Rainier Beach High School Replacement Project

Final Project SEPA Checklist

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For questions and more information about this document, please contact the following:

Mike Skutack
Senior Project Manager
skutackm@seattleschools.org

While the Rainier Beach High School Replacement Project Final State Environmental Policy Act (SEPA) Project Checklist is accessible and ADA compliant, the attached figures and appendices, which support the checklist, contain complex material that are not accessible. The following is a description of what is contained in the figures and appendices:

Figure 1, Rainier Beach High School Vicinity, Seattle, Washington. Figure 1 is an aerial photograph of the Rainier Beach High School site including its surrounding neighborhood. The project parcel is outlined in red. There is an inset map showing where the site is located within the city of Seattle.

Figure 2, Proposed Rainier Beach High School Conceptual Site Plan (subject to change). Figure 2 provides a conceptual drawing of the proposed new configuration of the Rainier Beach High School facility including site buildings, athletic fields, and parking areas. For the most part, the athletic fields remain in the same place with the exception that the existing practice field is replaced by the new school structure and the existing basketball court area in the northeast of the site is replaced by a new practice field. Most of the existing parking spaces are relocated to the southeast portion of the site. The figure shows a variety of landscape improvements and provides labels for some of the proposed uses.

Figure 3, Field Pole Lighting Heights and Locations. Figure 3 is a map of the existing site plan with indicators for each new light pole, each relocated light pole, and each existing light pole on the site with color coding and height of each pole.

Figure 4, Key to View Assessment Figure Locations, Seattle, Washington. Figure 4 is an aerial photograph of the Rainier Beach High School site including its surrounding neighborhood. It is provided to demonstrate to potential view impacts. Photographs follow for each view assessment location.

Figure 4a. Figure 4a is a photo showing the view of the Project Site Facing West from Be'er Sheva Park Located at 8650 55th Avenue South. The view shows the front of the Rainier Beach High School building with trees, grass, and on-street car parking. There are no protected views identified in the photo.

Figure 4b. Figure 4b is a photo showing a View of the Project Site Facing West from Beach Court Apartments at 8630 Rainier Avenue South. The view shows a fence in the forefront and the baseball field with athletic field lighting and the school buildings in the distance. There are no protected views identified in the photo.

Figure 4c. Figure 4c is a photo showing a View of the Project Site Facing Southeast from the Starlighter Apartments at 8708 Rainier Avenue South. There is children's play equipment in the forefront. Fenced practice areas are seen in the middle of the photo and the baseball field is shown in the background with athletic field lighting. There are no protected views identified in the photo.

Figure 4d. Figure 4d is a photo showing a View Facing East across the School Site from the Sherwin-Williams Paint Store at 8824 Rainier Avenue South. The forefront of the photo shows vegetation growing over the fence and the back of a scoreboard obscuring some of view of the football/soccer stadium. Athletic field lighting is prominent and the performing arts structure is visible in the distance. The tops of several mountains are visible above some of the treetops in the distance to the far right. The views of this area of the project site will not change except for the upgrade of the existing lighting to LED lighting. No protected views would be impacted as a result of the project proposal.

Figure 4e. Figure 4e is a photo showing a View of the School Building from a residence at 9704 Hamlet Avenue South, facing south. The view in the back of the house shows a driveway and a large tree in the forefront and the side of the large high school building in the distance. There are no protected views identified in the photo.

Figure 4f. Figure 4f is a photo showing a view of the Project Site from a Residence Located at 8741 Hamlet Avenue South, Facing southwest. The view is of a fence in the forefront with a building structure and part of the performing arts building in the distance. Also seen in the distance are trees, athletic field lights, and utility lines and poles. There are no protected views identified in the photo.

Figure 4g. Figure 4g is a photo showing a View of the Project Site from a residential area to the North of the Project Site at the Corner of South Hamlet Street and 53rd Avenue South, facing West. The view to the right is of a fenced asphalt basketball court and a building and paved area to the left. In the distance are apartment complexes, athletic field lighting, and ball fields. There are no protected views identified in the photo.

Figure 4h. Figure 4h is a photo showing a View of the Project Site from Residences and a Trail at the Corner of South Henderson Street and 52nd Avenue South, Facing North. The view is of the football/soccer track and stadium and athletic field lighting. In the forefront are trees and utility lines. In the distance is the performing arts building. There are no protected views identified in the photo.

Appendix A: Transportation Technical Report Appendix A consists of a report titled, "Updated Transportation Technical Report for Rainier Beach High School Replacement" prepared by Heffron Transportation, Inc. dated August 30, 2021. The report provides a project description; background conditions related to the transportation network, traffic volumes, parking, traffic safety, transit facilities and non-motorized facilities. The report addresses impacts of the proposed school replacement and concludes with recommendations. Attached to the end of the report are Appendix A – Level of Service Definitions, and Appendix B – Parking Utilization Study Data. There are figures and tables in the document, including in the appendices, which graphically depict and organizes data to support the findings in the report.

Appendix B: Light and Glare Report Appendix B consists of a report titled, "Rainier Beach High School Athletic Field Lighting Light and Glare Report" prepared by Stantec dated September 30, 2021. The report provides a description of the proposal, existing codes and policies, existing conditions, existing light and glare (including photographs), proposed equipment, and analysis. Analysis is provided for Glare, Spill Light, and Sky Glow. There are figures and photographs to support the findings in the report.

Appendix C: Environmentally Critical Areas Assessment Memo Appendix C consists of a memo titled, "Rainier Beach High School Replacement Project Environmentally Critical Areas Assessment" prepared by ESA. dated June 23, 2021. The memo provides a project description; methods for wetland delineation, review of existing information, results of the field investigation, description of Wetland A, and offsite features including streams. Regulatory implications and requirements are described along with wetland mitigation sequencing. Also included are photos, figures, wetland data forms, and the wetland rating form.

Appendix D: Noise Memo consists of a memo titled, "Rainier Beach High School Replacement Project – Noise Technical Memorandum" prepared by ESA dated June 18, 2021. The memo provides a project description, fundamentals of noise, City of Seattle Municipal code, noise sensitive receivers, existing conditions, proposed project noise assessments, parking, students, vehicular traffic, athletic activities, and construction. Tables support the findings in the report.

Appendix E: *Draft Arborist Report*, Tree Solutions, Inc., March 25, 2021 consists of an inventory and assessment of 189 trees on the site. The report provides an aerial view of the site, photos of trees, tree

protection specifications, and assumptions and limiting conditions. Also included is a tree inventory table of trees, risk table of trees, and annotated survey with tree numbers.

Appendix F: Appendix F consists of the Greenhouse Gas Emissions Worksheet for the project. This worksheet provides a calculation of the greenhouse gas emissions that would be anticipated to be generated with the development of the proposed project.

This concludes the description of the Draft SEPA Checklist figures and appendices for the Rainier Beach High School Replacement Project SEPA Checklist.

DATE: Oct. 19, 2021

TO: Recipients of the State Environmental Policy Act Determination of Nonsignificance (SEPA DNS) for Rainier Beach High School Replacement Project

FROM: Fred Podesta, SEPA official

Seattle Public Schools (SPS) has determined that the final SEPA environmental checklist dated October 2021, meets our environmental review needs for the current proposal for the replacement of Rainier Beach High School. The proposal is largely funded by the Building Excellence (BEX) V Capital Levy, and other portions will be funded by the new Buildings, Technology, and Academics (BTA) V Capital Levy that is scheduled for a vote in February 2022. SPS plans to begin construction in early Spring 2022 and be substantially complete by early fall 2025.

After conducting an independent review, SPS has determined that the project does not have significant adverse impacts on the environment as documented in the checklist and the enclosed DNS.

The final SEPA checklist discusses the potential environmental impacts that could result from construction of the project. A draft of the checklist was released for public comment from June 30 to July 30, 2021. Comments received informed revisions to the final SEPA checklist on which the DNS is based. The responses to written comments received are summarized in the SEPA Public Comments and Seattle Public Schools Responses, included with the SEPA checklist.

Thank you for your participation in the SPS SEPA process. Your involvement has helped to make the Rainier Beach High School Replacement proposal a much better project.

Fred Podesta, Assistant Superintendent of Operations
P.O. Box 34165, MS 22-183, Seattle WA 98124 * 206-252-0102

WAC 197-11-970 Determination of Nonsignificance (DNS)

STATE ENVIRONMENTAL POLICY ACT
DETERMINATION OF NONSIGNIFICANCE (DNS)
RAINIER BEACH HIGH SCHOOL REPLACEMENT PROJECT

Date of issuance: Oct. 26, 2021
Lead agency: Seattle Public Schools
Location of proposal: Rainier Beach High School, 8815 Seward Park Ave. S, Seattle, WA (NW quarter of Section 35, Township 24, Range 04)

Description of proposal – Seattle Public Schools (SPS) is proposing to replace the existing 182,500 square feet school building with a new 276,000 square feet multi-story school building and make improvements to the athletic fields. The permanent enrollment capacity would increase from 1,500 to 1,600 students in grades 9 through 12 and have 130 to 160 employees; however full enrollment is not anticipated for at least 10 years or more after completion (existing enrollment has been averaging to be approximately 762 students since 2017). The new school building would be located in the central portion of the site. Two parking lots would be located at the southeastern portion of the site and will increase parking from 160 spaces to approximately 190 spaces. Existing curb cuts along South Henderson Street would be eliminated and replaced with one. Athletic field improvements include replacement of existing synthetic turf and LED lighting upgrades. The existing utility (practice) field would be removed for the new building. A new practice field will be added in the location of the existing basketball courts and include synthetic turf and lighting. Grass will remain on the fields if BTA V Capital Levy funding is not approved. The proposal includes demolition of existing facilities.

The lead agency for this proposal has determined that it will not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request at the following location: John Stanford Center, 2445 3rd Ave. S, Seattle, WA 98124-1165 (Attn: Mike Skutack, Phone: 206-252-0669) and online at: https://www.seattleschools.org/departments/sepa/

This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal prior to Nov. 10, 2021 (at least 15 days from the issuance date listed above). This DNS may be appealed by written notice setting forth specific factual objections received no later than Nov. 10, 2021 (at least 15 days), sent to:

Superintendent
Seattle Public Schools
P.O. Box 34165, MS 32-151
Seattle, WA 98124-1165

Name of agency making threshold determination: Seattle Public Schools
Responsible Official: Fred Podesta, Assistant Superintendent of Operations, Seattle Public Schools
Phone: 206-252-0102
Address: MS 22-183, P.O. Box 34165, Seattle, WA 98124-1165

Date: Oct. 19, 2021 **Signature:** Fred Podesta

Rainier Beach High School Replacement Project

Final SEPA Checklist

October 6, 2021

PREPARED FOR:

SEATTLE PUBLIC SCHOOLS
2445 THIRD AVENUE SOUTH
SEATTLE, WA 98134

PREPARED BY:

ESA
5309 SHILSHOLE AVENUE NW, STE. 200
SEATTLE, WA 98107

PREFACE

The purpose of this Final Environmental Checklist is to identify and evaluate probable environmental impacts that could result for the Rainier Beach High School Replacement Project and to identify measures to mitigate those impacts. The Rainier Beach High School Replacement Project would construct a new multi-story high school with up to approximately 276,000 square feet and improvements to the existing athletic fields. The State Environmental Policy Act (SEPA) (Chapter 43.21C of the Revised Code of Washington) requires that all governmental agencies consider the environmental impacts of a proposal before the proposal is decided upon. A Draft SEPA Environmental Checklist was issued on June 30, 2021. The comment period on the Draft SEPA Checklist for the Rainier Beach High School Replacement Project was from June 30 to July 30, 2021. This Final SEPA Environmental Checklist has been prepared in compliance with the State Environmental Policy Act; the SEPA Rules, effective April 4, 1984, as amended (Chapter 197-11 of the Washington Administrative Code); Seattle Public Schools SEPA Policy No. 6890; and the Seattle City Code (25.05), which implements SEPA. This document is intended to serve as SEPA review for the Rainier Beach High School Replacement Project. Analysis associated with the proposed project contained in this Environmental Checklist is on-file with Seattle Public Schools. This Environmental Checklist is organized into three major sections. Section A of the Checklist (starting on page 1) provides background information concerning the Proposed Action (e.g., purpose, proponent/contact person, project description, project location, etc.). Section B (beginning on page 10) contains the analysis of environmental impacts that could result from implementation of the proposed project, based upon review of major environmental parameters. This section also identifies possible mitigation measures. Section C (page 46) contains the signature of the proponent, confirming the completeness of this checklist. Attached to this Environmental Checklist is the Draft SEPA Checklist Comments and Responses. Appendices to this Environmental Checklist include: Updated Transportation Technical Report (Heffron Transportation, Inc., August 30, 2021); Light and Glare Report (Stantec, September 30, 2021); Environmentally Critical Areas Assessment Memo (ESA, June 23, 2021); Noise Technical Memorandum (ESA, June 18, 2021); and Arborist Report (March, 2021) Copies of the appendices are available from Seattle Public Schools upon request at SEPAComments@seattleschools.org or calling 206-252-0990.

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ATTACHMENT

APPENDICES

TABLE

ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. Name of the proposed project, if applicable:

Rainier Beach High School Replacement Project

2. Name of applicant:

Seattle Public Schools (SPS)

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

Mike Skutack
Seattle Public Schools
2445 Third Ave S
Seattle, WA 98134
206.252.0669

4. Date checklist prepared:

September 2021

5. Agency requesting checklist:

Seattle Public Schools (SPS)

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

Construction is anticipated to begin in phases in early Spring 2022, and be substantially complete by early Fall 2025. Construction is scheduled to be completed in phases to allow for continuous occupancy of up to 750 students on the project site. Due to the types of activities in each phase, there is some overlap in the schedule.

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

Plans for many of the approved Seattle Public School capital levy projects were included in two prior environmental review documents. Rainier Beach High School was listed for funding for proposed increased capacity in the Building Excellence (BEX) V Draft Environmental Impact Statement (EIS) for funding which was passed. The links to the draft and final EIS are provided below:

- BEX V Draft Environmental Impact Statement (DEIS): https://www.seattleschools.org/UserFiles/Servers/Server_543/File/District/Departments/Capital%20Projects%20and%20Planning/BEX%20V/BEX%20V%20Draft%20PEIS_ADA.pdf
- BEX V Final Environmental Impact Statement (FEIS): https://www.seattleschools.org/UserFiles/Servers/Server_543/File/District/Departments/Capital%20Projects%20and%20Planning/SEPA/BEX%20V%20Final%20PEIS_ADA.PDF

Environmental review for the new BTA V Capital Levy program is currently in progress and the projects proposed for funding in that levy are scheduled for a vote in February 2022. Projects identified in the BTA V Capital Levy checklist may be constructed at a future date. However, as was the case for projects listed in the prior capital levies for SPS, the BTA V is subject to approval by a public vote, and development at any of the schools or school facilities would be subject to additional project-level review under the State Environmental Policy Act (SEPA), as appropriate.

The projects proposed for funding for Rainier Beach High School that are being reviewed on a programmatic level in the BTA V Capital Levy program checklist include: the replacement of existing synthetic turf at the existing football/soccer stadium & bleachers; track re-surfacing; relocation of the practice field to the existing basketball court area and providing synthetic turf and potential new lighting; conversion of baseball and softball outfields from grass to synthetic turf; and replacement of existing field lighting to LED lights.

The project elements listed above are also reviewed at a project-level in this Rainier Beach High School Replacement Project checklist, but would not be expected to be constructed unless the February 2022 levy is passed.

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

- *Formation Thermal Conductivity Test & Data Analysis*, GRTI, December 18, 2021
- *Limited Hazardous Building Material Survey*, EHS-International, Inc., February 2021
- *Subsurface Exploration, Geologic Hazards, and Preliminary Geotechnical Engineering Report*, Associated Earth Sciences, Inc., August 4, 2020
- *Draft Arborist Report*, Tree Solutions, Inc., March 25, 2021
- *Environmentally Critical Areas Assessment Memo*, ESA, June 2021
- *Noise Technical Memorandum*, ESA, June 2021
- *Draft Cultural Resources Literature Review Short Report*, ESA, June 2021
- *Light and Glare Report*, Stantec, September 2021
- *Transportation Technical Report*, Heffron Transportation, Inc., June 23, 2021
- *Updated Transportation Technical Report*, Heffron Transportation, Inc., August 30, 2021

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.

Possible agreements or easements with SPU may be needed if SPS requires property owned by SPU for utilities or surface use. No other government approvals of other proposals directly affecting the property are known to be pending.

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

City of Seattle

- Building (Phased)
- Development Standard Departures
- Clearing and Grading Permit
- Demolition Permit
- Other: Mechanical Permit/Electrical Permit/Fire Alarm/Elevator Permits, Side Sewer Permit
- Tree & Vegetation Removal Permit
- Utility Work in the Right-of-Way (ROW)
- Street Improvement Plan

Washington Department of Ecology (Ecology)

- National Pollutant Discharge Elimination System (NPDES) Permit

Puget Sound Clean Air Agency

- Notice of Demolition
- Hazardous Materials Abatement

Seattle Public Utilities

- Possible easement or surface lease agreements may be required for SPS use on SPU property on the project site block.

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.

Project Background

Seattle Public Schools (SPS) periodically proposes public school levies to fund their projects. The SPS BEX V Capital Levy program generally includes projects proposed for funding for new construction, the renovation and modernization of existing school buildings throughout Seattle to allow for increased capacity, building systems repairs and replacements, and installation of exterior lighting at athletic fields. The BEX V Program is funded by a 6-year levy to replace, renovate, and modernize District buildings and address enrollment growth, earthquake, and safety issues; infrastructure upgrades; major preventative maintenance; and technology system improvements throughout the District. In 2019, Seattle voters passed the BEX V school levy. The push to improve, and ultimately replace, Rainier Beach High School has always been led by the community. In fact, it was RBHS students that led the advocacy to include RBHS in the BEX V levy.

Based on this advocacy, the levy proposed funding to modernize Rainier Beach High School to enable it to increase its capacity to 1,600 students to serve the growing capacity needs of the District and to provide a building that both meets the District standards for

educational spaces and creates a warm welcoming culture and inclusive environment to support the diversity of the students, their families, and communities.

Subsequent to passage of the BEX V school levy, SPS has proceeded with project planning and is now ready to provide SEPA project-level review for the project to increase capacity at Rainier Beach High School. This Checklist for the Rainier Beach High School Replacement Project has been prepared in compliance with the State Environmental Policy Act (SEPA) (Chapter 43.21C of the Revised Code of Washington [RCW]), the state SEPA rules (Chapter 197-11 of the Washington Administrative Code [WAC]), and the School Board's Policy on SEPA Compliance (Policy No. 6890). It is an information document, developed to ensure that the public, agencies, decision makers, and other interested parties are informed about the potential environmental impacts of the proposed project and the measures being used to mitigate for potential impacts.

Site Background and Description

The existing Rainier Beach High School site is 21.7 acres and houses an original building from 1960 as well as additions that expanded the school over the years (Figure 1). Rainier Beach Junior-Senior High School opened in September 1960 with 1,257 students (845 in the junior-high level and 412 high-school students). The school building was originally designed for 1,500 students, but by 1967 was overcrowded with 2,159 students (Thompson and Marr, 2002). As a result, a separate Model Middle School program began in portables on the grounds in 1970 and was moved to a new permanent building—South Shore—in December 1973. The performing arts center was constructed and opened in 1998 and renamed the Paul Robeson Performing Arts Center in 2004. Enrollment for the 2020-21 school year is 787 students and has averaged 762 students per year since 2017. The school currently has 85 full-time-equivalent (FTE) employees, including teachers, instructional assistants, administrators, and operations staff (Wang, 2021).

The existing school buildings on site have cumulative space of approximately 182,500 square feet (sf). The existing main school building was constructed in 1960 and is located on the southeastern portion of the site. Four other buildings (a gymnasium, a performing arts center [constructed in 1998], a wood shop and drafting building, and an auto shop building) are located northwest of the main building.

The outdoor athletic fields at Rainier Beach High School are also known as the Southeast Athletic Complex (SEAC) and serve as the home fields for Rainier Beach High School as well as for some sports at other Seattle high schools (e.g., Cleveland High School varsity football, softball, and baseball).The SEAC is located on the western portion of the site and includes a lighted football/soccer field and track, a bleacher structure with seating for approximately 1,500 people, covered storage and press box, a natural turf utility field, a lighted baseball field, a lighted softball field, baseball and softball batting cages, two outdoor asphalt basketball courts, and support buildings housing a ticket booth, restrooms, concessions, scheduling office, storage, and maintenance equipment. There are three parking lots on the campus.

SPS and the Parks have historically maintained a Joint Use Agreement for shared use of athletic facilities. At school sites, SPS typically allows non-scholastic activities to be

scheduled by Parks or other groups during times when they are not used for scholastic activities. Similarly, SPS is provided priority use of Parks facilities. As a result, sites owned by either entity that contain athletic facilities may be used for practices or games associated with interscholastic athletics and for community uses such as youth and adult recreational sports and activities. The use of fields by parks currently occurs and is not anticipated to change with the proposed project.

An exception to this is the proposed new practice field location at the existing basketball courts at Rainier Beach High School is not currently part of the Joint Use Agreement and will be for school use only and would not add public use.

Proposed Project

The proposed project would replace the existing school building with a new multi-story high school with up to approximately 276,000 square feet and improvements to the existing athletic fields (Figure 2, Appendix A). When complete, the school would have permanent enrollment capacity for up to 1,600 students in grades 9 through 12; however, it is noted that SPS does not anticipate full enrollment for 10 years or more after completion. Based on staffing for other Seattle high schools, SPS estimates that Rainier Beach High School could have between 130 and 160 employees if/when it is enrolled to its capacity of 1,600 students.

The proposed new school building would be located in the central portion of the site now occupied by the natural practice turf field and wood shop building. Two parking lots would be located at the southeastern portion of the site. Existing curb cuts along South Henderson Street would be eliminated and replaced by one.

The table of existing and proposed project elements is provided in Table 1.

Table 1. Rainier Beach High School Replacement Existing and Project Elements

Project Site Category	Existing	Proposed
Building Structures	The existing school building facility (approximately 182,500 square feet), located on the east side of the property, houses a system of building units including the main school building and classrooms; the performing arts center building; the gymnasium; the Career and Technical Education (CTE) building; and the auto shop. The CTE building is not connected to the other three building units (main, performing arts, and gymnasium) by any interior hallway, and is housed in a separate rectangular building north of the other three building units. Covered walkways connect the gymnasium and the CTE building. Two portable classroom buildings are located directly south of the walkway along the southern façade of the CTE building.	Main school building structures, including the school building, performance arts center and gym, would be demolished in phases. A new school structure (approximately 276,000 square feet) would be constructed in phases in a new configuration on the project site which would displace the existing practice field. Other structures may be demolished or relocated as needed to accommodate the new school building. The new school would have general-use classrooms, special-education classrooms, science labs, learning commons, Career and Technical Education (CTE) labs, a Skills Center, library, art spaces, performing arts wing, gymnasiums and fitness spaces, health center, food service, multipurpose commons, administration, a Data Center, and support spaces. Site improvements would include a new on-site passenger vehicle drop-off/pick-up loop, an entry plaza, expanded and relocated parking, pedestrian paving, tree planting, landscaping, irrigation, selective clearing, grading, fencing, and site lighting. Portables may also be added to the school site, as needed. Excavation, fill, and grading are required during these activities. Existing portables would be demolished or relocated elsewhere on site. Future portable classrooms may be added to the project site as needed. During construction, portables may be needed to serve as temporary classrooms.
Athletic Fields*	Football/Soccer Field & Track	Football/Soccer Field & Track would remain. Athletic Field Improvements include replacement of existing synthetic turf and LED upgrades to the existing lights.
	Utility (Practice) Field	Utility (Practice) field would be replaced with the new school building structure.
	Baseball Field	Baseball field would remain. Athletic Field Improvements include replacement of grass with synthetic turf and LED upgrades to the existing lights. Grass would remain if BTA V Capital Levy funding is not approved.
	Softball Field	Softball field would remain. Athletic Field Improvements include replacement of grass with synthetic turf and LED upgrades to the existing lights. Grass would remain if BTA V Capital Levy funding is not approved.

Project Site Category	Existing	Proposed
	Basketball Courts	Basketball courts would be removed and replaced with a new practice field. New field lighting would be installed at the new practice field. Includes replacement of asphalt and grass with new synthetic turf. Grass would remain if BTA V Capital Levy funding is not approved.
Additional Structures/ Buildings	Grandstand Spectator Bleachers and Support Buildings (housing a ticket booth, restrooms, concessions, scheduling office, storage, and maintenance equipment)	Grandstand spectator bleachers. The support buildings will be removed and uses will be transferred to inside the new school building.
Utilities	Existing utilities currently at the site include electricity, natural gas, water, refuse service, telephone, storm drain, and sanitary sewer.	Utilities would be demolished and new utility services would be installed to serve the new building and associated facilities. Electricity, water, refuse service, telephone, storm drain, and sanitary sewer would continue to be provided to the school. This may include trenching and minor excavation and would be part of the overall construction at the site. A geothermal heating/cooling, displacement heat system would be installed, which requires boring geothermal wells in some areas of the site near the proposed new school building. Green stormwater infrastructure would also be provided.
Parking	Three existing parking lots at the project site	The project would reconfigure and expand on-site parking at the school. Two existing main parking lots would be located at the southeastern portion of the site and the new on-site passenger vehicle load/unload loop accessed from S Henderson Street and a second lot accessed from Seward Park Avenue S. These two parking areas would be physically connected by a tabletop driveway. Additional spaces are proposed along the northeast edge of the site with primary access from the same driveway on Seward Park Avenue S and/or from the south end of 53rd Avenue S.
Site Preparation and Additional Work	Site Conditions and Vegetation and Trees	Site improvements would include a new on-site passenger vehicle drop-off/pick-up loop, an entry plaza, pedestrian paving, vegetation and tree removal (including removal of exceptional trees), tree planting, landscaping, irrigation, selective clearing, grading, fencing, and site lighting. Construction staging would be provided on the existing school site.

