIAL RECORDS.
(BLANKET IN NATURE)



CONTROL MAP
N.T.S.

VICINITY MAP
N.T.S.



STEEP SLOPE/BUFFER DISCLAIMER:
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INDEXING INFORMATION
SW 1/4 NE 1/4
SECTION: 17
TOWNSHIP: 25N
RANGE: 05E, W.M.
COUNTY: KING

We are the measure | terrane.net

TOPOGRAPHIC & BOUNDARY SURVEY
PARCEL NO. 1725059195

LK WASHINGTON SCHOOL DIST #414
10903 NE 53RD ST
KIRKLAND, WA 98033

GOODMAN MILLER HOWARD — 9/30/25

TERRANE
11235 SE 6th St, Suite 130
Bellevue, WA 98004
p: 425-458-4488 | e: info@terrane.net

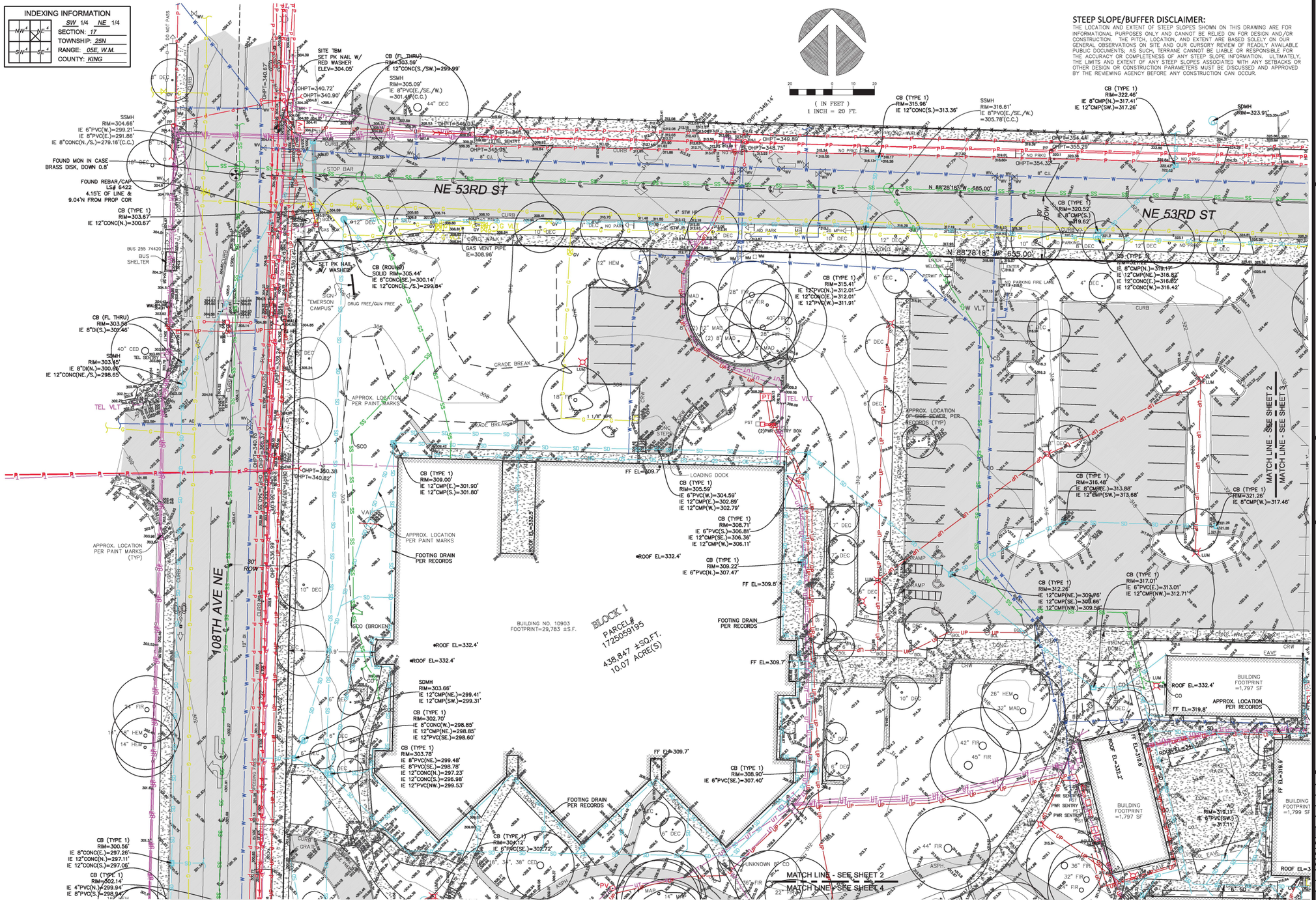
JOB NUMBER:	232031
DATE:	01/31/24
DRAFTED BY:	IDV / RPM
CHECKED BY:	JGM / DRT
SCALE:	N.T.S.

REVISION HISTORY

01/29/25	PER COMMENTS
02/21/25	PER COMMENTS
03/20/25	PER COMMENTS

SHEET NUMBER
1 OF 5

TOPOGRAPHIC & BOUNDARY SURVEY



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TOPOGRAPHIC & BOUNDARY SURVEY
PARCEL NO. 1725059195

LK WASHINGTON SCHOOL DIST #414
10903 NE 53RD ST
KIRKLAND, WA 98033

GOODMAN MILLER WASHINGTON STATE REGISTERED LAND SURVEYOR 22502 PROFESSIONAL LAND SURVEYOR 3/20/25

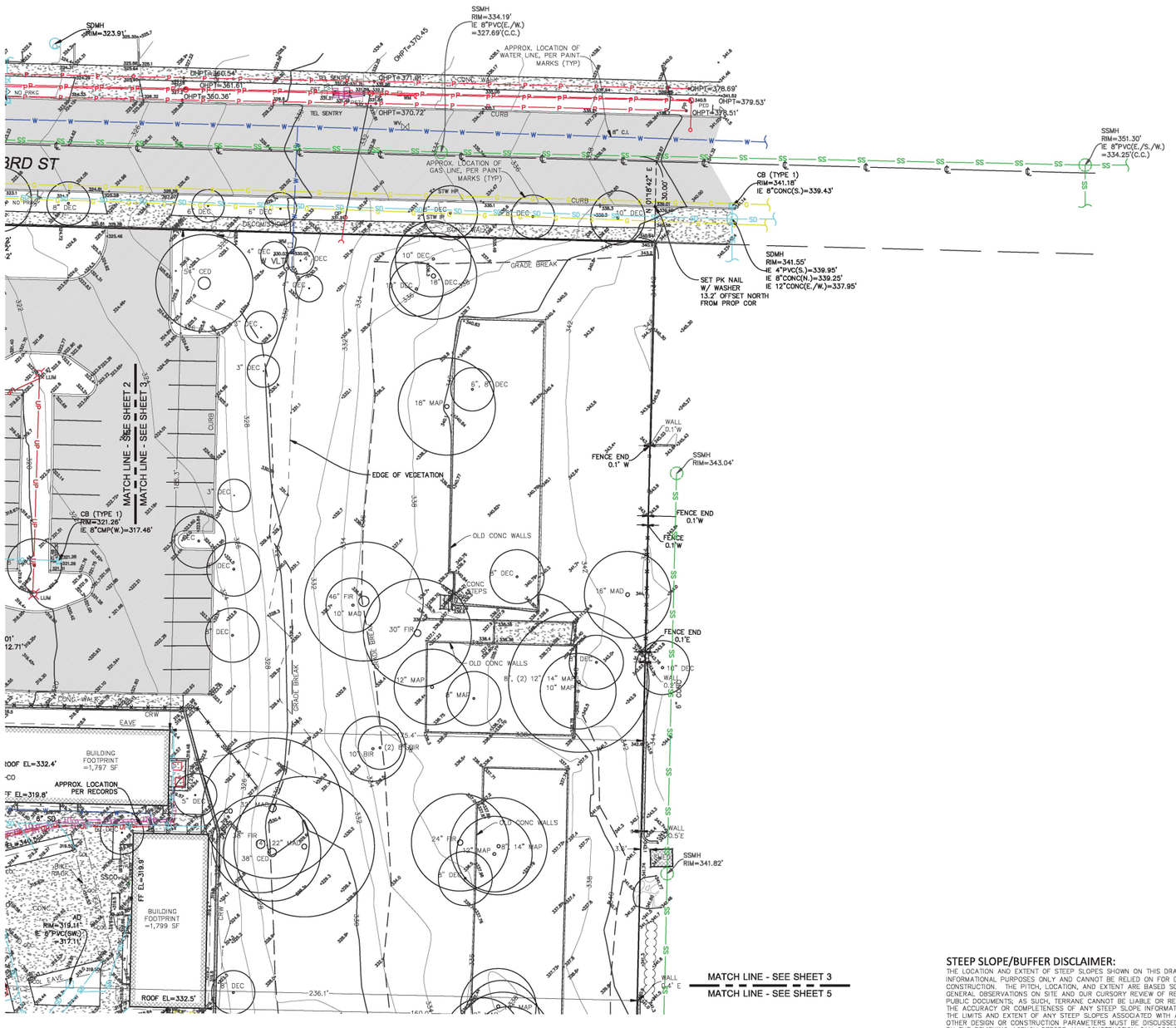
TERRANE
11235 SE 6th St, Suite 130
Bellevue, WA 98004
p: 425-436-4468 | e: info@terrane.net

JOB NUMBER:	232031
DATE:	01/31/24
DRAFTED BY:	IDV / RPM
CHECKED BY:	JGM / DRT
SCALE:	1"= 20'

REVISION HISTORY	
01/29/25	PER COMMENTS
02/21/25	PER COMMENTS
03/20/25	PER COMMENTS

SHEET NUMBER
2 OF 5

TOPOGRAPHIC & BOUNDARY SURVEY



MATCH LINE - SEE SHEET 3
MATCH LINE - SEE SHEET 5

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20 0 10 20
(IN FEET)
1 INCH = 20 FT.

INDEXING INFORMATION
SW 1/4 NE 1/4
SECTION: 17
TOWNSHIP: 25N
RANGE: 05E, W.M.
COUNTY: KING

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TOPOGRAPHIC & BOUNDARY SURVEY
PARCEL NO. 1725059195

LK WASHINGTON SCHOOL DIST #414
10903 NE 53RD ST
KIRKLAND, WA 98033

JACOB GOODMAN MILLER — REGISTERED PROFESSIONAL LAND SURVEYOR — 20135 — STATE OF WASHINGTON
5/10/25

TERRANE
11235 SE 6th St, Suite 130
Bellevue, WA 98004
p: 425 458 4888 | e: info@terrane.net

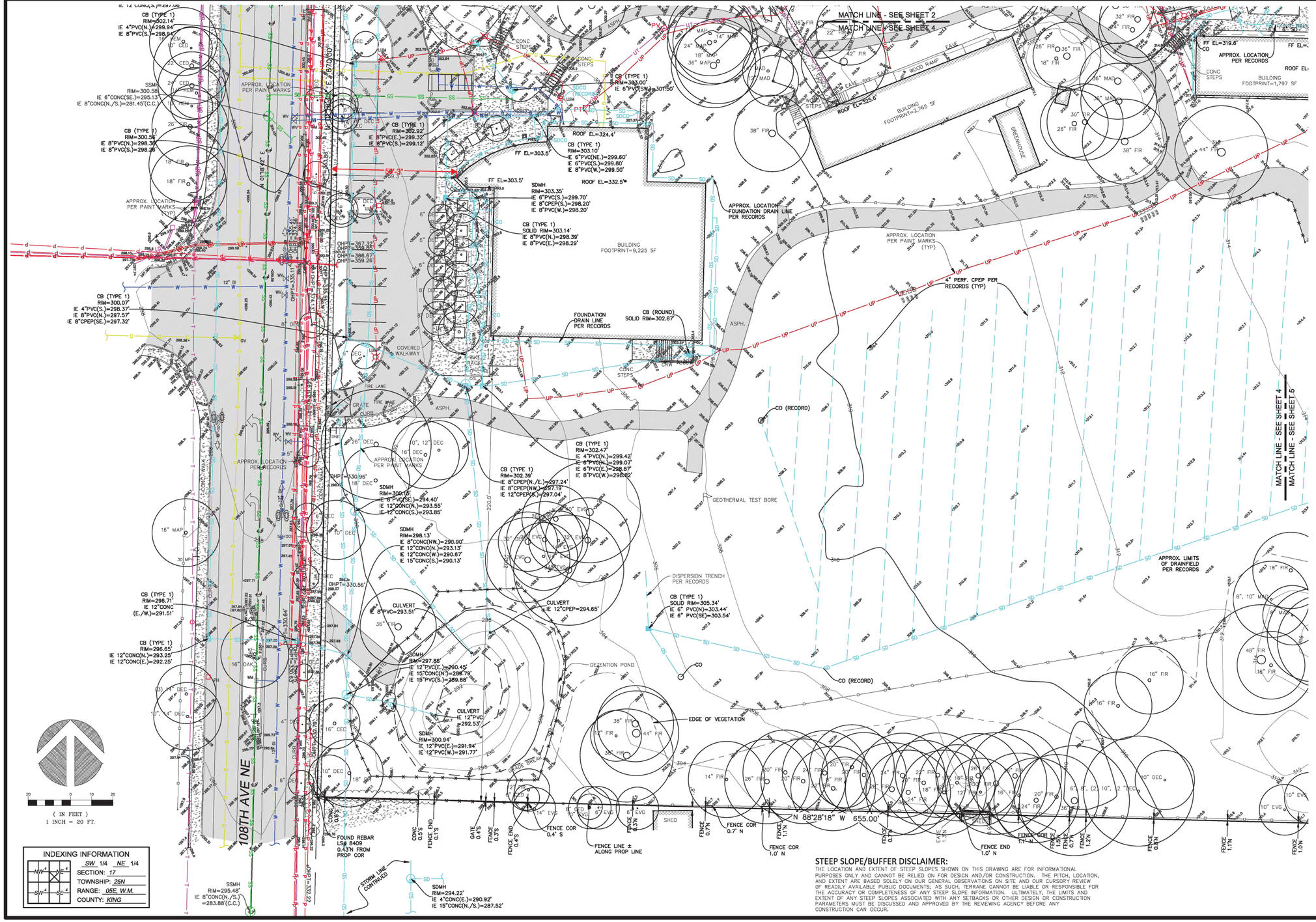
JOB NUMBER:	232031
DATE:	01/31/24
DRAFTED BY:	IDV / RPM
CHECKED BY:	JGM / DRT
SCALE:	1"= 20'

REVISION HISTORY

01/29/25	PER COMMENTS
02/21/25	PER COMMENTS
03/20/25	PER COMMENTS

SHEET NUMBER
3 OF 5

TOPOGRAPHIC & BOUNDARY SURVEY



INDEXING INFORMATION

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TOPOGRAPHIC & BOUNDARY SURVEY
PARCEL NO. 1725059195

LK WASHINGTON SCHOOL DIST #414
10903 NE 53RD ST
KIRKLAND, WA 98033

GOODMAN MILLER HUGHES 22581 STATE OF WASHINGTON REGISTERED PROFESSIONAL LAND SURVEYOR 5/10/25

TERRANE
11235 SE 6th St, Suite 130
Bellevue, WA 98004
p: 425-458-4488 | e: info@terrane.net

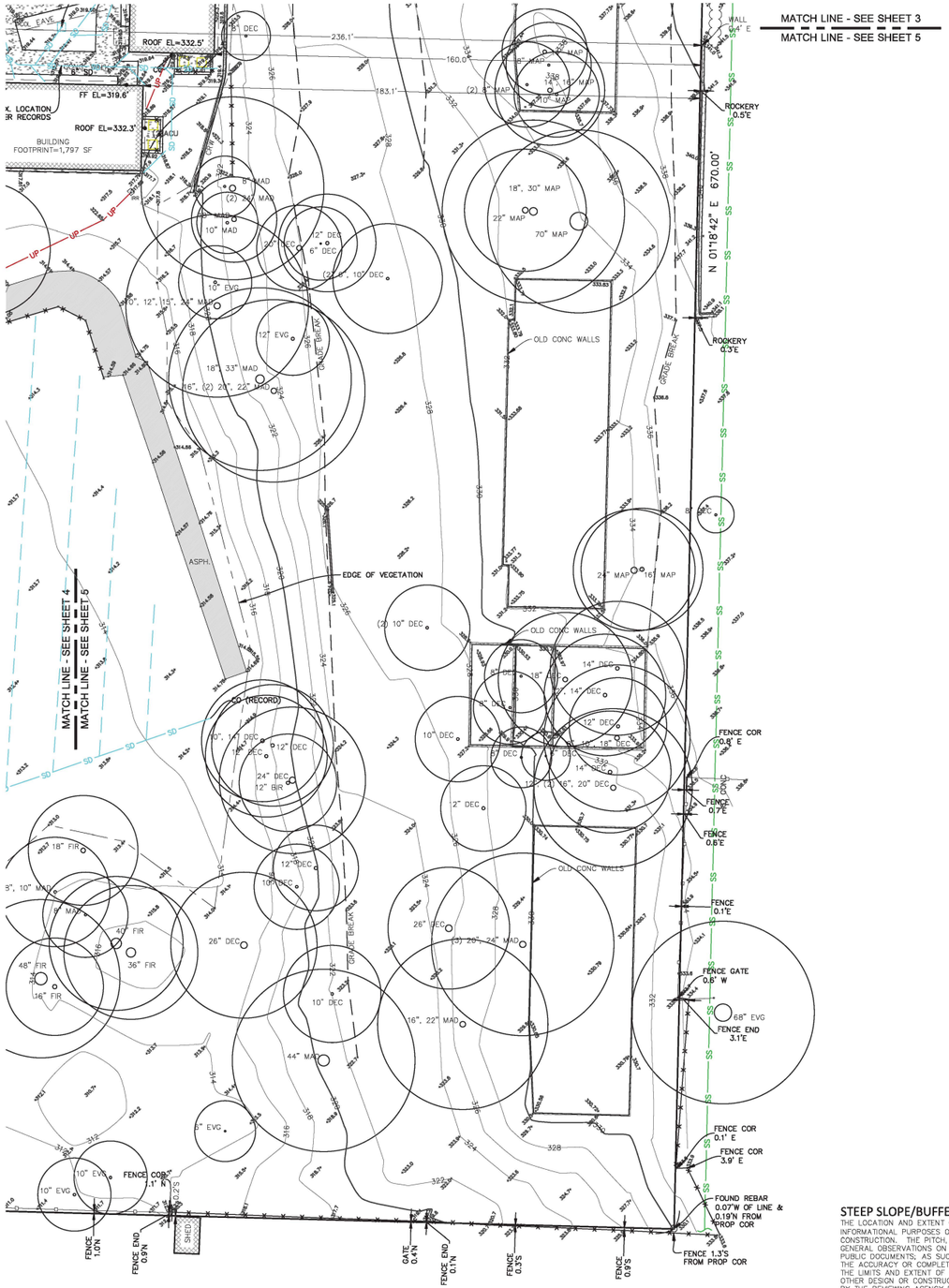
JOB NUMBER:	232031
DATE:	01/31/24
DRAFTED BY:	IDV / RPM
CHECKED BY:	JGM / DRT
SCALE:	1"= 20'

REVISION HISTORY

01/29/25	PER COMMENTS
02/21/25	PER COMMENTS
03/20/25	PER COMMENTS

SHEET NUMBER
4 OF 5

TOPOGRAPHIC & BOUNDARY SURVEY



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SECTION: 17
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We are the measure | terrane.net

TOPOGRAPHIC & BOUNDARY SURVEY
PARCEL NO. 1725059195

LK WASHINGTON SCHOOL DIST #414
10903 NE 53RD ST
KIRKLAND, WA 98033

GOODMAN MILLER JACOB WASHINGTON 20654 REGISTERED PROFESSIONAL LAND SURVEYOR
3/20/25

TERRANE
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Bellevue, WA 98004
p: 425-458-4488 | e: info@terrane.net

JOB NUMBER:	232031
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REVISION HISTORY

01/29/25	PER COMMENTS
02/21/25	PER COMMENTS
03/20/25	PER COMMENTS

SHEET NUMBER
5 OF 5

EMERSON SCHOOLS

KIRKLAND, WASHINGTON

SURVEY INFORMATION

SURVEY CONDUCTED BY TERRANE

LEGAL DESCRIPTION

(PER PRIVATE MAINTENANCE AGREEMENT RECORDING # 20140602001739)

N 670 FT OF W 655 FT OF POR OF SW 1/4 OF NE 1/4 LY S OF NE 53RD ST & E OF 108TH AVE NE.

BASIS OF BEARINGS

NAD 83(91) WASHINGTON NORTH STATE PLANE COORDINATES PER CITY OF KIRKLAND SURVEY CONTROL POINTS NO. 14 AND 13,
BEARS N 89°06'29" W BETWEEN FOUND MONUMENTS.

VERTICAL DATUM

NAVD 88 PER CITY OF KIRKLAND BENCHMARK ID# 14
DESCRIPTION: 1/4" BRASS PIN IN CONC MON IN CASE, .9' DEEP
LOCATION: 108TH AVE NE - NE 60TH ST
ELEVATION:266.756'

SITE TEMP. BENCHMARK
DESCRIPTION: SET PK NAIL W/ RED WASHER
LOCATION: NE QUAD OF INTX NE 53RD ST & 108TH AVE NE IN ASPHALT NEAR SIDEWALK RAMP
ELEVATION:304.05'

UTILITY PROVIDERS

WATER & SEWER
CITY OF KIRKLAND UTILITIES
123 5TH AVE
KIRKLAND, WA 98033
(425) 587-3800

POWER
PUGET SOUND ENERGY
355 110TH AVE NE
BELLEVUE, WA 98004
(888) 225-5773

NATURAL GAS
PUGET SOUND ENERGY
355 110TH AVE NE
BELLEVUE, WA 98004
(888) 225-5773

CITY OF KIRKLAND PUBLIC WORKS

INSPECTION REQUEST LINE
(425) 587-3805

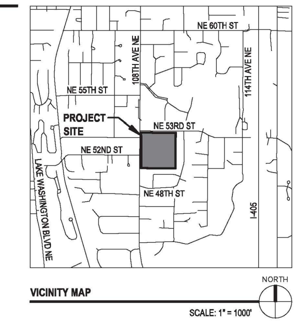
MAINTENANCE SPILL HOTLINE
(425) 587-3805

CIVIL ABBREVIATIONS

AVE	AVENUE
BMP	BEST MANAGEMENT PRACTICE
CB	CATCH BASIN
CO	CLEANOUT
COMM	TELECOMMUNICATION
CONC	CONCRETE
COK	CITY OF KIRKLAND
EG	EXISTING GRADE
EL/ELEV	ELEVATION
ELEC	ELECTRICAL
EV	ELECTRIC VEHICLE
EX/EXIST	EXISTING
FFE	FINISHED FLOOR ELEVATION
FG	FINISH GRADE
G	GAS
HORZ	HORIZONTAL
IE	INVERT ELEVATION
KC	KING COUNTY
LF	LINEAR FOOT
LID	LOW IMPACT DEVELOPMENT
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
PGIS	POLLUTION GENERATING IMPERVIOUS SURFACE
PIV	POST INDICATOR VALVE
POC	POINT OF CONNECTION
PSE	PUGET SOUND ENERGY
ROW	RIGHT OF WAY
SD	STORM DRAIN
SF	SQUARE FEET
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MAINTENANCE HOLE
SSS	SANITARY SIDE SEWER
ST	STREET
STD DTL	STANDARD DETAIL
TYP	TYPICAL
WQ	WATER QUALITY

LEGEND (EXISTING, PER PROJECT SURVEY)

BENCHMARK	MH MAINTENANCE HOLE (AS NOTED)
CENTERLINE ROW	PH POWER HAND HOLE
FENCE LINE (CHAIN LINK)	P POWER METER
FENCE LINE (WOOD)	PP POWER POLE
MONUMENT (IN CASE, FOUND)	PP POWER POLE W/ LIGHT
NAIL AS NOTED	P POWER (OVERHEAD)
PROPERTY LINE (SUBJECT)	UP POWER (UNDERGROUND)
REBAR AS NOTED (FOUND)	PWR SENTRY POWER SENTRY
RETAINING WALL	PV POWER VAULT
RIGHT-OF-WAY LINES	TEL SENTRY TELEPHONE SENTRY
MAILBOX (RESIDENTIAL)	T TELEPHONE (OVERHEAD)
DISABLED PARKING SPACE	UT TELEPHONE (UNDERGROUND)
BUILDING	TRAFFIC SIGNAL CABINET
BOL BOLLARD	PEDESTRIAN SIGNAL
PST POST	AREA DRAIN
SIGN (AS NOTED)	CULVERT PIPE
SIZE TYPE TREE (AS NOTED)	INLET (TYPE 1)
HEDGE FOLIAGE LINE	STORM MANHOLE
ASPHALT SURFACE	SD STORM DRAIN LINE
CONCRETE SURFACE	CO CLEANOUT
FLAGSTONE SURFACE	SEWER MANHOLE
ROCKERY	SS SEWER LINE
HANDRAIL	FIRE DEPT CONNECTION
G GAS METER	FIRE HYDRANT
GV GAS VALVE	WATER MARKER
G GAS LINE	WM WATER METER
GUY ANCHOR	IRR IRRIGATION CONTROL BOX
LIGHT POLE	WV WATER VALVE
LUM LUMINAIRE	W WATER LINE



VICINITY MAP

SCALE: 1" = 1000'

CIVIL SHEET INDEX

Call 811 two business days before you dig

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

ORIGINAL SHEET SIZE 36" x 48"

MITHUN

SEATTLE / Pier 56, 1201 Alaskan Way, #200
Seattle, WA 98101 / 206.623.3344

SAN FRANCISCO / 585 Howard Street, #300
San Francisco, CA 94105 / 415.956.0688

LOS ANGELES / 758 New High Street #100B
Los Angeles, CA 90012 / 323.937.2150

mithun.com

LEASE CRUTCHER LEWIS

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

NO.	DATE	REVISION

PRINCIPAL IN CHARGE
TJE
PROJECT MANAGER
AAS
PROJECT TEAM MEMBERS
KCD/IVG

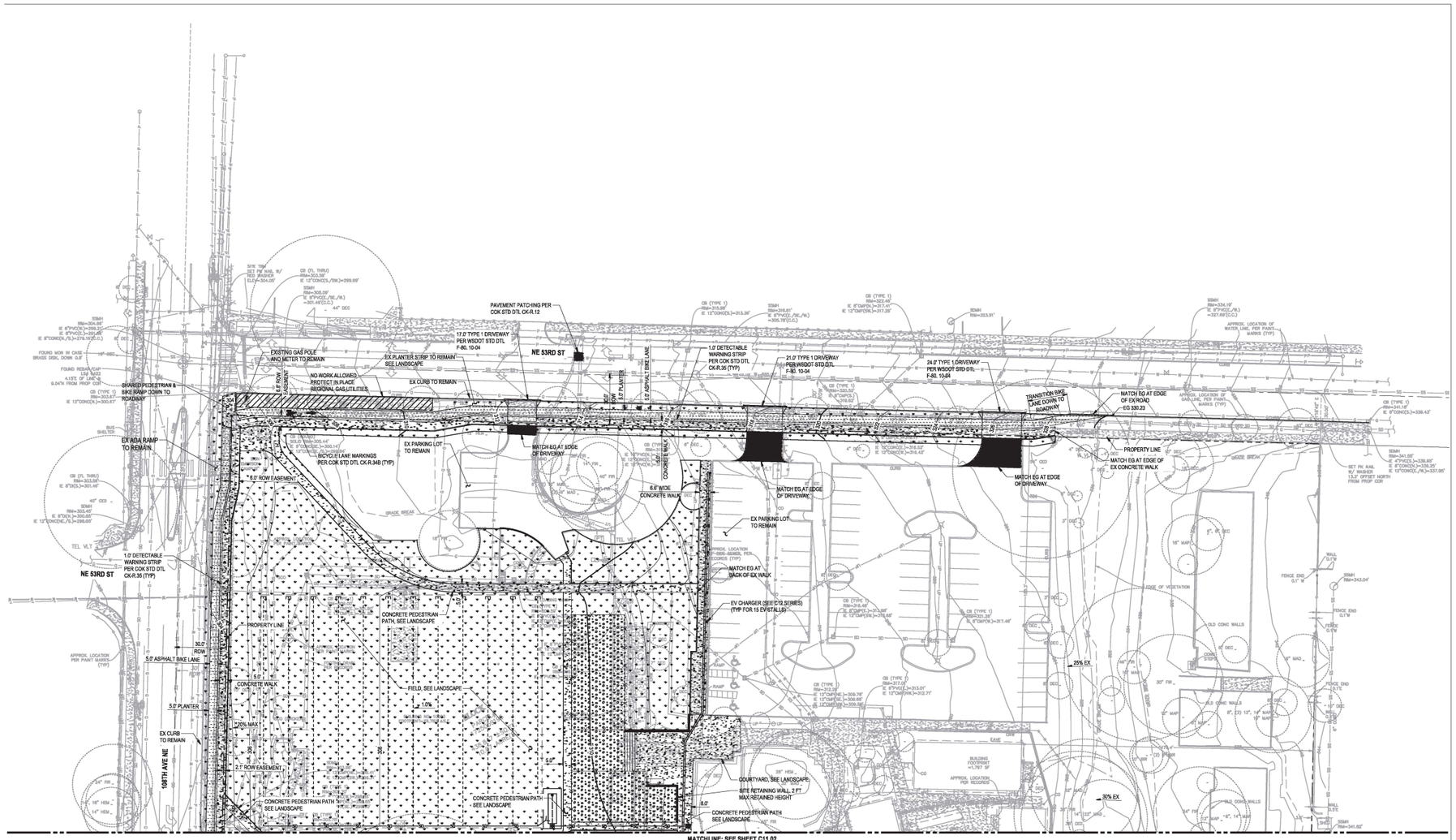
07/02/2025

FOR PERMIT ONLY
THIS DOCUMENT HAS BEEN PREPARED FOR PERMIT APPLICATION AND IS SUBJECT TO REVIEW AND MODIFICATION BY GOVERNMENTAL AGENCIES

TITLE
CIVIL GENERAL INFORMATION

KPFF PROJECT NO.
2400458
DATE
07/03/2025

SHEET NUMBER
C10.00
LAND USE PERMIT



MATCHLINE: SEE SHEET C11.02

NOTES

1. PROTECT ALL EXISTING UTILITIES UNLESS NOTED OTHERWISE. ADJUST ALL UTILITY VAULT LIDS AND RIMS TO FINISH GRADE FOR STRUCTURES TO REMAIN.
2. SEE C12 SERIES FOR STORM DRAINAGE AND UTILITY INFORMATION
3. SITE WILL BE GRADED TO DRAIN AWAY FROM STRUCTURES AND TOWARDS STORMWATER COLLECTION FACILITIES (I.E. CATCH BASINS, AREA DRAINS, ETC). GENERALLY, LANDSCAPE AREAS WILL BE GRADED AT 2% MINIMUM AND 3:1 MAXIMUM AND PAVEMENT AREAS WILL BE SLOPED WITH A MAXIMUM 1.8% CROSS SLOPE AND MAXIMUM 4.8% RUNNING SLOPE. STEEPER WALKWAY RUNNING SLOPES WILL FOLLOW ADA RAMPING REQUIREMENTS.
4. FIELD WILL BE SLOPED AT A NOMINAL 1% GRADE WITH DRAINAGE PROVIDED VIA SUBSURFACE DRAINS.
5. SEE LANDSCAPE PLANS FOR TREE PROTECTION INFORMATION.

LEGEND

- PROPERTY LINE
- RIGHT OF WAY CENTERLINE
- PROPOSED BUILDING
- CURB PER COK STD DTL CK-R.17C
- 360 — MAJOR CONTOUR
- 358 — MINOR CONTOUR
- CONCRETE WALK PER COK STD DTL CK-R.23
- HEAVY TRAFFIC 4" ASPHALT
- LIGHT TRAFFIC 3" ASPHALT
- PLANTING AREA, SEE LANDSCAPE
- CRUSHED WALK, SEE LANDSCAPE
- XX.XX — SPOT ELEVATION
- XX% — SLOPE
- NO WORK ALLOWED PROTECT IN PLACE REGIONAL GAS UTILITIES

KEY MAP
NTS

NORTH

0 10' 20' 40'
1 inch = 20 feet

811 Call 811 two business days before you dig

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NOT FOR CONSTRUCTION

MITHŪN
SEATTLE | Pier 56, 1201 Alaskan Way, #200, Seattle, WA 98101 | 206.623.3344
SAN FRANCISCO | 995 Howard Street, #310, San Francisco, CA 94103 | 415.840.3060
LOS ANGELES | 733 Yale High Street #1928, Los Angeles, CA 90012 | 323.837.2700
mithun.com

LEASE CRUTCHER LEWIS

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

DATE	BRIEF
NO.	NOTE / MODIFICATION

PRINCIPAL IN CHARGE
TJE
PROJECT MANAGER
AAS
PROJECT TEAM MEMBERS
KCD/RVG

07/02/2025

FOR PERMIT ONLY

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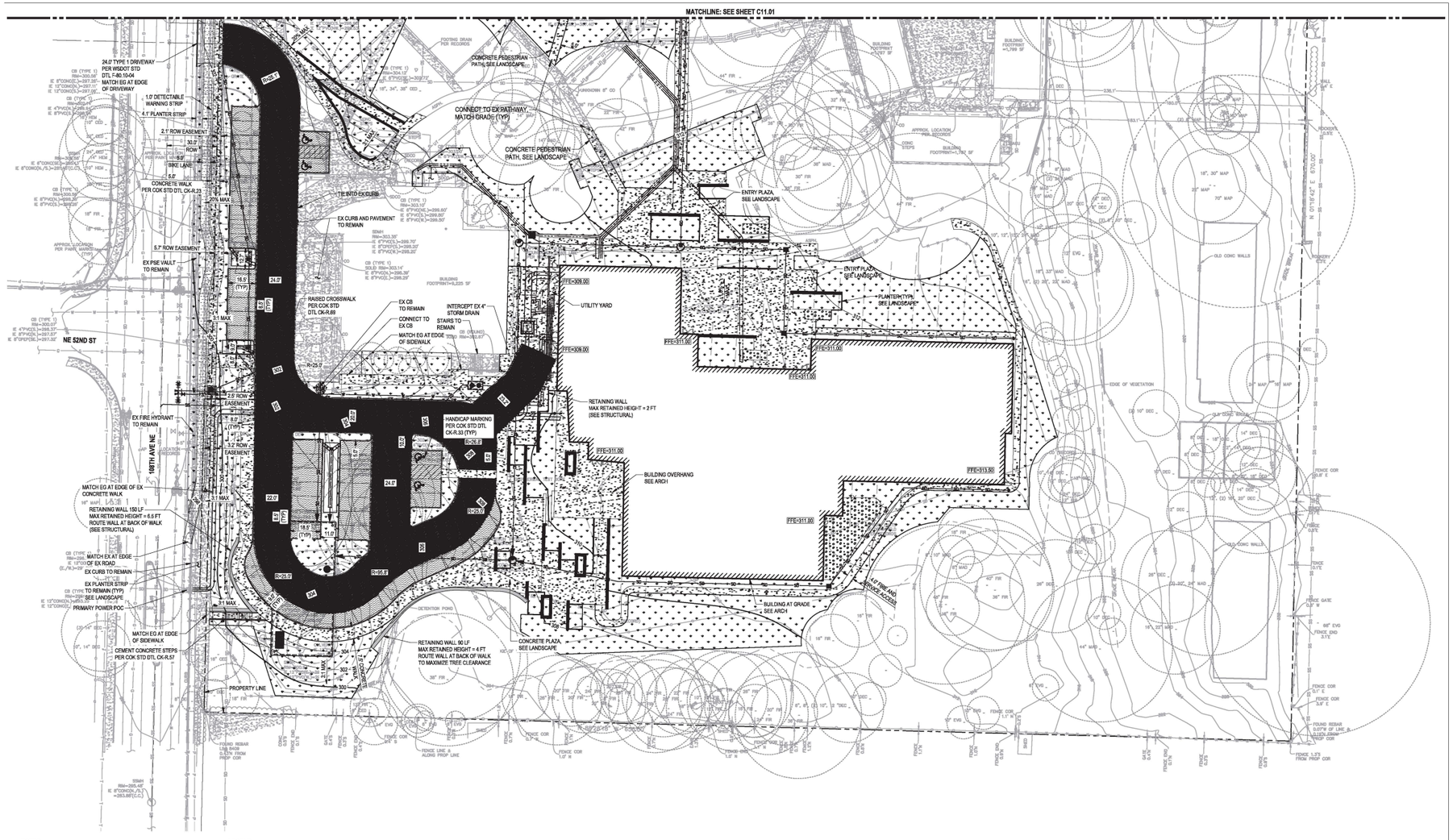
TITLE
PRELIMINARY GRADING AND PAVING PLAN

MITHŪN PROJECT NO.
2400458

DATE
07/03/2025

SHEET NUMBER
C11.01

LAND USE PERMIT



NOTES

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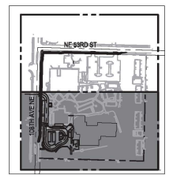
4. FIELD WILL BE SLOPED AT A NOMINAL 1% GRADE WITH DRAINAGE PROVIDED VIA SUBSURFACE DRAINS.
5. SEE LANDSCAPE PLANS FOR TREE PROTECTION INFORMATION.

LEGEND

- PROPERTY LINE
- RIGHT OF WAY CENTERLINE
- PROPOSED BUILDING
- CURB PER COK STD DTL CK-R.17C
- 360 — MAJOR CONTOUR
- 358 — MINOR CONTOUR
- CROSSWALK PER COK STD DTL CK-R.28
- CONCRETE WALK PER COK STD DTL CK-R.23
- HEAVY TRAFFIC 4" ASPHALT
- LIGHT TRAFFIC 3" ASPHALT
- PLANTING AREA, SEE LANDSCAPE
- CRUSHED WALK,SEE LANDSCAPE
- XXX.XX SPOT ELEVATION
- X.XX% SLOPE



KEY MAP
NTS

NORTH

0 10' 20' 40'
1 inch = 20 feet

Call 811 two business days before you dig

FOR REFERENCE ONLY
NOT FOR CONSTRUCTION

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kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

NO.	DATE	REMARK

PRINCIPAL IN CHARGE
TJE
PROJECT MANAGER
AAS
PROJECT TEAM MEMBER
KCD/DVG

07/02/2025

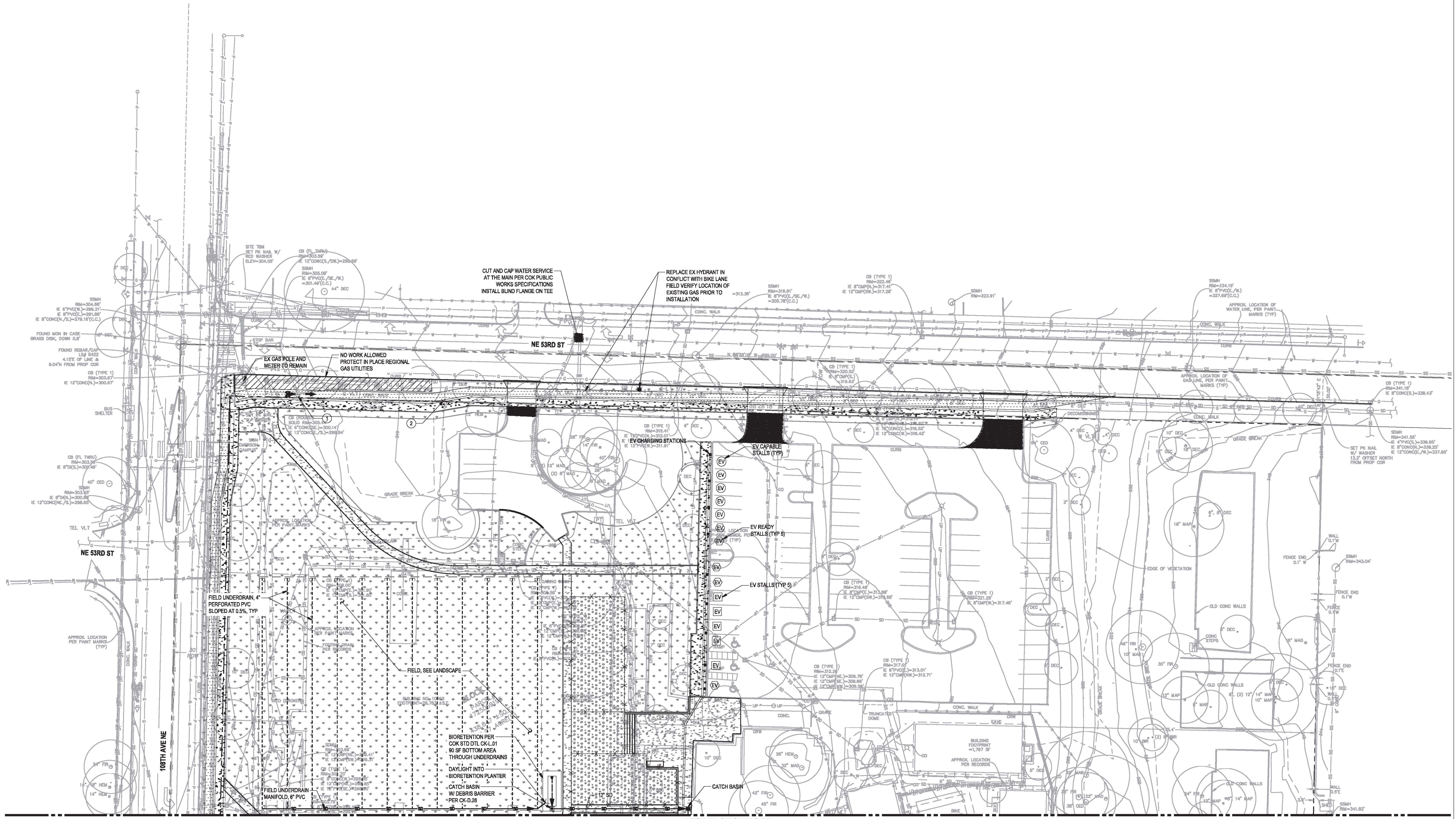
FOR PERMIT ONLY
THIS DOCUMENT HAS BEEN PREPARED FOR PERMIT APPLICATION AND IS SUBJECT TO REVIEW AND MODIFICATION BY GOVERNMENTAL AGENCIES

TITLE
PRELIMINARY GRADING AND PAVING PLAN

MITHUN PROJECT NO.
2400458
DATE
07/03/2025

SHEET NUMBER
C11.02
LAND USE PERMIT

ORIGINAL SHEET SIZE: 24" x 36"



NOTES

1. SEE C11.00 SERIES FOR STORM DRAINAGE PLAN.
2. SEE LANDSCAPE PLANS FOR TREE PROTECTION INFORMATION.
3. PROTECT ALL EXISTING UTILITIES UNLESS NOTED OTHERWISE. ADJUST ALL UTILITY VAULT LIDS AND RIMS TO FINISH GRADE FOR STRUCTURES TO REMAIN.
4. THE GRASS FIELD HAS BEEN DESIGNED AS A SEPARATE STORMWATER UNDERDRAIN AND FLOW CONTROL SYSTEM. THAT FLOW CONTROL VAULT MUST BE SET SO BOTTOM ELEVATION IS WITHIN THE OUTWASH SOIL LAYER. DIMENSIONS AND MATERIALS:
5. EXISTING FLOW SPLITTER WILL BE MAINTAINED TO MITIGATE RUNOFF FROM NORTHSTAR MIDDLE SCHOOL AND 0.25 ACRES OF NE 53RD ST ROW.
6. ELECTRICAL AND COMM SERVICES ROUTING IS SHOWN FOR REFERENCE ONLY.

LEGEND

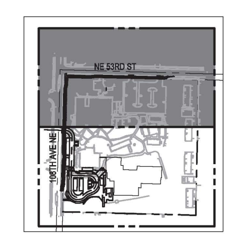
- PROPERTY LINE
- RIGHT OF WAY CENTERLINE
- PROPOSED BUILDING
- DOMESTIC WATER SERVICE
- FIRE SERVICE
- SANITARY SEWER
- STORM DRAIN
- NATURAL GAS
- FIRE HYDRANT PER COK STD DTL W.14
- POST INDICATOR VALVE
- NO WORK ALLOWED PROTECT IN PLACE REGIONAL GAS UTILITIES
- MAINTENANCE HOLE PER COK STD DTL CK-S.09
- CLEANOUT PER COK STD DTL CK-S.17
- TYPE 1 CATCH BASIN PER COK STD DTL CK-D.07
- ELECTRIC VEHICLE STALL
- ELECTRIC VEHICLE READY STALL
- ELECTRIC VEHICLE CAPABLE STALL

FLAG NOTES

1. CUT AND CAP UTILITY SERVICE PER COK STANDARDS
2. CUT AND CAP UTILITY SERVICE BY PSE

STORMWATER NOTES

1. THE PROJECT PROPOSES MORE THAN 5,000 SF OF NEW PLUS REPLACED IMPERVIOUS SURFACES, THEREFORE, THE PROJECT WILL COMPLY WITH CORE REQUIREMENT #3: FLOW CONTROL, USING AN INFILTRATING DETENTION VAULT. A PRELIMINARY DESIGN INFILTRATION RATE OF 2 IN/HR IS USED.
2. THE PROJECT PROPOSES MORE THAN 5,000 SF OF PGIS, THEREFORE THE PROJECT WILL COMPLY WITH CORE REQUIREMENT #8: WATER QUALITY, USING BIORETENTION.
3. THE PROJECT PROPOSED MORE THAN 2,000 SF OF NEW PLUS REPLACED IMPERVIOUS SURFACES, THEREFORE THE PROJECT WILL COMPLY WITH CORE REQUIREMENT #9: FLOW CONTROL BMPS, BY MEETING THE LID CRITERIA THROUGH THE INFILTRATING DETENTION VAULT.



KEY MAP
NTS

NORTH

1 inch = 20 feet

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ORIGINAL SHEET SIZE 36" x 48"

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PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

PRINCIPAL IN CHARGE
TJE
PROJECT MANAGER
AAS
PROJECT TEAM MEMBERS
KCD/IVG

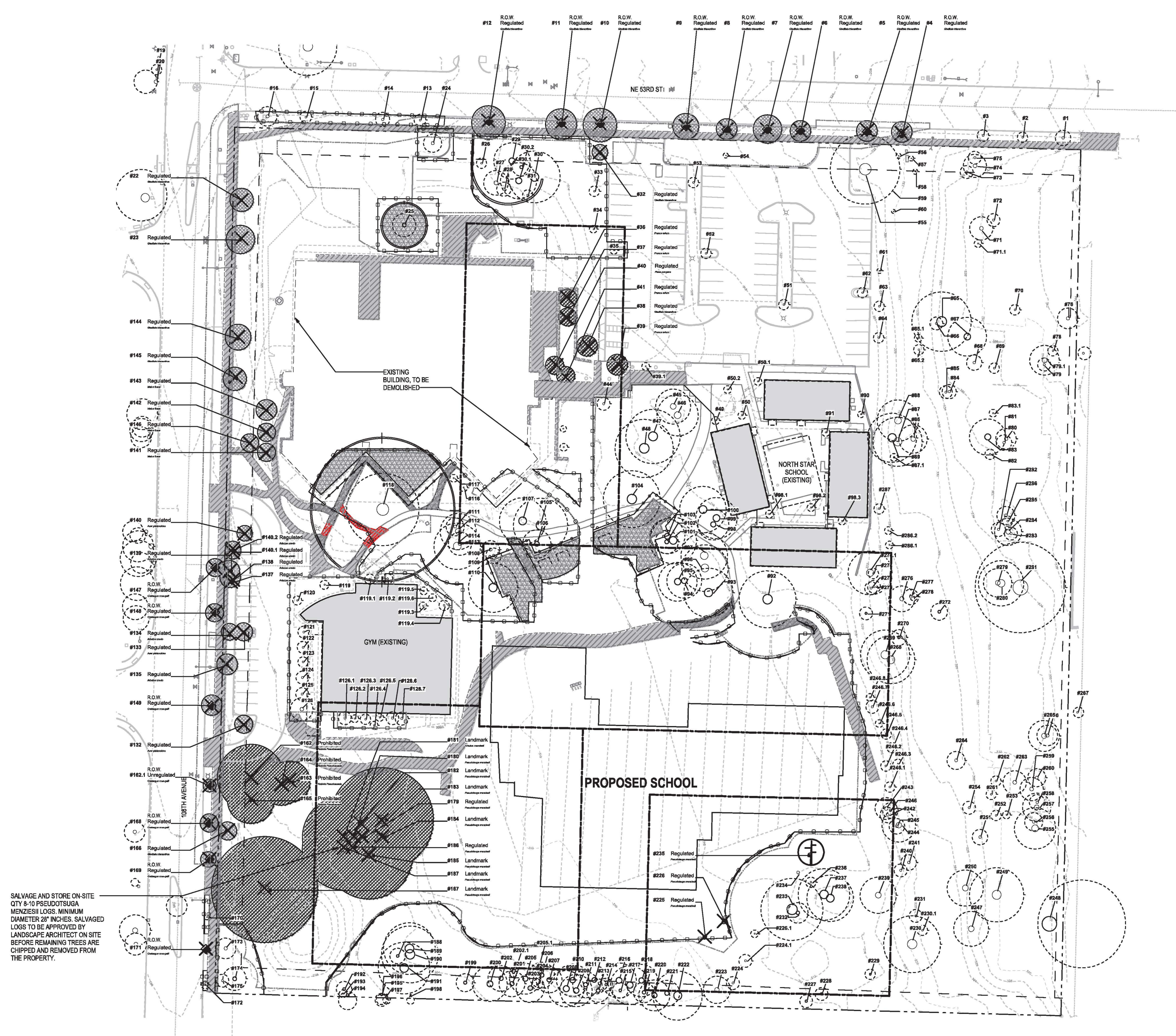
THADDEUS J. EGGING STATE OF WASHINGTON 42764 REGISTERED PROFESSIONAL ENGINEER
07/02/2025

FOR PERMIT ONLY
THIS DOCUMENT HAS BEEN PREPARED FOR PERMIT APPLICATION AND IS SUBJECT TO REVIEW AND MODIFICATION BY GOVERNMENTAL AGENCIES

TITLE
PRELIMINARY UTILITY AND DRAINAGE PLAN

KPFF PROJECT NO.
2400458
DATE
07/03/2025

SHEET NUMBER
C12.01
LAND USE PERMIT



SALVAGE AND STORE ON-SITE QTY 8-10 PSEUDOTSUGA MENZIESII LOGS. MINIMUM DIAMETER 28" INCHES. SALVAGED LOGS TO BE APPROVED BY LANDSCAPE ARCHITECT ON SITE BEFORE REMAINING TREES ARE CHIPPED AND REMOVED FROM THE PROPERTY.

1 TREE RETENTION PLAN
1" = 30'-0"

LEGEND

TREE TO REMAIN:

- TREE SURVEY NUMBER
- TREE PROTECTION, EXTENT OF CRITICAL ROOT ZONE (CRZ)
- TREE TRUNK

TREE TO REMOVE:

STREET TREE (R.O.W.)

- TREE SURVEY NUMBER
- TREE PROTECTION CATEGORY
- TREE BOTANICAL NAME
- TREE DRIP LINE

ON-SITE TREE

- TREE SURVEY NUMBER
- TREE PROTECTION CATEGORY
- TREE BOTANICAL NAME
- TREE DRIP LINE

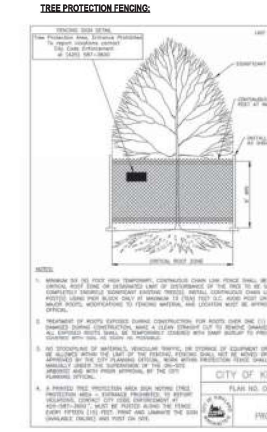
- CONVERSION OF TREE TO HABITAT SNAG
- APPLY IRRIGATION AND 4" MULCH, PRIOR TO AND DURING DEMOLITION
- TREE PROTECTION FENCING, TO OCCUR DURING BUILDING DEMO, SEE DETAIL BELOW
- TREE PROTECTION FENCING, TO UPDATE TO LARGER FENCE LINE, POST-BUILDING DEMO.
- PATHS TO BE DEMOLISHED
- EXISTING TREE ROOT AND SOIL ENHANCEMENTS AS DIRECTED BY ARBORIST, INCLUDING 3-4" ARBORIST WOOD CHIPS, TEMPORARY FERTILIZATION, IRRIGATION AND ROOT PRUNING.
- TEMPORARY ACCESS FOR PATH DEMO, TIMING AND EQUIPMENT ACCESS TO BE COORDINATED WITH ARBORIST APPROVAL
- SETBACK
- LIMIT OF WORK
- PROPERTY LINE

NOTE:
1. TREE INVENTORY OF PROTECTION CATEGORY, DENSITY CREDIT CALCULATIONS AND REPLACEMENT REQUIREMENTS PER ARBORIST REPORT, PREPARED BY LAND MEETS WATER, JUNE 2025.
2. ALL DESIGNATED TREES TO BE RETAINED MUST BE PROMINENTLY MARKED AND FENCED, AND THE TREE FENCING INSPECTION SHALL BE COMPLETED AND SIGNED OFF BY THE PLANNING DEPARTMENT PRIOR TO ISSUANCE OF THE BUILDING PERMIT. CALL 425-587-3225 TO SCHEDULE INSPECTION, AND ALLOW 2 DAYS TIME FOR THIS INSPECTION TO BE COMPLETED AND SIGNED OFF.
3. SEE L4.01 FOR TREE REPLACEMENT SCHEDULE.
4. DEMOLITION WITHIN TREE CRITICAL ROOT ZONE OR WITHIN TREE PROTECTION FENCING BOUNDARY TO BE PERFORMED UNDER OBSERVATION AND GUIDANCE OF ARBORIST.

TREE MITIGATION SCHEDULE

LOCATION	TYPE	MITIGATION REQUIREMENT	# TREES REMOVED	# TREES TO REPLACE
ON-SITE	LANDMARK	3:1 REPLACEMENT	8	24
ON-SITE	REGULATED	NO MITIGATION NEEDED. ON-SITE TREE CANOPY CREDITS ARE ABOVE KIRKLAND CANOPY DENSITY REQUIREMENTS. *REQUIRED CANOPY DENSITY = 98* *TREE CANOPY PER ARBORIST = 1,119*	34	0
ROW	REGULATED	1:1 REPLACEMENT	16	16
	TOTAL		58	40

TREE PROTECTION FENCING:



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LEASE CRUTCHER LEWIS

PROJECT
EMERSON SCHOOLS

LOCATION
5128 108TH AVE NE KIRKLAND, WA 98033

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

NO. DATE REVISION

PARTNER IN CHARGE JW
PROJECT MANAGER SK
PROJECT LANDSCAPE ARCHITECT CR
PROJECT TEAM MEMBER LL
CHECK

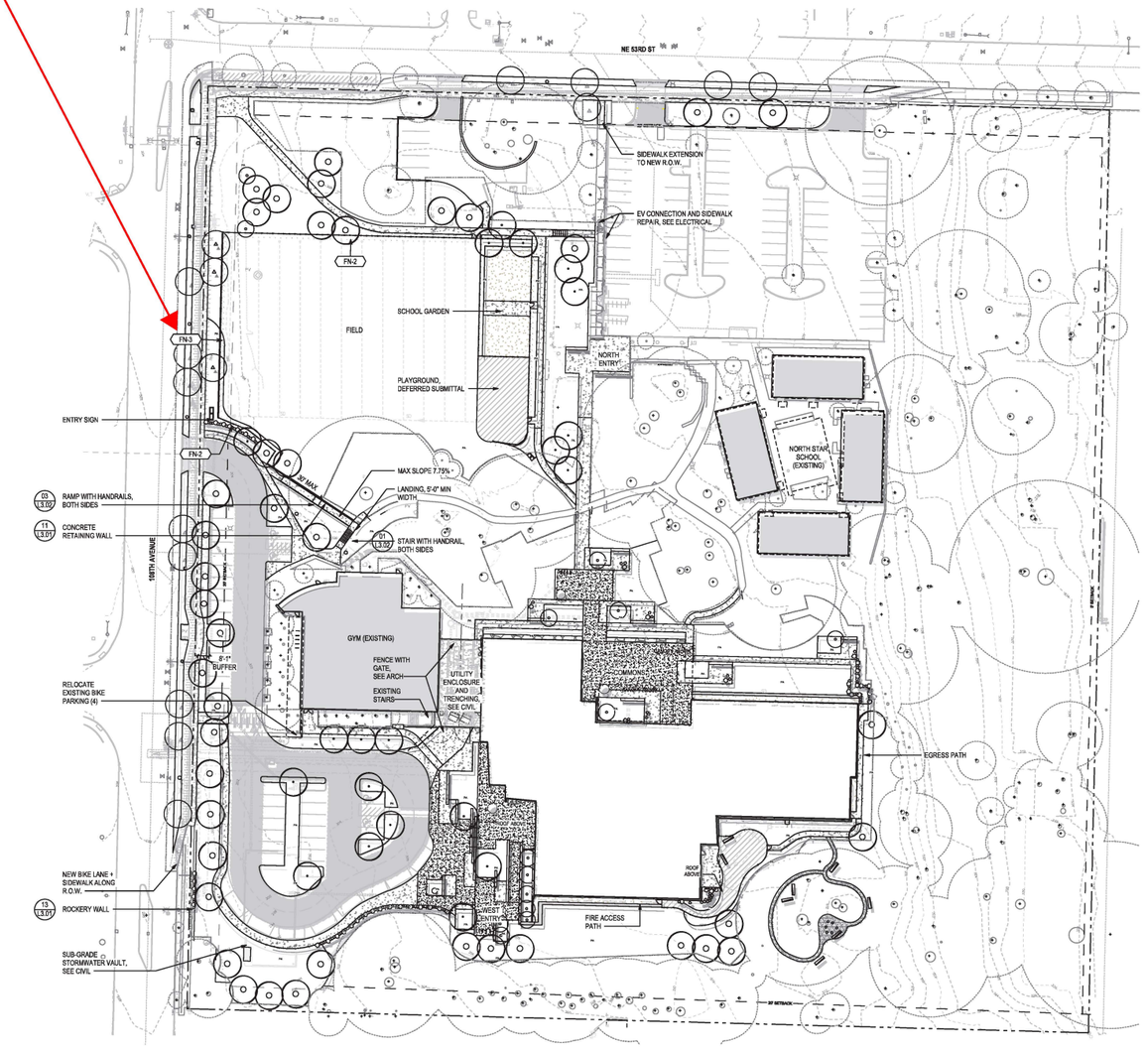
TITLE
TREE RETENTION PLAN

PROJECT NO.
2422400
DATE
12/23/2025

SHEET NUMBER
L0.01
PERMIT

NOT FOR CONSTRUCTION

12/23/2025 2:50:36 PM



1 OVERALL SITE PLAN
1" = 30'-0"

SITE PLAN LEGEND

SYMBOL	TYPE	DESCRIPTION
	CP-1A	BROOM FINISH CONC
	CP-1B	LIGHT EXPOSED AGGREGATE CONC
	CP-1C	HEAVY EXPOSED AGGREGATE CONC
	CR	CRUSHED ROCK SURFACING
	CS	COMPACTED DIRT TRAIL
	CU	2X2 PRECAST CONC PAVERS
	FN-1	4' H SPLIT RAIL FENCE W/EMBEDDED POSTS
	FN-2	6' H FENCE WITH PADDED TOP
	FN-3	6' H FENCE W/ 15'H NETTING
	PS	PLAYGROUND FALL ATTENUATION SURFACING
	SF-1	SITE BOULDERS, WEATHERED GRANITE W/FLAT TOPS, 2-3 MAN
	SF-2	SALVAGED LOG
	SF-3	PRECAST CONC BENCH
	SF-4	BIKE RACK
	SR	SPLASH ROCK
	SR-1	METAL HANDRAIL
	SW-1	ROCKERY WALL
	SW-2	METAL PLANTER WALL
	SW-3	CONCRETE RETAINING WALL
	SW-4A	CONCRETE SEAT WALL - 18" W
	SW-4B	CONCRETE SEAT WALL - 24" W
		SITE LIGHTING, SEE ELECTRICAL
		RELOCATED EXISTING FLAGPOLE
		ENTRYWAY SIGN
PA		PLANTING AREA
		TREE PROTECTION, EXTENT OF CRITICAL ROOT ZONE (CRZ)
		EXISTING TREE TRUNK
		PROPOSED TREE, SEE PLANTING PLAN
		(E) PAVING TO REMAIN
		(E) SITE WALL TO REMAIN
		EXISTING CONTOUR 2'
		SETBACK
		PROPERTY LINE
		LIMIT OF WORK

NOT FOR CONSTRUCTION

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PROJECT
EMERSON SCHOOLS

LOCATION
5128 108TH AVE NE
KIRKLAND, WA 98033

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

NO.	DATE	DESCRIPTION
1	10.17.2025	ADDENDUM 1

DRAWN IN CHARGE
JW
PROJECT MANAGER
SK
PROJECT LANDSCAPE ARCHITECT
CS
PROJECT TEAM MEMBERS
LL
CHECK

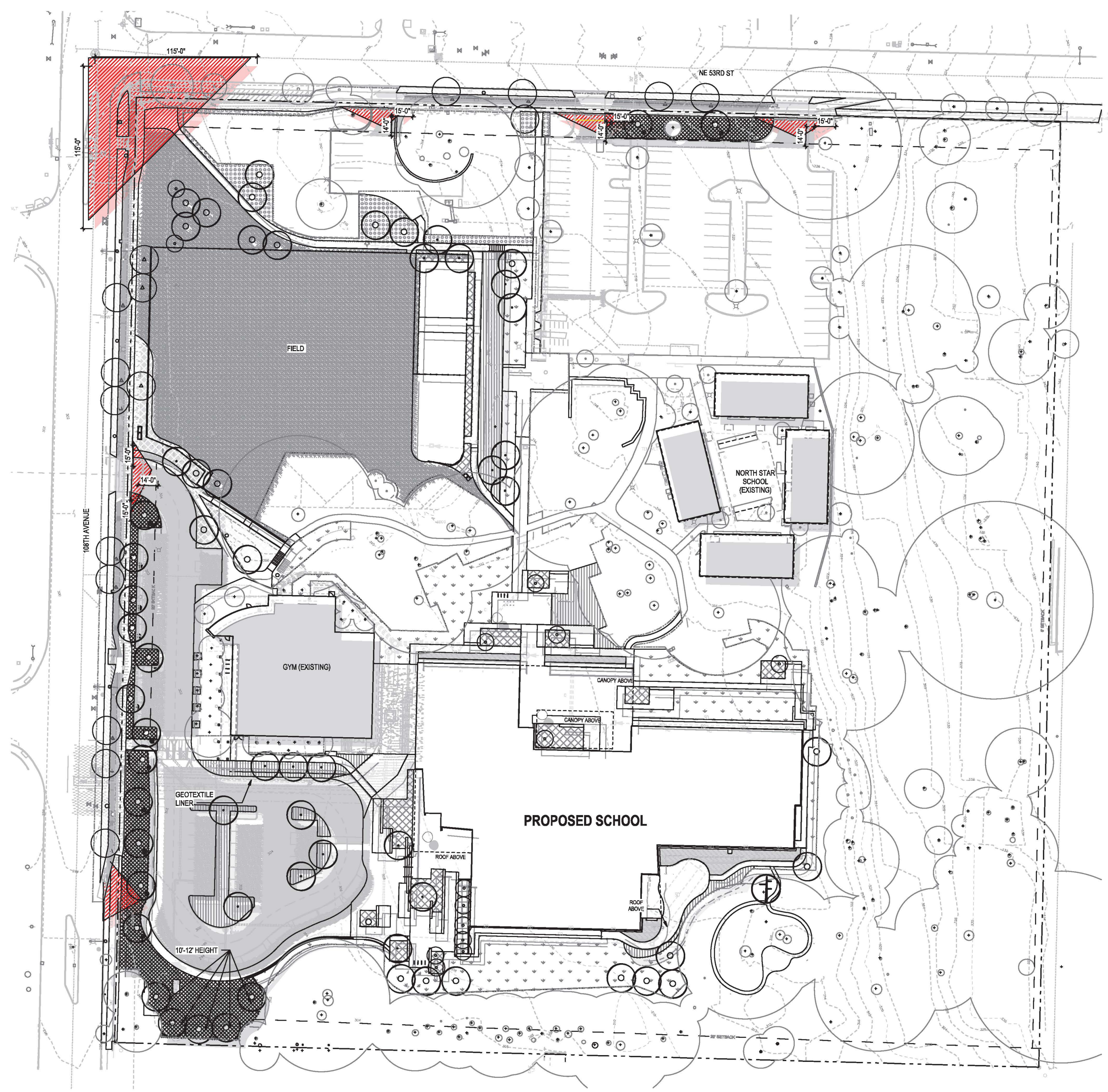
STATE OF WASHINGTON · DOROTHY K. PAM · 21158 · REGISTERED LANDSCAPE ARCHITECT

TITLE
OVERALL SITE PLAN

PROJECT NO.
2422400
DATE
12/23/2025

SHEET NUMBER
L1.00
PERMIT

12/23/2025 2:51:31 PM



1 PLANTING PLAN
1" = 30'-0"

LEGEND

TREE LEGEND

TREE TYPE	# TREES TO REPLACE PER KCZ CODE	# TREES TO BE PLANTED	REPLACEMENT TYPE
LANDSCAPE BUFFER	-	15	2" CAL MIN (BROADLEAF), 6'H CONIFER, 50% EVERGREEN
LANDMARK TREE MITIGATION	24	27	2" CAL MIN (BROADLEAF), 6' H (CONIFER); (5) AT 10'-12' H
SITE TREE - M/L	-	20	2" CAL MIN.
SITE TREE - SM	-	14	2" CAL MIN.
STREET TREE (ROW)	16	16	2" CAL MIN (BROADLEAF), 6' H (CONIFER)
	40	92	

NOTE:
1. SEE L0.01 FOR CALCULATIONS ON REQUIRED NUMBER OF TREES TO REPLACE, PER KCZ CODE.
2. LANDMARK MITIGATION TREES TO BE SELECTED FROM KIRKLAND LANDMARK TREE SPECIES MITIGATION LIST.
3. STREET TREES TO BE SELECTED FROM KIRKLAND APPROVED STREET TREE LIST, AS SMALL-SCALE TREES TO OCCUR UNDER/NEAR UTILITY LINES, FEATURING NO BRANCHING BELOW 5'H.

PLANTING LEGEND

BUF / FRO — PLANTING TYPE 1: BUFFER + FRONTAGE

Botanical Name	Common Name	Size	Spacing O.C.	Qty
Achillea millifolium	YARROW	1g	18"	251
Carex densa	DENSE SEDGE	1g	18"	614
Cornus sanguinea 'midwinter fire'	BLOODTWIG DOGWOOD	3g	36"	182
Deschampsia cespitosa	TUFTED HAIRGRASS	1g	18"	546
Gaultheria shallon	SALAL	1g	24"	182
Mahonia nervosa	DWARF OREGON GRAPE	2g	36"	182
Mahonia repens	CREEPING MAHONIA	1g	24"	273
Potentilla fruticosa	BUSH CINQUEFOIL	1g	24"	91
Rosa gymnocarpa	BALDHIP ROSE	1g	24"	1228
Spiraea splendens	ROSY SPIRAEA	2g	24"	273
Symphoricarpos albus	SNOWBERRY	3g	36"	91

STR — PLANTING TYPE 2: LANDSCAPE STRIP

Botanical Name	Common Name	Size	Spacing	Qty
Arctostaphylos uva-ursi	KINNIKINNICK	3g	18"	1496
Cornus stolonifera	BUNCHBERRY	1g	24"	2243
Deschampsia cespitosa	TUFTED HAIRGRASS	1g	18"	1870
Mahonia (Berberis) nervosa	LOW OREGON GRAPE	2g	24"	2243

PKG — PLANTING TYPE 3: PARKING

Botanical Name	Common Name	Size	Spacing O.C.	Qty
Achillea millifolium	YARROW	1g	18"	87
Deschampsia cespitosa	TUFTED HAIRGRASS	1g	18"	786
Mahonia nervosa	DWARF OREGON GRAPE	1g	24"	589
Potentilla fruticosa	SHRUBBY CINQUEFOIL	1g	24"	589

BED — PLANTING TYPE 4: RAISED BED

Botanical Name	Common Name	Size	Spacing O.C.	Qty
Achillea millifolium	YARROW	1g	18"	149
Symphyotrichum chilense	PACIFIC ASTER	1g	18"	99
Erigeron speciosa	SHOWY FLEABANE	1g	18"	50
Lupinus polyphyllus	BIG LEAF LUPINE	1g	24"	248
Spiraea splendens	ROSY SPIRAEA	2g	24"	248
Festuca roemeri	ROEMER'S FESCUE	1g	18"	497
Sesleria autumnalis	AUTUMN MOOR GRASS	1g	24"	662

REC — PLANTING TYPE 5: RECESSED PLANTER

Botanical Name	Common Name	Size	Spacing O.C.	Qty
Carex densa	DENSE SEDGE	1g	18"	63
Juncus effusus	SOFT RUSH	1g	18"	250
Iris douglasiana	DOUGLAS IRIS	1g	18"	63
Cornus sanguinea 'midwinter fire'	BLOODTWIG DOGWOOD	3g	36"	42
Camassia leichtlinii	GREAT CAMAS	[bulb]	24"	94

MEA — PLANTING TYPE 6: HYDROSEEDED MEADOW

Botanical Name	Common Name	Qty	Spacing	Qty (2LB)
Nemophila menziesii	BABY BLUE EYES	50%	2LB/1000 SF MIN	
Lobularia maritima	ALYSSUM	25%	2LB/1000 SF MIN	
Achillea millefolium	DWARF WHITE YARROW	17%	2LB/1000 SF MIN	
Bellis perennis	ENGLISH DAISY	8%	2LB/1000 SF MIN	

GRA — PLANTING TYPE 7: HYDROSEEDED TURF GRASS

Botanical Name	Common Name	Qty	Spacing	Qty (2LB)
[various]	DWARF PERENNIAL RYEGRASS	80%	2LB/1000 SF MIN	
Nemophila menziesii	BABY BLUE EYES	12%	2LB/1000 SF MIN	
Trifolium fragiferum	STRAWBERRY CLOVER	8%	2LB/1000 SF MIN	

NOTE: ALL PLANTING IN LANDSCAPE STRIP TO REMAIN UNDER 1-0"H

SIGHTLINES AS DEFINED IN DPW POLICY 4-13, KEEP ALL VEGETATION UNDER 3'H PER KZC 115.135

CONVERSION OF TREE TO HABITAT SNAG

TREE PROTECTION, EXTENT OF CRITICAL ROOT ZONE (CRZ)

EXISTING TREE TRUNK

INTERSECTION SETBACKS PER KIRKLAND STREET TREE POLICY R-10

GEOTEXTILE LINER

EXISTING CONTOUR 2'

SETBACK

PROPERTY LINE

LIMIT OF WORK

NOT FOR CONSTRUCTION

ORIGINAL SHEET SIZE 36" x 48"

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LEASE CRUTCHER LEWIS

PROJECT
EMERSON SCHOOLS

LOCATION
5128 108TH AVE NE
KIRKLAND, WA 98033

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

NO.	DATE	REVISION
1	10.17.2025	ADDENDUM 1

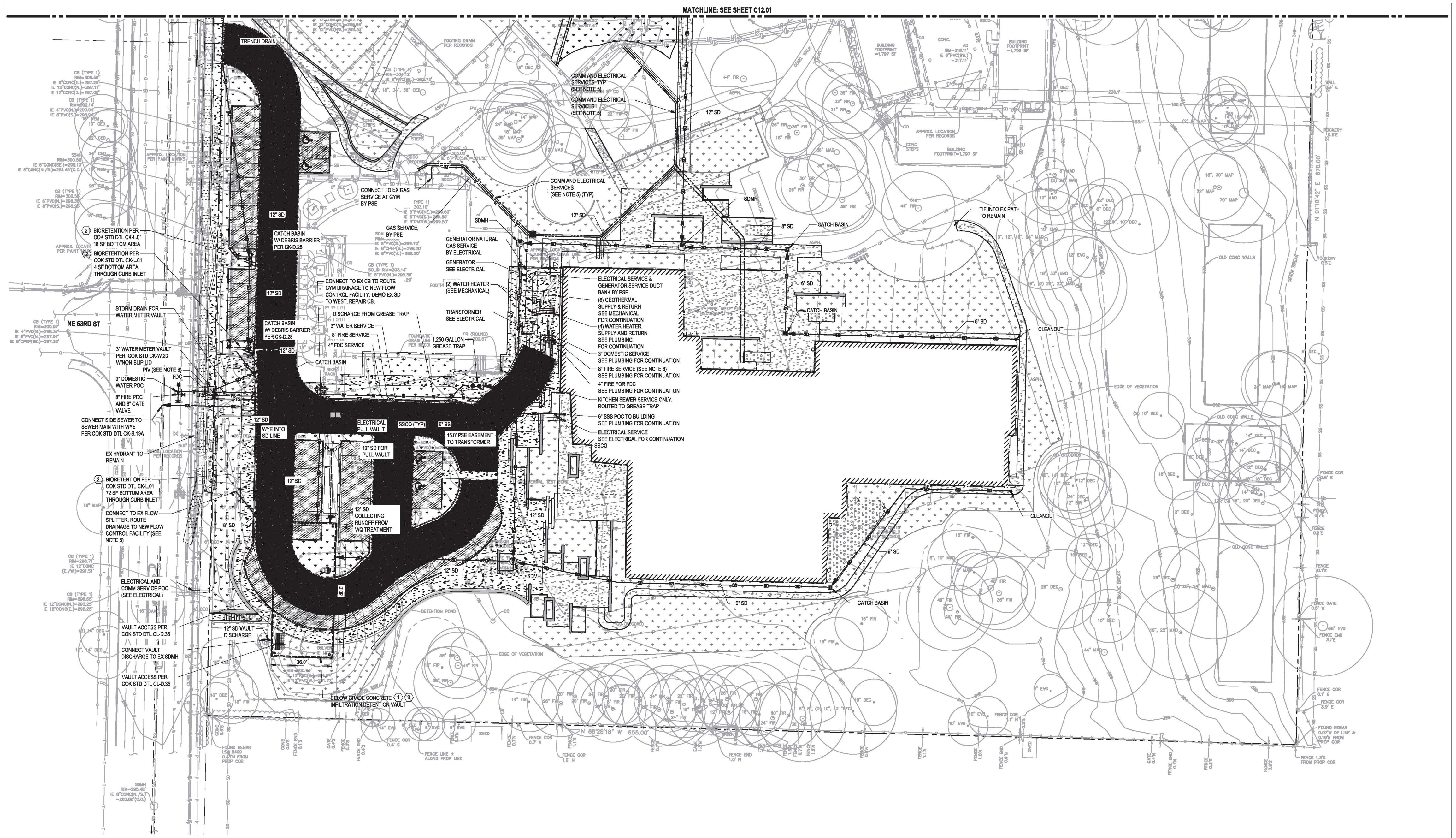
PARTNER IN CHARGE
JW
PROJECT MANAGER
SK
PROJECT LANDSCAPE ARCHITECT
CR
PROJECT TEAM MEMBERS
LL
CHECK

STATE OF WASHINGTON · DOROTHY K FARIS · LICENSED LANDSCAPE ARCHITECT · NO 1155 EXP Aug 9 2027

TITLE
PLANTING PLAN

PROJECT NO.
2422400
DATE
12/23/2025

SHEET NUMBER
L4.01
PERMIT



NOTES

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2. SEE LANDSCAPE FOR TREE PROTECTION PLAN.
3. PROTECT ALL EXISTING UTILITIES UNLESS NOTED OTHERWISE. ADJUST ALL UTILITY VAULT LIDS AND RIMS TO FINISH GRADE FOR STRUCTURES TO REMAIN.
4. GRADING AND DRAINAGE OVER BUILDING STRUCTURES WILL BE BY LANDSCAPE AND ARCHITECTURE.
5. STORMWATER FLOW CONTROL FOR SITE IMPROVEMENTS WILL BE PROVIDED VIA A BELOW-GRADE INFILTRATING CONCRETE VAULT. VAULT BOTTOM MUST BE SET 2 FEET INTO THE OUTWASH SOIL LAYER BELOW THE EXISTING FILL LAYER. THE CONCRETE VAULT HAS INSIDE DIMENSIONS OF 36'X80'X14' DEEP. THE VAULT WILL REQUIRE MINIMUM TWO FEET OF COVER AND HAVE NO LESS THAN TWO ACCESS HATCHES.
6. ELECTRICAL AND COMMUNICATION SERVICE ROUTING IS PRELIMINARY.
7. FIRE HYDRANT MAY NEED TO BE TEMPORARILY RELOCATED TO ALLOW FOR CONSTRUCTION ACCESS. TEMP RELOCATION TO BE CLARIFIED AS DESIGN PROGRESSES. ALLOWANCE FOR RELOCATION WILL BE GRANTED BY KIRKLAND PUBLIC WORKS.
8. FIRE BACKFLOW PREVENTION WILL BE LOCATED IN THE PROPOSED BUILDING.

LEGEND

Symbol	Description
— — — —	PROPERTY LINE
— – —	RIGHT OF WAY CENTERLINE
(hatched)	PROPOSED BUILDING
—W—W—	DOMESTIC WATER
—FS—FS—	FIRE SERVICE
—SS—SS—	SANITARY SEWER
—SD—SD—	STORM DRAIN
—G—G—	NATURAL GAS
	FIRE HYDRANT PER COK STD DTL W.14
	POST INDICATOR VALVE
(hatched box)	NO WORK ALLOWED PROTECT IN PLACE REGIONAL GAS UTILITIES
	TYPE 1 CATCH BASIN PER COK STD DTL CK-D.07
	MAINTENANCE HOLE PER COK STD DTL CK-D.11
	CLEANOUT PER COK STD DTL CK-D.05B

STORMWATER NOTES

1. THE PROJECT PROPOSES MORE THAN 5,000 SF OF NEW PLUS REPLACED IMPERVIOUS SURFACES, THEREFORE, THE PROJECT WILL COMPLY WITH CORE REQUIREMENT #3: FLOW CONTROL, USING AN INFILTRATING DETENTION VAULT. A PRELIMINARY DESIGN INFILTRATION RATE OF 2 IN/HR IS USED.
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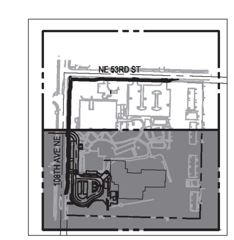
3. THE PROJECT PROPOSED MORE THAN 2,000 SF OF NEW PLUS REPLACED IMPERVIOUS SURFACES, THEREFORE THE PROJECT WILL COMPLY WITH CORE REQUIREMENT #9: FLOW CONTROL BMPS, BY MEETING THE LID CRITERIA THROUGH THE INFILTRATING DETENTION VAULT.



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www.kpff.com

PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

PRINCIPAL IN CHARGE
TJE
PROJECT MANAGER
AAS
PROJECT TEAM MEMBERS
KCD/IVG

THADDEUS J. EGGING, STATE OF WASHINGTON, 43764 REGISTERED PROFESSIONAL ENGINEER
07/02/2025

FOR PERMIT ONLY
THIS DOCUMENT HAS BEEN PREPARED FOR PERMIT APPLICATION AND IS SUBJECT TO REVIEW AND MODIFICATION BY GOVERNMENTAL AGENCIES

TITLE
PRELIMINARY UTILITY AND DRAINAGE PLAN

KPFF PROJECT NO.
2400458
DATE
07/03/2025

SHEET NUMBER
C12.02
LAND USE PERMIT

City of Kirkland
Planning and Building Department
123 Fifth Avenue, Kirkland, WA 98033
425-587-3600 ~ www.kirklandwa.gov

Development Standards List
File: Emerson Master Plan Amendment, ZON 25-00471

ZONING CODE STANDARDS

95.51.2.a Required Landscaping. All required landscaping shall be maintained throughout the life of the development. The applicant shall submit an agreement to the city to be recorded with King County which will perpetually maintain required landscaping. Prior to issuance of a certificate of occupancy, the proponent shall provide a final as-built landscape plan and an agreement to maintain and replace all landscaping that is required by the City.

95.44 Parking Area Landscape Islands. Landscape islands must be included in parking areas as provided in this section.

95.45 Parking Area Landscape Buffers. Applicant shall buffer all parking areas and driveways from the right-of-way and from adjacent property with a 5-foot wide strip as provided in this section. If located in a design district a low hedge or masonry or concrete wall may be approved as an alternative through design review.

95.50 Tree Installation Standards. Installation of supplemental trees to be planted shall conform to Kirkland Zoning Code Section 95.50.

95.52 Prohibited Vegetation. Plants listed as prohibited in the Kirkland Plant List shall not be planted in the City. These plants include Himalayan and Evergreen Blackberry, English Holly, Fragrant water lily; Bindweed or Morning Glory, Bird Cherry, English and Atlantic Ivy; Herb Robert; Bohemian, Giant, Himalayan, and Japanese Knotweed; Old man's beard, Poison hemlock, Reed canary grass, Scotch broom, Spurge laurel, Yellow archangel, and Yellow flag iris. Other plants, while not prohibited, are discouraged, including Butterfly bush, Black Locust, European Mountain Ash, Tree-of-Heaven, Common Hawthorn, and English laurel.

100.25 Sign Permits. Separate sign permit(s) are required. In JBD and CBD cabinet signs are prohibited.

105.18 Pedestrian Walkways. All uses, except single family dwelling units and duplex structures, must provide pedestrian walkways designed to minimize walking distances from the building entrance to the right of way and adjacent transit facilities, pedestrian connections to adjacent properties, between primary entrances of all uses on the subject property, through parking lots and parking garages to building entrances. Easements may be required. In design districts through block pathways or other pedestrian improvements may be required. See also Plates 34 in Chapter 180.

105.32 Bicycle Parking. All uses, except single family dwelling units and duplex structures with 6 or more vehicle parking spaces must provide covered bicycle parking within 50 feet of an entrance to the building at a ratio of one bicycle space for each twelve motor vehicle parking spaces. Check with Planner to determine the number of bike racks required and location.

105.18 Entrance Walkways. All uses, except single family dwellings and duplex structures, must provide pedestrian walkways between the principal entrances to all businesses, uses, and/or buildings on the subject property.

105.18 Overhead Weather Protection. All uses, except single family dwellings, multifamily, and industrial uses, must provide overhead weather protection along any portion of the building, which is adjacent to a pedestrian walkway.

105.18.2 Walkway Standards. Pedestrian walkways must be at least 5' wide; must be distinguishable from traffic lanes by pavement texture or elevation; must have adequate lighting for security and safety. Lights must be non-glare and mounted no more than 20' above the ground.

105.18.2 Overhead Weather Protection Standards. Overhead weather protection must be provided along any portion of the building adjacent to a pedestrian walkway or sidewalk; over the primary exterior entrance to all buildings. May be composed of awnings, marquees, canopies or building overhangs; must cover at least 5' of the width of the adjacent walkway; and must be at least 8 feet above the ground immediately below it. In design districts, translucent awnings may not be backlit; see section for the percent of property frontage or building facade.

105.65 Compact Parking Stalls. Up to 50% of the number of parking spaces may be designated for compact cars.

105.60.2 Parking Area Driveways. Driveways which are not driving aisles within a parking area shall be a minimum width of 20 feet.

105.60.3 Wheelstops. Parking areas must be constructed so that car wheels are kept at least 2' from pedestrian and landscape areas.

105.60.4 Parking Lot Walkways. All parking lots which contain more than 25 stalls must include pedestrian walkways through the parking lot to the main building entrance or a central location. Lots with more than 25,000 sq. ft. of paved area must provide pedestrian routes for every 3 aisles to the main entrance.

105.77 Parking Area Curbing. All parking areas and driveways, for uses other than detached dwelling units must be surrounded by a 6" high vertical concrete curb.