* Athletic field improvements would only occur if BTA V Capital Levy funding is secured.

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 school site is located at 8815 Seward Park Avenue South in Seattle, Washington (Parcels 3524049146, 3524049124, 3524049149, and 3524049192). The project site occupies most of a city block bounded by South Henderson Street to the south, Rainier Avenue South to the west, South Cloverdale Place and Grattan Place South to the north, 53rd Avenue South and Hamlet Avenue South to the northeast, and Seward Park Avenue South to the east. The project location is shown in Figure 1 and the site plan is shown in Figure 2.

The site is located in the NW quarter of Section 35, Township 24, Range 04. The site is made up of the following parcels and legal descriptions (King County, 2021):

- **3524049146.** POR OF GL 2 IN NW 1/4 DAF - BEG SW COR OF GL 2 TH ELY 208.75 FT TH N 00-07-22 W 163.75 FT TH N 89-54-13 W 31.75 FT TH N 00-07-22 W 276.50 FT TH S 89-54-13 E 63 FT TH N 00-07-22 W 461.67 M/L TH NELY ALG CLOVERDALE ST 232.49 FT TH S33-07-12E 462.50 FT TH E TO W LN OF 53RD AV S TH S 00-06-00 E 669.25 FT TO S LN SD GL TH N 89-54-13 W 645.45 FT TO BEG TGW LOTS 1 THRU 5 BLK 10 HILLMANS C D ATLANTIC CITY ADD AND LOTS 21 THRU 34 BLK 11 SD ADD AND VAC STS TGW A POR GL 2 IF ANY LY S OF S LN OF ABOVE SD ADD BETWN 53RD AV S & SEWARD PK AV S.
- **3524049124.** POR GL 3 LY N OF HENDERSON ST & W OF E LN OF 52ND S PROD N & LY E OF A LN 125 FT E OF & PLLW RAINIER AVE.
- **3524049149.** POR GL 3 BEG AT PT ON N LN OF HENDERSON ST 650 FT E OF E LN OF RAINIER AVE TH N 00-09-08 E 301.94 FT TO N LN SD GL TH E TO WLY LN OF SEWARD PARK AVE TH SLY TO N LN OF HENDERSON ST TH W TO BEG LESS S 100 FT OF E 100 FT THOF LESS ST PER 9311080867.
- **3524049192.** POR GL 3 DAF - BEG NXN OF N LN OF S HENDERSON ST & WLY LN OF SEWARD PARK AVE S TH W ALG SD N LN 100 FT TH NLY PLW WLY LN SD AVE 100 FT TH E PLW N LN SD ST 100 FT TO WLY LN SD AVE TH SLY ALG SD WLY LN 100 FT TO POB PER SEATTLE ORD# 91457.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (underline): Flat, rolling, hilly, steep slopes, mountainous, other.

The overall topography across the property is generally flat to moderately sloping down to the west (AESI, 2020).

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

Site grades descend from an elevation high of approximately 27 feet within the northeastern quarter of the property to an elevation low of approximately 15 feet on the western edge of the property. These slopes appear to have been created by legal grading associated with development of the existing school (AESI, 2020).

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.

Associated Earth Sciences Inc. performed field explorations, a visual reconnaissance of the site, and a review of selected applicable geologic literature. A summary of soil types found on the project site is listed below (AESI, 2020):

- **Asphalt.** A surficial layer of existing asphalt was encountered within the southwest portion of the project site. The asphalt ranged from 2 to 3.5 inches in thickness.
- **Grass/Root Mat/Topsoil.** A surficial layer of grass, root mat, and organic topsoil was encountered at the locations of five explorations. This organic layer ranged from approximately 2 to 3 inches in thickness.
- **Fill.** The thickness of the observed fill soils ranged from approximately 3 feet to 8 feet.

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

The Seattle area is known to be in an active seismic area, as is the entire Puget Sound region.

- **Surficial Ground Rupture.** Based on AEIS's (2020) review of the Washington State Department of Natural Resources (WDNR) website, a fault trace associated with the Seattle Fault Zone is located about ½-mile north of the site. Due to the suspected long recurrence interval, and the distance of the site to the fault trace, the potential for surficial ground rupture along the Seattle Fault Zone is considered to be low during the expected life of the proposed structure.

- **Seismically Induced Landslides.** The potential for a seismically induced landslide at the site is low for the slopes along the west and southwest portions of the site, which were legally graded as part of original site development (AESI, 2020).
- **Liquefaction.** The encountered stratigraphy has a low potential for liquefaction due to its high silt content, thin zones of potentially liquefiable soils, and presence of significant shallow groundwater (AESI, 2020). The City of Seattle maps portions of the project site as an Environmentally Critical Area (ECA) liquefaction zone.
- **Peat Settlement Zone.** The City of Seattle maps the entire project location as a Category 2 ECA peat settlement prone area.

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

Expected construction activities for the project would include site clearing, excavation and grading, and demolition and removal of existing facilities. The project would require approximately 34,000 cubic yards of cut and 14,000 cubic yards of fill. The purpose of the grading and fill is to provide structural bearing subgrades. Existing fill soils would be removed from the site because they are not suitable for foundation bearing loads as indicated by the geotechnical engineer (AESI, 2020). Fill material required for the project would be sourced from an approved off-site location. Excavated material would be disposed of at an approved facility.

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

Construction activities at the site would expose soils, increasing the potential for soil erosion, particularly in areas with steep slopes; however, the implementation of a Temporary Erosion Sedimentation Control (TESC) plan that is consistent with City of Seattle Stormwater Manual and the implementation of best management practices (BMPs) during construction would mitigate potential impacts.

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

The current combined impervious coverage on the site is approximately 55 percent. The proposed impervious coverage for the site would increase to approximately 65 percent.

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

SPS would be required to obtain an Ecology Construction Stormwater General Permit (also known as the National Pollutant Discharge Elimination System [NPDES] permit). This permit would require temporary erosion and

sedimentation control (TESC) plans that are consistent with the City of Seattle Stormwater Manual. Temporary erosion and sedimentation control Best Management Practices (BMPs) would be installed to minimize erosion during construction. BMPs would be specified by the SPS District in the construction contract documents that the construction contractor would be required to implement. BMPs may include but not be limited to:

- Maintaining cover measures atop disturbed ground, including erosion control matting, plastic sheeting, straw mulch, crushed rock or recycled concrete, or mature hydro seed.
- Providing storm drain inlet protection.
- Routing surface water away from work areas and steep slopes.
- Keeping staging areas and travel areas clean and free of track-out (materials adhering to motor vehicles and inadvertently carried out of the project site to a staging area or paved road).
- Covering work areas and stockpiled soils when not in use.
- Completing earthwork during dry weather and site conditions if possible.

2. Air

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.

Activities for the project would likely result in emissions to the air during demolition and construction, which could last between 6 months and 3 years. Construction of this project could generate vehicle emissions, fugitive dust, release of asbestos-containing materials or odors.

School buses and parent drop-off and pick-up trips would continue as existing practices. No increases in busses are anticipated.

Another consideration with regard to air quality and climate relates to Greenhouse Gas Emissions (GHG). In order to evaluate climate change impacts of the proposed project relative to the requirements of the City of Seattle, a Greenhouse Gas Emissions Worksheet has been prepared (Appendix F of this Environmental Checklist). This Worksheet estimates the emissions from the following sources: embodied emissions; energy-related emissions; and, transportation related emissions. In total, the estimated lifespan emissions for the proposed project would be approximately 288,569 $MTCO_2e$. Based on an assumed building life of 62.5 years, the proposed building addition project would be estimated to generate approximately 4,617 $MTCO_2e$ annually. For reference, the Washington State Department of Ecology threshold for potential significant GHG emissions is 25,000 $MTCO_2e$ annually. Therefore, the proposed project would not be anticipated to generate a significant amount of GHG emissions.

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

There are no off-site sources of emissions or odors that would affect the proposed project.

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

SPS would identify site-specific mitigation measures necessary to minimize construction impacts during design. These measures may include those listed below:

- Follow SPS anti-idling policy for buses.
- SPS would require contractors to implement measures to control dust and reduce vehicle emissions. Contractors would be required to comply with the Puget Sound Clean Air Agency's (PSCAA) Regulation I, Section 9.15 requiring reasonable precautions to avoid dust emissions and Regulation I, Section 9.11 requiring the best available measures to control emissions of odor-bearing contaminants.
- SPS would comply with applicable regulations for the removal and disposal of any hazardous materials found in the building to be demolished to prevent their release into the air.

3. Water

a. Surface Water:

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.

The project area is located approximately 300 feet west of Lake Washington.

No streams are mapped or were observed on site. However, the King County Interactive Mapping Tool (iMap) shows Mapes Creek as flowing east along South Henderson Street to the south, into Be'er Sheva Park to the east, before flowing into Lake Washington (King County, 2020b). During a November 19, 2020 site visit, this stream was observed to enter the park through the outlet of a culvert in the southwest corner of the park. Upstream portions of this stream north of South Henderson Street within the vicinity of the school are piped and therefore are not part of the regulated riparian management area as defined in Seattle Municipal Code (SMC) 25.09.

One Category III wetland occurs on the project site. The wetland is a depressional, palustrine forested (PFO), palustrine scrub-shrub (PSS), and palustrine emergent (PEM) wetland located in the northern extent of the project site and located to the southeast of Cloverdale Place

South. It is bordered by the softball field to the southwest and residences to the northeast. The National Wetlands Inventory (NWI) maps a second freshwater/forested shrub wetland off site on the northwest side of Cloverdale Place South (USFWS, 2020).

Additional information is provided in the Final Environmentally Critical Areas Assessment Memo prepared for the project site (ESA 2021a).

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.

The project would not require any work on or over wetlands. Replacement of the existing turf field is proposed in the wetland buffer. The existing wetland buffer provides little to no protection to wetland functions. The turf is already underlain by an engineered drainage system and that system would remain. Per SMC 25.09.160(C), development and any alteration to the functions and values of Category III wetlands and their associated buffer is generally prohibited unless the work meets one of the listed exemptions in the Code. However, Christy Carr (City of Seattle SDCI staff) indicated that the proposed project to convert grass to synthetic turf in the outfields is an existing use and the only change is material, from grass to artificial turf, so it can be reviewed as an exemption (maintenance/repair). There is no additional impact, since the field is already there. (Carr, 2021). Additional information is provided in the Final Environmentally Critical Areas Assessment Memo (ESA 2021b).

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 is proposed to be placed in or removed from surface water or wetlands.

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

The project would 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.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Maps, the site is not located within a 100-year floodplain (FEMA, 2021).

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.

The project would not involve the discharge of waste materials to any surface waters.

b. Groundwater:

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 general description, purpose, and approximate quantities if known.

Groundwater would not be withdrawn from a well for drinking water.

AESI encountered groundwater across the site at depths ranging from 5 to 22 feet. It is anticipated that the contractor may encounter the need for dewatering in advance of excavations. The contractor would be prepared to intercept any groundwater seepage entering the excavations and route it to a suitable discharge location (AESI, 2020).

2. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: 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 material would be discharged into the ground. The project would not use septic tanks.

c. Water Runoff (including stormwater)

1. Describe the source of runoff (including stormwater) 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.

Runoff from building roofs and impervious surfaces is currently collected in a tight-line storm system and conveyed to the storm drainage main within the South Henderson Street right-of way. The storm main directly discharges into Lake Washington and would continue to discharge to the same tight-line system for the proposed project after processing by bioretention cells.

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

No material would be discharged to ground or surface waters as a result of the proposed project.

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

The project would not alter or otherwise affect drainage patterns in the vicinity of the site.

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

Construction: BMPs specific to the site would be specified by SPS in the construction contract documents that the construction contractor would be required to implement. These may include but are not limited to:

- A Stormwater Pollution Prevention Plan (SWPPP), which includes a Temporary Erosion and Sediment Control (TESC) Plan, would be required to prevent sediment from impacting the onsite wetland or from transport from the project site. Other erosion control measures would be incorporated, as necessary, in accordance with City of Seattle and Ecology requirements.
- Erosion control measures could include the use of catch basin inlet protection, a stabilized construction entrance, perimeter silt fences and mulch in exposed areas, armoring subgrade soils needed as working areas with rocks, catch basin filters, interceptor swales, hay bales, sediment traps, and other appropriate cover measures as specified in the SWPPP.
- All debris and spoil material would be transported off site to an appropriate disposal facility.
- Refueling would take place more than 100 feet from surface waters.

School Operations: The project may integrate green infrastructure, such as bioretention planting areas at the site and bioretention cells may be used to treat any new and replaced pollution-generating hard surfaces. Enhanced water quality treatment is required per City of Seattle Drainage Code as it includes more than 5,000 square feet of new plus replaced pollution-generating hard surface.

4. Plants

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

Trees inventoried were documented in the Draft Arborist Report, prepared by Tree Solutions, Inc. (2021).

_x_ deciduous trees: hawthorn, maple, aspen, cherry plum, other: Oregon ash; Homestead elm; paper birch; native willow; black locust; black cottonwood; horse chestnut; Monterey cypress; other ornamentals

_x_ evergreen trees: fir, red cedar, pine, other

_x_ shrubs: variety of ornamentals

_x_ grass

___ pasture

___ crop or grain

___ Orchards, vineyards, or other permanent crops.

_x_ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other: Pacific willow; Nootka rose; slough sedge; reed canarygrass; bind weed

___ water plants: water lily, eelgrass, milfoil, other

___ other types of vegetation

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

The project would result in removal of vegetation including existing landscaping, plantings, and trees. This includes the removal of invasive species from the perimeter areas.

The new building would overlap the area where the existing utility field is located (natural turf) and the parking lot area located at approximately the middle the of the project site (asphalt paving). Other alterations may include frontage improvements that would result in landscape or other enhancements. Vegetation would be impacted in these areas; overall, however, the project would expand vegetation throughout the site.

The Baseball and Softball outfields would be converted from grass to synthetic turf and the new practice field proposed for the northeast corner of the site would convert the asphalt and grass edging to new synthetic turf. The outfields would remain grass if BTA V Capital Levy funding is not secured.

The arborist report included the assessment of 189 trees located on site and in the adjacent right-of-way (Tree Solutions, Inc., 2021). Tree removal is proposed only for trees identified as posing some risk, with some requiring mitigation, removal, or pruning. There are currently 29 trees proposed for removal. Exceptional trees would be retained unless they pose a high or extreme risk. There are currently 5 exceptional trees proposed for removal.

Tree and vegetation removal plans would be reviewed as part of the project's permit application. A restoration plan is expected to be required for the removal of vegetation (including non-native or invasive plants) in environmentally critical areas (e.g., steep slope erosion hazard areas and their buffers, riparian corridors, wetlands, and wetland buffers).

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

No threatened or endangered plant species are known to be on or near the site (WDFW, 2021).

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

Proposed measures to preserve and enhance vegetation may include the following:

- Providing improvements along South Henderson Street to incorporate goals for a green pedestrian route. A green pedestrian route can be defined as a shared pedestrian path along a strip of land, in an urban or rural area, set aside for pedestrian recreational use or environmental protection.
- Integration of green infrastructure Green infrastructure can be defined as **"the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater."**
- Preservation of existing trees in good condition and new tree planting on the site
- Drought-tolerant, native, and adapted plants selected for suitability in the Puget Sound Lowlands, that include shrubs and groundcovers.
- School garden to support the school's culinary program, including terraced garden beds and a greenhouse
- Tree protection specifications will be implemented during construction per Appendix B of the Arborist Report (Appendix E of the SEPA Checklist).
- Replacement rate of 1:1 trees below regulated size outside of ECAs. Trees that are removed within an ECA are subject to replacement requirements as outlined in SMC 25.09.070. Replacement of exceptional trees and trees greater than 24-inches DSH are subject to requirements as outlined in SMC 25.11.090.0.

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

Bind weed and Himalayan blackberry were identified during the field investigation for the environmentally critical areas assessment (ESA, 2021a), and invasive English ivy was identified during the site inspection for the arborist report (Tree Solutions, Inc., 2021).

5. Animals

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

Animals on the site are birds and animals typically found in urban areas. The project site is located approximately 300 feet west of Lake Washington and across the street from Be'er Sheva Park.

Fish: According to the Washington Department of Fish and Wildlife, Lake Washington is known to contain the following aquatic species: black crappie, brown bullhead, Chinook salmon, coastal cutthroat trout. coho salmon,

common carp, green sunfish, kokanee, largemouth bass, largescale sucker, northern pikeminnow, peamouth, pumpkinseed sunfish, rock bass, signal crayfish, smallmouth bass, sockeye salmon, tench, three-spine stickleback, and yellow perch (WDFW 2021).

Amphibians: none observed.

Reptiles: none observed.

Birds: gull; American crow; rock pigeon; chickadee; robin; Steller's jay; northern flicker; Bewick's wren.

Mammals: Norway rat; raccoon; opossum. Other native mammals may include beaver, river otter, coyote, cougar, skunk, weasel, and muskrat (WDFW 2021).

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

According to the Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) program maps, there are no listed species on the project site. The U.S. Fish and Wildlife Service (USFWS) Environmental Conservation Online System (ECOS) Information for Planning and Consultation (IPaC) online tool does not designate critical habitat for threatened or endangered species on the site. Lake Washington, approximately 300 feet east of the project site, is listed as critical habitat for bull trout (USFWS, 2021). However, most habitat is likely only used as occasional foraging habitat.

The restored portion of Mapes Creek, located at nearby Be'er Shiva Park, provides refuge for fish and rearing habitat for juvenile Chinook salmon migrating to Puget Sound (City of Seattle, 2021c). Chinook salmon are listed under the Endangered Species Act as Threatened, Protected Status (NOAA, 2021).

There are no other threatened or endangered species known to be on or near the project site. Therefore, the potential for threatened or endangered animal species to be present is low.

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

The Puget Sound area is located within the Pacific Flyway, which is a flight corridor for migrating waterfowl and other avian fauna. The Pacific Flyway extends south from Alaska to Mexico and South America. No portion of the proposed project would interfere with or alter the Pacific Flyway.

Nearby Mapes Creek is a restored connection to the lakeshore and important to juvenile Chinook salmon that migrate from the Cedar River to Puget Sound along the lakeshore.

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

New trees and native plants are proposed throughout the site. These improvements are expected to increase habitat function and opportunities throughout the site.

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

Invasive animal species likely to be in the area include Norway rat, raccoon, opossum, and rodents that are typically found in urban areas.

6. Energy and Natural Resources

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.

Activities for the school would require electricity to operate. Electricity would also be sourced partially from solar. Photovoltaics would be installed on the roof to increase the solar on-site energy capacity. Energy for heating and cooling would mostly be provided by a geothermal well field on site. No natural gas would be provided to the site.

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

The project is located at an existing school site, and the new 4-story replacement structure is not expected to affect the 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:

Under Executive Order 05-01, public school construction projects receiving state assistance must be built to the Washington Sustainable Schools Protocol, or to Leadership in Energy and Environmental Design (LEED) Silver standards. The program requires a 10 percent reduction in energy use beyond what is required by the Washington State Energy Code (Revised Code of Washington [RCW] 39.35D.040).

The proposed replacement project includes energy conservation features that would substantially reduce energy use compared to the existing school building energy use. Overall, the energy efficiency of the replacement school project would reduce demand for energy and natural resources. The following energy conservation features may be included:

- Highly efficient Mechanical System: A geothermal heating/cooling, displacement heat system would deliver high quality indoor air
- Solar panels
- Power metering providing feedback on building system energy consumption and opportunities to help identify modifications to maximize building efficiency
- Energy star-certified equipment
- LED lighting with a system tailored to the type of illumination desired within each space or areas (ambient, general, accent, display, task, emergency and exit)

- Lighting control devices may include: time clocks occupancy sensors, light reduction controls, photo sensors, dimming controls, and emergency egress lighting controllers
- Both covered and non-covered bike parking

Athletic Field Lighting: The majority of the existing athletic field lighting and poles would remain in place, though upgraded to LED. New lighting would be installed at the new practice field for school use only and would not add public use.

The LED lighting is proposed to reduce the electrical energy load used for lighting by approximately 33 percent compared to floodlights that use metal halide lamps.

A fully programmable control system with remote operation would allow the fields to be lighted independently and to automatically turn off after play is completed. This feature would ensure that lights would be on only during the hours that events are scheduled on each field. If necessary, the lights could also be operated manually through separate switches that would be installed. Field lights are in addition to general security lighting that would be provided around the site.

The control system would be connected to the SPS energy management system. The lighting controls would be operated and programmed by SPS staff only. Automated control of the lighting system would be located at the central office. Manual controls would be located inside a locked electrical cabinet on site with keyed access by SPS staff only. Public use of the lighting system would be scheduled through the Seattle Parks and Recreation Department (Parks), which would put in a request to SPS to program the lights to turn on and off for special events.

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 as a result of this proposal? If so, describe.

The project may result in accidental spills of hazardous materials from construction equipment and vehicles. Spilled materials could include fuels, lubricants, solvents, antifreeze, and similar materials. If not contained, these contaminants could enter ground or surface water.

Hazardous materials could be encountered during demolition, grading, and excavation of the site. Disturbance of these materials during construction could release hazardous materials to the air or surface and groundwater or could expose construction workers, unless proper handling methods were used.

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

According to the Ecology Facility/Site(s) database (Ecology, 2021), the Rainier Beach High School site is not known to have contamination from present or past uses.

EHS-International, Inc. (EHSI) conducted a Limited Hazardous Materials Survey of the existing buildings at the project site. The survey included asbestos-containing materials (ACM); lead-containing paint (LCP); Arsenic (As) containing materials; polychlorinated biphenyl (PCB)-containing light ballasts; mercury-containing fluorescent light tubes, switches, and thermostats; and other regulated materials. Detectable levels of ACM, lead, and other regulated materials were identified throughout the existing buildings (EHSI, 2021).

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.

There are no known existing hazardous chemicals or conditions that would affect project development. Hazardous material abatement of the existing buildings prior to demolition would be performed.

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.

Chemicals stored and used during construction would likely be limited to gasoline and other petroleum-based products required for maintenance and operation of construction equipment and vehicles.

During operation of the school building, chemicals that may be used or stored include the following (EPA, 2006):

- Laboratory chemicals (e.g., acids, bases, solvents, metals, salts)
- Industrial arts class materials (e.g., inks)
- Art supplies (e.g., paints, photographic chemicals)
- Pesticides, fertilizers, and de-icers
- Maintenance supplies and equipment (e.g., drain cleaners, floor stripping products, paints, oils, fuels, mercury switches and gauges)
- Health care equipment (e.g., mercury thermometers)

4. Describe special emergency services that might be required.

The project would not require any special emergency services.

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

Proposed measures to reduce or control environmental health hazards may include those listed below:

- SPS would comply with applicable regulations for the removal and disposal of any hazardous materials found on site.
- Site-specific pollution prevention plans and spill prevention and control plans would be developed to prevent or minimize impacts from hazardous materials.

b. Noise

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

In general, Seattle receives noise from sources that include: freeways, highways, and arterial streets, as well as overflights associated with Boeing Field and Sea-Tac International Airport. These noises are currently heard at the Rainier Beach High School site. The City of Seattle regulates noise via the Seattle Noise Ordinance (SMC Chapter 25.08). The ordinance sets a limit for exterior sound levels based on land use, establishes quiet hours, and prohibits construction and maintenance activities during certain hours of the day.

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

Construction: Construction of school projects would generate noise and possibly vibration. Construction equipment and vehicles may include jackhammers, drill augers, track hoes, dump trucks, forklifts, and boom trucks. This equipment would be in use most during the early stages of construction, typically during the first 3 or 4 months of construction. For most of the construction period, exterior and interior work would generate noise levels much lower than those of the heavy construction phase of the project.

School Operations: During school operations, as student enrollment increases at the school, there could be an increase in noise. Operations at the school would be audible to neighbors. Noise sources from high schools typically include student voices, school bells, regular vehicular traffic, and building mechanical equipment. A slight increase in noise would occur at the beginning and end of the school day and during lunch and recess periods. Noise generally occurs during normal school operating hours (approximately 7:00 a.m. to 6:00 p.m.), although evening events would occasionally be held at the schools. Additional car and bus trips could increase noise to neighboring residents.

Athletic Fields: Improvements to the athletic fields are not expected to change spectator attendance or the frequency of facility use over what is currently scheduled. New lighting at the new practice field would be for school use only and not for public use. Replacement of the existing basketball courts with a new practice field is not expected to result in a marked increase in noise over existing conditions.

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

General measures that may be imposed on the project to reduce or control noise impacts may include those listed below:

- Construction activities would be restricted to hours designated by SMC 25.08.425. The Seattle Land Use Code allows construction equipment operations between the hours of 7 a.m. and 10 p.m. on weekdays and 9 a.m. and 10 p.m. on weekends and holidays. Construction would generally occur between 7 a.m. and 5 p.m. on weekdays. It is unlikely that construction would occur at night or on holidays. Weekend construction could occur in some cases.
- If construction activities exceed permitted noise levels, SPS would instruct contractors to implement measures to reduce noise impacts to comply with the noise ordinance, which may include additional muffling of equipment.
- School operations would adhere to the Seattle Noise Ordinance. The code further regulates noises considered “unreasonable” including "loud and raucous, and frequent repetitive or continuous sounds made by the amplified or unamplified human voice" between the hours of 10 p.m. and 7 a.m. During these hours, maximum allowable noise from one property to another within residential districts is reduced to 45 Leq (dBA).

Athletic Fields: No marked change to existing use of the athletic fields is expected due to the replacement of the existing synthetic turf and the upgrades to the lighting and installation of new lighting at the new practice field.

8. Land and Shoreline Use

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 project site is currently used to house a SPS public high school campus, with associated sports complex and accessory buildings. Adjacent property uses include:

- **North** – Real estate agency. Single-family residences are located northeast of the site.

- **South** – Multifamily residences and a shopping center. A vacant lot owned by Seattle Public Utilities is located southeast of the site.
- **East** – Be'er Sheva Park and Lake Washington
- **West** – Paint store, car wash, deli, auto sales, retail stores, apartment buildings, medical/dental offices, convenience store, office building, Dunlap Elementary School, and vacant lots. Rainier Beach Community Center, and the South Lake High School are located northwest of the site.