110.60.5 Street Trees. All trees planted in the right-of-way must be approved as to species by the City. All trees must be two inches in diameter at the time of planting as measured using the standards of the American Association of Nurserymen with a canopy that starts at least six feet above finished grade and does not obstruct any adjoining sidewalks or driving lanes.

115.25 Work Hours. It is a violation of this Code to engage in any development activity or to operate any heavy equipment before 7:00 am. or after 8:00 pm Monday through Friday, or before 9:00 am or after 6:00 pm Saturday. No development activity or use of heavy equipment may occur on Sundays or on the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas Day. The applicant will be required to comply with these regulations and any violation of this section will result in enforcement action, unless written permission is obtained from the Planning official.

115.45 Garbage and Recycling Placement and Screening. For uses other than detached dwelling units, duplexes, moorage facilities, parks, and construction sites, all garbage receptacles and dumpsters must be setback from property lines, located outside landscape buffers, and screened from view from the street, adjacent properties and pedestrian walkways or parks by a solid sight-obscuring enclosure.

115.47 Service Bay Locations. All uses, except single family dwellings and multifamily structures, must locate service bays away from pedestrian areas. If not feasible must screen from view.

115.75.2 Fill Material. All materials used as fill must be non-dissolving and non-decomposing. Fill material must not contain organic or inorganic material that would be detrimental to the water quality, or existing habitat, or create any other significant adverse impacts to the environment.

115.90 Calculating Lot Coverage. The total area of all structures and pavement and any other impervious surface on the subject property is limited to a maximum percentage of total lot area. See the Use Zone charts for maximum lot coverage percentages allowed. Section 115.90 lists exceptions to total lot coverage calculations See Section 115.90 for a more detailed explanation of these exceptions.

115.95 Noise Standards. The City of Kirkland adopts by reference the Maximum Environmental Noise Levels established pursuant to the Noise Control Act of 1974, RCW 70.107. See Chapter

173-60 WAC. Any noise, which injures, endangers the comfort, repose, health or safety of persons, or in any way renders persons insecure in life, or in the use of property is a violation of this Code.

115.115 Required Setback Yards. This section establishes what structures, improvements and activities may be within required setback yards as established for each use in each zone.

115.115.3.g Rockeries and Retaining Walls. Rockeries and retaining walls are limited to a maximum height of four feet in a required yard unless certain modification criteria in this section are met. The combined height of fences and retaining walls within five feet of each other in a required yard is limited to a maximum height of 6 feet, unless certain modification criteria in this section are met.

115.115.5.c Driveway Setbacks. Vehicle parking areas for schools and day-care centers greater than 12 students shall have a minimum 20-foot setback from all property lines.

115.135 Sight Distance at Intersection. Areas around all intersections, including the entrance of driveways onto streets, must be kept clear of sight obstruction as described in this section.

152.22.2 Public Notice Signs. Within seven (7) calendar days after the end of the 21-day period following the City's final decision on the permit, the applicant shall remove all public notice signs.

Prior to issuance of a grading or building permit:

95.32 Tree Protection. Prior to development activity or initiating tree removal on the site, vegetated areas and individual trees to be preserved shall be protected from potentially damaging activities. Protection measures for trees to be retained shall include (1) placing no construction material or equipment within the protected area of any tree to be retained; (2) providing a visible temporary protective chain link fence at least 6 feet in height around the protected area of retained trees or groups of trees until the Planning Official authorizes their removal; (3) installing visible signs spaced no further apart than 15 feet along the protective fence stating "Tree Protection Area, Entrance Prohibited" with the City code enforcement phone number; (4) displaying site plans showing approved tree retention/protection in plain view with general contractor or other responsible party's phone number; (5) prohibiting excavation or compaction of earth or other damaging activities within the barriers unless approved by the Planning Official and supervised by a qualified professional; and (6) ensuring that approved landscaping in a protected zone shall be done with light machinery or by hand.

95.23 Landmark Tree Mitigation Standards. Landmark Trees that are authorized for removal by the Planning Official must be replaced on-site at a 3:1 ratio. Mitigation trees must be selected from the Approved Landmark Tree List. Fee-in-lieu pursuant to KZC 95.23(5) may be pursued if the Planning Official and applicant, after working in good faith, conclude there is inadequate space to replant on-site. Landmark mitigation is in addition to the Tree Density Credits required per KZC 95.34.

95.34 Tree Replacement Standards. The minimum tree credit density is 50 tree density credits (TDC) per acre. All required tree replacements must be clearly shown on the Tree Retention Plan, including the size, species, and location of the proposed trees. All additional standards pursuant to KZC 95.34 must be met.

PUBLIC WORKS DEPT CONDITIONS
Permit #: ZON25-00491
Project Name: EMERSON HIGH SCHOOL – ZONING CASE
Project Address: 10903 NE 53RD ST
Date: August 5, 2025

Public Works Staff Contacts

Tuan Phan, Development Engineering Supervisor
Phone: 425-587-3843 / E-mail: tphan@kirklandwa.gov

Ryan Schauble, Senior Development Engineer
Phone: 425-587-3842 / E-mail: rschauble@kirklandwa.gov

Thang Nguyen, Transportation Engineer
Phone: 425-587-3869 / E-mail: tnguyen@kirklandwa.gov

General Conditions:

1. All public improvements associated with this project including street and utility improvements, must meet the City of Kirkland Public Works Pre-Approved Plans and Policies Manual. A Public Works Pre-Approved Plans and Policies manual can be purchased from the Public Works Department, or it may be retrieved from the Public Works Department's page at the City of Kirkland's web site. Street, utility and site improvements shall be reviewed and permitted with the governing building permit(s).

2. Permit Fees, Connection Charges and Impact Fees. Click on the hyperlinks to view the latest fee schedules. Contact Public Works staff if there are general questions about fees. Fees for a specific permit will not be determined until plan review is complete. The applicant is responsible for completing and submitting the Public Works Improvement Evaluation Packet (available in either Excel or PDF) before fees and securities are determined.

3. Performance, ROW Restoration and Maintenance Securities:
Exempted for Lake Washington School District projects.

4. All civil engineering plans which are submitted in conjunction with a building, grading, or right-of-way permit must conform to the Public Works Policy G-7, Engineering Plan Requirements. This policy is contained in the Public Works Pre-Approved Plans and Policies Manual. All street improvements and underground utility improvements (storm, sewer, and water) must be designed by a Washington State Licensed Engineer. All drawings shall bear the licensed engineer's stamp. All plans submitted in conjunction with a building, grading or right-of-way permit must have elevations which are based on the King County datum only (NAVD 88).

5. Prior to issuance of the Building Permit, the applicant shall provide an analysis and plan for garbage, recycling and composting storage and pickup. Refer to Policy G-9 in the Public Works Pre-Approved Plans as a guide. The plan must be approved by Waste Management and by Public Works. The applicant shall submit a letter report to summarize the analysis and the plan, supported by such details as container sizing calculations, storage area sizing calculations, and truck access and turnaround details.

6. The required tree plan shall include any significant tree in the public right-of-way along the property frontage.

Sanitary Sewer Conditions:

1. The existing sanitary sewer main in the right-of-way is adequate to serve the project.

Water System Conditions:

1. The existing water main in the right-of-way is adequate to serve the project. Each new water service shall be tapped separately and directly from the public water main. City of Kirkland will set water meters 2" and smaller. Water meters shall be sized per the Uniform Plumbing Code when the Building Permit is submitted.

2. Refer to Fire Department conditions for fire flow and fire sprinkler system requirements.

Surface Water Conditions:

1. Provide temporary and permanent storm water control in accordance with the 2021 King County Surface Water Design Manual (KCSWDM) and the City of Kirkland Addendum (Policy D-10). Refer to Policies D-2 and D-3 in the Public Works Pre-Approved Plans and Policies Manual for design guidance, or contact Kirkland Surface Water staff at (425) 587-3800 for assistance. Based on the pre-submittal information provided by the applicant, this project should expect a **Full Drainage Level Review**.

2. **Vesting of Surface Water Regulations and Design Manual:**
   - Only a "Complete Building Permit Application" or "Complete Short Plat / Subdivision Application" will vest a development project to the current surface water design requirements (i.e., current Design Manual). Other Land Use Permits, Zoning Permits, or Design Review Process does not vest a project with regard to surface water requirements. For example: Master Plan, Variance, Use Permits, Design Review Board - does not vest. Complete application means, at a minimum, a complete project description, site plan, and if applicable, SEPA checklist; and shall satisfy Kirkland Municipal Code 20.12.210.
   - If a new Design Manual is adopted by the City of Kirkland after a project is vested to the former Design Manual, then the vested project must start construction within 5

years from the date of new Design Manual adoption to remain vested to the former requirements. Start construction means the site work associated with, and directly related to the approved project has begun. For example: grading the project site to final grade or utility installation. Simply clearing the project site does not constitute the start of construction. A performance bond is not equivalent to construction start.

3. **Calculating impervious surface area based on lot coverage: This is important for flow control analysis (hydrologic modeling purposes).** In accordance with KZC Chapter 115.90 – Calculating Lot Coverage. The regulation update allowed conventional (sand set) pavers to be counted as a "Partially Exempt Material", allowed to received 50 percent exemption for zoning lot coverage for the area they cover, and up to 10 percent of the total lot size. Conventional pavers do not have to meet surface water mitigation specifications (e.g. not designed as LID BMP pervious pavers per Public Works Pre-Approved Plan CK-L-09). As a result, lots are allowed 10 percent more runoff generating surface area, and thus have to provide flow control accordingly. Furthermore, impervious surface areas shall also include frontage and street improvements – streets, sidewalks, trails, etcetera and shall be taken from the layouts of the proposed plans. Building footprint and driveways or building coverage shall be as follows: For commercial or multi-family development, the impervious coverage shall either:
   - Assume the maximum impervious coverage permitted by the KZC plus an additional 10% OR
   - Estimate impervious coverage from layouts of the proposal. If estimated from the layouts of the proposal, the impervious coverage shall include calculations of all impervious surfaces, including eaves. This option may require a Reduced Impervious Surface Limit to be recorded on the property.

4. A drainage report (Technical Information Report or TIR) must be submitted with the building permit application(s). A downstream analysis is required.

5. This project is in a Level 2 Flow Control Area and is required to comply with core drainage requirements in the KCSWDM. Historic (forested) conditions shall be used as the pre-developed modeling condition for design of the stormwater detention system.

6. Existing infiltration pond and flow splitter: The existing infiltration pond currently receives stormwater runoff from 0.46 acres of impervious area for Level 2 Flow Control. In an agreement with the school district, the City of Kirkland paid for 0.25 acres of impervious surface to be routed into the pond. The 0.25 acres is road runoff from NE 53rd St. The Project should preserve the flow splitter as the City has paid for that volume in the pond. For the new facility, the Project must size it to have .25 acres of impervious from the ROW, the original mitigated private runoff that the pond was designed for, and additional new impervious area that is generated. If the Project is proposing the facility for infiltration, a Geotech report to confirm the measured and

design infiltration rate is required in accordance with the Manual. The school district shall be responsible for maintaining the new facility.

7. Evaluate the feasibility and applicability of dispersion, infiltration, and other stormwater Low Impact Development (LID) Best Management Practices (BMPs) per the KCSWDM. If feasible, stormwater LID BMPs are required to the maximum extent feasible. If LID BMPs are infeasible, pervious pavement cannot be used to reduce overall impervious coverage. The Private Maintenance Agreement will be recorded on all projects that construct a stormwater LID BMP or facility, per Policy D-7.

8. Soil information may be necessary for designing LID BMPs per the KCSWDM, and there are other reasons a soil report is necessary for a project (e.g., steep slopes, sensitive areas, etc.). Refer to Policy D-8 for details.

9. Special inspections may be required for LID BMPs on this project. Provide documentation of inspections by a licensed geotechnical professional that the BMP will function as designed.

10. If the project will create or replace more than 5,000 square feet of pollution generating impervious surface (PGIS), provide water quality treatment in accordance with the KCSWDM. The enhanced treatment level is required for multi-family residential, commercial, industrial projects, and single family residential projects with eight or more dwelling units per acre density.

11. Soil Amendment per Pre-Approved Plan E.12 is required for all landscaped areas.

12. All roof and driveway drainage must be tight-lined to the storm drain system or utilize low impact development techniques on-site.

13. Provide collection and conveyance of right-of-way storm drainage. Provide a plan and profile design for the storm sewer system. Size and material of construction shall be in accordance with the City Kirkland Pre-Approved Plans and Notes. Refer to Policy D-5 for details.

14. Maintenance access road(s) per Pre-Approved Plan CK-D.37 shall be provided to the control structure and other drainage structures associated with the detention facility (e.g., inlet, access openings, emergency overflow or bypass structures). Vehicular access to the drainage structures associated with the detention facility shall not be obstructed on a temporary or permanent basis without prior approval from the City. Location of parking stalls shall not obstruct maintenance access. Where maintenance access is required on a driveway that shares access to residential units, a min. 16’ wide drive line is required to accommodate two-way traffic.

15. Construction Stormwater Pollution Prevention Plan (CSWPPP):

- All proposed projects that will conduct construction activities onsite, or offsite must provide stormwater pollution prevention and spill controls to prevent, reduce, or eliminate the discharge of pollutants (including sediment) to onsite or adjacent stormwater systems or watercourses.
- Refer to Core Requirement No. 5 in the KCSWDM and Policy D-12.
- Provide an erosion control report and plan with the Building or Land Surface Modification Permit application. The plan shall be in accordance with the KCSWDM.
- Construction drainage control shall be maintained by the developer and will be subject to periodic inspections. During the period from May 1 and September 30, all denuded soils must be covered within 7 days; between October 1 and April 30, all denuded soils must be covered within 12 hours. Additional erosion control measures may be required based on site and weather conditions. Exposed soils shall be stabilized at the end of the workday prior to a weekend, holiday, or predicted rain event.

16. If the total disturbed land area is one acre or greater, the following conditions apply:
    - The applicant is responsible to apply for a Construction Stormwater General Permit from Washington State Department of Ecology. Provide the City with a copy of the Notice of Intent for the permit. Permit Information can be found at the following website: http://www.ecy.wa.gov/programs/wq/stormwater/construction/
        - Among other requirements, this permit requires the applicant to prepare a Storm Water Pollution Prevention Plan (SWPPP) and identify a Certified Erosion and Sediment Control Lead (CESCL) prior to the start of construction. The CESCL shall attend the City of Kirkland PW Dept. pre-construction meeting with a completed SWPPP.
    - Turbidity monitoring by the developer/contractor is required for any surface water leaving the site.
    - A Stormwater Pollution Prevention and Spill (SWPPS) Plan must be kept on site during all phases of construction and shall address construction-related pollution generating activities. Follow the guidelines in the Ecology Pollution Prevention Manual for plan preparation.

Street and Pedestrian Improvement Conditions:

1. The subject property abuts 108th Ave NE to the west (Minor Arterial Street) and NE 53rd ST to the north (Collector Street). Zoning Code sections 110.10 and 110.25 require the applicant to make half-street improvements in rights-of-way abutting the subject property. Section 110.30-110.50 establishes that this street must be improved with the following:

Improvements on 108th Ave NE:

A. Curb alignment: Maintain existing curb alignment and existing travel lane width. Replace any substandard segments of curb and gutter.
B. Install a 4.5-ft wide landscape strip behind the curb, with street trees 30 feet on-center.
C. Install an 11-ft wide combined bicycle and sidewalk facility behind the landscape strip: 5-ft bike lane, 1-ft tactile strip and 5-ft sidewalk. Consistent with the adopted Transportation Strategic Plan (TSP).
D. Dedicate sufficient right-of-way (ROW) abutting the property to install the required improvements. Provide at least 6 inches of ROW gap between the back of sidewalk and the property line.

Improvements on NE 53rd ST:

A. Curb alignment: Maintain existing curb alignment and existing travel lane width. Replace any substandard segments of curb and gutter.
B. Install a 4.5-ft landscape strip behind the curb, with street trees 30 feet on-center.
C. Install a combined bicycle and sidewalk facility behind the landscape strip: 5-ft bike lane, 1-ft tactile strip and 5-ft sidewalk. The combo facility shall extend to and through the existing, easternmost driveway access on NE 53rd St. It may transition to a sharrow after the easternmost driveway.
D. Dedicate sufficient right-of-way (ROW) abutting the property to install the required improvements. Provide at least 6 inches of ROW gap between the back of sidewalk and the property line.

2. INSERT TRAN CASE CONDITIONS FROM THANG HERE:

3. When three or more utility trench crossings occur within 150 lineal ft. of street length or where utility trenches parallel the street centerline, the street shall be overlaid with new asphalt or the existing asphalt shall be removed and replaced per the City of Kirkland Street Asphalt Overlay Policy R-7.
    - Existing streets with 4-inches or more of existing asphalt shall receive a 2-inch (minimum thickness) asphalt overlay. Grinding of the existing asphalt to blend in the overlay will be required along all match lines.
    - Existing streets with 3-inches or less of existing asphalt shall have the existing asphalt removed and replaced with an asphalt thickness equal or greater than

the existing asphalt provided however that no asphalt shall be less than 2-inches thick and the subgrade shall be compacted to 95% density.

4. It shall be the responsibility of the applicant to relocate any above-ground or below-ground utilities which conflict with the project, associated street, or utility improvements.

5. Underground all new and existing on-site utility lines and overhead transmission lines. Underground any new off-site transmission lines.

6. Zoning Code Section 110.60.7.b establishes the requirement that existing utility and transmission (power, telephone, etc.) lines on-site and in rights-of-way adjacent to the site must be underground. The Public Works Director may determine if undergrounding transmission lines in the adjacent right-of-way is not feasible and defer the undergrounding by signing an agreement to participate in an undergrounding project, if one is ever proposed. In this case, the Public Works Director has determined that undergrounding of existing overhead utility on NE 140th St and 132nd Ave NE is not feasible at this time and the undergrounding of off-site/frontage transmission lines should be deferred with a Local Improvement District (LID) No Protest Agreement.

7. New LED street lights may be required on the right-of-way /streets abutting the school campus. Contact a lighting design consultant to perform lighting analysis. If new lighting or upgrades are necessary, design plans must be submitted for review prior to issuance of an LSM or building permit.

DEVELOPMENT STANDARDS

ZON25-00491

BUILDING DEPARTMENT

BLDG. DEPT. CONDITIONS Contact Building Division at PH# 425-587-3600

1. A Building Permit is required for this project. Applications must be submitted through MyBuildingPermit.com.
2. Construction code requirements have not been verified under this application. Review of construction codes will be performed under the Building Permit application.

DUWAMISH TRIBE dxʷdəwʔabš

Aug 19, 2025

City of Kirkland

ZON25-00491

Dear Tony Leavitt,

Thank you for the opportunity to comment on the Emerson Campus Master Plan to the construction of a new, 2-story, approximately 50,000 GSF public education building with demolition of the existing building and with improvements to include new landscaped areas, new vehicle and pedestrian circulation, parking, service and utility yard, and geothermal loops located at 10903 NE 53rd St in Kirkland. Based on the information provided and our understanding of the project and its APE, the Duwamish Tribe would recommend an archaeological or cultural resources assessment, especially if any groundbreaking activity occurs below fill, topsoil or other impervious surfaces into native soil. This is an area that the Duwamish Tribe considers culturally significant and has a Moderate probability to have unknown archaeological deposits. We note that there are 5 place names within about a mile of the project location. The DAHP WISAARD predictive model indicates that an archaeological survey is recommended with a moderate risk for encountering cultural resources.

The Duwamish Tribe requests that if any archaeological work or monitoring is performed, we would like notification. Cultural and archaeological resources are non-renewable and are best discovered prior to ground disturbance. The Tribe would also like the opportunity to be present if or when an archaeologist is on site.

In addition, the Tribe strongly recommends only native vegetation be used for any proposed landscaping to enhance habitat for fish and wildlife, and native avian life and native pollinators. The Tribe supports observing critical area tracts and stream buffers to preserve any remaining wetlands and stream buffers. Loss of wetland habitat is known to affect the viability of fish, water quality and increase the effects of seasonal urban flooding.

We also strongly recommend that native trees in the APE, particularly culturally modified trees (CMPs) are preserved. Mature trees can be of profound cultural significance to the Duwamish Tribe and provide innumerable benefits for people, climate, and wildlife. If a tree is suspected to be culturally modified, the Duwamish Tribe would like to be notified and would like the opportunity to come to the site to ensure its protection.

Finally we request that any permanent lighting associated with the project be dark sky compliant to reduce light pollution. Darkened skies were favorable conditions to practice traditional life pathways.

Thank you,

Duwamish Tribal Historic Preservation

Duwamish Tribal Historic Preservation

Tony Leavitt

From: Molly Working <mollyworking@gmail.com>
Sent: Monday, September 8, 2025 1:41 PM
To: Tony Leavitt
Subject: Application for Building on Emerson Campus

Proposed new BEST High School Building on Emerson Campus

Comments from:

Molly Working
5215 111th Ave NE
Kirkland, WA 98033
mollyworking@gmail.com

Permit # ZON25-00491

Dear Mr. Leavitt,

I live just east of the Emerson Campus property (we share property borders). While I understand the need for development of a new BEST High School, I have several concerns with the traffic issues.

Proposed location of ingress and egress from 108th into the campus will be problematic. Houghton already suffers major traffic issues in the morning and afternoons from Northstar and ICS schools. I expect 108th, our major thoroughfare through Houghton, to be blocked daily. Northstar families already avoid the 108th/53rd intersection by traveling instead on 111th Ave NE. We have watched cars from Northstar speed through our neighborhood in mornings and afternoons (we have a current 25 mph speed limit; it should be lower as we have few sidewalks, a narrow street with cars parked on it, young children walking to catch the bus (often in the morning dark in wintertime) and a blind curve as 111th curves west at NE 48th (long known in our 'hood as "Deadman's Curve"). All of these added together are a recipe for disaster, and that is before the BEST redevelopment.

Parking as shown in the proposed development does not appear adequate for the added population coming to BEST. Since students and families travel from all parts of the LWSD to attend BEST and its affiliated programs and North Star, there should be more designated parking on site. Even with agreements with Northwest University, there are occasional cars parked offsite onto 111th and we see this as a possibility for BEST, as well.

We have spoken with City of Kirkland representatives about the already problematic traffic issues in our neighborhood, but have not had any visible mitigation to our concerns. In fact, the encroaching overgrown shrubbery on the northeast side of the 48th/108th intersection has only grown into another bad problem for both pedestrians and cars trying to cross at that intersection or turn onto 108th.

As you can understand, we have legitimate concerns in our neighborhood that must be discussed and addressed prior to approving the new BEST High School and Emerson Campus redevelopment. Please include my comments so that members of the Kirkland City Council will consider the neighborhood's input before creating a more challenging mess on 108th Ave NE and in our neighborhood along 111th Ave NE.

Sincerely,

Molly Working
--
Sent from Gmail Mobile

Lake Washington School District

Support Services Center
15212 NE 95TH Street • Redmond, WA 98052
Office: (425) 936-1100 • Fax: (425) 883-8387
www.lwsd.org

October 13, 2025

RE: Emerson Campus Project, Public Comment Response

To our community members,

Thank you for the thoughtful comments submitted regarding the Emerson Campus Master Plan. We greatly appreciate the time and care that members of the community and the Duwamish Tribe have taken to share their perspectives on this exciting project.

We recognize the importance of cultural and environmental considerations, including preservation of mature trees, the use of native vegetation, traditional life pathways, and respect for areas of historical and ecological significance. These values will continue to inform our design and planning phases.

Based on the recommendations, we are completing a cultural resource assessment of the construction area. Landscaping and vegetation plans, as well as protection of wetlands and stream buffers, will comply with applicable local, state, and federal regulations. No wetlands or stream buffers occur within the project area. The ecological functions of native vegetation, including habitat provision and water quality protection are recognized and will be part of the selection of plantings on site. The project will preserve most of the existing mature trees on the project site. All permanent lighting will comply with applicable local regulations.

We also acknowledge the concerns raised regarding neighborhood traffic and parking impacts. We are working closely with the City of Kirkland through their traffic review process to ensure that potential impacts can be identified and addressed.

We are grateful for your engagement and commitment to shaping this project thoughtfully for the benefit of the entire community.

Sincerely,

Brian Buck
Executive Director, Support Services
bbuck@lwsd.org

cc: Laura DeGooyer, Director
Carly Parkins, Project Manager

CULTURAL RESOURCES ASSESSMENT

Emerson K-12 School Modernization Project

Kirkland, King County, Washington

Prepared for:

Carly Parkins
Lake Washington School District No. 414
15212 NE 95th Street
Redmond, WA 98052

Prepared by:

Elizabeth Karpinski, BS
Senior Archeologist

Reviewed by:

Mark Karpinski, MA, RPA
Principal Investigator

400 112TH Ave NE, Suite 300
Bellevue, WA 98004

October 28, 2025 rev1

Project No. 117-317094-25005

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FIGURES

Tetra Tech, Inc. (Tetra Tech) conducted a cultural resources desktop study for the new Emerson K-12 Modernization Project, located in Kirkland, Washington (**Figure 1**). Lake Washington School District is planning to construct a new two-story high school, a new all-season sports field, a new driveway and parking, and stormwater management using infiltration. This study was undertaken to identify any archaeological sites at the project site and to evaluate the potential for the project to affect cultural resources. This initial assessment did not identify any previously recorded archaeological sites within the project location. The Puget Sound Adventist Academy, a building that is eligible for listing on the National Register of Historic Places (NRHP), is located on an adjacent lot.

1. ADMINISTRATIVE DATA

Authors(s):.....Elizabeth Karpinski, BS, and Mark Karpinski, MA, RPA

Location: .....10903 NE 53rd St, Kirkland, WA 98033. Parcel# 172505-9195
The legal description for the project is SW1/4 of the NE ¼ of Section 17 of Township 25 North, Range 05 East, W.M.

USGS 7.5' Topographic Map: ...Kirkland, WA

Total Area Involved:.....10.8 acres.

Regulatory Nexus: .....City of Kirkland

Recorded Cultural Resources
Present in Project Area: .....No Recorded Cultural Resources Present in one-mile Study Area: Yes

1.1 Project Description

Lake Washington School District requested a desktop study of the Emerson K-12 School Modernization Project. The Project plans consist of construction of a new two-story high school, a new all-season sports field, a new driveway and parking, and stormwater management using infiltration (**Figure 2**). The Project site is a 10.8-acre parcel located east of Lake Washington on a previously graded area that is flat to gently sloping to the west-southwest. The Project site includes four buildings on the north half of the parcel, and a playfield and retention pond within the southwestern portion of the parcel. For the purpose of this review, the Study Area includes the Project site and a one-mile radius surrounding the property.

1.2 Regulations

Tetra Tech was contracted to assist Lake Washington School District in compliance with state regulations for the identification and protection of cultural resources (RCW 27.44, RCW 27.53, RCW 68.60). The Archaeological Sites and Resources Act (RCW 27.53) prohibits knowingly disturbing archaeological sites without a permit from the Washington State Department of Archaeology and Historic Preservation (DAHP). The Indian Graves and Records Act (RCW 27.44) prohibits knowingly disturbing Native American or historic graves, and the Abandoned and Historic Cemeteries and Historic Graves Act (RCW 68.60) calls for the protection and preservation of historic cemeteries and graves.

2. ENVIRONMENTAL CONTEXT AND CULTURAL SETTING

The context and records search presented here summarizes environmental, ethnographic, historical, and archaeological information presented in local cultural resources reports; relevant information from

Archaeology of King County, Washington: A Context Statement for Native American Archaeological Resources (Kopperl et al. 2016); archaeological and historic data from DAHP and the Washington Information System for Architectural and Archaeological Records Data (WISAARD) records search; ethnographic resources; geological and soils surveys (e.g., USDA NRCS 2025; WA DNR 2025); and historical maps and documents from Bureau of Land Management United States Surveyor General (USSG) Land Status & Cadastral Survey Records database (1871), History Link, Historic Map Works, and Historic Aerials (NETR 2025).

2.1 Environmental Context

The project is located 0.55-miles east of Washington Lake in an urban setting within the Puget Sound lowland area, part of the larger Puget Trough physiographic region of Washington state. The project is within the *Tsuga heterophylla* (Western Hemlock) vegetation zone (Franklin and Dyrness 1973). This region begins in British Columbia and spans the Puget Trough extending southwest through the Olympic Peninsula and Coast Ranges and east through the Cascades. Prior to logging and clearing, the primary plant species included Douglas fir (*Pseudotsuga menziesii*), western hemlock, and western red cedar (*Thuja plicata*) (Franklin and Dyrness 1973:72). Today, residential landscaping characterizes the vegetation near the project area, however the region was once covered in a dense forest of Douglas fir, western hemlock, western red cedar, big leaf maple, red alder, willow, and vine maple. An understory of salal, Oregon grape, ocean spray, snowberry, wild rose, blackberry, salmonberry, wild huckleberry, ferns, and mosses covered the forest floor. Various species of fauna were abundantly present before the region's development, including black-tailed deer, elk, cougar, wolf, bear, bobcat, skunk, beaver, racoon, and various waterfowl, heron, pheasants, quail, and migratory game birds. The area's network of rivers, lakes and streams provide an ideal environment for a vast array of water resources including various species of salmon, trout, and shellfish (Franklin and Dyrness 1973).

The landscape of northwest Washington is a result of crustal deformation by the Cascadia subduction zone; glacial scouring and deposition most recently during the Pleistocene, subsequent landslides, erosion and deposition, and human activity during the Holocene (Troost and Booth 2008). Within the Late Pleistocene or last glacial period (110,000 to 12,000 years BP), the Cordilleran ice sheet covered much of the American northwest and scoured the landscape during advance and retreat episodes from localized climate fluctuations. The most recent glaciation was the Vashon Stade of the Fraser glaciation during which the Puget Lobe entered northwest Washington around 17,000 years BP (Thorson 1980). This final episode scoured the landscape producing moraine features and topographic lows prior to its recession. The Puget Lobe reached the vicinity of present-day Seattle by about 14,500 years BP, its maximum extent near Olympia by 14,000 years BP (Booth et al. 2003). Climatic warming caused the ice sheets to retreat to the north and began the transition into the Holocene. The Puget Lobe retreated past Seattle by 13,600 years BP (Booth et al. 2003). Effects of receding glaciers during this temperate period caused meltwater, impounded behind the ice forming a series of proglacial lakes, eventually merged into Lake Russell, which extended roughly from the southern margin of present day. Whidbey Island to Olympia impounding low lying sections of the Puget Sound and adjacent river valleys including the Sammamish River valley (Bretz 1913; Waitt and Thorson 1983). The glacial Lake Russell created a shoreline at 330 feet elevation in the Redmond area (Thorson 1981). Glacial Lake Russell merged with Lake Bretz, defined by a 130-foot elevation shoreline in the Redmond vicinity (Thorson 1981), before draining via the Strait of Juan de Fuca. The retreat of the glacier and draining of recessional meltwater deposited sediments and formed Lake Washington and Lake Sammamish, saltwater lakes that were later replaced by freshwater after they were isolated from Puget Sound.

While sedimentation was widespread and significant during the Pleistocene, deposition during the Holocene is more restricted, occurring in river valleys and at the base of steep slopes (Booth et al. 2003). Additionally, global sea level rise, and a large earthquake 1100 years ago are also factors that have affected the

geography of Puget sounds to varying degrees during the Holocene (Booth et al. 2003; Thorson 1989). Parent materials present today in the project location were created by glacial advance and retreat.

2.2 Precontact Context

This section describes the precontact context of the Project area. Elements of the precontact context include cultural chronologies developed for the prehistoric occupation through archaeological research, oral histories and Native American recollections, and historic events and land use patterns. Reviewing archival archaeological, historical, and ethnographic documents provides insight toward evaluating the archaeological potential of the project site. Archaeological evidence suggests the presence of nomadic hunter-gatherers not long after glaciers retreated, meltwaters subsided, and landforms stabilized during the late Pleistocene to early Holocene. Following deglaciation, subsequent changes to landforms, climate, and vegetation influenced the available resources and, consequently, the spatial distribution of human activities. Human land use was generally structured around the value of natural resources available locally, such as proximity to fresh water, terrestrial and marine food resources.

King County developed an archaeological sequence based on a review of the cultural history, and selectionist and evolutionary ecological interpretations of western Washington from which they identified a general chronological framework (Kopperl et al. 2016). This framework was demarcated by changes in the geological, paleobotanical, and archaeological records. Based on their research, they identify five Analytic Periods (AP) and identified 11 site types. According to their research, based on available data, these site types are represented variably throughout the Analytic Periods and demonstrate an increase in diversity and number of site types over time with the appearance of residential activity, multi-task site types such as villages and base camps in later periods in comparison to the earlier record comprised of more limited-task site types such as specific resource procurement/processing sites and specific-resource field camps, in addition to a representation of certain multi-task sites such as multiple-resource field camps. The following provides an overview of the chronological sequence defined for King County (Kopperl et al. 2016:95):

- **Analytic Period 1** (14,000 cal BP to 12,000 cal BP) was a period of relative postglacial environmental stability in Western Washington. During this period, hunter-gatherers began to colonize Western Washington subsequent to the retreat of the Cordilleran Ice Sheet. This period is demarcated by regional climate and vegetation patterns and estimated arrival of the first hunter-gatherers into the Western Washington region.
- **Analytic Period 2** (12,000 cal BP to 8000 cal BP) is characterized by increasingly sophisticated land use strategies adapted to local environments and the associated shifts of those strategies in regard to regional climate and vegetation patterns.
- **Analytic Period 3** (8000 cal BP to 5000 cal BP) is defined by a shift from a warm, dry climate to a cool, moist climate. During this period, archaeologists have argued that hunter-gatherer subsistence and technology was reorganized in response to the environmental change within this analytic time period.
- **Analytic Period 4** (5000 cal BP to 2500 cal BP) is defined by the appearance of shell middens in the archaeological record of Puget Sound, and the development of old growth Douglas-fir and western hemlock forests within the Puget Lowland. Archaeologists generally recognize shifts in hunter-gatherer economic and technological organization during this period.
- **Analytic Period 5** (2500 cal BP to the commencement of settlement in the area by Euro-Americans about 200 years ago) is defined by developments in hunter-gatherer economic and social patterns and concluding with initial Euro-American contact. The local archaeological record of Puget Sound demonstrates an increase in the number of shell midden sites after 2500 cal BP. The period is also marked by adaptations to localized environmental changes caused by the

1100 cal BP earthquake on the Seattle Fault in addition to probable changes in economic and social organization as a result of Euro-American contact.

2.3 Ethnographic Context

Located in the traditional territory of the Sammamish, the project area was likely utilized by other local tribes as well. Sammamish peoples are considered a "prominent subdivision" of the contemporary Duwamish tribe (Ruby and Brown 1986:72). Pre-twentieth century, the Duwamish's territory is reported to have extended

across the Duwamish River basin, including Lake Sammamish, the Sammamish River, and the eastern shore of Lake Washington (Ruby and Brown 1986; Spier 1936). Ethnohistoric economies were structured around seasonally available resources, translating to seasonal occupations and logistic mobility. Permanent villages were established along rivers and Lake Washington during the winter. Occupied primarily during the winter months, these villages were typically established on well-drained high grounds and contained several cedar plank houses with shed, gable, and gamble roofs. Each house was built long enough to house several extended families. The longest house was estimated to be about 1,250 feet in length and was located on the east end of Sammamish Island (Samish Indian Nation 2025). Temporary camps were to obtain seasonal food sources during the warmer summer months in distant locations. Seasonal villages contained temporary houses made of cedar poles and woven mats designed to be portable and easily constructed and broken down. Indigenous people have shared many broadly defined traditions with their Puget Sound neighbors, such as subsistence on salmon and other fish, fauna, and a wide variety of abundant edible plants. Additionally, resources were shared through household and village communities linked by family and exchange relations (Suttles and Lane 1990).

The arrival of Euro-American settlers brought about drastic changes to the native population of the region. Once numbered at over 2,000 people, the Samish population fell drastically to about 80-200 members by the time the Treaty of Point Elliot was signed (Bagley 1929; Samish Indian Nation 2025). Negotiated by Washington's first governor Isaac Stevens, the treaty was enacted in 1855 and assigned members of the Duwamish and Samish groups to two different reservations in Point Madison and Tulalip, although many Natives decided to remain within their traditional territories (Ruby and Brown 1986). The tension between Natives and settlers over land use soon erupted in the Indian Wars of 1855–1856, which was followed by a set of treaties that led to the creation of the Muckleshoot Reservation.

2.4 Historical Context

Accounts of Russian, Spanish, and British expeditions to the Pacific Northwest beginning in the mid-1500s exist in the historic record. The first undisputed arrival of European explorers was a 1792 expedition led by Captain George Vancouver (Kirk and Alexander 1990; Marino 1990). Vancouver did note signs of earlier disease epidemics among the Natives he encountered which could serve as evidence for previous contact by foreign explorers.

Prior to the Donation Land Claim Act of 1850 and the Homestead Act of 1862 brought settlers to the area, the only non-natives seen within the vicinity of Kirkland were primarily explorers, trappers, and fur traders working for the Hudson's Bay Company during the 1830s. Land disputes were common in the early 1800s due to the dual ownership of the Oregon Territory by Britain and the United States. This eventually led to a treaty in 1846 that created the border between Washington Territory and British Columbia. Isaac Stevens helped form the Territory in 1853 acting as its first Governor. He was also influential in forming a series of treaties that compelled the Native population in the area to move to reservations and open the land for settlement (Kirk and Alexander 1990; Marino 1990).

The first settlers arrived in the area by the 1870s, including Mrs. Nancy Popham McGregor and her two sons, Tom and James Popham. They did not remain long and their land was acquired and logged by William Cochrane. The area between Kirkland and Redmond was quickly occupied after the initial settlement. The

first road between Kirkland and Redmond was cut through the heavily forested area around 1880 (Bagley 1929). The town of Kirkland was named after Peter Kirk, who decided to begin his new steel enterprise on the eastern shores of Lake Washington in hopes of making the town "the Pittsburgh of the West". Construction of the Moss Bay Iron and Steel Works began in 1891; however, a weakened economy had investors refusing to honor their promissory notes to the mill and the endeavor failed before construction was complete (City of Kirkland 2025; Kirk and Alexander 1990). Despite the closure of the steel mill, the town of Kirkland incorporated in 1905 with a population of 400 (City of Kirkland 2025).

The first railroad in the area was the Seattle Lake Shore and Eastern Railway (SLS&E), incorporated in 1889 to serve as a major transportation route between the greater Seattle area and Canada (MacIntosh 1999). It was typically built along existing wagon trails (Emerson 1998). In 1890, the first passenger trains arrived, when the line became the Seattle & National, which was later incorporated into the Northern Pacific, Seattle Division in 1898 (Armbuster 1999).

The town of Kirkland constructed the first wool mill in the State of Washington in 1892 which produced woolen products for Alaska gold rush prospectors and the U.S. military during World War I (Bagley 1929; Kirk and Alexander 1990). Ship building began in the 1880s in the Kirkland area, along the shores of Lake Washington. Ferries and other boats for Lake Washington were either built or repaired in Kirkland and the opening of the Lake Washington Ship Canal in 1917 opened up the industry to ocean-going vessels including steamers for the Mosquito Fleet, small Puget Sound passenger and freight boats. During World War II, shipyards in the area were commissioned to build 29 steel tenders for the U.S. Navy and repaired hundreds more and employed upwards of 6,000 people during the war years (Bryant 2000; City of Kirkland 2025; Kirk and Alexander 1990; Kirkland Heritage Society 2025).

From the 1960s to 1980s, Kirkland expanded by annexing the adjoining town of Houghton and several neighborhoods. Today, the city of Kirkland is a thriving suburb of Seattle with a community of over 92,000 people (City of Kirkland 2025).

3. RECORDS SEARCH AND REVIEW

Tetra Tech conducted a cultural resource record search and literature review of the Project site and a surrounding 1-mile buffer (Study Area) through files maintained by the Washington DAHP in WISAARD. The background research was conducted on October 8, 2025. Data were derived from WISAARD, as well as historic maps and aerial photographs. Efforts focused on collecting information regarding previously recorded cultural resources within the Study Area and areas where potential unrecorded resources may exist. This research provided a summary of the type and frequency of cultural resources that are present in the project vicinity.

3.1 Historical Records and Maps Review

A review of historic maps and aerial imagery provided an understanding of the development of the Project site. The Bureau of Land Management's General Land Office (GLO) conducted early cadastral surveys to define boundaries and subdivisions of lands of the United States in order that land patents could be issued. This was the first step in transferring land from the Federal government to private individuals. The 1871 GLO maps indicate the project location 0.5-miles east of Lake Washington. No trails, homesteads, indigenous villages, or other cultural features were observed in or near the Project site. Land Patent Records held by the BLM indicate a patent for the project site was issued to John Jehli in 1889. Adjacent lands were patented to Nancy McGregor and James Popham in 1874 and Joseph Jehli in 1890.

Review of the historic 1897 USGS map indicates the Project site was mostly undeveloped except for a road trending west to east just north of the Project site. The 1950 USGS maps indicates several buildings within and adjacent to the project location.

Review of the historic aerials the 1936 aerial depicts buildings within the northern half of the Project site. The 1964 aerial depicts school buildings and a parking lot in the northern half of the Project site.

3.2 WISAARD Database Search

The WISAARD database includes records of previous archaeological investigations conducted since 1995, as well as records or archaeological, historical, and cultural resources that have been previously recorded within the state. The review of the Study Area identified 22 previously conducted surveys. All surveys are located within 1-mile of the project; however, no previous surveys have been completed for the Project site. These surveys were conducted between 2000 and 2024 and consist of 14 block and eight linear surveys.

Approximately 20 percent of the study area has been previously surveyed for cultural resources. Investigation methods have included background research, pedestrian and sub-surface survey, test excavation, data recovery excavations, and construction monitoring during ground disturbing activities.

A total of one archaeological site, one railroad, and two isolated finds (IFs) are located within the Study Area. No archaeological resources have been recorded within the Project site. The archaeological resources consist of two historic sites. All isolated finds consist of historic artifacts. Table 1 below provides a general description of each resource and current NRHP eligibility. The WISAARD search did not identify any Traditional Cultural Properties (TCPs) within the study area.

Table 1: Previously Recorded Archaeological Resources within the Study Area

Trinomial or Other Assigned #	Time Period	Description	NRHP Eligibility	In Project Area or 1-mile Buffer
Historic Sites (Aboveground/Built Environment)				
45KI00945	Historic	Lake Washington Boulevard	Not determined	1-mile buffer
88798	Historic	Northern Pacific Railway – Washington Beltway	Eligible	1-mile buffer
Isolated Finds				
45KI00969	Historic	Listerine Bottle ca. 1930-1940s	Not determined	1-mile buffer
45KI01707	Historic	1983 Pepsi bottle	Not eligible	1-mile buffer

The project site is located in an urban setting with many historic buildings present in the Study Area. On the north side of 53rd Street is the Puget Sound Adventist Academy (property ID: 336978). The school was constructed in 1940. The building has not been listed on the NRHP but was determined to be eligible in 2022.

3.3 Archaeological Predictive Model

The DAHP predictive model uses cultural and environmental data to predict the probability of archaeological resources within a landscape. According to the model, the Project site is considered as “Moderate Risk” (**Figure 3**).

3.4 Geotechnical Review

A geotechnical assessment was completed for the project site by Associated Earth Sciences, Inc (Associated Earth Sciences Inc. 2025). This report was reviewed to assess the potential for buried soils and

archaeological deposits at the project site. Each of the geotechnical borings was reviewed to identify whether any organics were present in the sediments that might indicate a buried soil horizon. These horizons can indicate a previous period of geological stability that may have been overlain with alluvial deposits from past floods or glacial events. Occasionally these buried soil horizons contain archaeological deposits that are associated with the precontact use of the area.

The subsurface investigations completed for the geotechnical investigation included advancing a 6-inch (8.25-inch for EB-1W) diameter hollow-stem soil borings (**Table 2**; Figure 4). These investigations indicate that soils underlying the site generally consist of fill overlain by Vashon recessional lacustrine and Vashon advance outwash deposits (Associated Earth Sciences Inc. 2025). Fill was encountered in all borings extending approximately 3 to 9 feet below ground surface (bgs). Underlying the fill, the sediments consist of Vashon recessional lacustrine sediments deposited in or adjacent to a glacial lake setting during recession of the Vashon Stade of the Fraser Glaciation approximately 12,500 years ago. Vashon recessional lacustrine deposits were noted in four borings at approximately 3 and 9 ft bgs across the Project site. Vashon advance outwash deposits were encountered between 12 and 15.5 feet bgs.

Table 2. Summary of the Geotechnical Soil Borings at the Redmond Elementary School Site.

Boring	Surface	Fill Termination Depth (Ft)	Vashon Recessional Lacustrine Sediments Termination Depth (Ft)	Vashon Advance Outwash Deposits Termination Depth (ft)	Organics Present?
Associated Earth Sciences Inc. (2025) Exploration Logs					
EB-1W	Topsoil	4	12	56.5	Relic topsoil from 4 to 5.5 ft
EB-2	Topsoil	3.5	N/A	26.5	Abundant organics in fill
EB-3	Topsoil	5.5	12	26.5	Abundant rootlets in fill
EB-4	Asphalt	9	15.5	26.5	No
EB-5	Asphalt	4	13	26.5	No
EB-6	Asphalt	7	N/A	26.5	Rare rootlets in fill
Rittenhouse-Zeman & Associates (1981) Exploration Logs					
B-1	Topsoil	7	11	24	No
B-2	Topsoil	3.5	N/A	24	Relic topsoil from 3.5 to 4.5 ft
B-3	Topsoil	2	12	24	No

Figure 4. Boring locations (copied from Associated Earth Sciences Inc. 2025).

The borings terminated between 24 and 56.5 feet bgs. Sediments encountered below the fill include granular loose to medium dense Vashon recessional lacustrine deposits overlying dense to very dense Vashon advance outwash deposits (Associated Earth Sciences Inc. 2025).

Based on the investigations, the Project site has very few areas of intact soils in the upper stratigraphy. The geotechnical borings indicate that the site was heavily disturbed by previous grading to create a flat to gently sloping project area except for an approximately 20-foot-high slope along the eastern boundary of the Project site.

Review of the Holocene sediments does not indicate that intact buried soils are present. Archaeological deposits associated with the more recent past are not likely to be present as previous construction activities at the Project site have removed the upper soils grading the landscape down to the lacustrine and outwash deposits and leveling the landscape with fill. The deepest areas of fill underly the current parking lot footprint and lesser deposits of fill are present in the current stormwater pond.

Based on this review of the geological borings, an archaeological investigation of the Project site does not appear warranted. The geotechnical investigation indicates that the depth of fill across the site exceeds three feet and that there are no intact buried soil horizons. Using archaeological shovel probing methods to evaluate the subsurface deposits would be limited. Shovel probes would generally not extend below the fill due to the limits of using a handheld shovel. Although mechanical trenching methods could be used to examine the sediments below the fill, the geotechnical explorations do not indicate that this is warranted.

4. SUMMARY AND RECOMMENDATIONS

This study reviewed predictive models, archaeological contexts, historical contexts, and the geotechnical investigation of the site, to assess the implications of ground disturbing activity on archaeological resources. No archaeological resources were identified in the project area and no prehistoric archaeological resources were observed within one-mile.

The DAHP predictive model indicates areas of moderate risk for archaeology within the Project site, however the recent geotechnical investigation suggests that the landscape of the property has been heavily altered. Across the Project site, a deposit of fill overlies the lacustrine and outwash deposits below. The presence of rootlets within the upper deposits suggests that the upper native surface has been removed, likely during the original clearing and preparation of the site. The potential presence of precontact archaeological deposits is low.

Impacts to the historic Puget Sound Adventist Academy are not anticipated. The changes to the historic setting of the school will not impact its significance or eligibility for NRHP listing.

During construction, implementation and use of an Inadvertent Discovery Plan should be utilized. If archaeological resources are discovered during construction, all construction activity in the immediate area should stop so that a qualified archaeologist can accurately assess the context, significance, and integrity of the find. If human remains are discovered (e.g., human skeletal remains), the contractor or City should contact the King County Coroner, Kirkland Police, and the affected Native American tribe(s) if the remains are determined to be Native American. If the coroner determines that the burial is not a forensic case, the DAHP, working under terms of the state law (RCW 27.44; 68.50; 68.60) will manage identification and disposition of the remains. The State physical anthropologist (Guy Tasa, 360.586.3534), will make a determination of whether the remains are Indian or non-Indian and report that finding to the affected parties. All Native American graves on private or public lands are protected under Washington State law (RCW 27.44). Disturbance of a known Native American grave is considered a Class C felony.

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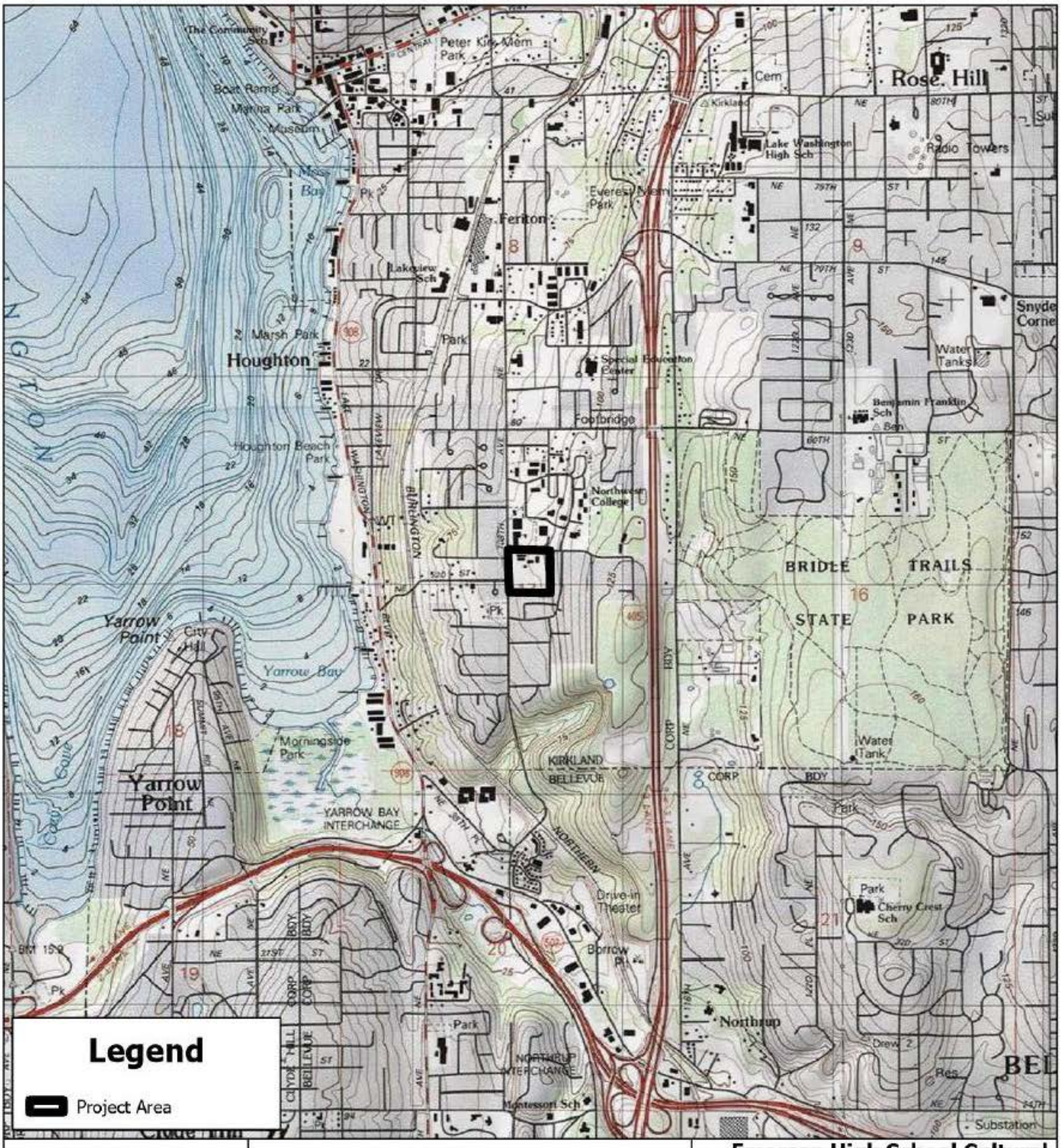
FIGURES



Project Location

Figure 1
Project Vicinity
1:24,000

TETRA TECH, INC.

N

0 0.35 0.7 1.4 Kilometers

0 0.25 0.5 1 Miles

Emerson High School Cultural Resource Review
Coordinate System:
WGS 1984 UTM Zone 10N
7.5' Quadrangles:
Kirkland, Washington (2017)
Section 17 of T25N R5E
King Co., Washington
10/7/2025

Project Location

Figure 2
Project Area
1:1,359

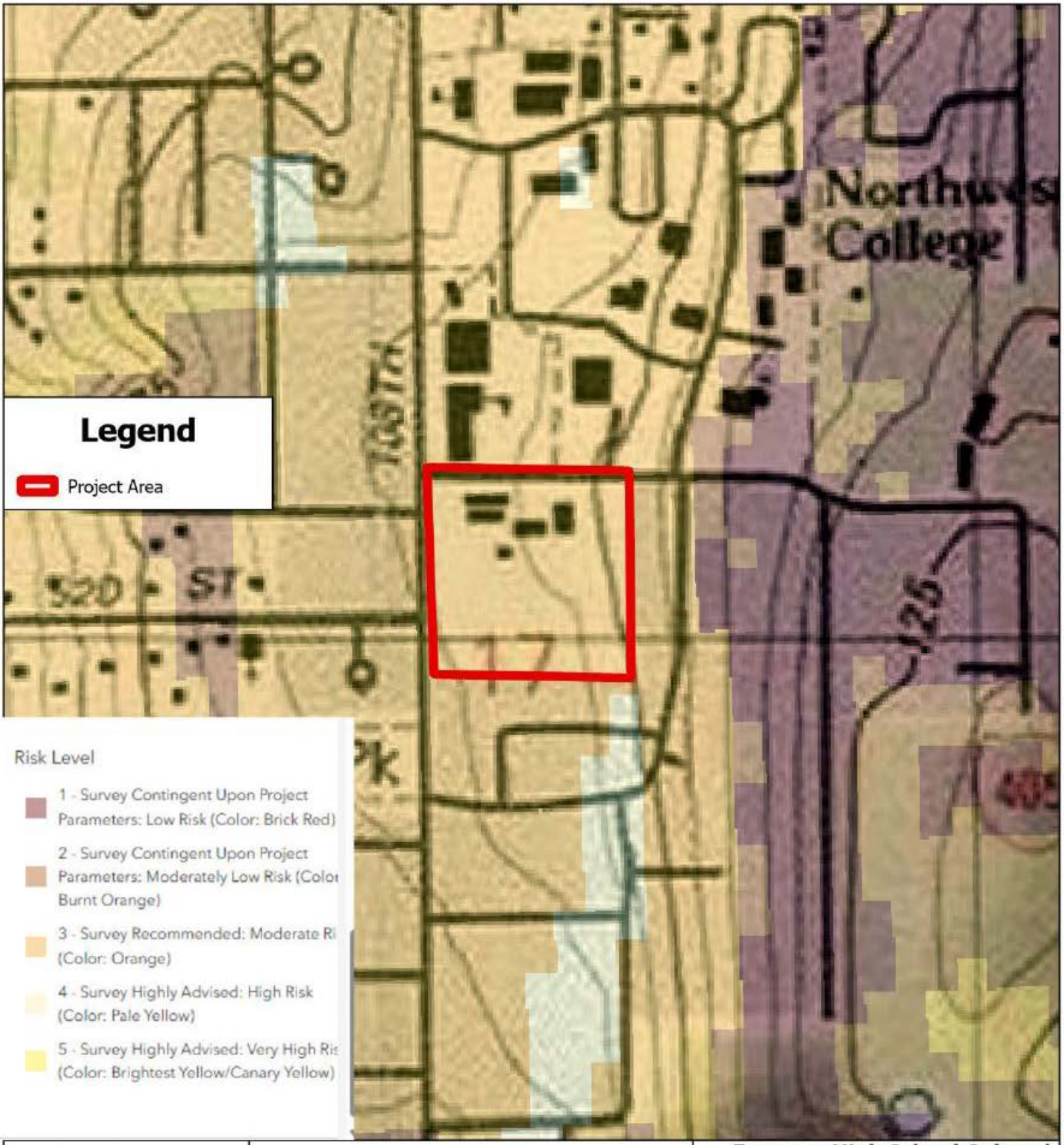
TETRA TECH, INC.

N

0 20 40 80
Meters
0 75 150 300
Feet

Maxar, Microsoft

Emerson High School Cultural Resource Review
Coordinate System:
WGS 1984 UTM Zone 10N
7.5' Quadrangles:
Kirkland, Washington (2017)
Section 17 of T25N R5E
King Co., Washington
10/7/2025



Project Location

Figure 3
DAHP Predictive Model
1:5,000

TETRA TECH, INC.

N

0 80 160 320 Meters

0 290 580 1,160 Feet

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c)

Emerson High School Cultural Resource Review
Coordinate System:
WGS 1984 UTM Zone 10N
7.5' Quadrangles:
Kirkland, Washington (2017)
Section 17 of T25N R5E
King Co., Washington
10/8/2025

STATE ENVIRONMENTAL POLICY ACT (SEPA) DETERMINATION OF NON-SIGNIFICANCE

FOR MORE INFORMATION ABOUT THIS PROJECT VISIT: www.LWSD.org/for-Community

PROJECT INFORMATION

PROJECT NAME: Lake Washington School District: Emerson Project

SEPA FILE NUMBER: 202600070

PROJECT DESCRIPTION: This threshold of determination analyzes the environmental impacts associated with the following action:

> **Construction of a new 2-story public education building. The project will demolish the existing Emerson building and portable classroom building. The existing gym and Northstar Middle School will remain in place. Site improvements include new landscaped areas, new vehicle/pedestrian circulation, parking, service/utility yard, and geothermal loop.**

PROJECT LOCATION: LWSD Site 80 Emerson Campus

SITE ADDRESS: 10903 NE 53rd Street, Kirkland, WA 98033

PROPONENT: Lake Washington School District

LEAD AGENCY: Lake Washington School District

The lead agency for this proposal has determined that the proposal does not have a probable significant adverse environmental impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after a review of the completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

DISTRICT CONTACT INFORMATION

NAME: Brian Buck

EMAIL: construction@lwsd.org

IMPORTANT DATES

COMMENT PERIOD

Depending on the proposal, a comment period may not be required. An "**X**" is placed next to the applicable comment provision.

___ There is no comment period for this DNS. Please see below for appeal provisions.

_X_ This Determination of Non-Significance (DNS) is issued under WA 197-11-340(2). The lead agency will not act on this proposal for 14 calendar dates from the date of issuance. Comments must be submitted by 4:00 p.m., January 26, 2026. The Responsible Official will reconsider the DNS based on timely comments and may retain, modify, or, if significant adverse impacts are likely, withdraw the DNS. If the DNS is retained, it will be final after the expiration of the comments deadline.

Comments must be submitted by:

4:00 p.m., January 26, 2026

COMMENT PERIOD

You may comment on this determination in writing by 4:00 p.m. on January 26, 2026. Address comments to: Brian Buck, Executive Director, Support Services, Lake Washington School District, 15212 NE 95th Street, Redmond, WA 98052, or by email to: construction @lwsd.org

DATE OF DNS ISSUANCE: January 12,2026

RESPONSIBLE OFFICIAL: Brian Buck
Executive Director,
Support Services

Signature: 

SEPA[1] Environmental Checklist

Purpose of checklist

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization, or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. **You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown.** You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to **all parts of your proposal**, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for lead agencies

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B, plus the Supplemental Sheet for Nonproject Actions (Part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in "Part B: Environmental Elements" that do not contribute meaningfully to the analysis of the proposal.

[1] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/Checklist-guidance

A.Background

Find help answering background questions[2]

1. **Name of proposed project, if applicable:**

   Emerson Campus Project

2. **Name of applicant:**

   Lake Washington School District No. 414

3. **Address and phone number of applicant and contact person:**

   15212 NE 95th Street
   Redmond, WA 98052

   Brian Buck, Executive Director of Support Services
   (425)936-1102

4. **Date checklist prepared:**

   07/01/2025

5. **Agency requesting checklist:**

   Lake Washington School District No. 414

6. **Proposed timing of schedule (including phasing, if applicable):**

   This project is scheduled to be constructed from April 2026 through September 2027

7. **Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

   No

8. **List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

   Survey – March 20, 2025

   Critical Areas Report – June 6, 2025

   Environmental Noise Report – March 19, 2025

   Arborist Report – June 25, 2025

   Traffic Study – July 1, 2025

   Preliminary Geotechnical Engineering Report – March 8, 2025

9. **Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

   None known

[2] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-A-Background

10. List any government approvals or permits that will be needed for your proposal, if known.

City of Kirkland: Land Use (Process IIB), Land Surface Modification, Building, Electrical, Demolition Permits

King County: Department of Health Permit

Washington State Department of Ecology: National Pollutant Discharge Elimination System (NPDES) Permit

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The proposed project includes the construction of a new 2-story, approximately 50,000 GSF public education building. The project will demolish the existing Emerson Building and Portable Classroom Building. The existing gym and Northstar Middle School will remain in place. Site improvements include new landscaped areas, new vehicle/pedestrian circulation, parking, service/utility yard, and geothermal loop. The existing school will remain occupied throughout construction.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The project site is on the existing Emerson Campus, located at 10903 NE 53rd Street, Kirkland, WA 98033 (parcel number 172505-9195)

B.Environmental Elements

1. Earth

Find help answering earth questions[3]

a. General description of the site:

Flat to gently sloping except for an approximately 20-foot high slope along the eastern property boundary.

Circle or highlight one: Flat, rolling, hilly, steep slopes, mountainous, other:

[3] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-earth

b. What is the steepest slope on the site (approximate percent slope)?

The steepest developed slope is approximately 33%. The steepest undeveloped slope on site is approximately 38% along the east side of the property.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them, and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

See geotechnical engineering report prepared for this project. According to the report, sediments encountered during subsurface explorations generally consisted of fill underlain by Vashon recessional lacustrine and Vashon advanced outwash glacial deposits.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

See geotechnical engineering report. According to City of Kirkland GIS mapping, portions of the site are mapped as “moderate susceptibility” and “high susceptibility” landslide hazards. However, based on geotechnical observations noted in the geotechnical report, the site survey indicates that the height of these localized features ranges from 4 to 10 feet and the overall slope gradients are less than 25 percent therefore based on the KZC definition for landslide hazard areas the slope classifies as a moderate landslide hazard. Additionally, the geotechnical engineer conducted a visual survey of the slopes and did not observe any signs of instability, recent movements, or groundwater seepage.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

The site will be excavated for a detention vault and filled for a parking lot. Excavation will include approximately 1,500 CY of cut with approximately 3,500 CY of fill.

f. Could erosion occur because of clearing, construction, or use? If so, generally describe.

Erosion could occur during fill and excavation, but it will be controlled and managed through implementation of a Stormwater Pollution Prevention Plan and appropriate BMPs.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

After project construction approximately 50% of the site will be covered with impervious surfaces such as asphalt paving, concrete paving, and buildings.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any.

TESC BMPs will be implemented during site construction. These measures may include such elements as silt fences, sedimentation tanks, silt dykes, catch basin inserts and straw wattles.

2. Air

Find help answering air questions[4]

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Construction activities have the potential to create temporary dust emissions during earthmoving activities and exhaust emissions due to the combustion of gasoline and diesel fuels. Dust and exhaust emissions are expected to be minimal, localized and temporary. After construction emissions will be generated by vehicles accessing the site and will be similar to existing conditions.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

Other than vehicle emissions from adjacent traffic, there is no source of off-site emissions that will affect the proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Potential construction related BMPs include using water sprays or other non-toxic dust control methods on unpaved roadways, minimizing vehicle speeds on unpaved surfaces and preventing the tracking of mud onto public streets. Work may also be minimized during high winds. Vehicular emissions are regulated by two agencies: the US Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology). Proposed construction of the project will be in accordance with the agency regulations. Vehicles will be turned off when not in use.

3. Water

Find help answering water questions[5]

a. Surface:

Find help answering surface water questions[6]

1. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

No, there are no surface water bodies on or in the immediate vicinity of the site, excluding existing stormwater detention.

[4] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-Air
[5] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water
[6] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Surface-water

2. **Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

   No work will occur within 200 feet of any water bodies.

3. **Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

   No fill or dredge material will be placed in or removed from any surface water or wetlands.

4. **Will the proposal require surface water withdrawals or diversions? Give a general description, purpose, and approximate quantities if known.**

   The proposal will not require surface water withdrawals or diversions.

5. **Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

   The proposal does not lie within a 100-year flood plain.

6. **Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

   No waste materials will be discharged to surface waters.

b. Ground:

Find help answering ground water questions[7]

1. **Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give a general description, purpose, and approximate quantities if known.**

   The proposal will not withdraw groundwater from a well.

2. **Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (domestic sewage; industrial, containing the following chemicals…; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

   No waste materials will be discharged into the ground from any source as part of this proposal.

c. Water Runoff (including stormwater):

[7] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Groundwater

1. **Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

   Stormwater will be the primary source of runoff on this site. Runoff will be collected through roof gutters and catch basins then conveyed to an on-site stormwater detention vault which discharges to a storm line on the west side of the property. The site is part of the Yarrow Creek Drainage Basin.

2. **Could waste materials enter ground or surface waters? If so, generally describe.**

   The project will meet the enhanced basic water quality standards outlined in the City of Kirkland Stormwater Drainage Manual.

3. **Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.**

   No

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

The project will include the construction of an infiltrating stormwater detention vault designed to meet stormwater flow control standards as outlined in the City of Kirkland Stormwater Drainage Manual.

4. Plants

Find help answering plants questions

a. Check the types of vegetation found on the site:

☒ **deciduous tree: alder, maple, aspen, other**

☒ **evergreen tree: fir, cedar, pine, other**

☒ **shrubs**

☒ **grass**

☐ **pasture**

☐ **crop or grain**

☐ **orchards, vineyards, or other permanent crops.**

☐ **wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other**

☐ **water plants: water lily, eelgrass, milfoil, other**

☐ **other types of vegetation**

b. What kind and amount of vegetation will be removed or altered?

Street trees near end-of-life are being removed and replaced 1:1 as part of right-of-way improvements. Within the site, eight landmark trees will be removed, to be replaced by

24 new landmark trees. Turf grass and planting beds with non-native vegetation will be removed and replaced with meadow mix and native vegetation.

c. List threatened and endangered species known to be on or near the site.

No known species on or near the site

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any.

250 existing trees will be preserved, with new tree plantings along pathways including higher percentage of conifers. Landscaping will also include use of drought-tolerant and majority native plants, and use of drought-tolerant meadow seed mix instead of turf in some site areas.

e. List all noxious weeds and invasive species known to be on or near the site.

Blackberry (Rubus bifrons)
Ivy (Hedera helix)

5. Animals

Find help answering animal questions[8]

a. List any birds and other animals that have been observed on or near the site or are known to be on or near the site.

Examples include:

- **Birds: hawk, heron, eagle, songbirds, other:**
- **Mammals: deer, bear, elk, beaver, other:**
- **Fish: bass, salmon, trout, herring, shellfish, other:**

Songbirds, insects and small mammals have been observed on site.

b. List any threatened and endangered species known to be on or near the site.

None observed

c. Is the site part of a migration route? If so, explain.

There is no terrestrial connection to nearby habitat or open space. The site is near existing salmon habitat but is not directly connected.

d. Proposed measures to preserve or enhance wildlife, if any.

Existing tree canopy will be protected and retained to the greatest extent possible. Proposed landscaping would provide cover for smaller animals, and food and habitat for pollinators.

[8] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-5-Animals

e. List any invasive animal species known to be on or near the site.

None known

6. Energy and natural resources

Find help answering energy and natural resource questions[9]

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Geothermal energy will be used for heating and cooling. Electric and solar energy will be used to meet other energy needs. A natural gas generator will provide backup power for IT loads and refrigeration.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The project would not affect potential use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any.

- LED lighting throughout interior & exterior
- Natural daylighting with lighting controls system
- Occupancy sensors & time clock controls to automatically turn off lights during unoccupied periods
- Solar panels with infrastructure in place to support additional future roof-top panels
- Electrical vehicle charging stations
- Ground-sourced (geothermal) heat pump HVAC system
- Occupancy sensors and CO2 sensors modulate ventilation.
- Heat recovery on DOAS ventilation air systems.
- Heat pump domestic hot water system.
- Low flow plumbing fixtures
- Thermal building envelope meeting code

7. Environmental health

Health Find help with answering environmental health questions[10]

[9] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-6-Energy-natural-resou
[10] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-7-Environmental-health

a. **Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur because of this proposal? If so, describe.**

None known

1. **Describe any known or possible contamination at the site from present or past uses.**

   None known

2. **Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.**

   None known

3. **Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.**

   None anticipated

4. **Describe special emergency services that might be required.**

   None known

5. **Proposed measures to reduce or control environmental health hazards, if any.**

   None anticipated

b. Noise

1. **What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?**

   See the Environmental Noise Report prepared for this project. The report notes measurements during school hours were considered normal for the site and activities of the community. Noise from traffic in the immediate area will not exceed the limits established by the Washington Administrative Code.

2. **What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site)?**

   Construction will create typical short-term construction noise. The noise level would depend on the type of work and equipment being used. The increase in noise level would be temporary and in many cases, of short duration. Long-term noise will be typical of a school, which already exists on site.

3. **Proposed measures to reduce or control noise impacts, if any:**

   Noise generation during construction and demolition will be performed in compliance with Kirkland Zoning Code 115.25.

8. Land and shoreline use

Find help answering land and shoreline use questions[11]

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The site is currently used as a school campus. The proposal does not change the current land use on nearby or adjacent properties.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses because of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

The project site has not been used as working farmlands or working forest lands.

1. **Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how?**

   No

c. Describe any structures on the site.

Exiting structures on site include:

• A gym building

• Four portables surrounding a pavilion that is used by Northstar Middle School

• A 1-story school building, approximately 30,000 SF, used by Emerson High School and Emerson K-12 School

• A portable building used by Emerson K-12 School

d. Will any structures be demolished? If so, what?

Yes, the school building and portable used by Emerson K-12 School will be demolished.

e. What is the current zoning classification of the site?

RS8.5, low density residential

f. What is the current comprehensive plan designation of the site?

Low density residential

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable

[11] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-8-Land-shoreline-use

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

No

i. Approximately how many people would reside or work in the completed project?

Approximately 33 full-time and 21 part-time staff members would work in the completed project. The project does not have residents.

j. Approximately how many people would the completed project displace?

None

k. Proposed measures to avoid or reduce displacement impacts, if any.

Not applicable

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any.

The proposal is compatible with the existing educational use of the site.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

Not applicable

9. Housing

Find help answering housing questions[12]

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None

c. Proposed measures to reduce or control housing impacts, if any:

Not applicable

10. Aesthetics

Find help answering aesthetics questions[13]

[12] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-9-Housing
[13] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-10-Aesthetics

a. **What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?**

The tallest height of the proposed 2-story structure is approximately 37' above the average grade. The proposed principal exterior building materials are metal panel, glass, cementitious panel, wood, and membrane roofing.

b. **What views in the immediate vicinity would be altered or obstructed?**

Views for the residents living adjacent to the site would be altered with the proposed new structure and demolition. No views in the immediate vicinity would be obstructed.

c. **Proposed measures to reduce or control aesthetic impacts, if any:**

The new structure is conceptually designed to be a quiet backdrop to the existing natural beauty of the site. Additionally, mechanical units are incorporated into the roof form and utility yards at grade are screened.

11. Light and glare

Find help answering light and glare questions[14]

a. **What type of light or glare will the proposal produce? What time of day would it mainly occur?**

The proposed project includes LED lighting to safely illuminate vehicular and pedestrian circulation to the school building and adjacent walkways. The lighting will be mainly operational during occupied hours in times when there is minimal daylight: start of school until sunrise and during evening events.

b. **Could light or glare from the finished project be a safety hazard or interfere with views?**

No

c. **What existing off-site sources of light or glare may affect your proposal?**

None

d. **Proposed measures to reduce or control light and glare impacts, if any:**

New site lighting would be designed to minimize spillage beyond the site.

12. Recreation

Find help answering recreation questions

a. **What designated and informal recreational opportunities are in the immediate vicinity?**

Carillon Woods and Watershed Park are to the northwest and southeast of the site, respectively. Bridel Trails State Park is farther east of the site on the other side of I-405. The Cross Kirkland Corridor Trail is about a half mile west of the site. An existing open field and gym on site is available for public use outside of school hours.

[14] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-11-Light-glare

b. Would the proposed project displace any existing recreational uses? If so, describe.

The existing open field on site will be displaced during construction and relocated on site at project completion. The existing gym will remain operational during construction. The project would not displace any recreational uses off-site.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Maintain gym access and operation during construction. Replace the open field that is displaced by the new building. No permanent impacts are anticipated.

13. Historic and cultural preservation

Find help answering historic and cultural preservation questions[15]

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

None known

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

None known

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

GIS data has been reviewed.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

None anticipated

14. Transportation

Find help with answering transportation questions[16]

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The site is bound on the west and north side by 108th Avenue NE and NE 53rd Street, respectively. On the south and east side, the site is bound by residential properties.

[15] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-13-Historic-cultural-p
[16] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-14-Transportation

Existing access from 53rd Street will remain unchanged. Existing access from 108th Avenue NE will be revised. The existing in-only drive will be revised to be two-way, and the out-only drive will be removed.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The site is served by public transit. King County Metro Bus line 255 runs along 108th Avenue NE with northbound and southbound stops at NE 53rd Street.

c. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle, or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

Right of way improvements include protected bike lane and sidewalk improvements in the NE 53rd Street and 108th Avenue NE right-of-way (public).

d. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No

e. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

The proposed Emerson Campus Project and entitlement for up to 167 additional students is estimated to generate 588 new weekday daily trips (294 entering, 294 exiting). Peak volumes are expected to occur from 7:00 to 9:00 AM and 2:00 to 4:00 PM. The trip generation estimates were based on existing trip rates established from a two-day trip generation study conducted at the existing Emerson High School in March 2024.

f. Will the proposal interfere with, affect, or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No

g. Proposed measures to reduce or control transportation impacts, if any:

The applicant will be required to pay transportation impact fees to the City of Kirkland, which will fund a portion of the City's planned transportation improvements.

15. Public services

Find help answering public service questions[17]

[17] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-15-public-services

a. **Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.**

No

b. **Proposed measures to reduce or control direct impacts on public services, if any.**

There are no public service impacts anticipated, therefore no mitigation is proposed.

16. Utilities

Find help answering utilities questions[18]

a. **Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other:**

b. **Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

Electricity – Puget Sound Energy
Natural Gas – Puget Sound Energy
Water – City of Kirkland Utilities
Sanitary Sewer – City of Kirkland Utilities
Refuse Services – City of Kirkland Utilities
Storm Drainage – City of Kirkland Utilities
Trenching excavation, placing vaults, and pavement restoration will be necessary for the installation and connection of these utilities.

C.Signature

Find help about who should sign[19]

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

X Laura DeGooyer

Type name of signee: Laura DeGooyer
Position and agency/organization: Director of Capital Projects, Support Services, LWSD
Date submitted: 01/07/2026

[18] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-16-utilities
[19] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-C-Signature

Lake Washington School District

Support Services Center
15212 NE 95TH Street • Redmond, WA 98052
Office: (425) 936-1100 •Fax: (425) 883-8387
www.lwsd.org

February 10, 2026

Lake Washington School District
15212 NE 95th ST
Redmond, WA 98052

Re: Emerson Campus Project – SEPA Determination (DNS)
Transmittal of Public and Agency Comments and District Responses

To whom it may concern:

Pursuant to the State Environmental Policy Act (SEPA) review process for the Emerson Campus Project, Lake Washington School District (LWSD) hereby transmits the two written comments received during the SEPA comment period, along with the District's responses.

Comment #1
From: Snoqualmie Indian Tribe
Date Received: January 13, 2026
The Snoqualmie Tribe [Tribe] is a federally recognized sovereign Indian Tribe. We were signatory to the Treaty of Point Elliott of 1855; we reserved certain rights and privileges and ceded certain lands to the United States. As a signatory to the Treaty of Point Elliot, the Tribe specifically reserved among other things, the right to fish at usual and accustomed areas and the "privilege of hunting and gathering roots and berries on open and unclaimed lands" off-reservation throughout the modern-day state of Washington.
Thank you for the opportunity to review and comment. Based on the information provided and our understanding of the project and its APE, we would recommend an archeological review performed for this project. This is in an area the Snoqualmie Tribe considers culturally significant and has a high probability to have unknown archaeological deposits. If any archaeological work is performed in native soils, we request notification. An IDP should not be used in lieu of archeological investigation. Cultural and archaeological resources are non-renewable and are best discovered prior to ground disturbance.

District Response:
LWSD has completed a Cultural Resource Assessment for the Emerson Campus site. The assessment determined that the potential presence of precontact archaeological deposits is low. During construction, the District will implement an Inadvertent Discovery Plan and will notify all relevant parties in the event that archaeological or cultural resources are encountered.

Comment #2
From: Adjacent Property Owner
Date Received: January 13, 2026
We received your SEPA determination of non-significance for the Emerson Project. We live adjacent to the project. I have a request & a comment:
Request: Can you provide a map of the footprint or plan view of the project? I would like to see the footprint of the project with details regarding the construction, landscaping, pedestrian & vehicle circulation, parking, service utility yard, and geothermal loop.
Comment: The web address provided to view more info about the project is incorrect. Typing in the address results in Error 404 page not found.

District Response:
LWSD responded by inviting the commenter to attend a Good Neighbor Open House to review project information and ask questions. The District provided the correct project website address, which includes current designs and site plans:
https://www.lwsd.org/services/facilities/construction/building-excellence-construction-levy/rebuild-and-enlarge-emerson-campus
Additional materials, including construction logistics plans, were posted following the open house event.

Respectfully,

Carly Parkins
Project Manager
Lake Washington School District

CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Tony Leavitt, Senior Planner

From: Thang T Nguyen, Transportation Engineer

Date: May 2, 2025

Subject: Emerson High School Transportation Concurrency Test Notice, TRAN25-00268

The purpose of this memo is to inform you that the proposed Emerson High School expansion has passed transportation concurrency. This memorandum will serve as the transportation concurrency test notice and allows the applicant to proceed with other development permits and the SEPA review. This test notice will expire on August 2, 2025, unless a transportation impact analysis report is submitted, or an extension of this notice is granted prior to 5 PM, August 2, 2025.

Project Description
The development is located in the Bridal Trails Shopping Center on parcel 1625059195 at address 10903 NE 53rd St, Kirkland, WA 98033. Emerson High School maximum enrollment will increase from 178 students to 345 students, an increase of 167 students.

Trip Generation
The proposed expansion will generate approximately 78 person trips.

This memo will serve as the concurrency test notice for the proposed project. Per *Section 25.10.020 Procedures* of the KMC (Kirkland Municipal Code), this Concurrency Test Notice will expire in one year (May 2, 2026) unless a development permit and a certificate of concurrency are issued, or an extension is granted if a transportation impact analysis report is submitted within 90 days of this notice.

EXPIRATION
The concurrency test notice shall expire, and a new concurrency test application is required unless:

1. **A complete SEPA checklist, traffic impact analysis (TIA) and all required documentation are submitted to the City within 90 calendar days of the concurrency test notice (August 2, 2025).**

2. A Certificate of Concurrency is issued, or an extension is requested and granted by the Public Works Department within one year of issuance of the concurrency test notice. (A Certificate of Concurrency is issued at the same time a development

permit or building permit is issued if the applicant holds a valid concurrency test notice.)

3. A Certificate of Concurrency shall expire six years from the date of issuance of the concurrency test notice unless all building permits are issued for buildings approved under the concurrency test notice.

APPEALS

The concurrency test notice may be appealed by the public or agency with jurisdiction. The concurrency test notice is subject to an appeal until the SEPA review process is complete and the appeal deadline has passed. Concurrency appeals are heard before the Hearing Examiner along with any applicable SEPA appeal. For more information, refer to the Kirkland Municipal Code, Title 25. If you have any questions, please call me at x3870.

cc: Energov Tran25-00268

MEMORANDUM

DATE: December 19, 2025

TO: Planning Department
City of Kirkland

FROM: Amy Wasserman
TENW

SUBJECT: Updated Parking Assessment
Emerson Campus Project
TENW Project No. 2024-322

This memorandum documents the parking analysis completed for the proposed *Emerson Campus Project*. The parking analysis evaluates parking demand and proposed parking supply in order to establish the amount of parking required for the proposed project. This memorandum has been updated based on comments received from the City of Kirkland on November 25, 2025.

Project Description

Existing Campus

The existing Emerson Campus is located on an approximate 10-acre parcel (#1725059195) on the southeast corner of the intersection of 108th Ave NE and NE 53rd Street (see Figure 1) in the Central Houghton neighborhood of Kirkland. Based on information provided by the Lake Washington School District (LWSD), the Emerson Campus currently consists of Emerson High School, Northstar Middle School, and the Emerson K-12 program:

- Emerson High School is a choice school that serves students in grades 9 through 12 from throughout the Lake Washington School District. At the time of the existing traffic counts conducted in March 2024, Emerson High School had 68 enrolled students and 22 staff. Based on information provided by LWSD for general enrollment trends at Emerson High School over the last couple of years, approximately 90 percent of students are on campus at some point on an average school day. However, 10 to 15 percent of students typically are not on campus at the start of an average school day because they don't have a period 1 or a period 2 class due to either enrollment in Running Start or WANIC programs (both of which are held off-campus) or late arrival (students don't have a period 1 or period 2 class). Additionally, 20 to 30 percent of students are not on campus at the end of an average school day because they don't have either a period 6 or period 7 due to either enrollment in Running Start or WANIC programs or early dismissal. In addition, based on recent historical information provided by LWSD, fewer than 10 Emerson High School students (approximately 10 to 15% of enrolled students) typically drive themselves to school and most students are dropped off/picked up. Parking permits are also not currently required for students to park on campus.

  Emerson High School is not served by District buses and currently has an 8:00 AM start time and a 2:50 PM end time (except on Wednesdays which is an early release day). Based on information provided by LWSD, some Emerson High School students participate in the Running Start program where they take classes at one of the local community colleges for college credit. As a result, not all students are on campus for the entire school day. The Emerson High School building also

accommodates a daycare used by LWSD staff and students. Per prior traffic entitlements for the relocation of Northstar Junior High (now called Northstar Middle School) to the Emerson Campus in 2012, the maximum allowable enrollment at Emerson High School is 178 students.

- Northstar Middle School is a choice school serving students in grades 6 through 8 from throughout the Lake Washington School District and occupies 4 portables on the Emerson Campus site. Northstar is not served by District buses and currently has a 7:50 AM start time and a 2:20 PM end time (except on Wednesdays which is an early release day). Per prior traffic entitlements for the relocation of Northstar Junior High (now called Northstar Middle School) to the Emerson Campus in 2012, the maximum allowable enrollment at Northstar Middle School is 90 students. At the time of the existing traffic counts conducted in March 2024, Northstar Middle School had 91 enrolled students, all of whom are on campus on an average school day.
- Emerson K-12 provides programs and classes to support families of home-schooled students in the Lake Washington School District. Emerson K-12 is not served by District buses and currently starts at 8:35 AM and ends at 3:15 PM (except on Wednesdays when there are no classes). A maximum of half of the Emerson K-12 enrolled students are ever on campus on a single day since half of the enrolled students are on campus on Mondays and Thursdays and the other half of the enrolled students are on campus on Tuesdays and Fridays.
- Based on information provided by LWSD, entitlement of the Emerson K-12 program is unknown since the program is not included on the District's Annual Capital Facilities Plan. However, at the time of the existing traffic counts conducted in March 2024, the Emerson K-12 program had 76 enrolled students and this is consistent with historical student enrollments. Of the 76 enrolled students, approximately 38 students (50%) were on campus on Tuesday, March 19, 2024 and approximately 38 students (50%) were on campus on Thursday, March 21, 2024.

Based on information provided by LWSD, approximately 20 to 25 percent of the historical student enrollment (~15 to 20 students) at Emerson K-12 is enrolled in grades 9 through 12 and thus may be of driving age. However, fewer than 10 Emerson K-12 students have historically driven themselves to school, and the majority of students are dropped off/picked up. Parking permits are also not currently required for students to park on campus. Access to the Emerson Campus is currently provided via three (3) driveways on NE 53rd Street and two (2) driveways on 108th Ave NE. The driveways on NE 53rd Street include one (1) full-access driveway that provides access to the service vehicle parking area, and enter-only and exit-only driveways that primarily provide access for Emerson High School and Northstar Middle School students and staff. The driveways on 108th Ave NE include one (1) enter-only driveway and one (1) exit-only driveway that primarily provide access for students and staff of the Emerson K-12 program.

Future Campus

The proposed project would construct a new school building for the Emerson High School and Emerson K-12 programs on the southeast side of the Emerson Campus. The Northstar Middle School portables would remain on-site in their current location. The existing Emerson High School and Emerson K-12 programs will remain in operation in the existing building(s) while the new school building is constructed, and the rebuilt school would be operational at the start of the 2027-2028 school year.

The entitlement assumptions for the future Emerson Campus with the proposed project are as follows:

- Emerson High School – With the new building, Emerson High School would support up to 345 total students (167 additional students when compared to existing allowable enrollment). Consistent with existing conditions, District bus service would not be provided for the Emerson High School students.

- Northstar Middle School – The Northstar Middle School would continue to occupy four (4) existing portables on the site. No changes to student entitlement or District bus service would occur with the *Emerson Campus Project*.
- Emerson K-12 School Program – Although the Emerson K-12 program will be accommodated in the new building, no changes to student entitlement or District bus service would occur with the *Emerson Campus Project*.

Vehicular access to the Emerson Campus will continue to be provided via three (3) driveways on NE 53rd Street including one (1) full-access driveway that provides access to a service vehicle parking area, and enter-only and exit-only driveways that primarily provide access for Emerson High School and Northstar Middle School students and staff. Additionally, vehicular access on 108th Ave NE would be provided via one (1) new proposed full-access driveway that will primarily provide access to a new drop-off/pick-up loop for Emerson High School and the Emerson K-12 program, as well as provide parking for Emerson High School and Emerson K-12 staff. The existing enter-only and exit-only driveways on 108th Ave NE would be removed with the proposed project. A site plan is included in Attachment A.

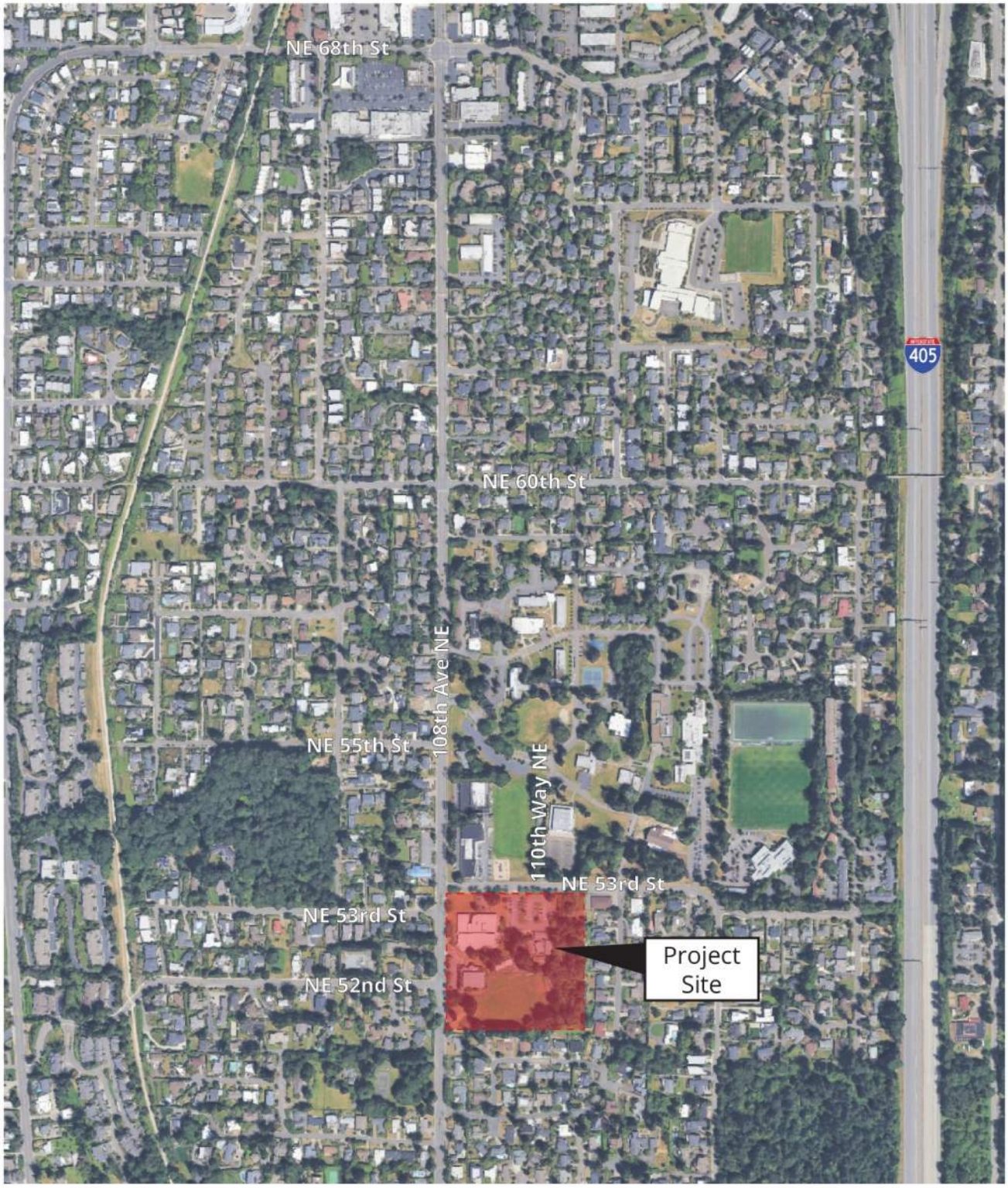


Figure 1: Project Site Vicinity

City of Kirkland Code-Required Parking

The Kirkland Zoning Code does not establish a required parking ratio for school uses. Instead, it defers to KZC Section 105.25, which authorizes the Planning Official to establish required parking on a case-by-case basis.

Parking Supply

Existing

The existing on-site parking supply at the Emerson Campus was field-verified by TENW in March 2024 and is summarized in Table 1 and also illustrated in Attachment B. As shown in Table 1, a total of 90 parking stalls are provided on-site, of which 68 stalls are located in the north parking area on NE 53rd Street, 5 stalls are located in the service parking area on NE 53rd Street, and 17 stalls are located in the west parking area on 108th Ave NE.

Table 1
Existing On-Site Parking Supply

Type of Parking Stall	Number of Available Stalls
North Parking Area on NE 53rd Street	
ADA	3
General	65
North Lot Subtotal	68
Service Parking Area on NE 53rd Street	
General & Reserved	5
Service Lot Subtotal	5
West Parking Area on 108th Ave NE	
ADA	2
General	15
West Lot Subtotal	17
TOTAL EMERSON CAMPUS	**90**

Future with Proposed Emerson Campus Project

With the *Emerson Campus Project*, no changes are proposed to the existing parking supply in the north parking area and service parking area on NE 53rd Street. However, the west parking area on 108th Ave NE would provide a total of 42 stalls (38 general stalls and 4 ADA stalls) as shown in proposed site plan in Attachment B. Therefore, the total future parking supply at the Emerson Campus with the proposed project would be 115 stalls (increase of 25 stalls over existing conditions).

Weekday Parking Demand

The future weekday peak parking demand estimates for the proposed *Emerson Campus Project* were estimated based on a parking demand study conducted at the existing school campus and the prior parking assessment conducted for the Northstar Junior High/Middle School relocation project (*Northstar Junior High/Middle School Relocation Traffic Impact Study Addendum*, TENW, April 2012).

Existing Demand

To assess current weekday parking demand during school hours, the number of parked vehicles on-site at the Emerson Campus was recorded in the morning (approximately 8:30 AM after peak morning drop-off) and in the afternoon (approximately 1:00 PM prior to peak afternoon pick-up) on two weekdays (Tuesday, March 19, 2024 and Thursday March 21, 2024). Attachment C includes the existing weekday parking demand study data.

The results of the parking demand study showed that the single-highest observed weekday parking demand was 44 vehicles (30 vehicles in the north lot, 4 vehicles in the service lot, and 10 vehicles in the west lot) and occurred on Thursday 3/21/24 at 1:00 PM when approximately 95% of enrolled students were on campus. Based on information provided by the schools, vehicles parked in the north lot and service lot on NE 53rd Street are assumed to be associated with Emerson High School or Northstar Middle School and vehicles parked in the west lot on 108th Ave NE are assumed to be associated with the Emerson K-12 program. Therefore, the single-highest parking demand of 44 vehicles by lot/area was then able to be broken down by user (staff vs. students) based on the following information provided by LWSD at the time of the parking demand counts in March 2024:

- Emerson High School has 68 students enrolled.
- Emerson High School has 22 teachers/staff. Future staff would be added at a rate of 1 new staff for every 24.5 additional students enrolled.
- No more than 8 Emerson High School students drive to school.
- Emerson K-12 has 68 students enrolled.
- Emerson K-12 has a maximum of 9 staff on-site at any one time.
- Northstar Middle School has a maximum of 5 staff on-site at any one time.

The existing (March 2024) parking demand at the Emerson Campus by user is summarized in Table 2 below.

Future Demand with Proposed Emerson Campus Project

As noted previously, with the proposed *Emerson Campus Project*, changes to student entitlement and staff are not expected at Northstar Middle School or at the Emerson K-12 program. Therefore, additional parking demand anticipated with the proposed project would be associated with Emerson High School additional students or staff only.

The estimated total future weekday peak parking demand with the Emerson Campus Project is summarized in Table 2.

Table 2
Future Emerson Campus Parking Supply and Demand Summary

Emerson Campus	Existing (March 2024)	Future with Emerson Campus Project and Emerson High School Enrollment at 345 Students
Parking Stall Supply	90	115
Emerson High Teachers/Staff [1]	22	33
Emerson High Students [2]	8	41
Emerson K-12 Teachers/Staff	9	9
Northstar Teachers/Staff	5	5
Total Midday Site Parking Demand [1]	44	88
With 15% Buffer to Reflect Variability in Peak Demand	--	13
Total Midday Site Parking Demand with 15% Buffer	--	101
Surplus Parking Stalls (Supply – Demand)	**46**	**14**

1. Future staff would be added at rate of 1 staff for every 24.5 new students. Therefore, 277 additional students (345 total future students less 68 enrolled as of March 2024) would add 11 additional staff.
2. A total of 8 students out of 68 students drove themselves in 2024 which is equivalent to a factor of 0.118 driving students per enrolled students. This factor was applied to the future enrollment of 345 students to result in 41 future driving students.

As shown in Table 2, the future on-site parking supply of 115 stalls would accommodate the typical weekday peak demand at the school (101 stalls) with a surplus of 14 stalls. The future weekday parking demand calculations are included in Attachment D. It should be noted that the estimated future midday total site peak parking demand shown in Table 2 was increased by an additional 15% buffer as a conservative estimate to account for daily fluctuation in peak parking demand.

Neighborhood Parking Impacts

The Emerson Campus makes every effort to reduce parking impacts to neighborhoods within the immediate vicinity of the site. Since there is an adequate on-site parking supply for staff, students, and visitors, there were no vehicles observed to be parked off-site or in adjacent neighborhoods that were associated with the school campus at the time of the weekday parking demand study in March 2024.

Conclusion

The results of the parking analysis for the proposed *Emerson Campus Project* show that the total future on-site parking supply of 115 stalls is expected to accommodate the future weekday peak parking demand with the proposed project (101 stalls), with a surplus of 14 stalls.

Please contact me at (425) 466-7072 or amy@tenw.com with any questions.

cc: Carly Parkins, LWSD

Attachments

ATTACHMENT A

Site Plan

MITHŪN

SEATTLE / Pier 56, 1201 Alaskan Way, #200
Seattle, WA 98101 / 206.623.3344

SAN FRANCISCO / 585 Howard Street, #300
San Francisco, CA 94105 / 415.956.0688

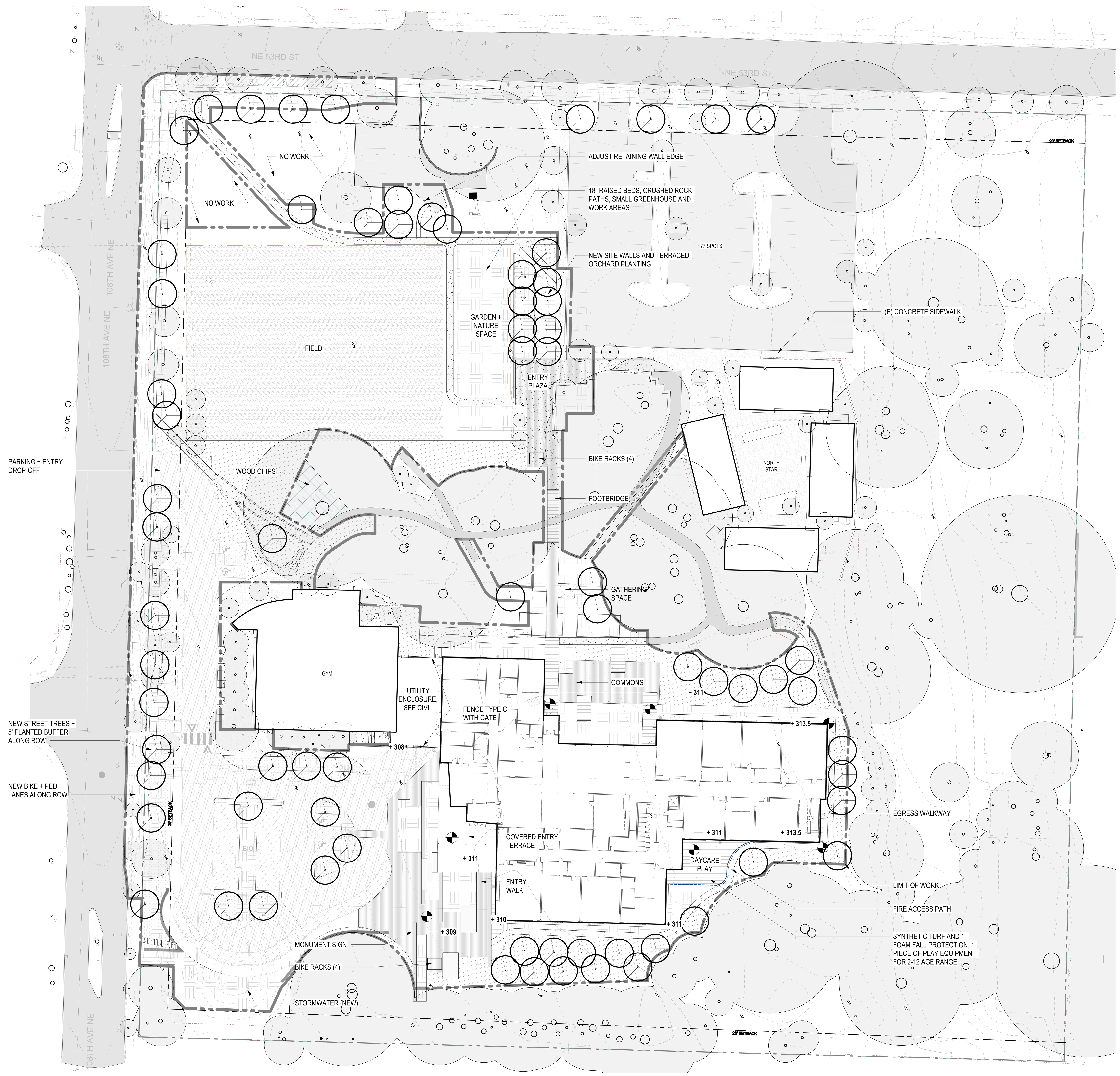
LOS ANGELES / 758 New High Street #100B
Los Angeles, CA 90012 / 323.937.2150

mithun.com

PROJECT
EMERSON SCHOOL

LOCATION
**10903 NE 53RD ST
KIRKLAND, WA 98033**

PREPARED FOR
CONSULTANTS



1 OVERALL SITE PLAN
1" = 30'-0"

LEGEND

- CONCRETE PAVING, TOOLED JOINTS, 2' O.C. SPACING, BROOM FINISH
- FOOTBRIDGE, GALVANIZED STEEL STRUCTURE ON CONCRETE PIER FOOTINGS, FIBERGRATE DECKING, WOOD RAILINGS
- SPECIALTY CONCRETE PAVING, SAW CUT JOINTS 2' O.C., EXPOSED AGGREGATE FINISH
- CRUSHED ROCK, 1/4" MINUS WITH STABILIZER
- FIELD, UNDERDRAINED, 8" SAND/SOIL BASE, SOD, POP-UP ROTARY IRRIGATION
- CIP CONCRETE SITE WALLS, 12"-24" H
- BIKE RACKS, BOD: SPORTWORKS 'TOFINO'
- (E) CONCRETE PAVING TO REMAIN
- (E) ASPHALT TO REMAIN
- (E) SITE WALL TO REMAIN
- PLANTING AREA
  PLANTING: 18" O.C. SPACING, NATIVE VARIETY, DROUGHT-TOLERANT
  SOIL: 18" TOPSOIL
  IRRIGATION: POP-UP ROTARY SPRAYERS AND BUBBLERS AT TREES
- HYDROSEED
  PLANTING: MEADOW SEED MIX
  SOIL: NATIVE AMENDED DECOMPACT AND AMEND EXISTING SOILS WITH 4" COMPOST/TOPSOIL BLEND
  IRRIGATION: TEMPORARY IRRIGATION, ON-SURFACE PIPE; ROTARY SPRAYERS
- NEW TREE, 2.5" CALIPER WITH IRRIGATION BUBBLERS MIN. 30 REQUIRED BY CODE EXCLUDING FRONTAGE IMPROVEMENTS
- TREE PROTECTION, EXTENT OF CRITICAL ROOT ZONE (CRZ)
  TREE TRUNK
- WOOD CHIPS, ADD FOR TREE PROTECTION
- FENCE TYPE A: 6'H WWM WITH GATE AND PANIC BAR
- FENCE TYPE B: 4' H BLACK VINYL CHAIN LINK FENCE WITH PADDED TOP
- FENCE TYPE C: 6' H CUSTOM SCREENING FENCE AND VEHICULAR GATE, PERFORATED METAL OR WOOD CLAD
- + ### SPOT ELEVATIONS
- 20' SETBACK
- PROPERTY LINE
- LIMIT OF WORK

NO.	DATE	REVISION

PARTNER IN CHARGE
JW
PROJECT MANAGER
SK
PROJECT LANDSCAPE ARCHITECT
CR
PROJECT TEAM MEMBERS
LL
CHECK

TITLE
OVERALL SITE PLAN

PROJECT NO.
2422400
DATE
06/09/2025

SHEET NUMBER
L1.00
COORDINATION

6/9/2025 3:19:52 PM

NOT FOR CONSTRUCTION

ATTACHMENT B

Existing and Proposed Parking Supply

NE 53RD STREET

655'-0"

5 RESERVED PARKING SPACES

NORTHSTAR MIDDLE SCHOOL TO USE EXISTING DUMPSTERS AT BEST HIGH SCHOOL, LOCATED HERE

50'-0" STREET SETBACK

NORTH PARKING LOT WILL HAVE 65 TYP STALLS + 3 ADA STALLS AFTER PROJECT COMPLETION.

RECONFIGURE PARKING LAYOUT (SEE CIVIL)

SHARED STUDENT DROP OFF AREA FOR BEST HIGH SCHOOL AND NORTHSTAR MIDDLE SCHOOL

EXTEND CONC DROP OFF SIDEWALK ACROSS PARKING LOT

DROP OFF AREA

EXISTING BEST HIGH SCHOOL MAIN BUILDING

NEW ACTIVITY BUILDING

RETAINING WALL

NEW RETAINING WALL (SEE CIVIL)

NEW ART/MATH BUILDING

SHARED LEARNING COURTYARD

NEW SCIENCE/LR RESTROOM BUILDING

NEW ENGLISH/ SOCIAL STUDIES BUILDING

COVERED OUTDOOR AREA

GRAVEL PATH

EXISTING BUILDING

EXISTING BEST HIGH SCHOOL GYM BUILDING

RECONNECT EXISTING ASPHALT PATH TO EXISTING CONC WALK

100'-0" SIDE SETBACK

APPROXIMATE NORTH STAR MIDDLE SCHOOL SITE WORK LIMITS, SEE A103 FOR ENLARGED PLAN

670'-0"

655'-0"

NE 52ND STREET

108TH AVE NE

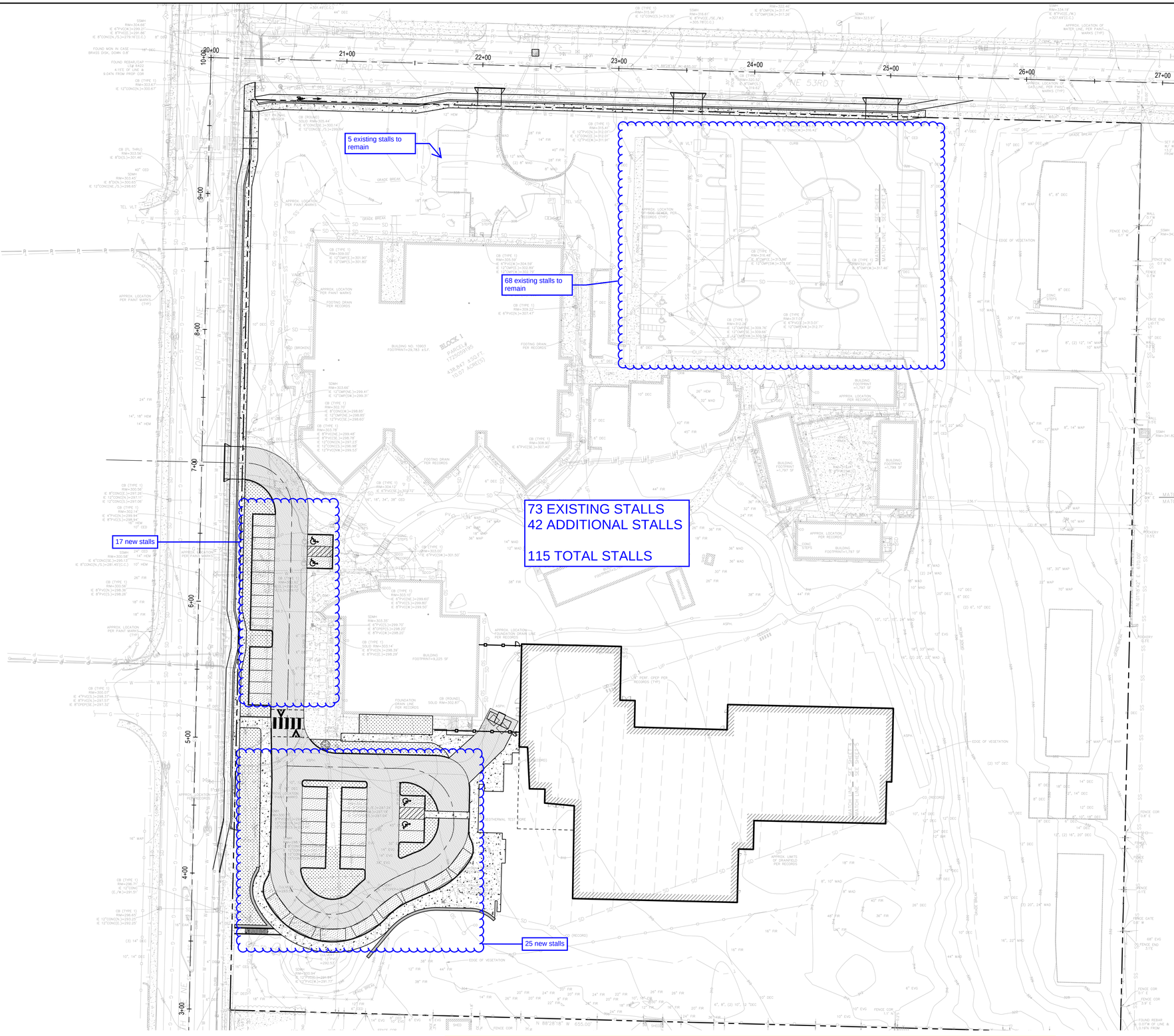
ISTING WEST PARKING
T HAS 15 TYP STALLS
2 ADA STALLS.

EXISTING PARKING STALL SUPPLY

1 SITE PLAN

SCALE: 1" = 40'-0"

NORTH



FUTURE PARKING STALL SUPPLY

NOTES

1.

LEGEND

FOR COORDINATION

0 15' 30' 60'
1 inch = 30 feet

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

EMERSON K12
10903 NE 53RD ST
KIRKLAND, WA 98033

REVISIONS:

NO.	DATE	DESCRIPTION

DATE:	2025-06-24
JOB NO:	2400458
DESIGNED BY:	XXX
DRAWN BY:	XXX
CHECKED BY:	XXX
APPROVED BY:	XXX

PARKING
LOT COUNTS

PARKING EXHIBIT

ATTACHMENT C

Existing Parking Demand Data

Emerson Campus
Parking Data Summary
TENW Project No. 2024-063

WEEKDAY PARKING DEMAND

		Number of Occupied Stalls Observed							
		Tuesday 3/19/24				Thursday 3/21/24			
		8:25 AM		1:00 PM		8:25 AM		1:00 PM	
Type of Parking Stall	**Number of Available Stalls**	**Number**	**Percent Occupied**	**Number**	**Percent Occupied**	**Number**	**Percent Occupied**	**Number**	**Percent Occupied**
Area #1 (North Lot on 53rd)									
ADA	3	0	0%	0	0%	1	33%	0	0%
General [1]	65	22	34%	28	43%	20	31%	30	46%
Area #2 (Service Lot)									
General & Reserved	5	2	40%	1	20%	3	60%	2	40%
Illegal/Not Sriped	--	1	--	2	--	1	--	2	--
Area #3 (West Lot on 108th)									
ADA	2	1	50%	1	50%	1	50%	1	50%
General	15	7	47%	8	53%	8	53%	9	60%
ON-SITE TOTAL	**90**	**33**		**40**		**34**		**44**	
ON-SITE PERCENT OCCUPIED		**37%**		**44%**		**38%**		**49%**	

Note:

1) In addition to the 59 general stalls available, 6 additional stalls are currently covered with dirt in the SE corner of the Northeast Lot. These 6 stalls are included in the supply.

ATTACHMENT D

Future Parking Demand Calculations

Emerson Campus Project
Parking Data Summary

ESTIMATED FUTURE MIDDAY PEAK PARKING DEMAND - TOTAL SITE

Emerson Campus

	EXISTING MARCH 2024 [1]	FUTURE WITH REDEVELOPMENT	Notes/Assumptions
Parking Stall Supply	**90**	**115**	47 stalls in new west lot for net add of 25 stalls with project (115 stalls total)
Emerson HS Teachers/Staff (full-time)	22	33	May 2024 = 22 full-time teachers/staff, future staff added at a rate of 1 staff for every 24.5 new students adde
Emerson HS Students	8	41	8 students drove themselves in March 2024 (68 student enrollment), estimated future student drivers = 8 / 68 X 345 future students = 4
Emerson K-12 teachers/staff/parents	9	9	
Northstar teachers/staff	5	5	
Total Midday Site Parking Demand[1]	**44**	**88**	
15% Buffer Per City	--	*13*	
Total Parking Demand with 15% Buffer	**44**	**101**	
Surplus Parking Stalls (supply less demand)	***46***	***14***	

1. The existing May 2024 demand is the maximum demand observed on Thursday 3/21/24.

CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Tony Leavitt, Senior Planner

From: Thang Nguyen, Transportation Engineer

Date: February 12, 2026

Subject: Emerson Campus Parking Review, ZON25-00491

This memorandum summarizes staff's review of the parking analysis for the proposed Emerson Campus project The findings and recommendations are based on the review of *Emerson Campus- Updated Parking Assessment dated December 19, 2025*, prepared by TENW.

Staff Findings and Recommendations

Based on staff review of the parking analysis, the proposed parking supply is adequate to accommodate the peak parking demand for the Emerson campus with the expansion of the high school. The 115 parking spaces proposed will add a buffer to the parking demand of 101 stalls (0.29 stall per student). Staff recommend approval of the proposed parking and recommend a parking supply of 115 stalls to accommodate overflow queues and EV parking.

Project Description

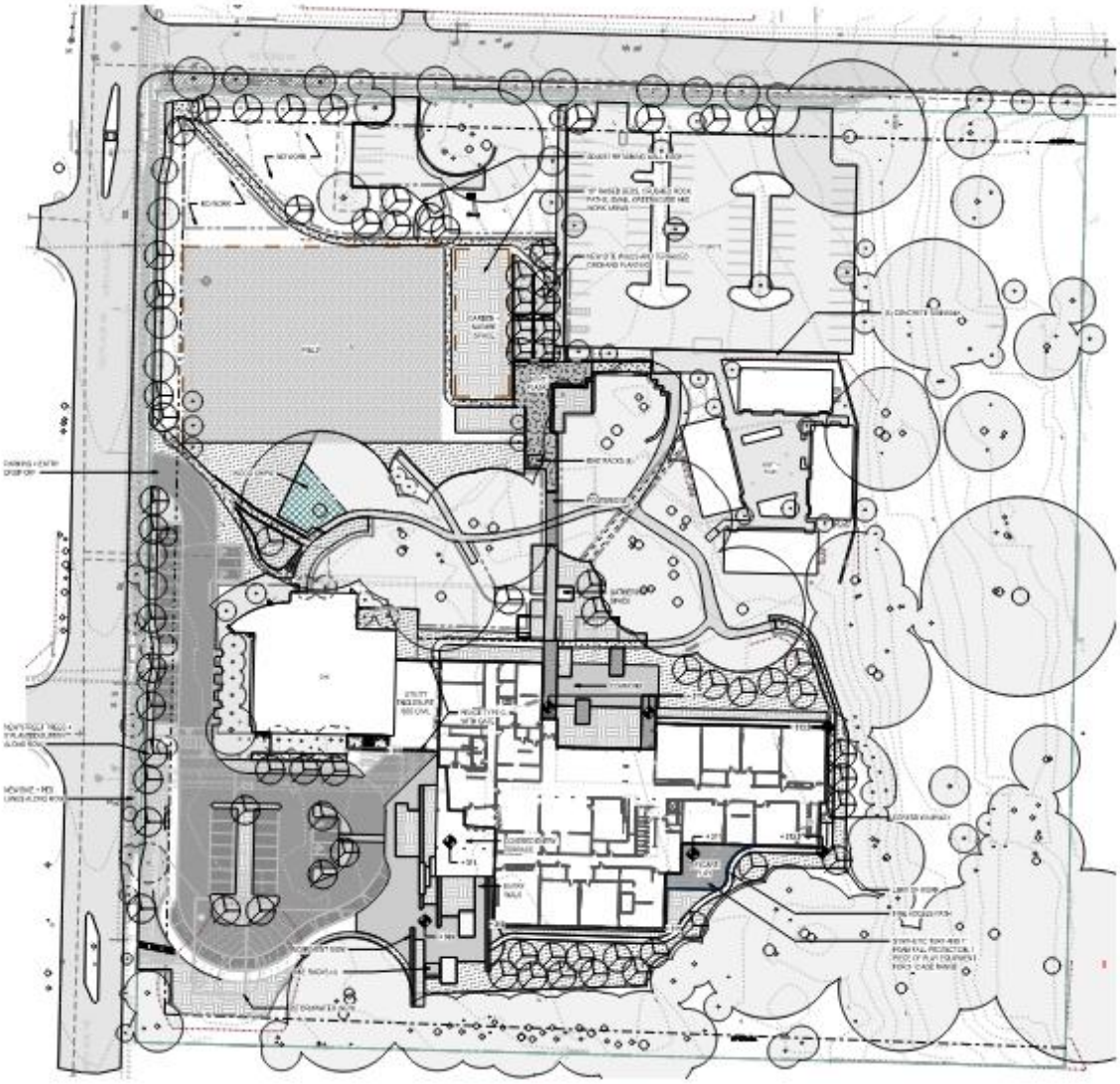
The development site is located at 10903 NE 53rd St on parcel 1725059195. The site currently serves Emerson High School (a choice school for students in grades 9 through 12), Northstar Middle School (a choice school for students in grades 6 through 9), Emerson K-12 (a program to support home school students within the Lake Washington School District), and a daycare for staff and students.

The site will include four driveways. The three existing driveways on NE 53rd St are proposed to remain including one full access driveway for service vehicle parking, one exit only and one enter only driveway that provides access to drop off/pick up facilities and parking. The two existing (one-way) driveways on 108th Ave NE will be replaced by a single two-way driveway. Figure 1 shows the project site location.

Figure 1. Project Site Location (source: TENW)

This project will construct a new school building to increase enrollment at Emerson High School to 345 total students (increasing the approved enrollment of 178 students by 167 students). The new building will also accommodate the existing Emerson K-12 program; the approved student enrollment (90 students) for Northstar Middle School will not increase. The applicant anticipates that the development will be constructed and occupied by the 2027 school year but anticipates that the additional student capacity will not materialize for at least four years. Figure 2 illustrates the preliminary site plan.

Figure 2. Preliminary Site Plan (source: Kimley-Horn)



The existing school has 90 parking spaces. There are two parking lots off NE 53rd Street. One provides general parking with 68 parking spaces; the other is a parking lot with 5 spaces for service and staff vehicles. The third parking lot is off 108th Avenue NE, it has 17 parking spaces for general use.

With the expansion, there will be 76 parking spaces in the general parking lots off NE 53rd Street, 5 in the service parking lot, and 34 spaces in the new parking lot off 108th Avenue NE for a total of 115 spaces.

A parking survey was completed to determine the parking demand rate for the campus. Table 1 summarizes the existing student and staff population at the time of the parking survey. Approximately 25% of high school students are of driving age, but only 10% drive.

Table 1. Existing Population

Schools	Students Enrolled	Students on Campus	Staff
Emerson High	68	61	22
Emerson K-12	76	38	9
Northstar Jr. High	90	90	5
Total	**234**	**189**	**36**
Parking Demand Rates	**0.19**	**0.23**	

The parking utilization study found that approximately 40 to 44 (44% to 49%) of the parking spaces were occupied during the two days of survey, which equates to a peak parking demand rate of 0.19 spaces (44 occupied stalls / 234 enrolled students) per enrolled student or 0.23 spaces (44 occupied stalls/ 189 students on campus) per student that are on campus. Table 2 summarizes the parking demand calculation for the proposed campus. When parking lots are 85% full, it is considered to be at capacity; therefore, when designing a parking lot a 15% buffer is usually added to the calculated demand to ensure the parking doesn't spill out onto the street or other properties.

Table 2. Future Parking Demand per student Calculations

Schools	Students Enrolled[1]	Students on Campus[1]	Staff
Emerson High	345 (178 approved)	311	29
Emerson K-12	76	38	9
Northstar Jr. High	90	90	5
Total	**511**	**439**	**43**
Parking Demand Rates	**0.19**	**0.23**	
Calculated Parking Demands	**98**	**101**	**43**
Demands w/ 15% buffer	**113**	**118**	**49**
Supply	**115**	**115**	**115**

Surplus/ (Deficit)	**+2**	**(-3)**	

1. Inclusive of staff parking.

If the parking demand is calculated per total student enrolled, the demand is lower than the supply; however, if the parking demand is calculated based on the number of high school students anticipated to be on campus, there is a deficiency of one stall.

Since only high school students can drive, it is more accurate to calculate the parking demand based on the number of high school students and staff rather than the number of students on campus because the number of students on campus will fluctuate from day-to-day. Exclusive of the staff parking demand (assuming all staff will drive alone to work), the calculated parking demand based on the enrolled high school student is 0.12 ((44 stalls demand – 36 occupied staff stalls)/68 existing enrolled high school students) spaces per student and the parking demand rate per student that are anticipated to be on campus is 0.13 ((44 – 36)/61 existing students on campus). Using those parking demand rates, the high school would need 44 parking spaces and staff would need 43 spaces for a total of 87 spaces. Adding a 15% buffer, the campus will need 101 parking spaces.

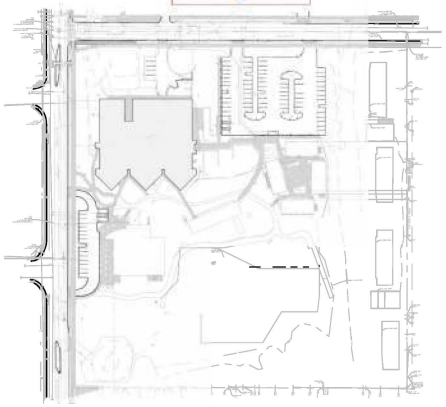
Table 3. Future Parking Demand per High School Student Calculations

Schools	Students Enrolled	Students on Campus	Staff
Emerson High	345	311	29
	0.12	**0.13**	
Sub-Total Parking Demand	**44**	**41**	**29**
Emerson K-12	76	38	9
Northstar Jr. High	90	90	5
Staff Demand	**43**	**43**	**43**
Total Demand	**87**	**84**	
Demand + 15% buffer	**101**	**97**	
Resulting Parking Demand Rates	**0.29**	**N/A**	**N/A**
Supply	**115**	**115**	**115**
Surplus/ (Deficit)	**14**	**18**	

The proposed campus expansion will include 115 parking spaces. The calculated parking demand rate is 0.29 stall per student. The calculated demand is less than the supply. At minimum, it is calculated that the supply will result in 14 vacant spaces. Therefore, parking will not spill out onto the street.

It is staff understanding that the school district will provide 15 EV (electrical vehicle) parking spaces with charging stations. The surplus can help accommodate most of those EV spaces.

TEMP PARKING STALL IMPACTS
0



① Phase 1A - March 2026

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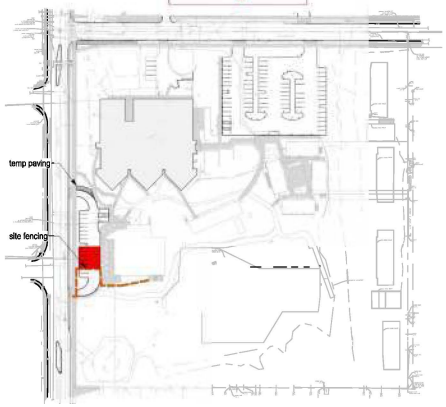
-7



② Phase 1B - April 2026

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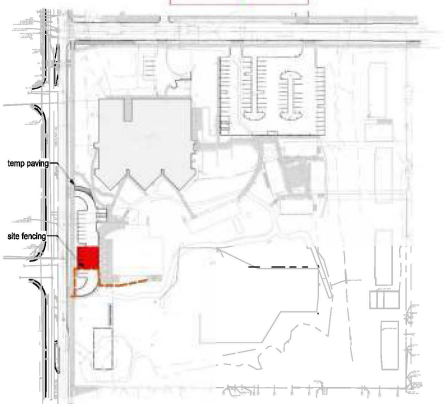

③ Phase 1C - May 2026

TEMP PARKING STALL IMPACTS
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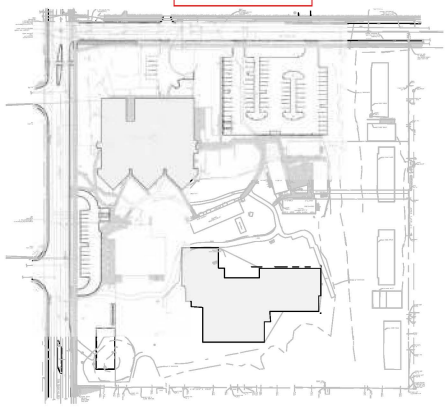
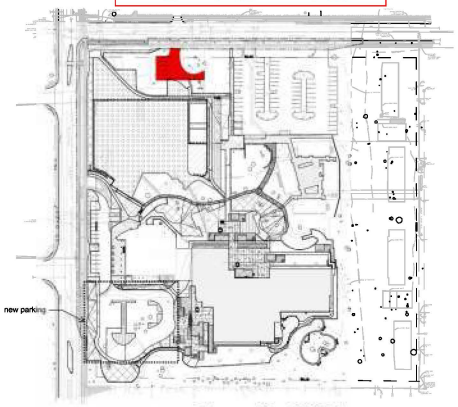


④ Phase 2 - June 2026 - June 2027

TEMP PARKING STALL IMPACTS
-5 + 25 = +20



⑤ Phase 3 - 2027

LEASE CRUTCHER LEWIS
2200 Western Avenue
Suite 500
Seattle, Wa 98121
T:206.622.0500
F:206.622.6541

PROJECT TITLE
LWSD Emerson School
Enter address here

SHEET TITLE
Parking Sequences

REVIEW TEAM

PE / CHECKER	PRELIM	FINAL
	X	
	X	
	X	
	X	
	X	
	X	
	X	
	X	

REVISIONS

NO.	DESCRIPTION	DATE

KEY PLAN
ALL DRAWINGS NOT TO SCALE

PROJ. SUPERINTENDENT	GENERAL FOREMAN
Superintendent	General Foreman
	PROJECT MANAGER
SR. PROJECT MANAGER	Project Manager
Senior PM	DRAWN BY
	Author

SHEET NO.
Site-Park

ZONE	LEVEL	AREA

FINAL REVIEW - NOT FOR CONSTRUCTION

10/9/2025 9:13:36 AM

Autodesk Docs://SKA LWSD_Emerson/25-04-LWSD.rvt

Emerson Campus Project

Kirkland, WA

Updated Traffic Impact Analysis

January 27, 2026

Prepared for:

Lake Washington School District No. 414
Support Services Center
15212 NE 95th Street
Redmond, WA 98052

01-27-2026

Prepared by:

520 Kirkland Way, Suite 100
Kirkland, WA 98033
(425) 889-6747

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FINDINGS/CONCLUSIONS

This Updated Traffic Impact Analysis (TIA) has been prepared for the proposed *Emerson Campus Project* located at 10903 NE 53rd Street (King County Parcel #1725059195) in the City of Kirkland. This updated TIA incorporates comments received from the City of Kirkland on January 26, 2026.

Project Proposal. The proposed project would construct a new school building for the Emerson High School and Emerson K-12 programs on the southeast side of the Emerson Campus. The Northstar Middle School portables would remain on-site in their current location. The existing Emerson High School and Emerson K-12 programs will remain in operation in the existing building(s) while the new school building is constructed, and the rebuilt school would be operational at the start of the 2027-2028 school year.

The entitlement assumptions for the future Emerson Campus with the proposed project are as follows:

- Emerson High School – With the new building, Emerson High School would support up to 345 total students (167 additional students when compared to existing allowable enrollment).
- Northstar Middle School – No changes to student entitlement or District bus service would occur with the *Emerson Campus Project*.
- Emerson K-12 School Program – Although the Emerson K-12 program will be accommodated in the new building, no changes to student entitlement would occur with the *Emerson Campus Project*.

Vehicular access to the Emerson Campus will continue to be provided via three (3) driveways on NE 53rd Street including one (1) full-access driveway that provides access to a service vehicle parking area, and enter-only and exit-only driveways that primarily provide access for Emerson High School and Northstar Middle School students and staff. Additionally, vehicular access on 108th Ave NE would be provided via one (1) new proposed full-access driveway that will primarily provide access to a new drop-off/pick-up loop for Emerson High School and the Emerson K-12 program, as well as provide parking for Emerson High School and Emerson K-12 staff. The existing enter-only and exit-only driveways on 108th Ave NE would be removed with the proposed project.

Trip Generation. The proposed *Emerson Campus Project* is estimated to generate 588 new weekday daily trips, 179 new weekday AM peak hour trips, 224 new weekday afternoon (school) peak hour trips, and 63 new weekday PM peak hour trips.

Transportation Concurrency. The City has determined the proposed project meets the City's transportation concurrency requirements. A Concurrency Test Notice was issued on May 2, 2025.

Intersection and Site Access Level of Service (LOS). Weekday AM, afternoon (school), and PM peak hour LOS analysis was conducted at four (4) off-site study intersections and the Emerson Campus site access driveways assuming all new trips would utilize the site access driveway on 108th Ave NE. Under this scenario, all study intersections and site access driveways are anticipated to operate at LOS D or better during the weekday AM, afternoon (school), and PM peak hours in 2027 with or without the proposed *Emerson Campus Project* with exception to the following:

- The westbound left-turn movement at 108th Ave NE/NE 53rd Street is anticipated to operate at LOS F during the weekday AM peak hour with or without the project and is anticipated to operate at LOS E without the project and LOS F with the project during the weekday PM peak hour. As discussed in the mitigation section below, the *Emerson Campus Project's* proportionate share at the intersection of 108th Ave NE/NE 53rd Street is less than 5 percent and therefore, improvements are not required.

Intersection and Site Access Queue Evaluation. Under the scenario where all new trips associated with the Emerson Campus project were assumed to utilize the site access driveway on 108th Ave NE, the individual movements entering and exiting the school site at the stop-controlled site access locations are anticipated to have 95th percentile queues of 25 feet (1 vehicle) or less during the weekday AM, afternoon (school), and PM peak hours. Additionally, 95th percentile queues at the adjacent study intersections for future year 2027 with project conditions are anticipated to be accommodated within the existing storage during the AM, afternoon (school), and PM peak hours.

Operational Analysis with Alternative Trip Assignment Assumptions. An operational (LOS and queuing) analysis was conducted for the proposed *Emerson Campus Project* based on alternative trip assignment assumptions for the existing Emerson High trips and new trips associated with the project. The alternative analysis assumes that in the future with the project (and an enrollment of 345 students at Emerson High), the majority of Emerson High trips would use the site access driveway on 108th Ave NE and the only trips anticipated to use the site access driveways on NE 53rd Street would be students and/or staff who are using the parking lot.

With the alternative trip assignment, all study intersections are anticipated to operate at LOS D or better (with minimal queuing) in 2027 during the weekday AM, afternoon (school), and PM peak hours with the proposed *Emerson Campus Project* with exception to the westbound left-turn movement at 108th Ave NE/NE 53rd Street which is anticipated to operate at LOS F during the weekday AM peak hour and LOS E during the weekday PM peak hour with the project, which is consistent with the analysis documented in this study that assumes 100% of the new project trips only would use the site access driveway on 108th Ave NE.

Student Drop-Off/Pick-Up Queuing. Based on a total future enrollment of 345 students at Emerson High School and based on a M/M/s queue model, the maximum queues based on M/M/s queue model forecasts and a total future enrollment of 345 students, the maximum queues are anticipated to occur during the afternoon (school) peak hour (peak pick-up period) and are estimated to be 80 to 100 feet (4 vehicles) in the loop on NE 53rd Street and 220 to 275 feet (11 vehicles) in the loop on 108th Ave NE. With on-site queue storage of 300 feet in the NE 53rd Street loop and 490 feet in the 108th Ave NE loop, the estimated 95th percentile on-site queues during the peak afternoon pick-up period are expected to be accommodated entirely on-site.

Non-Motorized and Transit Impacts. The proposed project is anticipated to generate some additional pedestrian and bicycle trips. It is anticipated that the existing pedestrian and bicycle facilities in the project vicinity would be adequate to accommodate any additional pedestrian and bicycle trips generated by the proposed project. Additionally, impacts to the existing and future public transit services in the vicinity as a result of the proposed project are not expected.

Parking Analysis. The parking analysis for the *Emerson Campus Project* is documented under a separate memorandum.

Mitigation.

Concurrency. The project was evaluated for transportation concurrency by the City of Kirkland in May 2025. Based on the results, the City has determined the project meets the City's transportation concurrency requirements. Therefore, no short-term transportation mitigation was required to obtain concurrency in the City of Kirkland.

SEPA Off-Site Improvements. All study intersections are anticipated to operate at LOS D or better in 2027 during the weekday AM, afternoon (school), and PM peak hours without or with the proposed *Emerson Campus Project* with exception to the stop-controlled intersection of 108th Ave NE/NE 53rd Street which is

anticipated to operate at LOS F during the weekday AM and PM peak hour with the project. The *Emerson Campus Project's* proportionate share at the intersection of 108th Ave NE/NE 53rd Street is less than 5 percent. Therefore, based on the City's guidelines, the installation of improvements under SEPA is not required at any of the study intersections.

Transportation Impact Fees. Transportation mitigation required by the City of Kirkland is payment of an impact fee based on the project's proposed land use. The currently adopted transportation impact fee (as of January 1, 2025) is $554.25 per high school student. Impact fees are subject to change and the final impact fee calculations will be conducted at the time of building permit issuance.

INTRODUCTION

This Updated Traffic Impact Analysis (TIA) has been prepared for the proposed *Emerson Campus Project* located at 10903 NE 53rd Street (King County Parcel #1725059195) in the City of Kirkland. This updated TIA incorporates comments received from the City of Kirkland on January 26, 2026.

Project Description

Existing Campus

The existing Emerson Campus is located on an approximate 10-acre parcel (#1725059195) on the southeast corner of the intersection of 108th Ave NE and NE 53rd Street (see Figure 1) in the Central Houghton neighborhood of Kirkland. Based on information provided by the Lake Washington School District (LWSD), the Emerson Campus currently consists of Emerson High School, Northstar Middle School, and the Emerson K-12 program:

- Emerson High School is a choice school that serves students in grades 9 through 12 from throughout the Lake Washington School District. At the time the existing traffic counts were conducted for this TIA analysis in March 2024, Emerson High School had 68 enrolled students and 22 staff. Emerson High School is not served by District buses and currently has an 8:00 AM start time and a 2:50 PM end time (except on Wednesdays which is an early release day). Based on information provided by LWSD, some Emerson High School students participate in the Running Start program where they take classes at one of the local community colleges for college credit. As a result, not all students are on campus for the entire school day.

  Based on information provided by LWSD for general enrollment trends at Emerson High School over the last couple of years, approximately 90 percent of students are on campus at some point on an average school day. However, 10 to 15 percent of students typically are not on campus at the start of an average school day because they don't have a period 1 or a period 2 class due to either enrollment in Running Start or WANIC programs (both of which are held off-campus) or late arrival (students don't have a period 1 or period 2 class). Additionally, 20 to 30 percent of students are not on campus at the end of an average school day because they don't have either a period 6 or period 7 due to either enrollment in Running Start or WANIC programs or early dismissal. In addition, based on recent historical information provided by LWSD, fewer than 10 Emerson High School students (approximately 10 to 15% of enrolled students) typically drive themselves to school and most students are dropped off/picked up. Because Emerson High School's attendance area is the entire district, very few students walk, bike, or take public transit to school.

  The Emerson High School building also accommodates a daycare used by LWSD staff and students. Per prior traffic entitlements for the relocation of Northstar Junior High (now called Northstar Middle School) to the Emerson Campus in 2012, the maximum allowable enrollment at Emerson High School is 178 students.

- Northstar Middle School is a choice school serving students in grades 6 through 8 from throughout the Lake Washington School District and occupies 4 portables on the Emerson Campus site. Northstar is not served by District buses and currently has a 7:50 AM start time and a 2:20 PM end time (except on Wednesdays which is an early release day). Per prior traffic entitlements for the relocation of Northstar Junior High (now called Northstar Middle School) to the Emerson Campus in 2012, the maximum allowable enrollment at Northstar Middle School is 90 students. At the time the existing traffic counts were conducted for this TIA analysis in March

2024, Northstar Middle School had 91 enrolled students, all of whom are on campus on an average school day.

- Emerson K-12 provides programs and classes to support families of home-schooled students in the Lake Washington School District. Emerson K-12 is not served by District buses and currently starts at 8:35 AM and ends at 3:15 PM (except on Wednesdays when there are no classes). A maximum of half of the Emerson K-12 enrolled students are ever on campus on a single day since half of the enrolled students are on campus on Mondays and Thursdays and the other half of the enrolled students are on campus on Tuesdays and Fridays.

  Based on information provided by LWSD, entitlement of the Emerson K-12 program is unknown since the program is not included on the District's Annual Capital Facilities Plan. However, at the time of the existing traffic counts conducted in March 2024, the Emerson K-12 program had a otal of 76 enrolled students and this is consistent with historical student enrollments.

Access to the Emerson Campus is currently provided via three (3) driveways on NE 53rd Street and two (2) driveways on 108th Ave NE. The driveways on NE 53rd Street include one (1) full-access driveway that provides access to the service vehicle parking area, and enter-only and exit-only driveways that primarily provide access for Emerson High School and Northstar Middle School students and staff. The driveways on 108th Ave NE include one (1) enter-only driveway and one (1) exit-only driveway that primarily provide access for students and staff of the Emerson K-12 program.

It should be noted that while Emerson High School, Northstar Middle School, and Emerson K-12 are not served by District buses, there are existing King County Metro bus stops located adjacent to the site on 108th Ave NE that students are encouraged to use.

Future Campus

The proposed project would construct a new school building for the Emerson High School and Emerson K-12 programs on the southeast side of the Emerson Campus. The Northstar Middle School portables would remain on-site in their current location. The existing Emerson High School and Emerson K-12 programs will remain in operation in the existing building(s) while the new school building is constructed, and the rebuilt school would be operational at the start of the 2027-2028 school year.

The entitlement assumptions for the future Emerson Campus with the proposed project are as follows:

- Emerson High School – With the new building, Emerson High School would support up to 345 total students (167 additional students when compared to existing allowable enrollment). Consistent with existing conditions, District bus service would not be provided for the Emerson High School students.
- Northstar Middle School – The Northstar Middle School would continue to occupy four (4) existing portables on the site. No changes to student entitlement or District bus service would occur with the *Emerson Campus Project*.
- Emerson K-12 School Program – Although the Emerson K-12 program will be accommodated in the new building, no changes to student entitlement or District bus service would occur with the *Emerson Campus Project*.

Vehicular access to the Emerson Campus will continue to be provided via three (3) driveways on NE 53rd Street including one (1) full-access driveway that provides access to a service vehicle parking area, and enter-only and exit-only driveways that primarily provide access for Emerson High School and Northstar Middle School students and staff. Additionally, vehicular access on 108th Ave NE would be provided via one (1) new proposed full-access driveway that will primarily provide access to a new drop-off/pick-up

loop for Emerson High School and the Emerson K-12 program, as well as provide parking for Emerson High School and Emerson K-12 staff. The existing enter-only and exit-only driveways on 108th Ave NE would be removed with the proposed project. A site plan is included in Appendix A.

Project Approach

The scope of work for this traffic impact analysis was discussed and confirmed with City of Kirkland Public Works staff. To analyze the traffic impacts from the proposed *Emerson Campus Project*, the following tasks were undertaken:

- Assessed existing conditions through field reconnaissance and reviewed existing planning documents.
- Described and assessed existing transportation conditions in the area.
- Documented existing (2024/2025) traffic volumes and intersection levels of service (LOS) at four (4) study intersections during the weekday AM, afternoon (school), and/or PM peak hours.
- Documented future planned transportation improvements in the project vicinity.
- Developed trip generation estimates for weekday AM, afternoon (school), and PM peak hour conditions based on counts conducted at the existing school campus.
- Documented trip distribution and assignment of weekday AM, afternoon (school), and PM peak hour project-generated traffic.
- Documented traffic forecasts and assumptions for year 2027 conditions at the study intersections and site access driveways without and with the proposed project.
- Analyzed weekday peak hour LOS for future year 2027 conditions without and with the proposed project at the study intersections and site access driveways.
- Documented estimated maximum vehicular queues during peak drop-off/pick-up periods.
- Documented proposed traffic mitigation.

Primary Data and Information Sources

- City of Kirkland *Policy R-38 Transportation Impact Analysis Review (TIAR)*, July 2022.
- AM, afternoon (school), and PM peak period traffic counts, All Traffic Data, March 2024 and June 2025.
- *Highway Capacity Manual (HCM),* Transportation Research Board, 7th Edition, 2021.
- Washington State Department of Transportation crash data, 2020-2024.
- City of Kirkland crash data, 2020-2024.
- Metro/King County Website, June 2025.
- City of Kirkland *2025-2030 Capital Improvement Program (CIP)*.
- City of Kirkland *Transportation Impact Fees,* effective January 1, 2025.
- City of Kirkland *Transportation Master Plan*, 2015.
- City of Kirkland *2044 Comprehensive Plan*.

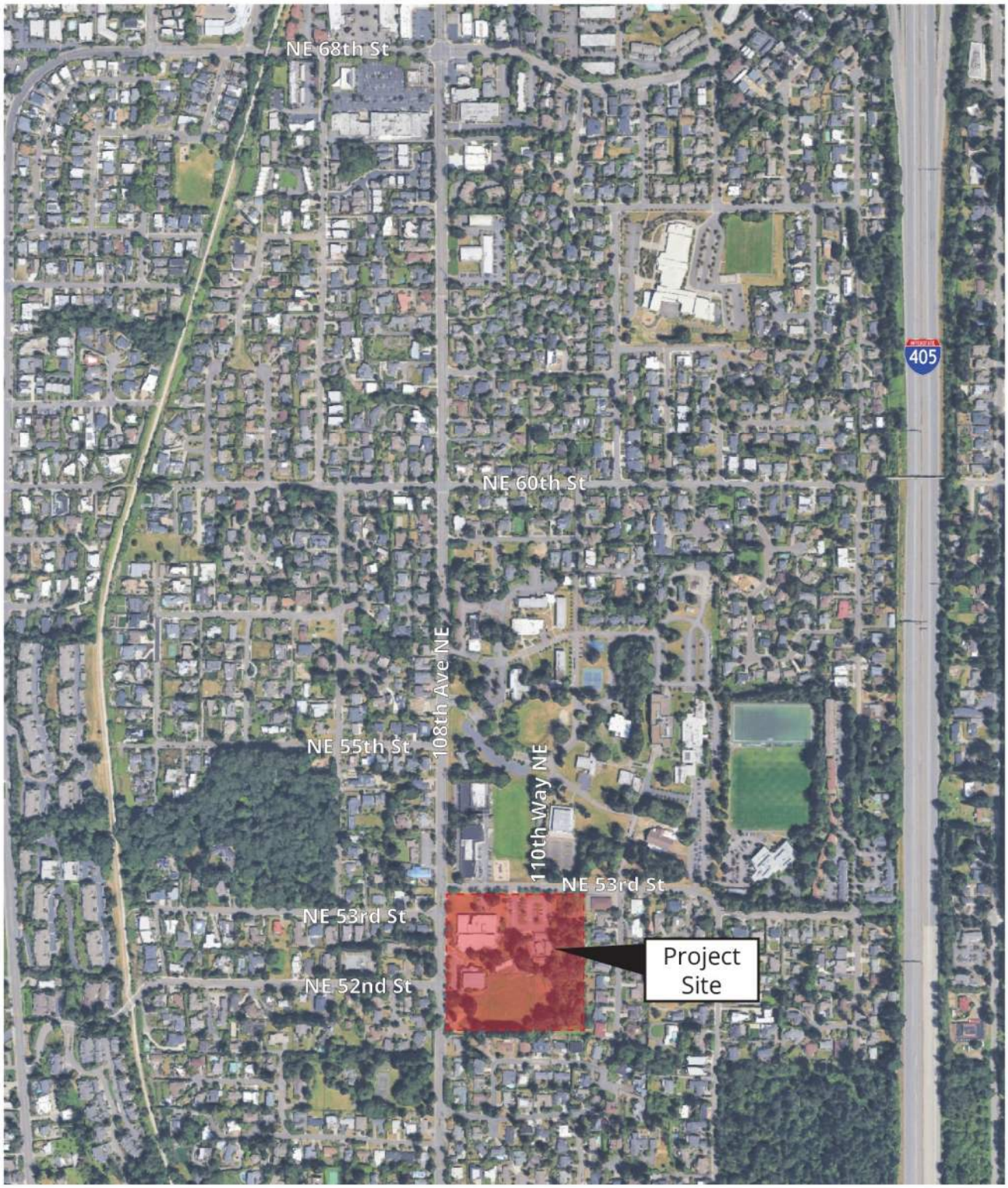


Figure 1: Project Site Vicinity

EXISTING CONDITIONS

Study Area

Based on correspondence with the City of Kirkland regarding the scope of work for this traffic impact analysis (TIA), the City's *Traffic Impact Analysis Review Guidelines* (Policy R-38) and the intersection proportionate share calculations discussed later in this report, the following study intersections are included in this TIA:

1. 108th Ave NE / NE 68th Street – signal
2. 108th Ave NE / NE 53rd Street – stop-controlled
3. 108th Ave NE / NE 53rd Street (south) – stop-controlled
4. 108th Ave NE / NE 52nd Street – stop-controlled

In addition to the four study intersections, the Emerson Campus primary site access driveways on NE 53rd Street and 108th Ave NE are also included in this TIA analysis.

Roadway Network

Table 1 describes the existing characteristics of the streets that would be used as primary routes to and from the site. Roadway characteristics are described in terms of orientation, arterial classification, posted speed limits, parking, sidewalks, and bicycle facilities. The relationship of these roadways to the project site is shown in Figure 1.

Table 1
Existing Roadway Network Summary

Roadway	Orientation	Classification[1]	Speed Limit	Parking	Sidewalks	Bicycle Facilities
108th Ave NE	N/S	Minor Arterial	30	None	Yes	Yes
NE 68th Street	E/W	Minor Arterial	25	None	Yes	Yes
NE 53rd Street	E/W	Collector	25	None	Yes	None
NE 52nd Street	E/W	Collector	30	South side	Intermittent both sides	South Side

1. Source: City of Kirkland 2044 Comprehensive Plan.

Transit Service

Existing public transportation in the immediate project vicinity includes bus stops at the 108th Ave NE/NE 53rd Street intersection adjacent to the project site. These bus stops provide access to King County Metro Transit Route 255. Route 255 operates on weekdays and weekends and provides service between Totem Lake, Juanita, Kirkland, the South Kirkland Park and Ride, Evergreen Point, and the University District.

Non-Motorized Transportation Facilities

Non-motorized transportation facilities in the immediate project site vicinity include sidewalks on both sides of 108th Ave NE, NE 53rd Street, and NE 68th Street. Additionally, there are bike lanes located on both sides of 108th Ave NE and NE 68th Street and on the south side of NE 52nd Street.

Traffic Volumes

Existing weekday AM, afternoon (school), and PM peak hour traffic volumes at the study intersections and site access driveways were based on counts collected by All Traffic Data in March 2024 and June 2025.

At the off-site study intersections, existing weekday AM peak hour traffic volumes represent the highest one-hour between 7:00 and 9:00 AM, existing weekday afternoon (school), peak hour traffic volumes represent the highest hour between 2:00 and 4:00 PM, and existing weekday PM peak hour traffic volumes represent the highest hour between 4:00 and 6:00 PM. The turning movement counts at the off-site study intersections are included in Appendix B. *It should be noted that the existing Emerson Campus westernmost driveway on NE 53rd Street that provides access to a small parking area for service vehicles was not included in the analysis since it is a minor driveway that experiences minimal use, especially during peak periods.*

At the site access driveways, the existing weekday AM, afternoon (school), and PM peak hour traffic counts were conducted on both Tuesday, March 19, 2024 and Thursday, March 21, 2024. As discussed in further detail in the *Trip Generation* section of this TIA, the weekday AM peak hour, afternoon (school) peak hour, and PM peak hour existing traffic volumes at the Emerson Campus site access driveways are reflective of the school's peak hour trip generation from 7:15 to 8:15 AM (AM peak hour) from 2:00 to 3:00 PM (afternoon (school) peak hour), and from 5:00 to 6:00 PM (PM peak hour). The AM peak hour, afternoon (school) peak hour, and PM peak hour traffic volumes at the site access driveways used in the detailed LOS analysis in this TIA were based on the day that reflected the highest peak hour trip generation of the school based on total entering/exiting school traffic (Tuesday March 19th for the AM and the afternoon (school) peak hours and Thursday May 21st for the PM peak hour). The turning movement counts at the site access driveways are included in Appendix B. *It should be noted that the existing Emerson Campus westernmost driveway on NE 53rd Street that provides access to a small parking area for service vehicles was not included in the analysis since it is a minor driveway that experiences minimal use, especially during peak periods.*

A summary of the counts used in the TIA analysis at the off-site study intersections and site access driveways is provided below:

Study Intersection / Site Access Driveway	Date of Turning Movement Count used in the TIA Analysis		
	AM Peak Hour	Afternoon (School) Peak Hour	PM Peak Hour
1. 108th Ave NE / NE 68th St	June 18, 2025	*not studied*	June 18, 2025
2. 108th Ave NE / NE 53rd St	March 19, 2024	*not studied*	March 21, 2024
3. 108th Ave NE / NE 53rd St (south)	June 18, 2025 [1]	*Not studied*	June 18, 2025 [1]
4. 108th Ave NE / NE 52nd St	June 18, 2025	June 18, 2025	June 18, 2025
A. NE 53rd St / Enter-Only Driveway	March 19, 2024	March 19, 2024	March 21, 2024
B. NE 53rd St/ Exit-Only Driveway	March 19, 2024	March 19, 2024	March 21, 2024
C. 108th Ave NE / Enter-Only Driveway	March 19, 2024	March 19, 2024	March 21, 2024
D. 108th Ave NE / Exit-Only Driveway	March 19, 2024	March 19, 2024	March 21, 2024

1. AM and PM peak hour volumes at intersection #3 were estimated based on the counts conducted at 108th Ave NE/NE 52nd Street in June 2025.

In order to estimate year 2025 peak hour volumes, a 2% annual background growth rate was applied to the 2024 off-site study intersection traffic volumes and the growth rate was also applied to the thru movements at the site access driveways on NE 53rd Street (a growth rate was not applied to the turning movements entering and exiting the Emerson Campus driveways). At the site access driveways on 108th Ave NE, the thru volumes on 108th Ave NE were estimated based on the traffic counts at the adjacent study intersection (108th Ave NE/NE 52nd Street) to ensure volumes were balanced between the driveways and the adjacent study intersection.

Figure 2: 2025 Existing Weekday AM Peak Hour Traffic Volumes

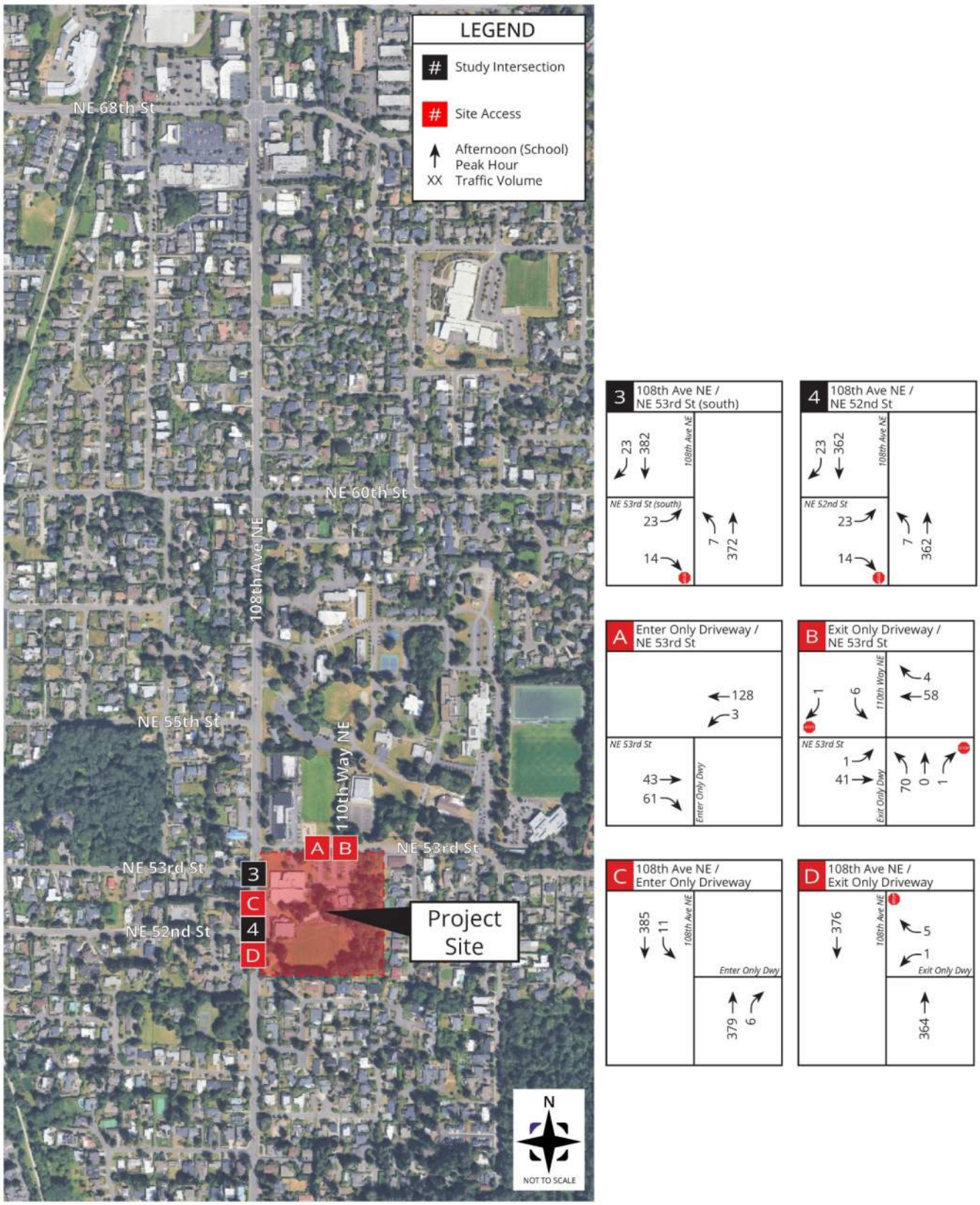


Figure 3: 2025 Existing Weekday Afternoon (School) Peak Hour Traffic Volumes

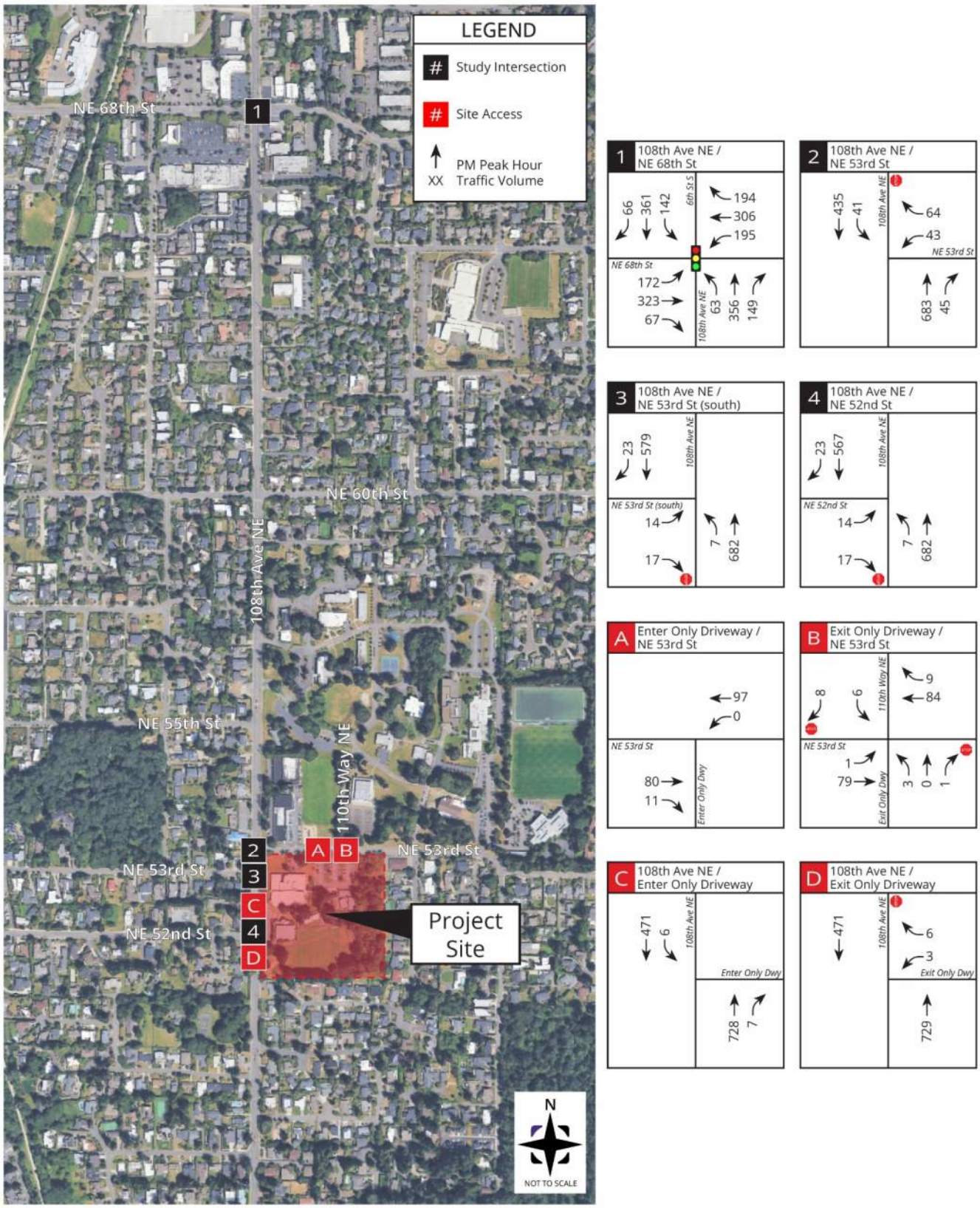


Figure 4: 2025 Existing Weekday PM Peak Hour Traffic Volumes

Crash History

Crash history at the study intersections was analyzed for the 5-year period from 2020 to 2024 (the most recent 5-year period as provided by WSDOT). Summaries of the total and yearly average during this period are provided in Table 2. Summaries of crashes by type over the five-year period are provided in Table 3. The WSDOT crash data is included in Appendix C.

Table 2
Crash Data Summary by Year, January 1, 2020 to December 31, 2024

Study Intersection	2020	2021	2022	2023	2024	5-Year Total Crashes	Average Annual Crashes
1. 108th Ave NE / NE 68th St	0	0	0	0	2	2	0.40
2. 108th Ave NE / NE 53rd St	0	0	0	0	1	1	0.20
3. 108th Ave NE / NE 53rd St (south)	0	0	0	0	0	0	0.00
3. 108th Ave NE / NE 52nd St	0	0	0	0	0	0	0.00

Source: WSDOT

Table 3
Crash Data Summary by Type, January 1, 2020 to December 31, 2024

			Crash Type						
Study Intersection	5-Year Total Crashes	Average Annual Crashes	Angle (Left/Right)	Angle (T)	Side Swipe	Rear End	Parked Veh/ Fixed Object	Ped/Cyclist	Other
1. 108th Ave NE / NE 68th St	2	0.40	0	1	0	1	0	0	0
2. 108th Ave NE / NE 53rd St	1	0.20	0	1	0	0	0	0	0
3. 108th Ave NE / NE 53rd St (south)	0	0.00	0	0	0	0	0	0	0
4. 108th Ave NE / NE 52nd St	0	0.00	0	0	0	0	0	0	0

Source: WSDOT

Also, based on a review of the crash history, there were no crashes over the 5-year period at the existing Emerson Campus site access driveways on 108th Ave NE and NE 53rd Street.

Comparison to City of Kirkland Crash Data

Crash records at the study intersections were also reviewed for the most recent 5-year period from January 1, 2020 to December 31, 2024 based on crash data obtained from the City of Kirkland (see Appendix C). The crash data from the City of Kirkland generally matched the crash data from WSDOT summarized above except at the intersection of 108th Ave NE/NE 68th Street:

- At the 108th Ave NE/NE 68th Street intersection, the WSDOT data showed 2 total crashes over the 5-year period but the City data showed 5 additional crashes, 4 of which were rear ends, and 1 of which was a sideswipe.

Intersection Levels of Service

A level of service (LOS) analysis was conducted at the study intersections and site access driveways for existing weekday AM peak hour, afternoon (school) peak hour, and PM peak hour conditions. Intersection LOS was calculated using the methodology and procedures outlined in the *Highway Capacity Manual* (HCM 7th Edition) using the *Synchro 12* software program. The 2025 existing weekday AM, afternoon (school), and PM peak hour LOS analysis results are summarized in Table 4. The LOS methodology and calculations are included in Appendix D.

Table 4
Existing 2025 Weekday Peak Hour LOS Summary

	AM PEAK HOUR		AFTERNOON PEAK HOUR		PM PEAK HOUR	
Study Intersections	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
Signalized:						
1. 108th Ave NE / NE 68th St	D	38.5	--	--	D	46.9
Two-Way Stop Controlled:						
2. 108th Ave NE / NE 53rd St						
Westbound Left-Turn	E	48.7	--	--	E	36.7
Westbound Right-Turn	B	12.7	--	--	C	15.9
Southbound Left-Turn	A	8.7	--	--	A	9.6
3. 108th Ave NE / NE 53rd St (south)						
Northbound Left-Turn	A	9.1	A	8.3	A	8.9
Eastbound Approach	C	18.7	C	15.8	C	21.3
4. 108th Ave NE / NE 52nd St						
Northbound Left-Turn	A	9.0	A	8.2	A	8.8
Eastbound Approach	B	14.7	B	13.0	C	15.3
A. NE 53rd St / Enter-Only Driveway						
Westbound Left-Turn	A	7.7	A	7.6	A	0.0
B. NE 53rd St / Exit-Only Driveway						
Northbound Approach	B	10.5	B	10.0	A	9.4
Eastbound Left-Turn	A	7.5	A	7.4	A	7.4
Southbound Approach	A	9.5	A	9.4	A	9.2
C. 108th Ave NE / Enter-Only Driveway						
Southbound Left-Turn	A	8.1	A	8.3	A	9.4
D. 108th Ave NE / Exit-Only Driveway						
Westbound Approach	B	10.6	B	11.1	C	15.1

As shown in Table 4, the signalized study intersection and individual movements at the stop-controlled intersections and site access driveways currently operate at LOS D or better during the weekday AM, afternoon (school), and PM peak hours with exception to the westbound left-turn movement at 108th Ave NE/NE 53rd Street which currently operates at LOS E during the weekday AM and PM peak hours.

Site Access

Existing vehicular access to the school campus is currently provided via three (3) access driveways on NE 53rd Street (the westernmost driveway provides access to a small parking lot for service vehicles only) and two (2) access driveways on 108th Ave NE.

At the time of the existing school driveway counts in March 2024, the majority of the on-site AM peak drop-off and afternoon (school) peak pick-up at the Emerson Campus occurred via the site access driveways on NE 53rd Street which provide access to the main drop-off/pick-up area and on-site parking lot for both Emerson High School and Northstar Middle School.

Walking and biking activity in the site vicinity is minimal; however students who walk or bike to school may utilize the existing sidewalks and bike lanes on both sides of 108th Ave NE or the existing sidewalks on both sides of NE 53rd Street to access the Emerson Campus.

As shown in Tables 2 and 3, a review of the 5-year crash history from 2020 through 2024 showed no crashes at any of the existing Emerson Campus site access driveways on NE 53rd Street or 108th Ave NE.

Additionally, intersection and stopping sight distance at the existing site access locations on NE 53rd Street and 108th Ave NE were field verified and meet the applicable standards based on *City of Kirkland Department of Public Works Pre-Approved Plans Policy R-13 (Intersection Sight Distance)* and *AASHTO Geometric Design of Highways and Streets*.

FUTURE CONDITIONS

Planned Transportation Improvements

A review of the City of Kirkland's *2025-2030 Capital Improvement Program (CIP)* showed that there is one funded planned transportation improvement project in the study area:

- PTC 00400 and 00500: 108th Ave NE Transit Queue Jump (Phases 1 and 2). This funded project would widen 108th Ave NE and add a northbound business access and transit (BAT) lane from north of NE 62nd Street to north of NE 68th Street (Phase 1) and from NE 53rd Street to NE 60th Street (Phase 2). The project includes replacement of the bicycle lane and sidewalk with a cycle track or non-motorized pathway and new curb ramps. The project also includes modification of the traffic signal system at 68th Ave NE/108th Ave NE to accommodate new northbound bus lane and Transit Queue Jump Phase, and a new traffic signal at 108th Ave NE/NE 60th Street. The project is being coordinated with King County Metro for its RapidRide K-Line project.

Project Trip Generation

The trip generation estimates for the proposed *Emerson Campus Project* with a maximum entitlement of 345 students were based on trip rates derived from existing counts at the school. Consistent with historical school projects in the City of Kirkland, conducting counts at the existing school allows for a more accurate and reliable trip generation estimate of new trips generated by the proposed additional student enrollment at Emerson High School. Additionally, use of school-specific trip generation rates is preferred over ITE trip generation rates since Emerson High School is a choice school that does not provide District bus service and operates differently than the other LWSD high schools. A few of the things that are different about Emerson High School when compared to other LWSD high schools is that not all students are on campus during the entire school day due to participation in the Running Start college program, fewer students drive themselves (most are dropped off and picked up), and there are learning center hours offered after school dismisses from 3:00 PM to 5:00 PM on Mondays, Tuesdays, and Thursdays.

Based on information provided by LWSD for general enrollment trends at Emerson High School over the last couple of years, approximately 90 percent of students are on campus at some point on an average school day. However, 10 to 15 percent of students typically are not on campus at the start of an average school day because they don't have a period 1 or a period 2 class due to either enrollment in Running Start or WANIC programs (both of which are held off-campus) or late arrival (students don't have a period 1 or period 2 class). Additionally, 20 to 30 percent of students are not on campus at the end of an average school day because they don't have either a period 6 or period 7 due to either enrollment in Running Start or WANIC programs or early dismissal. In addition, based on recent historical information provided by LWSD, fewer than 10 Emerson High School students (approximately 10 to 15% of enrolled students) typically drive themselves to school and most students are dropped off/picked up. Per LWSD, these historical on-campus presence trends are expected to be similar with the proposed *Emerson Campus Project* and a maximum enrollment of 345 students at Emerson High School.

Traffic Counts

Existing traffic counts were conducted at the Emerson Campus (which includes Emerson High School, Northstar Middle School, and Emerson K-12) on Tuesday, March 19, 2024 and Thursday, March 21, 2024 during the AM peak period (7:00 – 9:00 AM), afternoon (school) peak period (2:00 – 4:00 PM), and PM peak period (4:00 – 6:00 PM). These days were confirmed to be "normal" school days by staff (i.e. days without

any major events, field trips, or student absences, etc). The traffic counts included all vehicles entering and exiting the school driveways on NE 53rd Street and 108th Ave NE.

Based on information provided by Emerson High School staff, trips entering and exiting the site via the driveways on 108th Ave NE are associated with staff and students of the Emerson K-12 program and trips entering and exiting the site on NE 53rd Street are associated with either Emerson High School or Northstar Middle School. In order to estimate existing trips at the driveways on NE 53rd Street associated with Emerson High School only, a TENW staff member was on-site during the peak drop-off and pick-up periods on both Tuesday 3/19/24 and Thursday 3/21/24 to observe and quantify trips that were not associated with Northstar Middle School. Any trips at the NE 53rd Street driveways observed to not be associated with Northstar Middle School was then assumed to be associated with Emerson High School.

Existing Trip Generation Rates

Based on the two-day average of the existing traffic counts and an enrollment of 68 students at Emerson High School at the time of the counts in March 2024, weekday AM peak hour, afternoon (school) peak hour, and PM peak hour trip rates were derived for the existing school. The resulting trip generation rates and directional splits from the trip generation study are shown in Table 5 below. The trip rate calculations and vehicular count summaries are included in Appendix E.

Table 5
Emerson High School Existing Trip Generation Study Summary

	Observed Trips[1]			Directional Split[1]		Trip Rate (Trips per Student)[1]
Weekday Time Period	In	Out	Total	In	Out	
AM Peak Hour (7:45 – 8:45 AM)	43	30	73	59%	41%	1.07
Afternoon Peak Hour (2:45 – 3:45 PM)	35	56	91	38%	62%	1.34
PM Peak Hour (varies)	13	13	26	50%	50%	0.38

1. Based on 2-day average of trip generation study conducted at Emerson Campus in March 2024. Trips associated with Northstar Middle School were excluded from the counts and trip generation study. The Emerson High School student enrollment at the time of the study was 68 students.