The project would not affect the current or adjacent land uses since the site has been used as a school since 1960 and would continue to be used as a school.

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 as a result 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 site has been developed as a school since 1960. The site is not used for working farmland 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 working forest lands are located near the project site. The project would not affect or be affected by farm operations.

c. Describe any structures on the site.

The school building facility (approximately 182,500 square feet), located on the east side of the property, houses a system of building units including the main school building and classrooms; the performing arts center building; the gymnasium; the Career and Technical Education (CTE) building; and the auto shop. The CTE building is not connected to the other three building units (main, performing arts, and gymnasium) by any interior hallway, and is housed in a separate rectangular building north of the other three building units. Covered walkways connect the gymnasium and the CTE building. Two portable classroom buildings are located directly south of the walkway along the southern façade of the CTE building.

Athletic fields, located on the west side of the property, have accessory structures that include the bleachers, restroom and concession facilities, storage building, maintenance building, and fencing. Appurtenant structures and field lighting are also located on the project site.

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

Demolition of the school buildings, performance arts center and gym would be completed in phases (see also Section A.6, above). Portables may also be demolished.

Other site demolition activities may include the practice field, the demolition of appurtenant structures, storage, restrooms, parking areas; break up and removal of paved areas, subsurface foundations, field lighting, utilities, and footings; and other site construction within the site demolition area. Existing storm drain and sanitary sewer would be reused where possible, and demolished if no longer needed.

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

The current zoning classification of the school site is Residential Small Lot, Lowrise 2, and Lowrise 3 (City of Seattle 2021a and 2021b).

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

The current comprehensive plan designation of the site is Rainier Beach Residential Urban Village.

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

The project site is not within a shoreline jurisdiction. Therefore, there is no applicable Shoreline Master Program designation.

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

The City of Seattle regulates ECAs through SMC Chapter 25.09. The City's ECA geographic information systems (GIS) data were reviewed to assess ECAs on the project site. The project site contains steep slopes, wetlands, liquefaction zone, peat settlement prone, riparian corridor (City of Seattle, 2021a and 2021b).

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

With the proposed replacement and expanded capacity, Rainier Beach High School could have enrollment of up to 1,600 students with between 130 and 160 employees when enrolled to capacity. Full enrollment at the proposed capacity is not expected for 10 or more years after completion.

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

The completed project would not displace any people. The students would move from one building on site to another while construction is ongoing.

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

No displacement would occur. Therefore, no mitigation measures are needed.

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

Environmentally Critical Areas: During construction, BMPs would be employed to minimize clearing and grading impacts and runoff to ECAs and their buffers. These measures may include the following:

- For sites with steep slopes and riparian corridors, appropriate building setbacks and erosion control measures would be taken into consideration.
- Existing trees would be retained to the extent possible, and new trees and landscaping would be provided around the property in compliance with City requirements (SMC 25.11.090 and SMC 23.44.008.I).
- Mitigation plans would be developed in compliance with the City's ECA regulations (SMC 25.09).

Compatibility with Existing Land Use Plans:

Seattle 2035 Comprehensive Plan (City of Seattle, 2020)

The project is compatible with Rainier Beach Land Use Policies, specifically:

- RB-P1 Encourage the revitalization of the South Henderson Street corridor as a safe and attractive conduit between the light rail station at Martin Luther King Jr. Way South and the commercial center along Rainier Avenue S.
- RB-P21 Improve connections to, and circulation within, public spaces (South Shore K-8, Rainier Beach Playfield, Rainier Beach High School, and between Be'er Sheva and Pritchard Beach).

Rainier Beach Human Development Goals:

- RB-G13 Strong schools with excellent programs and strong enrollment, which encourage and support the educational development of exceptional students.
- RB-G17 Community-based implementation of neighborhood plan recommendations and other community projects.

Rainier Beach Human Development Policies:

- RB-P40 Improve public safety when implementing any project or program within the community

The project is consistent with existing land use regulations and plans. The Seattle Municipal Code contains development standards for public schools in residential zones in SMC 23.51B.002. The Seattle Land Use Code (Chapter 23.79) acknowledges that schools have different requirements than residential buildings and design departures from the development standards in the Code may be permitted through the departures process. The departure process requires SPS to apply to the Director of the Department of Construction and

Inspections (DCI) for departures. SDCI may approve departures if they meet certain criteria in SMC Chapter 23.79. The project would require a departure for building height.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

The project is not located near any agricultural or forest lands of long-term commercial significance. No measures to ensure compatibility are required.

9. Housing

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

No housing units would be provided as part of the project.

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

No housing units would be eliminated.

c. Describe proposed measures to reduce or control housing impacts, if any.

The project would not cause housing impacts. Therefore, mitigation measures to control housing impacts would not be required.

10. Aesthetics

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

The tallest height of the proposed new school structures is expected to be approximately 69 ft 10 inches (this includes rooftop features [stairs penthouse, mechanical equipment]. The tallest existing school building is the performing arts building at approximately 46-ft with additional height for mechanical elements. A height departure would be needed because the maximum height allowed under the current zoning is 35-ft plus 15-ft for pitched roofs. SPS is seeking a departure to allow a four-story high building, as specifically allowed in the City Code for high school buildings. The principal exterior building material would be brick or masonry on the first two floors of the main building with metal panels above. Masonry material will be used with textured materials for the athletics portion of the building and the performing arts center and other structures.

The existing athletic field light poles at the baseball field and softball fields are approximately 80-ft. Light poles are expected to remain and the bulbs would be upgraded to LED. The existing light poles at the football field/track are approximately 95-ft. Two of the existing 95-ft football field light poles would be relocated due to placement of the new school bleachers (Figure 3).

The new practice field where the existing basketball courts are would have four new 60-ft light poles with lights installed. Other lighting may be relocated as needed to accommodate programming.

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

Through the City of Seattle SEPA regulations, public views of Mount Rainier, the Cascade and Olympic mountain ranges, Puget Sound, Lake Washington, Lake Union, the Ship Canal, and the Downtown Skyline are protected (SMC 25.05.675.P). There are no protected views of or from the Rainier Beach High School site, as identified in SMC 25.05.657. There are no known viewpoints that would be affected by construction of the project. Figure 4 provides a key to the location of the photos of representative views of the project site from each direction (see Figures 4a through 4h). There are no (or limited or obstructed) views from the streets surrounding the area, although not specifically designated as protected view areas.

Views from adjacent residences facing the school campus would be altered as the school buildings are demolished and replaced with a new contiguous multi-story building, which would include new exterior facades, a different roof line, and a relocated main entry. However, the character and use of the site as school buildings and athletic fields, would not change. The new school has been designed to be aesthetically appealing and recede into the landscape, and along with new trees, would be an improvement over the aesthetics of the view of the older existing school.

For example, the current view of the site from single-family residences located to the north and northeast of the project site (Figures 4f through 4g) are of the school buildings, athletic fields, and associated lighting. The current view from apartments and commercial businesses located west of the project site (Figures 4b through 4d) are also dominated by the school buildings, athletic fields, and associated lighting. After construction of the project, the view of the site from these locations would be of a newer school building that is taller but similar in height and scale. The current view of the site from the residences located south of the project site is of the stadium, stadium parking, and the classroom building (Figure 4h). After construction of the project, the view from these residences would be of the same stadium, a new building in the background, and relocated parking lots at the southeast of the project site.

Athletic Field Lighting: The existing 80-ft and 95-ft poles at the baseball and softball fields would be retained, as constructions allows, and upgraded to LED lights. A new practice field in the northeast corner of the site is proposed to be constructed with four 60-ft lights for school use only and would not add public use. Two of the existing 95-ft tall football field light poles are being relocated due to placement of the new school bleachers (Figure 3).

The upgrades to LED lighting, relocation of several poles, or new installation of lighting at the new practice field is not expected to alter or obstruct SEPA-protected views, and would be similar to existing views (see Figures 4b through 4f, and Figures 4g and 4h).

The City also protects view corridors (SMC 23.49.024), scenic routes (Seattle ordinances #97025 and #114057), and views of landmarks (SMC 25.05.675.H). The Land Use Code provides for the preservation of specified view corridors through setback requirements. There are no protected view corridors or scenic routes in the vicinity of the project site. The proposed project would not have impacts on view corridors, scenic routes, or views of landmarks.

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

Athletic Field Lighting: Lighting features at the new school facilities would be designed to comply with City code requirements. The majority of the field lights are existing and getting upgrades to LED lighting which will significantly lessen the impacts on neighboring uses. The reflector and shielding design will further reduce the amount of light transmitted off site and into the atmosphere, and reduce the overall impacts of direct glare at the site. If there are any new field lights needed, they would likely require a special exception to the height limit for the light poles, as allowed in SMC 23.76, but would be the same height as the existing light poles.

11. Light and Glare

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

A light and glare technical report for athletic field lighting was prepared by lighting consultant Stantec (Stantec, September 2021) and is found in Appendix B.

Proposed Parking Lot and Security Lighting: Existing parking lot lights would be removed and new LED parking lot lights in new locations would be provided. Additional lighting would be provided as needed for the parking areas and general security.

Proposed Athletic Field Lighting: The existing 1,000-watt shielded floodlights at the existing football, baseball and softball fields would be upgraded to shielded LED floodlights. Two 95-foot light poles at the main athletic field would be relocated to accommodate the new school building. The project proposes to re-use existing light poles for the softball and baseball fields, if possible. The upgrading to LED lighting would significantly reduce site spillage and lessen glare (Stantec 2021).

New lighting is proposed for the new practice field for school use only and would not add public use. The new athletic field lighting system at the practice field would consist of four 60-foot, galvanized steel poles with LED shielded floodlights. The proposed lighting for the field consists of four 600-watt and

twelve 400-watt shielded LED floodlights. The floodlights would be mounted at the top of the poles. One additional low wattage "full cutoff" area light would be mounted at a height of 30 feet above grade on the two poles located on the west side of the field.

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

Existing standards for shielding of lights would continue to apply. The illumination systems would not pose a safety hazard or interfere with views from off-site locations when the lights are operating at night.

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

No off-site sources of light or glare would affect this proposal.

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

School Operations: Upgrades to LED lighting would significantly reduce site spillage and lessen glare. Lighting would be designed to minimize spillover to adjacent properties and would be controlled so that the sites are not lit after curfew hours. Lighting would comply with the requirements of SMC 23.41B.002.D.6.

Athletic Field Lighting: The replacement of the existing athletic field floodlights at the football, baseball and softball fields would provide a reduction in the amount of "sky-glow" impacts surrounding the entire school site. The replacement LED floodlights would include extensive shielding limiting the amount of direct light emitted up into the atmosphere as compared to the existing floodlights. The new floodlights would be high efficiency with an approximate 30% decrease in the quantity of overall light needed to light the fields resulting in a corresponding reduction of reflected light from the field and adjacent surfaces.

Off-site exposure to low levels of direct glare from the proposed new lighting at the practice field is primarily to the residential properties directly east of the proposed field across 53rd Avenue South and the residential properties immediately adjacent to the north. These properties are at a slightly higher elevation to the field with direct exposure to the light poles and floodlight assemblies. Other residential properties located next to the adjacent residential properties would have minimal exposure to direct glare. Residential properties located farther away from the field would have minimal to no direct glare impacts. The proposed new lights will have minor light spill impacts but will be below the code-requirements of 0.8 foot-candles for spill light at residential property lines.

The proposed new lighting at the new practice field may use some of the measures listed below to reduce or control light and glare impacts:

- SPS would identify appropriate mitigation measures to reduce impacts at individual sites during project-level design and environmental review.
- To maximize glare reduction, the owner is providing additional mitigation with the use of "full cutoff" style LED floodlights that provide the most advanced light control and shielding currently available in the sports lighting industry. Additional reduction in direct glare is also provided by internal shielding of the LED diodes. The additional shielding nearly eliminates direct view of the very bright LED's from off-site viewing locations.
- A fully programmable automatic lighting controller would be provided. The controller can be used to operate remotely to turn lights off when the field are not in use.
- SPS will pursue Director approval for the increased pole heights to minimize light and glare impacts to the greatest extent practicable. Per Seattle Municipal Code 23.51B.002.D.6.a, Public Schools in Residential Zones: "Light standards for illumination of athletic fields on new and existing public school sites may be allowed to exceed the maximum permitted height, up to a maximum height of 100 feet, if the Director determines that the additional height is necessary to ensure adequate illumination and that impacts from light and glare are minimized to the greatest extent practicable."
- Adjustments to the shielding and aiming of the new practice field lights floodlights will be implemented as necessary to ensure spill light levels do not exceed 0.8 foot-candles

12. Recreation

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

SPS schools feature a variety of recreational features on site. High schools typically feature sports fields and, in some cases, running tracks and tennis courts. While these facilities are primarily used by the schools, many are available to the public outside of school hours. Recreational opportunities on the Rainier Beach High School site include a softball field, baseball field, basketball courts, a utility field, and a football/soccer field and track.

Parks operates and maintains a large number of city parks, trails, gardens, playfields, swimming pools, and community centers within the vicinity of the project site.

Parks and recreational opportunities in the vicinity of the Rainier Beach High School include the following:

- **Be'er Sheva Park** is located across the street from the project site and features views of Lake Washington, a boat ramp, picnic area, playground, and restroom facility.

- **Rainier Beach Urban Farm and Wetlands** is located approximately 0.3-mile northeast of the project site and north of Be'er Sheva Park, featuring a farm, food production education, a commercial kitchen, and cooking and nutrition education.
- **Pritchard Beach Bathhouse and Beach** is located approximately 0.5-mile northeast of the project site, featuring a lakefront swimming beach and waterfront views.
- **Rainier Beach Community Center** is 0.25-mile west of the project site, featuring a pool, gym, playground, indoor basketball court, shower and restroom facilities, spa, sauna, and game room, among other services for the community.
- **Rainier Beach Playfield** is located approximately 0.6 mile west of the project site. The playfield features tennis courts, ballfields (baseball, soccer), restrooms, and playgrounds.

The outdoor athletic fields at Rainier Beach High School are also known as the Southeast Athletic Complex (SEAC) and serve as the home fields for Rainier Beach High School as well as for some sports at other Seattle high schools (e.g., Cleveland High School varsity football, softball, and baseball).

Many Seattle schools have athletic facilities (football, soccer, tennis courts, baseball/softball fields, and tracks) that are used by students for daytime physical education classes, Monday through Friday, as well as for scholastic athletic practices after-school and on weekends. SPS and the Parks have historically maintained a Joint Use Agreement for shared use of athletic facilities. At school sites, SPS typically allows non-scholastic activities to be scheduled by Parks or other groups during times when they are not used for scholastic activities. Similarly, SPS is provided priority use of Parks facilities. As a result, sites owned by either entity that contain athletic facilities may be used for practices or games associated with interscholastic athletics and for community uses such as youth and adult recreational sports and activities. The use of fields by parks currently occurs and is not anticipated to change with the proposed project.

Seattle Department of Parks and Recreation (Parks) facilities and parks are subject to the Joint Use Agreement between Parks and SPS. SPS and Parks' facilities are subject to the Joint Use Agreement and the Joint Athletic Facilities Development Program. An exception to this is the new lighting proposed at the new practice field location at Rainier Beach High School which would be for school use only and would not add public use.

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

Construction of athletic field and field lighting as well as their relocation could disrupt the use of the athletic fields during the construction period. For a temporary time, fields would not be available for use.

Recreational facilities adjacent to the school could be temporarily impacted by construction activities. Impacts may include limited or restricted access, or a decreased pleasure of using the facility as a result of proximity to construction activities. Construction could be visible and audible to users of the nearby parks. Temporary portables may be located on the existing athletic facility sites. The portables would be removed after construction, and recreational use of the courts would be restored.

The amount of field use by Parks would not increase or decrease because they would not have use of the new practice field.

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

Construction: SPS would comply with construction BMPs to minimize construction noise, dust, and transportation issues during construction, reducing potential disruptions to recreational users. SPS would coordinate construction schedules with Parks to minimize disruptions to park use.

School Operations and Athletic Fields: Recreational opportunities for the school and community use would be enhanced by upgrading existing athletic field lighting to LED and relocating several existing 95-ft light poles that interfere with the bleachers on the north side of the football field. The new school facility (including the gym) would continue to provide and expand the availability of recreational facilities.

13. Historic and Cultural Preservation

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 located on or near the site? If so, specifically describe.

There are no recorded buildings, structures, or sites known to exist within or near the project location that are currently listed in, or considered eligible for listing in, the National Register of Historic Places (NRHP), Washington Heritage Register, or Seattle Landmarks List.

The existing Rainier Beach High School is comprised of buildings constructed in 1960 and later. The original architect was John W. Maloney and the engineer was Worthington, Skilling, Helle & and Jackson; the builder was Johnson-Morrison-Knudsen (Johnson Partnership, 2019).

SPS nominated the school to the Seattle Landmarks Preservation Board (Board) in August 2020 (Johnson Partnership, 2019); the Board determined that the school did not meet necessary landmark criteria and denied the nomination on September 16, 2020 (Doherty, 2020). As part of consultation under Governor's Executive Order 21-02, the school has been recorded on DAHP historic property

inventory forms, and recommended not eligible for listing in the NRHP; DAHP has not made a determination regarding eligibility.

The parcels adjacent to the project site include buildings and structures that are over 25 years in age. Currently, none are listed in or have been recommended or determined eligible for listing in a historic register. The buildings are primarily single-family residences. The project does not propose direct impacts on any of these buildings or structures.

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.

No recorded archaeological sites, cemeteries, or traditional cultural properties are located within or adjacent to the project. The project location is classified in the DAHP Statewide Predictive Model as High to Very High Risk for containing precontact-era cultural resources (DAHP, 2021).

Rainier Beach High School is located within the ancestral lands of the Southern Coast Salish people. Oral traditions support the presence of Southern Coast Salish people in this portion of Puget Sound since time immemorial, and this is also supported by archaeological evidence within the region (Kopperl et al., 2016). The DAHP Tribal Areas of Interest map identifies the following tribes with interest in the project area: Muckleshoot Indian Tribe, Samish Indian Nation, Snoqualmie Indian Tribe, Squaxin Island Tribe, Stillaguamish Tribe of Indians, Suquamish Tribe, and Tulalip Tribes (DAHP, 2020). This layer was developed by DAHP and participating tribes. Additionally, the project area is within the ancestral lands of the Duwamish Tribe (Lane, 1975).

No places with recorded Coast Salish names are known to exist within the project area or immediately adjacent parcels. However, there are two places with recorded Coast Salish names and a trail approximately 0.25-mile from the project area. The first place is *ƛ̓iƛ̓cas* (Small Island; recorded as TL1LTCUS by T.T. Waterman), also known as Young's Island and Pritchard Island (Hilbert et. al, 2001:95 and 99, no. 126; Thrush, 2007:245-246, no. 94; Waterman, 1922:191, no. 99). The second place is *dəxʷwuqʷad* (Place of Loon or simply Loon; recorded as ^{TUX}WOO'KWIB by T.T. Waterman; Hilbert et al., 2001:95, no. 125; Thrush, 2007:245, no. 93; Waterman, 1922:191, no. 98). The approximate location of a trail in this area is mapped at a very small (or low detail) scale by Thrush (2007:246) as leading generally northwest from Small Island to connect with a north-south trail that then curved west to lead over the hill and down to the Duwamish River valley. No name is given for this trail. Due to their distance from the project area, no impacts on either named places or the trail by the project are anticipated.

The community of Rainier Beach formed in 1893. The area was accessible by the Rainier Avenue Electric Railway (McKee and Reynolds, 1894; USGS, 1895; U.S.

Coast and Geodetic Survey, 1902). Development began on the south side of the marshy inlet (Maring and Blake, 1895). By 1908, Hamlet Avenue S and Grattan Place S were established. Historical maps from the 1910s–1950 show a sparse number of buildings in the project area fronting Rainier Avenue S (Baist Map Company, 1912; Kroll Map Company, 1912, 1920; Pacific Aerial Surveys, 1937, 1957; Sanborn Map Company 1917, 1950). In 1958, SPS purchased a portion of the present-day school site from the City (Thompson and Marr, 2002). The site was significantly graded according to permit records, with 47,000 cubic yards moved and approximately 50,000 cubic yards of earth filled (Johnson Partnership, 2019). A pump house and water tank were installed in 1959, and in 1960 the 2-story brick school opened to students. Over time, portables were added and removed from the school grounds. SPS constructed an automotive shop in 1968 and a performing arts center in 2000 (Johnson Partnership, 2019:6). In 2001, SPS renovated the athletic fields. The track was reoriented east-west from its previous north-south alignment. SPS resurfaced the athletic fields with synthetic turf and constructed restrooms, concessions, bleachers, storage, and maintenance buildings (Johnson Partnership, 2019).

As part of consultation under Executive Order 21-02, SPS conducted archaeological survey on school grounds in August 2021; no archaeological sites were observed (Colón et al. *in prep*).

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.

The following information was reviewed: previous archaeological survey reports (DAHP, 2020, 2021), historical maps (Anderson Map Company, 1889, 1894; Baist Map Company, 1912; Kroll Map Company 1912, 1920; Maring and Blake, 1895; McKee and Reynolds, 1894; Sanborn Map Company, 1917, 1950; U.S. Coast and Geodetic Survey, 1902; USGS 1895, 1908, 1968; U.S. Surveyor General, 1861), government landowner records (U.S. Bureau of Land Management, 1995), aerial photographs (NETROnline, 2020; Pacific Aerial Surveys, 1937, 1957), published ethnographies and regional histories (Bagley, 1931; Buerge, 1984; Burke Museum, 2019; Duwamish Tribe, 2020; Hilbert et al., 2001; Johnson Partnership, 2019; Kopperl et al., 2016; Lane, 1975; McDonald, 1979; Rochester 2001; Seattle Public Schools Archives, 1965; Sherwood, 1978; Thompson and Marr, 2002; Thrush, 2007; Waterman, 1922; Wilma, 2001), geological maps and reports (AESI, 2020; Atwater and Moore 1992; Chrzastowski, 1983; King County, 2020; McManus, 1963; Thorson, 1980; Troost, 2011; Troost and Booth, 2008; Troost et al., 2005; WDNR, 2021), and soils surveys (NRCS, 2018). As noted above, as part of consultation under Executive Order 21-02, SPS conducted archaeological survey on school grounds in August 2021; no archaeological sites were observed (Colón et al. *in prep*).

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.

SPS is receiving state capital funds from the Washington Office of Superintendent of Public Instruction (OSPI). Use of state funds requires that the project go through additional cultural resources review under Governor's Executive Order 21-02 (EO 21-02, formerly EO 05-05). While separate from SEPA, the EO 21-02 review process requires consultation between SPS and DAHP and Affected Tribes regarding potential impacts to cultural resources. SPS requested to initiate EO 21-02 Consultation with DAHP, Duwamish Tribe, Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Tribe, and Tulalip Tribes via email on July 13, 2021, and via regular mail on July 14, 2021. The request to initiate consultation included proposed archaeological survey methods and explanation of these methods, as well as request for reply by August 16, 2021. On July 14, 2021, Dennis Lewarch, Tribal Historic Preservation Officer of the Suquamish Tribe responded to SPS via email: "*Thank you for consulting the Suquamish Tribe regarding the Rainier Beach High School Replacement Project in Seattle. The Suquamish Tribe does not have ethnographic or historic information specifically related to the project Area of Potential Effects. I reviewed the information you provided and concur with the delineation of the Area of Potential Effects and the cultural resource assessment program proposed by Environmental Science Associates. The Suquamish Tribe would like to participate as a consulting party*." On July 14, 2021, Steven Mullen-Moses, Director of Archaeology and Historic Preservation of the Snoqualmie Indian Tribe, responded to SPS via email: "*Thank you for the opportunity to review and comment. Based on the information provided and our understanding of the project and its APE we have no substantive comments to offer at this time. However, please be aware that if the scope of the project or the parameters for defining the APE change, we reserve the right to modify our current position*." After receiving no response from the Duwamish Tribe, Muckleshoot Indian Tribe, and Tulalip Tribes, SPS resent its original correspondence to these Tribes via email on July 26, 2021, again requesting a reply by August 16, 2021. As of September 21, 2021, SPS had received no response from the Duwamish Tribe, Muckleshoot Indian Tribe, or Tulalip Tribes.

On August 10, 2021, ESA notified all Tribes via email of archaeological survey planned for August 17-20, 2021, and invited Tribes to have representatives present during the survey. Robert de los Angeles, Chairman of the Snoqualmie Indian Tribe, acknowledged ESA's email; no other Tribal representatives responded to ESA. No Tribal representatives made their presence known to ESA during the survey.

There are no previously recorded archaeological sites within the project site, and no archaeological sites were observed during ESA's archaeological survey (Colón et al. in prep). Due to continued potential for archaeological sites within school grounds, ESA recommends that SPS consult with DAHP and Affected

Tribes under EO 21-02 to formulate an Archaeological Resources Monitoring Plan (ARMP) and retain a professional archaeologist to conduct archaeological monitoring during construction of project elements with particular risk for intersecting archaeological sites if any are present (Colón et al. in prep). The ARMP will also include the protocols standard in an Inadvertent Discovery Plan (IDP), including notification of the Duwamish Tribe, Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Tribe, and Tulalip Tribes.

Prior to construction, SPS will notify and invite Tribes, including the Duwamish Tribe, to observe the work. At all times, state laws regarding cultural resources, including Archaeological Sites and Resources (RCW 27.53), Indian Graves and Records (RCW 27.44), Human Remains (RCW 68.50), and Abandoned and Historic Cemeteries and Historic Graves (RCW 68.60), are in force if archaeological sites or human remains are discovered. Based on the result of the analysis, measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources would be determined based on the nature, location, and potential impacts to any archaeological resource.

If DAHP determines some or all of the school buildings eligible for listing in the NRHP, SPS will consult with DAHP and Tribes, if requested, under EO 21-02 to determine appropriate mitigation(s).