As shown in Table 5, based on the two-day average of counts associated with Emerson High School in March 2024, the AM peak hour trip rate is 1.07 trips per student, the afternoon (school) peak hour trip rate is 1.34 trips per student, and the PM peak hour trip rate is 0.38 trips per student.

It should be noted that the trip rates documented in Table 5 for Emerson High School may be conservative given that all observed trips in the NE 53rd Street parking lot that were clearly not related to Northstar Middle School were assigned to Emerson High School. Therefore, the trip rates reflected in Table 5 may include trips associated with the EmersonK-12 program or the daycare.

Trip Generation Estimate of Emerson High School at Future Total Entitlement (345 students)

To estimate the new trips generated by the proposed *Emerson Campus Project*, the derived existing trip generation rates shown in Table 5 were applied to the net increase in student entitlement associated with the *Emerson Campus Project* (167 additional students = 345 total future students less 178 entitled students). Table 6 summarizes the total weekday AM peak hour, afternoon (school) peak hour, and PM peak hour trip generation estimates associated with the project. The detailed trip generation estimates are included in Appendix F.

It should be noted that the weekday daily trip rate shown in Table 6 was estimated by applying the ratio of weekday daily to AM peak hour trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition) for a Private High School (Land Use Code 534) to the AM peak hour

Emerson High School trip rate (2.17 trips per student / 0.66 trips per student X 1.07 trips per student = 3.52 trips per student).

Table 6
Trip Generation Estimates for Emerson High School Additional Student Entitlement (167 students)

Weekday Time Period	Trip Rate (Trips per Student)	Additional # of Entitled Students	Trips Generated		
			In	Out	Total
Daily	3.52 [1]	167	294	294	588
AM Peak Hour (7:45 – 8:45 AM)	1.07	167	106	73	179
Afternoon Peak Hour (2:45 – 3:45 PM)	1.34	167	85	139	224
PM Peak Hour (varies)	0.38	167	32	31	63

1. The daily trip rate was estimated based on the ratio of ITE daily to AM peak hour trip rates for a private high school (2.17 / 0.66) applied to the observed Emerson High School AM peak hour trip rate (1.07).

As shown in Table 6, the proposed *Emerson Campus Project* is estimated to generate 588 new weekday daily trips, 179 new weekday AM peak hour trips, 224 new weekday afternoon (school) peak hour trips, and 63 new weekday PM peak hour trips.

As noted previously, the trip generation estimates documented in Table 6 may be conservative given that all observed trips in the NE 53rd Street parking lot that were clearly not related to Northstar Middle School were assigned to Emerson High School.

Transportation Concurrency

The project was evaluated for transportation concurrency by the City of Kirkland in May 2025. Based on the results, the City has determined the project meets the City's transportation concurrency requirements. A Concurrency Test Notice was issued for the project on May 2, 2025 and is included in Appendix G.

Vehicular Access and Circulation

With the proposed additional student entitlement at Emerson High School as part of the *Emerson Campus Project*, vehicular access to the Emerson Campus will continue to be provided via three (3) driveways on NE 53rd Street including one (1) full-access driveway that provides access to a service vehicle parking area, and enter-only and exit-only driveways that primarily provide access for Emerson High School and Northstar Middle School students and staff.

Additionally, vehicular access on 108th Ave NE would be provided via one (1) new full-access driveway that will primarily provide access to a new drop-off/pick-up loop for Emerson High School and the Emerson K-12 program, as well as provide parking for Emerson High School and Emerson K-12 staff. The new driveway would be located approximately equidistant from the adjacent two-way stop-controlled intersections to the north and south of the proposed driveway at NE 53rd Street (south) and NE 52nd Street. The existing enter-only and exit-only driveways on 108th Ave NE would be removed with the proposed project.

The *Emerson Campus Project* is being designed to allow for flexibility in vehicular circulation and drop-off/pick-up operations for the three schools that the campus serves (Emerson High School, Northstar Middle School, and Emerson K-12) in order to minimize impacts to the existing adjacent roadways of NE 53rd Street and 108th Ave NE. The following describes the anticipated use of each of the driveways and parking areas with the proposed project:

- NE 53rd Street Site Access Driveways / Northern Parking Lot – the existing northern parking area off of NE 53rd Street is expected to continue to be used by Northstar Middle School, Emerson High School, and Emerson K-12 staff. The existing northern parking area is also expected to continue to be used as the primary vehicular drop-off/pick-up loop for Northstar Middle School students and is likely to also be used as a secondary drop-off/pick-up loop for Emerson High School students. It is also likely that Emerson High School students who drive themselves to school will also continue to park in the existing northern lot off of NE 53rd Street.
- 108th Ave NE Site Access Driveway / Western Parking Lot – the single future full access driveway on 108th Ave NE would provide access to a new primary vehicular drop-off/pick-up loop for Emerson High School students and a new parking lot for visitors. Emerson High School and Emerson K-12 staff may also park in this new lot. The western parking lot may also be used as a secondary drop-off/pick-up loop for Northstar Middle School students.

Project Trip Distribution and Assignment

The distribution of trips associated with 167 new entitled students at Emerson High School (maximum future entitlement of 345 students) was estimated based on the 2-day average of existing AM, afternoon (school), and PM peak hour turning movement count volumes collected at the intersection of 108th Ave NE/NE 53rd Street and the Emerson Campus driveways on NE 53rd Street in March 2024 (see Appendix B). The detailed trip distribution calculations are included in Appendix H. The estimated distribution of weekday daily, AM peak hour, afternoon (school) peak hour, and PM peak hour project trips is as follows:

- 60% to/from the north on 108th Ave NE
- 40% to/from the south on 108th Ave NE

Beyond the immediate vicinity of the school, the estimated weekday distribution of new trips associated with the project was based on Lake Washington School District boundary information, turning movement volumes, and anticipated origins/destinations.

All new trips associated with 167 additional entitled students at Emerson High School were assigned to the new drop-off/pick-up loop on 108th Ave NE. The estimated assignment of the new weekday AM peak hour, afternoon (school) peak hour, and PM peak hour trips associated with 167 new entitled students at Emerson High School are illustrated in Figures 5 to 7. The assignment of new weekday daily trips associated with 167 new entitled students at Emerson High School is illustrated in Appendix I.

As discussed in detail in the subsequent future traffic volumes section of this report, the 2027 No Action (without project) traffic volumes shown in Figures 8 to 10 assume that all trips associated with the existing Emerson High additional student entitlement (110 additional existing entitled students) would use the existing site accesses on NE 53rd Street. Additionally, the With Project traffic volumes shown in Figures 11 to 13 do not assume any redistribution of trips associated with the existing student population or the additional entitled Emerson High School students (110 additional students). As a result, the analysis assumes that approximately half of the total future Emerson High School students would use the existing NE 53rd Street loop and approximately half of the total future students would use the new 108th Ave NE loop.

An alternative analysis was conducted that assumes that in the future with the project (and an enrollment of 345 students at Emerson High), the majority of Emerson High trips would use the site access driveway on 108th Ave NE and the only trips anticipated to use the site access driveways on NE 53rd Street would be students and/or staff who are using the parking lot.. This alternative distribution scenario is discussed in more detail below.

Proportional Share Evaluation

Based upon the City of Kirkland's *Policy R-38 Transportation Impact Analysis Review* (July 2022), a detailed traffic analysis is required at intersections that have a proportional share of project traffic of at least 1 percent. The proportional share calculations are based on use of the City's proportional share spreadsheet and the project's daily trip assignment (see Appendix I). Table 7 summarizes the intersection proportional share calculations.

Table 7
Intersection Proportional Share Summary

Intersection #	Intersection	Proportional Share (%)	Detailed Analysis Required?
104	108th Ave NE/NE 68th St	1.65%	YES
--	108th Ave NE/NE 53rd St	2.82%	YES

As shown in Table 7, the concurrency intersection of 108th Ave NE/NE 68th Street and also the intersection of 108th Ave NE/NE 53rd Street (adjacent to the school campus) would have a project proportional share of at least one percent with the proposed *Emerson Campus Project*. Detailed traffic analysis was conducted at these two (2) study intersections, the site access driveways, and also the Intersections of 108th Ave NE/NE 53rd Street (south) and 108th Ave NE/NE 52nd Street since the proposed site access driveway on 108th Ave NE is located within 150 feet of both intersections. Appendix J contains the proportional share evaluation worksheets.

Traffic Volumes

Future year 2027 No Action (without project) AM, afternoon (school), and PM peak hour traffic volumes at the study intersections and Emerson Campus site access driveways were estimated by applying a 2.0 percent growth rate compounded annually to the existing (2025) volumes. *It should be noted that the annual growth rate was not applied to entering and exiting turning movements at the existing Emerson Campus site access driveways on NE 53rd Street and 108th Ave NE*.

Trips associated with an additional 110 students that represent the current entitled Emerson High School student entitlement of 178 students (178 entitled students less 68 existing enrollment = 110 additional students) were also included in the future year 2027 No Action traffic volumes. The trip generation associated with the additional 110 students was estimated based on the trip rates included in Table 5 (see detailed trip generation calculations included in Appendix F) and were distributed to the study intersections and site access driveways consistent with the trip distribution illustrated in Figures 5 to 7. All trips associated with the additional 110 students that represent the current Emerson High School student entitlement were assigned to the site access driveways on NE 53rd Street since the existing parking and drop-off/pick-up for Emerson High occurs in the parking area off of NE 53rd Street.

The resulting 2027 No Action AM peak hour, afternoon (school) peak hour, and PM peak hour traffic volumes at the study intersections and site access driveways are illustrated in Figures 8 to 10.

Future year 2027 With Project peak hour traffic volumes were estimated by adding the new project trips associated with up to 167 additional entitled high school students as part of the *Emerson Campus Project* (Figures 5 to 7) to the 2027 No Action traffic volumes (Figures 8 to 10). The resulting future year 2027 With Project traffic volumes at the study intersections and site access driveways are shown in Figures 11 to 13 for the weekday AM, afternoon (school), and PM peak hours. Additionally, it should be noted that all trips associated with the existing student enrollment as of March 2024 (68 students) and existing

additional existing student entitlement (110 additional students) were assumed to continue to use the site access on NE 53rd Street and no trips were redistributed to the new drop-off/pick-up loop on 108th Ave NE.

The future 2027 With Project traffic volumes at the site access driveways on 108th Ave NE also include adjustments that were made to the peak hour traffic volumes to reflect the future *Emerson Campus Project* site plan (see Appendix A) with a single full access driveway on 108th Ave NE.

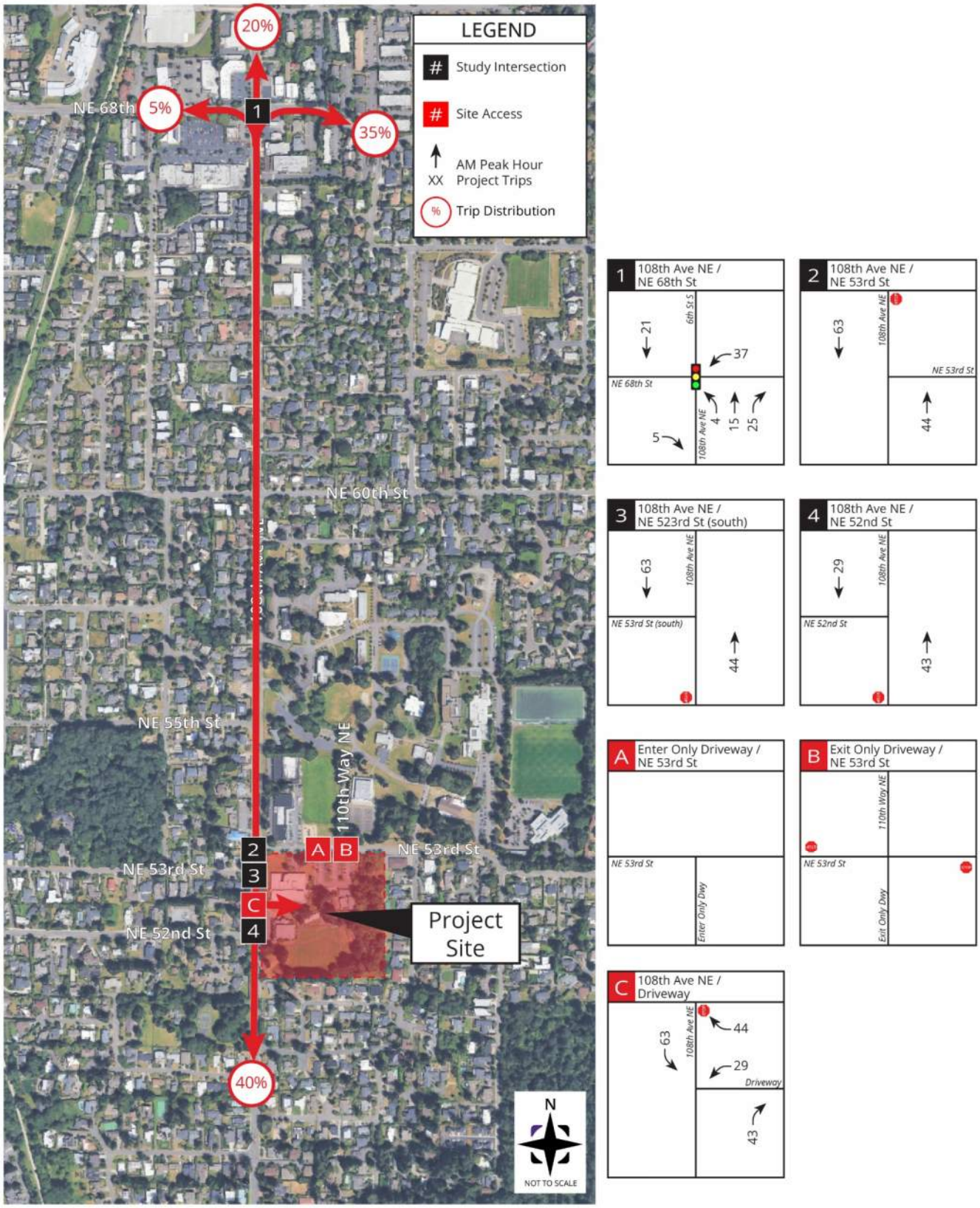


Figure 5: Weekday AM Peak Hour Project Trip Assignment and Distribution

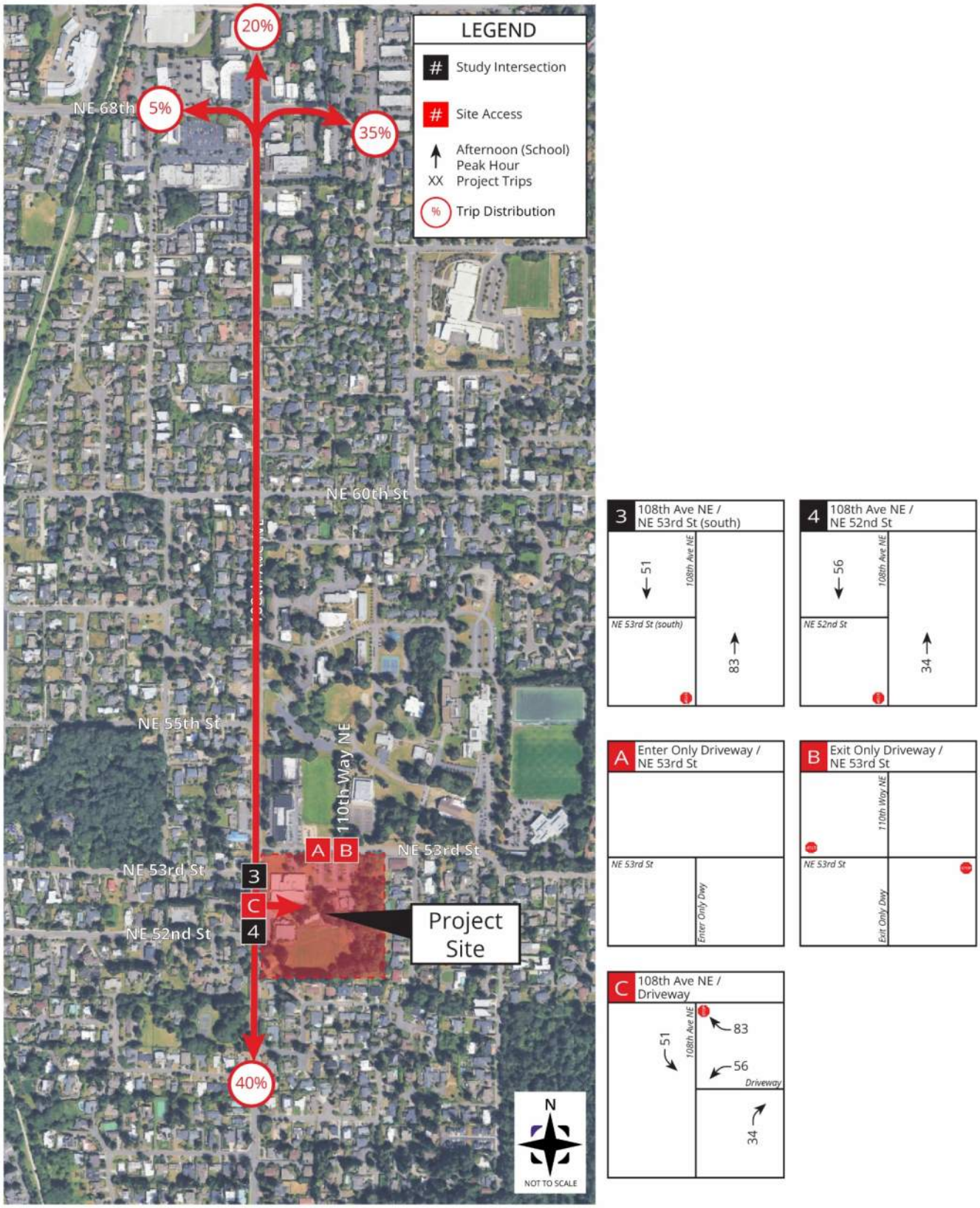


Figure 6: Weekday Afternoon (School) Peak Hour Project Trip Assignment and Distribution

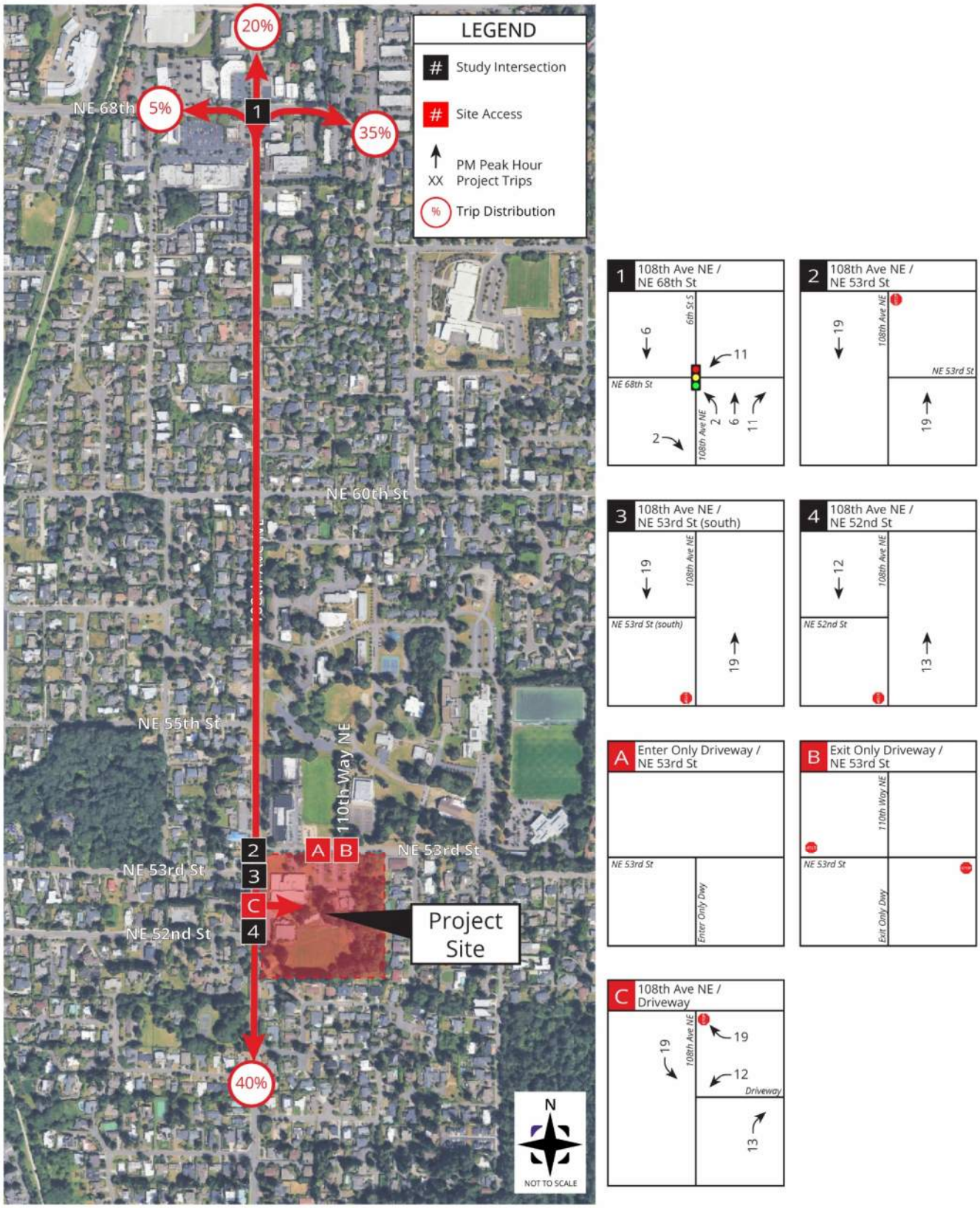


Figure 7: Weekday PM Peak Hour Project Trip Assignment and Distribution

Figure 8: 2027 No Action Weekday AM Peak Hour Traffic Volumes

Figure 9: 2027 No Action Weekday Afternoon (School) Peak Hour Traffic Volumes

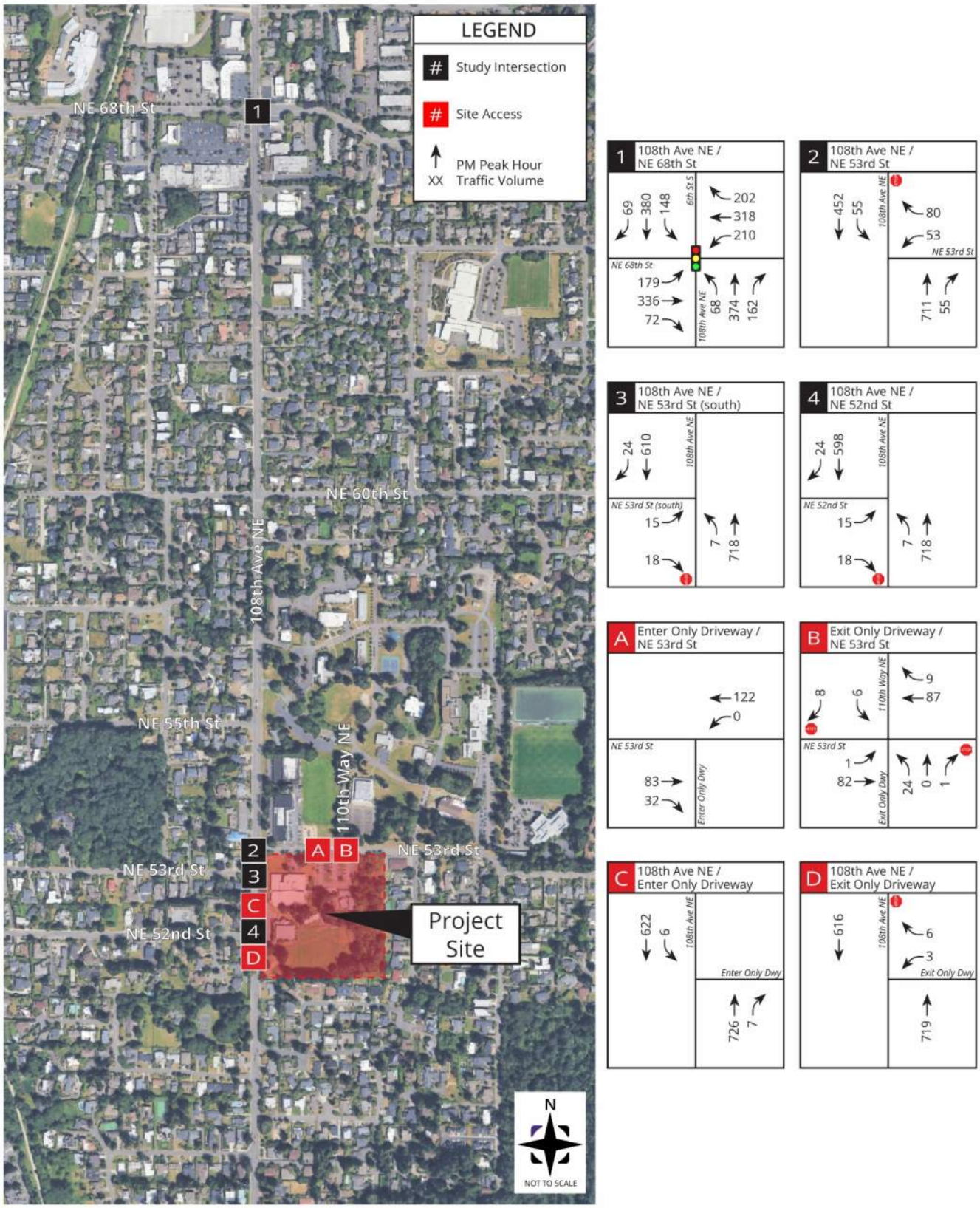


Figure 10: 2027 No Action Weekday PM Peak Hour Traffic Volumes

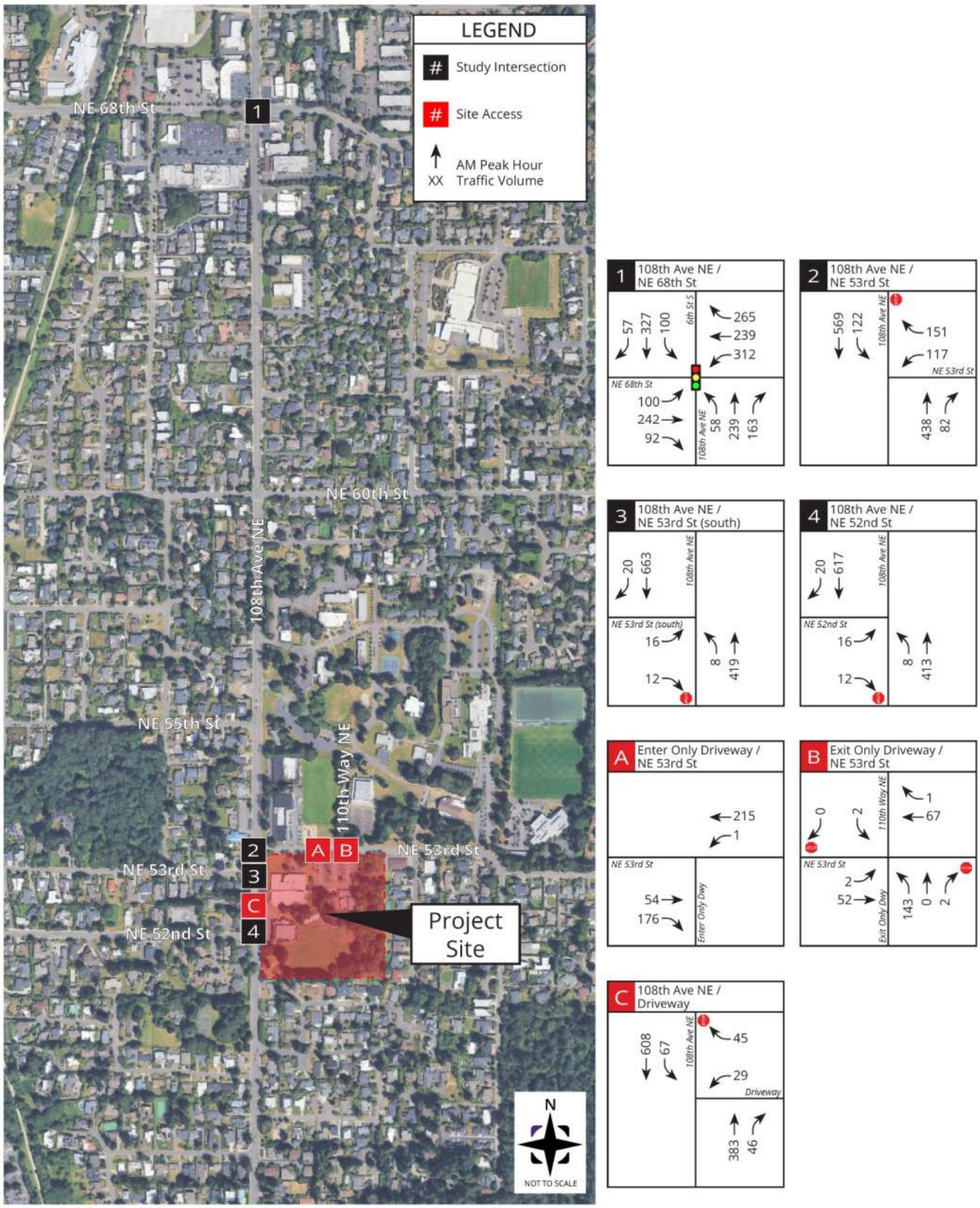


Figure 11: 2027 With Project Weekday AM Peak Hour Traffic Volumes

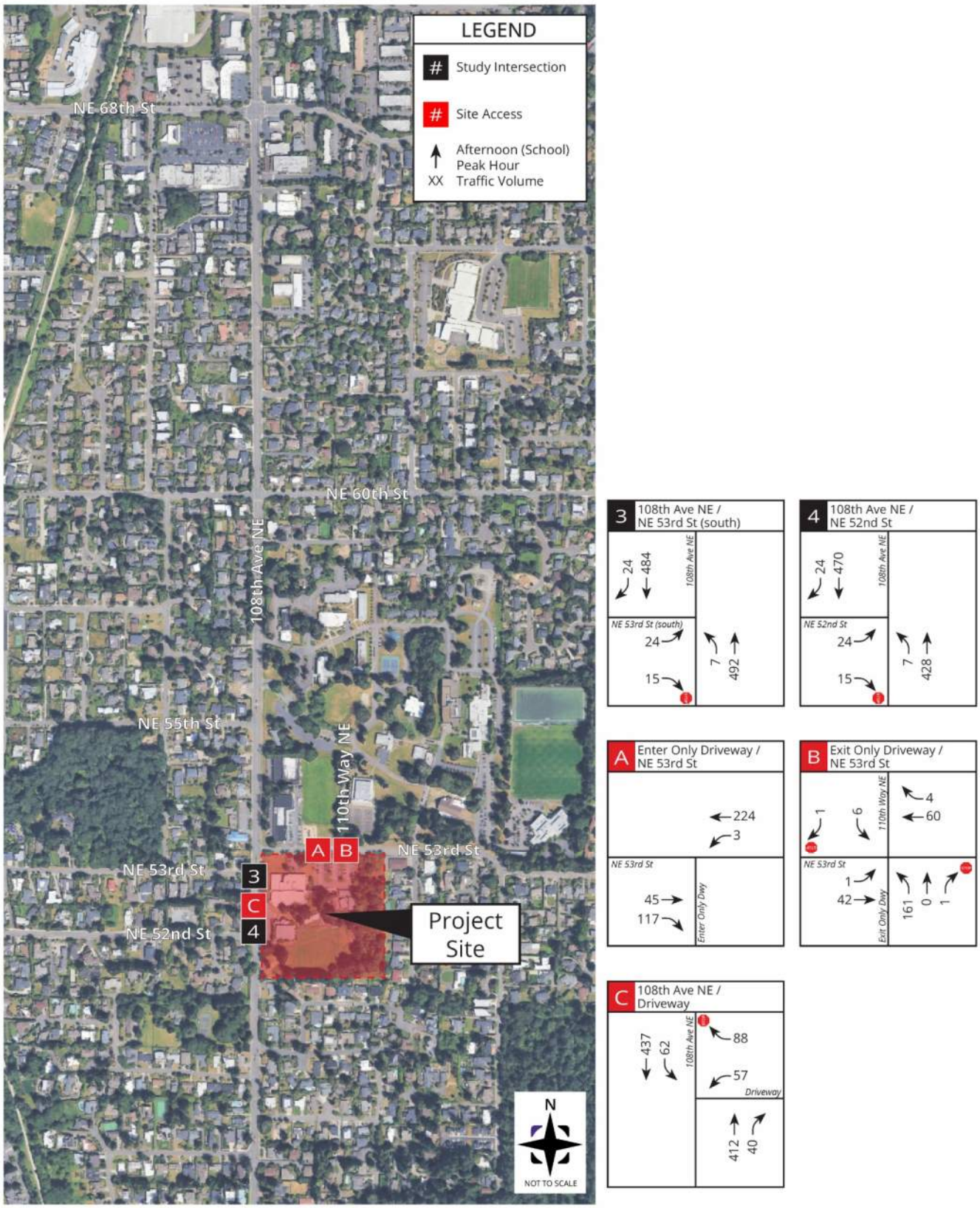


Figure 12: 2027 With Project Weekday Afternoon (School) Peak Hour Traffic Volumes

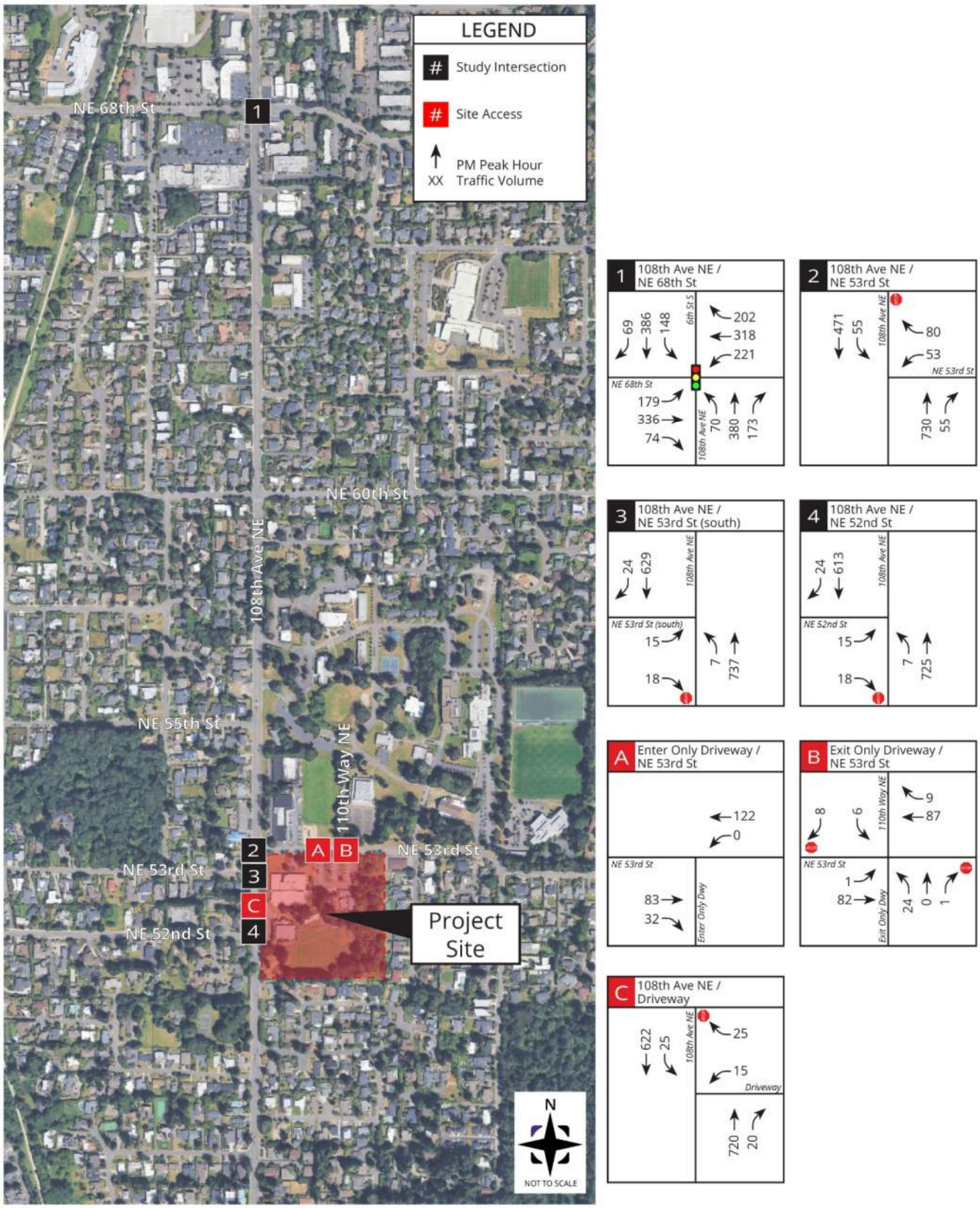


Figure 13: 2027 With Project Weekday PM Peak Hour Traffic Volumes

Intersection Levels of Service

Weekday AM, afternoon (school), and PM peak hour level of service (LOS) analyses at the study intersections and site access driveways were conducted for future year 2027 No Action (without project) and With Project conditions (with the proposed additional Emerson High School student enrollment).

The roadway network assumed in the future year LOS analysis at the off-site study intersections was based on existing conditions. The future roadway network assumptions at the site access driveways reflect a single full access driveway on 108th Ave NE as shown in the site plan (see Appendix A) since the existing exit-only and enter-only driveways on 108th Ave NE would be removed with the proposed project.

The LOS results at the study intersections without and with the proposed project are summarized in Table 8 for the AM peak hour, Table 9 for the afternoon (school) peak hour, and Table 10 for the PM peak hour. The detailed LOS worksheets are included in Appendix D.

Table 8
Future 2027 Weekday AM Peak Hour LOS Summary

	2027 No Action		2027 With Project	
Study Intersections	LOS	Delay (sec)	LOS	Delay (sec)
Signalized:				
1. 108th Ave NE / NE 68th St	D	40.0	D	41.2
Two-Way Stop Controlled:				
2. 108th Ave NE / NE 53rd St				
Westbound Left-Turn	F	>100	F	>100
Westbound Right-Turn	B	14.0	B	14.9
Southbound Left-Turn	A	9.1	A	9.3
3. 108th Ave NE / NE 53rd St (south)				
Northbound Left-Turn	A	9.3	A	9.6
Eastbound Approach	C	21.0	C	24.2
4. 108th Ave NE / NE 52nd St				
Northbound Left-Turn	A	9.2	A	9.3
Eastbound Approach	C	15.6	C	16.3
A. NE 53rd St / Enter-Only Driveway				
Westbound Left-Turn	A	8.0	A	8.0
B. NE 53rd St / Exit-Only Driveway				
Northbound Approach	B	11.2	B	11.2
Eastbound Left-Turn	A	7.5	A	7.5
Southbound Approach	A	9.6	A	9.6
C. 108th Ave NE / Enter-Only Driveway				
Southbound Left-Turn	A	8.3	--	--
C. 108th Ave NE / Driveway				
Southbound Left-Turn	--	--	A	8.6
Westbound Approach	--	--	C	15.7
D. 108th Ave NE / Exit-Only Driveway				
Westbound Approach	B	10.9	--	--

Table 9
Future 2027 Weekday Afternoon Peak Hour LOS Summary

Study Intersections	2027 No Action LOS	2027 No Action Delay (sec)	2027 With Project LOS	2027 With Project Delay (sec)
Signalized:				
1. 108th Ave NE / NE 68th St	--	--	--	--
Two-Way Stop Controlled:				
2. 108th Ave NE / NE 53rd St				
Westbound Left-Turn	--	--	--	--
Westbound Right-Turn	--	--	--	--
Southbound Left-Turn	--	--	--	--
3. 108th Ave NE / NE 53rd St (south)				
Northbound Left-Turn	A	8.5	A	8.7
Eastbound Approach	C	17.5	C	20.6
4. 108th Ave NE / NE 52nd St				
Northbound Left-Turn	A	8.4	A	8.6
Eastbound Approach	B	13.7	B	14.6
A. NE 53rd St / Enter-Only Driveway				
Westbound Left-Turn	A	7.8	A	7.8
B. NE 53rd St / Exit-Only Driveway				
Northbound Approach	B	11.3	B	11.3
Eastbound Left-Turn	A	7.5	A	7.5
Southbound Approach	A	9.4	A	9.4
C. 108th Ave NE / Enter-Only Driveway				
Southbound Left-Turn	A	8.4	--	--
C. 108th Ave NE / Driveway				
Southbound Left-Turn	--	--	A	8.7
Westbound Approach	--	--	C	17.2
D. 108th Ave NE / Exit-Only Driveway				
Westbound Approach	B	11.5	--	--

Table 10
Future 2027 Weekday PM Peak Hour LOS Summary

Study Intersections	2027 No Action LOS	2027 No Action Delay (sec)	2027 With Project LOS	2027 With Project Delay (sec)
Signalized:				
1. 108th Ave NE / NE 68th St	D	48.1	D	48.3
Two-Way Stop Controlled:				
2. 108th Ave NE / NE 53rd St				
Westbound Left-Turn	E	48.4	F	52.8
Westbound Right-Turn	C	17.2	C	17.7
Southbound Left-Turn	A	9.9	A	10.0
3. 108th Ave NE / NE 53rd St (south)				
Northbound Left-Turn	A	9.0	A	9.1
Eastbound Approach	C	23.3	C	24.4
4. 108th Ave NE / NE 52nd St				
Northbound Left-Turn	A	8.9	A	9.0
Eastbound Approach	C	15.9	C	16.2
A. NE 53rd St / Enter-Only Driveway				
Westbound Left-Turn	A	0.0	A	0.0
B. NE 53rd St / Exit-Only Driveway				
Northbound Approach	A	9.8	A	9.8
Eastbound Left-Turn	A	7.4	A	7.4
Southbound Approach	A	9.2	A	9.2
C. 108th Ave NE / Enter-Only Driveway				
Southbound Left-Turn	A	9.4	--	--
C. 108th Ave NE / Driveway				
Southbound Left-Turn	--	--	A	9.5
Westbound Approach	--	--	C	17.4
D. 108th Ave NE / Exit-Only Driveway				
Westbound Approach	C	15.4	--	--

As shown in Tables 8 to 10, the signalized study intersection and individual movements at the stop-controlled intersections and site access driveways are anticipated to operate at LOS D or better during the weekday AM, afternoon (school), and PM peak hours in 2027 with the proposed *Emerson Campus Project* with exception to the following:

- The westbound left-turn movement at 108th Ave NE/NE 53rd Street is anticipated to operate at LOS F during the weekday AM peak hour with or without the project and is anticipated to operate at LOS E without the project and LOS F with the project during the weekday PM peak hour.

The installation of site-specific improvements under SEPA is primarily determined by the proportional share of project traffic and the LOS analysis at the study intersections. Table 11 is used as a guide by the City of Kirkland in determining when mitigation under SEPA is required.

Table 11
Guidelines for Installation of Improvements under SEPA

Peak Hour Intersection LOS with Project Traffic	Install Improvements?
A thru D	No
E	If intersection proportional share > 15%
F	If intersection proportional share > 5%

As shown in Tables 8-10, all study intersections are anticipated to operate at LOS D or better in 2027 during the weekday AM, afternoon (school), and PM peak hours without or with the proposed *Emerson Campus Project* with exception to the westbound left-turn movement at 108th Ave NE/NE 53rd Street which is anticipated to operate at LOS F during the weekday AM and PM peak hour with the project. As shown in Table 7, the Emerson Campus Project's proportionate share at the intersection of 108th Ave NE/NE 53rd Street is less than 5 percent. Therefore, the installation of improvements under SEPA is not required at any of the study intersections.

Queuing Analysis

A future year weekday peak hour queuing analysis was conducted at the stop-controlled study intersections and site access driveways for future year 2027 No Action conditions and conditions with the proposed *Emerson Campus Project* (conservatively assuming that all new trips associated with 167 additional entitled high school students would use the site access driveway on 108th Ave NE). The queuing analysis was based on the methodology and procedures outlined in the 7th Edition of the *Highway Capacity Manual* (HCM) using the *Synchro 12* software program. The reported queue lengths are 95th percentile queues and represent a condition that is exceeded only five percent of the time. The 2027 No Action and With Project peak hour traffic volumes at the driveways are shown previously in Figures 11 to 13.

The results of the weekday peak hour queuing analysis are summarized in Table 12. The queue results are shown on the LOS worksheets included in Appendix D.

Table 12
Future 2027 Weekday Peak Hour Queue Summary

Study Intersections	Storage (ft)	95th Percentile (%) Queue Length (ft) [1]					
		AM Peak Hour		Afternoon (School) Peak Hour		PM Peak Hour	
		2027 No Action	2027 With Project	2027 No Action	2027 With Project	2027 No Action	2027 With Project
Two-Way Stop Controlled:							
2. 108th Ave NE / NE 53rd St							
Westbound Left-Turn	220′	175′	200′	--	--	50′	50′
Westbound Right-Turn	300′+	25′	25′	--	--	25′	25′
Southbound Left-Turn	95′	25′	25′	--	--	<25′	<25′
3. 108th Ave NE / NE 53rd St (south)							
Northbound Left-Turn	TWLTL	0′	0′	0′	0′	0′	0′
Eastbound Approach	>100′	<25′	25′	25′	25′	<25′	25′
4. 108th Ave NE / NE 52nd St							
Northbound Left-Turn	100′	0′	0′	0′	0′	0′	0′
Eastbound Approach	>100′	<25′	<25′	<25′	<25′	<25′	<25′
A. NE 53rd St / Enter-Only Driveway							
Westbound Left-Turn	50′+	0′	0′	0′	0′	0′	0′
B. NE 53rd St / Exit-Only Driveway							
Northbound Approach	50′+	25′	25′	25′	25′	<25′	<25′
Eastbound Left-Turn	50′+	0′	0′	0′	0′	0′	0′
Southbound Approach	50′+	0′	0′	0′	0′	<25′	<25′
C. 108th Ave NE / Enter-Only Driveway							
Southbound Left-Turn	TWLTL	0′	--	0′	--	0′	--
C. 108th Ave NE / Driveway							
Westbound Approach	> 100′	--	25′	--	50′	--	<25′
Southbound Left-Turn	TWLTL	--	<25′	--	<25′	--	<25′
D. 108th Ave NE / Exit-Only Driveway							
Westbound Approach	50′	0′	--	0′	--	<25′	--

+ Queue storage measured to nearest intersection. Additional storage may be available. TWLTL = Two-Way Left-Turn Lane

[1] Queues are 95th Percentile queues. Vehicle queues reported by HCM methodology are multiplied by 25 feet per vehicle to estimate the vehicular queue in feet and rounded to the nearest 25 feet. <25′ is a queue statistically less than 1 vehicle.

As shown in Table 12, the 95th percentile queues forecast by the Synchro 12 software (and based on HCM methodology) during the AM, afternoon (school), and PM peak hours at the stop-controlled study intersections adjacent to the Emerson Campus are anticipated to be accommodated within the existing storage with the proposed project and would not impact the school driveways on NE 53rd Street or 108th Ave NE.

Additionally, the 95th percentile queues during the AM, afternoon (school), and PM peak hours at the Emerson Campus site access driveways are anticipated to be 25 feet (1 vehicle) or less with the project in 2027.

It should be noted that a delay or queue for the eastbound right-turn at the NE 53rd Street/Enter-Only Driveway is not reported by Synchro because it is an uncontrolled movement. Queueing associated with the eastbound right-turn movement into the NE 53rd Street/Enter-Only Driveway is discussed further in the student drop-off/pick-up queuing section below.

Queuing on 108th Ave NE

The northbound left-turn at 108th Ave NE/NE 53rd Street (south) and the southbound left-turn at the 108th Ave NE site access driveway would share approximately 130 feet of the existing two-way left-turn lane on 108th Ave NE. As also shown in Table 12, the northbound left-turn queue at 108th Ave NE/NE 53rd Street (south) is anticipated to be 0 feet and the southbound left-turn queue at the 108th Ave NE site access driveway is anticipated to be 25 feet (1 vehicle) or less. Therefore, no conflicts are anticipated between southbound left-turn vehicles entering the Emerson Campus on 108th Ave NE and northbound left-turn vehicles destined to NE 53rd Street (south) from 108th Ave NE. This queuing analysis based on Synchro and HCM methodology assumes that the on-site queue storage is completely accommodated on-site as discussed in detail below.

An alternative analysis was completed to evaluate queuing at the proposed driveway on 108th Ave NE based on the anticipated peak 15 minute volumes. The AM and Afternoon peak hour volumes used in the analysis are the peak 15 minute volumes times four and a peak hour factor of 1.0 was applied to these hourly volumes. The results of the alternative queuing analysis show that the southbound left-turn queue at the 108th Ave NE site access driveway is anticipated to be 25 feet (1 vehicle) or less, confirming that no conflicts are anticipated between southbound left-turn vehicles entering the Emerson Campus on 108th Ave NE and northbound left-turn vehicles destined to NE 53rd Street (south) from 108th Ave NE. The volumes used in the analysis and the queuing results are included in Appendix K

Intersection LOS and Queuing Analysis with Alternative Trip Assignment Assumptions

An operational (LOS and queuing) analysis was conducted for the proposed *Emerson Campus Project* based on alternative trip assignment assumptions for the existing Emerson High trips and new trips associated with the project.

The alternative trip assignment for Emerson High School trips (existing trips + additional existing entitled trips + proposed new entitled trips) assumes the following:

AM Peak Hour:

- 75% of entering Emerson High School trips would use the 108th Ave NE access
- 25% of entering Emerson High School trips would use the NE 53rd Street access
- 100% of exiting Emerson High School trips would use the 108th Ave NE access

Afternoon (school) Peak Hour:

- 100% of entering Emerson High School trips would use the 108th Ave NE access
- 75% of exiting Emerson High School trips would use the 108th Ave NE access
- 25% of exiting Emerson High School trips would use the NE 53rd Street access

PM Peak Hour:

- 100% of entering Emerson High School trips would use the 108th Ave NE access
- 100% of exiting Emerson High School trips would use the 108th Ave NE access

This alternative distribution analysis assumes that in the future with the project (and an enrollment of 345 students at Emerson High), the majority of Emerson High trips would use the site access driveway on 108th Ave NE and the only trips anticipated to use the site access driveways on NE 53rd Street would be students and/or staff who are using the parking lot. As a result, the majority of trips associated with the existing student population (68 students as of the time of the counts in March 2024) and the additional existing entitled Emerson High School students (110 additional students) were redistributed from the NE 53rd Street accesses to the 108th Ave NE access. Using the alternative trip distribution, the estimated assignment of the new weekday AM peak hour, afternoon (school) peak hour, and PM peak hour trips associated with 167 new entitled students at Emerson High School is illustrated in Appendix M. Additionally, the resulting future year 2027 With Project traffic volumes at the study intersections and site access driveways are shown in Appendix M for the weekday AM, afternoon (school), and PM peak hours.

Level of Service

Weekday AM, afternoon (school), and PM peak hour level of service (LOS) analyses at the study intersections and site access driveways were conducted for future year 2027 With Project conditions (with the proposed additional Emerson High School student enrollment) based on the alternative trip distribution assumptions. The With Project LOS results at the study intersections adjacent to the site with the alternative trip distribution are summarized in Table 13 for the AM peak hour, Table 14 for the afternoon (school) peak hour, and Table 15 for the PM peak hour. The With Project LOS results previously disclosed in Tables 8 to 10 (assuming 100% of the new trips associated with the 167 additional students at Emerson High School are assigned to the driveway on 108th Ave NE) are presented for comparison in Tables 13 to 15. The detailed LOS worksheets are included in Appendix D.

As shown in Tables 13 to 15, with the alternative trip assignment assumptions, all study intersections adjacent to the school site are anticipated to operate at LOS D or better in 2027 during the weekday AM, afternoon (school), and PM peak hours with the proposed *Emerson Campus Project* with exception to the westbound left-turn movement at 108th Ave NE/NE 53rd Street which is anticipated to operate at LOS F during the weekday AM peak hour and LOS E during the weekday PM peak hour with the project, consistent with the previous operational analysis documented in this study.

Table 13
Future 2027 Weekday AM Peak Hour With Project LOS Summary with Alternate Trip Assignment

Study Intersections (Two-Way Stop Controlled)	With Project LOS	With Project Delay (sec)	With Project With Alternative Trip Assignment LOS	With Project With Alternative Trip Assignment Delay (sec)
2. 108th Ave NE / NE 53rd St				
Westbound Left-Turn	F	>100	F	>100
Westbound Right-Turn	B	14.9	B	14.2
Southbound Left-Turn	A	9.3	A	9.2
3. 108th Ave NE / NE 53rd St (south)				
Northbound Left-Turn	A	9.6	A	9.5
Eastbound Approach	C	24.2	D	25.3
4. 108th Ave NE / NE 52nd St				
Northbound Left-Turn	A	9.3	A	9.3
Eastbound Approach	C	16.3	C	16.3
A. NE 53rd St / Enter-Only Driveway				
Westbound Left-Turn	A	8.0	A	7.7
B. NE 53rd St / Exit-Only Driveway				
Northbound Approach	B	11.2	B	10.1
Eastbound Left-Turn	A	7.5	A	7.5
Southbound Approach	A	9.6	A	9.6
C. 108th Ave NE / Driveway				
Westbound Approach	C	15.7	C	21.2
Southbound Left-Turn	A	8.6	A	8.8

Table 14
Future 2027 Weekday Afternoon Peak Hour With Project LOS Summary with Alternate Trip Assignment

Study Intersections (Two-Way Stop Controlled)	With Project		With Project With Alternative Trip Assignment	
	LOS	Delay (sec)	LOS	Delay (sec)
3. 108th Ave NE / NE 53rd St (south)				
Northbound Left-Turn	A	8.7	A	8.7
Eastbound Approach	C	20.6	C	21.4
4. 108th Ave NE / NE 52nd St				
Northbound Left-Turn	A	8.6	A	8.6
Eastbound Approach	B	14.6	B	14.6
A. NE 53rd St / Enter-Only Driveway				
Westbound Left-Turn	A	7.8	A	7.5
B. NE 53rd St / Exit-Only Driveway				
Northbound Approach	B	11.3	B	10.4
Eastbound Left-Turn	A	7.5	A	7.5
Southbound Approach	A	9.4	A	9.4
C. 108th Ave NE / Driveway				
Westbound Approach	C	17.2	C	22.4
Southbound Left-Turn	A	8.7	A	8.9

Table 15
Future 2027 Weekday PM Peak Hour With Project LOS Summary with Alternate Trip Assignment

Study Intersections (Two-Way Stop Controlled)	With Project LOS	With Project Delay (sec)	With Project With Alternative Trip Assignment LOS	With Project With Alternative Trip Assignment Delay (sec)
2. 108th Ave NE / NE 53rd St				
Westbound Left-Turn	F	52.8	E	46.7
Westbound Right-Turn	C	17.7	C	17.3
Southbound Left-Turn	A	10.0	A	9.9
3. 108th Ave NE / NE 53rd St (south)				
Northbound Left-Turn	A	9.1	A	9.1
Eastbound Approach	C	24.4	C	24.7
4. 108th Ave NE / NE 52nd St				
Northbound Left-Turn	A	9.0	A	9.0
Eastbound Approach	C	16.2	C	16.2
A. NE 53rd St / Enter-Only Driveway				
Westbound Left-Turn	A	0.0	A	0.0
B. NE 53rd St / Exit-Only Driveway				
Northbound Approach	A	9.8	A	9.4
Eastbound Left-Turn	A	7.4	A	7.4
Southbound Approach	A	9.2	A	9.2
C. 108th Ave NE / Driveway				
Westbound Approach	C	17.4	C	18.6
Southbound Left-Turn	A	9.5	A	9.6

Queuing

A future year weekday peak hour queuing analysis was conducted at the stop-controlled study intersections and site access driveways for future year 2027 conditions with the proposed *Emerson Campus Project* under the alternate trip distribution scenario. The results of the weekday peak hour queuing analysis are summarized in Table 16 and the With Project queue results previously disclosed in Table 12 (assuming all new trips associated with the 167 additional students at Emerson High School are assigned to the driveway on 108th Ave NE but all existing entitled trips continue to use the NE 53rd Street driveway) are presented for comparison in Table 16. The 2027 With Project peak hour traffic volumes at the driveways are shown in Appendix M and the queue results are shown on the LOS worksheets included in Appendix D.

Table 16
Future 2027 Weekday Peak Hour With Project Queue Summary with Alternate Trip Assignment

Study Intersections	Storage (ft)	95th Percentile (%) Queue Length (ft) [1] AM Peak Hour With Project	AM Peak Hour With Project With Alternative Trip Distribution	Afternoon (School) Peak Hour With Project	Afternoon (School) Peak Hour With Project With Alternative Trip Distribution	PM Peak Hour With Project	PM Peak Hour With Project With Alternative Trip Distribution
Two-Way Stop Controlled:							
2. 108th Ave NE / NE 53rd St							
Westbound Left-Turn	220′	200′	225′	--	--	50′	50′
Westbound Right-Turn	300′+	25′	25′	--	--	25′	25′
Southbound Left-Turn	95′	25′	<25′	--	--	<25′	<25′
3. 108th Ave NE / NE 53rd St (south)							
Northbound Left-Turn	TWLTL	0′	0′	0′	0′	0′	0′
Eastbound Approach	>100′	25′	25′	25′	25′	25′	25′
4. 108th Ave NE / NE 52nd St							
Northbound Left-Turn	100′	0′	0′	0′	0′	0′	0′
Eastbound Approach	>100′	<25′	<25′	<25′	<25′	<25′	<25′
A. NE 53rd St / Enter-Only Driveway							
Westbound Left-Turn	50′+	0′	0′	0′	0′	0′	0′
B. NE 53rd St / Exit-Only Driveway							
Northbound Approach	50′+	25′	<25′	25′	25′	<25′	0′
Eastbound Left-Turn	50′+	0′	0′	0′	0′	0′	0′
Southbound Approach	50′+	0′	0′	0′	0′	<25′	<25′
C. 108th Ave NE / Driveway							
Westbound Approach	> 100′	25′	50′	50′	75′	<25′	25′
Southbound Left-Turn	TWLTL	<25′	<25′	<25′	<25′	<25′	<25′

+ Queue storage measured to nearest intersection. Additional storage may be available. TWLTL = Two-Way Left-Turn Lane

[1] Queues are 95th Percentile queues. Vehicle queues reported by HCM methodology are multiplied by 25 feet per vehicle to estimate the vehicular queue in feet and rounded to the nearest 25 feet. <25′ is a queue statistically less than 1 vehicle.

As shown in Table 16, with the *Emerson Campus Project* and with alternate trip assignment assumptions, the 95th percentile queues at the stop-controlled study intersections adjacent to the school and at the site access driveways are anticipated to be 50 feet or less and accommodated within the existing storage except at 108th Ave NE/NE 53rd Street where the 95th percentile queue for the westbound left-turn is anticipated to be 225′ feet (very slightly exceeding the existing storage of 220 feet).

Student Drop-Off/Pick-Up Queuing (based on Alternative Trip Assignment Assumptions)

One of the primary elements to consider for school sites is the capacity of the parent drop-off/pick-up lane and vehicle queuing during peak drop-off and pick-up periods. As shown in the site plan (see

Appendix L), the new Emerson Campus drop-off/pick-up loop off of 108th Ave NE would provide approximately 490 linear feet of queue storage in the drop-off/pick-up lane. Additionally, the existing drop-off/pick-up loop in the parking lot off of NE 53rd Street would continue to provide approximately 300 linear feet of queue storage in the drop-off/pick-up lane.

As noted previously, the *Emerson Campus Project* is being designed to allow for flexibility in vehicular circulation and drop-off/pick-up operations for the three schools that the campus serves (Emerson High School, Northstar Middle School, and Emerson K-12) by providing two drop-off/pick-up loops; one off of NE 53rd Street and one off of 108th Ave NE. The intentional campus design along with the continued implementation of offset start and ending bell times for Northstar Middle School and Emerson High School would minimize impacts to the existing adjacent roadways of NE 53rd Street and 108th Ave NE during peak periods. Similar to existing conditions, as a result of the planned continued offset start and end times for Emerson High and Northstar Middle Schools (morning bell times are offset by 10 minutes and afternoon bell times are offset by 30 minutes), peak drop-off/pick-up queuing associated with the existing Northstar Middle School is expected to be dissipated before Emerson High School drop-off/pick-up queuing would start.

Existing Queue Observations

Based on observations conducted during the existing counts at the Emerson Campus driveways in March 2024, the maximum queue observed at the enter-only driveway on NE 53rd Street associated with Emerson High School was 3 vehicles during the AM peak hour and 4 vehicles during the afternoon (school) peak hour. The vehicle queues associated with Emerson High School drop-off or pick-up activity were contained entirely on-site and did not extend into NE 53rd Street at any time.

Additional observations were conducted at the existing parking lot on NE 53rd Street on September 23 and 25, 2025 during the morning and afternoon peak drop-off and pick-up periods for both Northstar Middle School and Emerson High School. Based on information provided by LWSD, Emerson High School had an enrollment of 61 students and Northstar Middle School had an enrollment of 90 students at the time of the observations which is consistent with the student enrollment at both schools as of March 2024. Because of the offset start and end times for the high school and middle school (Emerson starts at 8:00 and ends at 2:50 and Northstar starts at 7:50 and ends at 2:20), and the different drop-off/pick-up areas, queuing overlap between the two schools was not observed and any observed vehicular queueing was clearly associated with either the middle school or the high school. The maximum queue observed at the enter-only driveway on NE 53rd Street associated with Northstar Middle School was 16 vehicles during the afternoon (school) peak hour, of which 3 to 4 vehicles were queued on NE 53rd Street and the maximum queue observed at the enter-only driveway on NE 53rd Street associated with Emerson High School 3 vehicles during the afternoon (school) peak hour.

Queue Calculations for Emerson High School With Future Entitlement of 345 Students

A queueing analysis was conducted in order to estimate the maximum vehicular queues during the peak drop-off and pick-up periods with the *Emerson Campus Project*. The queueing analysis includes an estimate of future queuing associated with the total future student entitlement (345 students) for the alternative trip assignment scenario documented in this TIA which assumes that the majority of Emerson High School trips will utilize the site access driveway on 108th Ave NE. The queueing analysis was based on standard queue theory equations that relate the rate of vehicle arrivals to the rate of vehicle departures (service time), which are both based on a Poisson distribution (M/M/s queue regime). The M/M/s queuing regime assumes random (exponentially distributed) arrivals and departures and uses average arrival and departure rates. The M/M/s queue calculations are summarized in Table 17 and the detailed queue calculations are included in Appendix L.

Table 17
Queue Forecasts for Emerson High School Total Student Entitlement (345 students) Based on M/M/s Queue Model

	Forecast 95th Percentile Queue [1]			
	Loop on 53rd Street		Loop on 108th Ave NE	
Weekday Time Period	Vehicles	Feet[2]	Vehicles	Feet[2]
AM Peak Hour	4	80' to 100'	6	120' to 150'
Afternoon Peak Hour	4	80' to 100'	11	220' to 275'

[1] The 95th percentile queue is a queue that is only exceeded 5 percent of the time.

[2] The estimated 95th percentile queue in terms of feet is presented as a range based on an assumed vehicle length of 20 to 25 feet per vehicle.

As shown in Table 17, based on M/M/s queue model forecasts and a total future enrollment of 345 students, the maximum queues are anticipated to occur during the afternoon (school) peak hour (peak pick-up period) and are estimated to be 80 to 100 feet (4 vehicles) in the loop on NE 53rd Street and 220 to 275 feet (11 vehicles) in the loop on 108th Ave NE. With on-site queue storage of 300 feet in the NE 53rd Street loop and 490 feet in the 108th Ave NE loop, the estimated 95th percentile on-site queues during the peak afternoon pick-up period are expected to be accommodated entirely on-site.

As noted, this queuing analysis assumes that the majority of trips associated with Emerson High School at 345 enrolled students would use the new drop-off/pick-up loop on 108th Ave NE and the only trips that would use the NE 53rd Street site access would be students and/or staff who are utilizing the parking lot. As a result, the queue forecasts documented in Table 17 for the NE 53rd Street lot during the AM peak period may be conservative since they assume vehicles arriving to park in the lot (and not utilize the drop-off lane) are part of the arrival rate.

It should be noted that the Lake Washington School District is deeply committed to actively managing peak drop-off/pick-up operations at their schools in a safe and efficient manner to minimize impacts to local streets. As a result of the Lake Washington School District's commitment to minimizing impacts to local streets during peak drop-off and pick-up periods, school and district staff regularly monitor and evaluate drop-off/pick-up procedures throughout the school year and make adjustments as necessary.

Sight Distance at Site Access Driveways

Intersection sight distance and stopping sight distance at the existing exit-only site access driveway on NE 53rd Street and the proposed site access driveway on 108th Ave NE were field verified by TENW.

Intersection (entering) sight distance was measured based on the *City of Kirkland Department of Public Works Pre-Approved Plans Policy R-13 (Intersection Sight Distance).* Stopping sight distance was measured based on *AASHTO-Geometric Design of Highways and Streets, 7th Edition.* The posted speed limit on NE 53rd Street is 25 mph and the posted speed limit on 108th Ave NE is 30 mph along the project frontage.

Sight Distance at the Existing Driveways on NE 53rd Street

For a 25 mph posted speed and an ADT less than 6,000 on NE 53rd Street, the "recommended" (desirable) value for intersection (entering) sight distance is 155 feet based on driveway type F3 (Policy R-13 Table 2). The intersection sight distance is measured from a setback point on the driveway approach 14.5 feet back from the edge of the traveled way. The intersection sight distance looking to the east and west on NE 53rd

Street Ave NE from the existing exit-only driveway was verified to be in excess of 155 feet. Therefore, intersection sight distance standards are met at the exit-only site access driveway on NE 53rd Street.

For a 25 mph posted speed (30 mph design speed) on NE 53rd Street, the recommended minimum value for stopping sight distance is 200 feet (*AASHTO* Table 3-1). Approaching the existing site access driveways on NE 53rd Street, the available stopping sight distances (both eastbound and westbound) at both driveways were verified to exceed (meet) the applicable standards.

Sight Distance at the Proposed Driveway on 108th Ave NE

For a 30 mph posted speed and an ADT over 6,000 on 108th Ave NE, the "recommended" (desirable) value for intersection (entering) sight distance is 335 feet based on driveway type F3 (Policy R-13 Table 2). The intersection sight distance is measured from a setback point on the driveway approach 14.5 feet back from the edge of the traveled way. The intersection sight distance looking to the north and south on 108th Ave NE from the proposed project driveway was verified to be in excess of 335 feet. Therefore, intersection sight distance standards are met at the proposed site access location on 108th Ave NE.

For a 30 mph posted speed (35 mph design speed) on 108th Ave NE, the recommended minimum value for stopping sight distance is 250 feet (*AASHTO* Table 3-1). Approaching the proposed site access driveway on 108th Ave NE, the available stopping sight distance (both northbound and southbound) was verified to exceed (meet) the applicable standards.

Non-Motorized and Transit Impacts

The existing facilities (i.e. sidewalks and bike lanes) within the immediate vicinity of the school are expected to be adequate to accommodate any additional pedestrian or bicycle demand as a result of the additional student enrollment at Emerson High School. The project will also provide a new pathway for pedestrians and bicyclists from 108th Ave NE into the new parking area and new school building main entry.

The only existing bus route along the school frontage is King County Metro Route 255 which has stops located at the 108th Ave NE/NE 53rd Street intersection. However, King County Metro has plans for the RapidRide K-line to travel along 108th Ave NE by 2030 and provide frequent transit service between northern Kirkland and southern Bellevue. King County Metro and the City of Kirkland are working together to install a business access and transit (BAT) lane on 108th Ave NE at NE 68th Street.

The recently published (June 20, 2025) technical memo on the 108th Ave NE BAT lane project does not recommend a northbound BAT lane south of NE 60th Street. Therefore, the peak school AM drop-off and afternoon (school) pick-up periods associated with the *Emerson Campus Project* are not anticipated to have a significant impact on existing and future public transit services on 108th Ave NE.

Parking Analysis

The parking analysis for the proposed *Emerson Campus Project* is documented under a separate memorandum.

MITIGATION

Concurrency. The project was evaluated for transportation concurrency by the City of Kirkland in May 2025. Based on the results, the City has determined the project meets the City's transportation concurrency requirements. Therefore, no short-term transportation mitigation was required to obtain concurrency in the City of Kirkland.

SEPA Improvements. The installation of site-specific improvements under SEPA is determined based on the guidelines shown in Table 11. All study intersections are anticipated to operate at LOS D or better in 2027 during the weekday AM, afternoon (school), and PM peak hours without or with the proposed *Emerson Campus Project* with exception to the stop-controlled intersection of 108th Ave NE/NE 53rd Street which is anticipated to operate at LOS F during the weekday AM and PM peak hour with the project. As shown in Table 7, the *Emerson Campus Project's* proportionate share at the intersection of 108th Ave NE/NE 53rd Street is less than 5 percent. Therefore, the installation of improvements under SEPA is not required at any of the study intersections.

Transportation Impact Fees. Transportation mitigation required by the City of Kirkland is payment of an impact fee based on the project's proposed land use. The currently adopted transportation impact fee (as of January 1, 2025) is $554.25 per high school student. The cost per trip is subject to change and final impact fee calculations will be conducted at the time of building permit issuance.

Appendix A

Site Plan

MITHŪN

SEATTLE / Pier 56, 1201 Alaskan Way, #200
Seattle, WA 98101 / 206.623.3344

SAN FRANCISCO / 585 Howard Street, #300
San Francisco, CA 94105 / 415.956.0688

LOS ANGELES / 758 New High Street #100B
Los Angeles, CA 90012 / 323.937.2150

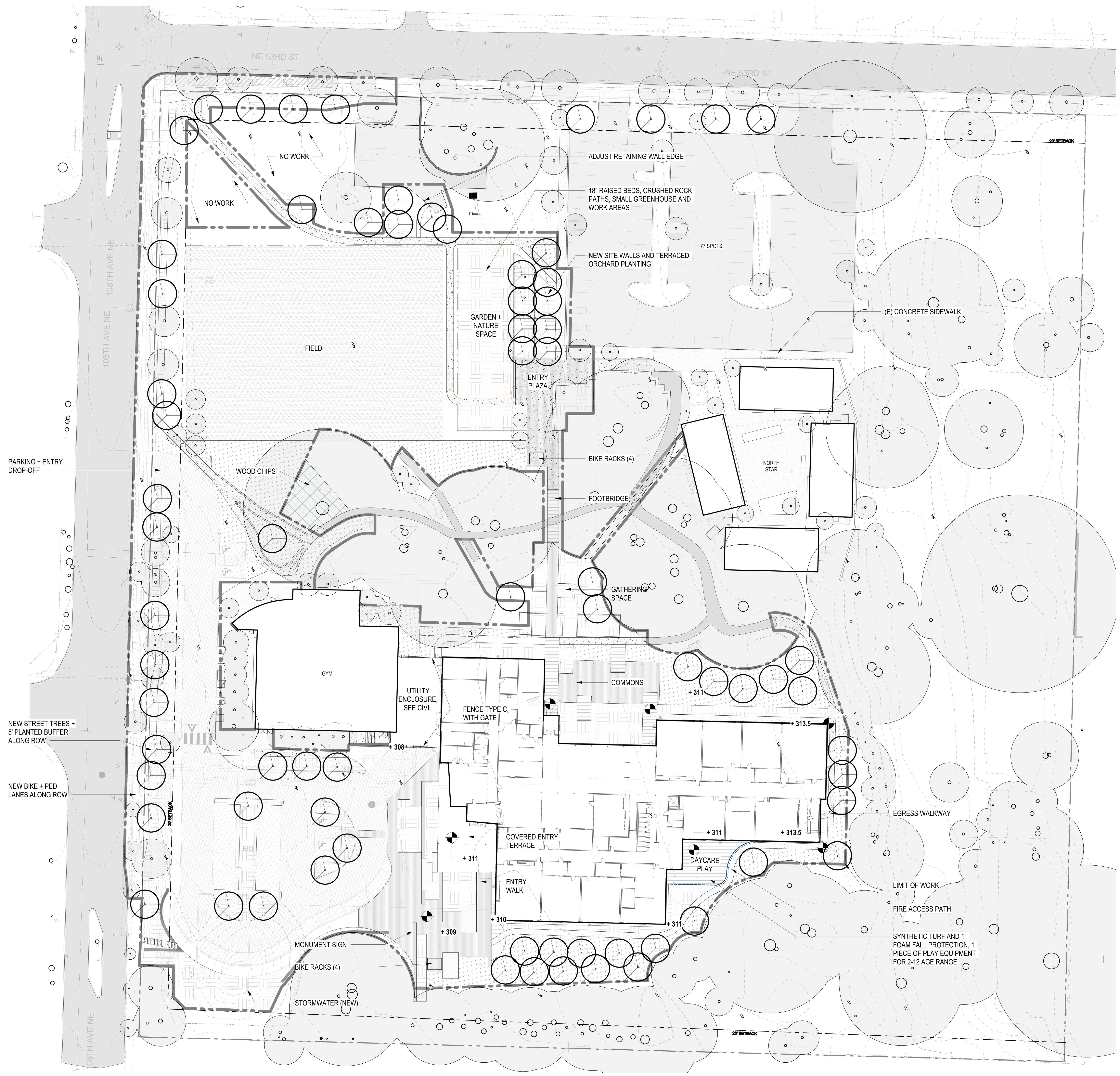
mithun.com

6/9/2025 3:19:52 PM

PROJECT
EMERSON SCHOOL

LOCATION
10903 NE 53RD ST
KIRKLAND, WA 98033

PREPARED FOR
CONSULTANTS



1 OVERALL SITE PLAN
1" = 30'-0"

LEGEND

- CONCRETE PAVING, TOOLED JOINTS, 2' O.C. SPACING, BROOM FINISH
- FOOTBRIDGE, GALVANIZED STEEL STRUCTURE ON CONCRETE PIER FOOTINGS, FIBERGRATE DECKING, WOOD RAILINGS
- SPECIALTY CONCRETE PAVING, SAW CUT JOINTS 2' O.C., EXPOSED AGGREGATE FINISH
- CRUSHED ROCK, 1/4" MINUS WITH STABILIZER
- FIELD, UNDERDRAINED, 8" SAND/SOIL BASE, SOD, POP-UP ROTARY IRRIGATION
- CIP CONCRETE SITE WALLS, 12"-24" H
- BIKE RACKS, BOD: SPORTWORKS 'TOFINO'
- (E) CONCRETE PAVING TO REMAIN
- (E) ASPHALT TO REMAIN
- (E) SITE WALL TO REMAIN
- **PLANTING AREA**
  PLANTING: 18" O.C. SPACING, NATIVE VARIETY, DROUGHT-TOLERANT
  SOIL: 18" TOPSOIL
  IRRIGATION: POP-UP ROTARY SPRAYERS AND BUBBLERS AT TREES
- **HYDROSEED**
  PLANTING: MEADOW SEED MIX
  SOIL: NATIVE AMENDED DECOMPACT AND AMEND EXISTING SOILS WITH 4" COMPOST/TOPSOIL BLEND
  IRRIGATION: TEMPORARY IRRIGATION, ON-SURFACE PIPE; ROTARY SPRAYERS
- NEW TREE, 2.5" CALIPER WITH IRRIGATION BUBBLERS
  MIN. 30 REQUIRED BY CODE EXCLUDING FRONTAGE IMPROVEMENTS
- TREE PROTECTION, EXTENT OF CRITICAL ROOT ZONE (CRZ)
  TREE TRUNK
- WOOD CHIPS, ADD FOR TREE PROTECTION
- FENCE TYPE A: 6'H WWM WITH GATE AND PANIC BAR
- FENCE TYPE B: 4' H BLACK VINYL CHAIN LINK FENCE WITH PADDED TOP
- FENCE TYPE C: 6' H CUSTOM SCREENING FENCE AND VEHICULAR GATE, PERFORATED METAL OR WOOD CLAD
- + ### SPOT ELEVATIONS
- 20' SETBACK
- PROPERTY LINE
- LIMIT OF WORK

NO.	DATE	REVISION

PARTNER IN CHARGE
JW
PROJECT MANAGER
SK
PROJECT LANDSCAPE ARCHITECT
CR
PROJECT TEAM MEMBERS
LL
CHECK

TITLE
OVERALL SITE PLAN

PROJECT NO.
2422400
DATE
06/09/2025

ORIGINAL SHEET SIZE 36" x 48"

SHEET NUMBER
L1.00
COORDINATION

NOT FOR CONSTRUCTION

Appendix B

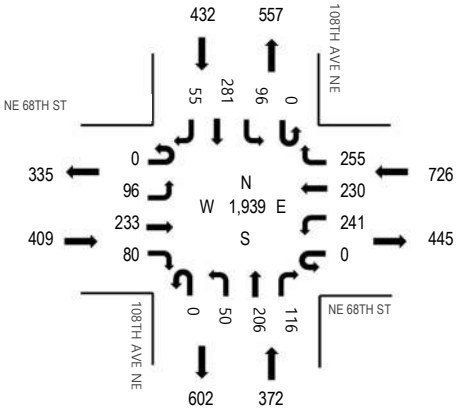
Existing Traffic Counts

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

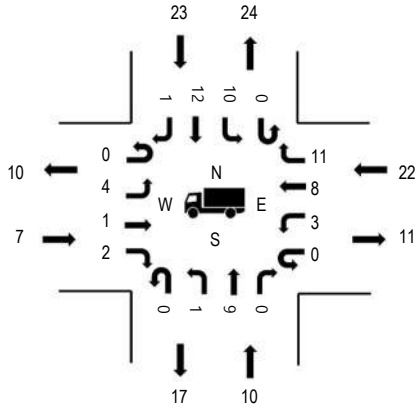
Location: 3 108TH AVE NE & NE 68TH ST AM
Date: Wednesday, June 18, 2025
Peak Hour: 08:00 AM - 09:00 AM

Peak Hour

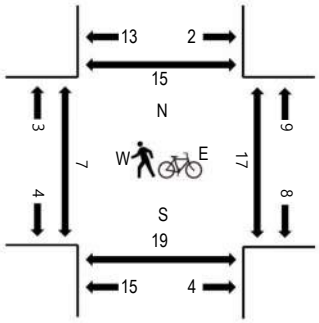
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	1.7%	0.85
WB	3.0%	0.86
NB	2.7%	0.71
SB	5.3%	0.97
All	3.2%	0.85

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 68TH ST Eastbound				NE 68TH ST Westbound				108TH AVE NE Northbound				108TH AVE NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
7:00 AM	0	13	33	5	0	28	30	35	0	1	16	16	0	14	20	9	220	1,296
7:15 AM	0	12	43	4	0	24	34	49	0	3	21	18	0	19	24	3	254	1,502
7:30 AM	0	16	70	10	0	46	62	48	0	6	38	16	0	31	44	4	391	1,710
7:45 AM	0	15	53	26	0	44	59	66	0	5	43	22	0	20	65	13	431	1,797
8:00 AM	0	26	55	19	0	55	60	55	0	7	33	12	0	25	61	18	426	1,939
8:15 AM	0	26	54	15	0	67	54	53	0	2	54	31	0	24	76	6	462	
8:30 AM	0	21	51	22	0	51	53	67	0	12	59	31	0	24	73	14	478	
8:45 AM	0	23	73	24	0	68	63	80	0	29	60	42	0	23	71	17	573	
Count Total	0	152	432	125	0	383	415	453	0	65	324	188	0	180	434	84	3,235	
Peak Hour	0	96	233	80	0	241	230	255	0	50	206	116	0	96	281	55	1,939	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

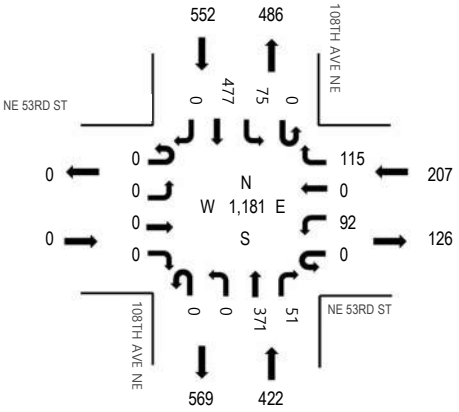
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	3	9	7	19	7:00 AM	1	1	1	2	5
7:15 AM	3	4	4	7	18	7:15 AM	2	1	1	0	4
7:30 AM	1	2	4	4	11	7:30 AM	2	0	2	1	5
7:45 AM	1	2	5	11	19	7:45 AM	0	1	1	0	2
8:00 AM	1	1	7	4	13	8:00 AM	1	1	2	1	5
8:15 AM	2	5	4	7	18	8:15 AM	0	1	3	1	5
8:30 AM	2	2	5	5	14	8:30 AM	2	1	2	2	7
8:45 AM	2	2	6	7	17	8:45 AM	4	16	10	11	41
Count Total	12	21	44	52	129	Count Total	12	22	22	18	74
Peak Hour	7	10	22	23	62	Peak Hour	7	19	17	15	58

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

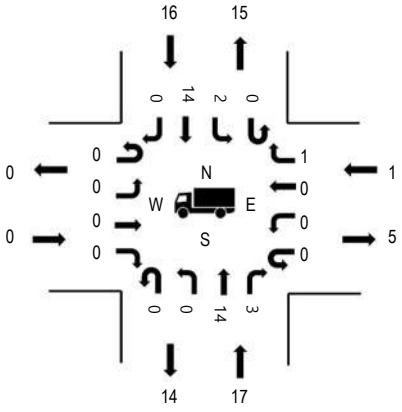
Location: 5 108TH AVE NE & NE 53RD ST AM
Date: Tuesday, March 19, 2024
Peak Hour: 07:45 AM - 08:45 AM

Peak Hour

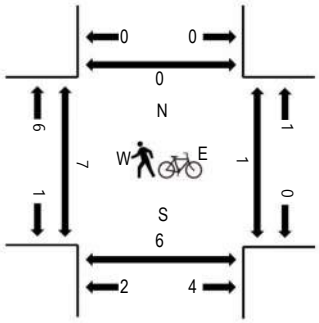
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.00
WB	0.5%	0.66
NB	4.0%	0.89
SB	2.9%	0.95
All	2.9%	0.87

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 53RD ST Eastbound				NE 53RD ST Westbound				108TH AVE NE Northbound				108TH AVE NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
7:00 AM	0	0	0	0	0	3	0	2	0	0	25	3	0	10	56	0	99	814
7:15 AM	0	0	0	0	0	12	0	17	0	0	53	8	0	9	70	0	169	1,053
7:30 AM	0	0	0	0	0	13	0	24	0	0	71	21	0	32	87	0	248	1,157
7:45 AM	0	0	0	0	0	31	0	38	0	0	71	25	0	34	99	0	298	1,181
8:00 AM	0	0	0	0	0	35	0	43	0	0	106	8	0	19	127	0	338	1,149
8:15 AM	0	0	0	0	0	19	0	22	0	0	85	9	0	9	129	0	273	
8:30 AM	0	0	0	0	0	7	0	12	0	0	109	9	0	13	122	0	272	
8:45 AM	0	0	0	0	0	11	0	11	0	0	97	14	0	8	125	0	266	
Count Total	0	0	0	0	0	131	0	169	0	0	617	97	0	134	815	0	1,963	
Peak Hour	0	0	0	0	0	92	0	115	0	0	371	51	0	75	477	0	1,181	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

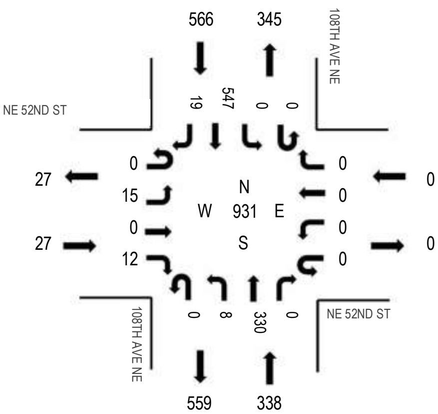
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	2	0	5	7	7:00 AM	2	4	1	0	7
7:15 AM	0	2	0	4	6	7:15 AM	3	2	0	0	5
7:30 AM	0	3	1	4	8	7:30 AM	2	2	1	0	5
7:45 AM	0	5	0	3	8	7:45 AM	0	2	0	0	2
8:00 AM	0	5	0	7	12	8:00 AM	5	3	1	0	9
8:15 AM	0	4	1	4	9	8:15 AM	1	1	0	0	2
8:30 AM	0	3	0	2	5	8:30 AM	1	0	0	0	1
8:45 AM	0	4	0	2	6	8:45 AM	5	2	0	0	7
Count Total	0	28	2	31	61	Count Total	19	16	3	0	38
Peak Hour	0	17	1	16	34	Peak Hour	7	6	1	0	14

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 108TH AVE NE & NE 52ND ST AM
Date: Wednesday, June 18, 2025
Peak Hour: 08:00 AM - 09:00 AM

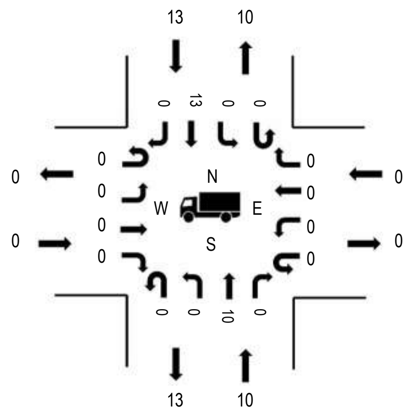
Peak Hour

Motorized Vehicles

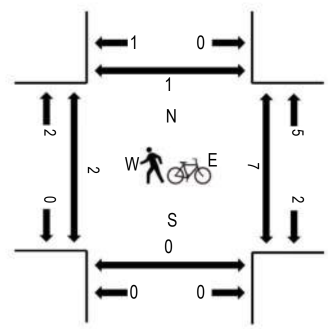


	HV%	PHF
EB	0.0%	0.84
WB	0.0%	0.00
NB	3.0%	0.77
SB	2.3%	0.88
All	2.5%	0.83

Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	NE 52ND ST Eastbound U-Turn	Left	Thru	Right	NE 52ND ST Westbound U-Turn	Left	Thru	Right	108TH AVE NE Northbound U-Turn	Left	Thru	Right	108TH AVE NE Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour
7:00 AM	0	4	0	2	0	0	0	0	0	1	29	0	1	0	43	3	83	536
7:15 AM	0	1	0	1	0	0	0	0	0	1	42	0	0	0	48	2	95	657
7:30 AM	0	3	0	3	0	0	0	0	0	0	59	0	0	0	96	2	163	782
7:45 AM	0	2	0	7	0	0	0	0	1	2	59	0	0	0	120	4	195	847
8:00 AM	0	1	0	4	0	0	0	0	0	0	51	0	0	0	142	6	204	931
8:15 AM	0	8	0	0	0	0	0	0	0	1	85	0	0	0	122	4	220	
8:30 AM	0	3	0	3	0	0	0	0	0	3	88	0	0	0	128	3	228	
8:45 AM	0	3	0	5	0	0	0	0	0	4	106	0	0	0	155	6	279	
Count Total	0	25	0	25	0	0	0	0	1	12	519	0	1	0	854	30	1,467	
Peak Hour	0	15	0	12	0	0	0	0	0	8	330	0	0	0	547	19	931	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

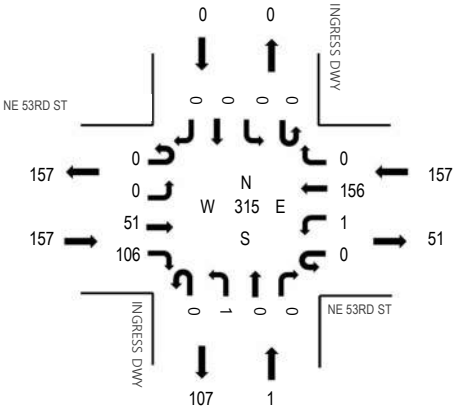
Interval Start Time	Heavy Vehicles EB	NB	WB	SB	Total	Interval Start Time	Bicycles on Roadway EB	NB	WB	SB	Total	Interval Start Time	Pedestrians/Bicycles on Crosswalk EB	NB	WB	SB	Total
7:00 AM	0	3	0	3	6	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:15 AM	0	6	0	4	10	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	3	0	3	6	7:30 AM	0	0	0	0	0	7:30 AM	0	0	2	0	2
7:45 AM	0	1	0	5	6	7:45 AM	0	0	0	3	3	7:45 AM	1	0	1	0	2
8:00 AM	0	1	0	5	6	8:00 AM	0	0	0	0	0	8:00 AM	2	0	1	0	3
8:15 AM	0	5	0	3	8	8:15 AM	0	0	0	0	0	8:15 AM	0	0	2	1	3
8:30 AM	0	3	0	2	5	8:30 AM	0	0	0	0	0	8:30 AM	0	0	1	0	1
8:45 AM	0	1	0	3	4	8:45 AM	0	0	0	0	0	8:45 AM	0	0	3	0	3
Count Total	0	23	0	28	51	Count Total	0	0	0	3	3	Count Total	3	0	10	1	14
Peak Hour	0	10	0	13	23	Peak Hour	0	0	0	0	0	Peak Hour	2	0	7	1	10

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

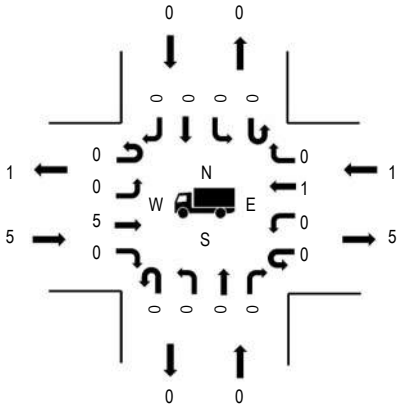
Location: 1 INGRESS DWY & NE 53RD ST AM
Date: Tuesday, March 19, 2024
Peak Hour: 07:15 AM - 08:15 AM

Peak Hour

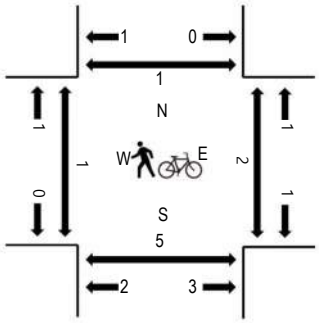
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	3.2%	0.63
WB	0.6%	0.74
NB	0.0%	0.25
SB	0.0%	0.00
All	1.9%	0.68

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 53RD ST Eastbound				NE 53RD ST Westbound				INGRESS DWY Northbound				INGRESS DWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	3	11	0	0	5	0	0	0	0	0	0	0	0	0	19	275
7:15 AM	0	0	5	14	0	0	28	0	0	1	0	0	0	0	0	0	48	315
7:30 AM	0	0	12	38	0	1	42	0	0	0	0	0	0	0	0	0	93	302
7:45 AM	0	0	21	41	0	0	53	0	0	0	0	0	0	0	0	0	115	246
8:00 AM	0	0	13	13	0	0	33	0	0	0	0	0	0	0	0	0	59	175
8:15 AM	0	0	14	3	0	1	17	0	0	0	0	0	0	0	0	0	35	
8:30 AM	0	0	17	3	0	0	17	0	0	0	0	0	0	0	0	0	37	
8:45 AM	0	0	22	2	0	0	20	0	0	0	0	0	0	0	0	0	44	
Count Total	0	0	107	125	0	2	215	0	0	1	0	0	0	0	0	0	450	
Peak Hour	0	0	51	106	0	1	156	0	0	1	0	0	0	0	0	0	315	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

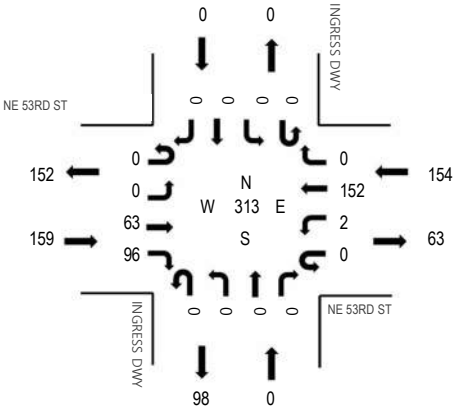
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0	7:15 AM	1	2	2	0	5
7:30 AM	2	0	1	0	3	7:30 AM	0	1	0	0	1
7:45 AM	3	0	0	0	3	7:45 AM	0	1	0	0	1
8:00 AM	0	0	0	0	0	8:00 AM	0	1	0	1	2
8:15 AM	2	0	1	0	3	8:15 AM	0	1	0	1	2
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	5	5
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	1	1
Count Total	7	0	2	0	9	Count Total	1	7	2	8	18
Peak Hour	5	0	1	0	6	Peak Hour	1	5	2	1	9

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

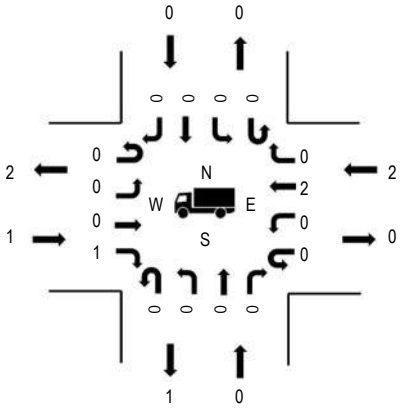
Location: 1 INGRESS DWY & NE 53RD ST AM
Date: Thursday, March 21, 2024
Peak Hour: 07:30 AM - 08:30 AM

Peak Hour

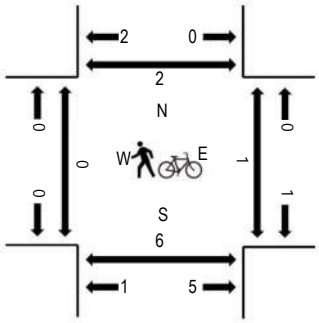
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.6%	0.69
WB	1.3%	0.65
NB	0.0%	0.00
SB	0.0%	0.00
All	1.0%	0.67

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 53RD ST Eastbound				NE 53RD ST Westbound				INGRESS DWY Northbound				INGRESS DWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	7	2	0	0	5	0	0	0	0	0	0	0	0	0	14	252
7:15 AM	0	0	4	10	0	0	15	0	0	1	0	0	0	0	0	0	30	304
7:30 AM	0	0	12	44	0	0	35	0	0	0	0	0	0	0	0	0	91	313
7:45 AM	0	0	22	36	0	2	57	0	0	0	0	0	0	0	0	0	117	255
8:00 AM	0	0	17	13	0	0	36	0	0	0	0	0	0	0	0	0	66	167
8:15 AM	0	0	12	3	0	0	24	0	0	0	0	0	0	0	0	0	39	
8:30 AM	0	0	15	6	0	0	12	0	0	0	0	0	0	0	0	0	33	
8:45 AM	0	0	20	0	0	0	9	0	0	0	0	0	0	0	0	0	29	
Count Total	0	0	109	114	0	2	193	0	0	1	0	0	0	0	0	0	419	
Peak Hour	0	0	63	96	0	2	152	0	0	0	0	0	0	0	0	0	313	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

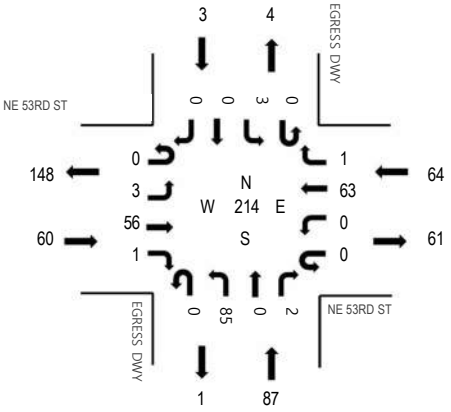
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0	7:15 AM	1	0	0	1	2
7:30 AM	1	0	0	0	1	7:30 AM	0	2	0	0	2
7:45 AM	0	0	1	0	1	7:45 AM	0	1	0	1	2
8:00 AM	0	0	1	0	1	8:00 AM	0	2	1	1	4
8:15 AM	0	0	0	0	0	8:15 AM	0	1	0	0	1
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	3	0	2	5
Count Total	1	0	2	0	3	Count Total	1	10	1	5	17
Peak Hour	1	0	2	0	3	Peak Hour	0	6	1	2	9

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

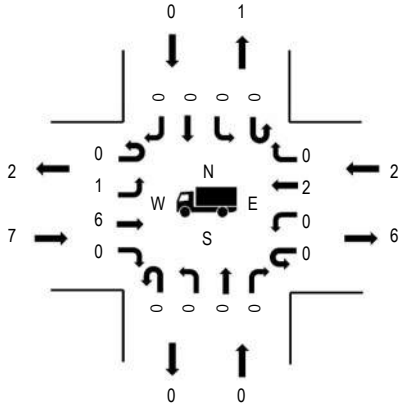
Location: 2 EGRESS DWY & NE 53RD ST AM
Date: Tuesday, March 19, 2024
Peak Hour: 07:30 AM - 08:30 AM

Peak Hour

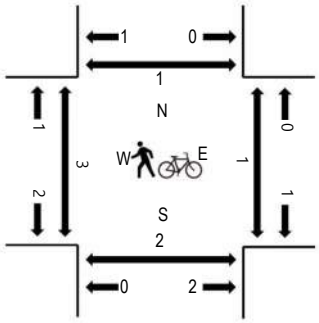
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	11.7%	0.71
WB	3.1%	0.89
NB	0.0%	0.56
SB	0.0%	0.75
All	4.2%	0.70

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 53RD ST Eastbound				NE 53RD ST Westbound				EGRESS DWY Northbound				EGRESS DWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	3	0	0	0	4	1	0	1	0	0	0	1	0	0	10	177
7:15 AM	0	1	4	0	0	0	15	0	0	13	0	0	0	0	0	0	33	213
7:30 AM	0	0	12	0	0	0	17	1	0	27	0	1	0	0	0	0	58	214
7:45 AM	0	1	20	0	0	0	15	0	0	38	0	1	0	1	0	0	76	188
8:00 AM	0	0	13	0	0	0	16	0	0	16	0	0	0	1	0	0	46	155
8:15 AM	0	2	11	1	0	0	15	0	0	4	0	0	0	1	0	0	34	
8:30 AM	0	2	14	0	0	0	14	0	0	2	0	0	0	0	0	0	32	
8:45 AM	0	0	23	0	0	0	17	0	0	3	0	0	0	0	0	0	43	
Count Total	0	6	100	1	0	0	113	2	0	104	0	2	0	4	0	0	332	
Peak Hour	0	3	56	1	0	0	63	1	0	85	0	2	0	3	0	0	214	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

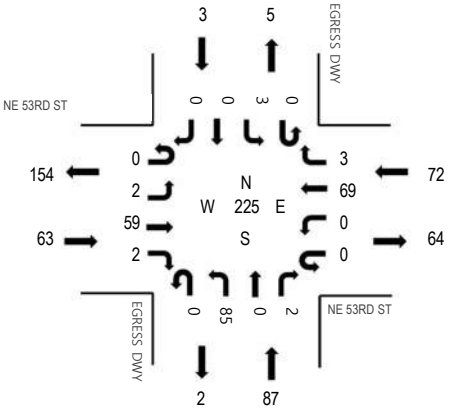
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0	7:15 AM	2	0	0	0	2
7:30 AM	2	0	1	0	3	7:30 AM	0	1	0	0	1
7:45 AM	3	0	0	0	3	7:45 AM	1	1	0	0	2
8:00 AM	0	0	0	0	0	8:00 AM	1	0	0	0	1
8:15 AM	2	0	1	0	3	8:15 AM	1	0	1	1	3
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	5	5
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	7	0	2	0	9	Count Total	5	3	1	6	15
Peak Hour	7	0	2	0	9	Peak Hour	3	2	1	1	7

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

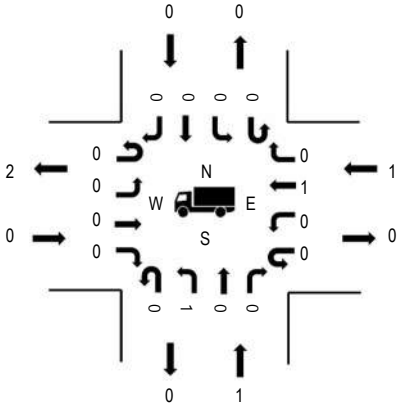
Location: 2 EGRESS DWY & NE 53RD ST AM
Date: Thursday, March 21, 2024
Peak Hour: 07:30 AM - 08:30 AM

Peak Hour

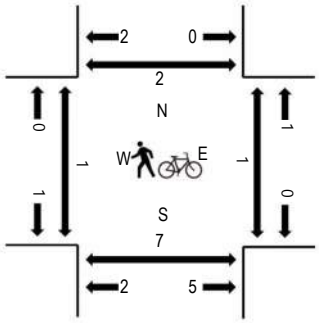
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.72
WB	1.4%	0.75
NB	1.1%	0.53
SB	0.0%	0.38
All	0.9%	0.67

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 53RD ST Eastbound				NE 53RD ST Westbound				EGRESS DWY Northbound				EGRESS DWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	6	0	0	0	5	2	0	0	0	0	0	1	0	0	15	167
7:15 AM	0	0	4	0	0	0	12	1	0	3	0	0	0	0	0	0	20	205
7:30 AM	0	0	12	0	0	0	8	0	0	27	0	1	0	0	0	0	48	225
7:45 AM	0	1	21	0	0	0	21	0	0	40	0	1	0	0	0	0	84	204
8:00 AM	0	1	16	0	0	0	19	0	0	16	0	0	0	1	0	0	53	150
8:15 AM	0	0	10	2	0	0	21	3	0	2	0	0	0	2	0	0	40	
8:30 AM	0	1	14	0	0	0	8	0	0	4	0	0	0	0	0	0	27	
8:45 AM	0	1	19	0	0	0	8	1	0	1	0	0	0	0	0	0	30	
Count Total	0	5	102	2	0	0	102	7	0	93	0	2	0	4	0	0	317	
Peak Hour	0	2	59	2	0	0	69	3	0	85	0	2	0	3	0	0	225	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0	7:15 AM	1	0	0	0	1
7:30 AM	0	0	0	0	0	7:30 AM	0	3	0	0	3
7:45 AM	0	1	0	0	1	7:45 AM	0	2	0	1	3
8:00 AM	0	0	1	0	1	8:00 AM	1	1	0	0	2
8:15 AM	0	0	0	0	0	8:15 AM	0	1	1	1	3
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	2	0	1	3
Count Total	0	1	1	0	2	Count Total	2	10	1	3	16
Peak Hour	0	1	1	0	2	Peak Hour	1	7	1	2	11

Emerson Campus
Trip Generation Study
TENW Project #2024-063

Day: Tuesday, March 19, 2024

AM Peak Drop-Off Period

Time period starting	A 108th Ave NE - North Enter-Only Driveway		B 108th Ave NE - South Exit-Only Driveway	
	SBL	NBR	WBL	WBR
7:00 AM	1	0	0	0
7:15 AM	2	0	0	0
7:30 AM	1	3	0	0
7:45 AM	0	0	0	1
8:00 AM	1	0	0	0
8:15 AM	1	8	0	2
8:30 AM	4	4	0	7
8:45 AM	0	0	0	0
2-hour total	10	15	0	10

Emerson Campus
Trip Generation Study
TENW Project #2024-063

Day: Thursday, March 21, 2024

AM Peak Drop-Off Period

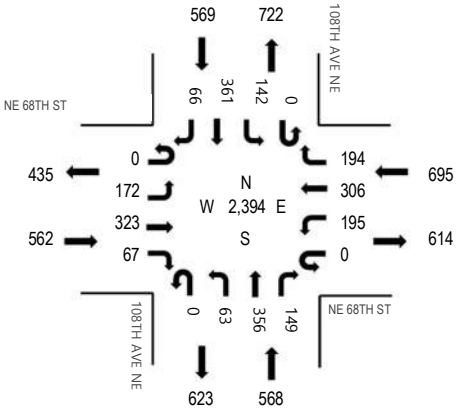
Time period starting	A 108th Ave NE - North Enter-Only Driveway		B 108th Ave NE - South Exit-Only Driveway	
	SBL	NBR	WBL	WBR
7:00 AM	1	0	0	0
7:15 AM	2	2	0	0
7:30 AM	3	0	0	0
7:45 AM	0	0	0	1
8:00 AM	1	0	0	0
8:15 AM	3	2	0	2
8:30 AM	6	0	0	7
8:45 AM	0	0	0	0
2-hour total	16	4	0	10

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

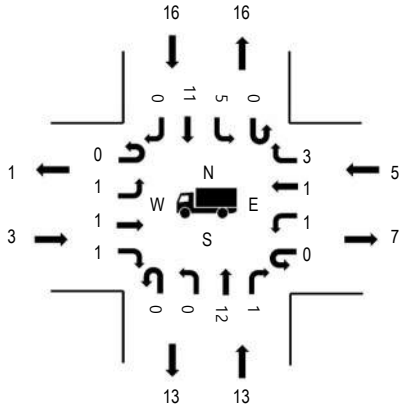
Location: 3 108TH AVE NE & NE 68TH ST PM
Date: Wednesday, June 18, 2025
Peak Hour: 04:45 PM - 05:45 PM

Peak Hour

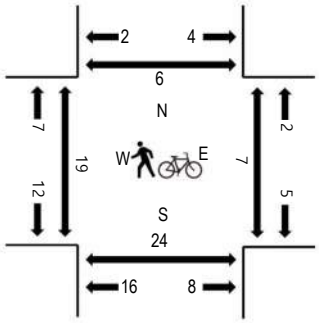
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.5%	0.96
WB	0.7%	0.90
NB	2.3%	0.94
SB	2.8%	0.96
All	1.5%	0.98

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 68TH ST Eastbound				NE 68TH ST Westbound				108TH AVE NE Northbound				108TH AVE NE Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	28	97	14	0	43	53	43	0	13	88	54	0	36	81	9	559	2,225
4:15 PM	0	52	87	13	0	38	65	52	0	11	90	35	0	36	92	16	587	2,266
4:30 PM	0	47	73	16	0	51	62	53	0	10	38	16	0	33	88	10	497	2,279
4:45 PM	0	49	73	18	0	53	63	45	0	15	98	31	0	27	95	15	582	2,394
5:00 PM	0	39	89	14	0	49	62	48	0	25	90	36	0	44	86	18	600	2,375
5:15 PM	0	39	79	15	0	52	91	40	0	11	83	47	0	36	91	16	600	
5:30 PM	0	45	82	20	0	41	90	61	0	12	85	35	0	35	89	17	612	
5:45 PM	0	42	72	16	0	62	78	43	0	9	92	19	0	34	78	18	563	
Count Total	0	341	652	126	0	389	564	385	0	106	664	273	0	281	700	119	4,600	
Peak Hour	0	172	323	67	0	195	306	194	0	63	356	149	0	142	361	66	2,394	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

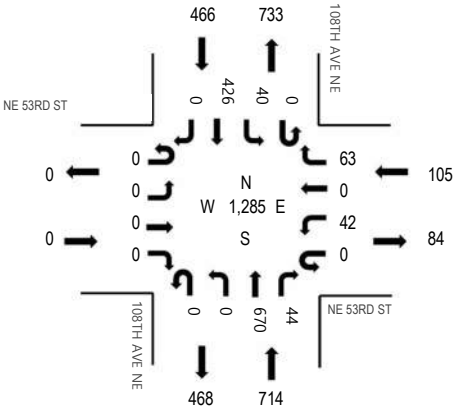
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	3	3	6	4:00 PM	7	3	5	5	20
4:15 PM	1	2	3	6	12	4:15 PM	6	2	3	1	12
4:30 PM	1	2	0	3	6	4:30 PM	7	6	5	2	20
4:45 PM	0	4	2	3	9	4:45 PM	2	1	0	0	3
5:00 PM	2	4	1	6	13	5:00 PM	4	4	2	2	12
5:15 PM	0	3	1	5	9	5:15 PM	10	5	3	3	21
5:30 PM	1	2	1	2	6	5:30 PM	3	14	2	1	20
5:45 PM	0	4	2	2	8	5:45 PM	7	6	3	8	24
Count Total	5	21	13	30	69	Count Total	46	41	23	22	132
Peak Hour	3	13	5	16	37	Peak Hour	19	24	7	6	56

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

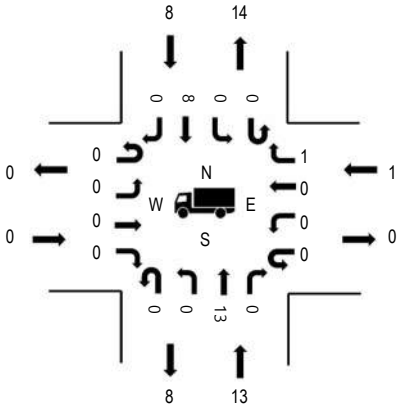
Location: 5 108TH AVE NE & NE 53RD ST PM
Date: Tuesday, March 19, 2024
Peak Hour: 04:45 PM - 05:45 PM

Peak Hour

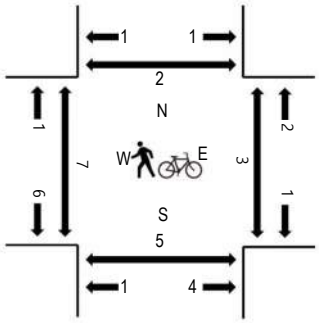
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.00
WB	1.0%	0.88
NB	1.8%	0.92
SB	1.7%	0.88
All	1.7%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 53RD ST Eastbound				NE 53RD ST Westbound				108TH AVE NE Northbound				108TH AVE NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	9	0	21	0	0	129	8	0	8	124	0	299	1,184
4:15 PM	0	0	0	0	0	9	0	13	0	0	136	7	0	9	102	0	276	1,199
4:30 PM	0	0	0	0	0	7	0	17	0	0	157	3	0	6	103	0	293	1,274
4:45 PM	0	0	0	0	0	12	0	10	0	0	180	4	0	12	98	0	316	1,285
5:00 PM	0	0	0	0	0	12	0	18	0	0	150	11	0	12	111	0	314	1,220
5:15 PM	0	0	0	0	0	7	0	18	0	0	175	18	0	9	124	0	351	
5:30 PM	0	0	0	0	0	11	0	17	0	0	165	11	0	7	93	0	304	
5:45 PM	0	0	0	0	0	7	0	11	0	0	103	10	0	12	108	0	251	
Count Total	0	0	0	0	0	74	0	125	0	0	1,195	72	0	75	863	0	2,404	
Peak Hour	0	0	0	0	0	42	0	63	0	0	670	44	0	40	426	0	1,285	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	4	0	4	8	4:00 PM	0	4	4	0	8
4:15 PM	0	3	1	4	8	4:15 PM	4	3	1	0	8
4:30 PM	0	3	1	2	6	4:30 PM	2	3	4	0	9
4:45 PM	0	3	0	1	4	4:45 PM	2	2	2	0	6
5:00 PM	0	4	0	4	8	5:00 PM	2	1	0	2	5
5:15 PM	0	3	0	2	5	5:15 PM	2	1	0	0	3
5:30 PM	0	3	1	1	5	5:30 PM	1	1	1	0	3
5:45 PM	0	3	1	2	6	5:45 PM	5	0	1	0	6
Count Total	0	26	4	20	50	Count Total	18	15	13	2	48
Peak Hour	0	13	1	8	22	Peak Hour	7	5	3	2	17

ALL TRAFFIC DATA SERVICES
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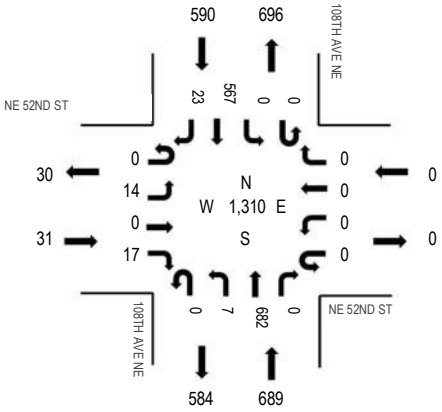
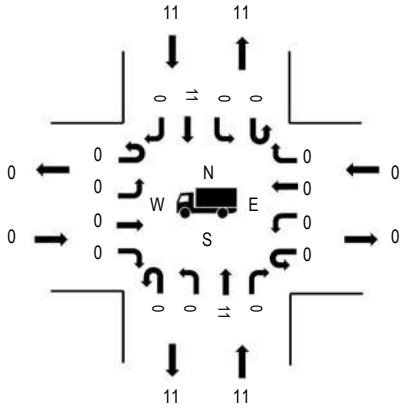
Location: 2 108TH AVE NE & NE 52ND ST PM
Date: Wednesday, June 18, 2025
Peak Hour: 04:45 PM - 05:45 PM

Peak Hour

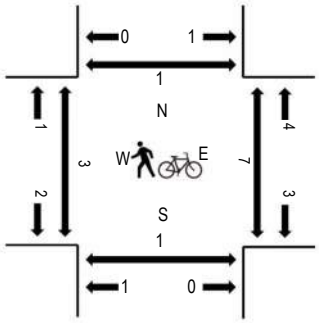
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.60
WB	0.0%	0.00
NB	1.6%	0.90
SB	1.9%	0.97
All	1.7%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 52ND ST Eastbound				NE 52ND ST Westbound				108TH AVE NE Northbound				108TH AVE NE Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2:00 PM	0	9	0	1	0	0	0	0	0	1	78	0	0	0	71	5	165	792
2:15 PM	0	3	0	6	0	0	0	0	1	2	88	0	0	0	78	4	182	850
2:30 PM	0	6	0	4	0	0	0	0	0	3	101	0	0	0	97	6	217	913
2:45 PM	0	5	0	3	0	0	0	0	0	1	95	0	0	0	116	8	228	1,000
3:00 PM	0	6	0	4	0	0	0	0	0	4	107	0	0	0	98	4	223	1,079
3:15 PM	0	10	0	1	0	0	0	0	0	2	108	0	0	0	119	5	245	1,216
3:30 PM	0	5	0	1	0	0	0	0	0	4	150	0	0	0	137	7	304	1,272
3:45 PM	0	4	0	3	0	0	0	0	0	4	155	0	0	0	136	5	307	1,282
4:00 PM	0	9	0	2	0	0	0	0	0	3	198	0	0	0	143	5	360	1,307
4:15 PM	0	9	0	3	0	0	0	0	0	4	159	0	0	0	125	1	301	1,254
4:30 PM	0	5	0	3	0	0	0	0	0	4	165	0	0	0	133	4	314	1,274
4:45 PM	0	7	0	6	0	0	0	0	0	2	175	0	0	0	138	4	332	1,310
5:00 PM	0	1	0	5	0	0	0	0	0	1	155	0	0	0	135	10	307	1,308
5:15 PM	0	3	0	3	0	0	0	0	0	3	161	0	0	0	148	3	321	
5:30 PM	0	3	0	3	0	0	0	0	0	1	191	0	0	0	146	6	350	
5:45 PM	0	3	0	6	0	0	0	0	0	0	156	0	0	0	161	4	330	
Count Total	0	88	0	54	0	0	0	0	1	39	2,242	0	0	0	1,981	81	4,486	
Peak Hour	0	14	0	17	0	0	0	0	0	7	682	0	0	0	567	23	1,310	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
2:00 PM	0	1	0	3	4	2:00 PM	0	1	0	0	1	2:00 PM	0	2	0	0	2
2:15 PM	2	3	0	3	8	2:15 PM	0	0	0	0	0	2:15 PM	0	0	0	0	0
2:30 PM	0	2	0	3	5	2:30 PM	0	0	0	0	0	2:30 PM	0	0	0	0	0
2:45 PM	0	2	0	3	5	2:45 PM	0	0	0	0	0	2:45 PM	0	0	0	0	0
3:00 PM	0	4	0	2	6	3:00 PM	0	0	0	0	0	3:00 PM	0	0	0	0	0

3:15 PM	0	4	0	2	6	3:15 PM	0	0	0	1	1	3:15 PM	2	0	0	0	2
3:30 PM	0	2	0	1	3	3:30 PM	0	0	0	0	0	3:30 PM	1	0	0	0	1
3:45 PM	0	1	0	3	4	3:45 PM	0	1	0	0	1	3:45 PM	0	0	0	0	0
4:00 PM	0	2	0	3	5	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	2	0	5	7	4:15 PM	1	1	0	0	2	4:15 PM	0	0	0	0	0
4:30 PM	0	3	0	2	5	4:30 PM	0	1	0	0	1	4:30 PM	2	0	0	0	2
4:45 PM	0	4	0	1	5	4:45 PM	0	0	0	0	0	4:45 PM	0	0	3	0	3
5:00 PM	0	2	0	3	5	5:00 PM	0	0	0	1	1	5:00 PM	1	0	0	1	2
5:15 PM	0	2	0	3	5	5:15 PM	0	0	0	0	0	5:15 PM	0	0	1	0	1
5:30 PM	0	3	0	4	7	5:30 PM	0	0	0	0	0	5:30 PM	2	1	3	0	6
5:45 PM	0	3	0	0	3	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	2	40	0	41	83	Count Total	1	4	0	2	7	Count Total	8	3	7	1	19
Peak Hour	0	11	0	11	22	Peak Hour	0	0	0	1	1	Peak Hour	3	1	7	1	12

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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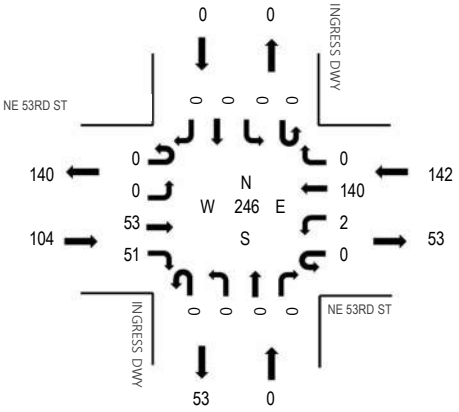
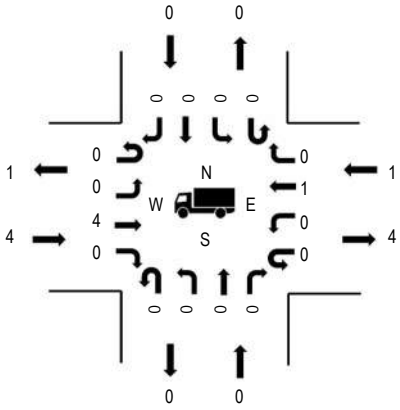
Location: 1 INGRESS DWY & NE 53RD ST Noon
Date: Tuesday, March 19, 2024
Peak Hour: 02:15 PM - 03:15 PM

Peak Hour

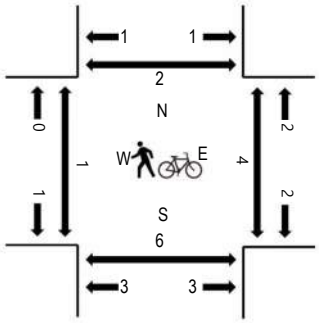
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	3.8%	0.72
WB	0.7%	0.65
NB	0.0%	0.00
SB	0.0%	0.00
All	2.0%	0.68

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 53RD ST Eastbound				NE 53RD ST Westbound				INGRESS DWY Northbound				INGRESS DWY Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
1:30 PM	0	0	19	0	0	0	14	0	0	0	0	0	0	0	0	0	33	210
1:45 PM	0	0	16	10	0	0	17	0	0	0	0	0	0	0	0	0	43	218
2:00 PM	0	0	9	14	0	1	19	0	0	0	0	0	0	0	0	0	43	231
2:15 PM	0	0	11	25	0	1	54	0	0	0	0	0	0	0	0	0	91	246
2:30 PM	0	0	10	8	0	1	22	0	0	0	0	0	0	0	0	0	41	206
2:45 PM	0	0	14	12	0	0	30	0	0	0	0	0	0	0	0	0	56	224
3:00 PM	0	0	18	6	0	0	34	0	0	0	0	0	0	0	0	0	58	195
3:15 PM	0	0	14	10	0	0	27	0	0	0	0	0	0	0	0	0	51	182
3:30 PM	0	0	10	4	0	0	45	0	0	0	0	0	0	0	0	0	59	167
3:45 PM	0	0	15	2	0	0	9	0	0	1	0	0	0	0	0	0	27	139
4:00 PM	0	0	17	0	0	0	26	0	0	2	0	0	0	0	0	0	45	148
4:15 PM	0	0	15	0	0	0	20	0	0	1	0	0	0	0	0	0	36	158
4:30 PM	0	0	9	1	0	0	21	0	0	0	0	0	0	0	0	0	31	167
4:45 PM	0	0	16	0	0	0	20	0	0	0	0	0	0	0	0	0	36	178
5:00 PM	0	0	21	2	0	0	32	0	0	0	0	0	0	0	0	0	55	180
5:15 PM	0	0	26	0	0	0	19	0	0	0	0	0	0	0	0	0	45	
5:30 PM	0	0	16	0	0	0	26	0	0	0	0	0	0	0	0	0	42	
5:45 PM	0	0	20	0	0	0	18	0	0	0	0	0	0	0	0	0	38	
Count Total	0	0	276	94	0	3	453	0	0	4	0	0	0	0	0	0	830	
Peak Hour	0	0	53	51	0	2	140	0	0	0	0	0	0	0	0	0	246	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
1:30 PM	2	0	0	0	2	1:30 PM	0	1	1	2	4
1:45 PM	1	0	1	0	2	1:45 PM	0	0	0	1	1
2:00 PM	0	0	1	0	1	2:00 PM	0	1	1	1	3
2:15 PM	1	0	0	0	1	2:15 PM	1	3	1	0	5
2:30 PM	0	0	1	0	1	2:30 PM	0	2	2	0	4
2:45 PM	2	0	0	0	2	2:45 PM	0	1	0	1	2
3:00 PM	1	0	0	0	1	3:00 PM	0	0	1	1	2
3:15 PM	1	0	0	0	1	3:15 PM	0	0	0	1	1
3:30 PM	0	0	1	0	1	3:30 PM	0	1	0	0	1
3:45 PM	0	0	0	0	0	3:45 PM	0	1	0	0	1
4:00 PM	0	0	0	0	0	4:00 PM	0	11	0	5	16
4:15 PM	0	0	1	0	1	4:15 PM	0	1	1	13	15
4:30 PM	0	0	1	0	1	4:30 PM	0	2	0	0	2
4:45 PM	0	0	0	0	0	4:45 PM	0	2	0	1	3
5:00 PM	0	0	0	0	0	5:00 PM	0	0	1	2	3
5:15 PM	0	0	0	0	0	5:15 PM	0	1	1	1	3
5:30 PM	0	0	1	0	1	5:30 PM	0	2	1	0	3
5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	1	1
Count Total	8	0	8	0	16	Count Total	1	29	10	30	70
Peak Hour	4	0	1	0	5	Peak Hour	1	6	4	2	13

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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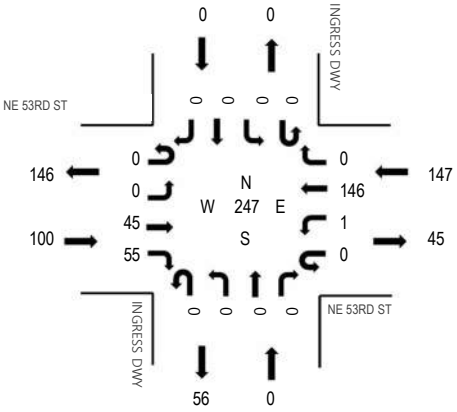
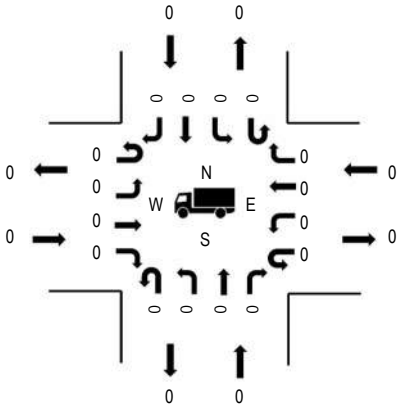
Location: 1 INGRESS DWY & NE 53RD ST Noon
Date: Thursday, March 21, 2024
Peak Hour: 02:15 PM - 03:15 PM

Peak Hour

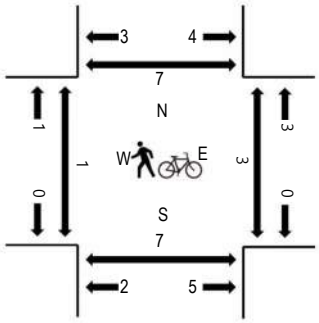
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.86
WB	0.0%	0.72
NB	0.0%	0.00
SB	0.0%	0.00
All	0.0%	0.77

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 53RD ST Eastbound				NE 53RD ST Westbound				INGRESS DWY Northbound				INGRESS DWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
1:30 PM	0	0	19	1	0	0	14	0	0	0	0	0	0	0	0	0	34	178
1:45 PM	0	0	18	5	0	1	5	0	0	0	0	0	0	0	0	0	29	193
2:00 PM	0	0	7	15	0	0	13	0	0	0	0	0	0	0	0	0	35	231
2:15 PM	0	0	5	24	0	1	50	0	0	0	0	0	0	0	0	0	80	247
2:30 PM	0	0	10	11	0	0	28	0	0	0	0	0	0	0	0	0	49	237
2:45 PM	0	0	14	13	0	0	40	0	0	0	0	0	0	0	0	0	67	229
3:00 PM	0	0	16	7	0	0	28	0	0	0	0	0	0	0	0	0	51	205
3:15 PM	0	0	23	6	0	0	41	0	0	0	0	0	0	0	0	0	70	196
3:30 PM	0	0	15	7	0	1	17	0	0	1	0	0	0	0	0	0	41	160
3:45 PM	0	0	18	0	0	0	21	0	0	4	0	0	0	0	0	0	43	156
4:00 PM	0	0	14	0	0	0	26	0	0	2	0	0	0	0	0	0	42	148
4:15 PM	0	0	12	1	0	0	20	0	0	1	0	0	0	0	0	0	34	156
4:30 PM	0	0	15	0	0	0	22	0	0	0	0	0	0	0	0	0	37	169
4:45 PM	0	0	14	1	0	0	20	0	0	0	0	0	0	0	0	0	35	173
5:00 PM	0	0	17	1	0	0	32	0	0	0	0	0	0	0	0	0	50	184
5:15 PM	0	0	28	0	0	0	19	0	0	0	0	0	0	0	0	0	47	
5:30 PM	0	0	13	2	0	0	26	0	0	0	0	0	0	0	0	0	41	
5:45 PM	0	0	23	5	0	0	18	0	0	0	0	0	0	0	0	0	46	
Count Total	0	0	281	99	0	3	440	0	0	8	0	0	0	0	0	0	831	
Peak Hour	0	0	45	55	0	1	146	0	0	0	0	0	0	0	0	0	247	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
1:30 PM	1	0	0	0	1	1:30 PM	0	2	0	3	5
1:45 PM	0	0	0	0	0	1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0	2:00 PM	0	1	0	1	2
2:15 PM	0	0	0	0	0	2:15 PM	0	2	1	3	6
2:30 PM	0	0	0	0	0	2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0	2:45 PM	0	5	1	3	9
3:00 PM	0	0	0	0	0	3:00 PM	1	0	1	1	3
3:15 PM	0	0	0	0	0	3:15 PM	0	4	0	2	6
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	1	1
3:45 PM	0	0	0	0	0	3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	5	5
4:15 PM	0	0	1	0	1	4:15 PM	0	0	1	13	14
4:30 PM	0	0	2	0	2	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	1	0	2	3
5:00 PM	0	0	0	0	0	5:00 PM	0	1	1	2	4
5:15 PM	0	0	0	0	0	5:15 PM	0	4	1	1	6
5:30 PM	0	0	1	0	1	5:30 PM	0	2	1	0	3
5:45 PM	0	0	1	0	1	5:45 PM	0	2	0	1	3
Count Total	1	0	5	0	6	Count Total	1	24	7	38	70
Peak Hour	0	0	0	0	0	Peak Hour	1	7	3	7	18

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(303) 216-2439
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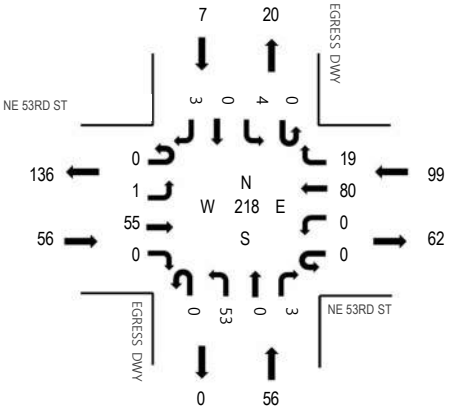
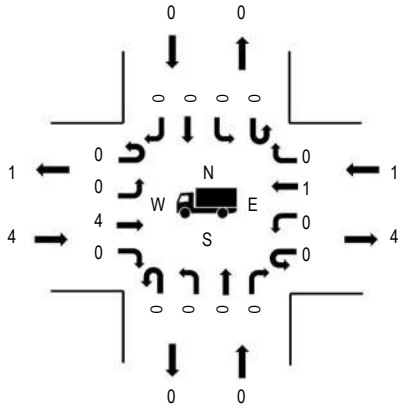
Location: 2 EGRESS DWY & NE 53RD ST Noon
Date: Tuesday, March 19, 2024
Peak Hour: 02:45 PM - 03:45 PM

Peak Hour

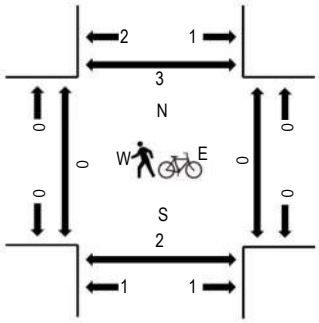
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	7.1%	0.78
WB	1.0%	0.73
NB	0.0%	0.64
SB	0.0%	0.58
All	2.3%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 53RD ST Eastbound				NE 53RD ST Westbound				EGRESS DWY Northbound				EGRESS DWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
1:30 PM	0	0	19	0	0	0	14	2	0	0	0	0	0	0	0	0	35	176
1:45 PM	0	0	16	0	0	0	15	2	0	2	0	0	0	4	0	1	40	175
2:00 PM	0	0	7	2	0	0	16	1	0	5	0	0	0	3	0	0	34	182
2:15 PM	0	0	10	0	0	0	17	0	0	37	0	0	0	3	0	0	67	205
2:30 PM	0	0	11	0	0	0	12	1	0	10	0	0	0	0	0	0	34	193
2:45 PM	0	1	12	0	0	0	12	2	0	18	0	1	0	0	0	1	47	218
3:00 PM	0	0	18	0	0	0	20	5	0	11	0	0	0	1	0	2	57	197
3:15 PM	0	0	15	0	0	0	24	10	0	3	0	1	0	2	0	0	55	187
3:30 PM	0	0	10	0	0	0	24	2	0	21	0	1	0	1	0	0	59	170
3:45 PM	0	0	13	1	0	0	9	2	0	0	0	0	0	1	0	0	26	144
4:00 PM	0	1	17	0	0	0	16	2	0	8	0	0	0	1	0	2	47	159
4:15 PM	0	0	15	0	0	0	15	3	0	3	0	0	0	0	0	2	38	169
4:30 PM	0	1	8	0	0	0	20	1	0	0	0	0	0	2	0	1	33	180
4:45 PM	0	1	15	0	0	0	20	3	0	0	0	0	0	2	0	0	41	191
5:00 PM	0	1	20	0	0	0	31	3	0	1	0	0	0	1	0	0	57	188
5:15 PM	0	0	26	0	0	0	18	2	0	1	0	0	0	1	0	1	49	
5:30 PM	0	3	13	0	0	0	23	2	0	0	0	0	0	1	0	2	44	
5:45 PM	0	0	20	0	0	0	16	0	0	0	0	0	0	0	0	2	38	
Count Total	0	8	265	3	0	0	322	43	0	120	0	3	0	23	0	14	801	
Peak Hour	0	1	55	0	0	0	80	19	0	53	0	3	0	4	0	3	218	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

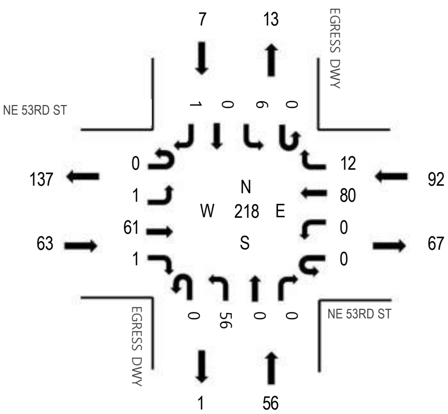
Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
1:30 PM	2	0	0	0	2	1:30 PM	1	0	0	1	2
1:45 PM	1	0	1	0	2	1:45 PM	0	0	0	1	1
2:00 PM	0	0	1	0	1	2:00 PM	1	1	0	0	2
2:15 PM	1	0	0	0	1	2:15 PM	0	0	2	0	2
2:30 PM	0	0	1	0	1	2:30 PM	2	1	0	0	3
2:45 PM	2	0	0	0	2	2:45 PM	0	1	0	0	1
3:00 PM	0	0	0	0	0	3:00 PM	0	0	0	2	2
3:15 PM	2	0	0	0	2	3:15 PM	0	0	0	1	1
3:30 PM	0	0	1	0	1	3:30 PM	0	1	0	0	1
3:45 PM	0	0	0	0	0	3:45 PM	0	1	0	0	1
4:00 PM	0	0	0	0	0	4:00 PM	1	13	1	5	20
4:15 PM	0	0	1	0	1	4:15 PM	1	0	0	15	16
4:30 PM	0	0	1	0	1	4:30 PM	0	2	0	1	3
4:45 PM	0	0	0	0	0	4:45 PM	0	1	0	2	3
5:00 PM	0	0	0	0	0	5:00 PM	1	0	0	2	3
5:15 PM	0	0	0	0	0	5:15 PM	1	0	0	1	2
5:30 PM	0	0	1	0	1	5:30 PM	1	1	0	0	2
5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	1	1
Count Total	8	0	8	0	16	Count Total	9	22	3	32	66
Peak Hour	4	0	1	0	5	Peak Hour	0	2	0	3	5

(303) 216-2439
www.alltrafficdata.net

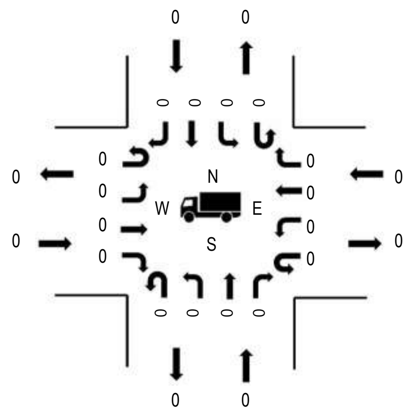
Location: 2 EGRESS DWY & NE 53RD ST Noon
Date: Thursday, March 21, 2024
Peak Hour: 02:30 PM - 03:30 PM

Peak Hour

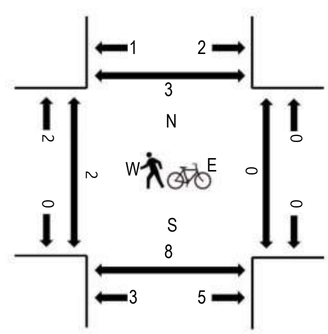
Motorized Vehicles



Heavy Vehicles



Pedestrians/Bicycles in Crosswalk



	HV%	PHF
EB	0.0%	0.68
WB	0.0%	0.64
NB	0.0%	0.52
SB	0.0%	0.58
All	0.0%	0.76

Traffic Counts - Motorized Vehicles

Interval Start Time	NE 53RD ST Eastbound				NE 53RD ST Westbound				EGRESS DWY Northbound				EGRESS DWY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
1:30 PM	0	0	19	0	0	0	12	3	0	2	0	0	0	1	0	0	37	149
1:45 PM	0	0	18	0	0	0	5	2	0	1	0	0	0	4	0	0	30	151
2:00 PM	0	0	7	0	0	0	10	2	0	3	0	0	0	1	0	0	23	181
2:15 PM	0	0	5	0	0	0	12	0	0	38	0	0	0	2	1	1	59	205
2:30 PM	0	0	10	0	0	0	18	1	0	10	0	0	0	0	0	0	39	218
2:45 PM	0	0	13	1	0	0	13	4	0	27	0	0	0	2	0	0	60	216
3:00 PM	0	1	15	0	0	0	18	2	0	9	0	0	0	1	0	1	47	200
3:15 PM	0	0	23	0	0	0	31	5	0	10	0	0	0	3	0	0	72	195
3:30 PM	0	0	15	0	0	0	12	3	0	6	0	0	0	1	0	0	37	164
3:45 PM	0	2	16	0	0	0	20	3	0	1	0	0	0	2	0	0	44	166
4:00 PM	0	0	14	0	0	0	24	0	0	2	0	0	0	2	0	0	42	161
4:15 PM	0	0	12	0	0	0	22	5	0	1	0	0	0	1	0	0	41	168
4:30 PM	0	1	14	0	0	0	19	4	0	0	0	0	0	1	0	0	39	184
4:45 PM	0	0	14	0	0	0	20	2	0	2	0	0	0	0	0	1	39	180
5:00 PM	0	0	17	0	0	0	26	1	0	1	0	0	0	2	0	2	49	190
5:15 PM	0	0	26	2	0	0	23	3	0	0	0	1	0	1	0	1	57	
5:30 PM	0	0	13	0	0	0	18	1	0	2	0	0	0	0	0	1	35	
5:45 PM	0	1	21	1	0	0	15	4	0	0	0	0	0	3	0	4	49	
Count Total	0	5	272	4	0	0	318	45	0	115	0	1	0	27	1	11	799	
Peak Hour	0	1	61	1	0	0	80	12	0	56	0	0	0	6	0	1	218	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
1:30 PM	1	0	0	0	1	1:30 PM	1	0	0	0	1
1:45 PM	0	0	0	0	0	1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0	2:00 PM	0	1	0	0	1
2:15 PM	0	0	0	0	0	2:15 PM	1	1	1	2	5
2:30 PM	0	0	0	0	0	2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0	2:45 PM	1	4	0	0	5
3:00 PM	0	0	0	0	0	3:00 PM	1	0	0	1	2
3:15 PM	0	0	0	0	0	3:15 PM	0	4	0	2	6
3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	1	1
3:45 PM	0	0	0	0	0	3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	2	2
4:15 PM	0	0	1	0	1	4:15 PM	0	0	0	4	4
4:30 PM	0	0	2	0	2	4:30 PM	0	0	0	2	2
4:45 PM	0	0	0	0	0	4:45 PM	0	1	0	2	3
5:00 PM	0	0	0	0	0	5:00 PM	3	2	2	0	7
5:15 PM	0	0	0	0	0	5:15 PM	0	4	0	0	4
5:30 PM	0	0	1	0	1	5:30 PM	1	1	1	1	4
5:45 PM	0	0	1	0	1	5:45 PM	2	0	0	0	2
Count Total	1	0	5	0	6	Count Total	10	18	4	17	49
Peak Hour	0	0	0	0	0	Peak Hour	2	8	0	3	13

Emerson Campus
Trip Generation Study
TENW Project #2024-063

Day: Tuesday, March 19, 2024

Afternoon Peak Pick-Up Period

Time period starting	A 108th Ave NE - North Enter-Only Driveway		B 108th Ave NE - South Exit-Only Driveway	
	SBL	NBR	WBL	WBR
1:30 PM	0	0	0	0
1:45 PM	2	0	0	0
2:00 PM	2	3	0	1
2:15 PM	8	2	0	1
2:30 PM	0	0	1	2
2:45 PM	1	1	0	1
3:00 PM	2	2	0	0
3:15 PM	1	1	1	2
3:30 PM	1	1	1	2
3:45 PM	1	0	1	2
2.5-hour total	18	10	4	11

Emerson Campus
Trip Generation Study
TENW Project #2024-063

Day: Thursday, March 21, 2024

Afternoon Peak Pick-Up Period

Time period starting	A 108th Ave NE - North Enter-Only Driveway		B 108th Ave NE - South Exit-Only Driveway	
	SBL	NBR	WBL	WBR
1:30 PM	0	1	0	0
1:45 PM	1	1	0	0
2:00 PM	2	0	0	1
2:15 PM	0	2	0	1
2:30 PM	2	2	1	2
2:45 PM	0	0	0	1
3:00 PM	1	0	0	0
3:15 PM	4	1	1	2
3:30 PM	0	0	1	2
3:45 PM	2	0	1	2
2.5-hour total	12	7	4	11

Emerson Campus
Trip Generation Study
TENW Project #2024-063

Day: Tuesday, March 19, 2024

Afternoon Peak Pick-Up Period

Time period starting	A 108th Ave NE - North Enter-Only Driveway		B 108th Ave NE - South Exit-Only Driveway	
	SBL	NBR	WBL	WBR
4:00 PM	0	2	0	0
4:15 PM	0	0	0	2
4:30 PM	0	0	0	1
4:45 PM	0	0	0	1
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
2-hour total	0	2	0	4

Emerson Campus
Trip Generation Study
TENW Project #2024-063

Day: Thursday, March 21, 2024

Afternoon Peak Pick-Up Period

Time period starting	A 108th Ave NE - North Enter-Only Driveway		B 108th Ave NE - South Exit-Only Driveway	
	SBL	NBR	WBL	WBR
4:00 PM	0	0	0	0
4:15 PM	0	0	0	2
4:30 PM	1	0	0	1
4:45 PM	0	0	1	0
5:00 PM	0	0	0	0
5:15 PM	1	1	0	0
5:30 PM	3	4	1	2
5:45 PM	2	2	2	4
2-hour total	7	7	4	9

Appendix C

WSDOT and City of Kirkland Crash History

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	MILEPOST	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDS	# BIKES	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO
City Street	King	Kirkland	108TH AVE NE	5309	NE 53RD ST						EF23536	10/09/2024	16:25	No Apparent Injury	0	0	2	0	0	Entering at angle	Making Right Turn	Going Straight Ahead	East	North	South	North
City Street	King	Kirkland	108TH AVE NE	6743	NE 68TH ST						EF39305	11/20/2024	14:58	No Apparent Injury	0	0	2	0	0	Entering at angle	Making Right Turn	Going Straight Ahead	West	South	North	South
City Street	King	Kirkland	NE 68TH ST	10790	108TH AVE NE						EE86274	05/23/2024	11:03	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign	West	East	West	Vehicle Stopped

City of Kirkland
Transportation Group

From 1/1/2020 to 12/31/2024

Total Collisions: 1
Injury Collisions: 0
Fatal Collisions: 0

Collision Summary Report

6/12/25

108TH AVE NE & NE 53RD ST (N)

24-37810	10/9/2024	16:25	108TH AVE NE & NE 53RD ST (N)	0'	Direction: Not Stated	Daylight		Adv. Weather: Clear / Partly Cloudy	
EF23536	Right Angle / Broadside			Straight & Level		Road: Dry	No injury	# Inj: 0	# Killed: 0
Unit 1	Motor Vehicle (HB)	East	Making Right Turn			Female	Age: 27	Stop Sign	
No Injury		Contrib Circ: Did Not Grant R/W to Vehicle						Lap & Shoulder Belt Used	
Unit 2	Motor Vehicle (SD)	South	Going Straight Ahead			Female	Age: 75	No Traffic Control	
No Injury		Contrib Circ: None						Lap & Shoulder Belt Used	

Settings for Query:

Start Date: 1/1/2020
End Date: 12/31/2024
Street: 108TH AVE NE
Cross Street: NE 53RD ST (N)
Within Distance of: 50
Sorted By: Date and Time

City of Kirkland
Transportation Group

From 1/1/2020 to 12/31/2024

Total Collisions: 7
Injury Collisions: 0
Fatal Collisions: 0

Collision Summary Report

6/12/25

108TH AVE NE & NE 68TH ST

20-28276 9/4/2020 19:35 NE 68TH ST & 108TH AVE NE 20' Direction: West Daylight Adv. Weather: Clear / Partly Cloudy
EA74190 Rear-End Straight & Grade Road: Dry No injury # Inj: 0 # Killed: 0

Unit 1 Motor Vehicle West Going Straight Ahead Not Stated Age: Signals
No Injury Contrib Circ: Following Too Closely Unknown

Unit 2 Motor Vehicle Vehicle Stopped Stopped in Roadway Not Stated Age: Signals
No Injury Contrib Circ: None Shoulder Belt Used

21-28252 8/2/2021 17:28 NE 68TH ST & 108TH AVE NE 6' Direction: West Daylight Adv. Weather: Clear / Partly Cloudy
EB56914 Backing Straight & Grade Road: Dry No injury # Inj: 0 # Killed: 0

Unit 1 Motor Vehicle (CP) West Stopped at Signal or Stop Sign Female Age: 55 Signals
No Injury Contrib Circ: Operating Defective Equipment Lap & Shoulder Belt Used

Unit 2 Motor Vehicle (4D) West Stopped at Signal or Stop Sign Male Age: 35 Signals
No Injury Contrib Circ: None Lap & Shoulder Belt Used

24-2426 1/23/2024 17:40 NE 68TH ST & 108TH AVE NE 0' Direction: Not Stated Dark - Street Lights On Adv. Weather: Clear / Partly Cloudy
EE53390 Rear-End Straight & Grade Road: Dry No injury # Inj: 0 # Killed: 0

Unit 1 Motor Vehicle (UT) West Merging; entering traffic Male Age: 49 Signals
No Injury Contrib Circ: Did Not Grant R/W to Vehicle Lap & Shoulder Belt Used

Unit 2 Motor Vehicle (UT) West Other Male Age: 57 Signals
No Injury Contrib Circ: None Lap & Shoulder Belt Used

24-17685 5/23/2024 11:03 NE 68TH ST & 108TH AVE NE 0' Direction: Not Stated Daylight Adv. Weather: Clear / Partly Cloudy
EE86274 Rear-End Straight & Grade Road: Dry No injury # Inj: 0 # Killed: 0

Unit 1 Motor Vehicle (VN) West Going Straight Ahead Female Age: 45 Signals
No Injury Contrib Circ: Distracted by Adjusting Vehicle Cntrls Lap & Shoulder Belt Used

Unit 2 Motor Vehicle (UT) Vehicle Stopped Stopped at Signal or Stop Sign Male Age: 28 Signals
No Injury Contrib Circ: None Lap & Shoulder Belt Used

24-30250 8/15/2024 17:00 108TH AVE NE & NE 68TH ST 50' Direction: South Daylight Adv. Weather: Clear / Partly Cloudy
EF05714 Rear-End Straight & Level Road: Dry No injury # Inj: 0 # Killed: 0

Unit 1 Motor Vehicle South Going Straight Ahead Female Age: 21 No Traffic Control
No Injury Contrib Circ: Following Too Closely Lap & Shoulder Belt Used

Unit 2 Motor Vehicle South Going Straight Ahead Female Age: 35 No Traffic Control
No Injury Contrib Circ: None Lap & Shoulder Belt Used

24-37665	10/8/2024	16:44	108TH AVE NE & NE 68TH ST	50'	Direction: South	Daylight	Adv. Weather: Overcast		
EF22726	Sideswipe / Lane Change			Straight & Level		Road: Dry	No injury	# Inj: 0	# Killed: 0
Unit 1	Motor Vehicle (HB)	South	Going Straight Ahead			Male	Age: 45	Signals	
No Injury		Contrib Circ: Did Not Grant R/W to Vehicle						Lap & Shoulder Belt Used	
Unit 2	Motor Vehicle (MT)	South	Going Straight Ahead			Male	Age: 68	Signals	
No Injury		Contrib Circ: None						13	
24-43036	11/20/2024	14:58	108TH AVE NE & NE 68TH ST	0'	Direction: Not Stated	Daylight	Adv. Weather: Clear / Partly Cloudy		
EF39305	Right Angle / Broadside			Straight & Level		Road: Dry	No injury	# Inj: 0	# Killed: 0
Unit 1	Motor Vehicle (UT)	West	Making Right Turn			Male	Age: 68	Signals	
No Injury		Contrib Circ: Did Not Grant R/W to Vehicle						Lap & Shoulder Belt Used	
Unit 2	Motor Vehicle (UT)	North	Going Straight Ahead			Male	Age: 68	Other Traffic Control	
No Injury		Contrib Circ: None						Lap & Shoulder Belt Used	

Settings for Query:

Start Date: 1/1/2020
End Date: 12/31/2024
Street: 108TH AVE NE
Cross Street: NE 68TH ST
Within Distance of: 50
Sorted By: Date and Time

Appendix D

Level of Service (LOS) Methodology and Calculations

Level of Service Methodology

Level of Service (LOS) generally refers to the degree of congestion at an intersection. It is a measure of vehicle operating speed, travel time, travel delays, and driving comfort. A letter scale from A to F generally describes intersection LOS.

Signalized Intersection LOS represents the average control delay (sec/veh) and can be reported for the overall intersection, for each approach, and for each lane group (additional v/c ratio criteria apply to lane group LOS only). The table below outlines the HCM (7th Edition) LOS criteria for signalized intersections.

LOS Criteria for Signalized Intersections [1]

Control Delay (sec/veh)	Level of Service [2]	General Description [3]
≤ 10	A	Exceptionally Favorable Progression (or very short cycle lengths) – Most vehicles arrive during the green indication and travel through the intersection without stopping.
> 10 to ≤ 20	B	Highly Favorable Progression (or short cycle lengths) – While more vehicles than LOS A stop, most vehicles still pass through the intersection without stopping.
> 20 to ≤ 35	C	Favorable Progression (or moderate cycle lengths) – Individual cycle failures begin to appear, but many vehicles still pass through the intersection without stopping.
> 35 to ≤ 55	D	Ineffective Progression (or long cycle lengths) – Many vehicles stop and individual cycle failures are noticeable.
> 55 to ≤ 80	E	Unfavorable Progression (and long cycle lengths) – Individual cycle failures are frequent.
> 80	F	Very Poor Progression (and long cycle lengths) – Most cycles fail to clear the queue at this level.

1 Source: Highway Capacity Manual 7th Edition, Transportation Research Board, 2021.
2 If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0, LOS F is assigned to the individual lane group. For approach-based and intersection-wide assessments at signals, LOS is defined solely by control delay.
3 Individual cycle failures: one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle.

Synchro 12 and/or HCM 2000 LOS methodology may be used when HCM 7th Edition methodology is not supported at an intersection (i.e., intersection geometry and/or custom phasing) or jurisdictional standards require use of an alternative methodology.

Unsignalized Intersection LOS (two-way stop control, all-way stop control, and roundabouts) is based on the average control delay. For two-way stop-controlled intersections, the LOS criteria apply to each controlled minor-street approach, controlled minor-street lane group, and controlled major-street movement (additional v/c ratio criteria apply to lane group LOS only). LOS is not calculated for major-street approaches or for the intersection as a whole at two-way stop-controlled intersections. For all-way stop-controlled intersections and roundabouts, LOS can be reported for the overall intersection, for each approach, and for each lane group (additional v/c ratio criteria apply to lane group LOS only). The table below outlines the HCM (7th Edition) LOS criteria for unsignalized intersections based on these methodologies.

LOS Criteria for Unsignalized Intersections[1]

Control Delay (sec/veh)	Level of Service [2]
≤ 10	A
> 10 to ≤ 15	B
> 15 to ≤ 25	C
> 25 to ≤ 35	D
> 35 to ≤ 50	E
> 50	F

1 Source: Highway Capacity Manual 7th Edition, Transportation Research Board, 2021.
2 If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0, LOS F is assigned to the individual lane group. For approach-based and intersection-wide assessments at unsignalized intersections, LOS is defined solely by control delay.

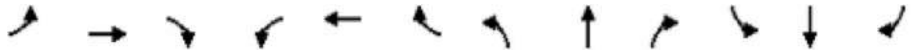
2025 Existing

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	233	80	241	230	255	50	206	116	96	281	55
Future Volume (vph)	96	233	80	241	230	255	50	206	116	96	281	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-5%			0%			0%	
Storage Length (ft)	90		70	145		145	175		100	160		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		467			338			436			302	
Travel Time (s)		12.7			9.2			9.9			6.9	
Confl. Peds. (#/hr)	15		19	19		15	7		17	17		7
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	
Minimum Split (s)	12.5	28.5	12.5	12.5	29.5	12.5	12.5	29.5	12.5	12.5	28.5	
Total Split (s)	20.0	30.0	17.0	29.0	39.0	20.0	17.0	31.0	29.0	20.0	34.0	
Total Split (%)	18.2%	27.3%	15.5%	26.4%	35.5%	18.2%	15.5%	28.2%	26.4%	18.2%	30.9%	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	C-Min	None	None	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 4:NBT and 8:SBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Splits and Phases: 1: 108th Ave NE/6th St South & NE 68th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	233	80	241	230	255	50	206	116	96	281	55
Future Volume (veh/h)	96	233	80	241	230	255	50	206	116	96	281	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)	1.00		0.95	1.00		0.96	1.00		0.98	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1817	1817	1817	2052	2052	2052	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	113	274	94	284	271	300	59	242	136	113	331	65
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	3	3	3	3	3	3	5	5	5
Cap, veh/h	139	328	345	317	538	578	94	701	836	139	597	117
Arrive On Green	0.08	0.18	0.18	0.16	0.26	0.26	0.05	0.38	0.38	0.08	0.40	0.40
Sat Flow, veh/h	1731	1817	1459	1954	2052	1676	1767	1856	1537	1739	1476	290
Grp Volume(v), veh/h	113	274	94	284	271	300	59	242	136	113	0	396
Grp Sat Flow(s),veh/h/ln	1731	1817	1459	1954	2052	1676	1767	1856	1537	1739	0	1766
Q Serve(g_s), s	7.1	16.0	5.8	15.7	12.4	15.8	3.6	10.3	4.9	7.0	0.0	18.9
Cycle Q Clear(g_c), s	7.1	16.0	5.8	15.7	12.4	15.8	3.6	10.3	4.9	7.0	0.0	18.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	139	328	345	317	538	578	94	701	836	139	0	715
V/C Ratio(X)	0.81	0.84	0.27	0.90	0.50	0.52	0.63	0.35	0.16	0.81	0.00	0.55
Avail Cap(c_a), veh/h	228	405	407	417	625	649	185	701	836	229	0	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.8	43.5	34.5	45.2	34.5	29.0	51.0	24.5	12.8	49.8	0.0	25.1
Incr Delay (d2), s/veh	4.3	10.0	0.2	15.3	0.3	0.3	2.6	1.3	0.4	4.3	0.0	3.1
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	3.2	8.1	2.1	9.0	6.2	6.3	1.7	4.8	1.8	3.2	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.1	53.5	34.7	60.5	34.8	29.3	53.6	25.8	13.2	54.1	0.0	28.2
LnGrp LOS	D	D	C	E	C	C	D	C	B	D		C
Approach Vol, veh/h		481			855			437			509	
Approach Delay, s/veh		50.0			41.4			25.6			34.0	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.3	34.3	14.3	47.1	23.3	25.3	11.3	50.0
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	14.5	33.5	14.5	25.5	23.5	24.5	11.5	28.5
Max Q Clear Time (g_c+I1), s	9.1	17.8	9.0	12.3	17.7	18.0	5.6	20.9
Green Ext Time (p_c), s	0.0	1.6	0.0	0.7	0.2	0.7	0.0	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	38.5
HCM 7th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	117	378	52	77	487
Future Volume (vph)	94	117	378	52	77	487
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		0	75	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	196		139			241
Travel Time (s)	5.3		3.2			5.5
Confl. Peds. (#/hr)	6			1	1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	4%	4%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	94	117	378	52	77	487
Future Vol, veh/h	94	117	378	52	77	487
Conflicting Peds, #/hr	6	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	-	75	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	1	4	4	3	3
Mvmt Flow	108	134	434	60	89	560

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1208	465	0	0	495	0
Stage 1	465	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.13	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.227	-
Pot Cap-1 Maneuver	203	599	-	-	1063	-
Stage 1	634	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	185	599	-	-	1062	-
Mov Cap-2 Maneuver	185	-	-	-	-	-
Stage 1	634	-	-	-	-	-
Stage 2	430	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	28.75	0	1.19
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	185	599	1062	-
HCM Lane V/C Ratio	-	-	0.584	0.225	0.083	-
HCM Ctrl Dly (s/v)	-	-	48.7	12.7	8.7	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	3.2	0.9	0.3	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	12	8	334	558	19
Future Volume (vph)	15	12	8	334	558	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	25			30	30	
Link Distance (ft)	378			166	139	
Travel Time (s)	10.3			3.8	3.2	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	12	8	334	558	19
Future Vol, veh/h	15	12	8	334	558	19
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	18	14	10	402	672	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1107	686	697	0	-	0
Stage 1	686	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	235	451	894	-	-	-
Stage 1	504	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	231	450	893	-	-	-
Mov Cap-2 Maneuver	231	-	-	-	-	-
Stage 1	497	-	-	-	-	-
Stage 2	665	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	18.71	0.21	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	893	-	295	-	-
HCM Lane V/C Ratio	0.011	-	0.11	-	-
HCM Ctrl Dly (s/v)	9.1	-	18.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	12	8	330	547	19
Future Volume (vph)	15	12	8	330	547	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)	1		2			2
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	12	8	330	547	19
Future Vol, veh/h	15	12	8	330	547	19
Conflicting Peds, #/hr	1	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	-	-		0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	18	14	10	398	659	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1090	672	684	0	-	0
Stage 1	672	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	240	459	905	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	237	458	903	-	-	-
Mov Cap-2 Maneuver	367	-	-	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	667	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.73	0.21	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	903	-	402	-	-
HCM Lane V/C Ratio	0.011	-	0.081	-	-
HCM Ctrl Dly (s/v)	9	-	14.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	52	106	1	160	0	0
Future Volume (vph)	52	106	1	160	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		5	5		1	2
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	3%	3%	1%	1%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

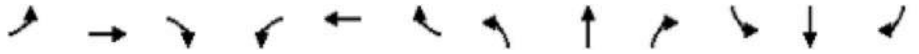
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	106	1	160	0	0
Future Vol, veh/h	52	106	1	160	0	0
Conflicting Peds, #/hr	0	5	5	0	1	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	0	-	
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	3	1	1	0	0
Mvmt Flow	76	156	1	235	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	237	0	-	161
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.11	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.209	-	-	3.3
Pot Cap-1 Maneuver	-	-	1336	-	0	889
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1329	-	-	883
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.05	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	11	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Ctrl Dly (s/v)	0	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	50	0	0	64	1	95	0	2	2	0	0
Future Volume (vph)	2	50	0	0	64	1	95	0	2	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)			2	2			4					4
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	10%	10%	10%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	50	0	0	64	1	95	0	2	2	0	0
Future Vol, veh/h	2	50	0	0	64	1	95	0	2	2	0	0
Conflicting Peds, #/hr	0	0	2	2	0	0	4	0	0	0	0	4
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	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	10	10	10	2	2	2	0	0	0	0	0	0
Mvmt Flow	3	71	0	0	91	1	136	0	3	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	93	0	-	-	-	0	173	170	71	169	169	96
Stage 1	-	-	-	-	-	-	77	77	-	92	92	-
Stage 2	-	-	-	-	-	-	95	93	-	77	77	-
Critical Hdwy	4.2	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1453	-	0	0	-	-	795	727	997	799	727	966
Stage 1	-	-	0	0	-	-	937	835	-	920	823	-
Stage 2	-	-	0	0	-	-	916	822	-	937	835	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1453	-	-	-	-	-	790	725	997	795	726	962
Mov Cap-2 Maneuver	-	-	-	-	-	-	790	725	-	795	726	-
Stage 1	-	-	-	-	-	-	935	833	-	920	823	-
Stage 2	-	-	-	-	-	-	913	822	-	932	833	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.29	0	10.49	9.54
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	794	69	-	-	-	795
HCM Lane V/C Ratio	0.175	0.002	-	-	-	0.004
HCM Ctrl Dly (s/v)	10.5	7.5	0	-	-	9.5
HCM Lane LOS	B	A	A	-	-	A
HCM 95th %tile Q(veh)	0.6	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	342	3	4	566
Future Volume (vph)	0	0	342	3	4	566
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	0	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			166
Travel Time (s)	4.5		3.4			3.8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	342	3	4	566
Future Vol, veh/h	0	0	342	3	4	566
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	-	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	0	0	407	4	5	674

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	409	0	0	411	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	0	647	-	-	1148	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	647	-	-	1148	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0.06
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1148	-
HCM Lane V/C Ratio	-	-	-	0.004	-
HCM Ctrl Dly (s/v)	-	-	0	8.1	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	1	337	0	0	559
Future Volume (vph)	0	1	337	0	0	559
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		30			30
Link Distance (ft)	267		682			181
Travel Time (s)	7.3		15.5			4.1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	337	0	0	559
Future Vol, veh/h	0	1	337	0	0	559
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	0	1	406	0	0	673

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1080	406	0	-	-	-
Stage 1	406	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	244	649	-	0	0	-
Stage 1	677	-	-	0	0	-
Stage 2	510	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	244	649	-	-	-	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	510	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.56	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	649	-
HCM Lane V/C Ratio	-	0.002	-
HCM Ctrl Dly (s/v)	-	10.6	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	23	14	7	372	382	23
Future Volume (vph)	23	14	7	372	382	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	25			30	30	
Link Distance (ft)	373			170	135	
Travel Time (s)	10.2			3.9	3.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	14	7	372	382	23
Future Vol, veh/h	23	14	7	372	382	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	2	2	3	3
Mvmt Flow	26	16	8	428	439	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	896	452	466	0	-	0
Stage 1	452	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	307	601	1096	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	305	601	1096	-	-	-
Mov Cap-2 Maneuver	305	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	640	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	15.84	0.15	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1096	-	375	-	-
HCM Lane V/C Ratio	0.007	-	0.114	-	-
HCM Ctrl Dly (s/v)	8.3	-	15.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	23	14	7	362	362	23
Future Volume (vph)	23	14	7	362	362	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

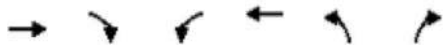
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	14	7	362	362	23
Future Vol, veh/h	23	14	7	362	362	23
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	-	-		0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	2	2	3	3
Mvmt Flow	26	16	8	416	416	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	861	431	443	0	-	0
Stage 1	429	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	322	618	1118	-	-	-
Stage 1	650	-	-	-	-	-
Stage 2	648	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	320	617	1118	-	-	-
Mov Cap-2 Maneuver	441	-	-	-	-	-
Stage 1	645	-	-	-	-	-
Stage 2	648	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.97	0.16	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1118	-	494	-	-
HCM Lane V/C Ratio	0.007	-	0.086	-	-
HCM Ctrl Dly (s/v)	8.2	-	13	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	43	61	3	128	0	0
Future Volume (vph)	43	61	3	128	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		6	6		1	4
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	3%	3%	2%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

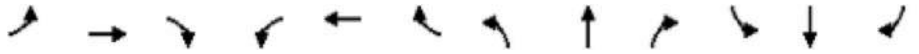
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	43	61	3	128	0	0
Future Vol, veh/h	43	61	3	128	0	0
Conflicting Peds, #/hr	0	6	6	0	1	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	0	-	
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	3	3	2	2	0	0
Mvmt Flow	68	97	5	203	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	171	0	-	127
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.3
Pot Cap-1 Maneuver	-	-	1406	-	0	929
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1398	-	-	920
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.17	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	41	-
HCM Lane V/C Ratio	-	-	-	0.003	-
HCM Ctrl Dly (s/v)	0	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	41	0	0	58	4	70	0	1	6	0	1
Future Volume (vph)	1	41	0	0	58	4	70	0	1	6	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)			2	2			3		2	2		3
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	7%	7%	7%	3%	3%	3%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	41	0	0	58	4	70	0	1	6	0	1
Future Vol, veh/h	1	41	0	0	58	4	70	0	1	6	0	1
Conflicting Peds, #/hr	0	0	2	2	0	0	3	0	2	2	0	3
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	68	68	68	68	68	68	68	68	68	68	68	68
Heavy Vehicles, %	7	7	7	3	3	3	0	0	0	0	0	0
Mvmt Flow	1	60	0	0	85	6	103	0	1	9	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	91	0	-	-	-	0	152	154	62	153	151	91
Stage 1	-	-	-	-	-	-	63	63	-	88	88	-
Stage 2	-	-	-	-	-	-	88	91	-	65	63	-
Critical Hdwy	4.17	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.263	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1473	-	0	0	-	-	820	741	1008	818	744	972
Stage 1	-	-	0	0	-	-	953	846	-	924	826	-
Stage 2	-	-	0	0	-	-	924	823	-	950	846	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1473	-	-	-	-	-	816	740	1006	814	743	969
Mov Cap-2 Maneuver	-	-	-	-	-	-	816	740	-	814	743	-
Stage 1	-	-	-	-	-	-	952	845	-	924	826	-
Stage 2	-	-	-	-	-	-	920	823	-	946	845	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.18	0	10.04	9.37
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	818	43	-	-	-	833
HCM Lane V/C Ratio	0.128	0.001	-	-	-	0.012
HCM Ctrl Dly (s/v)	10	7.4	0	-	-	9.4
HCM Lane LOS	B	A	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	379	6	11	385
Future Volume (vph)	0	0	379	6	11	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	0	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			170
Travel Time (s)	4.5		3.4			3.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	379	6	11	385
Future Vol, veh/h	0	0	379	6	11	385
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	0	0	436	7	13	443

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	439	0	0	443	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	4.13	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.227	-
Pot Cap-1 Maneuver	0	622	-	-	1112	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	622	-	-	1112	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0.23
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1112	-
HCM Lane V/C Ratio	-	-	-	0.011	-
HCM Ctrl Dly (s/v)	-	-	0	8.3	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1	5	364	0	0	376
Future Volume (vph)	1	5	364	0	0	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		30			30
Link Distance (ft)	267		682			181
Travel Time (s)	7.3		15.5			4.1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	5	364	0	0	376
Future Vol, veh/h	1	5	364	0	0	376
Conflicting Peds, #/hr	0	0	0	0	0	0
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	87	87	87	87	87	87
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	1	6	418	0	0	432

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	851	418	0	-	-	-
Stage 1	418	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	333	639	-	0	0	-
Stage 1	668	-	-	0	0	-
Stage 2	659	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	333	639	-	-	-	-
Mov Cap-2 Maneuver	455	-	-	-	-	-
Stage 1	668	-	-	-	-	-
Stage 2	659	-	-	-	-	-