14. Transportation

An *Updated Transportation Technical Report* (Heffron Transportation, Inc., August 2021) has been prepared for the proposed project, and the results of the report are summarized in this section. For further details on the *Updated Transportation Technical Report*, please refer to Appendix A of this Checklist.

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 existing Rainier Beach High School site is bounded on the east by Seward Park Avenue South, on the south by South Henderson Street, on the west by private commercial properties, on the northwest by South Cloverdale Place and on northeast by private residential properties.

There are three formally established parking lots on the campus. The largest lot west of the main school building (with 72 spaces) and the linear lot along the east side of the grass utility field and baseball field (with 51 spaces) are accessed from two driveways on S Henderson Street. The eastern lot (with about 16 spaces though striping has faded and evolved over the years) is accessed from a driveway on Seward Park Avenue S. There are four reserved spaces for kitchen staff located between the main school building and S Henderson Street with a wide curb cut on S Henderson Street. The paved areas north of the gymnasium and performing arts center and surrounding the wood shop and auto shop buildings are used for occasional parking (with 16 striped spaces). Access to

those paved areas occurs from the north via 53rd Avenue S, which ends at the school site just south of Hamlet Avenue S.

Eligible general-education high school students are provided with ORCA cards and use Metro and Sound Transit Link light rail for daily trips to and from school (see information about nearby transit service in the next section). The southern site frontage on S Henderson Street between Seward Park Avenue S and 52nd Avenue S is signed for school bus load only from 7:00 a.m. to 7:00 p.m. (except Saturday, Sunday, and holidays). This area is occasionally used to load/unload school buses carrying Special Education (SPED) students to and from school. Under normal (non-COVID) conditions, approximately eight yellow school buses (typically smaller 25 feet long) serve the site. In addition, this area is used by school buses transporting students to and from field trips, off-site athletics, or other off-site extra-curricular activities.

The proposed new school building would be located in the central portion of the site now occupied by the natural turf field and wood shop building. Two parking lots would be located at the southeastern portion of the site—one with 64 spaces and the new on-site passenger vehicle load/unload loop—would be accessed from a new single driveway on S Henderson Street. It would have an internal connection to a second lot—with 95 spaces—that would be accessed from the existing driveway on Seward Park Avenue S. Additional parking (about 33 spaces) is proposed along the northeast edge of the site with primary access from the same existing driveway on Seward Park Avenue S and/or from the south end of 53rd Avenue S. A new on-site load/unload area would be provided for SPED buses along the east side of the school building with inbound access from the north using 53rd Avenue S and egress to Seward Park Avenue S. Two existing curb cuts along S Henderson Street would be eliminated. The site's S Henderson Street frontage would remain signed for school bus loading and is expected to continue to be used by activity buses (e.g., field trips, after-school athletics transport, and/or by visiting school athletic-team buses).

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?

Yes, the school site is directly served by King County Metro Transit (Metro). Stops served by Routes 7 and 106 are located on South Henderson Street. The eastbound stop for Route 7 is located across the street from the main school building just east of 53rd Avenue South (private street); the westbound stop for Route 106 is located at the southwest corner of the site just east of Rainier Avenue South. Link light rail service is provided by Sound Transit at the Rainier Beach Station located about ½-mile west of the school site at Martin Luther King Jr. Way South just south of South Henderson Street. Table 6 of the referenced *Updated Transportation Technical Report* summarizes transit service provided within one-half mile of the project site.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The existing school has three formally established parking lots on the campus totaling about 160 spaces—the largest lot, located west of the main school building, has 72 spaces; a linear lot is located along the east side of the grass utility field and baseball field has 51 spaces; and a small staff lot east of the main school building has about 16 spaces. The paved areas north of the gymnasium and performing arts center and surrounding the wood shop and auto shop buildings are used for occasional parking with 16 striped spaces, but room for many more vehicles.

Because the school is located within a City-designated Urban Village, there is no City of Seattle minimum code requirement for parking supply and no code-departure for reduced parking is required. However, the project would reconfigure and expand on-site parking at the school, providing a total of about 190 spaces—an increase of about 30 spaces compared to existing site conditions. Two main parking lots would be located at the southeastern portion of the site—one with 64 spaces and the new on-site passenger vehicle load/unload loop accessed from S Henderson Street and a second lot with 95 spaces accessed from Seward Park Avenue S. These two parking areas would be physically connected by a tabletop driveway designed to emphasize pedestrian movement, but would allow connection between the parking areas during peak-use periods. An additional 33 spaces are proposed along the northeast edge of the site with primary access from the same driveway on Seward Park Avenue S and/or from the south end of 53rd Avenue S.

The consolidation of access along S Henderson Street would eliminate two existing curb cuts and allow for an increase in on-street parking supply (adding about four spaces) along the site frontage. No other proposed changes to site frontage are expected to effect on-street parking supply in the vicinity. The existing activity bus load/unload zone along S Henderson Street would be retained.

A detailed study of parking conditions was prepared and is presented in the *Updated Transportation Technical Report* (Appendix A). As presented in that report, the expanded school with enrollment of up to 1,600 students could generate a peak school-day demand ranging from 224 to 264 vehicles.

With the proposed on-site supply, the expanded school could generate excess demand of between 34 and 74 vehicles that may occur along on-street parking in the site vicinity. Detailed analysis of on-street parking utilization is presented in the *Updated Transportation Technical Report*. The potential new parking overspill would most likely occur on-street in areas nearest the school that have unrestricted parking on school days. Based on the parking utilization study performed around the school, there were over 120 unused, unrestricted on-street parking spaces along South Cloverdale Place, Grattan Place South,

Wabash Avenue South, 53rd Avenue South, Hamlet Avenue South, and Seward Park Avenue South. With the school at its enrollment capacity and the estimated overflow demand, on-street parking utilization in the study area is expected to remain between 65 percent and 77 percent with between 80 and 120 unused spaces remaining. Based on these estimates, the added school day demand would not represent a significant adverse impact.

The school would continue to host events periodically throughout the school year, and the project is not expected to increase the frequency of these events. As described in the referenced *Transportation Technical Report*, due to changes that may occur with the larger enrollment capacity, two of the larger events—the Open Houses—are anticipated to experience higher levels of attendance and participation. Since on-site parking for these two events is assumed to be full, added demand would be expected to occur on-street surrounding the site. The on-street supply could accommodate the overflow demand of some of the larger events at the high school. However, for the largest events, all on-street parking along the roadways surrounding the school site could be at or above capacity. These conditions likely already occur occasionally with well-attended basketball games, and the change in school enrollment capacity is not expected to change these existing conditions. In general, attendance at games is increased by team performance rather than school enrollment capacity. In the existing and proposed condition, larger-attendance football events are held at Memorial Stadium near Seattle Center.

The outdoor athletic fields at Rainier Beach High School are also known as the Southeast Athletic Complex (SEAC) and serve as the home fields for Rainier Beach High School as well as for some sports at other Seattle high schools (e.g., Cleveland High School varsity football, softball, and baseball). The use of the site by other schools' sports teams would not be affected by the replacement project. However, the larger enrollment capacity made possible by the school-replacement project could result in more evenings with multiple concurrent smaller events that cause on-street parking overspill more frequently. To mitigate potential event-related impacts, event parking mitigation measures are recommended.

d. 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).

The project would consolidate vehicular access on South Henderson Street to one driveway—located about 30 feet west of the existing eastern driveway serving the main parking lot. The western driveway and the wide access serving the kitchen staff parking would be eliminated. The access driveway on Seward Park Avenue South would be reconstructed in about its existing location. In coordination with the Seattle Department of Transportation (SDOT), the segment of 53rd Avenue South along the site frontage would be widened and improved with curb and sidewalk on the west side (adjacent to the school). For

all frontages (including South Henderson Street, Seward Park Avenue South, 53rd Avenue South, and South Cloverdale Place), sidewalk and curb ramps would be improved to meet current design standards, as required by SDOT. No other physical changes to the surrounding transportation network are proposed as part of the project. School buses would continue to have the option to use the load zone on the north (westbound) side of South Henderson Street.

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

The project would not use or occur in the immediate vicinity of water or air transportation. However, Sound Transit's Rainer Beach Link light rail station is located about ½-mile west of the project site. Students, staff, and site visitors are expected to use Link light rail service to access the site vicinity on school days and for events.

f. 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 traffic analysis conducted for this SEPA Checklist reflected conditions with the Rainier Beach High School Replacement project complete and increased enrollment to its planned capacity of up to 1,600 students (a net increase of 838 students compared to the school's average enrollment over the past 4 years, an increase of 100 students over its original capacity, and below its historic peak enrollment of 2,159 students from 1967). Based on adjusted daily trip generation rates published for high schools by the Institute of Transportation Engineers, the replaced and expanded school is estimated to generate a net increase of about 1,300 trips per day (650 in, 650 out). The peak traffic volumes would continue to occur in the morning just before classes begin (300 trips between 8:00 and 9:00 a.m.) and in the afternoon around dismissal (20 trips between 3:15 and 4:15 p.m.).

During the early part of the 2019-20 school year (pre-COVID-19 pandemic), the school was served by up to eight smaller special education (SPED) buses; no change to the number of buses is anticipated. Other truck trips expected to continue serving the site include deliveries of food and supplies, trash and recycling pick-up, and occasional maintenance. Overall, school buses and small trucks likely represent about 3 percent of the total daily traffic.

For more information about the anticipated school traffic generation, refer to Appendix A, *Updated Transportation Technical Report* (Heffron Transportation Inc., August 2021).

g. 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.

The proposal would not interfere with the movement of agricultural or forest products on streets in the area because no agricultural or working forest lands are located within the vicinity of the project site.

h. Proposed measures to reduce or control transportation impacts, if any:

The following identifies measures to reduce adverse impacts during short-term construction and long-term operations of the Rainier Beach High School Replacement project. With these measures, the project would not result in significant adverse transportation impacts.

Short-Term Conditions – Construction

A. **Construction Transportation Management Plan (CTMP):** The District will require the selected contractor to develop a Construction Transportation Management Plan (CTMP) that addresses traffic and pedestrian control during each major construction phase of the new facility. It will define truck routes, lane closures, walkway closures, and parking or load/unload area disruptions, as necessary. To the extent possible, the CTMP will direct trucks along the shortest route to arterials and away from residential streets to avoid unnecessary conflicts with resident and pedestrian activity. The CTMP may also include measures to keep adjacent streets clean on a daily basis at the truck exit points (such as street sweeping or on-site truck wheel cleaning) to reduce tracking dirt off site.

Long-Term Conditions – Operations

A. **Event Management Plan:** Prior to each school year, the District shall work with the school principal to develop an Event Management Plan to reduce parking impacts during large evening events (those expected to have 830 or more attendees/participants). Measures could include: (1) avoiding scheduling large in-school events concurrent with a large event at the Southeast Athletic Complex; (2) providing information to families about transportation alternatives for the events (e.g., Metro and Link service details); and (3) separating large events by grade to reduce overall attendance on any given evening. SPS currently manages events through these methods and will continue this practice.

B. **Develop Neighborhood Communication Plan for School Events:** The District and school administration shall develop a neighborhood communication plan to inform nearby neighbors of large events each year. The plan shall be updated annually (or as events are scheduled) and shall provide information about the dates, times, and rough magnitude of attendance. The communication will be intended to allow neighbors to plan for the occasional increase in on-street parking demand that will occur with large events.

C. **Update Right-of-Way and Curb-Side Signage:** The District shall work with SDOT to confirm the locations, extent, and signage (such as times of restrictions) of the school-bus load zone on the north side of South Henderson Street.

D. **Coordinate with Metro Transit:** The District shall coordinate with Metro to confirm transit service availability and capacity as enrollment approaches its design capacity of 1,600 students.

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.

Construction: Construction activities would not create an increased need for public services.

School Operations: With the proposed replacement and expanded capacity, Rainier Beach High School could have enrollment of up to 1,600 students with between 130 and 160 employees when enrolled to capacity. The increase in capacity would be 900 students and associated increase in number of employees (an increase from 700 to 1,600 students). Full capacity is not expected to be reached for 10 years after project construction. An increase in public services is not expected to be required.

SPS usually provides two police officers and two school security for large sporting events. Security is increased to meet the need for other athletic events or if problems are expected. The Seattle Police Department is informed of all game dates and times.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Construction: Construction vehicles and heavy equipment would use local roads, and there could be temporary detours and traffic delays. Access to all residential and commercial properties near the project would be maintained during construction.

Local public service providers would be made aware of any potential roadway impacts that could adversely affect response times. Transportation plans would include provisions to maintain emergency service access.

School Operations: A new combined service for water supply would be required to provide adequate fire and domestic services (AHBL, 2021).

16. Utilities

a. Underline utilities currently available at the site:

Existing utilities currently at the site include <u>electricity, natural gas, water, refuse service, telephone, storm drain, and sanitary sewer</u>.

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.

School Facilities. Increased capacity would require provision of utilities to service the new construction and provide adequate standard of service. Existing utilities would be demolished and new utility services would be installed to serve the new building and associated facilities. Electricity, water, refuse service, telephone, storm drain, and sanitary sewer would continue to be provided to the school. This may include trenching and minor excavation and would be part of the overall construction at the site. A geothermal heating/cooling, displacement heat system would be installed, which requires boring geothermal wells in some areas of the site near the proposed new school building.

Construction impacts on utilities would generally be associated with temporary disruptions to overhead or underground utility services. During excavation, underground utilities such as water and sewer lines could be encountered, and localized service disruption may occur. Overhead utility lines that are located on the perimeter of the project site, including electricity, cable, and telephone lines, are not expected to be affected during construction. Disruptions to overhead utilities could occur as utility lines are connected to new facilities. These disruptions would be short-term and coordinated with the utility provider. Utility providers would be consulted prior to demolition, excavation, and other digging activities to ensure utility lines are unaffected during construction.

The following specific proposals are planned for the project:

- **Sanitary Sewer Service.** The sanitary sewer service is provided by Seattle Public Utilities (SPU). An existing sanitary manhole is located at the southeast corner of the site. Two sanitary pumps would be required to pump sewage away from the building. One pump for the school's waste pipes (restrooms, facets, showers, etc.) and one for the kitchen waste line. A 2,000-gallon grease trap would also be required for the kitchen waste line.
- **Gas.** The existing gas line and meter would be decommissioned.
- **Green Stormwater Infrastructure.** Design measures include the incorporation of green infrastructure to reduce flows into the City's stormwater system.
- **Electrical.** A new Seattle City Light (SCL) electrical service would be installed on site originating at the SW corner of the property. This single electrical service would provide services to individual electrical services at the existing field pump, a new electrical service at the NW corner of the high school building, and a new electrical service at the East end of the building. The SCL utility service would be installed in a continuous concrete duct bank located 3 to 4 feet below grade where installed around the site.
- **Athletic Field Lighting.** Electricity would be provided to existing and new lights through an existing electrical panel at the school. It is expected that the overall energy use would be lowered because of the installation of the

LED lighting to replace existing lighting. The LED lighting is proposed to reduce the electrical energy load used for lighting by approximately 33 percent compared to floodlights that use metal halide lamps. If there is any relocation of poles required or installation athletic lighting or security lighting, limited excavation may be required.

C. SIGNATURE

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.

Signature: Michael Skutack

Name of Signee: Michael Skutack

Position and Agency/Organization: Sr. Project Manager, Capital Projects & Planning

Date Submitted: 10/6/21

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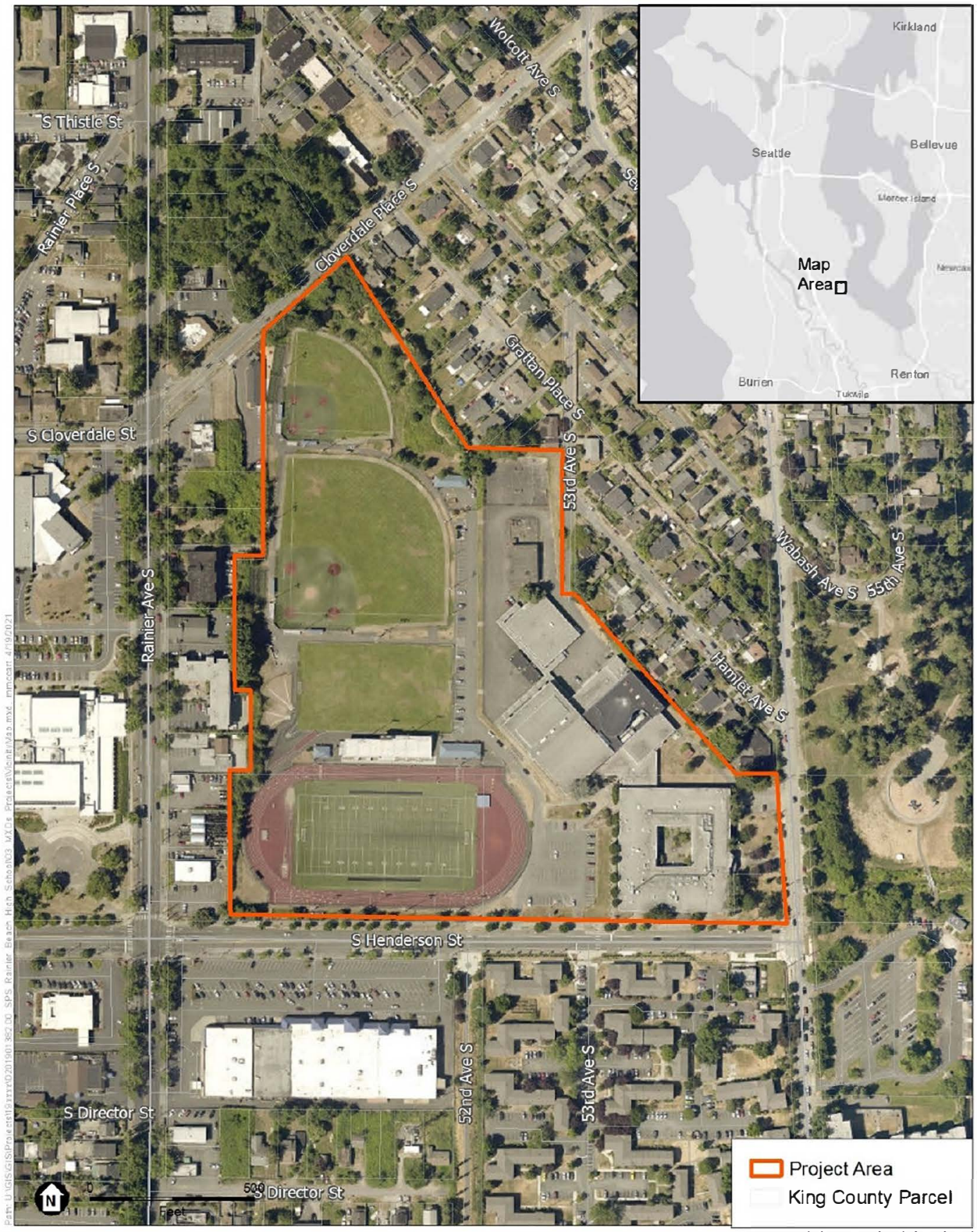
FIGURES



SOURCES: King County, 2017; ESA, 2020

SPS Rainier Beach High School

Figure 1
Rainier Beach High School Vicinity, Seattle, Washington

Figure 2
Proposed Rainier Beach High School Conceptual Site Plan (subject to change)

Pole Locations

- New Light Pole
- Relocated Light Pole
- Existing Light Pole

Note: Included is the Pole ID number and corresponding pole height at each pole location.

N

0 200

Feet

SOURCE: Stantec, 2021b

Rainier Beach High School

Figure 3
Field Pole Lighting Heights and Locations

ESA

SOURCE: King County, 2019; ESA, 2021

SPS Rainier Beach High School

Figure 4
Key to View Assessment Figure Locations
Seattle, Washington

ESA

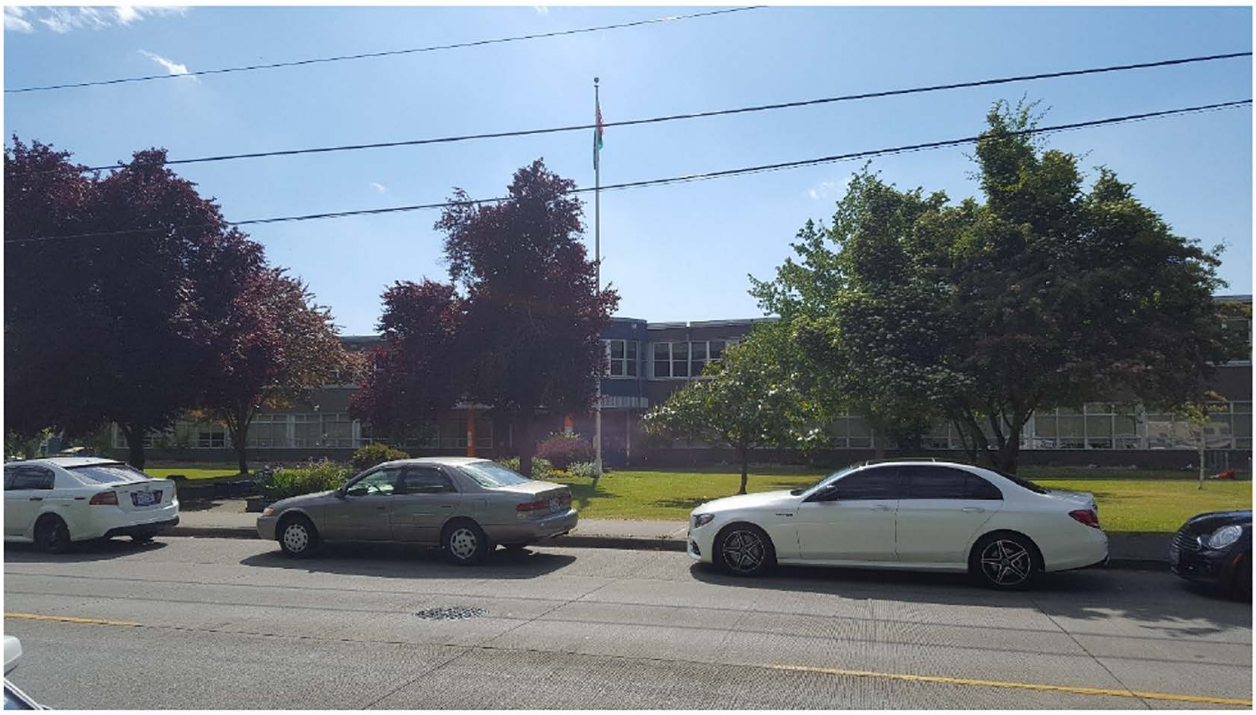


Figure 4a
View of Project Site Facing West from Be'er Sheva Park Located at 8650 55th Avenue South

Figure 4b
View of Project Site Facing West from Beach Court Apartments at 8630 Rainier Avenue South

Figure 4c
View of Project Site Facing Southeast from Starlighter Apartments at 8708 Rainier Avenue South

Figure 4d
View Facing East across School Site from Sherwin-Williams Paint Store at 8824 Rainier Avenue South

Figure 4e
View of School Building from 9704 Hamlet Avenue South, Facing South

Figure 4f
View of Project Site from Residence Located at 8741 Hamlet Avenue South, Facing Southwest

Figure 4g
View of Project Site from Residential Area to North of Project Site at Corner of South Hamlet Street and 53rd Avenue South, Facing West

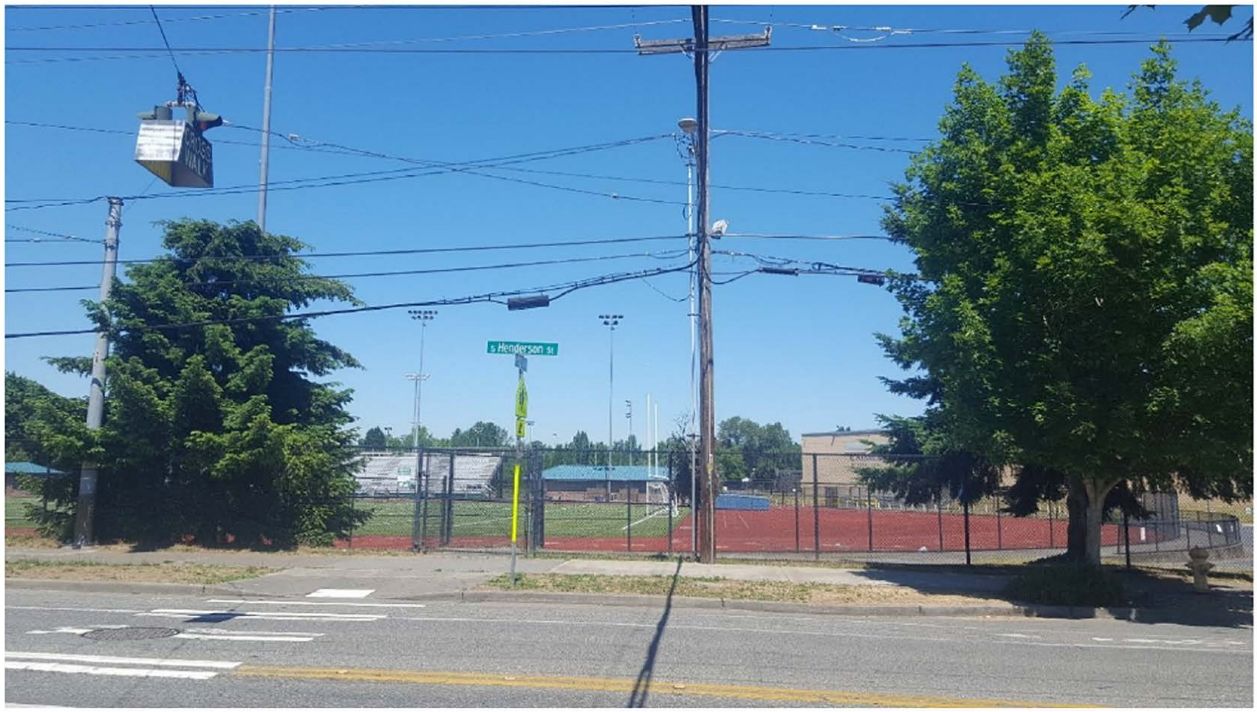


Figure 4h
View of Project Site from Residences and Trail at Corner of South Henderson Street and 52nd Avenue South, Facing North

ATTACHMENT 1: COMMENTS AND RESPONSES

Rainier Beach High School Replacement Project
SEPA Public Comments and Seattle Public Schools Responses

SEPA regulations recommend that public comments on draft Checklists be considered and responded to, but provides flexibility in how the comments are presented. The comment period on the Draft SEPA Checklist for the Rainier Beach High School Replacement Project was from June 30 to July 30, 2021. Three comment letters, emails, or fax were received from the six individuals listed below.