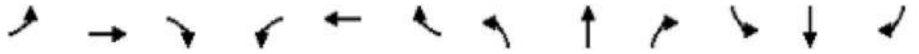
Approach	WB	NB	SB
HCM Ctrl Dly, s/v	11.08	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	599	-
HCM Lane V/C Ratio	-	0.012	-
HCM Ctrl Dly (s/v)	-	11.1	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	323	67	195	306	194	63	356	149	142	361	66
Future Volume (vph)	172	323	67	195	306	194	63	356	149	142	361	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-5%			0%			0%	
Storage Length (ft)	90		70	145		145	175		100	160		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		467			338			436			302	
Travel Time (s)		12.7			9.2			9.9			6.9	
Confl. Peds. (#/hr)	6		24	24		6	19		7	7		19
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	3%	3%	3%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	
Minimum Split (s)	12.5	28.5	12.5	12.5	29.5	12.5	12.5	29.5	12.5	12.5	28.5	
Total Split (s)	24.0	41.0	18.0	24.0	41.0	24.0	18.0	41.0	24.0	24.0	47.0	
Total Split (%)	18.5%	31.5%	13.8%	18.5%	31.5%	18.5%	13.8%	31.5%	18.5%	18.5%	36.2%	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	C-Min	None	None	C-Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 4:NBT and 8:SBT, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: 108th Ave NE/6th St South & NE 68th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	323	67	195	306	194	63	356	149	142	361	66
Future Volume (veh/h)	172	323	67	195	306	194	63	356	149	142	361	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)	1.00		0.94	1.00		0.94	1.00		0.98	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1832	1832	1832	2082	2082	2082	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	176	330	68	199	312	198	64	363	152	145	368	67
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	3	3	3
Cap, veh/h	200	366	367	227	415	500	86	786	833	170	712	130
Arrive On Green	0.11	0.20	0.20	0.11	0.20	0.20	0.05	0.42	0.42	0.10	0.47	0.47
Sat Flow, veh/h	1745	1832	1459	1983	2082	1658	1781	1870	1549	1767	1522	277
Grp Volume(v), veh/h	176	330	68	199	312	198	64	363	152	145	0	435
Grp Sat Flow(s),veh/h/ln	1745	1832	1459	1983	2082	1658	1781	1870	1549	1767	0	1799
Q Serve(g_s), s	12.9	22.9	4.8	12.8	18.3	12.4	4.6	18.2	6.6	10.5	0.0	22.1
Cycle Q Clear(g_c), s	12.9	22.9	4.8	12.8	18.3	12.4	4.6	18.2	6.6	10.5	0.0	22.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	200	366	367	227	415	500	86	786	833	170	0	841
V/C Ratio(X)	0.88	0.90	0.19	0.88	0.75	0.40	0.74	0.46	0.18	0.85	0.00	0.52
Avail Cap(c_a), veh/h	248	500	474	282	568	622	171	786	833	251	0	841
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.6	50.8	38.5	56.6	49.0	36.6	61.0	27.1	15.6	57.9	0.0	24.3
Incr Delay (d2), s/veh	21.5	13.0	0.1	19.1	2.2	0.2	4.6	2.0	0.5	11.6	0.0	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	6.9	11.9	1.7	7.7	9.9	5.1	2.2	8.6	2.5	5.2	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	78.2	63.7	38.6	75.7	51.2	36.8	65.6	29.1	16.1	69.5	0.0	26.5
LnGrp LOS	E	E	D	E	D	D	E	C	B	E		C
Approach Vol, veh/h		574			709			579			580	
Approach Delay, s/veh		65.2			54.0			29.7			37.3	
Approach LOS		E			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.4	31.4	18.0	60.1	20.4	31.5	11.8	66.3
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	18.5	35.5	18.5	35.5	18.5	35.5	12.5	41.5
Max Q Clear Time (g_c+I1), s	14.9	20.3	12.5	20.2	14.8	24.9	6.6	24.1
Green Ext Time (p_c), s	0.1	1.5	0.1	1.1	0.1	1.1	0.0	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	46.9
HCM 7th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	64	683	45	41	435
Future Volume (vph)	43	64	683	45	41	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		0	75	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	196		126			241
Travel Time (s)	5.3		2.9			5.5
Confl. Peds. (#/hr)	5	2		3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	64	683	45	41	435
Future Vol, veh/h	43	64	683	45	41	435
Conflicting Peds, #/hr	5	2	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	-	75	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	47	70	742	49	45	473

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1337	772	0	0	794	0
Stage 1	770	-	-	-	-	-
Stage 2	567	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	170	401	-	-	827	-
Stage 1	459	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	159	399	-	-	825	-
Mov Cap-2 Maneuver	159	-	-	-	-	-
Stage 1	457	-	-	-	-	-
Stage 2	536	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	24.26	0	0.83
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	159	399	825	-
HCM Lane V/C Ratio	-	-	0.293	0.174	0.054	-
HCM Ctrl Dly (s/v)	-	-	36.7	15.9	9.6	-
HCM Lane LOS	-	-	E	C	A	-
HCM 95th %tile Q(veh)	-	-	1.2	0.6	0.2	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	17	7	707	451	23
Future Volume (vph)	14	17	7	707	451	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	25			30	30	
Link Distance (ft)	380			179	126	
Travel Time (s)	10.4			4.1	2.9	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	17	7	707	451	23
Future Vol, veh/h	14	17	7	707	451	23
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	15	18	7	752	480	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1262	495	507	0	-	0
Stage 1	495	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	189	579	1058	-	-	-
Stage 1	617	-	-	-	-	-
Stage 2	462	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	187	577	1055	-	-	-
Mov Cap-2 Maneuver	187	-	-	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	461	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	18.62	0.08	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1055	-	297	-	-
HCM Lane V/C Ratio	0.007	-	0.111	-	-
HCM Ctrl Dly (s/v)	8.4	-	18.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	17	7	682	567	23
Future Volume (vph)	14	17	7	682	567	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)	1	1	3			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

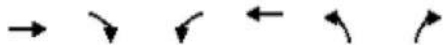
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	17	7	682	567	23
Future Vol, veh/h	14	17	7	682	567	23
Conflicting Peds, #/hr	1	1	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	-	-		0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	15	18	7	726	603	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1360	619	631	0	-	0
Stage 1	618	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	165	492	952	-	-	-
Stage 1	541	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	163	490	949	-	-	-
Mov Cap-2 Maneuver	303	-	-	-	-	-
Stage 1	535	-	-	-	-	-
Stage 2	473	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	15.27	0.09	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	949	-	383	-	-
HCM Lane V/C Ratio	0.008	-	0.086	-	-
HCM Ctrl Dly (s/v)	8.8	-	15.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	80	11	0	97	0	0
Future Volume (vph)	80	11	0	97	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		9	9			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

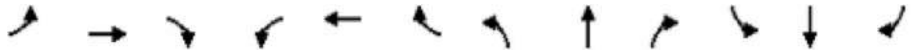
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	80	11	0	97	0	0
Future Vol, veh/h	80	11	0	97	0	0
Conflicting Peds, #/hr	0	9	9	0	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	0	-	
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	87	12	0	105	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	108	0	-	105
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.3
Pot Cap-1 Maneuver	-	-	1483	-	0	955
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1470	-	-	944
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1470	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	79	0	0	84	9	3	0	1	6	0	8
Future Volume (vph)	1	79	0	0	84	9	3	0	1	6	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)	1		7	7		1	6		3	3		6
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 (%)	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	79	0	0	84	9	3	0	1	6	0	8
Future Vol, veh/h	1	79	0	0	84	9	3	0	1	6	0	8
Conflicting Peds, #/hr	1	0	7	7	0	1	6	0	3	3	0	6
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	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	2	2	2	0	0	0	0	0	0
Mvmt Flow	1	81	0	0	87	9	3	0	1	6	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	97	0	-	-	-	0	176	180	84	179	176	98
Stage 1	-	-	-	-	-	-	84	84	-	92	92	-
Stage 2	-	-	-	-	-	-	93	97	-	87	84	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1509	-	0	0	-	-	791	717	980	788	721	963
Stage 1	-	-	0	0	-	-	930	830	-	920	822	-
Stage 2	-	-	0	0	-	-	919	819	-	926	830	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1508	-	-	-	-	-	779	716	977	783	720	957
Mov Cap-2 Maneuver	-	-	-	-	-	-	779	716	-	783	720	-
Stage 1	-	-	-	-	-	-	929	829	-	919	822	-
Stage 2	-	-	-	-	-	-	906	818	-	922	829	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.09	0	9.41	9.19
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	821	23	-	-	-	874
HCM Lane V/C Ratio	0.005	0.001	-	-	-	0.017
HCM Ctrl Dly (s/v)	9.4	7.4	0	-	-	9.2
HCM Lane LOS	A	A	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	-	0.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	728	7	6	471
Future Volume (vph)	0	0	728	7	6	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	0	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			179
Travel Time (s)	4.5		3.4			4.1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	728	7	6	471
Future Vol, veh/h	0	0	728	7	6	471
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	-	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	0	783	8	6	506

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	787	0	0	790	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	0	395	-	-	830	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	395	-	-	830	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0.12
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	830	-
HCM Lane V/C Ratio	-	-	-	0.008	-
HCM Ctrl Dly (s/v)	-	-	0	9.4	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	6	729	0	0	471
Future Volume (vph)	3	6	729	0	0	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		30			30
Link Distance (ft)	267		682			181
Travel Time (s)	7.3		15.5			4.1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	6	729	0	0	471
Future Vol, veh/h	3	6	729	0	0	471
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	3	6	784	0	0	506

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1290	784	0	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	506	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	182	396	-	0	0	-
Stage 1	454	-	-	0	0	-
Stage 2	609	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	182	396	-	-	-	-
Mov Cap-2 Maneuver	318	-	-	-	-	-
Stage 1	454	-	-	-	-	-
Stage 2	609	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	366	-
HCM Lane V/C Ratio	-	0.026	-
HCM Ctrl Dly (s/v)	-	15.1	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	0.1	-

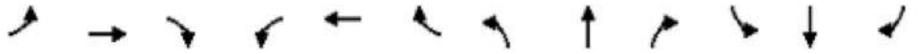
2027 No Action

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	242	87	275	239	265	54	224	138	100	306	57
Future Volume (vph)	100	242	87	275	239	265	54	224	138	100	306	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-5%			0%			0%	
Storage Length (ft)	90		70	145		145	175		100	160		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		467			338			436			302	
Travel Time (s)		12.7			9.2			9.9			6.9	
Confl. Peds. (#/hr)	15		19	19		15	7		17	17		7
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	
Minimum Split (s)	12.5	28.5	12.5	12.5	29.5	12.5	12.5	29.5	12.5	12.5	28.5	
Total Split (s)	20.0	30.0	17.0	29.0	39.0	20.0	17.0	31.0	29.0	20.0	34.0	
Total Split (%)	18.2%	27.3%	15.5%	26.4%	35.5%	18.2%	15.5%	28.2%	26.4%	18.2%	30.9%	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	C-Min	None	None	C-Min	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 4:NBT and 8:SBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

Splits and Phases: 1: 108th Ave NE/6th St South & NE 68th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	242	87	275	239	265	54	224	138	100	306	57
Future Volume (veh/h)	100	242	87	275	239	265	54	224	138	100	306	57
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		0.97	1.00		0.98	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1817	1817	1817	2052	2052	2052	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	118	285	102	324	281	312	64	264	162	118	360	67
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	3	3	3	3	3	3	5	5	5
Cap, veh/h	144	336	354	356	582	621	97	650	824	144	564	105
Arrive On Green	0.08	0.18	0.18	0.18	0.28	0.28	0.05	0.35	0.35	0.08	0.38	0.38
Sat Flow, veh/h	1731	1817	1461	1954	2052	1680	1767	1856	1534	1739	1491	277
Grp Volume(v), veh/h	118	285	102	324	281	312	64	264	162	118	0	427
Grp Sat Flow(s),veh/h/ln	1731	1817	1461	1954	2052	1680	1767	1856	1534	1739	0	1768
Q Serve(g_s), s	7.4	16.7	6.3	17.9	12.5	15.9	3.9	11.9	6.1	7.3	0.0	21.8
Cycle Q Clear(g_c), s	7.4	16.7	6.3	17.9	12.5	15.9	3.9	11.9	6.1	7.3	0.0	21.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	144	336	354	356	582	621	97	650	824	144	0	670
V/C Ratio(X)	0.82	0.85	0.29	0.91	0.48	0.50	0.66	0.41	0.20	0.82	0.00	0.64
Avail Cap(c_a), veh/h	228	405	410	417	625	656	185	650	824	229	0	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.6	43.4	34.2	44.1	32.7	27.1	51.0	27.1	13.5	49.6	0.0	28.0
Incr Delay (d2), s/veh	5.9	11.7	0.2	20.2	0.2	0.2	2.9	1.9	0.5	5.6	0.0	4.6
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	3.4	8.6	2.2	10.7	6.3	6.3	1.8	5.6	2.2	3.4	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	55.5	55.1	34.4	64.4	33.0	27.3	53.9	29.0	14.0	55.2	0.0	32.6
LnGrp LOS	E	E	C	E	C	C	D	C	B	E		C
Approach Vol, veh/h		505			917			490			545	
Approach Delay, s/veh		51.0			42.1			27.3			37.5	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	36.7	14.6	44.0	25.5	25.8	11.5	47.1
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	14.5	33.5	14.5	25.5	23.5	24.5	11.5	28.5
Max Q Clear Time (g_c+I1), s	9.4	17.9	9.3	13.9	19.9	18.7	5.9	23.8
Green Ext Time (p_c), s	0.0	1.6	0.0	0.8	0.1	0.7	0.0	0.7

Intersection Summary	
HCM 7th Control Delay, s/veh	40.0
HCM 7th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	117	151	394	82	122	506
Future Volume (vph)	117	151	394	82	122	506
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		0	75	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	196		139			241
Travel Time (s)	5.3		3.2			5.5
Confl. Peds. (#/hr)	6			1	1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	4%	4%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	13.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	117	151	394	82	122	506
Future Vol, veh/h	117	151	394	82	122	506
Conflicting Peds, #/hr	6	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	-	75	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	1	4	4	3	3
Mvmt Flow	134	174	453	94	140	582

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1369	501	0	0	548	0
Stage 1	501	-	-	-	-	-
Stage 2	868	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.13	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.227	-
Pot Cap-1 Maneuver	162	572	-	-	1016	-
Stage 1	611	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	139	572	-	-	1015	-
Mov Cap-2 Maneuver	139	-	-	-	-	-
Stage 1	610	-	-	-	-	-
Stage 2	354	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	64.67	0	1.77
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	139	572	1015	-
HCM Lane V/C Ratio	-	-	0.968	0.304	0.138	-
HCM Ctrl Dly (s/v)	-	-	130	14	9.1	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	6.8	1.3	0.5	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	12	8	375	600	20
Future Volume (vph)	16	12	8	375	600	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	25			30	30	
Link Distance (ft)	378			166	139	
Travel Time (s)	10.3			3.8	3.2	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	12	8	375	600	20
Future Vol, veh/h	16	12	8	375	600	20
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	19	14	10	452	723	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1208	737	749	0	-	0
Stage 1	737	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	204	422	855	-	-	-
Stage 1	477	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	201	421	854	-	-	-
Mov Cap-2 Maneuver	201	-	-	-	-	-
Stage 1	471	-	-	-	-	-
Stage 2	631	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	20.97	0.19	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	854	-	259	-	-
HCM Lane V/C Ratio	0.011	-	0.13	-	-
HCM Ctrl Dly (s/v)	9.3	-	21	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	12	8	371	588	20
Future Volume (vph)	16	12	8	371	588	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)	1		2			2
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	12	8	371	588	20
Future Vol, veh/h	16	12	8	371	588	20
Conflicting Peds, #/hr	1	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	-	-		0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	19	14	10	447	708	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1190	722	735	0	-	0
Stage 1	722	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	209	430	866	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	635	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	206	429	864	-	-	-
Mov Cap-2 Maneuver	340	-	-	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	634	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	15.6	0.19	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	864	-	373	-	-
HCM Lane V/C Ratio	0.011	-	0.09	-	-
HCM Ctrl Dly (s/v)	9.2	-	15.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	54	176	1	215	0	0
Future Volume (vph)	54	176	1	215	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		5	5		1	2
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	3%	3%	1%	1%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

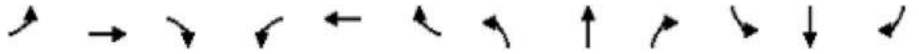
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	54	176	1	215	0	0
Future Vol, veh/h	54	176	1	215	0	0
Conflicting Peds, #/hr	0	5	5	0	1	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	0	-	
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	3	1	1	0	0
Mvmt Flow	79	259	1	316	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	343	0	-	216
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.11	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.209	-	-	3.3
Pot Cap-1 Maneuver	-	-	1221	-	0	829
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1216	-	-	824
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.04	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	8	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Ctrl Dly (s/v)	0	-	-	8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	52	0	0	67	1	143	0	2	2	0	0
Future Volume (vph)	2	52	0	0	67	1	143	0	2	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)			2	2			4					4
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	10%	10%	10%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	52	0	0	67	1	143	0	2	2	0	0
Future Vol, veh/h	2	52	0	0	67	1	143	0	2	2	0	0
Conflicting Peds, #/hr	0	0	2	2	0	0	4	0	0	0	0	4
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	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	10	10	10	2	2	2	0	0	0	0	0	0
Mvmt Flow	3	74	0	0	96	1	204	0	3	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	97	0	-	-	-	0	180	177	74	176	176	100
Stage 1	-	-	-	-	-	-	80	80	-	96	96	-
Stage 2	-	-	-	-	-	-	100	97	-	80	80	-
Critical Hdwy	4.2	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1447	-	0	0	-	-	786	720	993	790	721	961
Stage 1	-	-	0	0	-	-	934	832	-	915	819	-
Stage 2	-	-	0	0	-	-	911	818	-	934	832	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1447	-	-	-	-	-	782	719	993	786	719	957
Mov Cap-2 Maneuver	-	-	-	-	-	-	782	719	-	786	719	-
Stage 1	-	-	-	-	-	-	932	831	-	915	819	-
Stage 2	-	-	-	-	-	-	908	818	-	929	831	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.28	0	11.23	9.59
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	784	67	-	-	-	786
HCM Lane V/C Ratio	0.264	0.002	-	-	-	0.004
HCM Ctrl Dly (s/v)	11.2	7.5	0	-	-	9.6
HCM Lane LOS	B	A	A	-	-	A
HCM 95th %tile Q(veh)	1.1	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	384	3	4	608
Future Volume (vph)	0	0	384	3	4	608
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	0	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			166
Travel Time (s)	4.5		3.4			3.8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	384	3	4	608
Future Vol, veh/h	0	0	384	3	4	608
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	-	0	-	-	50	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	0	0	457	4	5	724

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	459	0	0	461	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	0	606	-	-	1100	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	606	-	-	1100	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0.05
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1100	-
HCM Lane V/C Ratio	-	-	-	0.004	-
HCM Ctrl Dly (s/v)	-	-	0	8.3	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	1	378	0	0	600
Future Volume (vph)	0	1	378	0	0	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		30			30
Link Distance (ft)	267		682			181
Travel Time (s)	7.3		15.5			4.1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	1	378	0	0	600
Future Vol, veh/h	0	1	378	0	0	600
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	0	1	455	0	0	723

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1178	455	0	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	213	609	-	0	0	-
Stage 1	643	-	-	0	0	-
Stage 2	484	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	213	609	-	-	-	-
Mov Cap-2 Maneuver	346	-	-	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.92	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	609	-
HCM Lane V/C Ratio	-	0.002	-
HCM Ctrl Dly (s/v)	-	10.9	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	24	15	7	409	433	24
Future Volume (vph)	24	15	7	409	433	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	25			30	30	
Link Distance (ft)	373			170	135	
Travel Time (s)	10.2			3.9	3.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	15	7	409	433	24
Future Vol, veh/h	24	15	7	409	433	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	2	2	3	3
Mvmt Flow	28	17	8	470	498	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	998	511	525	0	-	0
Stage 1	511	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	267	556	1041	-	-	-
Stage 1	596	-	-	-	-	-
Stage 2	612	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	265	556	1041	-	-	-
Mov Cap-2 Maneuver	265	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	612	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	17.54	0.14	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1041	-	332	-	-
HCM Lane V/C Ratio	0.008	-	0.135	-	-
HCM Ctrl Dly (s/v)	8.5	-	17.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	24	15	7	399	413	24
Future Volume (vph)	24	15	7	399	413	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	15	7	399	413	24
Future Vol, veh/h	24	15	7	399	413	24
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	2	2	3	3
Mvmt Flow	28	17	8	459	475	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	963	491	502	0	-	0
Stage 1	489	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	280	572	1062	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	278	571	1062	-	-	-
Mov Cap-2 Maneuver	406	-	-	-	-	-
Stage 1	606	-	-	-	-	-
Stage 2	620	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.73	0.15	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1062	-	457	-	-
HCM Lane V/C Ratio	0.008	-	0.098	-	-
HCM Ctrl Dly (s/v)	8.4	-	13.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	45	117	3	224	0	0
Future Volume (vph)	45	117	3	224	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		6	6		1	4
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	3%	3%	2%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

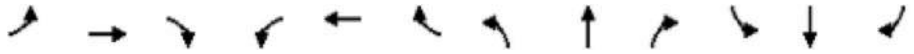
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	45	117	3	224	0	0
Future Vol, veh/h	45	117	3	224	0	0
Conflicting Peds, #/hr	0	6	6	0	1	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	0	-	
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	3	3	2	2	0	0
Mvmt Flow	71	186	5	356	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	263	0	-	174
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.3
Pot Cap-1 Maneuver	-	-	1301	-	0	874
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1294	-	-	866
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	24	-
HCM Lane V/C Ratio	-	-	-	0.004	-
HCM Ctrl Dly (s/v)	0	-	-	7.8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	42	0	0	60	4	161	0	1	6	0	1
Future Volume (vph)	1	42	0	0	60	4	161	0	1	6	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)			2	2			3		2	2		3
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	7%	7%	7%	3%	3%	3%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	42	0	0	60	4	161	0	1	6	0	1
Future Vol, veh/h	1	42	0	0	60	4	161	0	1	6	0	1
Conflicting Peds, #/hr	0	0	2	2	0	0	3	0	2	2	0	3
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	68	68	68	68	68	68	68	68	68	68	68	68
Heavy Vehicles, %	7	7	7	3	3	3	0	0	0	0	0	0
Mvmt Flow	1	62	0	0	88	6	237	0	1	9	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	94	0	-	-	-	0	156	159	64	158	156	94
Stage 1	-	-	-	-	-	-	65	65	-	91	91	-
Stage 2	-	-	-	-	-	-	91	94	-	67	65	-
Critical Hdwy	4.17	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.263	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1469	-	0	0	-	-	815	737	1006	813	740	968
Stage 1	-	-	0	0	-	-	951	845	-	921	823	-
Stage 2	-	-	0	0	-	-	921	821	-	949	845	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1469	-	-	-	-	-	811	736	1004	809	739	965
Mov Cap-2 Maneuver	-	-	-	-	-	-	811	736	-	809	739	-
Stage 1	-	-	-	-	-	-	950	844	-	921	823	-
Stage 2	-	-	-	-	-	-	917	821	-	945	844	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.17	0	11.27	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	812	42	-	-	-	828
HCM Lane V/C Ratio	0.294	0.001	-	-	-	0.012
HCM Ctrl Dly (s/v)	11.3	7.5	0	-	-	9.4
HCM Lane LOS	B	A	A	-	-	A
HCM 95th %tile Q(veh)	1.2	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	417	6	11	437
Future Volume (vph)	0	0	417	6	11	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	0	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			170
Travel Time (s)	4.5		3.4			3.9
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	417	6	11	437
Future Vol, veh/h	0	0	417	6	11	437
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	-	0	-	-	50	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	0	0	479	7	13	502

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	483	0	0	486	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	4.13	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.227	-
Pot Cap-1 Maneuver	0	588	-	-	1072	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	588	-	-	1072	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0.21
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1072	-
HCM Lane V/C Ratio	-	-	-	0.012	-
HCM Ctrl Dly (s/v)	-	-	0	8.4	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1	5	401	0	0	428
Future Volume (vph)	1	5	401	0	0	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		30			30
Link Distance (ft)	267		682			181
Travel Time (s)	7.3		15.5			4.1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	5	401	0	0	428
Future Vol, veh/h	1	5	401	0	0	428
Conflicting Peds, #/hr	0	0	0	0	0	0
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	87	87	87	87	87	87
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	1	6	461	0	0	492

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	953	461	0	-	-	-
Stage 1	461	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	290	605	-	0	0	-
Stage 1	639	-	-	0	0	-
Stage 2	619	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	290	605	-	-	-	-
Mov Cap-2 Maneuver	419	-	-	-	-	-
Stage 1	639	-	-	-	-	-
Stage 2	619	-	-	-	-	-

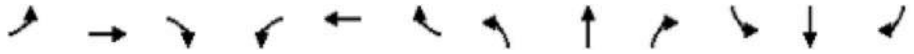
Approach	WB	NB	SB
HCM Ctrl Dly, s/v	11.47	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	563	-
HCM Lane V/C Ratio	-	0.012	-
HCM Ctrl Dly (s/v)	-	11.5	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	336	72	210	318	202	68	374	162	148	380	69
Future Volume (vph)	179	336	72	210	318	202	68	374	162	148	380	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-5%			0%			0%	
Storage Length (ft)	90		70	145		145	175		100	160		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		467			338			436			302	
Travel Time (s)		12.7			9.2			9.9			6.9	
Confl. Peds. (#/hr)	6		24	24		6	19		7	7		19
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	3%	3%	3%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	
Minimum Split (s)	12.5	28.5	12.5	12.5	29.5	12.5	12.5	29.5	12.5	12.5	28.5	
Total Split (s)	24.0	41.0	18.0	24.0	41.0	24.0	18.0	41.0	24.0	24.0	47.0	
Total Split (%)	18.5%	31.5%	13.8%	18.5%	31.5%	18.5%	13.8%	31.5%	18.5%	18.5%	36.2%	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	C-Min	None	None	C-Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 4:NBT and 8:SBT, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: 108th Ave NE/6th St South & NE 68th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	336	72	210	318	202	68	374	162	148	380	69
Future Volume (veh/h)	179	336	72	210	318	202	68	374	162	148	380	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	1.00		0.98	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1832	1832	1832	2082	2082	2082	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	183	343	73	214	324	206	69	382	165	151	388	70
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	3	3	3
Cap, veh/h	207	379	379	242	437	525	88	753	816	176	690	124
Arrive On Green	0.12	0.21	0.21	0.12	0.21	0.21	0.05	0.40	0.40	0.10	0.45	0.45
Sat Flow, veh/h	1745	1832	1463	1983	2082	1663	1781	1870	1548	1767	1524	275
Grp Volume(v), veh/h	183	343	73	214	324	206	69	382	165	151	0	458
Grp Sat Flow(s),veh/h/ln	1745	1832	1463	1983	2082	1663	1781	1870	1548	1767	0	1799
Q Serve(g_s), s	13.4	23.7	5.1	13.8	18.9	12.7	5.0	19.9	7.4	10.9	0.0	24.3
Cycle Q Clear(g_c), s	13.4	23.7	5.1	13.8	18.9	12.7	5.0	19.9	7.4	10.9	0.0	24.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	207	379	379	242	437	525	88	753	816	176	0	814
V/C Ratio(X)	0.88	0.91	0.19	0.88	0.74	0.39	0.78	0.51	0.20	0.86	0.00	0.56
Avail Cap(c_a), veh/h	248	500	476	282	568	630	171	753	816	251	0	814
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.4	50.3	37.8	56.2	48.0	35.4	61.1	29.2	16.5	57.6	0.0	26.1
Incr Delay (d2), s/veh	23.3	14.3	0.1	22.2	2.4	0.2	5.6	2.4	0.6	13.6	0.0	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(50%),veh/ln	7.3	12.5	1.8	8.5	10.2	5.2	2.4	9.5	2.8	5.6	0.0	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	79.7	64.6	37.9	78.4	50.5	35.5	66.7	31.6	17.0	71.2	0.0	28.9
LnGrp LOS	E	E	D	E	D	D	E	C	B	E		C
Approach Vol, veh/h		599			744			616			609	
Approach Delay, s/veh		66.0			54.4			31.6			39.4	
Approach LOS		E			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	32.8	18.4	57.8	21.4	32.4	11.9	64.3
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	18.5	35.5	18.5	35.5	18.5	35.5	12.5	41.5
Max Q Clear Time (g_c+I1), s	15.4	20.9	12.9	21.9	15.8	25.7	7.0	26.3
Green Ext Time (p_c), s	0.1	1.6	0.1	1.2	0.1	1.1	0.0	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	48.1
HCM 7th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	53	80	711	55	55	452
Future Volume (vph)	53	80	711	55	55	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		0	75	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	196		126			241
Travel Time (s)	5.3		2.9			5.5
Confl. Peds. (#/hr)	5	2		3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	80	711	55	55	452
Future Vol, veh/h	53	80	711	55	55	452
Conflicting Peds, #/hr	5	2	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	-	75	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	58	87	773	60	60	491

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1422	808	0	0	836	0
Stage 1	806	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	151	383	-	-	798	-
Stage 1	441	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	138	381	-	-	796	-
Mov Cap-2 Maneuver	138	-	-	-	-	-
Stage 1	440	-	-	-	-	-
Stage 2	498	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	29.64	0	1.07
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	138	381	796	-
HCM Lane V/C Ratio	-	-	0.416	0.228	0.075	-
HCM Ctrl Dly (s/v)	-	-	48.4	17.2	9.9	-
HCM Lane LOS	-	-	E	C	A	-
HCM 95th %tile Q(veh)	-	-	1.8	0.9	0.2	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	18	7	744	477	24
Future Volume (vph)	15	18	7	744	477	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	25			30	30	
Link Distance (ft)	380			179	126	
Travel Time (s)	10.4			4.1	2.9	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	18	7	744	477	24
Future Vol, veh/h	15	18	7	744	477	24
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	16	19	7	791	507	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1330	523	536	0	-	0
Stage 1	523	-	-	-	-	-
Stage 2	806	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	172	558	1032	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	443	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	170	556	1029	-	-	-
Mov Cap-2 Maneuver	170	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	441	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	20.07	0.08	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1029	-	274	-	-
HCM Lane V/C Ratio	0.007	-	0.128	-	-
HCM Ctrl Dly (s/v)	8.5	-	20.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	18	7	718	598	24
Future Volume (vph)	15	18	7	718	598	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)	1	1	3			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

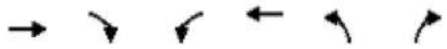
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	18	7	718	598	24
Future Vol, veh/h	15	18	7	718	598	24
Conflicting Peds, #/hr	1	1	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	-	-		0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	16	19	7	764	636	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1432	653	665	0	-	0
Stage 1	652	-	-	-	-	-
Stage 2	780	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	149	471	924	-	-	-
Stage 1	522	-	-	-	-	-
Stage 2	456	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	147	469	922	-	-	-
Mov Cap-2 Maneuver	288	-	-	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	454	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	15.93	0.09	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	922	-	364	-	-
HCM Lane V/C Ratio	0.008	-	0.096	-	-
HCM Ctrl Dly (s/v)	8.9	-	15.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	83	32	0	122	0	0
Future Volume (vph)	83	32	0	122	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		9	9			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

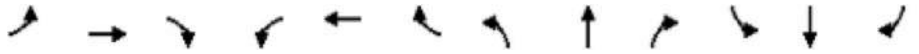
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	83	32	0	122	0	0
Future Vol, veh/h	83	32	0	122	0	0
Conflicting Peds, #/hr	0	9	9	0	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	0	-	
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	90	35	0	133	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	134	0	-	120
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.3
Pot Cap-1 Maneuver	-	-	1451	-	0	937
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1438	-	-	927
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1438	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	82	0	0	87	9	24	0	1	6	0	8
Future Volume (vph)	1	82	0	0	87	9	24	0	1	6	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)	1		7	7		1	6		3	3		6
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 (%)	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	82	0	0	87	9	24	0	1	6	0	8
Future Vol, veh/h	1	82	0	0	87	9	24	0	1	6	0	8
Conflicting Peds, #/hr	1	0	7	7	0	1	6	0	3	3	0	6
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	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	2	2	2	0	0	0	0	0	0
Mvmt Flow	1	85	0	0	90	9	25	0	1	6	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	-	-	-	0	182	187	88	185	182	101
Stage 1	-	-	-	-	-	-	87	87	-	95	95	-
Stage 2	-	-	-	-	-	-	96	100	-	90	87	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1505	-	0	0	-	-	783	712	976	780	716	959
Stage 1	-	-	0	0	-	-	926	827	-	916	820	-
Stage 2	-	-	0	0	-	-	916	816	-	923	827	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1504	-	-	-	-	-	772	710	974	776	715	953
Mov Cap-2 Maneuver	-	-	-	-	-	-	772	710	-	776	715	-
Stage 1	-	-	-	-	-	-	925	826	-	915	819	-
Stage 2	-	-	-	-	-	-	903	815	-	918	826	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.09	0	9.78	9.22
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	778	22	-	-	-	868
HCM Lane V/C Ratio	0.033	0.001	-	-	-	0.017
HCM Ctrl Dly (s/v)	9.8	7.4	0	-	-	9.2
HCM Lane LOS	A	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	-	0.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	726	7	6	622
Future Volume (vph)	0	0	726	7	6	622
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	0	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			179
Travel Time (s)	4.5		3.4			4.1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	726	7	6	622
Future Vol, veh/h	0	0	726	7	6	622
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	-	0	-	-	50	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	0	0	781	8	6	669

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	784	0	0	788	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	0	396	-	-	831	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	396	-	-	831	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	0	0	0.09
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	831	-
HCM Lane V/C Ratio	-	-	-	0.008	-
HCM Ctrl Dly (s/v)	-	-	0	9.4	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	6	719	0	0	616
Future Volume (vph)	3	6	719	0	0	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25		30			30
Link Distance (ft)	267		682			181
Travel Time (s)	7.3		15.5			4.1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	6	719	0	0	616
Future Vol, veh/h	3	6	719	0	0	616
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	3	6	773	0	0	662

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1435	773	0	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	662	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	-	-
Pot Cap-1 Maneuver	149	402	-	0	0	-
Stage 1	459	-	-	0	0	-
Stage 2	517	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	149	402	-	-	-	-
Mov Cap-2 Maneuver	289	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	517	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.4	0	0
HCM LOS	C		

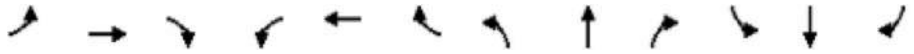
Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	356	-
HCM Lane V/C Ratio	-	0.027	-
HCM Ctrl Dly (s/v)	-	15.4	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	0.1	-

2027 With Project

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	242	92	312	239	265	58	239	163	100	327	57
Future Volume (vph)	100	242	92	312	239	265	58	239	163	100	327	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-5%			0%			0%	
Storage Length (ft)	90		70	145		145	175		100	160		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		467			338			436			302	
Travel Time (s)		12.7			9.2			9.9			6.9	
Confl. Peds. (#/hr)	15		19	19		15	7		17	17		7
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	
Minimum Split (s)	12.5	28.5	12.5	12.5	29.5	12.5	12.5	29.5	12.5	12.5	28.5	
Total Split (s)	20.0	30.0	17.0	29.0	39.0	20.0	17.0	31.0	29.0	20.0	34.0	
Total Split (%)	18.2%	27.3%	15.5%	26.4%	35.5%	18.2%	15.5%	28.2%	26.4%	18.2%	30.9%	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	C-Min	None	None	C-Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 4:NBT and 8:SBT, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: 108th Ave NE/6th St South & NE 68th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	242	92	312	239	265	58	239	163	100	327	57
Future Volume (veh/h)	100	242	92	312	239	265	58	239	163	100	327	57
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		0.97	1.00		0.97	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1817	1817	1817	2052	2052	2052	1856	1856	1856	1826	1826	1826
Adj Flow Rate, veh/h	118	285	108	367	281	312	68	281	192	118	385	67
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	3	3	3	3	3	3	5	5	5
Cap, veh/h	144	336	356	397	625	657	98	611	824	144	538	94
Arrive On Green	0.08	0.18	0.18	0.20	0.30	0.30	0.06	0.33	0.33	0.08	0.36	0.36
Sat Flow, veh/h	1731	1817	1461	1954	2052	1684	1767	1856	1532	1739	1509	263
Grp Volume(v), veh/h	118	285	108	367	281	312	68	281	192	118	0	452
Grp Sat Flow(s),veh/h/ln	1731	1817	1461	1954	2052	1684	1767	1856	1532	1739	0	1771
Q Serve(g_s), s	7.4	16.7	6.7	20.3	12.1	15.3	4.2	13.2	7.4	7.3	0.0	24.3
Cycle Q Clear(g_c), s	7.4	16.7	6.7	20.3	12.1	15.3	4.2	13.2	7.4	7.3	0.0	24.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	144	336	356	397	625	657	98	611	824	144	0	631
V/C Ratio(X)	0.82	0.85	0.30	0.92	0.45	0.47	0.69	0.46	0.23	0.82	0.00	0.72
Avail Cap(c_a), veh/h	228	405	411	417	625	657	185	611	824	229	0	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.6	43.3	34.3	43.0	30.8	25.3	51.0	29.2	13.8	49.6	0.0	30.6
Incr Delay (d2), s/veh	5.9	11.7	0.2	25.0	0.2	0.2	3.2	2.5	0.7	5.6	0.0	6.8
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	3.4	8.6	2.4	12.5	6.1	6.1	1.9	6.3	2.7	3.4	0.0	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	55.5	55.0	34.4	68.0	31.0	25.5	54.2	31.7	14.4	55.2	0.0	37.4
LnGrp LOS	E	E	C	E	C	C	D	C	B	E		D
Approach Vol, veh/h		511			960			541			570	
Approach Delay, s/veh		50.8			43.4			28.4			41.1	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	39.0	14.6	41.7	27.8	25.8	11.6	44.7
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	14.5	33.5	14.5	25.5	23.5	24.5	11.5	28.5
Max Q Clear Time (g_c+I1), s	9.4	17.3	9.3	15.2	22.3	18.7	6.2	26.3
Green Ext Time (p_c), s	0.0	1.6	0.0	0.8	0.1	0.7	0.0	0.4

Intersection Summary	
HCM 7th Control Delay, s/veh	41.2
HCM 7th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	117	151	438	82	122	569
Future Volume (vph)	117	151	438	82	122	569
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		0	75	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	196		139			241
Travel Time (s)	5.3		3.2			5.5
Confl. Peds. (#/hr)	6			1	1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	4%	4%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	18.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	117	151	438	82	122	569
Future Vol, veh/h	117	151	438	82	122	569
Conflicting Peds, #/hr	6	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	-	75	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	1	4	4	3	3
Mvmt Flow	134	174	503	94	140	654

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1492	552	0	0	599	0
Stage 1	552	-	-	-	-	-
Stage 2	940	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.13	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.227	-
Pot Cap-1 Maneuver	137	536	-	-	973	-
Stage 1	579	-	-	-	-	-
Stage 2	381	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	116	535	-	-	972	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	578	-	-	-	-	-
Stage 2	324	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	97.25	0	1.65
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	116	535	972	-
HCM Lane V/C Ratio	-	-	1.158	0.324	0.144	-
HCM Ctrl Dly (s/v)	-	-	203.5	14.9	9.3	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	8.3	1.4	0.5	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s
+: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	12	8	419	663	20
Future Volume (vph)	16	12	8	419	663	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	25			30	30	
Link Distance (ft)	340			166	139	
Travel Time (s)	9.3			3.8	3.2	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	12	8	419	663	20
Future Vol, veh/h	16	12	8	419	663	20
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	-	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	19	14	10	505	799	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1337	813	825	0	-	0
Stage 1	813	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	171	382	801	-	-	-
Stage 1	440	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	168	381	800	-	-	-
Mov Cap-2 Maneuver	168	-	-	-	-	-
Stage 1	433	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	24.22	0.18	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	800	-	221	-	-
HCM Lane V/C Ratio	0.012	-	0.153	-	-
HCM Ctrl Dly (s/v)	9.6	-	24.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	12	8	413	617	20
Future Volume (vph)	16	12	8	413	617	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)	1		2			2
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

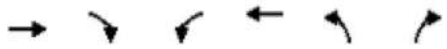
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	12	8	413	617	20
Future Vol, veh/h	16	12	8	413	617	20
Conflicting Peds, #/hr	1	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	19	14	10	498	743	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1275	757	769	0	-	0
Stage 1	757	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	186	411	840	-	-	-
Stage 1	467	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	183	410	839	-	-	-
Mov Cap-2 Maneuver	319	-	-	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	601	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	16.29	0.18	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	839	-	353	-	-
HCM Lane V/C Ratio	0.011	-	0.096	-	-
HCM Ctrl Dly (s/v)	9.3	-	16.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	54	176	1	215	0	0
Future Volume (vph)	54	176	1	215	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		5	5		1	2
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	3%	3%	1%	1%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

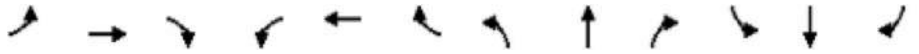
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	54	176	1	215	0	0
Future Vol, veh/h	54	176	1	215	0	0
Conflicting Peds, #/hr	0	5	5	0	1	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	0	-	
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	3	3	1	1	0	0
Mvmt Flow	79	259	1	316	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	343	0	-	216
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.11	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.209	-	-	3.3
Pot Cap-1 Maneuver	-	-	1221	-	0	829
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1216	-	-	824
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.04	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	8	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Ctrl Dly (s/v)	0	-	-	8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	52	0	0	67	1	143	0	2	2	0	0
Future Volume (vph)	2	52	0	0	67	1	143	0	2	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)			2	2			4					4
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	10%	10%	10%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	52	0	0	67	1	143	0	2	2	0	0
Future Vol, veh/h	2	52	0	0	67	1	143	0	2	2	0	0
Conflicting Peds, #/hr	0	0	2	2	0	0	4	0	0	0	0	4
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	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	10	10	10	2	2	2	0	0	0	0	0	0
Mvmt Flow	3	74	0	0	96	1	204	0	3	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	97	0	-	-	-	0	180	177	74	176	176	100
Stage 1	-	-	-	-	-	-	80	80	-	96	96	-
Stage 2	-	-	-	-	-	-	100	97	-	80	80	-
Critical Hdwy	4.2	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1447	-	0	0	-	-	786	720	993	790	721	961
Stage 1	-	-	0	0	-	-	934	832	-	915	819	-
Stage 2	-	-	0	0	-	-	911	818	-	934	832	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1447	-	-	-	-	-	782	719	993	786	719	957
Mov Cap-2 Maneuver	-	-	-	-	-	-	782	719	-	786	719	-
Stage 1	-	-	-	-	-	-	932	831	-	915	819	-
Stage 2	-	-	-	-	-	-	908	818	-	929	831	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.28	0	11.23	9.59
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	784	67	-	-	-	786
HCM Lane V/C Ratio	0.264	0.002	-	-	-	0.004
HCM Ctrl Dly (s/v)	11.2	7.5	0	-	-	9.6
HCM Lane LOS	B	A	A	-	-	A
HCM 95th %tile Q(veh)	1.1	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	45	383	46	67	608
Future Volume (vph)	29	45	383	46	67	608
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			166
Travel Time (s)	4.5		3.4			3.8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	45	383	46	67	608
Future Vol, veh/h	29	45	383	46	67	608
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	-	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	35	54	456	55	80	724

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1367	483	0	0	511	0
Stage 1	483	-	-	-	-	-
Stage 2	883	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	164	587	-	-	1054	-
Stage 1	624	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	151	587	-	-	1054	-
Mov Cap-2 Maneuver	277	-	-	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	377	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	16.22	0	0.86
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	409	1054	-
HCM Lane V/C Ratio	-	-	0.216	0.076	-
HCM Ctrl Dly (s/v)	-	-	16.2	8.7	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.2	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	57	88	412	40	62	437
Future Volume (vph)	57	88	412	40	62	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			166
Travel Time (s)	4.5		3.4			3.8
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	88	412	40	62	437
Future Vol, veh/h	57	88	412	40	62	437
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	-	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	66	101	474	46	71	502

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1141	497	0	0	520	0
Stage 1	497	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.13	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.227	-
Pot Cap-1 Maneuver	224	577	-	-	1041	-
Stage 1	616	-	-	-	-	-
Stage 2	526	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	209	577	-	-	1041	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	490	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	17.43	0	1.08
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	455	1041	-
HCM Lane V/C Ratio	-	-	0.367	0.068	-
HCM Ctrl Dly (s/v)	-	-	17.4	8.7	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.7	0.2	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	24	15	7	492	484	24
Future Volume (vph)	24	15	7	492	484	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	436			166	139	
Travel Time (s)	9.9			3.8	3.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	15	7	492	484	24
Future Vol, veh/h	24	15	7	492	484	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	2	2	3	3
Mvmt Flow	28	17	8	566	556	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1152	570	584	0	-	0
Stage 1	570	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	216	515	991	-	-	-
Stage 1	560	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	214	515	991	-	-	-
Mov Cap-2 Maneuver	214	-	-	-	-	-
Stage 1	555	-	-	-	-	-
Stage 2	553	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	20.56	0.12	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	991	-	276	-	-
HCM Lane V/C Ratio	0.008	-	0.162	-	-
HCM Ctrl Dly (s/v)	8.7	-	20.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	24	15	7	428	470	24
Future Volume (vph)	24	15	7	428	470	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	15	7	428	470	24
Future Vol, veh/h	24	15	7	428	470	24
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	-	-		0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	2	2	3	3
Mvmt Flow	28	17	8	492	540	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1062	556	568	0	-	0
Stage 1	554	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	244	525	1004	-	-	-
Stage 1	570	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	242	524	1004	-	-	-
Mov Cap-2 Maneuver	376	-	-	-	-	-
Stage 1	565	-	-	-	-	-
Stage 2	598	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.56	0.14	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1004	-	421	-	-
HCM Lane V/C Ratio	0.008	-	0.106	-	-
HCM Ctrl Dly (s/v)	8.6	-	14.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	45	117	3	224	0	0
Future Volume (vph)	45	117	3	224	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		6	6		1	4
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	3%	3%	2%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

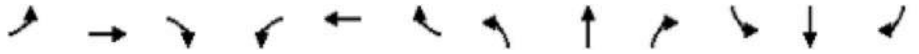
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	45	117	3	224	0	0
Future Vol, veh/h	45	117	3	224	0	0
Conflicting Peds, #/hr	0	6	6	0	1	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	0	-	
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	3	3	2	2	0	0
Mvmt Flow	71	186	5	356	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	263	0	-	174
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.3
Pot Cap-1 Maneuver	-	-	1301	-	0	874
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1294	-	-	866
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	24	-
HCM Lane V/C Ratio	-	-	-	0.004	-
HCM Ctrl Dly (s/v)	0	-	-	7.8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	42	0	0	60	4	161	0	1	6	0	1
Future Volume (vph)	1	42	0	0	60	4	161	0	1	6	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)			2	2			3		2	2		3
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	7%	7%	7%	3%	3%	3%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	42	0	0	60	4	161	0	1	6	0	1
Future Vol, veh/h	1	42	0	0	60	4	161	0	1	6	0	1
Conflicting Peds, #/hr	0	0	2	2	0	0	3	0	2	2	0	3
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	68	68	68	68	68	68	68	68	68	68	68	68
Heavy Vehicles, %	7	7	7	3	3	3	0	0	0	0	0	0
Mvmt Flow	1	62	0	0	88	6	237	0	1	9	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	94	0	-	-	-	0	156	159	64	158	156	94
Stage 1	-	-	-	-	-	-	65	65	-	91	91	-
Stage 2	-	-	-	-	-	-	91	94	-	67	65	-
Critical Hdwy	4.17	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.263	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1469	-	0	0	-	-	815	737	1006	813	740	968
Stage 1	-	-	0	0	-	-	951	845	-	921	823	-
Stage 2	-	-	0	0	-	-	921	821	-	949	845	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1469	-	-	-	-	-	811	736	1004	809	739	965
Mov Cap-2 Maneuver	-	-	-	-	-	-	811	736	-	809	739	-
Stage 1	-	-	-	-	-	-	950	844	-	921	823	-
Stage 2	-	-	-	-	-	-	917	821	-	945	844	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.17	0	11.27	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	812	42	-	-	-	828
HCM Lane V/C Ratio	0.294	0.001	-	-	-	0.012
HCM Ctrl Dly (s/v)	11.3	7.5	0	-	-	9.4
HCM Lane LOS	B	A	A	-	-	A
HCM 95th %tile Q(veh)	1.2	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	57	88	412	40	62	437
Future Volume (vph)	57	88	412	40	62	437
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			166
Travel Time (s)	4.5		3.4			3.8
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	88	412	40	62	437
Future Vol, veh/h	57	88	412	40	62	437
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	-	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	66	101	474	46	71	502

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1141	497	0	0	520	0
Stage 1	497	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.13	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.227	-
Pot Cap-1 Maneuver	224	577	-	-	1041	-
Stage 1	616	-	-	-	-	-
Stage 2	526	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	209	577	-	-	1041	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	490	-	-	-	-	-

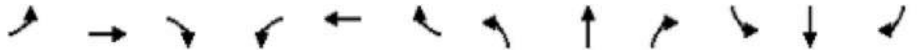
Approach	WB	NB	SB
HCM Ctrl Dly, s/v	17.43	0	1.08
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	455	1041	-
HCM Lane V/C Ratio	-	-	0.367	0.068	-
HCM Ctrl Dly (s/v)	-	-	17.4	8.7	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.7	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	336	74	221	318	202	70	380	173	148	386	69
Future Volume (vph)	179	336	74	221	318	202	70	380	173	148	386	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-5%			0%			0%	
Storage Length (ft)	90		70	145		145	175		100	160		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		467			338			436			302	
Travel Time (s)		12.7			9.2			9.9			6.9	
Confl. Peds. (#/hr)	6		24	24		6	19		7	7		19
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	3%	3%	3%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	7.0	7.0	10.0	
Minimum Split (s)	12.5	28.5	12.5	12.5	29.5	12.5	12.5	29.5	12.5	12.5	28.5	
Total Split (s)	24.0	41.0	18.0	24.0	41.0	24.0	18.0	41.0	24.0	24.0	47.0	
Total Split (%)	18.5%	31.5%	13.8%	18.5%	31.5%	18.5%	13.8%	31.5%	18.5%	18.5%	36.2%	
Yellow Time (s)	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0	3.0	4.0	
All-Red Time (s)	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	2.5	2.5	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	None	Min	None	None	C-Min	None	None	C-Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 4:NBT and 8:SBT, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: 108th Ave NE/6th St South & NE 68th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	336	74	221	318	202	70	380	173	148	386	69
Future Volume (veh/h)	179	336	74	221	318	202	70	380	173	148	386	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	1.00		0.98	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	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1832	1832	1832	2082	2082	2082	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	183	343	76	226	324	206	71	388	177	151	394	70
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	2	2	2	3	3	3
Cap, veh/h	207	379	381	254	450	535	90	741	816	176	680	121
Arrive On Green	0.12	0.21	0.21	0.13	0.22	0.22	0.05	0.40	0.40	0.10	0.45	0.45
Sat Flow, veh/h	1745	1832	1463	1983	2082	1666	1781	1870	1547	1767	1528	272
Grp Volume(v), veh/h	183	343	76	226	324	206	71	388	177	151	0	464
Grp Sat Flow(s),veh/h/ln	1745	1832	1463	1983	2082	1666	1781	1870	1547	1767	0	1800
Q Serve(g_s), s	13.4	23.7	5.3	14.6	18.8	12.6	5.1	20.5	8.0	10.9	0.0	25.1
Cycle Q Clear(g_c), s	13.4	23.7	5.3	14.6	18.8	12.6	5.1	20.5	8.0	10.9	0.0	25.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	207	379	381	254	450	535	90	741	816	176	0	801
V/C Ratio(X)	0.88	0.90	0.20	0.89	0.72	0.38	0.79	0.52	0.22	0.86	0.00	0.58
Avail Cap(c_a), veh/h	248	500	478	282	568	631	171	741	816	251	0	801
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.4	50.3	37.8	55.8	47.3	34.8	61.0	29.9	16.6	57.6	0.0	27.0
Incr Delay (d2), s/veh	23.3	14.3	0.1	24.5	2.1	0.2	5.5	2.6	0.6	13.6	0.0	3.0
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	7.3	12.5	1.9	9.1	10.1	5.2	2.5	9.8	3.0	5.6	0.0	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	79.7	64.6	37.9	80.3	49.4	34.9	66.6	32.5	17.2	71.2	0.0	30.0
LnGrp LOS	E	E	D	F	D	C	E	C	B	E		C
Approach Vol, veh/h		602			756			636			615	
Approach Delay, s/veh		65.8			54.7			32.1			40.1	
Approach LOS		E			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	33.6	18.4	57.0	22.1	32.4	12.1	63.4
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	18.5	35.5	18.5	35.5	18.5	35.5	12.5	41.5
Max Q Clear Time (g_c+I1), s	15.4	20.8	12.9	22.5	16.6	25.7	7.1	27.1
Green Ext Time (p_c), s	0.1	1.6	0.1	1.2	0.0	1.1	0.0	1.3

Intersection Summary	
HCM 7th Control Delay, s/veh	48.3
HCM 7th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	53	80	730	55	55	471
Future Volume (vph)	53	80	730	55	55	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		0	75	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	196		126			241
Travel Time (s)	5.3		2.9			5.5
Confl. Peds. (#/hr)	5	2		3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	80	730	55	55	471
Future Vol, veh/h	53	80	730	55	55	471
Conflicting Peds, #/hr	5	2	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	-	75	-
Veh in Median Storage, #		-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	58	87	793	60	60	512

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1463	828	0	0	856	0
Stage 1	826	-	-	-	-	-
Stage 2	637	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	142	372	-	-	784	-
Stage 1	432	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	130	371	-	-	782	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	430	-	-	-	-	-
Stage 2	486	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	31.67	0	1.04
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	130	371	782	-
HCM Lane V/C Ratio	-	-	0.442	0.235	0.076	-
HCM Ctrl Dly (s/v)	-	-	52.8	17.7	10	-
HCM Lane LOS	-	-	F	C	A	-
HCM 95th %tile Q(veh)	-	-	2	0.9	0.2	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	18	7	763	496	24
Future Volume (vph)	15	18	7	763	496	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	25			30	30	
Link Distance (ft)	497			179	126	
Travel Time (s)	13.6			4.1	2.9	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	18	7	763	496	24
Future Vol, veh/h	15	18	7	763	496	24
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	16	19	7	812	528	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1370	543	556	0	-	0
Stage 1	543	-	-	-	-	-
Stage 2	827	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	163	543	1014	-	-	-
Stage 1	586	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	161	542	1011	-	-	-
Mov Cap-2 Maneuver	161	-	-	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	432	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	20.93	0.08	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1011	-	261	-	-
HCM Lane V/C Ratio	0.007	-	0.135	-	-
HCM Ctrl Dly (s/v)	8.6	-	20.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	18	7	725	613	24
Future Volume (vph)	15	18	7	725	613	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)	1	1	3			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	18	7	725	613	24
Future Vol, veh/h	15	18	7	725	613	24
Conflicting Peds, #/hr	1	1	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	-	-		0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	16	19	7	771	652	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1455	669	681	0	-	0
Stage 1	668	-	-	-	-	-
Stage 2	787	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	145	461	912	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	452	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	143	459	909	-	-	-
Mov Cap-2 Maneuver	283	-	-	-	-	-
Stage 1	508	-	-	-	-	-
Stage 2	451	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	16.15	0.09	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	909	-	358	-	-
HCM Lane V/C Ratio	0.008	-	0.098	-	-
HCM Ctrl Dly (s/v)	9	-	16.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	83	32	0	122	0	0
Future Volume (vph)	83	32	0	122	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		9	9			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

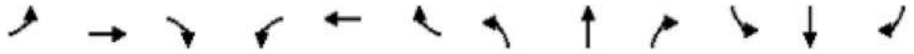
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	83	32	0	122	0	0
Future Vol, veh/h	83	32	0	122	0	0
Conflicting Peds, #/hr	0	9	9	0	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	0	-	
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	90	35	0	133	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	134	0	-	120
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.3
Pot Cap-1 Maneuver	-	-	1451	-	0	937
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1438	-	-	927
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1438	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	82	0	0	87	9	24	0	1	6	0	8
Future Volume (vph)	1	82	0	0	87	9	24	0	1	6	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)	1		7	7		1	6		3	3		6
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 (%)	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	82	0	0	87	9	24	0	1	6	0	8
Future Vol, veh/h	1	82	0	0	87	9	24	0	1	6	0	8
Conflicting Peds, #/hr	1	0	7	7	0	1	6	0	3	3	0	6
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	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	2	2	2	0	0	0	0	0	0
Mvmt Flow	1	85	0	0	90	9	25	0	1	6	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	-	-	-	0	182	187	88	185	182	101
Stage 1	-	-	-	-	-	-	87	87	-	95	95	-
Stage 2	-	-	-	-	-	-	96	100	-	90	87	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1505	-	0	0	-	-	783	712	976	780	716	959
Stage 1	-	-	0	0	-	-	926	827	-	916	820	-
Stage 2	-	-	0	0	-	-	916	816	-	923	827	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1504	-	-	-	-	-	772	710	974	776	715	953
Mov Cap-2 Maneuver	-	-	-	-	-	-	772	710	-	776	715	-
Stage 1	-	-	-	-	-	-	925	826	-	915	819	-
Stage 2	-	-	-	-	-	-	903	815	-	918	826	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.09	0	9.78	9.22
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	778	22	-	-	-	868
HCM Lane V/C Ratio	0.033	0.001	-	-	-	0.017
HCM Ctrl Dly (s/v)	9.8	7.4	0	-	-	9.2
HCM Lane LOS	A	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	-	0.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	25	720	20	25	622
Future Volume (vph)	15	25	720	20	25	622
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			179
Travel Time (s)	4.5		3.4			4.1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	25	720	20	25	622
Future Vol, veh/h	15	25	720	20	25	622
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	-	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	16	27	774	22	27	669

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1508	785	0	0	796	0
Stage 1	785	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	134	396	-	-	826	-
Stage 1	453	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	130	396	-	-	826	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	469	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	17.25	0	0.37
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	337	826	-
HCM Lane V/C Ratio	-	-	0.128	0.033	-
HCM Ctrl Dly (s/v)	-	-	17.3	9.5	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

2027 With Project with Alternative Trip Distribution Assumptions

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	84	100	489	52	76	615
Future Volume (vph)	84	100	489	52	76	615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		0	75	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	196		139			241
Travel Time (s)	5.3		3.2			5.5
Confl. Peds. (#/hr)	6			1	1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	4%	4%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	7.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	84	100	489	52	76	615
Future Vol, veh/h	84	100	489	52	76	615
Conflicting Peds, #/hr	6	0	0	1	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	1	1	4	4	3	3
Mvmt Flow	97	115	562	60	87	707

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1481	593	0	0	623	0
Stage 1	593	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.13	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.227	-
Pot Cap-1 Maneuver	139	507	-	-	953	-
Stage 1	554	-	-	-	-	-
Stage 2	404	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	125	507	-	-	952	-
Mov Cap-2 Maneuver	125	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	365	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	50.85	0	1.01
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	125	507	952	-
HCM Lane V/C Ratio	-	-	0.771	0.227	0.092	-
HCM Ctrl Dly (s/v)	-	-	94.5	14.2	9.2	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	4.5	0.9	0.3	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	12	8	440	676	20
Future Volume (vph)	16	12	8	440	676	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	25			30	30	
Link Distance (ft)	340			166	139	
Travel Time (s)	9.3			3.8	3.2	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	12	8	440	676	20
Future Vol, veh/h	16	12	8	440	676	20
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	19	14	10	530	814	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1378	829	841	0	-	0
Stage 1	829	-	-	-	-	-
Stage 2	549	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	161	374	790	-	-	-
Stage 1	432	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	159	373	789	-	-	-
Mov Cap-2 Maneuver	159	-	-	-	-	-
Stage 1	426	-	-	-	-	-
Stage 2	581	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	25.34	0.17	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	789	-	210	-	-
HCM Lane V/C Ratio	0.012	-	0.16	-	-
HCM Ctrl Dly (s/v)	9.6	-	25.3	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	12	8	413	617	20
Future Volume (vph)	16	12	8	413	617	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)	1		2			2
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	12	8	413	617	20
Future Vol, veh/h	16	12	8	413	617	20
Conflicting Peds, #/hr	1	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	19	14	10	498	743	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1275	757	769	0	-	0
Stage 1	757	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	186	411	840	-	-	-
Stage 1	467	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	183	410	839	-	-	-
Mov Cap-2 Maneuver	319	-	-	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	601	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	16.29	0.18	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	839	-	353	-	-
HCM Lane V/C Ratio	0.011	-	0.096	-	-
HCM Ctrl Dly (s/v)	9.3	-	16.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	54	100	1	131	0	0
Future Volume (vph)	54	100	1	131	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		5	5		1	2
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	3%	3%	1%	1%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

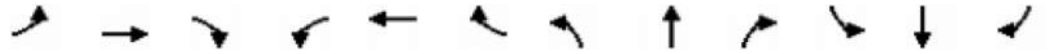
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	54	100	1	131	0	0
Future Vol, veh/h	54	100	1	131	0	0
Conflicting Peds, #/hr	0	5	5	0	1	2
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	68	68	68	68	68	68
Heavy Vehicles, %	3	3	1	1	0	0
Mvmt Flow	79	147	1	193	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	231	0	-	160
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.11	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.209	-	-	3.3
Pot Cap-1 Maneuver	-	-	1342	-	0	890
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1336	-	-	885
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.06	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	14	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Ctrl Dly (s/v)	0	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	52	0	0	67	1	59	0	2	2	0	0
Future Volume (vph)	2	52	0	0	67	1	59	0	2	2	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)			2	2			4					4
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	10%	10%	10%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	52	0	0	67	1	59	0	2	2	0	0
Future Vol, veh/h	2	52	0	0	67	1	59	0	2	2	0	0
Conflicting Peds, #/hr	0	0	2	2	0	0	4	0	0	0	0	4
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	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	10	10	10	2	2	2	0	0	0	0	0	0
Mvmt Flow	3	74	0	0	96	1	84	0	3	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	97	0	-	-	-	0	180	177	74	176	176	100
Stage 1	-	-	-	-	-	-	80	80	-	96	96	-
Stage 2	-	-	-	-	-	-	100	97	-	80	80	-
Critical Hdwy	4.2	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.29	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1447	-	0	0	-	-	786	720	993	790	721	961
Stage 1	-	-	0	0	-	-	934	832	-	915	819	-
Stage 2	-	-	0	0	-	-	911	818	-	934	832	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1447	-	-	-	-	-	782	719	993	786	719	957
Mov Cap-2 Maneuver	-	-	-	-	-	-	782	719	-	786	719	-
Stage 1	-	-	-	-	-	-	932	831	-	915	819	-
Stage 2	-	-	-	-	-	-	908	818	-	929	831	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.28	0	10.14	9.59
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	787	67	-	-	-	786
HCM Lane V/C Ratio	0.111	0.002	-	-	-	0.004
HCM Ctrl Dly (s/v)	10.1	7.5	0	-	-	9.6
HCM Lane LOS	B	A	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	62	96	353	76	113	575
Future Volume (vph)	62	96	353	76	113	575
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			166
Travel Time (s)	4.5		3.4			3.8
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	96	353	76	113	575
Future Vol, veh/h	62	96	353	76	113	575
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	3	3	2	2
Mvmt Flow	71	110	406	87	130	661

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1370	449	0	0	493	0
Stage 1	449	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	163	614	-	-	1070	-
Stage 1	647	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	143	614	-	-	1070	-
Mov Cap-2 Maneuver	262	-	-	-	-	-
Stage 1	647	-	-	-	-	-
Stage 2	344	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	21.15	0	1.45
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	402	1070	-
HCM Lane V/C Ratio	-	-	0.452	0.121	-
HCM Ctrl Dly (s/v)	-	-	21.2	8.8	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	2.3	0.4	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	24	15	7	500	506	24
Future Volume (vph)	24	15	7	500	506	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	436			166	139	
Travel Time (s)	9.9			3.8	3.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	15	7	500	506	24
Future Vol, veh/h	24	15	7	500	506	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	2	2	3	3
Mvmt Flow	28	17	8	575	582	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1186	595	609	0	-	0
Stage 1	595	-	-	-	-	-
Stage 2	591	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	206	498	969	-	-	-
Stage 1	545	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	204	498	969	-	-	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	21.42	0.12	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	969	-	264	-	-
HCM Lane V/C Ratio	0.008	-	0.17	-	-
HCM Ctrl Dly (s/v)	8.7	-	21.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	24	15	7	428	470	24
Future Volume (vph)	24	15	7	428	470	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	15	7	428	470	24
Future Vol, veh/h	24	15	7	428	470	24
Conflicting Peds, #/hr	0	2	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	5	2	2	3	3
Mvmt Flow	28	17	8	492	540	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1062	556	568	0	-	0
Stage 1	554	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Critical Hdwy	6.45	6.25	4.12	-	-	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	2.218	-	-	-
Pot Cap-1 Maneuver	244	525	1004	-	-	-
Stage 1	570	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	242	524	1004	-	-	-
Mov Cap-2 Maneuver	376	-	-	-	-	-
Stage 1	565	-	-	-	-	-
Stage 2	598	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.56	0.14	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1004	-	421	-	-
HCM Lane V/C Ratio	0.008	-	0.106	-	-
HCM Ctrl Dly (s/v)	8.6	-	14.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	45	40	3	161	0	0
Future Volume (vph)	45	40	3	161	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		6	6		1	4
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	3%	3%	2%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

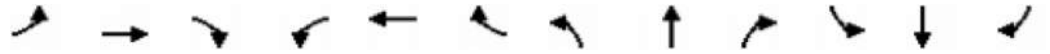
Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	45	40	3	161	0	0
Future Vol, veh/h	45	40	3	161	0	0
Conflicting Peds, #/hr	0	6	6	0	1	4
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	63	63	63	63	63	63
Heavy Vehicles, %	3	3	2	2	0	0
Mvmt Flow	71	63	5	256	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	141	0	-	113
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.3
Pot Cap-1 Maneuver	-	-	1442	-	0	945
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1434	-	-	936
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.14	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	33	-
HCM Lane V/C Ratio	-	-	-	0.003	-
HCM Ctrl Dly (s/v)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	42	0	0	60	4	98	0	1	6	0	1
Future Volume (vph)	1	42	0	0	60	4	98	0	1	6	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)			2	2			3		2	2		3
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	7%	7%	7%	3%	3%	3%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	42	0	0	60	4	98	0	1	6	0	1
Future Vol, veh/h	1	42	0	0	60	4	98	0	1	6	0	1
Conflicting Peds, #/hr	0	0	2	2	0	0	3	0	2	2	0	3
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	68	68	68	68	68	68	68	68	68	68	68	68
Heavy Vehicles, %	7	7	7	3	3	3	0	0	0	0	0	0
Mvmt Flow	1	62	0	0	88	6	144	0	1	9	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	94	0	-	-	-	0	156	159	64	158	156	94
Stage 1	-	-	-	-	-	-	65	65	-	91	91	-
Stage 2	-	-	-	-	-	-	91	94	-	67	65	-
Critical Hdwy	4.17	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.263	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1469	-	0	0	-	-	815	737	1006	813	740	968
Stage 1	-	-	0	0	-	-	951	845	-	921	823	-
Stage 2	-	-	0	0	-	-	921	821	-	949	845	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1469	-	-	-	-	-	811	736	1004	809	739	965
Mov Cap-2 Maneuver	-	-	-	-	-	-	811	736	-	809	739	-
Stage 1	-	-	-	-	-	-	950	844	-	921	823	-
Stage 2	-	-	-	-	-	-	917	821	-	945	844	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.17	0	10.4	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	812	42	-	-	-	828
HCM Lane V/C Ratio	0.179	0.001	-	-	-	0.012
HCM Ctrl Dly (s/v)	10.4	7.5	0	-	-	9.4
HCM Lane LOS	B	A	A	-	-	A
HCM 95th %tile Q(veh)	0.7	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	82	126	382	70	109	412
Future Volume (vph)	82	126	382	70	109	412
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			166
Travel Time (s)	4.5		3.4			3.8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	82	126	382	70	109	412
Future Vol, veh/h	82	126	382	70	109	412
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	93	143	434	80	124	468

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1190	474	0	0	514	0
Stage 1	474	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.13	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.227	-
Pot Cap-1 Maneuver	209	595	-	-	1047	-
Stage 1	631	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	185	595	-	-	1047	-
Mov Cap-2 Maneuver	313	-	-	-	-	-
Stage 1	631	-	-	-	-	-
Stage 2	430	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	22.36	0	1.86
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	439	1047	-
HCM Lane V/C Ratio	-	-	0.538	0.118	-
HCM Ctrl Dly (s/v)	-	-	22.4	8.9	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	3.1	0.4	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	67	743	47	42	484
Future Volume (vph)	45	67	743	47	42	484
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		0	75	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	196		126			241
Travel Time (s)	5.3		2.9			5.5
Confl. Peds. (#/hr)	5	2		3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	67	743	47	42	484
Future Vol, veh/h	45	67	743	47	42	484
Conflicting Peds, #/hr	5	2	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	2	2	2	2
Mvmt Flow	49	73	808	51	46	526

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1459	838	0	0	862	0
Stage 1	836	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	143	368	-	-	780	-
Stage 1	427	-	-	-	-	-
Stage 2	537	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	134	366	-	-	778	-
Mov Cap-2 Maneuver	134	-	-	-	-	-
Stage 1	426	-	-	-	-	-
Stage 2	503	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	29.08	0	0.79
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	134	366	778	-
HCM Lane V/C Ratio	-	-	0.366	0.199	0.059	-
HCM Ctrl Dly (s/v)	-	-	46.7	17.3	9.9	-
HCM Lane LOS	-	-	E	C	A	-
HCM 95th %tile Q(veh)	-	-	1.5	0.7	0.2	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	18	7	742	634	24
Future Volume (vph)	15	18	7	742	634	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	50			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	25			30	30	
Link Distance (ft)	497			179	126	
Travel Time (s)	13.6			4.1	2.9	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	18	7	742	634	24
Future Vol, veh/h	15	18	7	742	634	24
Conflicting Peds, #/hr	0	0	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	16	19	7	789	674	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1494	690	703	0	-	0
Stage 1	690	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	137	448	895	-	-	-
Stage 1	501	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	135	447	892	-	-	-
Mov Cap-2 Maneuver	135	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	442	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	24.66	0.08	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	892	-	218	-	-
HCM Lane V/C Ratio	0.008	-	0.161	-	-
HCM Ctrl Dly (s/v)	9.1	-	24.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	18	7	725	613	24
Future Volume (vph)	15	18	7	725	613	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Link Speed (mph)	30			30	30	
Link Distance (ft)	331			181	150	
Travel Time (s)	7.5			4.1	3.4	
Confl. Peds. (#/hr)	1	1	3			3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Parking (#/hr)	0	0				
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	18	7	725	613	24
Future Vol, veh/h	15	18	7	725	613	24
Conflicting Peds, #/hr	1	1	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	16	19	7	771	652	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1455	669	681	0	-	0
Stage 1	668	-	-	-	-	-
Stage 2	787	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	145	461	912	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	452	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	143	459	909	-	-	-
Mov Cap-2 Maneuver	283	-	-	-	-	-
Stage 1	508	-	-	-	-	-
Stage 2	451	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	16.15	0.09	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	909	-	358	-	-
HCM Lane V/C Ratio	0.008	-	0.098	-	-
HCM Ctrl Dly (s/v)	9	-	16.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	83	11	0	101	0	0
Future Volume (vph)	83	11	0	101	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	25			25	25	
Link Distance (ft)	150			138	223	
Travel Time (s)	4.1			3.8	6.1	
Confl. Peds. (#/hr)		9	9			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

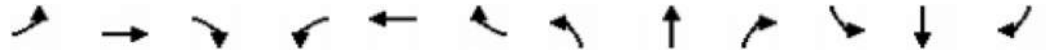
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	83	11	0	101	0	0
Future Vol, veh/h	83	11	0	101	0	0
Conflicting Peds, #/hr	0	9	9	0	0	3
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	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	90	12	0	110	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	111	0	-	108
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-	3.3
Pot Cap-1 Maneuver	-	-	1479	-	0	951
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1466	-	-	940
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1466	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	82	0	0	87	9	3	0	1	6	0	8
Future Volume (vph)	1	82	0	0	87	9	3	0	1	6	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		138			413			215			253	
Travel Time (s)		3.8			11.3			5.9			6.9	
Confl. Peds. (#/hr)	1		7	7		1	6		3	3		6
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 (%)	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	82	0	0	87	9	3	0	1	6	0	8
Future Vol, veh/h	1	82	0	0	87	9	3	0	1	6	0	8
Conflicting Peds, #/hr	1	0	7	7	0	1	6	0	3	3	0	6
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	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	2	2	2	0	0	0	0	0	0
Mvmt Flow	1	85	0	0	90	9	3	0	1	6	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	-	-	-	0	182	187	88	185	182	101
Stage 1	-	-	-	-	-	-	87	87	-	95	95	-
Stage 2	-	-	-	-	-	-	96	100	-	90	87	-
Critical Hdwy	4.1	-	-	-	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	-	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1505	-	0	0	-	-	783	712	976	780	716	959
Stage 1	-	-	0	0	-	-	926	827	-	916	820	-
Stage 2	-	-	0	0	-	-	916	816	-	923	827	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1504	-	-	-	-	-	772	710	974	776	715	953
Mov Cap-2 Maneuver	-	-	-	-	-	-	772	710	-	776	715	-
Stage 1	-	-	-	-	-	-	925	826	-	915	819	-
Stage 2	-	-	-	-	-	-	903	815	-	918	826	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.09	0	9.45	9.22
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	814	22	-	-	-	868
HCM Lane V/C Ratio	0.005	0.001	-	-	-	0.017
HCM Ctrl Dly (s/v)	9.4	7.4	0	-	-	9.2
HCM Lane LOS	A	A	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	-	0.1

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	38	712	28	38	614
Future Volume (vph)	23	38	712	28	38	614
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			179
Travel Time (s)	4.5		3.4			4.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	38	712	28	38	614
Future Vol, veh/h	23	38	712	28	38	614
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	2	2	2
Mvmt Flow	25	41	774	30	41	667

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1539	789	0	0	804	0
Stage 1	789	-	-	-	-	-
Stage 2	750	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	129	394	-	-	820	-
Stage 1	451	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	122	394	-	-	820	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	451	-	-	-	-	-
Stage 2	447	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	18.63	0	0.56
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	330	820	-
HCM Lane V/C Ratio	-	-	0.201	0.05	-
HCM Ctrl Dly (s/v)	-	-	18.6	9.6	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.2	-

Appendix E

Existing Vehicular Count Summaries for Trip Generation Study

Emerson High School Trip Generation Study

TENW Project No. 2024-063

EMERSON HIGH SCHOOL TRIP GENERATION RATES[1]

Weekday Peak Period	Total Trips	% In	% Out	Number of Students[2]	Trip Gen Rate (trips/student) [1]
AM Peak	73	59%	41%	68	1.07
Afternoon Peak	91	38%	62%	68	1.34
PM Peak	26	50%	50%	68	0.38

Notes:

1. Based on two-day average of counts conducted on Tuesday, March 19, 2024 and Thursday, March 21, 2024.
2. Number of students provided by LWSD on 4/11/24.

Emerson High School Trip Generation Study

TENW Project No. 2024-063

2-Day Average Trip Generation

AM PEAK HOUR

	Total Trips - AM Peak Hour								
	Tuesday, March 19, 2024			Thursday, March 21, 2024			**2-Day Average**		
Peak Hour	IN	OUT	TOTAL	IN	OUT	TOTAL	**IN**	**OUT**	**TOTAL**
7:45 - 8:45 am	43	32	75	42	29	71	43	30	73
							59%	41%	

*HS starts at 8:00AM

AFTERNOON PEAK HOUR

	Total Trips - Afternoon Peak Hour								
	Tuesday, March 19, 2024			Thursday, March 21, 2024			**2-Day Average**		
Peak Hour	IN	OUT	TOTAL	IN	OUT	TOTAL	**IN**	**OUT**	**TOTAL**
2:45 - 3:45 PM	32	56	88	38	56	94	35	56	91
							38%	62%	

*HS ends at 2:50 PM

PM PEAK HOUR

	Total Trips - PM Peak Hour								
	Tuesday, March 19, 2024			Thursday, March 21, 2024			**2-Day Average**		
Peak Hour	IN	OUT	TOTAL	IN	OUT	TOTAL	**IN**	**OUT**	**TOTAL**
4:00 - 5:00 PM	1	14	15				13	13	26
5:00 - 6:00 PM				24	13	37			
							50%	50%	

*Evening learning center 3:00 - 5:00 PM, office hours 7:30AM - 4:00 PM

Northstar Middle School & Emerson High School Trip Generation Study

AM Peak Hour

Day: Tuesday, March 19, 2024

Interval	#1 NE 53rd Street/West (Enter Only) Driveway		#2 NE 53rd Street/East (Exit Only) Driveway		SUBTOTAL NE 53rd Street Driveways		#3 108th Ave NE/North (Enter Only) Driveway		#4 108th Ave NE/South (Exit Only) Driveway		SUBTOTAL 108th Driveways		TOTAL CAMPUS				
Begin	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total		
7:00 AM	10	0	0	1	10	1	1	0	0	0	1	0	**11**	**1**	**12**		
7:15 AM	14	1	0	13	14	14	2	0	0	0	2	0	**16**	**14**	**30**		**Hourly**
7:30 AM	39	0	0	28	39	28	4	0	0	0	4	0	**43**	**28**	**71**		**Totals**
7:45 AM	41	0	0	39	41	39	0	0	0	1	0	1	**41**	**40**	**81**	**194**	**7:00 am - 8:00 am**
8:00 AM	13	0	0	16	13	16	1	0	0	0	1	0	**14**	**16**	**30**	**212**	**7:15 am - 8:15 am**
8:15 AM	3	0	1	2	4	2	9	0	0	2	9	2	**13**	**4**	**17**	**199**	**7:30 am - 8:30 am**
8:30 AM	3	0	0	1	3	1	8	0	0	7	8	7	**11**	**8**	**19**	**147**	**7:45 am - 8:45 am**
8:45 AM	2	0	0	3	2	3	0	0	0	0	0	0	**2**	**3**	**5**	**71**	**8:00 am - 9:00 am**
TOTAL	125	1	1	103	126	104	25	0	0	10	25	10	**114**	**98**	**212**	**Peak Hour is 7:15 am - 8:15 am**	
	126		104		230		25		10		35		212				

Emerson K-12				
In	Out	Total		
1	0	**1**		
2	0	**2**		**Hourly**
4	0	**4**		**Totals**
0	1	**1**	**8**	**7:00 am - 8:00 am**
1	0	**1**	**8**	**7:15 am - 8:15 am**
9	2	**11**	**17**	**7:30 am - 8:30 am**
8	7	**15**	**28**	**7:45 am - 8:45 am**
0	0	**0**	**27**	**8:00 am - 9:00 am**
18	**10**	**28**	**Peak Hour is 7:45 am - 8:45 am**	
28				

Emerson High School & Daycare				
In	Out	Total		
0	0	**0**		
6	4	**10**		**Hourly**
7	2	**9**		**Totals**
24	19	**43**	**62**	**7:00 am - 8:00 am**
13	11	**24**	**86**	**7:15 am - 8:15 am**
3	1	**4**	**80**	**7:30 am - 8:30 am**
3	1	**4**	**75**	**7:45 am - 8:45 am**
2	3	**5**	**37**	**8:00 am - 9:00 am**
43	**32**	**75**	**Peak Hour is 7:15 am - 8:15 am**	
75				

Northstar Middle School (7:50AM Start)				
In	Out	Total		
10	1	**11**		
8	10	**18**		**Hourly**
32	26	**58**		**Totals**
17	20	**37**	**124**	**7:00 am - 8:00 am**
0	5	**5**	**118**	**7:15 am - 8:15 am**
1	1	**2**	**102**	**7:30 am - 8:30 am**
0	0	**0**	**44**	**7:45 am - 8:45 am**
0	0	**0**	**7**	**8:00 am - 9:00 am**
67	**57**	**124**	**Peak Hour is 7:00 am - 8:00 am**	
124				

Northstar Middle School & Emerson High School Trip Generation Study

AM Peak Hour

Day: Thursday, March 21, 2024

Interval	#1 NE 53rd Street/West (Enter Only) Driveway		#2 NE 53rd Street/East (Exit Only) Driveway		SUBTOTAL NE 53rd Street Driveways		#3 108th Ave NE/North (Enter Only) Driveway		#4 108th Ave NE/South (Exit Only) Driveway		SUBTOTAL 108th Driveways		TOTAL CAMPUS				
Begin	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total		
7:00 AM	2	0	0	0	2	0	1	0	0	0	1	0	**3**	**0**	**3**		
7:15 AM	10	1	0	3	10	4	4	0	0	0	4	0	**14**	**4**	**18**		**Hourly**
7:30 AM	44	0	0	28	44	28	3	0	0	0	3	0	**47**	**28**	**75**		**Totals**
7:45 AM	38	0	0	41	38	41	0	0	0	1	0	1	**38**	**42**	**80**	**176**	**7:00 am - 8:00 am**
8:00 AM	13	0	0	16	13	16	1	0	0	0	1	0	**14**	**16**	**30**	**203**	**7:15 am - 8:15 am**
8:15 AM	3	0	2	1	5	1	5	0	0	2	5	2	**10**	**3**	**13**	**198**	**7:30 am - 8:30 am**
8:30 AM	6	0	0	4	6	4	6	0	0	7	6	7	**12**	**11**	**23**	**146**	**7:45 am - 8:45 am**
8:45 AM	0	0	0	1	0	1	0	0	0	0	0	0	**0**	**1**	**1**	**67**	**8:00 am - 9:00 am**
TOTAL	116	1	2	94	118	95	20	0	0	10	20	10	**113**	**90**	**203**	**Peak Hour is 7:15 am - 8:15 am**	
	117		96		213		20		10		30		203				

Emerson K-12				
In	Out	Total		
1	0	**1**		
4	0	**4**		**Hourly**
3	0	**3**		**Totals**
0	1	**1**	**9**	**7:00 am - 8:00 am**
1	0	**1**	**9**	**7:15 am - 8:15 am**
5	2	**7**	**12**	**7:30 am - 8:30 am**
6	7	**13**	**22**	**7:45 am - 8:45 am**
0	0	**0**	**21**	**8:00 am - 9:00 am**
12	**10**	**22**	**Peak Hour is 7:45 am - 8:45 am**	
22				

Emerson High School & Daycare				
In	Out	Total		
1	0	**1**		
7	4	**11**		**Hourly**
8	5	**13**		**Totals**
18	12	**30**	**55**	**7:00 am - 8:00 am**
13	12	**25**	**79**	**7:15 am - 8:15 am**
5	1	**6**	**74**	**7:30 am - 8:30 am**
6	4	**10**	**71**	**7:45 am - 8:45 am**
0	1	**1**	**42**	**8:00 am - 9:00 am**
42	**29**	**71**	**Peak Hour is 7:15 am - 8:15 am**	
71				

Northstar Middle School (7:50AM Start)				
In	Out	Total		
1	0	**1**		
3	0	**3**		**Hourly**
36	23	**59**		**Totals**
20	29	**49**	**112**	**7:00 am - 8:00 am**
0	4	**4**	**115**	**7:15 am - 8:15 am**
0	0	**0**	**112**	**7:30 am - 8:30 am**
0	0	**0**	**53**	**7:45 am - 8:45 am**
0	0	**0**	**4**	**8:00 am - 9:00 am**
59	**56**	**115**	**Peak Hour is 7:15 am - 8:15 am**	
115				

Northstar Middle School & Emerson High School Trip Generation Study

AFTERNOON Peak Hour

Day: Tuesday, March 19, 2024

Interval	#1 NE 53rd Street/West (Enter Only) Driveway		#2 NE 53rd Street/East (Exit Only) Driveway		SUBTOTAL NE 53rd Street Driveways		#3 108th Ave NE/North (Enter Only) Driveway		#4 108th Ave NE/South (Exit Only) Driveway		SUBTOTAL 108th Driveways		TOTAL CAMPUS				
Begin	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total		Hourly Totals
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:45 PM	10	0	0	2	10	2	2	0	0	0	2	0	12	2	14		
2:00 PM	15	0	2	5	17	5	5	0	0	1	5	1	22	6	28		
2:15 PM	26	0	0	37	26	37	10	0	0	1	10	1	36	38	74	116	1:30 pm - 2:30 pm
2:30 PM	9	0	0	10	9	10	0	0	0	3	0	3	9	13	22	138	1:45 pm - 2:45 pm
2:45 PM	12	0	0	19	12	19	2	0	0	1	2	1	14	20	34	158	2:00 pm - 3:00 pm
3:00 PM	6	0	0	11	6	11	4	0	0	0	4	0	10	11	21	151	2:15 pm - 3:15 pm
3:15 PM	10	0	0	4	10	4	2	0	0	3	2	3	12	7	19	96	2:30 pm - 3:30 pm
3:30 PM	4	0	0	22	4	22	2	0	0	3	2	3	6	25	31	105	2:45 pm - 3:45 pm
3:45 PM	2	1	1	0	3	1	1	0	0	3	1	3	4	4	8	79	3:00 pm - 4:00 pm
TOTAL	94	1	3	110	97	111	28	0	0	15	28	15	81	77	158		Peak Hour is 2:00 pm - 3:00 pm
	95		113		208		28		15		43		158				

Emerson K-12				
In	Out	Total		Hourly Totals
0	0	0		
2	0	2		
5	1	6		
10	1	11	19	1:30 pm - 2:30 pm
0	3	3	22	1:45 pm - 2:45 pm
2	1	3	23	2:00 pm - 3:00 pm
4	0	4	21	2:15 pm - 3:15 pm
2	3	5	15	2:30 pm - 3:30 pm
2	3	5	17	2:45 pm - 3:45 pm
1	3	4	18	3:00 pm - 4:00 pm
17	6	23		Peak Hour is 2:00 pm - 3:00 pm
23				

Emerson High School & Daycare				
In	Out	Total		Hourly Totals
0	0	0		
0	0	0		
0	0	0		
0	0	0	0	1:30 pm - 2:30 pm
9	10	19	19	1:45 pm - 2:45 pm
12	19	31	50	2:00 pm - 3:00 pm
6	11	17	67	2:15 pm - 3:15 pm
10	4	14	81	2:30 pm - 3:30 pm
4	22	26	88	2:45 pm - 3:45 pm
3	1	4	61	3:00 pm - 4:00 pm
32	56	88		Peak Hour is 2:45 pm - 3:45 pm
88				

Northstar Middle School (2:20PM End)				
In	Out	Total		Hourly Totals
0	0	0		
10	2	12		
17	5	22		
26	37	63	97	1:30 pm - 2:30 pm
0	0	0	97	1:45 pm - 2:45 pm
0	0	0	85	2:00 pm - 3:00 pm
0	0	0	63	2:15 pm - 3:15 pm
0	0	0	0	2:30 pm - 3:30 pm
0	0	0	0	2:45 pm - 3:45 pm
0	0	0	0	3:00 pm - 4:00 pm
53	44	97		Peak Hour is 1:30 pm - 2:30 pm
97				

Northstar Middle School & Emerson High School Trip Generation Study

AFTERNOON Peak Hour

Day: Thursday, March 21, 2024

Interval	#1 NE 53rd Street/West (Enter Only) Driveway		#2 NE 53rd Street/East (Exit Only) Driveway		SUBTOTAL NE 53rd Street Driveways		#3 108th Ave NE/North (Enter Only) Driveway		#4 108th Ave NE/South (Exit Only) Driveway		SUBTOTAL 108th Driveways		TOTAL CAMPUS				
Begin	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total		
1:30 PM	1	0	0	2	1	2	1	0	0	0	1	0	**2**	**2**	**4**		
1:45 PM	6	0	0	1	6	1	2	0	0	0	2	0	**8**	**1**	**9**		**Hourly**
2:00 PM	15	0	0	3	15	3	2	0	0	1	2	1	**17**	**4**	**21**		**Totals**
2:15 PM	25	0	0	38	25	38	2	0	0	1	2	1	**27**	**39**	**66**	**100**	**1:30 pm - 2:30 pm**
2:30 PM	11	0	0	10	11	10	4	0	0	3	4	3	**15**	**13**	**28**	**124**	**1:45 pm - 2:45 pm**
2:45 PM	13	0	1	27	14	27	0	0	0	1	0	1	**14**	**28**	**42**	**157**	**2:00 pm - 3:00 pm**
3:00 PM	7	0	0	9	7	9	1	0	0	0	1	0	**8**	**9**	**17**	**153**	**2:15 pm - 3:15 pm**
3:15 PM	6	0	0	10	6	10	5	0	0	3	5	3	**11**	**13**	**24**	**111**	**2:30 pm - 3:30 pm**
3:30 PM	8	1	0	6	8	7	0	0	0	3	0	3	**8**	**10**	**18**	**101**	**2:45 pm - 3:45 pm**
3:45 PM	0	4	0	1	0	5	2	0	0	3	2	3	**2**	**8**	**10**	**69**	**3:00 pm - 4:00 pm**
TOTAL	92	5	1	107	93	112	19	0	0	15	19	15	**73**	**84**	**157**		**Peak Hour is 2:00 pm - 3:00 pm**
	97		108		205		19		15		34		**157**				

Emerson K-12				
In	Out	Total		
1	0	**1**		
2	0	**2**		**Hourly**
2	1	**3**		**Totals**
2	1	**3**	**9**	**1:30 pm - 2:30 pm**
4	3	**7**	**15**	**1:45 pm - 2:45 pm**
0	1	**1**	**14**	**2:00 pm - 3:00 pm**
1	0	**1**	**12**	**2:15 pm - 3:15 pm**
5	3	**8**	**17**	**2:30 pm - 3:30 pm**
0	3	**3**	**13**	**2:45 pm - 3:45 pm**
2	3	**5**	**17**	**3:00 pm - 4:00 pm**
10	**7**	**17**	**Peak Hour is 2:30 pm - 3:30 pm**	
17				

Emerson High School & Daycare				
In	Out	Total		
1	2	**3**		
0	0	**0**		**Hourly**
0	0	**0**		**Totals**
0	0	**0**	**3**	**1:30 pm - 2:30 pm**
11	10	**21**	**21**	**1:45 pm - 2:45 pm**
14	27	**41**	**62**	**2:00 pm - 3:00 pm**
7	9	**16**	**78**	**2:15 pm - 3:15 pm**
6	10	**16**	**94**	**2:30 pm - 3:30 pm**
8	7	**15**	**88**	**2:45 pm - 3:45 pm**
0	5	**5**	**52**	**3:00 pm - 4:00 pm**
38	**56**	**94**	**Peak Hour is 2:30 pm - 3:30 pm**	
94				

Northstar Middle School (2:20PM End)				
In	Out	Total		
0	0	**0**		
6	1	**7**		**Hourly**
15	3	**18**		**Totals**
25	38	**63**	**88**	**1:30 pm - 2:30 pm**
0	0	**0**	**88**	**1:45 pm - 2:45 pm**
0	0	**0**	**81**	**2:00 pm - 3:00 pm**
0	0	**0**	**63**	**2:15 pm - 3:15 pm**
0	0	**0**	**0**	**2:30 pm - 3:30 pm**
0	0	**0**	**0**	**2:45 pm - 3:45 pm**
0	0	**0**	**0**	**3:00 pm - 4:00 pm**
46	**42**	**88**	**Peak Hour is 1:30 pm - 2:30 pm**	
88				

Northstar Middle School & Emerson High School Trip Generation Study

PM Peak Hour

Day: Tuesday, March 19, 2024

Interval	#1 NE 53rd Street/West (Enter Only) Driveway		#2 NE 53rd Street/East (Exit Only) Driveway		SUBTOTAL NE 53rd Street Driveways		#3 108th Ave NE/North (Enter Only) Driveway		#4 108th Ave NE/South (Exit Only) Driveway		SUBTOTAL 108th Driveways		TOTAL CAMPUS				
Begin	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total		
4:00 PM	0	2	0	8	0	10	2	0	0	0	2	0	**2**	**10**	**12**		
4:15 PM	0	1	0	3	0	4	0	0	0	2	0	2	**0**	**6**	**6**	**Hourly**	
4:30 PM	1	0	0	0	1	0	0	0	0	1	0	1	**1**	**1**	**2**	**Totals**	
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	**0**	**1**	**1**	**21**	**4:00 pm - 5:00 pm**
5:00 PM	2	0	0	1	2	1	0	0	0	0	0	0	**2**	**1**	**3**	**12**	**4:15 pm - 5:15 pm**
5:15 PM	0	0	0	1	0	1	0	0	0	0	0	0	**0**	**1**	**1**	**7**	**4:30 pm - 5:30 pm**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**	**0**	**5**	**4:45 pm - 5:45 pm**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**	**0**	**4**	**5:00 pm - 6:00 pm**
TOTAL	3	3	0	13	3	16	2	0	0	4	2	4	**3**	**18**	**21**	**Peak Hour is 4:00 pm - 5:00 pm**	
	6		13		19		2		4		6		21				

Emerson K-12				
In	Out	Total		
2	0	**2**		
0	2	**2**	**Hourly**	
0	1	**1**	**6**	**4:00 pm - 5:00 pm**
0	0	**0**	**4**	**4:15 pm - 5:15 pm**
0	0	**0**	**2**	**4:30 pm - 5:30 pm**
0	0	**0**	**1**	**4:45 pm - 5:45 pm**
0	0	**0**	**0**	**5:00 pm - 6:00 pm**
2	**4**	**6**	**Peak Hour is 4:00 pm - 5:00 pm**	
6				

Emerson High School & Daycare				
In	Out	Total		
0	10	**10**		
0	4	**4**	**Hourly**	
1	0	**1**	**Totals**	
0	0	**0**	**15**	**4:00 pm - 5:00 pm**
2	1	**3**	**8**	**4:15 pm - 5:15 pm**
0	1	**1**	**5**	**4:30 pm - 5:30 pm**
0	0	**0**	**4**	**4:45 pm - 5:45 pm**
0	0	**0**	**4**	**5:00 pm - 6:00 pm**
1	**14**	**15**	**Peak Hour is 4:00 pm - 5:00 pm**	
15				

Northstar Middle School (2:20PM End)				
In	Out	Total		
0	0	**0**		
0	0	**0**	**Hourly**	
0	0	**0**	**Totals**	
0	0	**0**	**0**	**4:00 pm - 5:00 pm**
0	0	**0**	**0**	**4:15 pm - 5:15 pm**
0	0	**0**	**0**	**4:30 pm - 5:30 pm**
0	0	**0**	**0**	**4:45 pm - 5:45 pm**
0	0	**0**	**0**	**5:00 pm - 6:00 pm**
0	**0**	**0**	**Peak Hour is 4:00 pm - 5:00 pm**	
0				

Northstar Middle School & Emerson High School Trip Generation Study

PM Peak Hour

Day: Thursday, March 21, 2024

Interval	#1 NE 53rd Street/West (Enter Only) Driveway		#2 NE 53rd Street/East (Exit Only) Driveway		SUBTOTAL NE 53rd Street Driveways		#3 108th Ave NE/North (Enter Only) Driveway		#4 108th Ave NE/South (Exit Only) Driveway		SUBTOTAL 108th Driveways		TOTAL CAMPUS				
Begin	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	**In**	**Out**	**Total**		
4:00 PM	0	2	0	2	0	4	0	0	0	0	0	0	**0**	**4**	**4**		
4:15 PM	1	1	0	1	1	2	0	0	0	2	0	2	**1**	**4**	**5**		**Hourly**
4:30 PM	0	0	0	0	0	0	1	0	0	1	1	1	**1**	**1**	**2**		**Totals**
4:45 PM	1	0	0	2	1	2	0	0	0	1	0	1	**1**	**3**	**4**	**15**	**4:00 pm - 5:00 pm**
5:00 PM	1	0	0	1	1	1	0	0	0	0	0	0	**1**	**1**	**2**	**13**	**4:15 pm - 5:15 pm**
5:15 PM	0	0	2	1	2	1	2	0	0	0	2	0	**4**	**1**	**5**	**13**	**4:30 pm - 5:30 pm**
5:30 PM	2	0	0	2	2	2	7	0	0	3	7	3	**9**	**5**	**14**	**25**	**4:45 pm - 5:45 pm**
5:45 PM	5	0	1	0	6	0	4	0	0	6	4	6	**10**	**6**	**16**	**37**	**5:00 pm - 6:00 pm**
TOTAL	10	3	3	9	13	12	14	0	0	13	14	13	**24**	**13**	**37**		**Peak Hour is 5:00 pm - 6:00 pm**
	13		12		25		14		13		27		37				

Emerson K-12				
In	Out	Total		
0	0	**0**		
0	2	**2**		**Hourly**
1	1	**2**		**Totals**
0	1	**1**	**5**	**4:00 pm - 5:00 pm**
0	0	**0**	**5**	**4:15 pm - 5:15 pm**
0	0	**0**	**3**	**4:30 pm - 5:30 pm**
0	0	**0**	**1**	**4:45 pm - 5:45 pm**
0	0	**0**	**0**	**5:00 pm - 6:00 pm**
1	**4**	**5**		**Peak Hour is 4:00 pm - 5:00 pm**
5				

Emerson High School & Daycare				
In	Out	Total		
0	4	**4**		
1	2	**3**		**Hourly**
0	0	**0**		**Totals**
1	2	**3**	**10**	**4:00 pm - 5:00 pm**
1	**1**	**2**	**8**	**4:15 pm - 5:15 pm**
4	1	**5**	**10**	**4:30 pm - 5:30 pm**
9	5	**14**	**24**	**4:45 pm - 5:45 pm**
10	6	**16**	**37**	**5:00 pm - 6:00 pm**
24	**13**	**37**		**Peak Hour is 5:00 pm - 6:00 pm**
37				

Northstar Middle School (2:20PM End)				
In	Out	Total		
0	0	**0**		
0	0	**0**		**Hourly**
0	0	**0**		**Totals**
0	0	**0**	**0**	**4:00 pm - 5:00 pm**
0	0	**0**	**0**	**4:15 pm - 5:15 pm**
0	0	**0**	**0**	**4:30 pm - 5:30 pm**
0	0	**0**	**0**	**4:45 pm - 5:45 pm**
0	0	**0**	**0**	**5:00 pm - 6:00 pm**
0	**0**	**0**		**Peak Hour is 4:00 pm - 5:00 pm**
0				

Appendix F

Trip Generation Estimates

Appendix G

Concurrency Test Notice

CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Tony Leavitt, Senior Planner

From: Thang T Nguyen, Transportation Engineer

Date: May 2, 2025

Subject: Emerson High School Transportation Concurrency Test Notice, TRAN25-00268

The purpose of this memo is to inform you that the proposed Emerson High School expansion has passed transportation concurrency. This memorandum will serve as the transportation concurrency test notice and allows the applicant to proceed with other development permits and the SEPA review. This test notice will expire on August 2, 2025, unless a transportation impact analysis report is submitted, or an extension of this notice is granted prior to 5 PM, August 2, 2025.

Project Description
The development is located in the Bridal Trails Shopping Center on parcel 1625059195 at address 10903 NE 53rd St, Kirkland, WA 98033. Emerson High School maximum enrollment will increase from 178 students to 345 students, an increase of 167 students.

Trip Generation
The proposed expansion will generate approximately 78 person trips.

This memo will serve as the concurrency test notice for the proposed project. Per *Section 25.10.020 Procedures* of the KMC (Kirkland Municipal Code), this Concurrency Test Notice will expire in one year (May 2, 2026) unless a development permit and a certificate of concurrency are issued, or an extension is granted if a transportation impact analysis report is submitted within 90 days of this notice.

EXPIRATION
The concurrency test notice shall expire, and a new concurrency test application is required unless:

1. **A complete SEPA checklist, traffic impact analysis (TIA) and all required documentation are submitted to the City within 90 calendar days of the concurrency test notice (August 2, 2025).**

2. A Certificate of Concurrency is issued, or an extension is requested and granted by the Public Works Department within one year of issuance of the concurrency test notice. (A Certificate of Concurrency is issued at the same time a development

permit or building permit is issued if the applicant holds a valid concurrency test notice.)

3. A Certificate of Concurrency shall expire six years from the date of issuance of the concurrency test notice unless all building permits are issued for buildings approved under the concurrency test notice.

APPEALS

The concurrency test notice may be appealed by the public or agency with jurisdiction. The concurrency test notice is subject to an appeal until the SEPA review process is complete and the appeal deadline has passed. Concurrency appeals are heard before the Hearing Examiner along with any applicable SEPA appeal. For more information, refer to the Kirkland Municipal Code, Title 25. If you have any questions, please call me at x3870.

cc: Energov Tran25-00268

Appendix H

Trip Distribution Calculations

Emerson Campus
Trip Distribution Calculations - Emerson High School Trips

108th Ave NE/NE 53rd Intersection - March 2024 counts

AM Peak (7:45 to 8:45 AM)

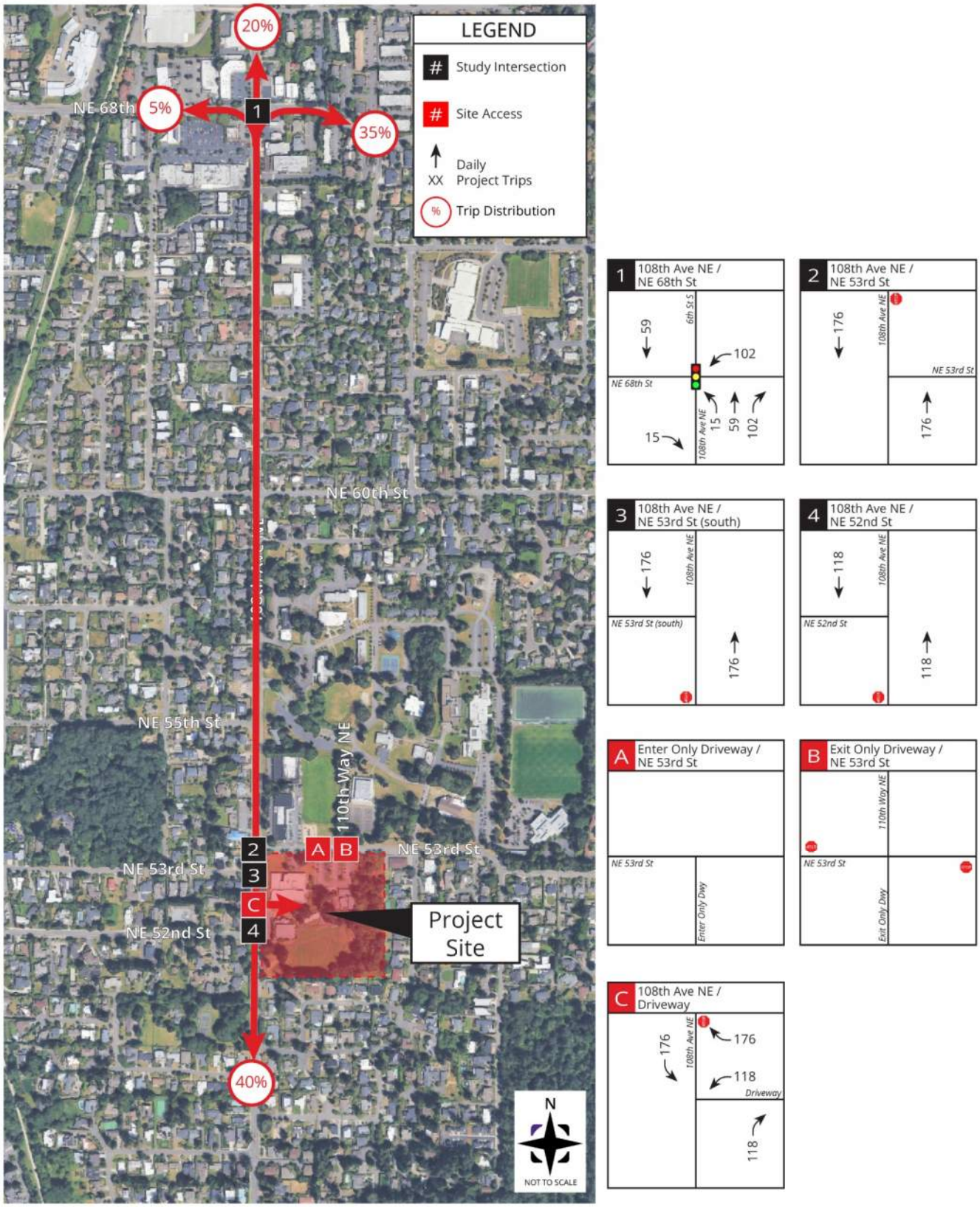
		Volume	% Entering	% Exiting	Average	Rounded for TIA
to/from North	WBR	115	--	56%	58%	60%
	SBL	75	60%	--		
to/from South	WBL	92	--	44%	42%	40%
	NBR	51	40%	--		
Total	entering	126				
	exiting	207				

PM Peak (5 to 6 PM)

		Volume	% Entering	% Exiting	Average	Rounded for TIA
to/from North	WBR	64	--	63%	54%	60%
	SBL	40	44%	--		
to/from South	WBL	37	--	37%	46%	40%
	NBR	50	56%	--		
Total	entering	90				
	exiting	101				

Appendix I

Weekday Daily Trip Distribution



Appendix I: Daily Project Trip Assignment and Distribution

Appendix J

Proportional Share Calculations

Emerson Campus Project
PM and Daily Trip Assignment

	PM Peak Hour Trip Generation		Daily Trip Generation	
New Trips	32 IN	31 OUT	294 IN	294 OUT

Code	Study Int	Intersection	Turning Volumes											
			Eastbound			Westbound			Northbound			Southbound		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
--		*108th Ave NE/NE 53rd St*	minor						major					
		PM Peak Hour Trips =				9		14		5	10	14	5	
		Estimated Daily Trips =				88		132		44	88	132	44	
104	104	*108th Ave NE/NE 68th St*	minor						major					
		PM Peak Hour Trips =			2	11			2	6	11		6	
		Estimated Daily Trips =			15	102			15	59	102		59	

Emerson Campus Project
Estimated Daily distribution based on existing peak hour volumes

Code	Intersection	DAILY Trip Distribution											
		Eastbound			Westbound			Northbound			Southbound		
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
--	*108th Ave NE/NE 53rd St*	minor						major					
					30%		45%		15%	30%	45%	15%	
104	*108th Ave NE/NE 68th St*	minor						major					
				5%	35%			5%	20%	35%		20%	

Proportional Share Impact Worksheet

[1] See "*Intersection Description*" worksheet for descriptions

Input appropriate information in green cells

		Through Lanes[1]	
Project Name:	Emerson Campus Project		
Intersection No.	--		
Major Street[1]	108th Ave NE	# of Lanes*=	1
Minor Street[1]	NE 53rd St	# of Lanes*=	1

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:
6/29/2025

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	154	132	176	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	110	0	220	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	1.85%
$P_2=V_2/(5{,}000 \times f_2)$ =	2.20%
$P_3=V_1/(15{,}000 \times f_3)$ =	1.23%
$P_4=V_2/(2{,}500 \times f_4)$ =	4.40%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	2.02%
$S_2=(P_3+P_4)/2$=	2.82%

Intersection Proportional Share = Maximum of S1 and S2 = 2.82%

Significant Intersection? **yes**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: ALW
Company: TENW

Proportional Share Impact Worksheet

[1] See "*Intersection Description*" worksheet for descriptions

Input appropriate information in green cells

			Through Lanes[1]
Project Name:	Emerson Campus Project		
Intersection No.	104		
Major Street[1]	108th Ave NE	# of Lanes*=	1
Minor Street[1]	NE 68th St	# of Lanes*=	1

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:
6/29/2025

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	117.5	176	59	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	58.5	15	102	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	1.41%
$P_2=V_2/(5{,}000 \times f_2)$ =	1.17%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.94%
$P_4=V_2/(2{,}500 \times f_4)$ =	2.34%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	1.29%
$S_2=(P_3+P_4)/2$=	1.64%

Intersection Proportional Share = Maximum of S1 and S2 = 1.64%

Significant Intersection? **yes**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: ALW
Company: TENW

Appendix K

Alternative Queuing Analysis at 108th Ave NE Driveway

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	84	272	84	132	652
Future Volume (vph)	56	84	272	84	132	652
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			166
Travel Time (s)	4.5		3.4			3.8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	3%	3%	2%	2%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	84	272	84	132	652
Future Vol, veh/h	56	84	272	84	132	652
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	-	-	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	56	84	272	84	132	652

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1230	314	0	0	356	0
Stage 1	314	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	198	731	-	-	1203	-
Stage 1	745	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	176	731	-	-	1203	-
Mov Cap-2 Maneuver	282	-	-	-	-	-
Stage 1	745	-	-	-	-	-
Stage 2	350	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	16.68	0	1.41
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	447	1203	-
HCM Lane V/C Ratio	-	-	0.313	0.11	-
HCM Ctrl Dly (s/v)	-	-	16.7	8.4	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.3	0.4	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	116	396	48	92	392
Future Volume (vph)	76	116	396	48	92	392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		30			30
Link Distance (ft)	166		150			166
Travel Time (s)	4.5		3.4			3.8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	76	116	396	48	92	392
Future Vol, veh/h	76	116	396	48	92	392
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	-	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	2	2	3	3
Mvmt Flow	76	116	396	48	92	392

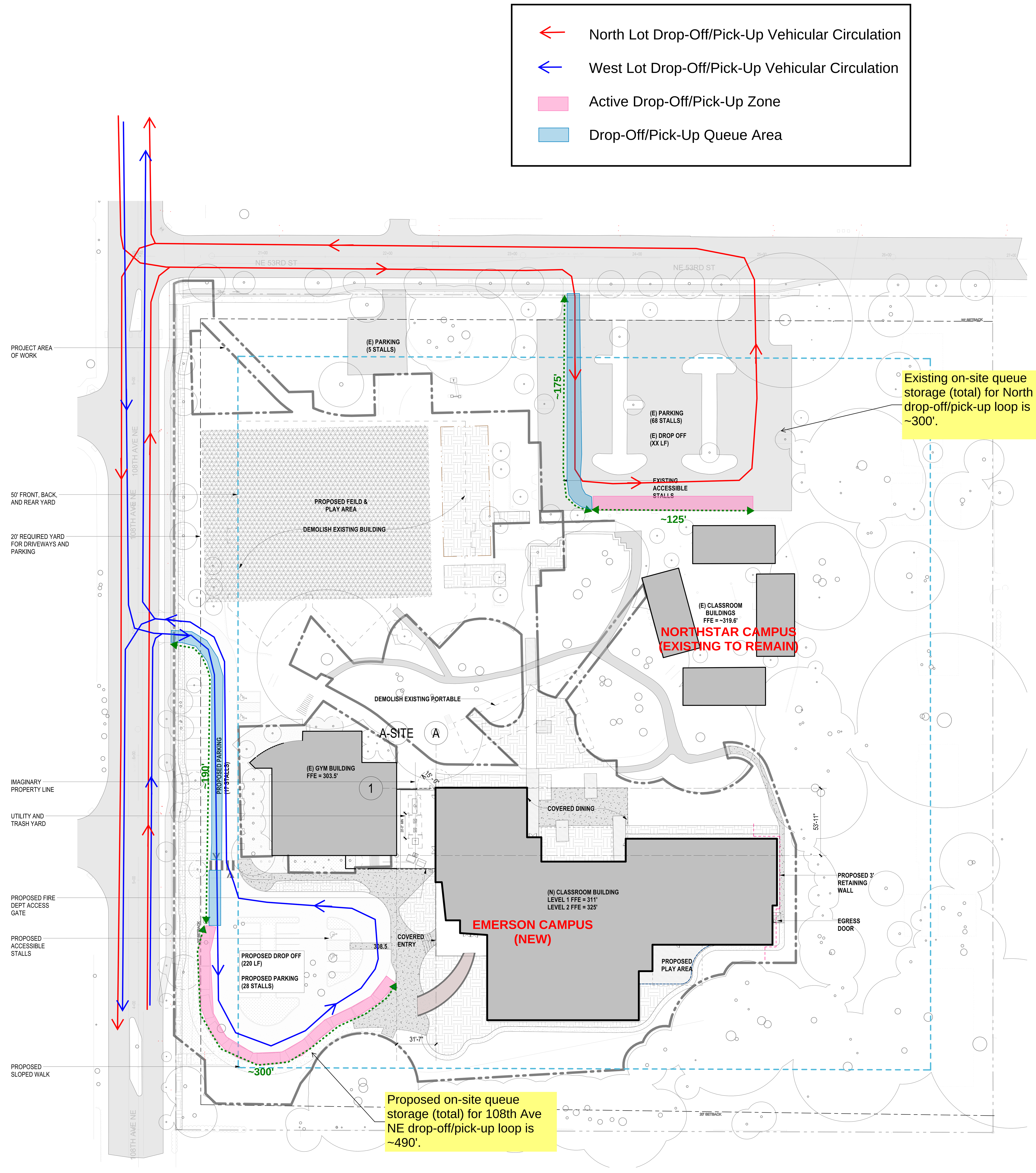
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	996	420	0	0	444	0
Stage 1	420	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.13	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.227	-
Pot Cap-1 Maneuver	273	638	-	-	1111	-
Stage 1	667	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	251	638	-	-	1111	-
Mov Cap-2 Maneuver	378	-	-	-	-	-
Stage 1	667	-	-	-	-	-
Stage 2	519	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	16.57	0	1.62
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	501	1111	-
HCM Lane V/C Ratio	-	-	0.383	0.083	-
HCM Ctrl Dly (s/v)	-	-	16.6	8.5	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.8	0.3	-

Appendix L

On-Site Queue Storage and Calculations



16 ARCHITECTURAL SITE PLAN

1" = 30'-0"

MITHUN

SEATTLE / Pier 56, 1201 Alaskan Way, #200 Seattle, WA 98101 / 206 623 3344

SAN FRANCISCO / 585 Howard Street, #300 San Francisco, CA 94105 / 415 956 0688

LOS ANGELES / 5837 Adams Blvd Culver City, CA 90232 / 323 507 2150

mithun.com

LEASE CRUTCHER LEWIS

PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

JW

SK

TC, AO

EGJ, AG

ARCHITECTURAL SITE PLAN

2422400

05/08/2025

A1.01

30% DESIGN

5/8/2025 1:21:21 PM

Emerson Campus
Weekday AM Peak Hour Queue Estimate
M/M/s Queuing Model

108th Ave NE Loop

Arrival Rate (λ)		Departure Rate (μ)	
189	veh/30min	30.0	sec
0.1050	veh/sec	0.0333	veh/sec

Inputs:

λ =	0.1050
μ =	0.0333
s =	11

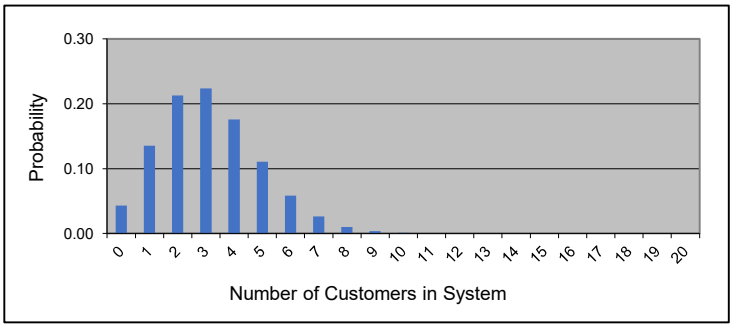
Outputs:

ρ =	0.28636
L =	**3.2 veh**
L_q =	0.0 veh
W =	30.00174
W_q =	0.00174

Probability Calcs: n	P_n	Prob <= n Vehicles	Vehicles (n)
0	0.04290006	4.3%	0
1	0.13513518	17.8%	1
2	0.21283791	39.1%	2
3	0.22347980	61.4%	3
4	0.17599035	79.0%	4
5	0.11087392	90.1%	5
6	0.05820881	**95.9%**	**6**
7	0.02619396	98.6%	7
8	0.01031387	99.6%	8
9	0.00360986	100.0%	9
10	0.00113710	100.1%	10
11	0.00032563	100.1%	11
12	0.00009325	100.1%	12
13	0.00002670	100.1%	13
14	0.00000765	100.1%	14
15	0.00000219	100.1%	15
16	0.00000063	100.1%	16
17	0.00000018	100.1%	17
18	0.00000005	100.1%	18
19	0.00000001	100.1%	19
20	0.00000000	100.1%	20

Legend:

λ =	mean arrival rate
μ =	mean service rate
s =	# of servers
ρ =	traffic intensity
L =	**expected number of customers in system**
L_q =	expected number of customers in the queue
W =	expected waiting time of customer in system
W_q =	expected waiting time of customer in queue
P_0 =	probability of 0 cars in the system
Pn =	probability of n cars in the system



Emerson Campus
Weekday Afternoon Peak Hour Queue Estimate
M/M/s Queuing Model

108th Ave NE Loop

Arrival Rate (λ)		Departure Rate (μ)	
179	veh/30min	75.0	sec
0.0994	veh/sec	0.0133	veh/sec

Inputs:

λ =	0.0994
μ =	0.0133
s =	11

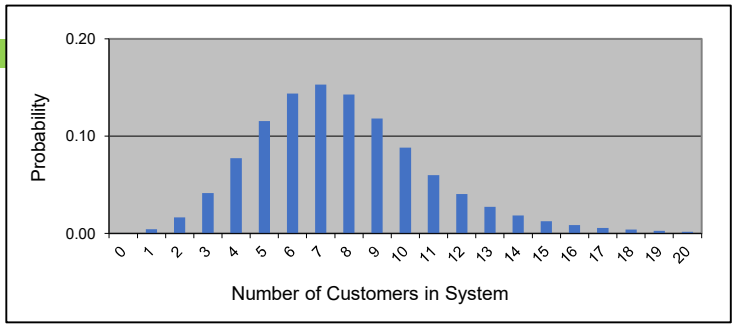
Outputs:

ρ =	0.67803
L =	**7.8 veh**
L_q =	0.4 veh
W =	78.93402
W_q =	3.93402

Probability Calcs: n	P_n	Prob <= n Vehicles	Vehicles (n)
0	0.00060103	0.1%	0
1	0.00448267	0.5%	1
2	0.01671661	2.2%	2
3	0.04155934	6.3%	3
4	0.07749086	14.1%	4
5	0.11559053	25.6%	5
6	0.14368545	40.0%	6
7	0.15309342	55.3%	7
8	0.14272772	69.6%	8
9	0.11827899	81.4%	9
10	0.08821641	90.2%	10
11	0.05981340	**96.2%**	**11**
12	0.04055530	100.3%	12
13	0.02749772	103.0%	13
14	0.01864429	104.9%	14
15	0.01264139	106.2%	15
16	0.00857125	107.0%	16
17	0.00581157	107.6%	17
18	0.00394042	108.0%	18
19	0.00267172	108.3%	19
20	0.00181151	108.4%	20

Legend:

λ =	mean arrival rate
μ =	mean service rate
s =	# of servers
ρ =	traffic intensity
L =	**expected number of customers in system**
L_q =	expected number of customers in the queue
W =	expected waiting time of customer in system
W_q =	expected waiting time of customer in queue
P_0 =	probability of 0 cars in the system
Pn =	probability of n cars in the system



Emerson Campus
Weekday AM Peak Hour Queue Estimate
M/M/s Queuing Model

NE 53rd St Loop

Arrival Rate (λ)		Departure Rate (μ)	
101	veh/30min	30.0	sec
0.0561	veh/sec	0.0333	veh/sec

Inputs:

λ =	0.0561
μ =	0.0333
s =	4

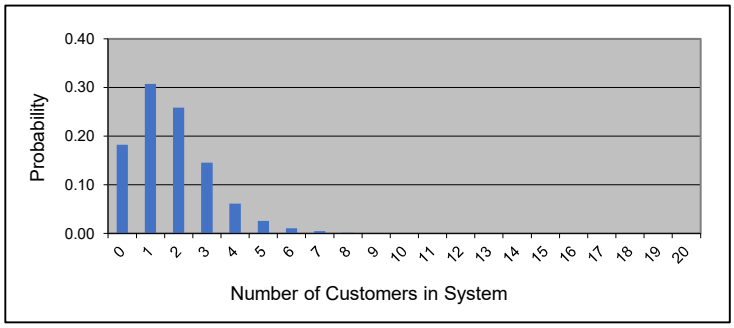
Outputs:

ρ =	0.42083
L =	**1.8 veh**
L_q =	0.1 veh
W =	31.36683
W_q =	1.36683

Probability Calcs: n	P_n	Prob <= n Vehicles	Vehicles (n)
0	0.18272264	18.3%	0
1	0.30758312	49.0%	1
2	0.25888246	74.9%	2
3	0.14526182	89.4%	3
4	0.06113102	**95.6%**	**4**
5	0.02572597	98.1%	5
6	0.01082635	99.2%	6
7	0.00455609	99.7%	7
8	0.00191735	99.9%	8
9	0.00080689	99.9%	9
10	0.00033956	100.0%	10
11	0.00014290	100.0%	11
12	0.00006014	100.0%	12
13	0.00002531	100.0%	13
14	0.00001065	100.0%	14
15	0.00000448	100.0%	15
16	0.00000189	100.0%	16
17	0.00000079	100.0%	17
18	0.00000033	100.0%	18
19	0.00000014	100.0%	19
20	0.00000006	100.0%	20

Legend:

λ =	mean arrival rate
μ =	mean service rate
s =	# of servers
ρ =	traffic intensity
L =	**expected number of customers in system**
L_q =	expected number of customers in the queue
W =	expected waiting time of customer in system
W_q =	expected waiting time of customer in queue
P_0 =	probability of 0 cars in the system
Pn =	probability of n cars in the system



Emerson Campus
Weekday Afternoon Peak Hour Queue Estimate
M/M/s Queuing Model

NE 53rd St Loop

Arrival Rate (λ)		Departure Rate (μ)	
40	veh/30min	75.0	sec
0.0222	veh/sec	0.0133	veh/sec

Inputs:

λ =	0.0222
μ =	0.0133
s =	4

Outputs:

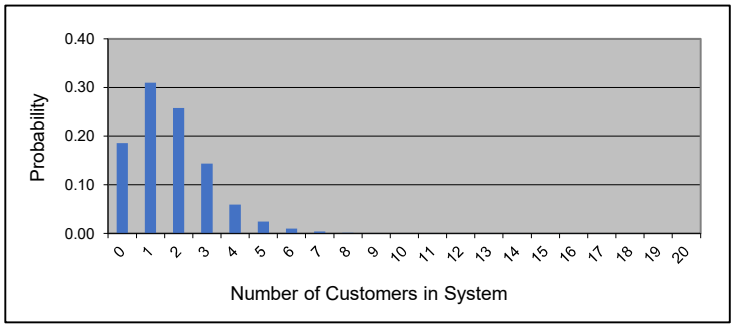
ρ =	0.41667
L =	**1.7 veh**
L_q =	0.1 veh
W =	78.29387
W_q =	3.29387

Probability Calcs:

n	P_n	Prob <= n Vehicles	Vehicles (n)
0	0.18593212	18.6%	0
1	0.30988687	49.6%	1
2	0.25823906	75.4%	2
3	0.14346614	89.8%	3
4	0.05977756	**95.7%**	**4**
5	0.02490732	98.2%	5
6	0.01037805	99.3%	6
7	0.00432419	99.7%	7
8	0.00180174	99.9%	8
9	0.00075073	99.9%	9
10	0.00031280	100.0%	10
11	0.00013033	100.0%	11
12	0.00005431	100.0%	12
13	0.00002263	100.0%	13
14	0.00000943	100.0%	14
15	0.00000393	100.0%	15
16	0.00000164	100.0%	16
17	0.00000068	100.0%	17
18	0.00000028	100.0%	18
19	0.00000012	100.0%	19
20	0.00000005	100.0%	20

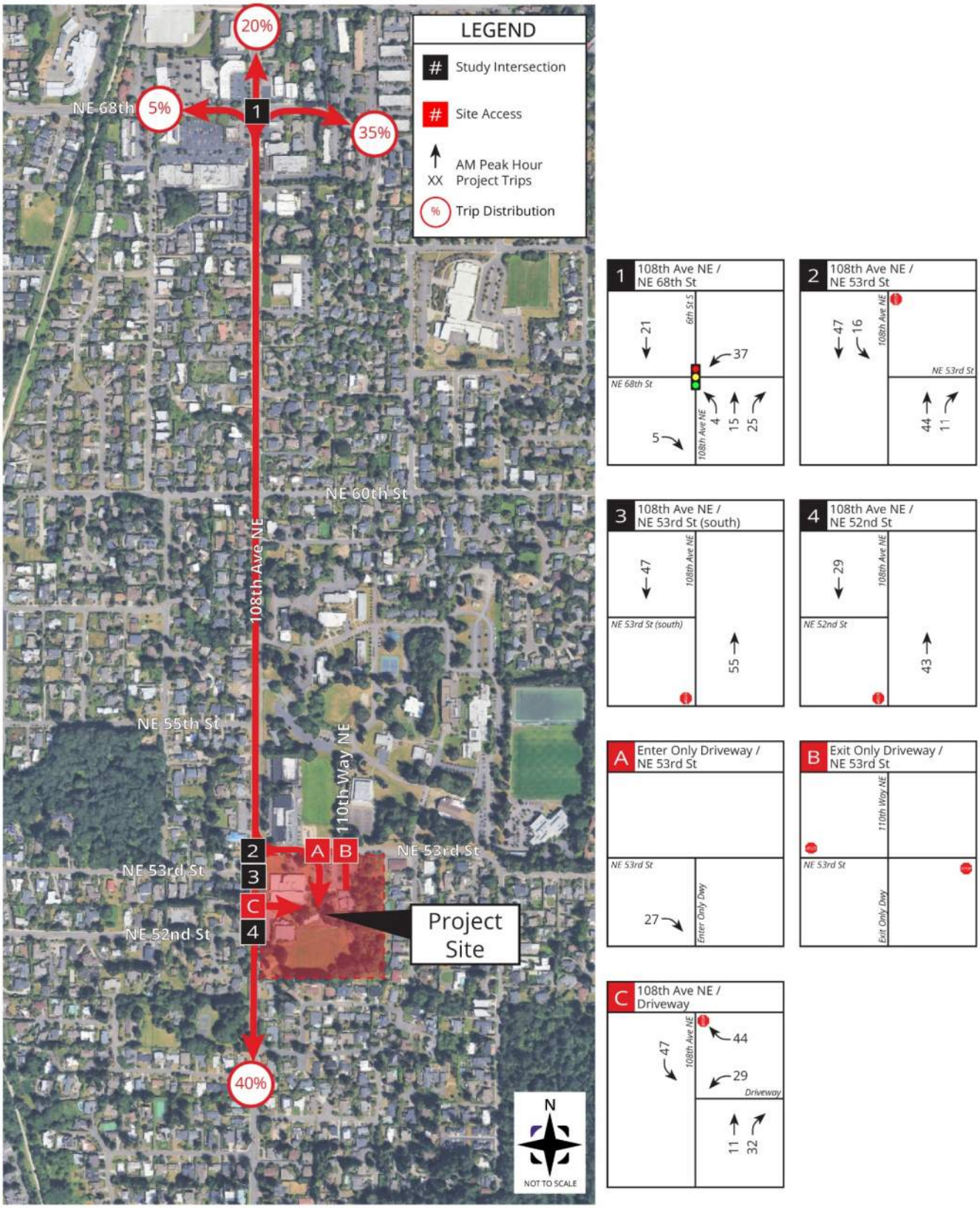
Legend:

λ =	mean arrival rate
μ =	mean service rate
s =	# of servers
ρ =	traffic intensity
L =	**expected number of customers in system**
L_q =	expected number of customers in the queue
W =	expected waiting time of customer in system
W_q =	expected waiting time of customer in queue
P_0 =	probability of 0 cars in the system
Pn =	probability of n cars in the system

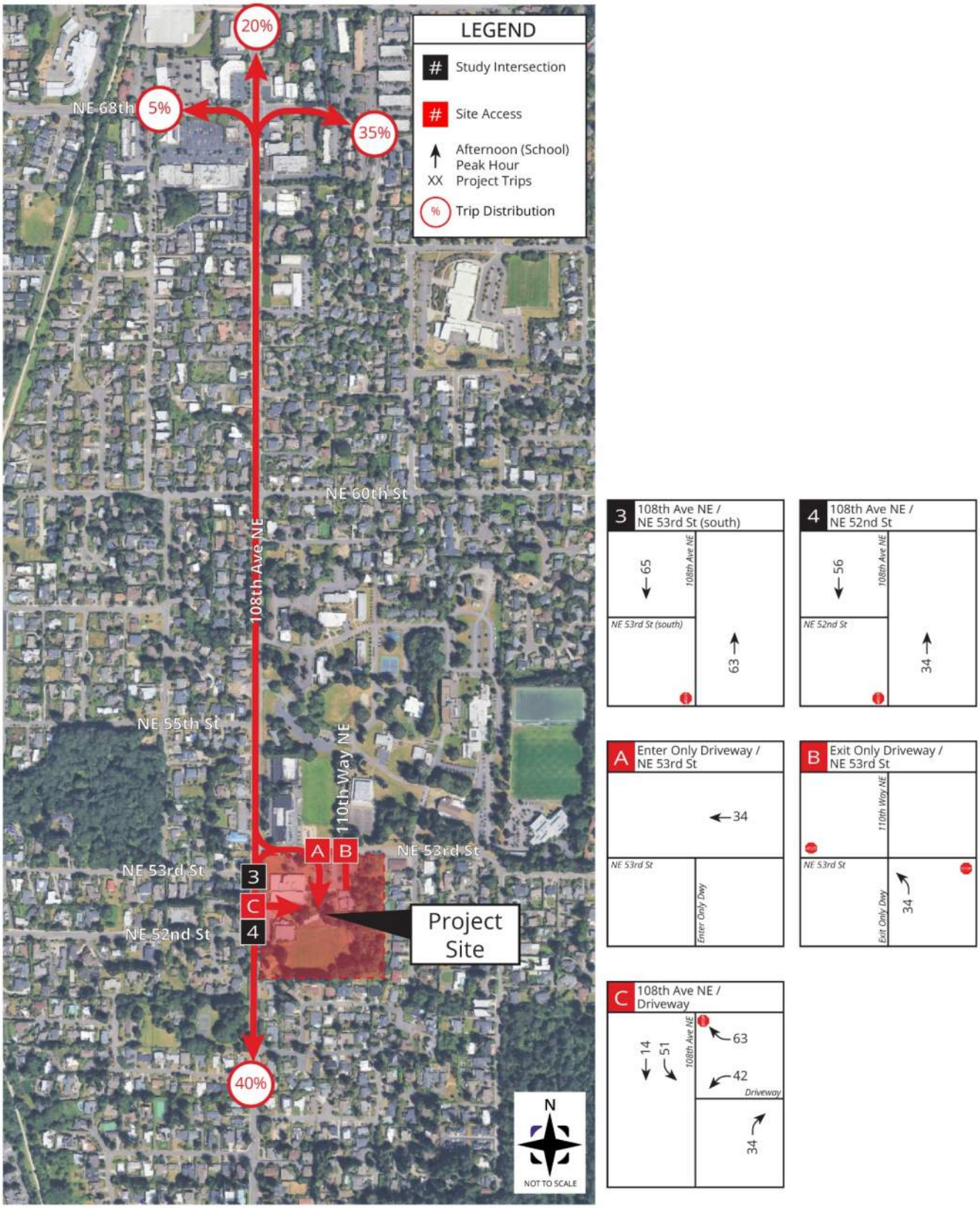


Appendix M

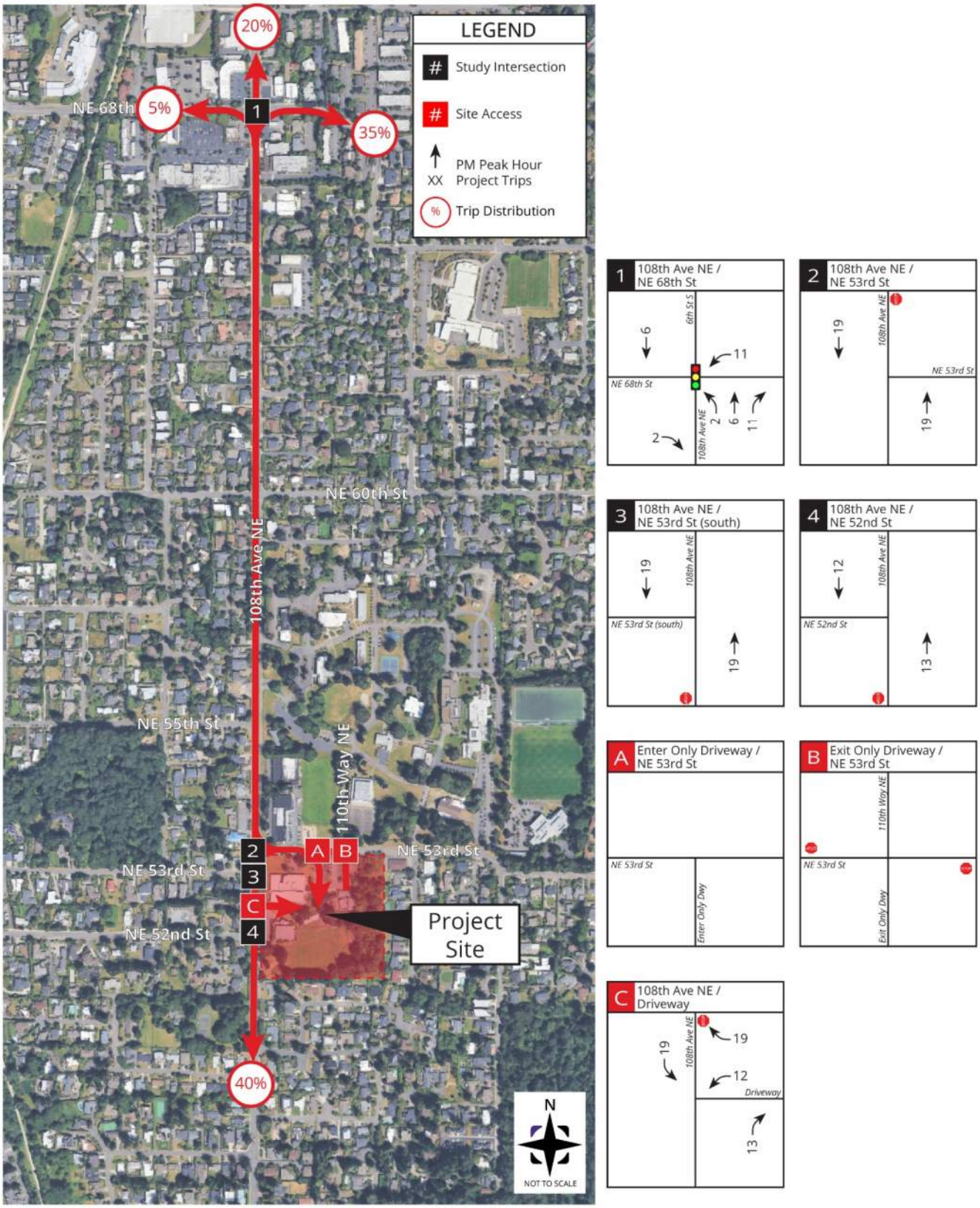
Alternative Trip Assignment Scenario: Volume Figures



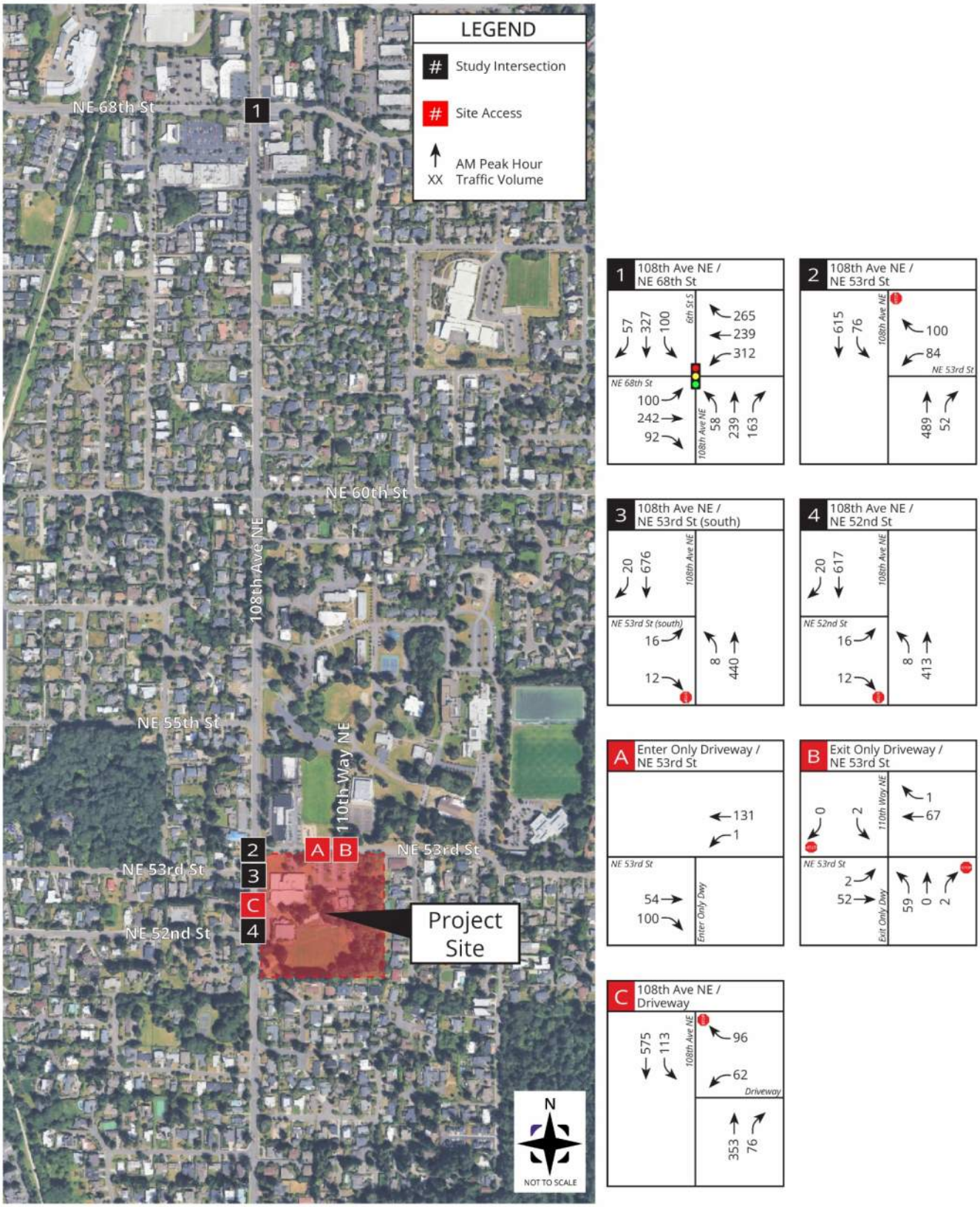
Appendix M1: Weekday AM Peak Hour Project Trip Distribution and Assignment (Alternative Trip Assignment)



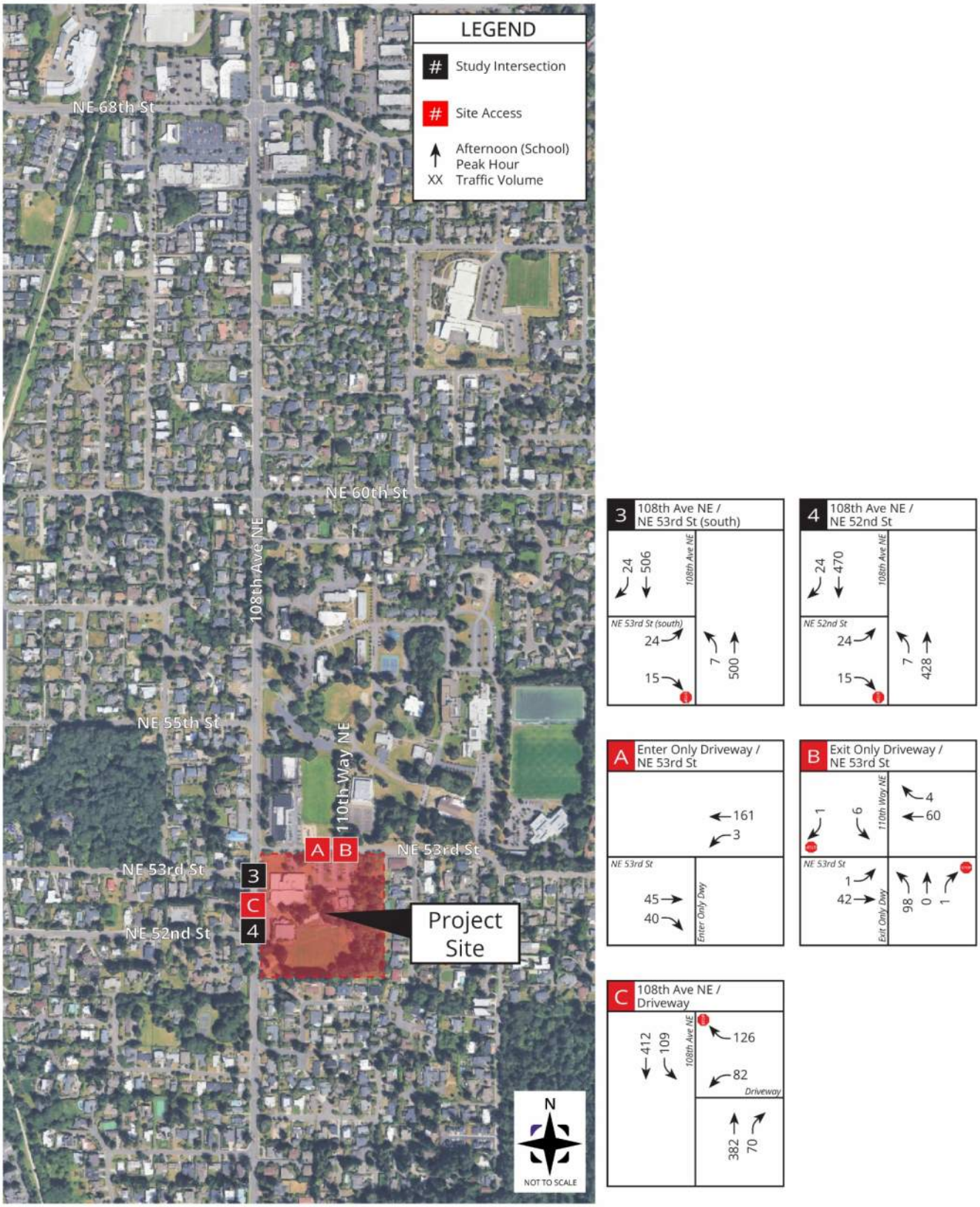
Appendix M2: Weekday Afternoon (School) Peak Hour Project Trip Distribution and Assignment (Alternative Trip Assignment)



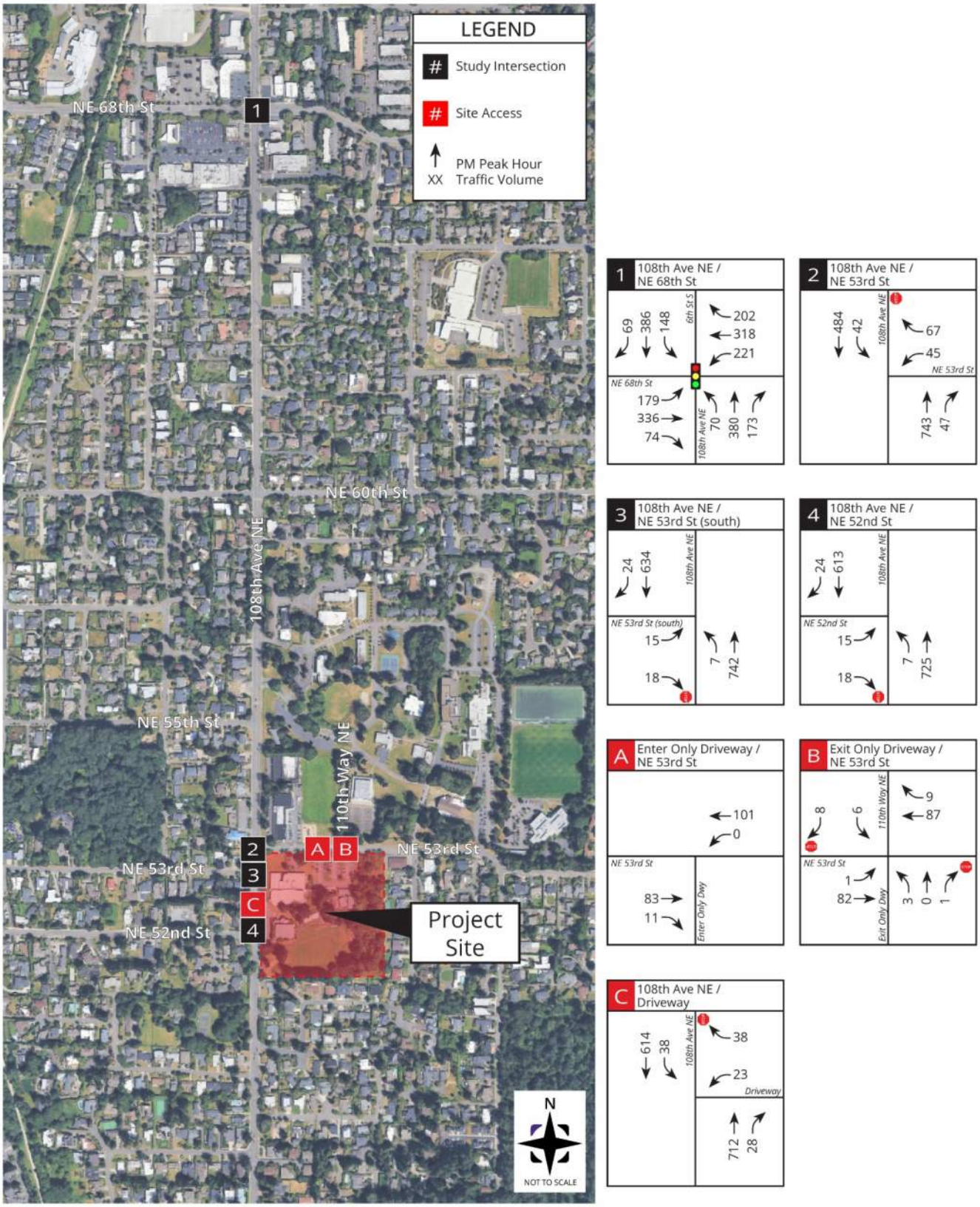
Appendix M3: Weekday PM Peak Hour Project Trip Distribution and Assignment (Alternative Trip Assignment)



Appendix M4: 2027 With Project Weekday AM Peak Hour Traffic Volumes (Alternative Trip Assignment)



Appendix M5: 2027 With Project Weekday Afternoon (School) Peak Hour Traffic Volumes (Alternative Trip Assignment)



Appendix M6: 2027 With Project Weekday PM Peak Hour Traffic Volumes (Alternative Trip Assignment)

CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Tony Leavitt, Senior Planner

From: Thang Nguyen, Transportation Engineer

Date: February 3, 2026

Subject: Emerson Campus Onsite Loading Area Design, ZON25-00491

This memorandum summarizes staff's review of the transportation impact of the proposed Emerson High School Expansion project. The findings and recommendations are based on the review of *Emerson Campus- Updated Traffic Impact Analysis 01-27-2026* report, prepared by TENW.

Staff Findings and Recommendations

Currently, the majority of drop-off and pick-up occur at the general parking lot off NE 53rd Street. The worst queue during drop-off and pick up times occur during the pick-up time between 2:20 PM and 3:00 PM when all schools end and parents are queuing up to pick up their children. With the new larger parking lot and pick-up area off of 108th Avenue NE, it is anticipated that most of the load/unloading for the Emerson High School will occur in the new parking lot. This will lessen the queue impact in the general parking lot off NE 53rd Street and queue spillover onto NE 53rd Street. The proposed project will not create significant queues at the project driveways. Public Works staff recommends approval of the proposed development with the conditions listed in the ***Conditions of Approval*** section of this memorandum.

CONDITIONS OF APPROVAL

Public Works Conditions

Vehicle queues from the new parking lot off 108th Avenue NE shall not block the sidewalk or spill out onto 108th Avenue NE. Vehicle queues during drop-off and pick-up shall not block the crosswalk or impede traffic flow on NE 53rd Street.

Prior to approval of the building permit application, the applicant should prepare a Parking and Circulation Management Plan to address staff parking and circulation during the pick-up and drop-off periods. At a minimum, the management plan shall address educating parents where and how to circulate the campus during drop-off and pick-up, where staff shall park so that staff parking doesn't conflict with vehicle circulation on campus during pick-up and drop off periods, identify staff parking overflow, include procedures and signage to reduce vehicle queues during drop-off and pick-up, and mitigation to address vehicle queues blocking the sidewalks and/or obstructing traffic flow on 108th Avenue NE and NE 53rd Street. The parking and circulation management

plan shall be submitted to City transportation engineer for review and approval prior to the approval of the building permit.

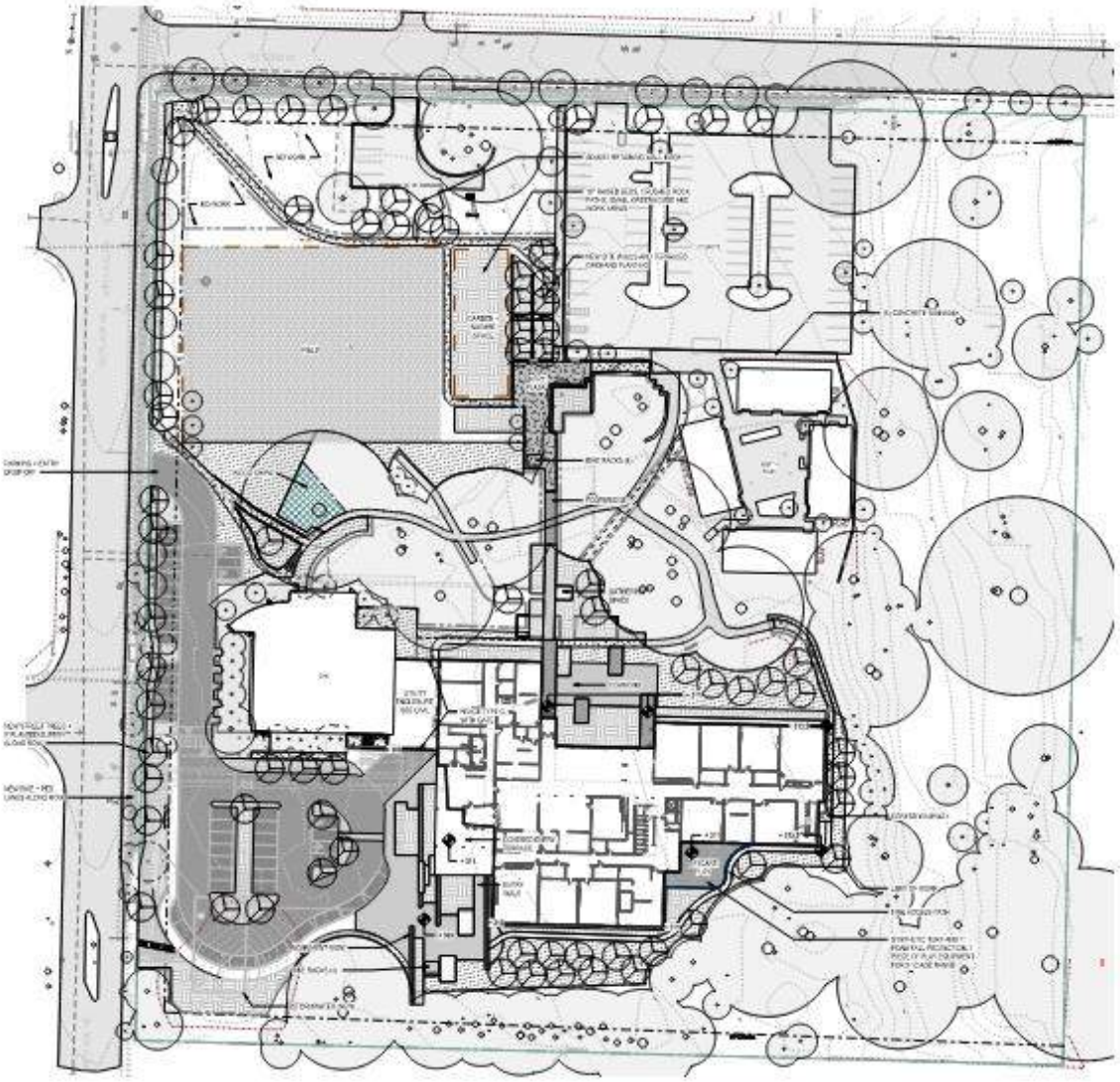
Project Description
The development site is located at 10903 NE 53rd St on parcel 1725059195. The site currently serves Emerson High School (a choice school for students in grades 9 through 12), Northstar Middle School (a choice school for students in grades 6 through 9), Emerson K-12 (a program to support home school students within the Lake Washington School District), and a daycare for staff and students.

The site will include four driveways. The three existing driveways on NE 53rd St are proposed to remain including one full access driveway for service vehicle parking, one exit only and one enter only driveway that provides access to drop off/pick up facilities and parking. The two existing (one-way) driveways on 108th Ave NE will be replaced by a single two-way driveway. Figure 1 shows the project site location.

Figure 1. Project Site Location (source: TENW)

This project will construct a new school building to increase enrollment at Emerson High School to 345 total students (increasing the approved enrollment of 178 students by 167 students). The new building will also accommodate the existing Emerson K-12 program; the approved student enrollment for Northstar Middle School will not increase. The applicant anticipates that the development will be constructed and occupied by the 2027 school year but anticipates that the additional student capacity will not materialize for at least four years. Figure 2 illustrates the preliminary site plan.

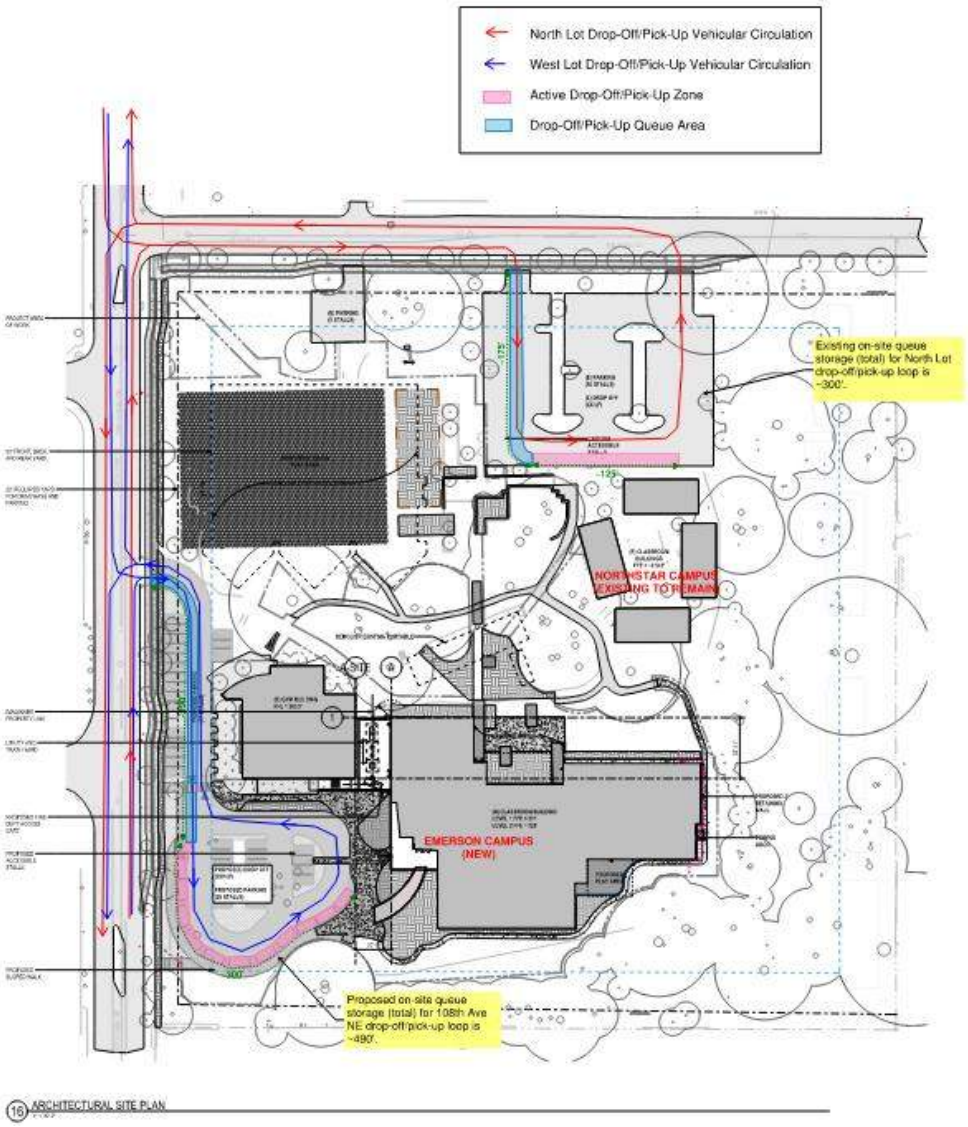
Figure 2. Preliminary Site Plan (source: Kimley-Horn)



Driveway Queue

It is anticipated that the driveway queue on NE 53rd Street that is associated with dropping off and picking up students for the Emerson K-12 program and the Northstar Middle School students will continue as it does today since enrollments for the Emerson K-12 program and the Northstar Middle School will stay the same. It is anticipated that the Emerson High School students will be dropped off and picked up at the larger parking lot off 108th Avenue NE because there will be a larger drop-off area as compared to the existing parking lot. Figure 3 illustrates the drop-off/pick-up circulation around the school.

Figure 3. Drop-off/Pick-up Circulation



A queuing analysis was completed for the future condition based on standard M/M/s queue theory equations. The service rates used were based on observations of the existing condition and the arrival rates were based on the future peak hour traffic volumes at the driveways but compressed to a 30-minute period. Based on the calculation, the 95%-tile queue in the 108th Avenue NE parking lot are 6 and 11 vehicles during the AM drop-off and afternoon pick-up periods, respectively. The new parking lot will have a queue length capacity of 12 vehicles before blocking the sidewalk. In addition, there are 17 parking spaces next to the drop-off area for parents to park and drop off and pick up their children. The 95%-tile queue in the NE 53rd Street parking lot is 3 vehicles during the AM drop-off and afternoon pick-up periods. Furthermore, the queue will not be worse than currently because the school enrollment for the K-12 and Northstar schools will not increase.

Emerson High and Northstar Junior High Schools begin and end at different times and also have staggered time for pick-up and drop-off. If queues at the new parking lot start to block the sidewalk or spill into the street, school officials can direct drivers to park in the 17 parking spaces next to the drop-off area or use the parking lot off NE 53rd Street and vice versa.

The school should prepare a parking and circulation management plan to address staff parking and circulation during the pick-up and drop-off periods. The management plan should address educating parents where and how to circulate the campus during unloading/loading, where staff should park so that staff parking doesn't conflict with vehicle circulation on campus, identify staff parking overflow, procedure and signage to address queues during drop-off and pick-up, and mitigation to address vehicle queues blocking the sidewalks and/or obstructing traffic flow on 108th Avenue NE and NE 53rd Street. The parking and circulation management plan should be submitted to City staff for review and approval prior to the approval of the building occupancy permit.

EMERSON ARBORIST REPORT

Emerson Campus Improvement Project
Date Submitted: June 25, 2025

Submitted to:
Lake Washington School District No 414
Attn: Carly Parkins & Mithun's Christian Runge, PLA
Support Services Center
15212 NE 95th Street
Redmond, WA 98052

Prepared by:
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LAND MEETS WATER

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SUMMARY

This report presents the results of tree health evaluations and site observations conducted by Land Meets Water (LMW) at the Emerson School Campus in Kirkland, WA, in support of upcoming campus improvements. The work was completed in accordance with Kirkland Zoning Code Chapter 95 and ISA ANSI A300 standards. The assessment included a tree inventory, condition ratings, grove designations, and initial retention recommendations. A total of 331 trees were evaluated, with 204 found in groves and many rated in good or excellent condition. The site contains a healthy mix of native species, including notable landmark Pacific Madrone trees.

Since the initial evaluation in August 2024, the design has been finalized and it has been determined that 47 regulated trees will be removed, including 8 landmark-class trees. These removals are primarily due to site constraints and the abundance of mature trees. However, many of the removed trees include declining Honey Locusts along the street, offering an opportunity to improve the health and selection of future ROW plantings. In accordance with Kirkland

Image 1 - *An aerial view of the site and evaluation area outline. For more information, refer to the tree retention plan and Table 2—Tree Inventory.*

requirements, each landmark tree removed will be replaced with three new trees selected from the Landmark Tree Species Mitigation List. Removed street trees will also be replaced in compliance with the City's Street Tree Policy and Approved Street Tree List. The remaining trees provide a total of 1,119 density credits, greatly exceeding the required 98. The report recommends annual monitoring of the retained trees for a period of 10 years to proactively manage risk and ensure their health during and after construction.

ASSIGNMENT

The assignment is to assist Lake Washington School District with tree health evaluations at Emerson School Campus at 10903 NE 53rd, Kirkland, WA 98033 (parcel 1725059195), for building improvements to the campus. This assignment includes initial compliance documents to inform the design and assist with tree retention. The compliance documents include an arborist report and initial tree retention plans as part of the construction set presented by Mithun. The project complies with Kirkland Zoning Code Chapter 95 and ISA ANSI 300.

OBSERVATIONS

On August 28 & 29 of 2024, Land Meets Water (LMW) conducted a health evaluation of all the trees on the project site and in close proximity. The health evaluation involved tree identification, determination of targets, review of site conditions, visual and probing inspection of the tree, assessment of expected loads, evaluation of general health, root obstruction, clearance pruning, and documentation of site conditions. The trees were rated based on Table 2 - KZC 95.30.1 Tree Condition Ratings and summarized in Table 2—Tree Inventory.

EXISTING SITE CONDITIONS

The site is a school campus with parking lots, buildings, and playing fields. It is 439,084 square feet and is fringed to the south and east by a native wooded area.

The site is generally flat topographically, with a small berming occurring to the east.

Surface observation of the soils while walking the site showed light compaction around the parking lot and buildings, and the soils became loose with a duff layer in the native wooded areas.

TREE INFORMATION

Tree Health & Retention

LMW evaluated three hundred and thirty-one trees. Sixty-four trees are landmarks, ten are too small to regulate, and nine are prohibited. The remaining two hundred and forty-eight trees are above 6" DBH and below 26" DBH. Forty-two are in excellent viability, Two-hundred and thirty-seven are good, twenty-nine are fair, and twenty are poor. Two hundred and four trees are found in groves and have a high retention value. Eight of the trees require clearance pruning along the walkways or roadways.

Tree Diversity

As mentioned earlier, the majority of the trees are self-seeded natives, with a few non-native planted trees sprinkled throughout the property. The vast majority of the trees are Douglas Firs (89), Bigleaf Maple (44), and Pacific Madrone (29). The native trees also include eleven Western Red Cedars. The most non-native tree species is the Honey Locust, which serves predominantly as street trees in the right-of-way (ROW).

photo credit - iNaturalist

DISCUSSION

The campus is home to several healthy landmark trees, including the unusual landmark Pacific Madrone. These majestic trees not only enhance the campus landscape but also offer invaluable ecosystem services and educational value. Highlighting the southeastern campus area with its thriving and diverse forest presents a compelling opportunity to preserve the exceptional habitat of the grand Pacific Madrone.

Since the initial report in September 2024, the design has been finalized and 47 regulated trees will need to be removed. This includes 8 trees in the landmark class, and several declining Honey Locust street trees. LMW worked closely with the architects and landscape architects to minimize removals where possible and protect remaining groves. The removal of declining street trees creates an opportunity to replant with more suitable, long-lived tree species better adapted to the site.

RECOMMENDATIONS

Construction near trees requires careful adherence to construction specifications. Excavators that damage roots may cause further harm closer to the trunk, destabilizing trees in hidden locations. Therefore, strict compliance with tree protection specifications is crucial for the project's success. Included are KZC 95.32 Tree & Soil Protection During Development and CK-R.49 Tree Protection Detail.

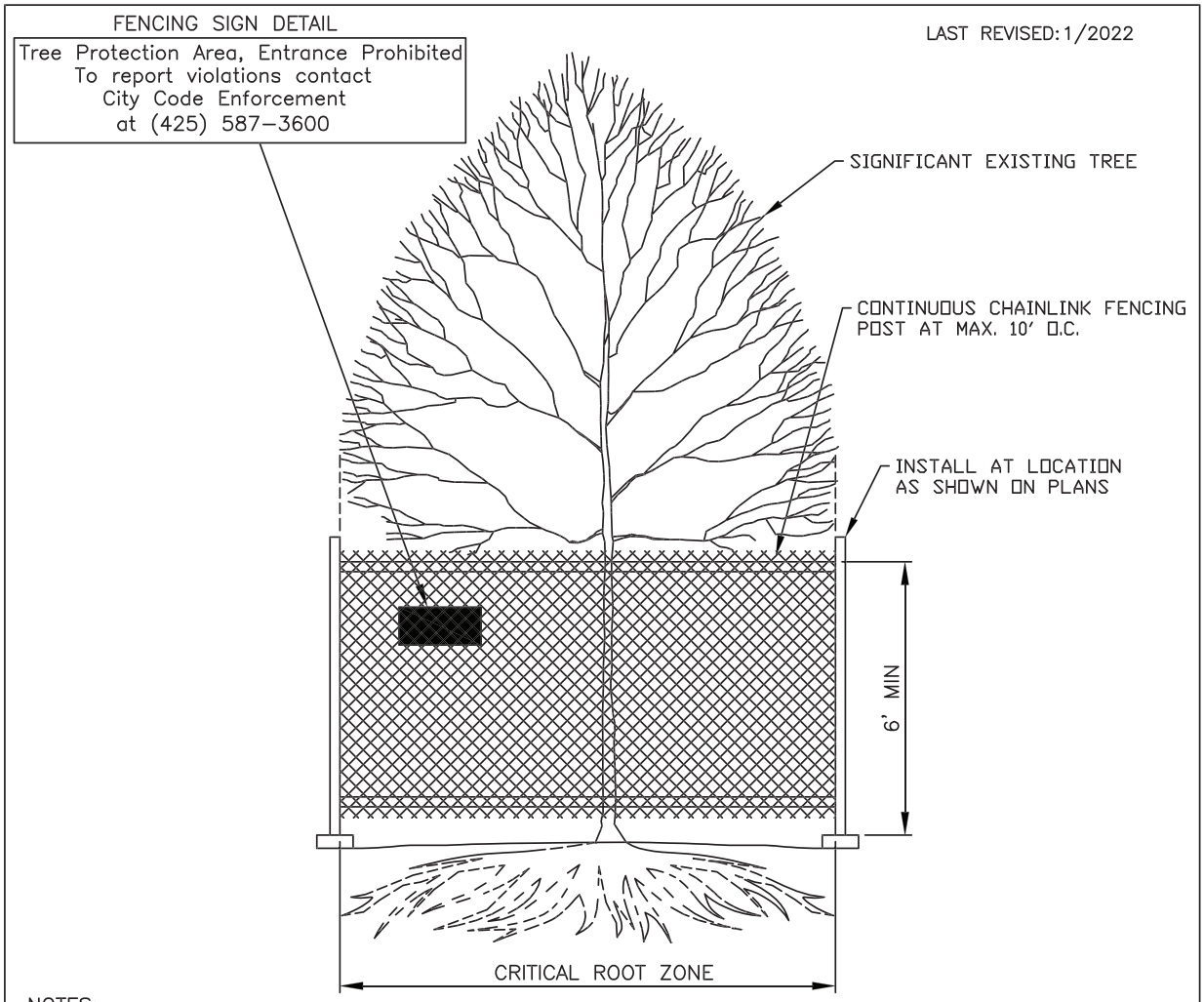
The remaining trees on site provide a total tree density credit of 1,119, significantly exceeding the required 98 density credits. To protect these assets, annual monitoring for 10 years is recommended to manage risk, guide pruning, and adjust care practices as the site develops and matures. In accordance with Kirkland regulations, each removed landmark tree will be mitigated with three replacement trees from the Landmark Tree Species Mitigation List. Additionally, all removed street trees will be replaced following the City's Street Tree Policy and Approved Street Tree List.