1. Bill Farmer
2. Chris Jackins (fax and email)
3. Tricia Avey
4. Shontica Ford
5. Juana M. Jainca
6. Patricia Espey

For efficiency, the comments have been summarized and similar comments have been grouped together and responded to below. Following each comment, the numbers in brackets refer to the commenter number (above) who submitted a similar comment. Any person interested in reading the individual comments may contact SPS for access to them.

1. **<u>Project Support.</u> I'm glad to read about the proposed playfield improvements at Rainier Beach High School. As one of the four school complex playfields to get synthetic turf and lights way back around 2000, it is time for turf carpet replacement for sure. Converting to LED lights only makes sense since modern LED lighting fixtures are much improved and potential impacts to adjacent properties are virtually eliminated, ie, no glare and spill lighting, and they're more energy efficient. Converting the practice playfield to synthetic only makes sense for allowing for play throughout the year; adding lights is highly recommended for those dark winter days. The same goes for converting the baseball diamond outfields to synthetic. Improving all these fields in Southeast Seattle will be a big benefit to the local community and offer a high quality workout and practice facility for all those youthful athletes. And it will bring it up to par with the NW Seattle (Ingraham HS) and NE Seattle (Nathan Hale HW and Jane Addams MS) complexes. Parking will be increased with the upgrade project and the school is located adjacent to two arterials so traffic should not be impacted. Friends of Athletic Fields (FAF) is an advocacy group that has promoted for more and better playfields in the Seattle region for over two decades now. While these comments are my personal comments, FAF has tracked every playfield project in the City and we strive to be good neighbors while promoting positive, healthy lifestyles for our youth and adult recreational athletes. These playfields are huge assets to the community and they provide a local gathering place to bring neighbors and friends together. Improving these playfields is highly recommended. [Commenter 1]**

   Response: Comment acknowledged.

2. **<u>Environmental Impact Statement Request.</u> You must do an environmental impact statement before moving forward [Commenter 3]. The District should issue a Determination of Significance (DS) for the project and provide further detailed environmental review through an Environmental Impact Statement (EIS). I believe that this project has probable significant environmental impacts, and therefore SEPA regulations require a DS and an EIS [Commenter 2]. I believe the Rainier Beach High Replacement project has probable significant adverse environmental impacts. Please provide further detailed environmental review through an Environmental Impact Statement (EIS). Please include me on the list of people to be notified about the status of the environmental review of this project [Commenter 4, 5, 6].**

   Response: Preparing a SEPA Checklist is the first step in determining the significance of impacts. The SPS SEPA Responsible Official is reviewing the revised SEPA Checklist and taking all comments received on the Draft SEPA Checklist into consideration in making a determination of the significance of impacts from the Rainier Beach High School Replacement project.

3. **<u>Alternatives</u>. An EIS is needed to consider alternatives, especially because the original plans in the BEX V EIS called for modernization additions, NOT replacement. A. "Preferred Alternative": "Schools being consider for … additions and modernization include: … Rainier Beach High School". [Pages 2-3 and 2-4, Building Excellence V**

Program, Final SEPA Programmatic Environmental Impact Statement, June 2018] [Commenter 2]

Response: The Final Programmatic EIS for the BEX V Program in 2018 analyzed the potential impacts from the funding of the potential projects for the BEX V Program, and analyzed action alternatives that included the evaluation of school replacement projects to inform the decision by the Seattle School Board on the program. The FPEIS also made clear that additional project-specific SEPA review for projects would occur at the time there is a known project proposal. This SEPA checklist analyzes the potential for impacts as a result of the proposed project, which includes replacement of the existing school.

4. **<u>Public Meeting Request.</u> Please hold a public meeting about this project [Commenter 3]. On other projects, for decades, the District has held a public meeting to discuss the Draft Checklist. Why is the Rainier Beach community not being provided such a meeting? The District started dropping these meetings in late 2019; It had nothing to do with coronavirus [Commenter 2]**

   Response: SPS does not hold public meetings under SEPA, and meetings are not required under SEPA prior to a threshold determination. Instead, SPS offers an opportunity for the public to comment on a draft SEPA checklist prior to finalizing its SEPA Checklist and prior to making its threshold determination. An additional public comment opportunity under SEPA will occur after issuance of the SPS threshold determination. Additional public comment participation opportunities will be available as part of the City's permitting process; the Seattle Department of Neighborhoods (DON) will convene a Development Standard Advisory Committee to secure public comments. The committee will invite persons owning property or a business within 600 feet of the project site and persons residing within 600 feet of the project site per Seattle Municipal Code 23.79.002. It should also be noted that, for the past two years, SPS has engaged with a School Design Team (SDAT), which includes community members, teachers, parents, and design professionals, to help inform the design of the school. Public open houses have been held as part of the design process. Additional opportunities to provide public input will occur as part of the City's permitting process.

5. **<u>Demolition.</u> Why is modernization and additions not enough? Why do they need to demolish this school? I, of course, want the kids at RBH to have a great school but many other aspects need to be considered. [Commenter 3]**

   Response: This SEPA Checklist analyzes the potential for environmental impacts as a result of the proposed project, which replaces the school.

   The BEX V Programmatic EIS provided a high level analysis of the potential for modernizations, additions, and replacement for a variety of schools. SPS continued site specific planning for Rainier Beach High School after the BEX V Programmatic EIS was issued in 2018. SPS makes decisions on the status of individual school sites based on site specific planning documents and on the guiding principles for BEX V which include:

   - Equity
   - Safety and Security

- Right size capacity
- Existing Building Conditions (which includes educational adequacy)

In the case of Rainier Beach High School, the BEX V planning group conducted additional outreach to the Rainier Beach community, staff and students to help develop a Master Plan to assist in decision-making for the appropriate design for the school. The Rainier Beach High School Master Plan provided the planning group with:

- Development of a high-level analysis of the site.
- Conduct of a test fitting for cost estimate purposes.
- Creation of a long-term planning document to guide future growth.

The Master Planning work also included outreach that involved the local community in decision-making. The evaluation of the existing building conditions included both the physical condition of the facility and its educational adequacy. It was determined that the existing Rainier Beach High School building would have to be expanded from 182,500 sf to 283,000 and include the following design restraints to meet educational program requirements:

1. Retain existing athletic fields (relocate and re-size the practice field)
2. School program would occupy the site during construction.

SPS determined that the design should respect the community's Master Planning effort, which determined that the best option given points one and two above would be to demolish the existing classroom wing and replace it with a new structure. The BEX V planners agreed with the community's assessment and priced the project to include the replacement of the existing building in lieu of modernizing the existing structure.

6. **<u>Background.</u> The proposed project to demolish and replace the school would "begin in phases in early Spring 2022, and be substantially complete by early Fall 2025. Construction is scheduled to be completed in phases to allow for continuous occupancy of up to 750 students on the project site." [page 1, A.6] "Demolition of the school building, performance arts center and gym would be completed in phases. [page 23, B.8.d]** ***"The proposed project would construct a new multi-story high school with up to approximately 283,000 square feet and improvements to the existing athletic fields … When complete, the school would have permanent enrollment capacity for up to 1,600 students in grades 9 through 12; however, it is noted that SPS does not anticipate full enrollment for 10 years or more after completion. Based on staffing for other Seattle high schools, SPS estimates that Rainier Beach High School could have between 130 and 160 employees if/when it is enrolled to its capacity of 1,600 students." [page 4.a.11] "The new school would have general-use classrooms, special education classrooms, science labs, learning commons, Career and Technical Education (CTE) labs, a Skill Center, library, art spaces, preforming arts wing, gymnasiums and fitness spaces, health center, food services, multipurpose commons, administration, a Data Center, and support spaces." Softball and baseball fields would replace natural grass with synthetic turf with upgrades to lighting. Practice field would be replaced by new school building.***

Football/soccer field and track would remain with replacement of existing synthetic turf and upgrades to lighting. Basketball courts would be removed and replaced with a new practice fields. **(Table 1, pages 6-7, A.11) [Commenter 2]**

Response: The project background description from the SEPA Checklist is accurate as stated above.

7. **<u>Incomplete Project Description.</u>**

    a. **The checklist states that the Checklist document "Is an information document, developed to ensure that the public agencies, decision makers, and other interested parties are informed about the potential environmental impacts of the proposed project." [pages 3, A.11]**

    b. **But the "Project Background" section [pages 3, A.11] gives a skewed and incomplete description, which states "The push to improve, and ultimately replace Rainier Beach High School has always been led by the community. In fact, it was RBHS students that led the advocacy to include RBHS in the BEX V levy. … the levy proposed funding to modernize Rainier Beach High School…"**

    c. **<u>Modernization versus replacement</u>. The original Rainier Beach plans in BEX V called for modernization and additions, NOT replacement: "Preferred Alternative": "Schools being considered for … additions and modernization include: … Rainier Beach High School". [Pages 2-3 and 2-4, Building Excellence V Program, Final SEPA Programmatic Impact Statement, June 2018] [Commenter 2]**

Response: Comments 7a and 7b are acknowledged. Please see response to Comment 3 for Comment 7c.

<u>SEPA Document Reference</u>: Section A.11.

8. **<u>Incorrect Project Background.</u> "Student led"?**
    a) **A student (Initials G.R.) spoke against land marking Rainier Beach High School at the September 16,2020 Landmarks Board meeting.**
    b) **Student G.R. also spoke at the September 20,2017 School Board meetings, arguing that Rainier Beach High School was in poor condition. A video/audio record of the School Board meeting is posted on the District website.**
    c) **In speaking before the School Board and in speaking before the Landmarks Board on these occasions, student G.R. did not reference any connection to**

Bassetti Architects. Bassetti is the architect on the Rainier Beach project and also planned the BEX V levy which included Rainier Beach.

d) A September 7, 2017 posting on the Bassetti Architects website is titled "Bassetti Hosts Summer Interns. This posting …[N.A.] and [G.R.] are assisting with our master planning for several schools in Seattle."

e) These issues were raised in a letter of October 12, 2020 to the State Auditor with copies of the letter sent to the Seattle District Superintended and School Board.

f) Bassetti Architects previously received a contract to plan the Seattle School District Building Excellence Five levy (BEX V), which included the Rainier Beach project. [See January 4, 2017 School Board Action Report awarding $921,611 contract to Bassetti Architects for BEX V Capital Levy Planning] [Commenter 2]

Response: The comments do not pertain to the SEPA Checklist environmental analysis.

SEPA Document Reference: Section A.11.

9. **Incorrect Project Background. Community connection. The Paul Robeson Performing Arts Center has been important to the community, and it is not even 25 years old, so it would be important to clearly let the public know that the project would demolish the Paul Robeson Performing Arts Center.**

   a. The checklist in Table 1 states with regard to demolition simply that "Main school building structures would be demolished in phases." [page 6]

   b. Readers of the Checklist would seem to have to wait until page 23 to find an explicit reference to the demolition: "Demolition of the school building, performance arts center and gym would be completed in phases". [pages 23, B.8.d]

   c. The Transportation Report states: "The performing arts center was constructed in 1998 and renamed the Paul Robeson Performance Art Center in 2004." [page 2, Appendix A] [Commenter 2]

Response: The SEPA Checklist has been revised to clarify earlier in the Checklist the reference to the demolition of the Performing Arts Center (PAC) and other structures in the SEPA Checklist Table 1. Main school building structures would be demolished in phases. A new school structure would be constructed in phases in a new configuration on the project site which would displace the existing practice field.

SEPA Document Reference: Section A.11.Table 1.

10. **Loss of trees. 15% of trees (29 of 189) on site and in the adjacent right-of-way would be removed, including 5 exceptional trees. [page 16, B.4.b] [Commenter 2]**

Response: The information about tree removal as described in the SEPA Checklist is accurate as stated above.

SEPA Document Reference: Section B.4.b

11. **<u>Loss of natural grass.</u> Natural grass would be lost for the existing practice field by overlapping new building and from the baseball and softball outfields which would be converted to synthetic turf. [page 15, B.4b]. A. Please state the square footage loss of natural grass and the percentage loss of natural grass from the site. [Commenter 2]**

Response: The table below summarizes the changes in square footage of natural grass and the percentage of natural grass at the site, demonstrating an overall increase with the proposal.

Rainier Beach HS - Planting Areas and Field Calculations

	Existing			Proposed			Difference		
	SF	%		SF	%		SF	%	
Grass Fields	167,415	56.84%	Synthetic Turf	110,949	38%		-56,466	-66%	DECREASE
Planting areas	127,142	43.16%	Planting and Grass	184,214	62%		57,072	145%	INCREASE
Total	294,557	100.00%	Total	295,163	100%		606		INCREASE

<u>SEPA Document Reference:</u> Section B.4.b

12. **<u>Animals</u>. The list of observed animals seems relatively short (gull, American crow, rock pigeon, chickadee, robin, Steller's jay, northern flicker, Berwick's wren, Norway rat, raccoon, opossum) considering the site's location to nearby Lake Washington and Mapes Creek at Be'er Shiva Park with its "rearing habitat for juvenile Chinook salmon migrating to Puget Sound". [page 17, B.5]. [Commenter 2]**

Response: The animals listed in the SEPA Checklist were observed during the site visit. There may be other animals typical of the urban area at the site at different times including native mammals: beaver, river otter, coyote, cougar, skunk, weasel, and muskrat.

According to the Washington Department of Fish and Wildlife, Lake Washington is known to contain the following aquatic species: black crappie, brown bullhead, Chinook salmon, coastal cutthroat trout, coho salmon, common carp, green sunfish, kokanee, largemouth bass, largescale sucker, northern pikeminnow, peamouth, pumpkinseed sunfish, rock bass, signal crayfish, smallmouth bass, sockeye salmon, tench, three-spine stickleback, and yellow perch (WDFW 2021).

These species above were added to the SEPA Checklist.

<u>SEPA Document Reference:</u> Section B.5

13. **Water (A)."The project includes more that 5,000 square feet of new plus replaced pollution generating hard surface." [page 14, B.3.d] How much more than 5,000 square feet? [Commenter 2]**

    Response: Existing square footage of pollution generating impervious surface (PGIS) is approximately 130,000 sq ft. The project proposes a total of approximately 75,000 sq ft of PGIS ; therefore 70,000 sq. ft. above the 5,000 square-foot threshold. This represents a decrease of approximately 55,000 sq ft PGIS on the site.

    SEPA Document Reference: Section B.3.d.

14. **Water (B). The checklist states "No streams are mapped or were observed on site. However, the King County Interactive Mapping Tool (IMap) shows Mapes Creek as flowing east along South Henderson Street to the south, into Be're Sheva Park to the east, before flowing into Lake Washington … Upstream portions of this stream north of South Henderson Street within the vicinity of the school are piped and therefore are not part of the regulated riparian management area as defined in Seattle Municipal Code (SMC) 25.09." [pages 11-12, B.3.a.1]. A. What distance constitutes "within the vicinity of the school" for the piped Mapes Creek? B. Is any of the creek actually on the school site? C. Would there be an opportunity to daylight the creek? D. The District considered such a daylighting possibility at the Wilson-Pacific/Robert Eagle Staff school for Licton Springs, but eventually decided against further daylighting of the springs. [Commenter 2]**

    Response:

    14 a. Mapes Creek is piped approximately 0.3 miles upstream of the school site.

    14 b. Mapes Creek is not located on the school site. The stream is mapped as being piped along South Henderson Road, approximately 0.3 miles upstream of the school site.

    14 c. There are no plans to daylight the creek as part of the Rainier Beach High School Replacement Project.

    14 d. Comment acknowledged. Daylighting of Mapes Creek is not part of the Rainier Beach High School Replacement Project.

    SEPA Document Reference: Section B.3. a.1.

15. **Water (C). The Checklist states that "One wetland occurs on the project site … located in the northern extent of the project site and located to the southeast of Cloverdale Place South. It is bordered by the softball field to the southwest and residences to the northeast." [page 12, B.3.a.1]. [Commenter 2]**

    Response: The statement in the SEPA Checklist is accurate.

16. **Water (D). The Checklist states that there is "a second freshwater/forested shrub wetland off site on the northwest side of Cloverdale Place South. [page 12, B.3.a.1]. [Commenter 2]**

    Response: The statement in the SEPA Checklist is accurate.

    SEPA Document Reference: Section B.3. a.1.

17. **Water (E). The Checklist states that the "projects would not require any work on or over wetlands", but that "Replacement of the existing turf field is proposed in the wetland buffer Per SMC 25.09.160(C), development and any alteration to the functions and values of Category III wetland and their associated buffer is generally prohibited unless the work meets one of the listed exemptions in the Code. The project to convert grass to synthetic turf in the outfield is an existing use and the only change is material, from grass to artificial turf, so it can be reviewed as an exemption (maintenance/repair). There is no additional impact, since the field already there. It is also exempt from critical area review because the proposed improvement to the field is a change in material from natural turf to synthetic turf for an existing use." [page 12, B.3.a.2]**

    a. **It seems like there are multiple opportunities for probably significant adverse impacts with a creek and multiple wetlands and wetland buffers in the area.**

    b. **The proposal seems to be "generally prohibited" in the wetland buffer, with only a proviso that it "can" be reviewed for obtaining an exemption from City Regulations, not that an exemption is guaranteed.**

    c. **Is the District's policy to cause impacts to such wetland buffers if it can find a way to be allowed to do so, rather than trying to steer clear of such impacts?**

    d. **The District seems to be arguing that there is no difference between natural grass and synthetic turf. This seems to be an error, as there seem to be known hazardous chemicals which leach out of synthetic turf over a period of time. [Commenter 2]**

    Response:

    17a. No significant adverse impacts to creeks, wetlands, and wetland buffers were identified to be expected from the proposed Rainier Beach High School Replacement Project. An existing athletic outfield currently extends partially into the wetland buffer and is proposed for conversion from natural grass to a synthetic field. The existing wetland buffer provides little to no protection to wetland functions. Construction best management practices would be implemented during construction to avoid potential adverse impacts.

    17b. As stated in the SEPA Checklist Section 3. a.2. the project would not require any work on or over wetlands. Replacement of the field that is currently located in a portion of the wetland buffer is expected. The existing wetland buffer provides little to no protection to

wetland functions. Per SMC 25.09.160(C), development and any alteration to the functions and values of Category III wetlands and their associated buffer is generally prohibited unless the work meets one of the listed exemptions in the Code. As preliminary due diligence for project planning, contact was made with the City of Seattle Department of Construction and Inspections (SCDI). Christy Carr (City of Seattle SDCI staff) indicated that the proposed project to convert grass to synthetic turf in the outfields is an existing use and the only change is material, from grass to artificial turf, so it can be reviewed as an exemption (maintenance/repair). There is no additional impact, since the field is already there. It is also exempt from critical areas review because the proposed improvement to the field is a change in material from natural turf to synthetic turf for an existing use (Carr, 2021). Additional information is provided in the Final Environmentally Critical Areas Assessment Memo (ESA 2021b).

17c. SPS works to avoid impacts to environmentally sensitive and critical areas. As stated in the response to 17b, there is existing use of a portion of the wetland buffer and the proposal would not increase impacts because the outfield provides little to no hydrologic, water quality, or habitat functions for the wetland.

17d. SPS recognizes the difference between natural grass fields and synthetic fields. The current practice is to install turf with a cork and sand infill rather than synthetic turf that contains toxins. Toxins are not expected to cause a significant adverse impact to the wetland buffer or wetlands. The existing grass fields are already underlain by an engineered drainage system and that will not change with the installation of the synthetic turf.

SEPA Document Reference: Section B.3. a.2.

18. Artificial turf in wetland buffer. Converting to artificial turf in a wetland buffer zone is not a good idea. [Commenter 3]

Response: The existing wetland buffer provides little to no protection to wetland functions. Additionally, the proposed synthetic turf avoids toxins by proposing to use synthetic turf comprised of cork and sand. The existing grass fields are already underlain by an engineered drainage system and that will not change with the installation of the synthetic turf.

SEPA Document Reference: Section B.3. a.2.

19. Annual surface lease agreement. The Checklist states that "Seattle Public Utilities (SPU) would provide an annual surface lease agreement to SPS." [page 2, A.9]

a. There is no accompanying explanations as to what this means or why it is required. [Commenter 2]

Response: This information was provided as a possible additional governmental action, as SPU owns a small corner of the block upon which Rainier Beach High School is located. SPU does not have any facilities at the property and it is completely vacant, and is currently landscaped with grass, trees, and shrubs. Possible agreements or easements with SPU may

be needed if SPS intends to use the corner property in the future, as a provision for utilities or surface use.

SEPA Document Reference: Section A.9.

20. Earth (A). The Checklist states that "A fault trace associated with the Seattle Fault Zone is located about ½-mile north of the site", but that "the potential for surficial ground rupture along the Seattle Fault Zone is considered to be low during the expected life of the proposed structure." [page 9, B.1.d]. A. How often is a rupture expected, and what is the expected life of the proposed structure." [Commenter 2]

Response: The site is located within the mapped limits of the Seattle Fault Zone. Studies by the USGS and others have provided evidence of surficial ground rupture along splays of the Seattle Fault. The data pertaining to this fault is limited, with the studies still ongoing. According to the USGS studies, the latest movement of this fault was about 1,100 years ago when about 20 feet of surficial displacement took place. This displacement can presently be seen in the form of raised, wave-cut beach terraces along Alki Point in West Seattle and Restoration Point at the south end of Bainbridge Island. Based on our review of the Washington State Department of Natural Resources (WADNR) website, a fault trace associated with the Seattle Fault Zone is located about ½ mile north of the site. Due to the suspected long recurrence interval, and the distance of the site to the fault trace, the potential for surficial ground rupture along the Seattle Fault Zone is considered to be low during the expected life of the proposed structure (AESI, 2020). The expected life of the proposed structure is estimated to be 60 years.

SEPA Document Reference: Section B.1.d.

21. Earth (B). The Checklist states that the site has a "low potential for liquefaction". [page 9, B.1.d]. A. How is this reconciled with the Checklist statement that "The City of Seattle maps portions of the project sit as an Environmentally Critical Area (ECA) liquefaction zone"? [page 9, B.1.d] [Commenter 2]

Response: The portions of the project site that are mapped as liquefaction prone zones by the City of Seattle are narrow strips located on the western and southern periphery of the site. The mapped area indicates there is a potential for liquefaction. SPS does not propose to construct any structures on the areas mapped as liquefaction prone areas.

The statement that the site has a "low potential for liquefaction" comes from a report generated by Associated Earth Sciences Incorporated (AESI) for the project site. AESI performed a liquefaction hazard analysis for the project site. Liquefaction-induced settlement calculated for two of the borings was considered insignificant given the limited areal extent of affected soils. The predicted settlement for one boring was considered significant. However, this boring was in the vicinity of the parking lot, located to the south of the proposed building. The encountered stratigraphy was determined to have a low potential for liquefaction due to its high silt contents, thin zones of potentially liquefiable soils, and presence of significant shallow groundwater (AESI, 2020).

There is agreement that there are liquefaction prone zones in peripheral portions of the site and the additional study at the project site revealed that the potential for significant adverse impacts from the proposed project is low.

SEPA Document Reference: Section B.1.d

22. Earth (C). The Checklist states that "The City of Seattle maps the entire project location as a Category 2 ECA peat settlement prone area." [page 9, B.1.d]. A. The peat would seem a likely area in which historical, cultural, and archeological resources would be likely to reside, and removing and altering such a large amount of this area would seem to involve probable significant impacts. [Commenter 2]

Response: SPS recognizes that there is potential for discovery of historical, cultural, and/or archaeological resources. As part of consultation under Executive Order 21-02, SPS conducted archaeological survey on school grounds in August 2021; no archaeological sites were observed (Colón et al. *in prep*). Additional detail is provided in response to Comment 38.

SEPA Document Reference: Section B.13.d.

23. Earth (D). The Checklist states that "The project would require approximately 34,000 cubic yards of cut and 14,000 cubic yards of fill." [page 10, B.1.e]. A. The reference to "14,00 cubic yard of fill" seems to be a typographical error. What value was mean instead of "14,00"? [Commenter 2]

Response: The comment is correct that "14,00" is a typographical error. The SEPA Checklist has been revised to list fill at 14,000 cubic yards.

SEPA Document Reference: Section B.1.e.

24. Transportation (A). The Checklist main transportation section [pages 34-39, B.14] does not seem to reference impacts from construction truck transporting tens of thousands of cubic yard of cut and fill earth. A. Appendix A notes that in Phase 1 beginning summer 2022, earthwork transport of 21,600 cubic yard (CY) over 2 and 3 months would require 18 to 30 truckloads per day, with 4 to 8 truck trips per hour, mostly on South Henderson Street and 53rd Avenue South. [page 48, section 4.1, Appendix A]; B. Appendix A notes that in Phase beginning summer 2022, earthwork transport of 21,550 cubic yard (CY) over 2 to 3 months would require 22 to 35 truckloads per day, with 3 to 9 truck trips per hour, mostly on South Henderson Street and 53rd Avenue South. [page 46, 4.1, Appendix A]. [Commenter 2]

Response: As noted in the first paragraph of the SEPA Checklist's Section 14. Transportation, "*An Updated Transportation Technical Report (Heffron Transportation, Inc., August 2021) has been prepared for the proposed project, and the results of the report are summarized in this section. For further details on the Updated Transportation Technical Report, please refer to Appendix A of this Checklist.*" The referenced technical report is provided as Appendix A to the SEPA Checklist and provides the construction-related transportation analysis including earthwork volume transport estimates, truck trip estimates, and anticipated schedule. The analysis concluded that the *"…volumes of truck traffic may be*

noticeable to residents living adjacent to the site or near the truck access points, but are not expected to result in significant impacts to traffic operations in the site vicinity." Section 14.h. of the *SEPA Checklist* and Section 4.3.1. of the referenced *Updated Transportation Technical Report* both include the recommended measures to reduce short-term construction-related traffic and parking impacts.

SEPA Document Reference: Section 14.h. and SEPA Checklist Appendix A.

25. **Transportation (B). Additional traffic from long-term use of the new school would add up to 5.4 seconds of delay per vehicle at several area intersections. [page 48, section 4.2, Appendix A]. [Commenter 2]**

Response: The referenced *Updated Transportation Technical Report* concluded that all seven study-area intersections are forecast to remain operating at level of service (LOS) D or better during all three analysis peak hours, which is an acceptable level of service. The estimated project-related increases in average vehicle delay (ranging from zero to 5.4 seconds per vehicle) at these intersections would not degrade the level of service below LOS D, and therefore is not considered a significant impact. Therefore, the project would not result in significant adverse impacts to study-area traffic operating conditions.

SEPA Document Reference: Section 14.h. and SEPA Checklist Appendix A.

26. **Transportation (C). The Checklist states that "the replaced and expanded school is estimated to generate a net increase of about 1,300 trips per day (750 in, 750 out)." [page 37, B.14.f]. A. 750 plus 750 would seem to add up to 1,500, not 1,300, yes? B. Are these figures derived from Appendix A, and if so, where? [Commenter 2]**

Response: The estimated total net increase in daily vehicle trips of 1,300 is correct. The in/out split was a typographical error and has been corrected to be (650 in, 650 out). The daily trips are not used for any of the detailed analyses, since all analyses focus on the peak hours and the typographical error did not affect the analysis or conclusions.

SEPA Document Reference: Section 14.f. and SEPA Checklist Appendix A.

27. **Transportation (D). The Checklist states that "for the largest events, all on-street parking, along the roadways surrounding the school site could be at or above capacity" but that "the change in school enrollment capacity is not expected to change these existing conditions", so that there would supposedly not be a new significant impact. [page 36, B.14.c]. A. Instead, it seems likely that more than doubling the student enrollment would have some significant impact with regard to such events. [Commenter 2]**

Response: The attendance and related parking demand for large events (such as well-attended varsity basketball games) is primarily influenced by the performance of the team and opponents not the school's enrollment. Due to very high-performing athletics, Rainier Beach High School has occasionally had capacity attendance for events in the gymnasium. With continued high-performance, that is likely to occur regardless of the enrollment at that time, but that demand would still be limited to the gymnasium capacity. Similarly, event

attendance in the performing arts facility would be limited to its seating capacity of 550 seats, which is about the same as the existing facility. The enrollment of the school would not result in events that exceed that capacity.

SEPA Document Reference: Section 14 and SEPA Checklist Appendix A.

28. Transportation (E). Parking.

a. 113% more enrollment with only 255 more on-site parking is a significant impact.

b. There are currently 160 parking spaces on-site, and the project would add 40 more parking spaces, an increase on 25%. [page 35, B.14.c]

c. The enrollment would go from about 750 [page 1] to 1,600 [page 35], an increase of 850 students and 113%.

d. The Checklist states that "Because the school is located within an Urban Village, there is no City of Seattle minimum requirement for parking supply and no code-departures for reduced parking is required." [page 35, B.14.c]

e. The Checklist environmental review of parking impacts should not be omitted and hidden behind a City code exemption for areas with an Urban Village.

f. The Checklist instead needs to measure actual impacts by providing information on required on-site parking based on the size of assembly spaces, etc., as would be the case for high schools such as around Garfield, Franklin and Roosevelt. [Commenter 2]

Response:

28a. As presented in the referenced *Updated Transportation Technical Report*, parking demand estimates for the expanded Rainier Beach High School were developed based on the counts and observations from historical aerials of the existing school, combined with rates and data derived from counts at three other Seattle high schools. The estimated peak school-day parking demand is expected to range from 0.14 to 0.165 vehicles per student. These are the range of rates observed at Rainier Beach, Roosevelt, and Garfield High Schools, but lower than the rate observed at Ingraham High School. Based on the observations and rate derived for Rainier Beach High School and given its proximity to Link light-rail and the future RapidRide transit service, the school is expected to generate demand at the lower end of the range of observed rates. Therefore, the expanded school with enrollment of up to 1,600 students could generate a peak school-day parking demand ranging from 224 to 264 vehicles.

28b. With the proposed on-site supply of about 190 parking spaces, the expanded school could generate excess demand of between 34 and 74 vehicles that may park along on-street parking in the site vicinity. This potential new parking overspill would most likely occur on-street in areas nearest the school that have unrestricted parking on school days. Based on the parking utilization study performed around the school, there were over 120 unused

unrestricted on-street parking spaces along S Cloverdale Street, Grattan Place S, Wabash Avenue S, 53rd Avenue S, Hamlet Avenue S, and Seward Park Avenue S. After accounting for potential new overspill demand from nearby pipeline development projects and the potential range of new overspill from Rainier Beach High School (when fully enrolled to capacity), on-street parking utilization in the study area is expected to remain between 65% and 77% with between 80 and 120 unused spaces remaining. Based on these estimates, the added school day demand would not represent a significant adverse impact.

28c. Please see response to Comment 28.a. above.

28d. Please see response to Comment 28.a. above.

28e. As stated in the comment and in *Updated Transportation Technical Report*, because the school is located within an Urban Village, the City of Seattle does not have a minimum code-requirement for parking supply and no code-departure for reduced parking would be required.

28.f Although the City has no code-required minimum parking supply for the Rainier Beach High School site and it will not require a code departure for parking, the SEPA Checklist and the *Updated Transportation Technical Report* (Section 3.5) provide detailed analysis of potential parking impacts. The analysis was not omitted or hidden.

Although the City code in some areas determines minimum parking requirements for schools using assembly spaces, that is not the method applied to evaluated parking demand and impacts as part of a SEPA analysis. The parking analysis was prepared consistent standard practice for evaluating school parking impacts and relied on rates and observations from other Seattle high schools. It is noted that, with the proposed school replacement project, Rainier Beach High School will have about the same parking supply as West Seattle High School and more on-site parking than seven of the other 10 Seattle high schools. Only Ingraham and Nathan Hale would have more on-site parking; however, both of those schools are located considerably farther from the type of robust transit service available to the Rainier Beach High School site.

SEPA Document Reference: Section B.14 and SEPA Checklist Appendix A.

29. Parking. Reduction of parking in congested area. The increase of students with less parking does not make sense either. The intersection of Seward Park Drive and S Henderson already backs up because of congestion in that area. [Commenter 3]

Response: Please refer to the responses to Comments 28 a -f for additional information related to parking. It is acknowledged that school-related traffic congestion occurs in the short periods before and after school, as is common around many high school sites. However, the operations analyses presented in the referenced *Updated Transportation Technical Report* (Table 8 on page 38) found that the added trips resulting from the potential increase in enrollment would not result in significant adverse impacts to intersection operations. The S Henderson Street / Seward Park Avenue S intersection is forecast to operate at LOS D or better during all three analysis periods with the project; the

estimated added delays (ranging from 0.2 to 1.8 seconds per vehicle) would not be considered significant adverse impacts at this location.

SEPA Document Reference: SEPA Checklist Appendix A.

30. **Noise. Noise is a probable significant adverse impact. The Checklist states that "the Seattle Land Use Code allows construction equipment operations between the hours of 7 a.m. and 10 p.m. on weekdays and 9 a.m. and 10 p.m. on weekends and holidays. Construction would generally occur between 7 a.m. and 5 p.m. on weekdays. It is unlikely that construction would occur at night or on holidays. Weekend construction could occur in some cases." [pages 21-22, B.7.b.3].**

    a. **What does "unlikely" night or holiday construction mean? Once a week? Once a month? Once a year?**

    b. **It is not clear that the Checklist is completely disclosing noise impacts.**

    c. **The Rainier Beach Checklist omitted some references which are contained in other school Checklist.**

    d. **The Checklist for a number of other school projects have noted that construction activities are allowed to exceed the maximum noise levels between 7 AM and 10 PM on weekends. [See for example Northgate Elementary School Checklist B.7.b(2) & (3), pages 17-18] The same would be true for Rainier Beach, yes? [Commenter 2]**

Response:

30.a. Work on holidays or weekends is considered "unlikely" because there are no project plans to work outside allowable hours. It is possible that during construction, an unexpected situation may arise where SPS would need to request permission to work at night or on a holiday. If that happens, SPS would follow regulatory procedures.

30.b The SEPA Checklist provided a thorough analysis of both potential significant adverse impacts from construction and operational noise from the proposed project.

30.c. Appendix D of the SEPA Checklist was prepared to describe potential noise impacts from the proposed project. References that were used in the preparation of the analysis are listed in the memo.

30.d Yes, per SMC 25.08 and based on the existing zoning of the site, construction activities are allowed to exceed the maximum noise levels between 7 AM and 10 PM on weekdays and 9 AM to 10 PM on weekends.

SEPA Document Reference: Section B.7.b.2 and Section B.7. b.3.

31. <u>Environmental Health: asbestos, lead.</u> A. The Checklist states that "Detectable levels of ACM [asbestos-containing materials], lead, and other regulated materials were identified throughout the existing buildings." [page 20, B.7.a.1]. [Commenter 2]

Response: The statement from the SEPA Checklist is correct. Demolition work requires an asbestos survey be conducted in accordance with City of Seattle requirements. Federal, state, and local regulations require that all asbestos and other hazardous materials be removed prior to demolition.

<u>SEPA Document Reference:</u> Section 7. a.1.

32. <u>Height.</u> The taller height of the proposed new four-story building will not meet City zoning code.

A. This indicates that the project will have probable significant adverse impacts.

B. The highest part of the new school would be about 60-feet tall, an increase from the current 46 feet plus "mechanical elements" for the current performing arts building. [page 26, B.10.a]

C. The checklist states "A height departure would be needed because the maximum height allowed under the current zoning is 35-ft plus 15-ft for pitched roofs. SPS is seeking a departure to allow a four story high building." [page 26, B.10.a]

D. The Checklist notes that views from the adjacent residences "would be altered", that there are no "view from the streets surrounding the area", and that "There are no protected views of or from the Rainier Beach High School site as identified in SMC [Seattle Municipal Code] 25.05.657" [pages 26-27, B.10.b]. [Commenter 2]

Response:

32.a. The proposed project would be required to go through and receive a departure under the Seattle Land Use Code to be allowed to build over the height limit for the site. The departure is an established process under Seattle Land Use Code Section 23.79.002. The intent of the process is to allow for the construction, addition, and/or renovation of schools that do not necessarily meet all of the land use and zoning standards of the neighborhood. This process includes the input and recommendations from nearby neighbors and a departure may not be granted unless certain criteria are met. No significant adverse impacts are expected because SPS would not exceed the current zoning height unless the departure from the City is granted.

32.b. The information as stated in the SEPA Checklist is correct.

32.c. The information as stated in the SEPA Checklist is correct. See response to 32.a. for more detailed information.

32.d. The information as stated in the SEPA Checklist is correct.

SEPA Document Reference: Section B.10.a. and B.10.b.

33. Light Poles.

A. The existing 80 foot and 95 foot poles will be retained. [page 27, B.10.b]

B. New 60-foot light poles would be installed at the proposed new practice field in the northeast corner of the site ("school use only"). [page 27, B.10.b]

a. Adding more athletic field evening use will exacerbate lighting, traffic parking, and noise impacts which already occur at current fields. [Commenter 2]

Response:

33.a. The information as stated in the SEPA Checklist is correct.

33.b. The information as stated in the SEPA Checklist is correct. Appendix B of the SEPA Checklist provides information on light and glare from the proposed project. The project is not expected to exacerbate the lighting impacts as the overall impact of spill light, glare and sky glow will be reduced with the replacement of the existing floodlights at the football, baseball and softball fields with new shielded LED floodlights. No marked change to noise or traffic and parking is expected due to the replacement of the existing synthetic turf and the upgrades to the lighting and installation of new lighting at the new practice field. The practice field is for school use only and would not add public use.

SEPA Document Reference: Section B.11.

34. Light pollution. The proposed new 60 ft light poles for the sports field will cause more light pollution than the current lights already do. I can see them directly out our front windows and are very bright. [Commenter 3]

Response: The existing lighting at the football, baseball and softball fields would be replaced with high efficiency LED lights with superior optics\shielding. The total amount of installed KW of lighting used at the site would be reduced. The overall light pollution, and visibility of the floodlights at the site would also be reduced with the use of new LED technology. This is true even with the addition of the 60-foot poles at the small practice field on the northeast portion of the site. Appendix B of the SEPA Checklist provides information on light and glare from the proposed project.

SEPA Document Reference: Section B.11.

35. Historic and cultural preservation (A). Other high schools – Garfield, Franklin, Cleveland, Roosevelt and West Seattle – were NOT torn down. They were respectfully modernized and added on to. [Commenter 2]

Response: The response to Comment 5 provides details on SPS's decision to demolish the Rainier Beach High School structures and replace them with new structures.

36. <u>Historic and cultural preservation (B).</u> It feels like the District and the Checklist are not fully informing the public on these impacts.

a. The District has already argued to the City that there is no important history at the site and the District has already gotten the City Landmarks Board to give a City OK to demolish everything. [page 32, B.13.a]

b. Neither the City nor the District sent out notices to the public when a school is quietly brought by the District to have the school's history torpedoed before the Landmark Board.

c. Families, neighbors, and the community often have fond connections to their schools, and this history is important to preserve.

d. The District and the Checklist need to take further steps to offer information in the Checklist about this history. [Commenter 2]

Response:

36a. The Seattle Landmarks Preservation Board determined that Rainier Beach High School is not eligible as a City of Seattle Landmark. This process is separate from the SEPA process.

36b. This comment raises concerns about the City of Seattle Landmarks Preservation process, which is not relevant to this SEPA checklist or the SEPA analysis. The Rainier Beach High School nomination was included on the public agenda for the September 16, 2020 Board meeting that was held virtually. Several people commented at the meeting, including the commenter. Almost all commenters at the meeting, who consisted primarily of community members, parents, and students, asked the Landmarks Board not to nominate the building for designation. A decision was made at the meeting not to landmark the structures.

36c. Comment acknowledged.

36d. Information on the history of the structures is provided in the SEPA Checklist.

<u>SEPA Document Reference</u>: Section B.13.

37. <u>Historic and cultural preservation (C).</u> The Checklist does not disclose that the Chair of the Landmarks Board worked for Bassetti Architects, which the School District hired for the Rainier Beach project.

a. While the Chair recused himself from the Rainier Beach vote, everyone on the Landmark Board knew that the Chair works for Bassetti Architects.

b. If this situation had occurred within the District's on BEX Oversite Committee, the District's own rules would have indicated that this was unethical.

c. **The District Charge to the Oversite Committee states that "Member shall not have any direct or indirect financial interest (except a "remote interest" as defined by RCW42.3.40), in any contract, purchase of material, or activity financed from school district funds". [Section 3]. [Commenter 2]**

Response:
37 a, b, and c. This comment raises concerns about the City of Seattle Landmarks Preservation process, which is not relevant to this SEPA checklist or the SEPA analysis.

38. **<u>Historic and cultural preservation (D).</u> The checklist states that "The school did not meet Seattle City Landmark criteria; it is unlikely that the school would be recommended or determined eligible for listing in the NRHP [National Register of Historic Places] as City criteria closely follows NRHP criteria." [page 32, B.13.a]**

    a. **This is the same position that the district too on the Northgate Elementary project, which was also a BEX V levy/Bassetti-planned project.**

    b. **But the state has subsequently noticed the District that Northgate Elementary is eligible in the National Register of Historic Places. [Commenter 2]**

Response:

38.a. and b. These comments address Northgate Elementary and do not provide a comment on the project reviewed in this SEPA Checklist.

<u>SEPA Document Reference:</u> Section B.13.d

39. **<u>Historic and cultural preservation (E)</u>. The Checklist acknowledges that the Rainier Beach High School project site is classified by the state as "High to Very High Risk for containing precontact-era cultural resources". [page 32, B.13.b]**

    a. **The Checklist states that "SPS [Seattle Public Schools] would consult with DAHP and Tribes regarding additional cultural resources assessment work for this project. SPS would develop future survey methodology and cultural resource field work in consultation with DAHP and Tribes, including the Duwamish Tribe. Potential methodology could be conducting an archeological survey prior to construction. If a preconstruction archeological survey is not feasible, or if the results of the survey indicate a continued High to Very High Risk for archeological sites, SPS could formulate an Archeological Resources Monitoring Plan (ARMP) and retain a professional archeologist to conduct archeological monitoring during some of all ground-disturbing construction of the project. … SPS would notify and invite Tribes, including the Duwamish Tribe, to observe work … measures to … compensate for loss … would be determined …" [page 34, B.13.d]**

    b. **On the recent Northgate Elementary project, representatives of the Duwamish Tribe were instrumental in providing testimony which led the District Hearing**

Examiner to recommend further archeological examination of the Northgate site. [Commenter 2]

Response:

39.a. SPS is receiving state capital funds from the Washington Office of Superintendent of Public Instruction (OSPI). Use of state funds requires that the project go through additional cultural resources review under Governor's Executive Order 21-02 (EO 21-02, formerly EO 05-05). The EO 21-02 review process requires consultation between SPS and DAHP and Affected Tribes regarding potential impacts to cultural resources. SPS requested to initiate EO 21-02 Consultation with DAHP, Duwamish Tribe, Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Tribe, and Tulalip Tribes via email on July 13, 2021 and via regular mail on July 14, 2021. The request to initiate consultation included proposed archaeological survey methods and explanation of these methods, as well as request for reply by August 16, 2021. On July 14, 2021, Dennis Lewarch, Tribal Historic Preservation Officer of the Suquamish Tribe responded to SPS via email: "Thank you for consulting the Suquamish Tribe regarding the Rainier Beach High School Replacement Project in Seattle. The Suquamish Tribe does not have ethnographic or historic information specifically related to the project Area of Potential Effects. I reviewed the information you provided and concur with the delineation of the Area of Potential Effects and the cultural resource assessment program proposed by Environmental Science Associates. The Suquamish Tribe would like to participate as a consulting party." On July 14, 2021, Steven Mullen-Moses, Director of Archaeology and Historic Preservation of the Snoqualmie Indian Tribe, responded to SPS via email: "Thank you for the opportunity to review and comment. Based on the information provided and our understanding of the project and its APE we have no substantive comments to offer at this time. However, please be aware that if the scope of the project or the parameters for defining the APE change, we reserve the right to modify our current position." After receiving no response from the Duwamish Tribe, Muckleshoot Indian Tribe, and Tulalip Tribes, SPS resent its original correspondence to these Tribes via email on July 26, 2021, again requesting a reply by August 16, 2021. As of September 21, 2021, SPS had received no response from the Duwamish Tribe, Muckleshoot Indian Tribe, or Tulalip Tribes.

On August 10, 2021, ESA notified all Tribes via email of archaeological survey planned for August 17-20, 2021, and invited Tribes to have representatives present during the survey. Robert de los Angeles, Chairman of the Snoqualmie Indian Tribe, acknowledged ESA's email; no other Tribal representatives responded to ESA. No Tribal representatives made their presence known to ESA during the survey.

There are no previously recorded archaeological sites within the project site, and no archaeological sites were observed during ESA's archaeological survey (Colón et al. *in prep*). Due to continued potential for archaeological sites within school grounds, ESA recommends that SPS consult with DAHP and Affected Tribes under EO 21-02 to formulate an Archaeological Resources Monitoring Plan (ARMP) and retain a

professional archaeologist to conduct archaeological monitoring during construction of project elements with particular risk for intersecting archaeological sites if any are present. (Colón et al. *in prep*). The ARMP will also include the protocols standard in an Inadvertent Discovery Plan (IDP), including notification of the Duwamish Tribe, Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Tribe, and Tulalip Tribes.

Prior to construction, SPS will notify and invite Tribes, including the Duwamish Tribe, to observe the construction work. More detailed information will be included in the notification and invitation. At all times, state laws regarding cultural resources, including Archaeological Sites and Resources (RCW 27.53), Indian Graves and Records (RCW 27.44), Human Remains (RCW 68.50), and Abandoned and Historic Cemeteries and Historic Graves (RCW 68.60), are in force if archaeological sites or human remains are discovered. Based on the result of the analysis, measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources would be determined based on the nature, location, and potential impacts to any archaeological resource.

If DAHP determines some or all of the school buildings eligible for listing in the NRHP, SPS will consult with DAHP and Tribes, if requested, under EO 21-02 to determine appropriate mitigation(s).

39.b. The project is undergoing additional cultural resources review as part of compliance with Governor's Executive Order 21-02. This review requires consultation with DAHP and Affected Tribes, including the Duwamish Tribe, Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Tribe, and Tulalip Tribes. DAHP and the Affected Tribes will be provided a draft of the archaeological resources assessment report (Colón et al. *in prep*) for review and comment (30-day period).

SEPA Document Reference: Section B.13.d. and Rainier Beach High School Replacement Project, Seattle, King County, Washington. Archaeological Resources Assessment. September 2021. Prepared for Seattle Public Schools. Prepared by ESA. 2021. The report is exempt from public distribution and disclosure (RCW 42.56.300).

40. Historic and cultural preservation (F). The Checklist did not seem to commit develop an inadvertent discovery plan (IDP) which includes notification of local tribes including the Duwamish Tribe. The lack of an IDP increases the probability of significant impacts. The District has provided an IDP on a number of previous projects. [Commenter 2]

Response: SPS anticipates formulating an Archaeological Resources Monitoring Plan (ARMP) in consultation with DAHP and Affected Tribes under EO 21-02. SPS would retain a professional archaeologist to conduct archaeological monitoring during construction of project elements with particular risk for intersecting archaeological sites if any are present (Colón et al. *in prep*). The ARMP will also include the protocols standard in an Inadvertent Discovery Plan (IDP), including notification of the Duwamish

Tribe, Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Tribe, and Tulalip Tribes.

SEPA Document Reference: Section B13.d

41. Historic and cultural preservation (G)The Rainier Beach site is clearly in an area of importance to the Duwamish Tribe.

a. There are probable significant adverse impacts to the project as proposed.

b. Modernizing and adding on to the current school would likely have fewer impacts than demolition and replacement. An Environmental Impact Statement should be prepared that examined the alternative of modernizing and adding on. [Commenter 2]

Response:

41.a. SPS is receiving state capital funds from the Washington Office of Superintendent of Public Instruction (OSPI). Use of state funds requires that the project go through additional cultural resources review under Governor's Executive Order 21-02 (EO 21-02, formerly EO 05-05). The EO 21-02 review process requires consultation between SPS and DAHP and Affected Tribes regarding potential impacts to cultural resources. SPS requested to initiate EO 21-02 Consultation with DAHP, Duwamish Tribe, Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Tribe, and Tulalip Tribes via email on July 13, 2021 and via regular mail on July 14, 2021. The request to initiate consultation included proposed archaeological survey methods and explanation of these methods, as well as request for reply by August 16, 2021. On July 14, 2021, Dennis Lewarch, Tribal Historic Preservation Officer of the Suquamish Tribe responded to SPS via email: "Thank you for consulting the Suquamish Tribe regarding the Rainier Beach High School Replacement Project in Seattle. The Suquamish Tribe does not have ethnographic or historic information specifically related to the project Area of Potential Effects. I reviewed the information you provided and concur with the delineation of the Area of Potential Effects and the cultural resource assessment program proposed by Environmental Science Associates. The Suquamish Tribe would like to participate as a consulting party." On July 14, 2021, Steven Mullen-Moses, Director of Archaeology and Historic Preservation of the Snoqualmie Indian Tribe, responded to SPS via email: "Thank you for the opportunity to review and comment. Based on the information provided and our understanding of the project and its APE we have no substantive comments to offer at this time. However, please be aware that if the scope of the project or the parameters for defining the APE change, we reserve the right to modify our current position." After receiving no response from the Duwamish Tribe, Muckleshoot Indian Tribe, and Tulalip Tribes, SPS resent its original correspondence to these Tribes via email on July 26, 2021, again requesting a reply by August 16, 2021. As of September 21, 2021, SPS had received no response from the Duwamish Tribe, Muckleshoot Indian Tribe, or Tulalip Tribes.

On August 10, 2021, ESA notified all Tribes via email of archaeological survey planned for August 17-20, 2021, and invited Tribes to have representatives present during the survey. Robert de los Angeles, Chairman of the Snoqualmie Indian Tribe, acknowledged ESA's email; no other Tribal representatives responded to ESA. No Tribal representatives made their presence known to ESA during the survey.

There are no previously recorded archaeological sites within the project site, and no archaeological sites were observed during ESA's archaeological survey (Colón et al. *in prep*). Due to continued potential for archaeological sites within school grounds, ESA recommends that SPS consult with DAHP and Affected Tribes under EO 21-02 to formulate an Archaeological Resources Monitoring Plan (ARMP) and retain a professional archaeologist to conduct archaeological monitoring during construction of project elements with particular risk for intersecting archaeological sites if any are present. (Colón et al. *in prep*). The ARMP will also include the protocols standard in an Inadvertent Discovery Plan (IDP), including notification of the Duwamish Tribe, Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Tribe, and Tulalip Tribes.

41.b. The BEX V Programmatic EIS provided a high level analysis of the potential for modernizations, additions, and replacement for a variety of schools. SPS continued site specific planning for Rainier Beach High School after the BEX V Programmatic EIS was issued in 2018. SPS makes decisions on the status of individual school sites based on site specific planning documents and on the guiding principles for BEX V. Additional information on the decision to replace the existing Rainier Beach High School structures is provided in response to Comment 5.

SEPA Document Reference: Section B13.a; Section B13. b

42. Appendices. We appreciate that the Checklist provided and Environmentally Critical Area Memo in Appendix C.

a. However, the sections for photos, figures, Wetland Data Entry Forms, and Wetland Rating Form are missing and are listed as "available upon request".

b. It would be helpful to the public and other reviewers to provide the full information for the Memo in Appendix C. [Commenter 2]

Response:

42.a The SEPA Checklist Appendix C has been updated to include the photos, figures, Wetland Data Forms and Wetland Rating Form in the Environmentally Critical Area Memo.