Image 2 - *View looking east toward the declining Honey Locust street tree.*

KZC 95.32 TREE & SOIL PROTECTION DURING DEVELOPMENT

1. Placing Materials Near Trees. No person may conduct any activity within the TPZ of any tree designated to remain, including, but not limited to, operating or parking equipment, placing solvents, storing building material or stockpiling any materials, or dumping concrete washout or other chemicals. During construction, no person shall attach any object to any tree designated for protection.
2. Tree Protection Fence. Before development, land clearing, filling, or any land surface modifications, the applicant shall:
3. Erect and maintain readily visible temporary protective tree fencing at the approved TPZ which completely surrounds the protected area of all retained trees, groups of trees, vegetation, and native soil. Fences shall be constructed of chain link and be at least six feet high unless another type of fencing is authorized by the Planning Official.
4. Install highly visible signs spaced no further than 15 feet along the entirety of the tree protection fence. Said signage must be approved by the Planning Official and shall state at a minimum “Tree and Soil Protection Area, Entrance Prohibited” and provide the City phone number for Code Enforcement to report violations.
5. Site plans showing approved tree retention/protection shall be displayed on development sites in plain view with the general contractor or other responsible party’s phone number.
6. Prohibit excavation or compaction of soil or other potentially damaging activities within the fence; provided, that the Planning Official may allow such activities approved by a qualified professional arborist and under the supervision of a qualified professional arborist retained and paid for by the applicant.
7. If any disturbance is proposed within the inner critical root zone of one or more regulated trees on a neighboring property, the applicant shall provide evidence that the owner of said tree(s) has been notified in writing of the potential impact. The Planning Official may waive this requirement if the applicant’s qualified professional arborist can demonstrate, through non-injurious methods such as pneumatic root excavations, that there are no roots within the inner critical root zone.
8. Maintain the tree protection fence in its approved location for the duration of the project until the Planning Official authorizes its removal.
9. Ensure that any approved landscaping done in the protected zone subsequent to the removal of the barriers shall be accomplished with machinery from outside the protected zone or by hand.
10. If equipment is authorized to operate within the CRZ, the soil and CRZ of a tree must be covered with mulch to a depth of at least six inches or with plywood, steel plates or similar material in order to protect roots and soil from damage caused by heavy equipment.
11. Minimize root damage by hand-excavating a two-foot-deep trench, at the edge of the CRZ, to cleanly sever the roots of trees to be retained. Never rip or shred roots with heavy equipment.
12. Corrective pruning performed on protected trees in order to avoid damage from machinery or building activity.
13. Maintenance of trees throughout construction period by watering and fertilizing.
14. The grade shall not be elevated or reduced within the CRZ of trees to be preserved without the Planning Official’s authorization based on recommendations from a qualified professional arborist in compliance with ANSI A300 Part 5 Standard Practices for the Management of Trees and Shrubs During Site Planning, Site Development and Construction.
15. If the grade adjacent to a preserved tree is raised such that it could slough or erode into the tree’s CRZ, it shall be permanently stabilized to prevent soil erosion and suffocation of the roots.
16. The applicant shall not install an impervious surface within the CRZ of any tree to be retained without the authorization of the Planning Official. The Planning Official may require specific construction methods and/or use of aeration devices to ensure the tree’s survival and to minimize the potential for root-induced damage to the impervious surface.
17. To the greatest extent practical, utility trenches shall be located outside of the CRZ of trees to be retained. The Planning Official may require that utilities be tunneled under the roots of trees to be retained if the Planning Official determines that trenching would significantly reduce the chances of the tree’s survival.
18. Trees and other vegetation to be retained shall be protected from erosion and sedimentation. Clearing operations shall be conducted so as to expose the smallest practical area of soil to erosion for the least possible time. To control erosion, it is encouraged that shrubs, ground cover and stumps be maintained on the individual lots, where feasible.

TREE PROTECTION PLAN NO CK-R.49



NOTES:

1. MINIMUM SIX (6) FOOT HIGH TEMPORARY, CONTINUOUS CHAIN LINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED, FENCE SHALL COMPLETELY ENCIRCLE SIGNIFICANT EXISTING TREE(S). INSTALL CONTINUOUS CHAIN LINK FENCING POST(S) USING PIER BLOCK ONLY AT MAXIMUM 10 (TEN) FEET O.C. AVOID POST OR STAKES INTO MAJOR ROOTS, MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.

2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION; FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORT OF ROOT, ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING AND COVERED WITH SOIL AS SOON AS POSSIBLE.

3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING, FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON–SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.

4. A PRINTED TREE PROTECTION AREA SIGN NOTING (TREE PROTECTION AREA – ENTRANCE PROHIBITED. TO REPORT VIOLATIONS, CONTACT CITY CODE ENFORCEMENT AT 425–587–3600.", MUST BE POSTED ALONG THE FENCE EVERY FIFTEEN (15) FEET. PRINT AND LAMINATE THE SIGN (AVAILABLE ONLINE) AND POST ON SITE.

CITY OF KIRKLAND	
PLAN NO. CK–R.49	
CITY OF KIRKLAND WASHINGTON	TREE PROTECTION

APPLICABLE DEFINITIONS
Kirkland Zoning Code Chapter 95

Critical Root Zone (CRZ) –The area encircling the trunk of a tree equal to one foot radius for every inch of DBH. Example: a 24-inch DBH tree has a 24-foot radius CRZ measured from the face of the trunk.

Diameter at Breast Height (DBH) – The diameter or thickness of a tree trunk measured at 4.5 feet above average grade. For trees with multiple trunks at 4.5 feet height, only trunks three inches DBH or greater shall be included. Where a tree splits into several trunks close to ground level, the DBH for the tree is the square root of the sum of the DBH for each individual stem squared (example with three trunks: DBH = square root [(stem1)2 + (stem2)2 + (stem3)2]). If a tree has been removed and only the stump remains that is below 4.5 feet tall, the size of the tree shall be the diameter of the top of the stump.

Impact – A condition or activity that adversely affects any part of a tree, including, but not limited to, the trunk, branches, or CRZ.

Inner Critical Root Zone (Inner CRZ) – An area half the distance of the CRZ that, when impacted, may compromise the structural integrity of the tree. Example: a 24-inch DBH tree has a 12-foot radius inner critical root zone measured from the face of the trunk.

Site Disturbance – Any development, construction, or related operation that could alter the subject property, including, but not limited to, soil compaction; tree or tree stump removal; road, driveway, or building construction; installation of utilities; or grading.

Tree Protection Zone (TPZ) – A defined area within and including an outer boundary, as determined by a qualified professional arborist, in which certain activities are prohibited or restricted to prevent or minimize potential impacts from construction or development, applicable to individual trees or groups of tree trunks, roots and soil. TPZ is measured in feet from the face of the trunk and may be determined using critical root zone, dripline, exploratory root excavations or other methodologies. The TPZ is variable depending on species, age and health of the tree, soil conditions and proposed construction. TPZ denotes the location of tree protection fencing.

Tree Removal – The removal of a tree, through either direct or indirect actions, including but not limited to: (1) clearing, damaging, girdling, or poisoning, in each case, resulting in an unhealthy or dead tree; (2) topping that results in the removal of more than 25 percent of the live crown; or (3) damage to roots or trunk that is likely to destroy the tree's structural integrity.

Trees – A tree or a group of trees may fall under one of the following definitions for purposes of this chapter:

Grove – A group of three or more viable regulated trees with overlapping or touching crowns that are located on a proposed development site; one of which is located in a required yard.

Hazard Tree – A tree/tree part assessed by a qualified professional arborist as having an extreme or high overall risk rating using the ISA Tree Risk Assessment Qualification (TRAQ) method in its most current form, as applied in KZC 95.25, that meets all the following criteria:

1) A tree with a combination of structural defects and/or disease which makes it subject to a high probability of failure;

2) Is in proximity to moderate to high-frequency occupied targets, persons or property that can be damaged by tree failure; and

3) The hazard condition of the tree cannot be lessened with reasonable and proper arboricultural practices nor can the target be removed.

Landmark Tree – A regulated tree with a minimum 26-inch DBH

Regulated Tree – A tree that is at least six inches DBH that is not listed on the Prohibited Plant List.

Retention Value – The Planning Official's designation of a tree based on information provided by a qualified professional arborist that is one of the following:

1) High – any of the following trees:

a) Grove.

b) Landmark tree.

c) A viable tree with any portion of the trunk located in a required yard, land use buffer, and/or common open space.

2) Moderate – A viable tree that is not a high retention value tree.

Viable Tree – A regulated tree on proposed development sites that fits the viable criteria in Table 95.30.2 based on the tree condition ratings pursuant to KZC 95.30. A tree that is not viable is also a tree in an area where removal is unavoidable due to the anticipated development activity after having applied the provisions in this chapter.

Wildlife Snag – The remaining trunk of a tree that is intentionally reduced in height and usually stripped of its branches with the intent of providing habitat.

Windfirm – A condition of a tree in which it withstands average peak local wind speeds and gusts.

TABLE 1 - KZC 95.30.1 TREE CONDITION RATINGS

Condition Rating	**Tree Health** *Twig and leaf density, size and growth, pest/ pathogen issues*	**Tree Structure** *Root flare, trunk condition, branch assembly*
Excellent	High or above average vigor with little or no twig dieback, discoloration or defoliation.	Trunk and root flare exhibit no visible defects or cavities. Branch structure and attachments are normal for species and free of defects.
Good	Vigor is normal for species. No significant damage due to diseases or pests. Any twig dieback, defoliation or discoloration is minor (up to 10% of the crown).	Well-developed structure. Defects are minor and can be corrected. Codominant stem formation may be present. Trees in groves may have asymmetries/deviations from an open-grown form of the same species.
Fair	Reduced vigor. Twig dieback, defoliation, discoloration, and/or dead branches up to 30% of the crown. Obvious signs of pest problems contribute to a lesser condition but is not likely to be fatal.	Visible evidence of trunk damage or cavities, large girdling roots or branch attachments that require moderate corrections.
Poor	Poor vigor, unhealthy and declining. Low foliage density with extensive (more than 50%) twig and/or branch dieback. Smaller-than-normal leaf size and little evidence of new growth.	Structural problems cannot be corrected, such as recent change in tree orientation, extensive trunk decay or poor branch attachments. Tree/tree part failure may occur at any time.

TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
1	*Gleditsia triacanthos*	Honey Locust	12	Regulated		Good	Moderate	ROW	Retain			Yes	24	
2	*Gleditsia triacanthos*	Honey Locust	8	Regulated		Fair	Moderate	ROW	Retain				16	Dead canopy over roadway
3	*Gleditsia triacanthos*	Honey Locust	9	Regulated		Fair	Moderate	ROW	Retain				18	25% live canopy
4	*Gleditsia triacanthos*	Honey Locust	7	Regulated		Fair	Moderate	ROW	Retain				14	
5	*Gleditsia triacanthos*	Honey Locust	7	Regulated		Fair	Moderate	ROW	Retain			Yes	14	
6	*Gleditsia triacanthos*	Honey Locust	8	Regulated		Fair	Moderate	ROW	Remove				16	
7	*Gleditsia triacanthos*	Honey Locust	12	Regulated		Fair	Moderate	ROW	Remove				24	
8	*Gleditsia triacanthos*	Honey Locust	8	Regulated		Good	Moderate	ROW	Remove				16	
9	*Gleditsia triacanthos*	Honey Locust	11	Regulated		Fair	Moderate	ROW	Remove				22	
10	*Gleditsia triacanthos*	Honey Locust	13	Regulated		Poor	Moderate	ROW	Remove				26	10% live canopy
11	*Gleditsia triacanthos*	Honey Locust	12	Regulated		Good	Moderate	ROW	Remove				24	
12	*Gleditsia triacanthos*	Honey Locust	13	Regulated		Fair	Moderate	ROW	Remove				26	25% live canopy
13	*Gleditsia triacanthos*	Honey Locust	9	Regulated		Fair	Moderate	ROW	Remove				18	15% live canopy
14	*Gleditsia triacanthos*	Honey Locust	11	Regulated		Good	Moderate	ROW	Remove				22	
15	*Gleditsia triacanthos*	Honey Locust	9	Regulated		Good	Moderate	ROW	Remove				18	
16	*Gleditsia triacanthos*	Honey Locust	15	Regulated		Good	Moderate	ROW	Remove				30	
17	*Acer glabrum*	Rocky Mountain Maple	45	Landmark		Excellent	High	OFF	Retain				90	
18	*Malus pumila*	Apple Tree	8	Regulated		Good	Moderate	OFF	Retain				16	
19	*Malus pumila*	Apple Tree	8	Regulated		Good	Moderate	OFF	Retain				16	
20	*Tilia cordata*	Littleleaf Linden	18	Regulated		Excellent	High	OFF	Retain				36	
21	*Thuja plicata*	Western Red Cedar	40	Landmark		Excellent	High	OFF	Retain	Yes			80	
22	*Gleditsia triacanthos*	Honey Locust	9	Regulated		Good	Moderate	ON	Remove				18	
23	*Gleditsia triacanthos*	Honey Locust	11	Regulated		Good	Moderate	ON	Remove			Yes	22	
24	*Tsuga heterophylla*	Western Hemlock	14	Regulated		Excellent	Moderate	ON	Retain	Yes	4.5		28	
25	*Pseudotsuga menziesii*	Douglas Fir	18	Regulated		Excellent	Moderate	ON	Retain	Yes	4.5		36	
26	*Arbutus menziesii*	Pacific Madrone	8	Regulated	Grove	Excellent	High	ON	Retain		1		16	

* KZC .860 Significant Tree Any tree that is at least six (6) inches in diameter measured at 4.5 feet from the ground (diameter at breast height). (Ord. 4010 § 3, 2005)

** The viability is based on the criteria in KZC 95.30(3)(c) and shown in Table 2

*** The value is based on the criteria in KZC 95.10(17)(h)(1) and shown in Applicable Definitions in this document

TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
27	*Arbutus menziesii*	Pacific Madrone	19	Regulated	Grove	Excellent	High	ON	Retain		5		38	8, 12, 12 Multi-stem
28	*Arbutus menziesii*	Pacific Madrone	11	Regulated	Grove	Excellent	High	ON	Retain		2		22	8, 8 Multi-stem
29	*Pseudotsuga menziesii*	Douglas Fir	28	Landmark	Grove	Fair	High	ON	Retain	Yes	11		56	Loss of central leader @ 50'
30	*Pseudotsuga menziesii*	Douglas Fir	40	Landmark	Grove	Good	High	ON	Retain	Yes	11		80	
30.1	*Pseudotsuga menziesii*	Douglas Fir	28	Landmark	Grove	Good	High	ON	Retain	Yes	11		56	
30.2	*Pseudotsuga menziesii*	Douglas Fir	14	Regulated	Grove	Good	High	ON	Retain	Yes	4.5		28	
31	*Arbutus menziesii*	Pacific Madrone	8	Regulated	Grove	Excellent	High	ON	Retain		1		16	
32	*Gleditsia triacanthos*	Honey Locust	6	Regulated		Fair	Moderate	ON	Retain		1		12	
33	*Gleditsia triacanthos*	Honey Locust	8	Regulated		Fair	Moderate	ON	Retain		1		16	
34	*Gleditsia triacanthos*	Honey Locust	6	Regulated		Fair	Moderate	ON	Retain		1		12	
35	*Gleditsia triacanthos*	Honey Locust	6	Regulated		Fair	Moderate	ON	Retain		1		12	Low growth ratio
36	*Prunus avium*	Sweet Cherry	7	Regulated		Good	Moderate	ON	Remove				14	
37	*Prunus avium*	Sweet Cherry	7	Regulated		Good	Moderate	ON	Remove				14	
38	*Gleditsia triacanthos*	Honey Locust	6	Regulated		Fair	Moderate	ON	Remove				12	15% live canopy
39	*Prunus avium*	Sweet Cherry	8	Regulated		Good	Moderate	ON	Retain		1		16	
39.1	*Prunus avium*	Sweet Cherry	6	Regulated		Fair	Moderate	ON	Retain		1		12	
40	*Picea pungens*	Blue Spruce	8	Regulated		Good	Moderate	ON	Remove	Yes			16	
41	*Prunus avium*	Sweet Cherry	6	Regulated		Fair	Moderate	ON	Remove				12	
42	*Prunus avium*	Sweet Cherry	5	Regulated		Poor	Moderate	ON	Retain		0.5		10	
43	*Prunus avium*	Sweet Cherry	6	Regulated		Good	Moderate	ON	Retain		1		12	
44	*Prunus avium*	Sweet Cherry	10	Regulated		Fair	Moderate	ON	Retain		1		20	
45	*Tsuga heterophylla*	Western Hemlock	27	Landmark	Grove	Good	High	ON	Retain	Yes	11		54	
46	*Arbutus menziesii*	Pacific Madrone	32	Landmark	Grove	Good	High	ON	Retain		11		64	
47	*Pseudotsuga menziesii*	Douglas Fir	42	Landmark	Grove	Good	High	ON	Retain	Yes	11		84	
48	*Pseudotsuga menziesii*	Douglas Fir	45	Landmark	Grove	Excellent	High	ON	Retain	Yes	11		90	
49	*Acer platanoides*	Norway Maple	6	Regulated		Good	Moderate	ON	Retain		1		12	Girdling Roots

* KZC .860 Significant Tree Any tree that is at least six (6) inches in diameter measured at 4.5 feet from the ground (diameter at breast height). (Ord. 4010 § 3, 2005)

** The viability is based on the criteria in KZC 95.30(3)(c) and shown in Table 2

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Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
50	*Acer platanoides*	Norway Maple	6	Regulated		Good	Moderate	ON	Retain		1		12	Girdling Roots
50.1	*Acer circinatum*	Vine Maple	6	Regulated		Good	Moderate	ON	Retain		1		12	Multi-stem
50.1	*Acer circinatum*	Vine Maple	6	Regulated		Poor	Moderate	ON	Retain		1		12	
50.2	*Acer circinatum*	Vine Maple	6	Regulated		Good	Moderate	ON	Retain		1		12	Multi-stem
50.3	*Acer circinatum*	Vine Maple	6	Regulated		Fair	Moderate	ON	Retain		1		12	
51	*Gleditsia triacanthos*	Honey Locust	8	Regulated		Good	Moderate	ON	Retain		1		16	
52	*Gleditsia triacanthos*	Honey Locust	8	Regulated		Good	Moderate	ON	Retain		1		16	
53	*Gleditsia triacanthos*	Honey Locust	8	Regulated		Good	Moderate	ON	Retain		1		16	
54	*Gleditsia triacanthos*	Honey Locust	4	Regulated		Good	Moderate	ON	Retain		0.5		8	
55	*Thuja plicata*	Western Red Cedar	54	Landmark		Excellent	High	ON	Retain	Yes	11		108	
56	*Malus fusca*	Crabapple	4			Poor		ON	Retain		0.5		8	
57	*Malus fusca*	Crabapple	4			Poor		ON	Retain		0.5		8	
58	*Malus fusca*	Crabapple	4			Poor		ON	Retain		0.5		8	
59	*Malus fusca*	Crabapple	3			Poor		ON	Retain		0.5		6	
60	*Malus fusca*	Crabapple	3			Poor		ON	Retain		0.5		6	
61	*Gleditsia triacanthos*	Honey Locust	4			Poor		ON	Retain		0.5		8	
62	*Gleditsia triacanthos*	Honey Locust	8	Regulated		Good	Moderate	ON	Retain		1		16	
63	*Platanus occidentalis*	American Sycamore	8	Regulated		Good	Moderate	ON	Retain		1		16	
64	*Platanus occidentalis*	American Sycamore	8	Regulated		Good	Moderate	ON	Retain		1		16	
65	*Pseudotsuga menziesii*	Douglas Fir	46	Landmark	Grove	Fair	High	ON	Retain	Yes	11		92	Dead top, no other signs of decay
65.1	*Arbutus menziesii*	Pacific Madrone	6	Regulated	Grove	Good	High	ON	Retain		1		12	
65.2	*Arbutus menziesii*	Pacific Madrone	8	Regulated	Grove	Good	High	ON	Retain		1		16	6, 6
66	*Arbutus menziesii*	Pacific Madrone	10	Regulated	Grove	Good	High	ON	Retain		1		20	
67	*Pseudotsuga menziesii*	Douglas Fir	30	Landmark	Grove	Good	High	ON	Retain	Yes	11		60	
68	*Acer macrophyllum*	Bigleaf Maple	12	Regulated	Grove	Good	High	ON	Retain		2		24	
69	*Acer macrophyllum*	Bigleaf Maple	8	Regulated	Grove	Good	High	ON	Retain		1		16	

* KZC .860 Significant Tree Any tree that is at least six (6) inches in diameter measured at 4.5 feet from the ground (diameter at breast height). (Ord. 4010 § 3, 2005)

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*** The value is based on the criteria in KZC 95.10(17)(h)(1) and shown in Applicable Definitions in this document

TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
70	*Acer macrophyllum*	Bigleaf Maple	8	Regulated		Good	Moderate	ON	Retain		1		16	
71	*Acer macrophyllum*	Bigleaf Maple	18	Regulated		Good	Moderate	ON	Retain		5		36	
71.1	*Crataegus monogyna*	Common Hawthorn	6	Prohibited		Good		ON	Retain		1		12	
72	*Malus domestica*	Apple Tree	10	Regulated		Good	Moderate	ON	Retain		1		20	6, 8
73	*Prunus cerasifera*	Cherry Plum	10	Regulated	Grove	Poor	High	ON	Retain		1		20	
74	*Prunus cerasifera*	Cherry Plum	18	Regulated	Grove	Poor	High	ON	Retain		5		36	
75	*Prunus cerasifera*	Cherry Plum	10	Regulated	Grove	Poor	High	ON	Retain		1		20	
76	*Arbutus menziesii*	Pacific Madrone	16	Regulated	Grove	Excellent	High	ON	Retain		4		32	
77	*Acer macrophyllum*	Bigleaf Maple	10	Regulated	Grove	Good	High	OFF	Retain		0.5		20	
78	*Crataegus monogyna*	Common Hawthorn	8	Regulated	Grove	Good	High	ON	Retain		1		16	
79	*Acer macrophyllum*	Bigleaf Maple	10	Regulated	Grove	Good	High	ON	Retain		1		20	
79.1	*Acer macrophyllum*	Bigleaf Maple	23	Regulated	Grove	Good	High	ON	Retain		8		46	8, 12, 14, 12
80	*Acer macrophyllum*	Bigleaf Maple	16	Regulated	Grove	Good	High	ON	Retain		4		32	8, 14
81	*Acer macrophyllum*	Bigleaf Maple	12	Regulated	Grove	Good	High	ON	Retain		2		24	
82	*Acer macrophyllum*	Bigleaf Maple	8	Regulated	Grove	Good	High	ON	Retain		1		16	
83	*Pseudotsuga menziesii*	Douglas Fir	28	Landmark	Grove	Good	High	ON	Retain	Yes	11		56	
83.1	*Corylus cornuta*	Beaked Hazelnut	6	Regulated	Grove	Good	High	ON	Retain		1		12	10 X 2”
84	*Betula jacquemontii*	Himalayan Birch	11	Regulated		Poor	Moderate	ON	Retain		2		22	8, 8
85	*Betula jacquemontii*	Himalayan Birch	10	Regulated		Poor	Moderate	ON	Retain		1		20	
86	*Arbutus menziesii*	Pacific Madrone	22	Regulated	Grove	Good	High	ON	Retain		7		44	
87	*Thuja plicata*	Western Red Cedar	38	Landmark	Grove	Excellent	High	ON	Retain	Yes	11		76	
87.1	*Pseudotsuga menziesii*	Douglas Fir	6	Regulated	Grove	Excellent	High	ON	Retain	Yes	11		12	
88	*Arbutus menziesii*	Pacific Madrone	32	Landmark	Grove	Good	High	ON	Retain		11		64	

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TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
89	*Pseudotsuga menziesii*	Douglas Fir	38	Landmark	Grove	Good	High	ON	Retain	Yes	11		76	
90	*Acer platanoides*	Norway Maple	5					ON	Retain				10	
91	*Acer platanoides*	Norway Maple	6	Regulated		Good	Moderate	ON	Retain		1		12	
92	*Pseudotsuga menziesii*	Douglas Fir	44	Landmark		Excellent	High	ON	Retain	Yes	11		88	
93	*Pseudotsuga menziesii*	Douglas Fir	38	Landmark	Grove	Good	High	ON	Retain	Yes	11		76	
94	*Pseudotsuga menziesii*	Douglas Fir	27	Landmark	Grove	Good	High	ON	Retain	Yes	11		54	
95	*Pseudotsuga menziesii*	Douglas Fir	30	Landmark	Grove	Good	High	ON	Retain	Yes	11		60	Crooked Base
96	*Arbutus menziesii*	Pacific Madrone	36	Landmark	Grove	Excellent	High	ON	Retain		11		72	
97	*Arbutus menziesii*	Pacific Madrone	36	Landmark	Grove	Fair	High	ON	Retain		11		72	
98	*Pseudotsuga menziesii*	Douglas Fir	24	Regulated	Grove	Good	High	ON	Retain	Yes	12		48	
98.1	*Acer circinatum*	Vine Maple	6	Regulated		Good	Moderate	ON	Retain		1		12	
98.2	*Acer circinatum*	Vine Maple	6	Regulated		Good	Moderate	ON	Retain		1		12	
98.3	*Acer circinatum*	Vine Maple	6	Regulated		Good	Moderate	ON	Retain		1		12	
99	*Pseudotsuga menziesii*	Douglas Fir	32	Landmark	Grove	Good	High	ON	Retain	Yes	11		64	
100	*Pseudotsuga menziesii*	Douglas Fir	36	Landmark	Grove	Good	High	ON	Retain	Yes	11		72	
101	*Pseudotsuga menziesii*	Douglas Fir	36	Landmark	Grove	Good	High	ON	Retain	Yes	11		72	
102	*Pseudotsuga menziesii*	Douglas Fir	18	Regulated	Grove	Fair	High	ON	Retain	Yes	7.5		36	Small central leader
103	*Pseudotsuga menziesii*	Douglas Fir	27	Landmark	Grove	Good	High	ON	Retain	Yes	11		54	
104	*Pseudotsuga menziesii*	Douglas Fir	44	Landmark		Good	High	ON	Retain	Yes	11		88	Dual leaders good response growth
105	*Pseudotsuga menziesii*	Douglas Fir	42	Landmark	Grove	Good	High	ON	Retain	Yes	11		84	
106	*Pseudotsuga menziesii*	Douglas Fir	22	Regulated	Grove	Good	High	ON	Retain	Yes	10.5		44	
107	*Pseudotsuga menziesii*	Douglas Fir	36	Landmark	Grove	Good	High	ON	Retain	Yes	11		72	
108	*Arbutus menziesii*	Pacific Madrone	14	Regulated	Grove	Good	High	ON	Retain		3		28	

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TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
109	*Arbutus menziesii*	Pacific Madrone	12	Regulated	Grove	Good	High	ON	Retain		2		24	
110	*Pseudotsuga menziesii*	Douglas Fir	38	Landmark	Grove	Excellent	High	ON	Retain	Yes	11		76	
111	*Acer macrophyllum*	Bigleaf Maple	14	Regulated	Grove	Good	High	ON	Retain		3		28	
112	*Acer macrophyllum*	Bigleaf Maple	28	Landmark	Grove	Good	High	ON	Retain		11		56	14, 24 Multi-leader
113	*Acer macrophyllum*	Bigleaf Maple	18	Regulated	Grove	Good	High	ON	Retain		5		36	
114	*Acer macrophyllum*	Bigleaf Maple	36	Landmark	Grove	Good	High	ON	Retain		11		72	Multi- leader good junction growth
116	*Prunus avium*	Sweet Cherry	6	Regulated		Poor	Moderate	ON	Retain		1		12	
117	*Prunus avium*	Sweet Cherry	6	Regulated		Poor	Moderate	ON	Retain		1		12	
118	*Thuja plicata*	Western Red Cedar	56	Landmark		Excellent	High	ON	Retain	Yes	11		112	16, 18, 34, 38, Multi-stem
119	*Acer platanoides*	Norway Maple	7	Regulated		Good	Moderate	ON	Retain		1		14	
119.1	*Acer circinatum*	Vine Maple	8	Regulated		Good	Moderate	ON	Retain		1		16	Multi-stem
119.2	*Arbutus unedo*	Strawberry Tree	8	Regulated		Good	Moderate	ON	Retain		1		16	
119.3	*Acer circinatum*	Vine Maple	6	Regulated	Grove	Fair	Moderate	ON	Retain		1		12	Multi-stem
119.4	*Acer circinatum*	Vine Maple	8	Regulated	Grove	Good	Moderate	ON	Retain		1		16	Multi-stem
119.5	*Arbutus unedo*	Strawberry Tree	6	Regulated	Grove	Poor	Moderate	ON	Retain		1		12	
119.6	*Acer circinatum*	Vine Maple	6	Regulated	Grove	Fair	Moderate	ON	Retain		1		12	Multi-stem
120	*Acer platanoides*	Norway Maple	7	Regulated		Good	Moderate	ON	Retain		1		14	
121	*Calocedrus decurrens*	Incense Cedar	9	Regulated	Grove	Good	Moderate	ON	Retain	Yes	1.5		18	
122	*Calocedrus decurrens*	Incense Cedar	9	Regulated	Grove	Good	Moderate	ON	Retain	Yes	1.5		18	
123	*Calocedrus decurrens*	Incense Cedar	8	Regulated	Grove	Good	Moderate	ON	Retain	Yes	1.5		16	
124	*Calocedrus decurrens*	Incense Cedar	10	Regulated	Grove	Fair	Moderate	ON	Retain	Yes	1.5		20	
125	*Calocedrus decurrens*	Incense Cedar	10	Regulated	Grove	Fair	Moderate	ON	Retain	Yes	1.5		20	
126	*Calocedrus decurrens*	Incense Cedar	17.5	Regulated	Grove	Excellent	Moderate	ON	Retain	Yes	7.5		35	
126.1	*Arbutus unedo*	Strawberry Tree	10	Regulated		Excellent	Moderate	ON	Retain		1		20	Multi-stem
126.2	*Arbutus unedo*	Strawberry Tree	6	Regulated		Good	Moderate	ON	Retain		1		12	Multi-stem
126.3	*Arbutus unedo*	Strawberry Tree	8	Regulated		Excellent	Moderate	ON	Retain		1		16	Multi-stem

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TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
126.4	*Acer circinatum*	Vine Maple	6	Regulated		Good	Moderate	ON	Retain		1		12	Multi-stem
126.5	*Acer circinatum*	Vine Maple	6	Regulated		Good	Moderate	ON	Retain		1		12	Multi-stem
126.6	*Arbutus unedo*	Strawberry Tree	10	Regulated		Excellent	Moderate	ON	Retain		1		20	Multi-stem
126.7	*Arbutus unedo*	Strawberry Tree	10	Regulated		Excellent	Moderate	ON	Retain		1		20	Multi-stem
132	*Acer platanoides*	Norway Maple	7	Regulated		Good	Moderate	ROW	Remove				14	
133	*Acer platanoides*	Norway Maple	7	Regulated		Good	Moderate	ROW	Remove				14	
134	*Arbutus unedo*	Strawberry Tree	8	Regulated		Excellent	Moderate	ROW	Retain				16	Multi-stem
135	*Arbutus unedo*	Strawberry Tree	8	Regulated		Excellent	Moderate	ROW	Remove				16	
137	*Arbutus unedo*	Strawberry Tree	10	Regulated		Good	Moderate	ROW	Remove				20	Multi-stem
138	*Arbutus unedo*	Strawberry Tree	6	Regulated		Good	Moderate	ROW	Remove				12	Multi-stem
139	*Arbutus unedo*	Strawberry Tree	8	Regulated		Good	Moderate	ROW	Remove				16	Multi-stem
140	*Acer platanoides*	Norway Maple	6	Regulated		Good	Moderate	ROW	Remove				12	
140.1	*Arbutus unedo*	Strawberry Tree	10	Regulated		Good	Moderate	ROW	Remove				20	Multi-stem
140.2	*Arbutus unedo*	Strawberry Tree	10	Regulated		Good	Moderate	ROW	Remove				20	Multi-stem
141	*Malus fusca*	Crabapple	7	Regulated		Good	Moderate	ON	Retain		1		14	
142	*Malus fusca*	Crabapple	7	Regulated		Good	Moderate	ON	Retain		1		14	
143	*Malus fusca*	Crabapple	7	Regulated		Good	Moderate	ON	Retain		1		14	
144	*Gleditsia triacanthos*	Honey Locust	11	Regulated		Good	Moderate	ON	Retain		2	Yes	22	
145	*Gleditsia triacanthos*	Honey Locust	11	Regulated		Good	Moderate	ON	Retain		2	Yes	22	
146	*Malus fusca*	Crabapple	7	Regulated		Good	Moderate	ON	Remove				14	
147	*Crataegus crus-galli*	Cockspur Hawthorne	7	Regulated		Excellent	Moderate	ROW	Remove				14	
148	*Crataegus crus-galli*	Cockspur Hawthorne	7	Regulated		Excellent	Moderate	ROW	Remove				14	
149	*Crataegus crus-galli*	Cockspur Hawthorne	8	Regulated		Excellent	Moderate	ROW	Retain				16	
150	*Pseudotsuga menziesii*	Douglas Fir	20	Regulated	Grove	Excellent	High	OFF	Retain	Yes			40	
151	*Pseudotsuga menziesii*	Douglas Fir	20	Regulated	Grove	Excellent	High	OFF	Retain	Yes			40	
152	*Pseudotsuga menziesii*	Douglas Fir	26	Landmark	Grove	Excellent	High	OFF	Retain	Yes			52	

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TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
153	*Tsuga heterophylla*	Western Hemlock	12	Regulated	Grove	Excellent	High	OFF	Retain	Yes			24	
154	*Tsuga heterophylla*	Western Hemlock	16	Regulated	Grove	Excellent	High	OFF	Retain	Yes			32	
155	*Thuja plicata*	Western Red Cedar	28	Landmark	Grove	Excellent	High	OFF	Retain	Yes			56	
156	*Thuja plicata*	Western Red Cedar	24	Regulated	Grove	Excellent	High	OFF	Retain	Yes			48	
157	*Tsuga heterophylla*	Western Hemlock	16	Regulated	Grove	Excellent	High	OFF	Retain	Yes			32	
158	*Thuja plicata*	Western Red Cedar	12	Regulated	Grove	Excellent	High	OFF	Retain	Yes			24	
159	*Tsuga heterophylla*	Western Hemlock	16	Regulated	Grove	Excellent	High	OFF	Retain	Yes			32	
160	*Tsuga heterophylla*	Western Hemlock	18	Regulated	Grove	Excellent	High	OFF	Retain	Yes			36	
160.5	*Tsuga heterophylla*	Western Hemlock	16	Regulated	Grove	Excellent	High	OFF	Retain	Yes			32	
161	*Pseudotsuga menziesii*	Douglas Fir	24	Regulated	Grove	Excellent	High	OFF	Retain	Yes			48	
162	*Robinia Pseudoacacia*	Black Locust	26	Prohibited		Good		ON	Remove				52	
162.1	*Crataegus crus-galli*	Cockspur Hawthorne	5			Good		ROW	Remove				10	
163	*Robinia Pseudoacacia*	Black Locust	16	Prohibited		Good		ON	Remove				32	10, 12 Multi-leader
164	*Robinia Pseudoacacia*	Black Locust	16	Prohibited		Good		ON	Remove				32	
165	*Robinia Pseudoacacia*	Black Locust	18	Prohibited		Good		ON	Remove				36	
166	*Gleditsia triacanthos*	Honey Locust	10	Regulated		Good	Moderate	ON	Retain		1		20	
167	*Pseudotsuga menziesii*	Douglas Fir	41	Landmark		Good	High	ON	Remove	Yes			82	Some weeping
168	*Crataegus crus-galli*	Cockspur Hawthorne	6	Regulated		Excellent	Moderate	ROW	Remove			Yes	12	
169	*Crataegus crus-galli*	Cockspur Hawthorne	6	Regulated		Good	Moderate	ROW	Remove				12	
169.1	*Quercus rubra*	Northern Red Oak	16	Regulated		Good	Moderate	OFF	Retain				32	
170	*Crataegus crus-galli*	Cockspur Hawthorne	4			Good		ROW	Retain				8	

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TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
171	*Crataegus crus-galli*	Cockspur Hawthorn e	4			Good		ROW	Retain				8	
172	*Crataegus crus-galli*	Cockspur Hawthorn e	6	Regulated		Good	Moderate	ROW	Retain				12	
173	*Thuja plicata*	Western Red Cedar	16	Regulated	Grove	Good	High	ON	Retain	Yes	6		32	
174	*Pseudotsuga menziesii*	Douglas Fir	18	Regulated	Grove	Good	High	ON	Retain	Yes	7.5		36	
175	*Gleditsia triacanthos*	Honey Locust	10	Regulated	Grove	Good	High	ON	Retain		1		20	
176	*Liquidambar styraciflua*	Sweetgum	17	Regulated	Grove	Good	High	OFF	Retain			Yes	34	10, 14 Multi-leader
177	*Liquidambar styraciflua*	Sweetgum	24	Regulated	Grove	Good	High	OFF	Retain			Yes	48	14, 14, 14 Multi-leader
177.1	*Pseudotsuga menziesii*	Douglas Fir	6	Regulated		Good	Moderate	OFF	Retain	Yes			12	
178	*Acer macrophyllum*	Bigleaf Maple	16	Regulated		Good	Moderate	OFF	Retain				32	
179	*Pseudotsuga menziesii*	Douglas Fir	14	Regulated	Grove	Good	High	ON	Remove	Yes			28	
180	*Pseudotsuga menziesii*	Douglas Fir	26	Landmark	Grove	Good	High	ON	Remove	Yes			52	
181	*Arbutus menziesii*	Pacific Madrone	32	Landmark	Grove	Good	High	ON	Remove				64	Some dieback at top
182	*Pseudotsuga menziesii*	Douglas Fir	26	Landmark	Grove	Good	High	ON	Remove	Yes			52	
183	*Pseudotsuga menziesii*	Douglas Fir	40	Landmark	Grove	Good	High	ON	Remove	Yes			80	
184	*Pseudotsuga menziesii*	Douglas Fir	32	Landmark	Grove	Good	High	ON	Remove	Yes			64	
185	*Pseudotsuga menziesii*	Douglas Fir	34	Landmark	Grove	Good	High	ON	Remove	Yes			68	
186	*Pseudotsuga menziesii*	Douglas Fir	14	Regulated	Grove	Good	High	ON	Remove	Yes			28	
187	*Pseudotsuga menziesii*	Douglas Fir	32	Landmark	Grove	Good	High	ON	Remove	Yes			64	
188	*Pseudotsuga menziesii*	Douglas Fir	12	Regulated	Grove	Good	High	ON	Retain	Yes	3		24	
189	*Pseudotsuga menziesii*	Douglas Fir	40	Regulated	Grove	Good	High	ON	Retain	Yes	11		80	
190	*Pseudotsuga menziesii*	Douglas Fir	44	Regulated	Grove	Good	High	ON	Retain	Yes	11		88	
191	*Pseudotsuga menziesii*	Douglas Fir	40	Regulated	Grove	Good	High	ON	Retain	Yes	11		80	

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TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
192	*Pseudotsuga menziesii*	Douglas Fir	12	Regulated	Grove	Good	High	ON	Retain	Yes	3		24	
193	*Thuja plicata*	Western Red Cedar	6	Regulated	Grove	Good	High	ON	Retain	Yes	1.5		12	
194	*Pseudotsuga menziesii*	Douglas Fir	14	Regulated	Grove	Good	High	OFF	Retain	Yes			28	
195	*Thuja plicata*	Western Red Cedar	8	Regulated	Grove	Good	High	OFF	Retain	Yes			16	
196	*Pseudotsuga menziesii*	Douglas Fir	10	Regulated	Grove	Good	High	OFF	Retain	Yes			20	
197	*Pseudotsuga menziesii*	Douglas Fir	6	Regulated	Grove	Good	High	OFF	Retain	Yes			12	
198	*Pseudotsuga menziesii*	Douglas Fir	6	Regulated	Grove	Good	High	OFF	Retain	Yes			12	
199	*Pseudotsuga menziesii*	Douglas Fir	14	Regulated	Grove	Good	High	ON	Retain	Yes	4.5		28	
200	*Pseudotsuga menziesii*	Douglas Fir	27	Landmark	Grove	Good	High	ON	Retain	Yes	11		54	
201	*Pseudotsuga menziesii*	Douglas Fir	20	Regulated	Grove	Good	High	ON	Retain	Yes	9		40	
202	*Pseudotsuga menziesii*	Douglas Fir	20	Regulated	Grove	Good	High	ON	Retain	Yes	9		40	
202.1	*Arbutus menziesii*	Pacific Madrone	6	Regulated	Grove	Good	High	ON	Retain		1		12	
203	*Pseudotsuga menziesii*	Douglas Fir	22	Regulated	Grove	Good	High	ON	Retain	Yes	10.5		44	
204	*Pseudotsuga menziesii*	Douglas Fir	8	Regulated	Grove	Good	High	ON	Retain	Yes	1.5		16	
205	*Pseudotsuga menziesii*	Douglas Fir	24	Regulated	Grove	Good	High	ON	Retain	Yes	11		48	
205.1	*Arbutus menziesii*	Pacific Madrone	6	Regulated	Grove	Good	High	ON	Retain		1		12	
206	*Pseudotsuga menziesii*	Douglas Fir	20	Regulated	Grove	Good	High	ON	Retain	Yes	11		40	
207	*Pseudotsuga menziesii*	Douglas Fir	20	Regulated	Grove	Good	High	ON	Retain	Yes	9		40	
208	*Pseudotsuga menziesii*	Douglas Fir	28	Landmark	Grove	Good	High	ON	Retain	Yes	11		56	
209	*Pseudotsuga menziesii*	Douglas Fir	25	Regulated	Grove	Good	High	ON	Retain	Yes	11		50	
210	*Pseudotsuga menziesii*	Douglas Fir	25	Regulated	Grove	Good	High	ON	Retain	Yes	11		50	

* KZC .860 Significant Tree Any tree that is at least six (6) inches in diameter measured at 4.5 feet from the ground (diameter at breast height). (Ord. 4010 § 3, 2005)

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TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
211	*Pseudotsuga menziesii*	Douglas Fir	20	Regulated	Grove	Good	High	ON	Retain	Yes	9		40	
212	*Pseudotsuga menziesii*	Douglas Fir	22	Regulated	Grove	Good	High	ON	Retain	Yes	10.5		44	
213	*Pseudotsuga menziesii*	Douglas Fir	18	Regulated	Grove	Good	High	ON	Retain	Yes	7.5		36	
214	*Pseudotsuga menziesii*	Douglas Fir	10	Regulated	Grove	Good	High	ON	Retain	Yes	1.5		20	
215	*Pseudotsuga menziesii*	Douglas Fir	12	Regulated	Grove	Good	High	ON	Retain	Yes	3		24	
216	*Pseudotsuga menziesii*	Douglas Fir	27	Landmark	Grove	Good	High	ON	Retain	Yes	10		54	
217	*Pseudotsuga menziesii*	Douglas Fir	30	Landmark	Grove	Good	High	ON	Retain	Yes	11		60	
218	*Pseudotsuga menziesii*	Douglas Fir	25	Regulated	Grove	Good	High	ON	Retain	Yes	11		50	
219	*Pseudotsuga menziesii*	Douglas Fir	16	Regulated	Grove	Good	High	ON	Retain	Yes	6		32	
220	*Pseudotsuga menziesii*	Douglas Fir	24	Regulated	Grove	Good	High	ON	Retain	Yes	11		48	
221	*Pseudotsuga menziesii*	Douglas Fir	20	Regulated	Grove	Good	High	ON	Retain	Yes	9		40	
222	*Pseudotsuga menziesii*	Douglas Fir	38	Landmark	Grove	Good	High	ON	Retain	Yes	11		76	
223	*Prunus emarginata*	Bitter Cherry	21	Regulated	Grove	Good	High	ON	Retain		7		42	
224	*Prunus domestica*	Common Plum	10	Regulated	Grove	Good	High	ON	Retain		1		20	
224.1	*Corylus cornuta*	Beaked Hazelnut	10	Regulated	Grove	Good	High	ON	Retain		1		20	3” x 12 Multi-Stem
225	*Pseudotsuga menziesii*	Douglas Fir	16	Regulated	Grove	Good	High	ON	Retain	Yes	4		32	
226	*Pseudotsuga menziesii*	Douglas Fir	16	Regulated	Grove	Good	High	ON	Retain	Yes	4		32	
226.1	*Thuja plicata*	Western Red Cedar	6	Regulated	Grove	Good	High	ON	Retain	Yes	1		12	
227	*Pseudotsuga menziesii*	Douglas Fir	10	Regulated		Good	Moderate	ON	Retain	Yes	1		20	
228	*Pseudotsuga menziesii*	Douglas Fir	10	Regulated		Good	Moderate	ON	Retain	Yes	1		20	
229	*Pseudotsuga menziesii*	Douglas Fir	8	Regulated		Good	Moderate	ON	Retain	Yes	1		16	
230	*Arbutus menziesii*	Pacific Madrone	44	Landmark	Grove	Poor	High	ON	Retain		11		88	

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TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
230.1	*Cornus florida*	Flowering Dogwood	8	Regulated	Grove	Good	High	ON	Retain		1		16	
231	*Acer macrophyllum*	Bigleaf Maple	10	Regulated	Grove	Good	High	ON	Retain		1		20	
232	*Pseudotsuga menziesii*	Douglas Fir	16	Regulated	Grove	Fair	High	ON	Retain	Yes	6		32	Loss of central leader
233	*Pseudotsuga menziesii*	Douglas Fir	48	Landmark	Grove	Good	High	ON	Retain	Yes	11		96	
234	*Arbutus menziesii*	Pacific Madrone	13	Regulated	Grove	Good	High	ON	Retain		3		26	8, 10 Multi-Leader
235	*Pseudotsuga menziesii*	Douglas Fir	18	Regulated	Grove	Good	High	ON	Retain	Yes	7.5		36	
236	*Arbutus menziesii*	Pacific Madrone	8	Regulated	Grove	Good	High	ON	Retain		1		16	
237	*Pseudotsuga menziesii*	Douglas Fir	40	Landmark	Grove	Good	High	ON	Retain	Yes	11		80	
238	*Pseudotsuga menziesii*	Douglas Fir	36	Landmark	Grove	Fair	High	ON	Retain	Yes	11		72	Loss of central leader - new leader regrowing
239	*Populus trichocarpa*	Black Cottonwood	28	Landmark	Grove	Good	High	ON	Retain		10		56	
240	*Acer macrophyllum*	Bigleaf Maple	10	Regulated	Grove	Good	High	ON	Retain		1		20	
241	*Alnus rubra*	Red Alder	12	Regulated	Grove	Good	High	ON	Retain		2		24	
242	*Acer macrophyllum*	Bigleaf Maple	12	Regulated	Grove	Good	High	ON	Retain		2		24	
243	*Acer macrophyllum*	Bigleaf Maple	17	Regulated	Grove	Good	High	ON	Retain		5		34	10, 14 Multi-leader
244	*Populus trichocarpa*	Black Cottonwood	26	Landmark	Grove	Good	High	ON	Retain		9		52	
245	*Betula jacquemontii*	Himalayan Birch	12	Regulated	Grove	Good	High	ON	Retain		2		24	
246	*Acer macrophyllum*	Bigleaf Maple	12	Regulated	Grove	Good	High	ON	Retain		2		24	
246.1	*Acer macrophyllum*	Bigleaf Maple	8	Regulated	Grove	Good	High	ON	Retain		1		16	
246.2	*Populus trichocarpa*	Black Cottonwood	8	Regulated	Grove	Good	High	ON	Retain		1		16	
246.3	*Populus trichocarpa*	Black Cottonwood	8	Regulated	Grove	Good	High	ON	Retain		1		16	
246.4	*Populus trichocarpa*	Black Cottonwood	8	Regulated	Grove	Good	High	ON	Retain		1		16	
246.5	*Populus trichocarpa*	Black Cottonwood	8	Regulated	Grove	Good	High	ON	Retain		1		16	

* KZC .860 Significant Tree Any tree that is at least six (6) inches in diameter measured at 4.5 feet from the ground (diameter at breast height). (Ord. 4010 § 3, 2005)

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TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
246.6	*Populus trichocarpa*	Black Cottonwood	6	Regulated	Grove	Good	High	ON	Retain		1		12	
246.7	*Populus trichocarpa*	Black Cottonwood	10	Regulated	Grove	Good	High	ON	Retain		1		20	
246.8	*Populus trichocarpa*	Black Cottonwood	6	Regulated	Grove	Good	High	ON	Retain		1		12	
247	*Arbutus menziesii*	Pacific Madrone	27	Landmark	Grove	Good	High	ON	Retain		10		54	16, 22 Multi-Leader
248	*Pseudotsuga menziesii*	Douglas Fir	68	Landmark		Good	High	OFF	Retain	Yes	0.5		136	
249	*Arbutus menziesii*	Pacific Madrone	42	Landmark	Grove	Good	High	ON	Retain		11		84	20, 20, 20, 24 Multi-Leader
250	*Populus trichocarpa*	Black Cottonwood	28	Landmark	Grove	Good	High	ON	Retain		10		56	
251	*Crataegus monogyna*	Common Hawthorn	12	Prohibited	Grove	Good	High	ON	Retain		2		24	
252	*Alnus rubra*	Red Alder	8	Regulated	Grove	Fair	High	ON	Retain		1		16	
253	*Acer macrophyllum*	Bigleaf Maple	6	Regulated	Grove	Good	High	ON	Retain		1		12	
254	*Betula jacquemontii*	Himalayan Birch	10	Regulated	Grove	Poor	High	ON	Retain		1		20	
255	*Acer macrophyllum*	Bigleaf Maple	32	Landmark	Grove	Good	High	ON	Retain		11		64	12, 16, 16, 20
256	*Acer macrophyllum*	Bigleaf Maple	14	Regulated	Grove	Good	High	ON	Retain		3		28	
257	*Acer macrophyllum*	Bigleaf Maple	22	Regulated	Grove	Good	High	ON	Retain		7		44	8, 10, 18
258	*Acer macrophyllum*	Bigleaf Maple	12	Regulated	Grove	Good	High	ON	Retain		2		24	
259	*Acer macrophyllum*	Bigleaf Maple	18	Regulated	Grove	Good	High	ON	Retain		5		36	14, 12
260	*Acer macrophyllum*	Bigleaf Maple	14	Regulated	Grove	Good	High	ON	Retain		3		28	
261	*Betula jacquemontii*	Himalayan Birch	8	Regulated	Grove	Poor	High	ON	Retain		1		16	
262	*Prunus emarginata*	Bitter Cherry	8	Regulated	Grove	Good	High	ON	Retain		1		16	
263	*Crataegus monogyna*	Common Hawthorn	18	Prohibited	Grove	Good	High	ON	Retain		5		36	
264	*Acer macrophyllum*	Bigleaf Maple	14	Regulated	Grove	Good	High	ON	Retain		3		28	10, 10
265	*Acer macrophyllum*	Bigleaf Maple	24	Regulated	Grove	Good	High	ON	Retain		8		48	

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TABLE 2 - TREE INVENTORY

Unique Identifier	*Latin Name*	Common Name	DBH (in)	Class*	Class 2*	Viability**	Retention Value***	Location Off/On Parcel	Remove/ Retain	Approved Conifer (1.5 x TDC)	Tree Density Credits	Clearance Pruning	Dripline/ Critical Root Zone (ft)	Notes
266	*Acer macrophyllum*	Bigleaf Maple	16	Regulated	Grove	Good	High	ON	Retain		4		32	
267	*Acer macrophyllum*	Bigleaf Maple	8	Regulated	Grove	Good	High	OFF	Retain		0.5		16	
268	*Arbutus menziesii*	Pacific Madrone	37	Landmark	Grove	Good	High	ON	Retain		11		74	16, 16, 20, 22
269	*Arbutus menziesii*	Pacific Madrone	38	Landmark	Grove	Good	High	ON	Retain		11		76	18, 33
270	*Pseudotsuga menziesii*	Douglas Fir	12	Regulated	Grove	Good	High	ON	Retain	Yes	2		24	
271	*Pseudotsuga menziesii*	Douglas Fir	10	Regulated	Grove	Good	High	ON	Retain	Yes	1		20	
272	*Pseudotsuga menziesii*	Douglas Fir	13	Regulated	Grove	Good	High	ON	Retain	Yes	3		26	6, 6, 10
273	*Arbutus menziesii*	Pacific Madrone	10	Regulated	Grove	Good	High	ON	Retain		1		20	
274	*Arbutus menziesii*	Pacific Madrone	8	Regulated	Grove	Good	High	ON	Retain		1		16	
274.1	*Arbutus menziesii*	Pacific Madrone	34	Landmark	Grove	Good	High	ON	Retain		11		68	24, 24
275	*Arbutus menziesii*	Pacific Madrone	10	Regulated	Grove	Good	High	ON	Retain		1		20	
276	*Acer macrophyllum*	Bigleaf Maple	20	Regulated	Grove	Good	High	ON	Retain		6		40	
277	*Acer macrophyllum*	Bigleaf Maple	12	Regulated	Grove	Good	High	ON	Retain		2		24	
278	*Acer macrophyllum*	Bigleaf Maple	6	Regulated	Grove	Good	High	ON	Retain		1		12	
279	*Acer macrophyllum*	Bigleaf Maple	22	Regulated	Grove	Good	High	ON	Retain		7		44	
280	*Acer macrophyllum*	Bigleaf Maple	35	Landmark	Grove	Good	High	ON	Retain		11		70	18, 30
281	*Acer macrophyllum*	Bigleaf Maple	70	Landmark	Grove	Good	High	ON	Retain		11		140	
282	*Acer macrophyllum*	Bigleaf Maple	11	Regulated	Grove	Good	High	ON	Retain		2		22	8, 8
283	*Acer macrophyllum*	Bigleaf Maple	10	Regulated	Grove	Good	High	ON	Retain		1		20	
284	*Acer macrophyllum*	Bigleaf Maple	21	Regulated	Grove	Good	High	ON	Retain		7		42	14, 16
285	*Acer macrophyllum*	Bigleaf Maple	8	Regulated	Grove	Good	High	ON	Retain		1		16	
286	*Acer macrophyllum*	Bigleaf Maple	14	Regulated	Grove	Good	High	ON	Retain		3		28	

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286.1	*Crataegus monogyna*	Common Hawthorn	6	Prohibited				ON	Retain		1		12	
286.2	*Crataegus monogyna*	Common Hawthorn	6	Prohibited				ON	Retain		1		12	
287	*Acer macrophyllum*	Bigleaf Maple	8	Regulated		Good	Moderate	ON	Retain		1		16	
								TOTAL DENSITY CREDITS			**1119**		0	
							TOTAL REQUIRED DENSITY CREDITS				**98**		0	

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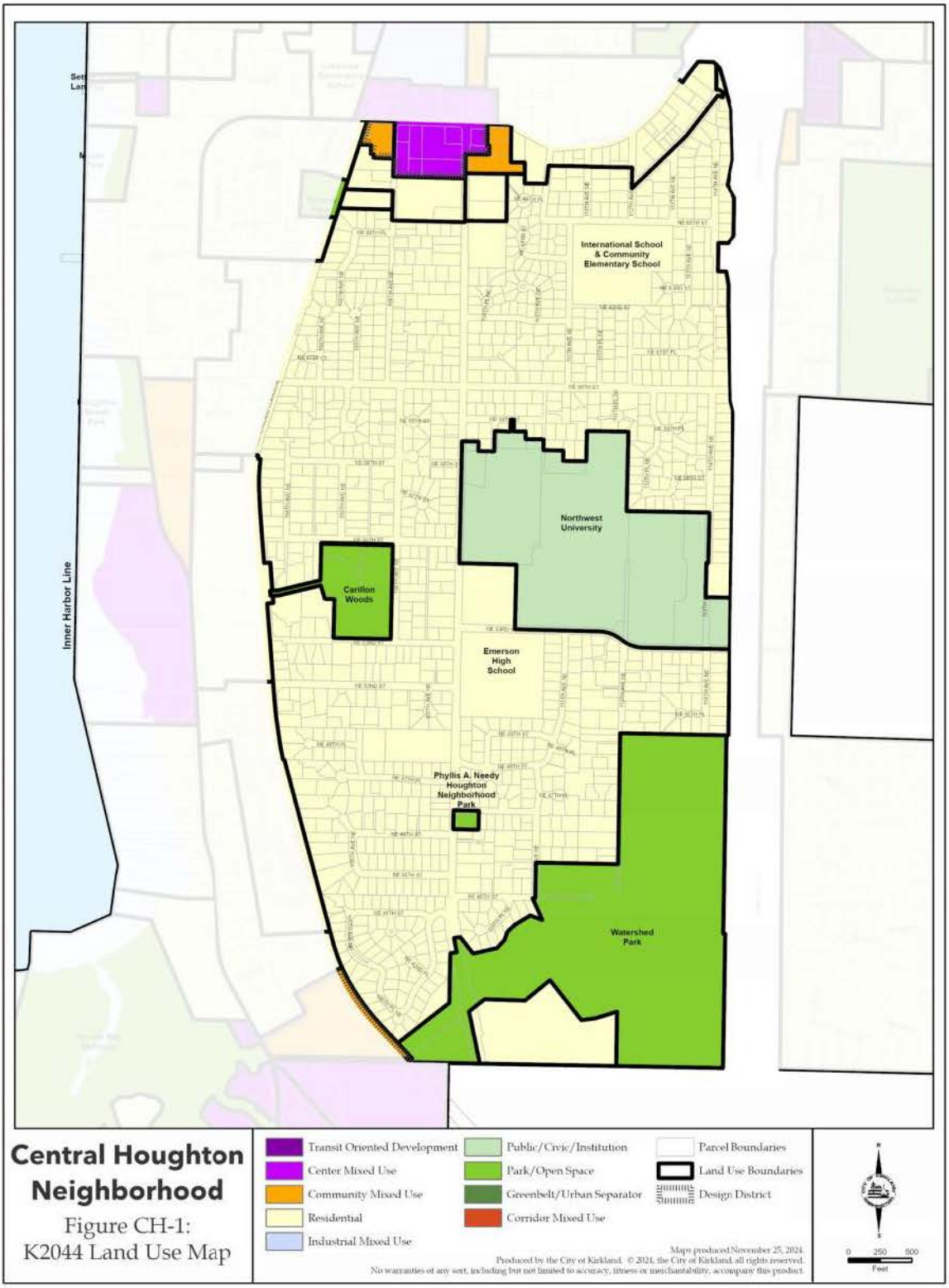
International School & Community Elementary School
Northwest University
Carillon Woods
Emerson High School
Phyllis A. Needy Houghton Neighborhood Park
Watershed Park
Inner Harbor Line
Central Houghton Neighborhood
Figure CH-1:
K2044 Land Use Map
Transit Oriented Development
Center Mixed Use
Community Mixed Use
Residential
Industrial Mixed Use
Public/Civic/Institution
Park/Open Space
Greenbelt/Urban Separator
Corridor Mixed Use
Parcel Boundaries
Land Use Boundaries
Design District
Maps produced November 25, 2024.
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0 250 500
Feet

Proposed Fence Netting

To: Hearing Examiner, City of Kirkland
Via: Tony Leavitt, Senior Planner
Re: ZON25-00491 proposed parking lot off 108th Ave NE and removal of existing pond and Heritage trees

Dear Hearing Examiner,

I am a resident of Central Houghton writing to oppose the proposed removal of the stormwater pond and Heritage trees to create a new parking lot off 108th Ave NE as part of the Emerson High School construction project, Case Number ZON25-00491.

Although the applicant has submitted preliminary transportation concepts and proposes to replace the existing stormwater pond and shaded Heritage tree area with an underground vault, the current design creates avoidable off-site impacts that have not been adequately addressed.

1. Traffic safety, circulation, and impact on 108th Ave NE arterial

In discussions with Tony Leavitt, I understand that the School District's consultant has coordinated with the City's Transportation staff regarding the additional turning movements on 108th Ave NE. However, these concepts are predicated on the assumption that increased pressure on 108th is unavoidable. This has not been demonstrated.

Further, Kirkland's transportation approval criteria require that projects avoid introducing new safety conflicts or queueing onto minor arterials when feasible. The current design has not shown such avoidance.

In evaluating the traffic impacts on 108th Ave NE, I respectfully ask the Examiner to consider the following:

(a) 108th Ave NE already experiences constrained traffic flow and queueing during school arrival and dismissal periods with Kirkland Children's School and Kirkland Adventist School along 108th Ave on the same block.
(b) Introducing additional parking lot capacity and a new drop-off zone will increase turning movements and create additional conflict points on a corridor heavily used by residents, pedestrians, and cyclists, including students.
(c) The proposed configuration is likely to cause vehicles to queue back into the through-travel lane during predictable peak surges, reducing arterial efficiency and elevating safety risk.
(d) **A parking access configuration via NE 53rd Street represents a less impactful alternative** that would avoid new conflict points on this constrained minor arterial, reduce queueing during school arrival and dismissal, and minimize pedestrian-vehicle interactions near the campus, in addition to being near an appropriate intersection with well-established traffic and pedestrian safety mechanisms.
(e) The school campus already has access at NE 53rd via the existing large capacity parking lot and an underutilized below-grade ramp and lot. A reasonable alternative should explore the option to

add entrances and capacity to the existing parking lot on NE 53rd, including the below-grade parking lot connected to the existing high school building.

Because the applicant has not demonstrated that an alternative on 53rd Street is infeasible, the proposal does not yet meet the City's impact-avoidance and reasonable-alternatives expectations. Until such an analysis is provided, the requested additional parking lot near 108th Ave should not be considered the least impactful or necessary option.

2. Thermal pollution and environmental performance of the proposed stormwater vault

The applicant proposes replacing the existing open-air stormwater pond with a buried detention vault beneath the new parking lot. The Washington State Department of Ecology's Stormwater Management Manual for Western Washington highlights that heated runoff from impervious surfaces contributes to thermal pollution in receiving waters and recommends preserving vegetation and shading around surface ponds to reduce those impacts. The following should be considered:

(a) The existing pond and its surrounding tree canopy provide natural cooling, shading, infiltration benefits, and visible performance.
(b) In contrast, an underground vault beneath newly expanded pavement eliminates these functions and concentrates heat-laden runoff, with no vegetative shading or evaporative cooling. **The applicant has not demonstrated that the proposed vault will maintain or improve thermal performance relative to the existing pond.**
(c) Further, the proposed plan for the school replaces the playfield with impervious coverage directly upslope of residential areas and public rights-of-way which increases risk of peak runoff, reduced groundwater recharge, and downstream thermal impacts.
(d) Thermal loading and stormwater quality are ongoing concerns in downstream Kirkland public land as reflected in regular seasonal closures published by the City of Kirkland, like the Houghton Beach Park, which is directly downslope of the proposed vault.

Based on available information, the proposal does not demonstrate that required performance will be met following removal of the current pond to be replaced by a vault. Until the appropriate environmental impact analysis addressing the elimination of the stormwater pond is provided, the vault should not be considered the least impactful alternative.

3. Maintenance burden, failure risk, and lifecycle performance of underground vaults

Regional public works departments uniformly identify underground detention vaults as high-maintenance facilities with greater long-term failure risks than open ponds, due to sediment accumulation, buried access points, confined-space entry requirements, and outlet structure clogging.

EPA economic and O&M analyses similarly identify that detention vaults have higher annual maintenance costs and operational risks than open detention basins. Replacing a functioning pond with a

vault substitutes a visible, self-regulating system for a buried structure that requires continuous mechanical reliability and far more intensive long-term maintenance.

The application does not address this increased lifecycle burden or demonstrate that performance will be equal or superior to the current pond. Because a vault requires intensive long-term maintenance to achieve its design performance, the applicant must demonstrate that a higher-risk, higher-maintenance facility is warranted when a functioning, lower-risk surface pond already exists.

4. Removal of Heritage trees and loss of greenbelt environmental function

The existing stormwater pond is effectively surrounded by mature Heritage trees that provide windbreak protection, stabilize soil moisture, and reduce stormwater loads through canopy interception. Removal of this mature stand eliminates long-established ecological functions and increases exposure for adjacent residential properties. Replacement plantings cannot replicate the hydrological, environmental, or protective benefits of mature trees for decades, which is inconsistent with the City's tree-retention priorities.

The applicant has not shown that the removal of these Heritage trees is necessary, especially considering that alternative treeless sites for the parking lot exist elsewhere on campus that can be suitably re-graded for parking capacity.

Request

For these reasons, I respectfully request that the Hearing Examiner deny the application unless and until the applicant submits a substantially revised design that:

a. Evaluates access via NE 53rd Street, including expansion of the existing parking lot, as the baseline less-impactful alternative and demonstrates why it is infeasible before selecting a design that increases traffic loading on 108th Ave NE and creates a new parking lot at the expense of greenbelt and stormwater pond; and
b. Demonstrates, with an appropriate environmental impact analysis and using the Washington Stormwater Management Manual as the benchmark, that replacing the shaded stormwater pond and mature Heritage trees with a sealed underground vault and impervious parking lot will provide equal or superior environmental, thermal, and long-term maintenance performance.

Thank you for your consideration.

Sincerely,

Pete Francis
Wildwood Heights
Houghton, Kirkland 98033

FROM: Jim and Karen Todd
5229 111th Ave NE
Kirkland, WA 98033

RE: Emerson Master Plan

DATE: January 18, 2025

Our property directly adjoins the Emerson School site along the east border of 111th Ave. Behind our home is a green buffer that separates us from North Star Middle School. The initial planned construction on the site was a 3 story building that would possibility house a magnet high school, early education classrooms, a home schooling support center and would have a population of nearly 600 students. We are relieved that the scope of the original plan is more fitting for this property.

The enrollment projection of 345 students is a 167 student increase. We would like information about how this number of kids being dropped off and picked up will affect cut through traffic in our neighborhood. 167 more cars sounds formidable for traffic congestion during those times and will undoubtedly lead to cut through traffic. I am assuming that an expensive stop light on 53rd is most likely out of the question. I foresee our street which has a 25 mph speed limit with no sidewalks will become a real safety hazard for walkers, people exiting backing out of driveways, and school children walking to the school bus stop on 110th and 47th Street. I recently noticed a "Local Traffic Only" sign at the intersection of 106th and 58th street by Carillon Park. I wonder though if that is just a suggestion or does it carry some clout?

My next concern is landscaping. When the planting was done for the International School years ago, my neighbor Molly and I looked at it and commented that the parking strip and vegetation strip bordering the sidewalk on the east would be a mess in no time. We were right! That area was poorly planted (Note: trees that drop berries on the sidewalk and are at 45 degree angle to the ground)and lots and lots of weeds. Right now the trees that line 53rd have lots of dead wood in them … My grown kids have called them "witch trees" ever since they went to Lakeview….quite awhile ago. Currently one of the trees has lots of big seed pods on the lawn and sidewalk. Also the east end of sidewalk going uphill on 53rd has dirt and blackberries encroaching on half the sidewalk. Hopefully, when the property is developed, the landscapers will be aware of these issues.

When the last remodel was done on this property, people along our street voiced concern about lighting in the parking lot. I am going to assume that "down" lighting will also be used on this property to mitigate glare into the very nearby neighboring yards and homes.

Finally, the intersection of 108th and 48th Street has a VERY BLIND northeast corner. You literally have to crawl up to the intersection to avoid walkers, runners and bikers who are not aware of how blind that corner is for drivers. I know the corner property owner has been asked to cut back the large rhododendron that blocks the driver vision from the pedestrian and vice-versa. His lack of pruning has not solved this dangerous situation.

Thank you for holding this meeting and for considering out input.

Jim and Karen Todd
Todd.jtkt@frontier.com
425 822 8747

Tony Leavitt

From: Molly Working <mollyworking@gmail.com>
Sent: Wednesday, February 11, 2026 3:27 PM
To: Tony Leavitt
Subject: Emerson High High School Building Project

Reference: Permit No. ZON25-00491

Marie ("Molly") Working
5215 111th Ave NE
Kirkland, WA. 98033

Dear Mr. Leavitt,

I am writing today regarding my concerns for the new high school building to be constructed on the Emerson Campus. My specific concerns are about "ingress/egress" from the new building, and the availability of parking spaces for this project.

My understanding is that the entrance for cars coming to drop off/pickup students is from 108th Ave NE. Very similar to the ICS school in Houghton, I think this presents major issues for morning and afternoon traffic backup on 108th. This issue has come up each time there has been a presentation regarding this project without a satisfactory response about how this traffic issue can be resolved. Particularly on my street- 111th Ave NE- which runs parallel to 108th Ave NE and often takes overflow already from parents dropping students at Northstar Middle School, residents here are concerned about cars coming up 48th St, which flows onto 111th, as a means of bypassing the traffic backups. Our street is not designed for this level of traffic; we do not have sidewalks, we have young kids walking to the bus stop along our street at the same time as school drop off at Emerson, and parents are often in a hurry after dropping students and drive much faster than the 25 mph speed limit on our street. There must be a way to make access to the new Emerson campus (and departure from it) without backing up traffic on 108th Ave NE.

Along with the access concern, I am curious about the actual number of parking spaces that will be provided on the redesigned Emerson Campus. The student population will be doubling (167 currently to 345 with the new building). I have to assume that this will bring a close to doubling of cars coming to park on campus. I did not see plans for additional parking provided beyond what is already existing on the Northwest corner of the current Emerson Campus. Where will the overflow go?- very likely again onto the surrounding residential streets. The City of Kirkland has worked hard to help Northwest University administration understand that parking in our neighborhood is not acceptable for the same reasons I mentioned above regarding drivers in our small neighborhood. We would hope this challenge can be addressed with some additional parking included in the redesign of the Emerson property.

Thank you for the opportunity to submit my concerns regarding this project.

Sincerely,

Marie (Molly) Working

Molly Working
mollyworking@gmail.com
425.466.7288

Emerson Campus Master Plan (Development Plan) Amendment

Public Hearing
ZON25-00491
February 18, 2026

Amendment Requests

- Emerson Building Replacement
  - Removal of existing 30,200 sqft building
  - New two story 51,535 sqft building
  - Building height increase to 35 feet
  - Mechanical roof height increase of 1.75 feet
- Enrollment increase from 178 to 345 high school students
- New loading and unloading area accessed from 108th Ave NE includes 17 additional parking spaces
- New playfield area

Existing Campus

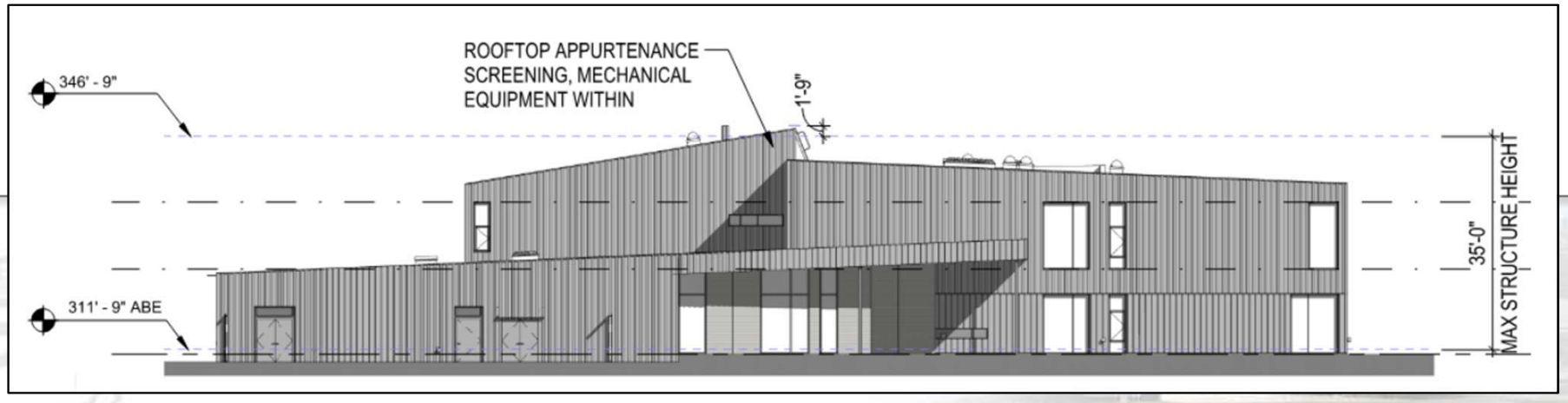
Proposed Campus

Public Comment Concerns

- 108th Avenue NE access
- Onsite parking
- Sight distance at 108th/ 48th
- Excavation work impacts
- Lighting
- Retention and use of native vegetation

Development Regulations

- School location criteria
  - Not materially detrimental
  - Site and building design minimize impacts
  - Served by collector or arterial street
- Building height
  - Base height of 25 feet
  - Increase to 35 feet with additional setbacks
  - Up to 5 feet to screen mechanical equipment



Development Regulations

- Setbacks
  - 50-foot base, 60-foot setback from south and east
  - Playfield fence netting
  - Southwest parking area setback
  - Existing west and north parking areas
- Parking
  - Parking analysis submitted
  - PW review and approval
  - 0.29 stalls per Emerson HS student
  - 101 stalls required, 115 supply
- Onsite Passenger Loading Area
  - PW Traffic Engineer to discuss

Development Regulations

- Parking lot landscape buffer
  - Southwest and north lots compliant
  - West lot requires planting of shrubs and trees
- Landscape buffer
  - Existing vegetation provides adequate screening to east and south
  - Southwest corner requires additional trees
- Tree retention
  - 274 onsite regulated trees
  - Removal of 43 trees, 9 are landmark trees
  - 27 landmark mitigation trees

Approval Criteria

- Process IIB Zoning Permit
  - Consistent with development regulations
  - Consistent with public health, safety and welfare
- Staff Conclusions
  - The proposal complies with all applicable development regulations
  - The project will provide a new expanded education building on the existing school campus, while minimizing impacts on the surrounding neighborhood.

Staff Recommendation

- Approve application with conditions
  - Installation of parking lot landscape buffers
  - Installation of landscape buffer trees
  - Compliance with final tree retention plan
  - Lighting plan submittal
  - Parking sequence plan during construction
  - Parking and circulation management plan

Traffic Review

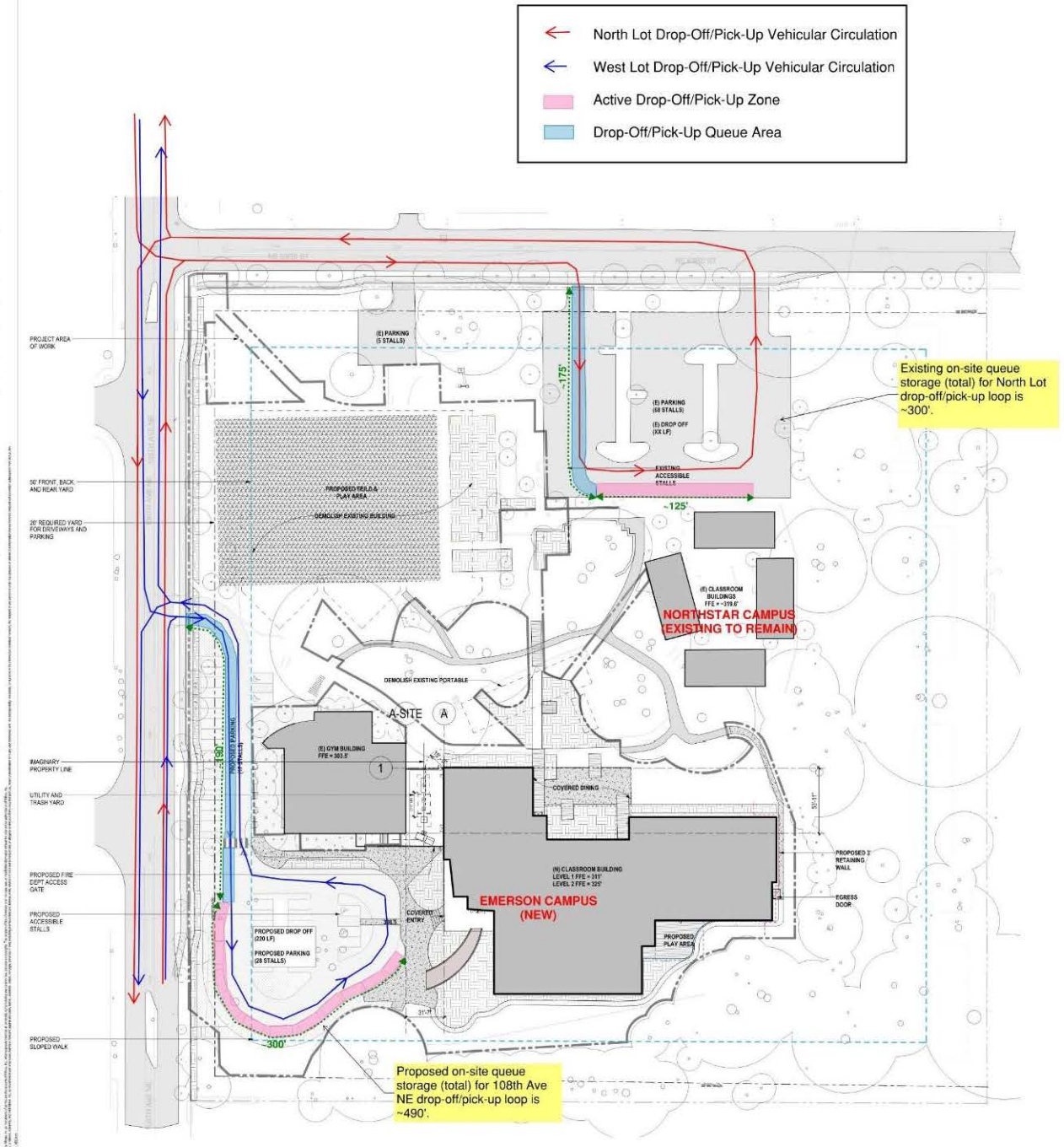
- The existing parking lot on 108th Ave NE will be expanded to accommodate a loading zone with a queue capacity for 19 vehicles and 17 additional parking spaces; the existing two driveways will be consolidated to one to reduce traffic conflict points.
- The additional student loading area will help to mitigate the existing queue on 53rd during drop-off and pick-up.
- The general parking lot on 53rd will remain as is, drop-off & pick-up will continue as is.
- The start and end times for the two schools will continue to be staggered to minimize overlapping of student drop-offs & pick-ups.
- Queues are longest during pickup times because parents come early and wait in a queue to pick up their children. The pickup times occur before the evening PM peak commute time.
- A management plan will be required to mitigate parking & queue impacts. The plan will be reviewed with the building permit.

Traffic Review

- The analysis shows that the queue will be contained within the parking lot off 108th.
- In the event the queue exceeds the queue capacity, parents can use the 17 parking spaces for load/unloading.
- Not all H.S. students drive or at the driving age. Those that drive will be required to have a parking pass as a way to monitor and mitigate parking impact. There will be a designated student parking area.
- The proposed 115 parking spaces provide a buffer to the calculated parking demand of 101 spaces.
- Designated staff parking will be located as to not interfere with student drop-off and pickup operations.
- The applicant will be required to monitor the parking and loading at the beginning of the school year to ensure queue does not back up onto 108th and have staff direct queue traffic as necessary.

Traffic Review

- The school will provide parents with drop-off & pickup instruction prior to the beginning of the school year.
- The additional 167 H.S. students generate 588 daily, 179 AM, 224 Afternoon & 63 PM peak hour trips.
- The trips generated do not trigger transportation level of service mitigation.
- The school district will pay approximately $79k in transportation mitigation fee.
- Not all H.S. students will attend school all five days, some will come and leave the campus at different times to attend school elsewhere.



16 ARCHITECTURAL SITE PLAN
1" = 30'-0"

MITHŪN

LEASE CRUTCHER LEWIS

PROJECT
EMERSON SCHOOLS

LOCATION
10903 NE 53RD ST

PREPARED FOR
LAKE WASHINGTON SCHOOL DISTRICT

Lake Washington School District

JW
SK
TC, AO
EGJ, AO

ARCHITECTURAL SITE PLAN

2422400
05/08/2025

A1.01
30% DESIGN

Lake Washington School District

Support Services Center
15212 NE 95TH Street • Redmond, WA 98052
Office: (425) 936-1100 •Fax: (425) 883-8387
www.lwsd.org

February 19, 2026

Lake Washington School District
15212 NE 95th ST
Redmond, WA 98052

Re: Response to Public Comments – Emerson Campus Master Plan Amendment (ZON25-00491)

Lake Washington School District appreciates the thoughtful input submitted by neighboring residents regarding the proposed Emerson Campus Rebuild and Enlarge project. The District understands that school redevelopment projects can generate concerns related to traffic, stormwater, tree removal, and neighborhood compatibility. These comments have been carefully reviewed in coordination with the District's civil, traffic, and environmental consultants.

The following memorandum summarizes the primary themes raised in the comment letters and provides technical responses based on the applicable City of Kirkland codes, the 2021 King County Surface Water Design Manual, and the project's Traffic Impact Analysis.

Public comments were received from:

- Jim and Karen Todd
- Pete Francis
- Marie ("Molly") Working

The comments have been summarized to address:

1. Traffic circulation, access configuration and parking capacity
2. Proposed stormwater systems and environmental performance
3. Removal of heritage/landmark trees
4. Landscaping and lighting concerns

Traffic and Circulation Concerns Raised:
Potential congestion on 108th Ave NE, insufficient parking, and whether access from NE 53rd Street would be less impactful.

Response:

- A comprehensive Traffic Impact Analysis (TIA) was prepared and coordinated with City Transportation staff. The TIA concludes that the Emerson campus has minimal

impact on regional traffic along 108th Ave NE and is below City thresholds requiring public right-of-way improvements.

- The proposed design includes sufficient additional parking stalls required for increased capacity and a widened entry drive that provides expanded on-site queuing length, minimizing spillback onto 108th Ave NE. The existing access and parking lot on 53rd will also remain.
- Alternative, expanded access from NE 53rd Street was evaluated; however reconfiguration would require removal of a substantially greater number of landmark/heritage trees and expanding the lot off 53rd would eliminate the space needed for the replacement playfield which has been highly utilized by community groups.

Stormwater and Environmental Performance Concerns Raised:

Replacement of the existing open stormwater pond with a detention vault may reduce environmental performance, increase thermal impacts, and create greater maintenance burden.

Response:

- The project is designed in accordance with the 2021 King County Surface Water Design Manual (KCSWDM) and the City of Kirkland Addendum per Policy D-10. These codes have been approved by the Department of Ecology and determined equivalent to the Ecology Stormwater Manual. The project meets required Core Requirements and Special Requirements.
- Both the existing infiltrating detention pond and the proposed infiltrating detention vault are engineered flow control facilities. Flow control facilities are designed to meet specified discharge performance criteria and protect downstream properties and resources from increases in peak flow, duration, and runoff volume.
- Replacement with an infiltrating detention vault represents a comparable and code-compliant mitigation option. The proposed facility also provides updated infrastructure consistent with current design standards.
- The proposed vault will be covered, minimizing collected water's exposure to solar heating.
- Per King County maintenance requirements both systems rely on gravity-driven flow control and do not depend on mechanical systems for routine operations. Both open ponds and vaults are typically serviced by vacuum truck. Long-term maintenance performance is expected to be comparable.

Tree Removal and Mitigation Concerns Raised:

Removal of mature heritage trees reduces environmental function and greenbelt character.

Response:

- Placement of the new building and supporting facilities was carefully considered to maximize retention of healthy site trees.
- Tree removal was evaluated through SEPA review and was not determined to result in significant impacts to regional stormwater loads, local habitat connectivity or other environmental criteria.
- In compliance with City of Kirkland Municipal Code landmark trees are replaced at a 3:1 ratio and replacement species must be larger tree species. The project complies fully with these mitigation requirements.

Landscaping and Lighting Concerns Raised:
Previous landscaping maintenance concerns and potential glare from parking lot lighting.

Response:

- Site lighting will comply with City lighting standards, including measures to minimize off-site glare through downward-directed fixtures. Landscape design for the project and required tree replacement will be installed consistent with code.

The Emerson Campus Rebuild and Enlarge project has been designed to comply with all applicable City of Kirkland development standards, including traffic, stormwater, tree protection, environmental mitigation, accessibility, and life safety requirements. The project has undergone SEPA review and has been coordinated with City engineering and transportation staff.

The proposed design balances educational program needs, site constraints, environmental protection, and neighborhood compatibility. While the District recognizes the concerns expressed by neighbors, the technical analyses confirm that the project meets the applicable performance standards established by the City and State.

Thank you,

Laura DeGooyer

Laura DeGooyer
Director of Capital Projects
Lake Washington School District