42.b Complete information for Appendix C is now provided for public review.

SEPA Document Reference: SEPA Checklist Appendix C.

43. Further reasons that there are probable significant adverse impacts from the project: over-development and gentrification.

a. **<u>Cramming in over-development and gentrification creates a less-livable city.</u> The School District and the City have been selling off and filling up open spaces. For example, Thornton Creek and Loyal Heights elementary Schools have recently lost large chunks of outdoor field and playground space. To attempt to "mitigate" the loss of open space, the remaining open space is being scheduled for more intensive use, which creates further impacts. We need to keep some spaces that are not constantly packed with scheduled events. An EIS can and should explore alternatives, such as retaining and acquiring more open space.**
b. **These types of mega-projects are part of tossing away the surrounding neighborhoods, pricing out current residents and pumping up property taxes which also forces out current residents. The history and character and long-time residents are lost.**
c. **Premature demolition creates impacts on landfills and other resources.**
d. **The Rainier Beach project budget is $238 million. The backlog of repairs for Rainier Beach High School is only $5.4 million (as of 2014) [$238,150,426: page 2, BEX V Capital Levy budget document on District website, November 24, 2019] [$5,477,082: Facility Summary –Volumes I & III, 2014 Building Condition and Educational Adequacy Assessment, Seattle School District No. 1, Final Report, MENG Analysis] [Commenter 2]**

Response:

43.a The comments on other schools is outside of this SEPA process. The Rainier Beach High School Replacement project does not increase the footprint of the existing site and retains and enhances existing athletic fields and allows for a variety of other uses on the site including athletic fields and space for a variety of other uses which may include: student gardens, Special education (SPED) Outdoor Learning space, promenades, and areas for plantings and tree canopy.

43.b The replacement of existing SPS school structures at the Rainier Beach High School site is not expected to significantly impact the uses or character of the neighborhood.

43.c SPS does not consider the proposal to demolish the existing school structures to be premature. SPS makes decisions on the status of individual school sites based on site specific planning documents and on the guiding principles for BEX V which include:

- Equity
- Safety and Security
- Right size capacity
- Existing Building Conditions (which includes educational adequacy)

Additional details on the decision to demolish the building are provided in response to Comment 5.

43.d Comment acknowledged. Financial analysis is outside of the scope of a SEPA analysis.

44. <u>Comments in the Final Checklist.</u> When publishing a final Checklist after public review of draft Checklists, the District has sometimes been choosing to NOT reproduce actual public comments, but rather summarizes the comments instead and responds to the summary of comments. Some of the summaries have been inaccurate. It would be better to have the Final Checklist include actual copies of the public comments received. [Commenter 2]

Response: SPS has provided the comments verbatim in these comment responses but have summarized the comments for efficiency and included a list of commenters. Comments are identified by commenter number herein in each summarized comment and response. Summaries have been reviewed for accuracy. Access to the individual public comments can be obtained by contacting SPS sending a request to SEPAComments@seattleschools.org or calling 206-252-0990.

45. <u>Public Involvement.</u> It's so sad and disappointing that whenever a committee wants their way – they just hit the …. in Seattle and never listen or care what is important to people who live here. They just do and carry out your plans. [Commenter 5]

Response: There are a variety of ways to provide input during the SEPA process. Preparing a SEPA Checklist is the first step in determining the significance of impacts. The comment period on the Draft SEPA Checklist for the Rainier Beach High School Replacement Project was provided for 30 days from June 30 to July 30, 2021. The SPS SEPA Responsible Official is reviewing the revised SEPA Checklist and taking all comments received on the Draft SEPA Checklist into consideration in making a determination of the significance of impacts from the Rainier Beach High School Replacement project.

Additional public comment participation opportunities will be available as part of the City's permitting process; the Seattle Department of Neighborhoods (DON) will convene a Development Standard Advisory Committee to secure public comments. The committee will invite persons owning property or a business within 600 feet of the project site and persons residing within 600 feet of the project site per Seattle Municipal Code 23.79.002. It should also be noted that, for the past two years, SPS has engaged with a School Design Team (SDAT), which includes community members, teachers, parents, and design professionals, to help inform the design of the school. Public open houses have been held on the as part of the design process. Additional opportunities to provide public input will occur as part of the City's permitting process.

APPENDIX A: TRANSPORTATION TECHNICAL REPORT

UPDATED TRANSPORTATION TECHNICAL REPORT

for the

Rainier Beach High School Replacement Project

PREPARED FOR:

Seattle Public Schools

PREPARED BY:

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August 30, 2021

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1. INTRODUCTION

This report presents the transportation impact analyses for the Seattle Public Schools' (SPS) proposed Rainier Beach High School Replacement project. The scope of analysis and approach were based on extensive past experience performing transportation impact analyses for projects throughout the City of Seattle, including numerous analyses prepared for SPS projects. This report documents the existing conditions in the site vicinity, presents estimates of project-related traffic, and evaluates the anticipated impacts to the surrounding transportation system including transit, parking, safety, and non-motorized facilities. This updated report reflects the current site plan and minor changes to proposed vehicle and bicycle parking supply quantities. These analyses were prepared to support the SEPA Checklist for this project.

At the time of this analysis, all SPS buildings were closed due to the COVID-19 pandemic crisis, which affected traffic volumes and travel patterns throughout Seattle and near the site. Therefore, the analyses were prepared using a combination of baseline traffic data collected in the vicinity by the Seattle Department of Transportation (SDOT) from 2017 through 2019 and new data collected in 2020 and 2021. The data were adjusted to reflect non-COVID conditions using standards and practices recommended by the Institute of Transportation Engineers (ITE)[1] and other industry professionals.[2]

1.1. Project Description

SPS proposes to replace and expand Rainier Beach High School at its existing site—8815 Seward Park Avenue S—in the Rainier Beach neighborhood of Seattle. The following describes the site and proposal.

1.1.1. Existing Site

The existing Rainier Beach High School site is 21.7 acres and houses an original building from 1960 as well as additions that expanded the school over the years. The site is bounded on the east by Seward Park Avenue S, on the south by S Henderson Street, on the west by private commercial properties, on the northwest by S Cloverdale Street, and on northeast by private residential properties.

The existing school buildings on site have cumulative space of approximately 182,500 square feet (sf).[3] The existing main school building was constructed in 1960 and is located on the southeastern portion of the site. Four other buildings (a gymnasium, a performing arts center (constructed in 1998), a wood shop and drafting building, and an auto shop building) are located northwest of the main building. The Southeast Athletic Complex is located on the western portion of the site and includes a lighted football/soccer field and track with all associated field events, a bleacher structure with seating for approximately 1,500 people, covered storage, and press box, a natural turf utility field, a lighted baseball field, a lighted softball field, baseball and softball batting cages, two outdoor asphalt concrete basketball courts, and support buildings housing a ticket booth, restrooms, concessions, scheduling office, storage, and maintenance equipment.

There are three formally established parking lots on the campus totaling about 160 spaces. The largest lot, located west of the main school building, has 72 spaces, and the linear lot, along the east side of the grass utility field and baseball field, has 51 spaces. Both are accessed from two driveways on S Henderson Street. The eastern lot (with about 16 spaces though striping has faded and evolved over the years) is accessed from a driveway on Seward Park Avenue S. There are four reserved spaces for kitchen staff located between the main school building and S Henderson Street with a wide curb cut on S Henderson Street. The paved areas north of the school buildings are used for occasional parking (with 16 striped spaces). Access to those paved areas occurs from the north via 53rd Avenue S, which ends at the school site just south of Hamlet Avenue S. The southern site frontage on S Henderson Street between Seward

1 ITE, *What a Transportation Professional Needs to Know About Counts and Studies during a Pandemic*, July 2020.
2 Kittelson & Associates, *Estimating Traffic Volumes Under COVID-19 Pandemic Conditions*, April 2, 2020.
3 Bassetti Architects, Rainier Beach High School Schematic Design Report, January 29, 2021.

Park Avenue S and 52nd Avenue S is signed for school bus load only from 7:00 A.M. to 7:00 P.M. (except Saturday, Sunday, and holidays).

According to information published in *Building for Learning, Seattle Public Schools Histories, 1862-2000*,[4] Rainier Beach Junior-Senior High School opened in September 1960 with 1,257 students (845 in the junior-high level and 412 high-school students). The school building was originally designed for 1,500 students, but by 1967 was overcrowded with 2,159 students. As a result, a separate Model Middle School program began in portables on the grounds in 1970 and was moved to a new permanent building—South Shore—in December 1973. The performing arts center was constructed and opened in 1998 and renamed the Paul Robeson Performing Arts Center in 2004. The school's current enrollment capacity is listed as 1,088 students. Enrollment for the 2020-21 school year is 787 students and has averaged 762 students per year since 2017.[5] The school currently has 85 full-time-equivalent (FTE) employees (including 25 part-time staff), including teachers, instructional assistants, administrators, and operations staff.[6] School hours during the 2019-20 school year, prior to the COVID-19 pandemic, were 8:55 A.M. to 3:45 P.M.

1.1.2. Proposed Site Changes

The proposed project would construct a new four-story high school with up to 276,000 sf and surface improvements to the existing athletic fields. When complete, the school would have permanent enrollment capacity for up to 1,600 students in grades 9 through 12; however, it is noted that SPS does not anticipate full enrollment for 10 years or more after completion. The new school would have general-use classrooms, special-education classrooms, science labs, learning commons, CTE labs, a Skills Center, library, art spaces, performing arts wing, gymnasiums and fitness spaces, health center, food service, multipurpose commons, administration, a Data Center, and support spaces. Site improvements would include a new on-site passenger vehicle drop-off/pick-up loop, an entry plaza, expanded and relocated parking (totaling about 190 spaces), a relocated practice field (for school-use only) with synthetic turf and lights, and replacement of spectator bleachers at main football/soccer field and track.[7]

The proposed new school building would be located in the central portion of the site now occupied by the natural turf field and wood shop building. Two parking lots would be located at the southeastern portion of the site—one with 64 spaces and the new on-site passenger vehicle load/unload loop—would be accessed from a new single driveway on S Henderson Street. It would have an internal connection to a second lot—with 95 spaces—that would be accessed from the existing driveway on Seward Park Avenue S. Additional parking (about 33 spaces) is proposed along the northeast edge of the site with primary access from the same existing driveway on Seward Park Avenue S and/or from the south end of 53rd Avenue S. Two existing curb cuts along S Henderson Street would be eliminated. The site's S Henderson Street frontage would remain signed for school bus loading. Figure 1 shows the site plan with the location of the proposed replacement school, parking areas, and access locations.

Students will remain on-site during the period of construction, which is anticipated to begin in phases in 2022, and be substantially complete by August 2025. Future analyses (without and with the project) presented in this report reflect conditions for fall 2025, when the project is expected to be complete. Although full enrollment of 1,600 students is not anticipated for several years beyond opening, that enrollment level was assumed to occur in 2025 for the purpose of this analysis. Based on staffing for other Seattle high schools, SPS estimates that Rainier Beach High School could have between 130 and 160 employees (including about 40 part-time) if/when it is enrolled to its planned capacity of 1,600 students.[8]

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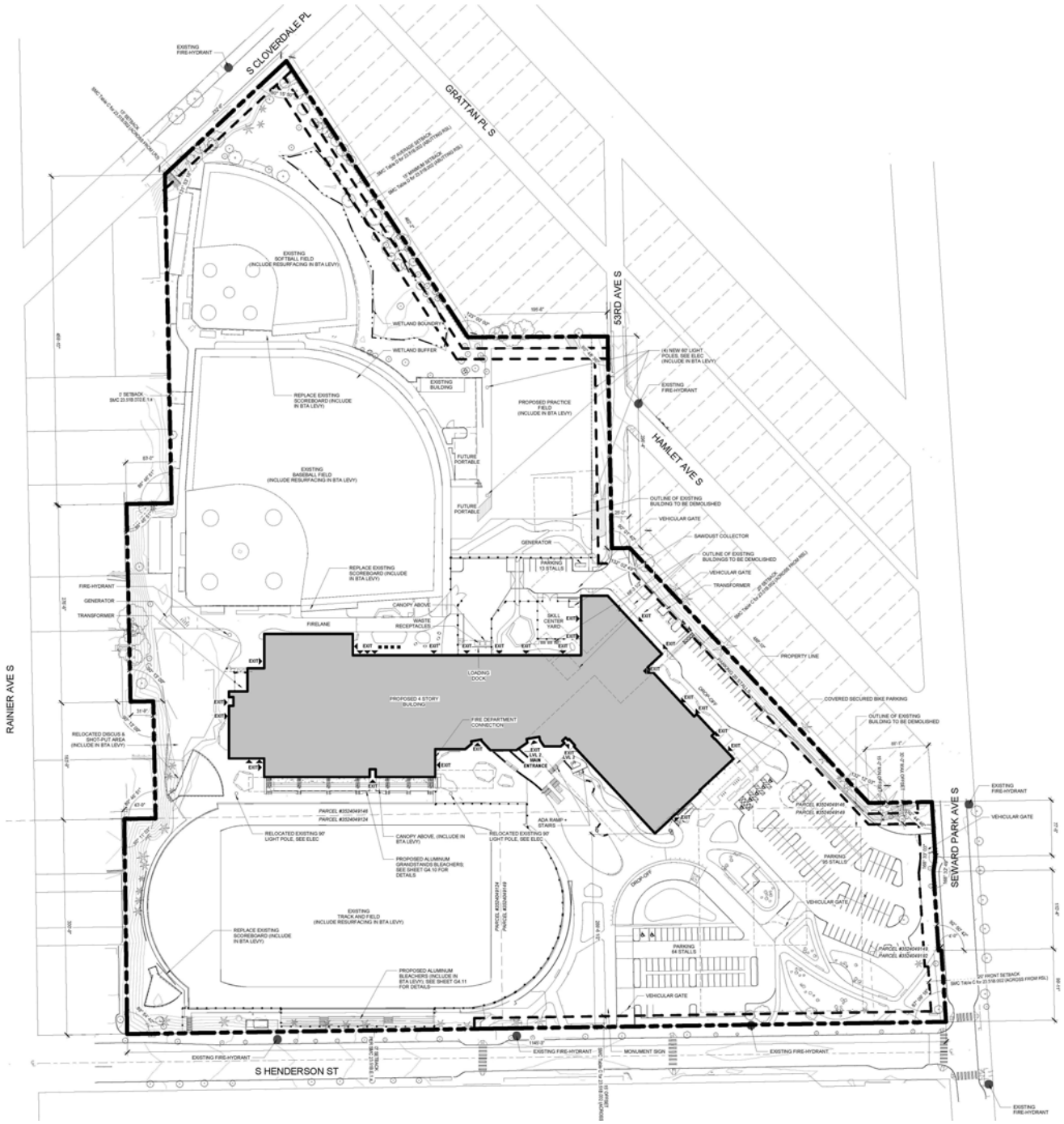
4 Nile Thompson and Carolyn J. Marr; *Building for Learning, Seattle Public Schools Histories, 1862-2000;* 2002.
5 SPS, *P223 Enrollment Reports*, Oct. 2017 through Oct. 2020.
6 Email communication, T. Wang, SPS, April 2, 2021.
7 Project description from *Rainier Beach High School Schematic Design Report*, Bassetti Architects, Jan. 29, 2021.
8 Email communication, T. Wang, SPS, April 2, 2021.



Source: Bassetti Architects, Architectural Site Plan, 100% Design Development Sheet G1.00, August 13, 2021

Rainier Beach High School Replacement Project

Figure 1
Proposed Site Plan

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2. BACKGROUND CONDITIONS

This section presents the existing and future conditions without the proposed project. The impacts of the proposed project were evaluated against these base conditions. As described above, the school's current enrollment has ranged from 760 to 790 students for many years, well below the capacity of 1,088 students. To present a conservative worst-case analysis, year 2025 without-project conditions assume the current enrollment rather than the school's capacity, and no additional trips would be generated by the school during the analysis hours. The additional trips associated with those approximately 300 students are assessed as a potential project impact later in Section 3.

The following sections describe the existing roadway network, traffic volumes, traffic operations (in terms of levels of service), traffic safety, transit facilities, non-motorized facilities, and parking.

Figure 2 shows the project site location and vicinity street system. The following seven off-site intersections (listed according to control type) plus site access driveways were selected for study based on the size of the proposed project, local traffic counts, and travel routes used to access and egress the area.

Signal Controlled
- S Henderson Street / Rainier Avenue S
- S Henderson Street / Renton Avenue S
- S Cloverdale Street / Rainier Avenue S
- Rainier Avenue S / Seward Park Avenue S
- Rainier Avenue S / 51st Avenue S

All-Way-Stop Controlled
- S Henderson Street / Seward Park Avenue S
- S Cloverdale Place / Seward Park Avenue S

2.1. Transportation Network

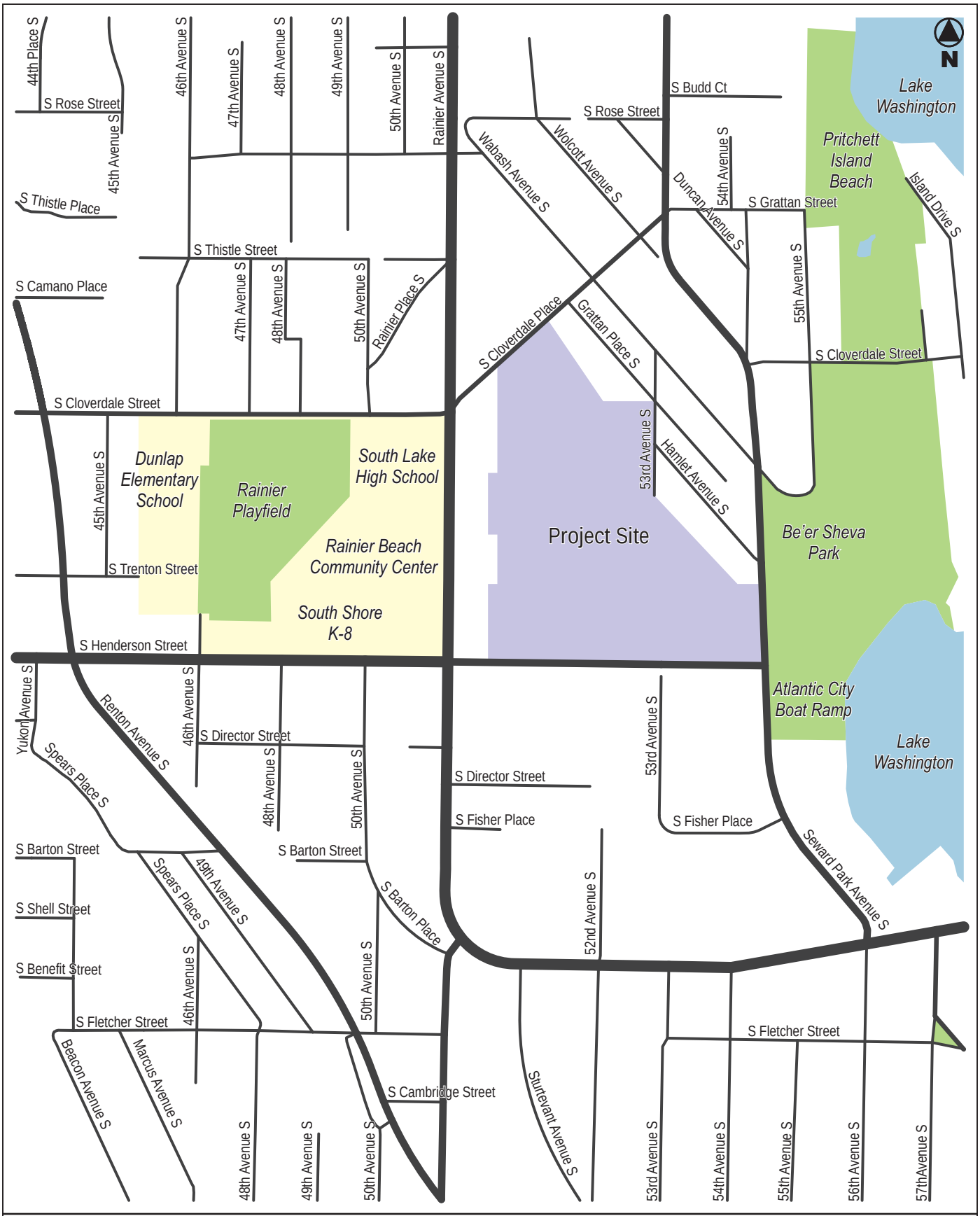
2.1.1. Existing Network

The surrounding area consists of a mix of commercial and institutional uses (schools and churches) to the west, residential uses to the north and south, and recreation (park and waterfront) areas to the east. Key roadways that serve the site are described below. Roadway classifications are based on the City's Street Classification Map.[9] Speed limits are 25 miles per hour (mph) on arterials (unless otherwise signed) and 20 mph on local access streets.

S Henderson Street is an east-west arterial that connects between Seward Park Avenue S on the east and Martin Luther King Jr. Way S on the west. Between Seward Park Avenue S and Rainier Avenue S, it is designated as a Minor Arterial; west of Rainier Avenue S, it is a Principal Arterial. There are school zones with speed limits of 20 mph near Rainier Beach High School and South Shore K-8 School to the west; both are enforced when beacons flash. The roadway generally has one travel lane in each direction with additional lanes at major intersections. There are segments with bike lanes on both sides and segments with sharrows.[10] There are curbs and sidewalks on both sides with intermittent segments with parallel on-street parking.

Seward Park Avenue S is a north-south Minor Arterial that connects between S Morgan Street on the north and Rainier Avenue S on the south. Near the site, there is a 20-mph school zone with flashing beacons. It has one travel lane in each direction with curbs and sidewalks on both sides. There are intermittent segments with parallel on-street parking on one or both sides.

[9] Seattle Department of Transportation (SDOT), Interactive Street Classification Maps, accessed March 2021.
[10] A "sharrow" is a shared-lane pavement marking that is placed in the roadway lane to highlight the shared space; however, unlike a bicycle lane it does not delineate a particular part of the roadway that a bicyclist should use.



Rainier Beach High School Replacement Project

Figure 2
Site Location and Vicinity

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Rainier Avenue S is north-south Principal Arterial that connects downtown Seattle to the south City limits and continues into Renton. In the vicinity of the site from just north of S Henderson Street, the roadway has five lanes (two in each direction plus a center turn lane or median in some locations). Just north of S Henderson Street, the outside lanes transition to bus-only lanes just south of S Cloverdale Street. North of S Cloverdale Street, the roadway has one general-purpose lane in each direction, a northbound bus-only lane, and a two-way, center-left-turn lane. Near the South Shore School site, there is a 20-mph school zone with flashing beacons for southbound traffic; the northbound signage indicates it is in effect when children are present. The roadway has curbs and sidewalks on both sides.

S Cloverdale Street/Place is east-west Collector Arterial that connects between Seward Park Avenue S on the east and Beacon Avenue S on the west. It has two travel lanes (one in each direction) with turn pockets added at major intersections. For much of its length, the roadway is marked with sharrows. There are curbs on both sides and sidewalk along the north side; the sidewalk on the south side has intermittent gaps. Parallel on-street parking also occurs intermittently on both sides.

51st Avenue S is a north-south Minor Arterial that extends south of the site vicinity from Rainier Avenue S to Beacon Avenue S at S Leo Street. Near the site, it has a bike lane in the southbound direction; the northbound lane is marked with sharrows. There are curbs, sidewalks, and parallel parking on both sides.

53rd Avenue S is a north-south local-access street that extends for about three blocks south of Wabash Avenue S to the Rainier Beach High School site with a dead end at the school access just south of Hamlet Avenue S. The roadway is relatively narrow (approximately 20-feet of asphalt drive lane) with pre-fabricated concrete curb segments that separate a sidewalk from the roadway. On-street parking occurs intermittently along the west side.

2.1.2. Planned Improvements

The following plans and programs were reviewed to determine if any planned transportation improvements could affect the roadways and intersections near Rainier Beach High School by fall 2025 when the replacement project is planned to be complete and occupied.

City of Seattle's Adopted 2021-2026 Proposed Capital Improvement Program (CIP)[11] – The Transportation element of the plan includes the ongoing *Route 7 Transit-Plus Multimodal Corridor project*, which will continue to make street improvement in partnership with King County Metro on Rainier Avenue S including dedicated bus lanes, bus queue jumps, improvements to crossings and transit connections to help people access transit safely. The project began in 2016 and is planned to continue to 2022. Another related project affecting Rainier Avenue S is the *Vision Zero Rainier Improvements* effort. Phases 1 and 2 reconfigured the arterial between S Alaska Street and S Henderson Street. In 2021, SDOT plans to install a new traffic signal at the S Rose Street intersection and has restored funding for sidewalk upgrades along the corridor.

Adopted Seattle Bicycle Master Plan (BMP)[12] – The plan proposes future protected bicycle lanes extending east from Martin Luther King Jr. Way S along S Henderson Street to Rainier Avenue S and then continuing south along Rainier Avenue S to the south City limit. A Neighborhood Greenway (referred to as the Rainier Valley NGW) was implemented along the 46th Avenue S corridor west of the South Shore K-8 site extending north from S Henderson Street to S Holly Street before turning west to 39th Avenue S. In April 2020, due to the COVID-19 pandemic crisis, the City implemented a Stay Healthy Street along the Rainier Valley NGW. An in-street local connector is proposed along

11 City of Seattle, 2020.
12. City of Seattle, March 2015.

Seward Park Avenue S. The *Seattle Bicycle Master Plan – 2019-2024 Implementation Plan*[13], which defines the priorities of the projects, does not identify any additional projects for implementation in the site vicinity by 2024.

Seattle's Neighborhood Greenway Network[14] – Neighborhood greenway information provided by SDOT indicates no additional greenways currently in design or planning stages in the site vicinity.

Levy to Move Seattle – Workplan Report[15] – This document outlines SDOT's workplan to deliver citywide transportation projects and services funded in part or in full by the *Levy to Move Seattle* (approved by voters in 2015). The nine-year workplan (2016-2024) documents achievements and challenges and sets the agency's plan for future years. The workplan includes the Multimodal Corridor and Vision Zero projects listed previously in the 2021-2026 CIP). In addition, the work plan identifies a stairway improvement for year 2021 in the S Henderson Street alignment between 39th and 41st Avenues S

Your Voice, Your Choice[16] – SDOT's participatory budgeting initiative, in which Seattle residents decide how to spend a portion of the City's budget on small-scale park and street improvements, does not list any current projects near the school site.

The recent Rainier Avenue Multimodal Corridor improvements resulted in signal operational and channelization changes along Rainier Avenue S at the S Cloverdale Street and S Henderson Street intersections. Therefore, signal operational details, timing information, and operational models were obtained from SDOT and incorporated into the intersection modeling of existing and future conditions with and without the Rainier Beach High School replacement project. None of the other planning documents above included any transportation improvements that are expected to affect the roadway network operations or intersection capacity within the study area by 2025.

2.2. Traffic Volumes

2.2.1. Historical Traffic Volumes

The City of Seattle Department of Transportation (SDOT) has performed traffic counts on Rainier Avenue S (south of S Othello Street) nearly every month since 2006. These counts were compiled to show how morning peak hour, PM peak hour, and daily traffic volumes in the study area have changed over the past 15 years. Figure 3 shows the morning, PM, and weekday daily volumes from 2006 through 2020 prior to the COVID-19 pandemic. As shown, these counts indicate relatively stable or slightly declining volumes over the past 15 years. Even before the pandemic, peak hour traffic volumes showed a noticeable decline since 2017, which may be related to capacity reductions further north along Rainier Avenue S that were made as part of the City's Vision Zero project.

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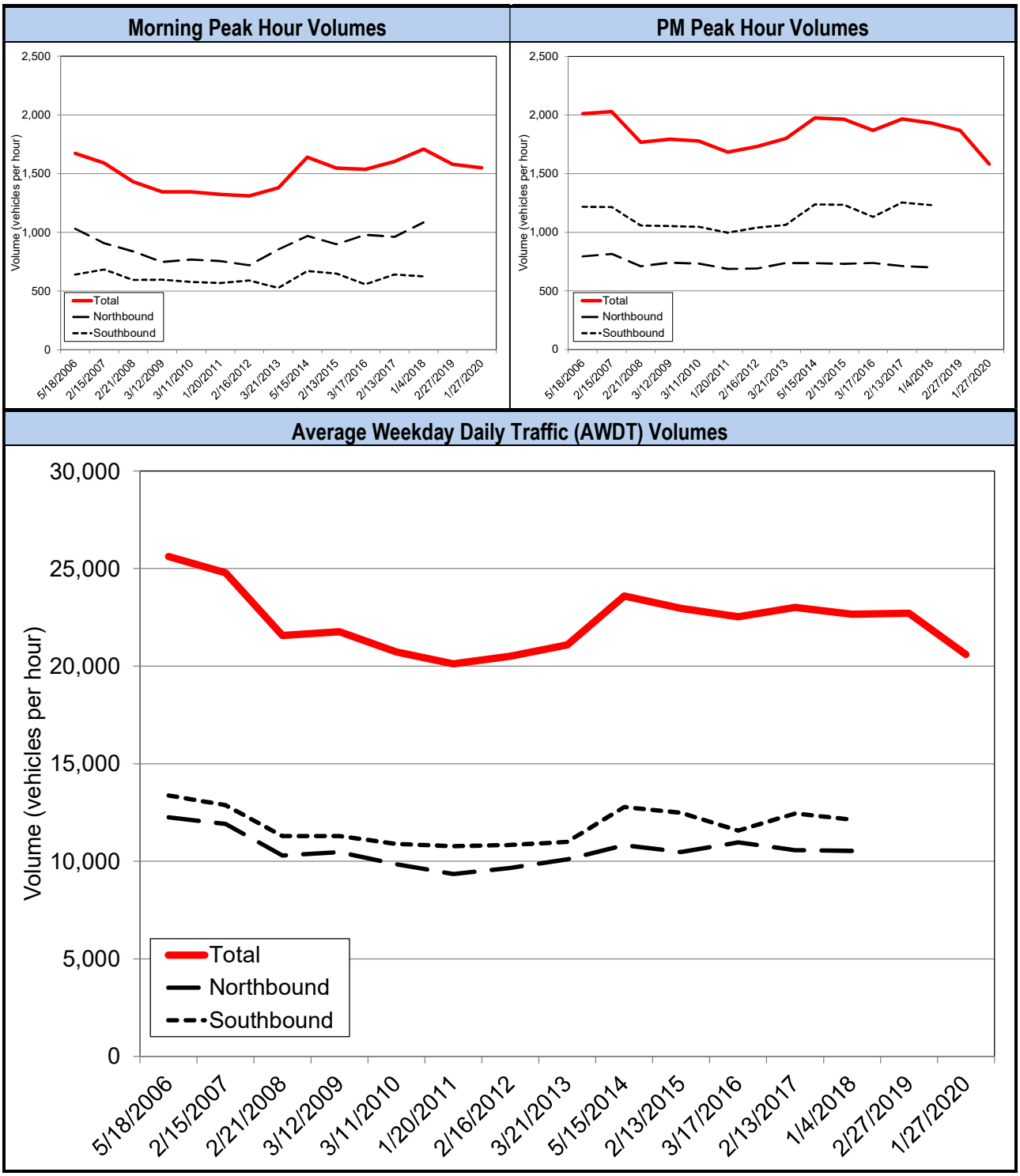
13 SDOT, June 13, 2019.

14 https://www.seattle.gov/transportation/projects-and-programs/programs/greenways-program, Map updated January 24, 2020, Accessed February 2021.

15 SDOT, November 2018.

16 City of Seattle, Your Voice, Your Choice, https://www.seattle.gov/transportation/projects-and-programs/programs/pedestrian-program/yvyc-program, accessed February 2021.

Figure 3. Traffic Volumes on Rainier Avenue S – May 2006 thru January 2020

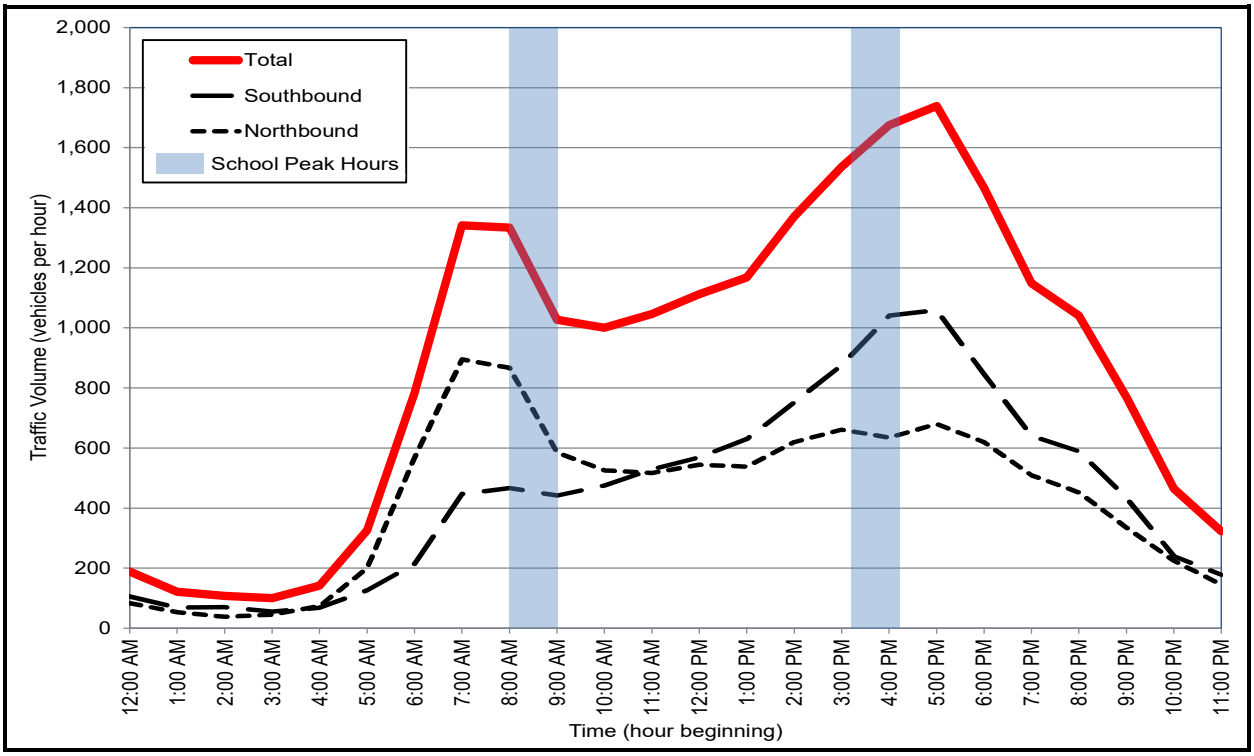


Source: Permanent counter data at S Othello Street, Seattle Department of Transportation Traffic Count Database, May 2020.

In addition, 24-hour traffic count data collected on Rainier Avenue S south of S Cloverdale Street over seven days in April 2018 were compiled to show how volumes in the site vicinity change by time of day. Figure 4 shows the average weekday volumes by hour of the day. As shown, the volumes follow peaking

characteristics common on Seattle arterials with distinct peaks during the traditional AM and PM peak hours and with PM peak hour volumes about 30% higher than AM peak hour volumes. The northbound volume (toward downtown Seattle) is higher in the morning and southbound volume (away from downtown Seattle) is higher in the afternoon. Based on the normal school hours (8:55 A.M. to 3:45 P.M.) the school's morning peak hour is expected to occur from 8:00 to 9:00 A.M., the school's afternoon peak hour is expected to occur from 3:15 to 4:15 P.M.; the school peak hours are highlighted for reference. The volume during the school's morning peak hour is about 23% lower than the PM peak hour; volume during the school's afternoon peak hour is about 12% lower than the PM peak hour.

Figure 4. Hourly Traffic Volumes on Rainier Avenue S – April 2018



Source: Average weekday volumes from machine counts performed by Idax Data Solutions on Rainier Avenue S south of S Cloverdale Street, Thursday, April 19 through Wednesday, April 25, 2018.

2.2.2. Existing Traffic Volumes

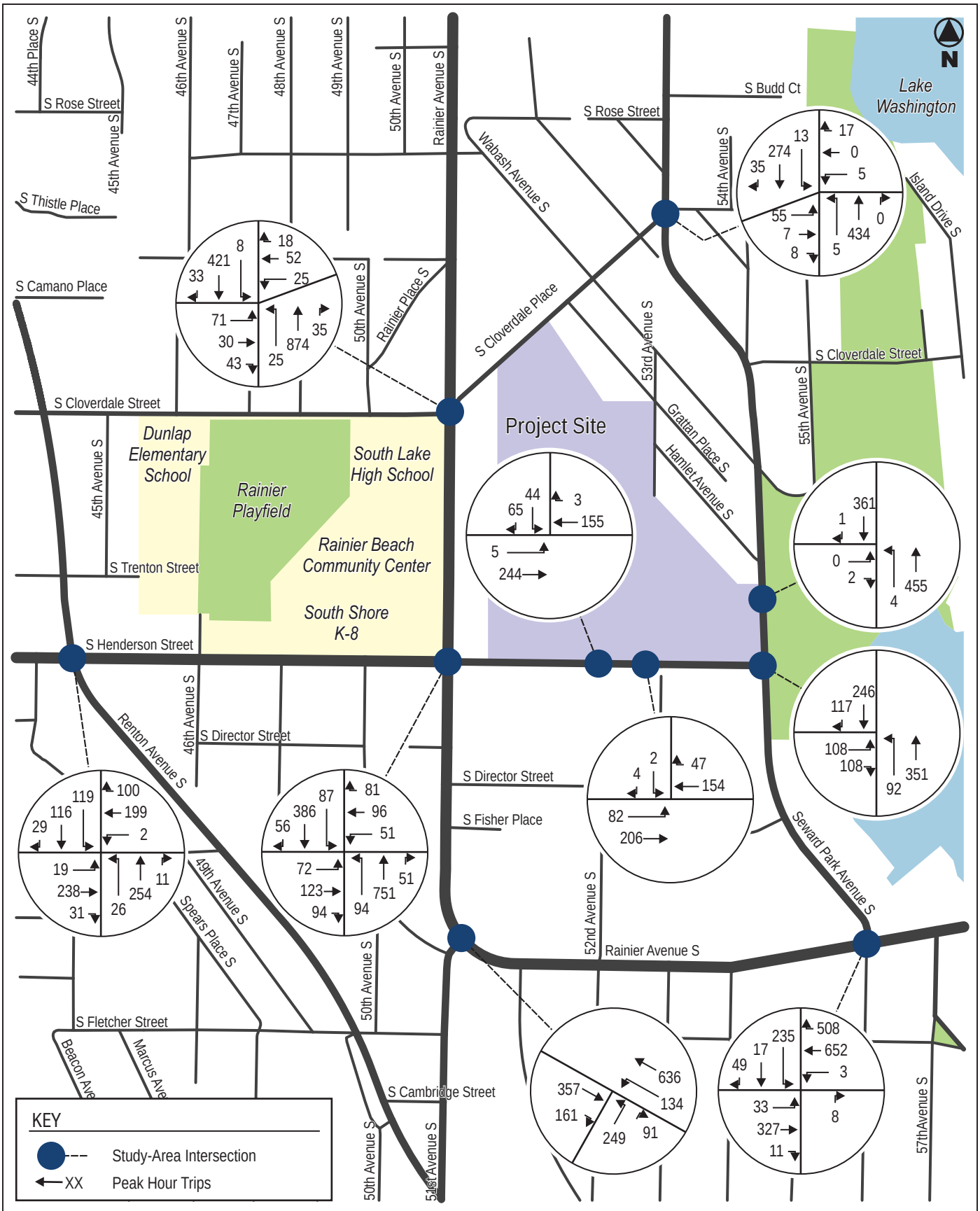
All SPS schools were closed with remote learning in effect at the time of the analysis, and it was not possible to collect new representative traffic data specifically for the Rainier Beach High School Replacement project. However, extensive recent historical data were available from SDOT and from Idax Data Solutions (a count data vendor) at several of the study area intersections and associated roadways. Peak period turning movement counts at five of the seven study-area intersections were performed by SDOT and Idax Data Solutions in 2016, 2018, and 2019. In addition, multi-day, 24-hour machine counts were performed on several of the study area roadways in 2018 and 2019. All of those counts reflect conditions with Rainier Beach High School (and all other schools) open and operating normally.

New peak period turning movement counts were performed at three of the study-area intersections in March 2021 to supplement the available data. Then, consistent with industry guidance and practice, all volumes were compiled, adjusted, and balanced to reflect normalized (non-COVID) peak hour traffic volumes for 2021. Table 1 lists the study-area traffic data compiled and used for this analysis to evaluate morning arrival, afternoon dismissal, and PM peak hour conditions.

Table 1. Traffic Count Data

Type & Location	Day(s), Date(s)	Count Periods	Source
Peak Period Turning Movement Counts			
S Henderson St / Rainier Ave S	Tue., May 7, 2019	7:00 to 9:00 A.M. 4:00 to 6:00 P.M.	Idax Data Solutions
Rainier Ave S / 51st Ave S	Tue., May 7, 2019	7:00 to 9:00 A.M. 4:00 to 6:00 P.M.	Idax Data Solutions
Rainier Ave S / Seward Park Ave S	Tue., May 7, 2019	7:00 to 9:00 A.M. 4:00 to 6:00 P.M.	Idax Data Solutions
S Cloverdale St / Rainier Ave S	Thu., Mar 1, 2018	6:30 A.M. to 6:45 P.M.	SDOT
S Henderson St / Renton Ave S	Tue., Mar. 15, 2016	7:00 to 9:00 A.M. 4:00 to 6:00 P.M.	Idax Data Solutions
	Tue., Mar. 2, 2021	7:00 to 9:30 A.M. 3:00 to 6:00 P.M.	Heffron Transportation / Idax Data Solutions
S Cloverdale Pl / Seward Park Ave S	Tue., Mar. 2, 2021	7:00 to 9:30 A.M. 3:00 to 6:00 P.M.	Heffron Transportation / Idax Data Solutions
S Henderson St / Seward Park Ave S	Tue., Mar. 2, 2021	7:00 to 9:30 A.M. 3:00 to 6:00 P.M.	Heffron Transportation / Idax Data Solutions
Daily Machine Counts			
Renton Ave S south of S Henderson St	May 6 – 12, 2019	7-days	Idax Data Solutions
Seward Park Ave S north of Rainier Ave S	May 14 – 20, 2019	7-days	SDOT
Rainier Ave S south of S Cloverdale St E	Apr. 19 – 25, 2018	7-days	Idax Data Solutions
S Cloverdale Pl south of Grattan Pl S	Jan. 21 – 27, 2018	7-days	SDOT

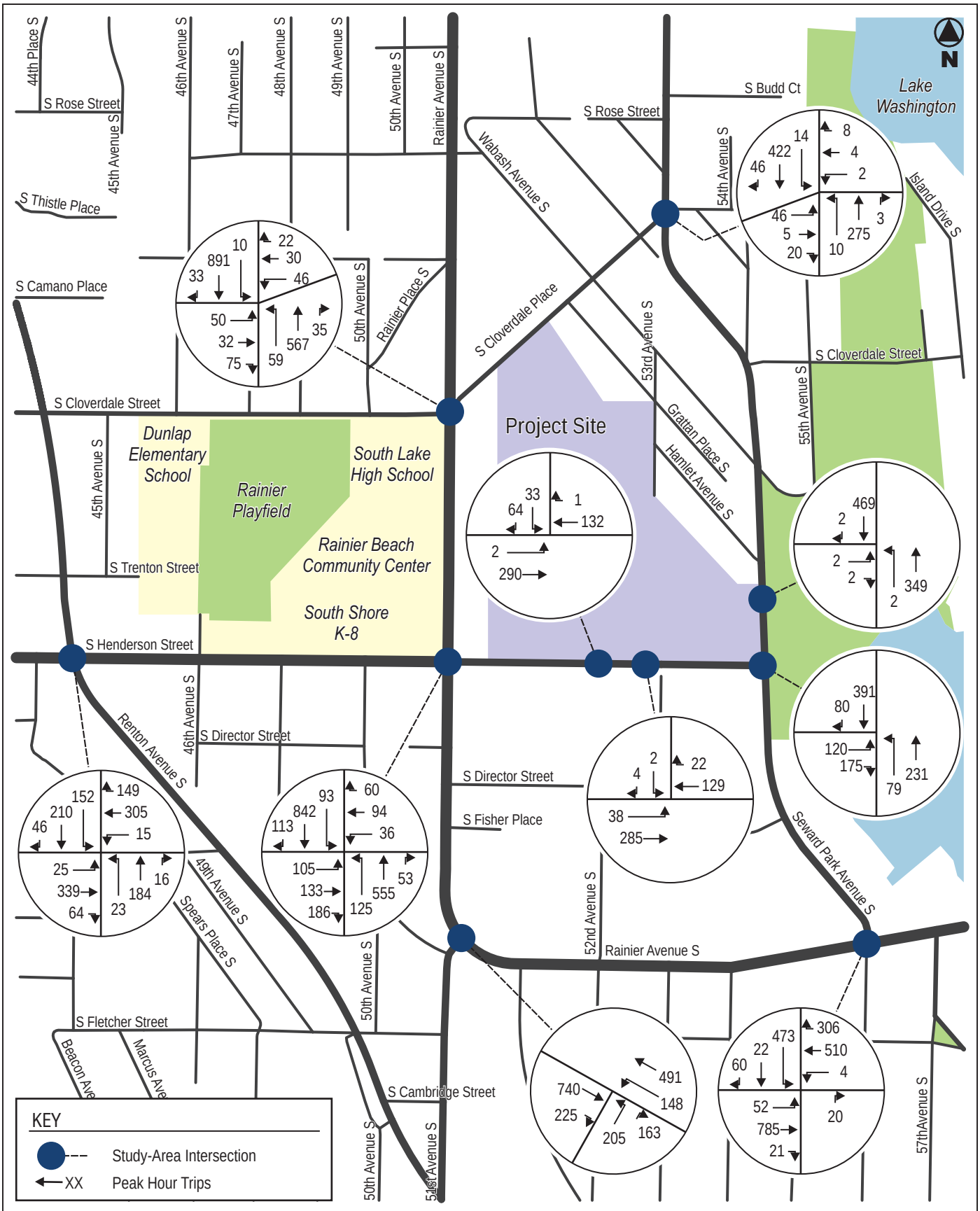
Figure 5, Figure 6, and Figure 7 show the estimated existing (2021) normalized peak hour traffic volumes at the study area intersections for the morning, afternoon, and PM peak hour conditions, respectively.



Rainier Beach High School Replacement Project

Figure 5
Existing (2021) Normalized Traffic Volumes
Morning Peak Hour

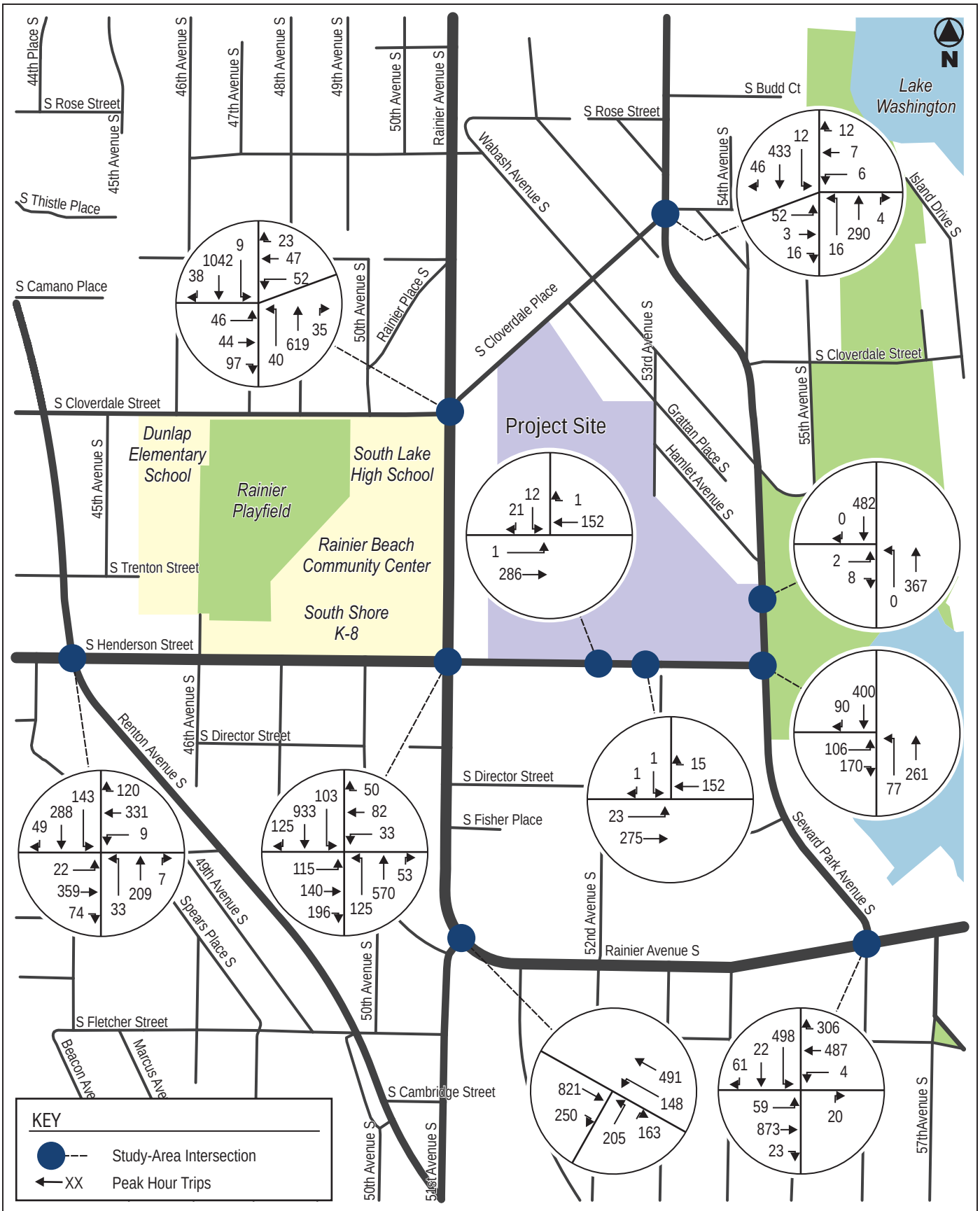
heffron transportation inc



Rainier Beach High School Replacement Project

Figure 6
Existing (2021) Normalized Traffic Volumes
Afternoon Peak Hour

heffron transportation inc



Rainier Beach High School Replacement Project

Figure 7
Existing (2021) Normalized Traffic Volumes
PM Peak Hour

heffron transportation inc

2.2.3. Forecast Without-Project Traffic Volumes

As described, the replacement project is planned to be substantially complete for occupancy by fall 2025. The annual traffic counts conducted by SDOT since 2006 on Rainier Avenue S and presented previously in Figure 3, show that traffic has remained relatively unchanged or decreased over that period. However, to account for recent and ongoing development throughout Seattle and within the site vicinity, a 1% annual growth rate was applied to the normalized 2021 volumes to estimate 2025-without-project volumes at all study-area intersections. This is consistent with rates used for traffic analyses of other developments in Seattle and likely results in a conservatively high estimate of background traffic.

Additionally, the SDCI's Property and Building Activity permit map was reviewed to determine if any large future development projects are planned that could potentially generate additional traffic in the project study area. Based on that review, six projects (listed in Table 2 below) were identified for specific inclusion in the traffic forecasts.

Table 2. Pipeline Development Projects Included in Traffic Forecasts

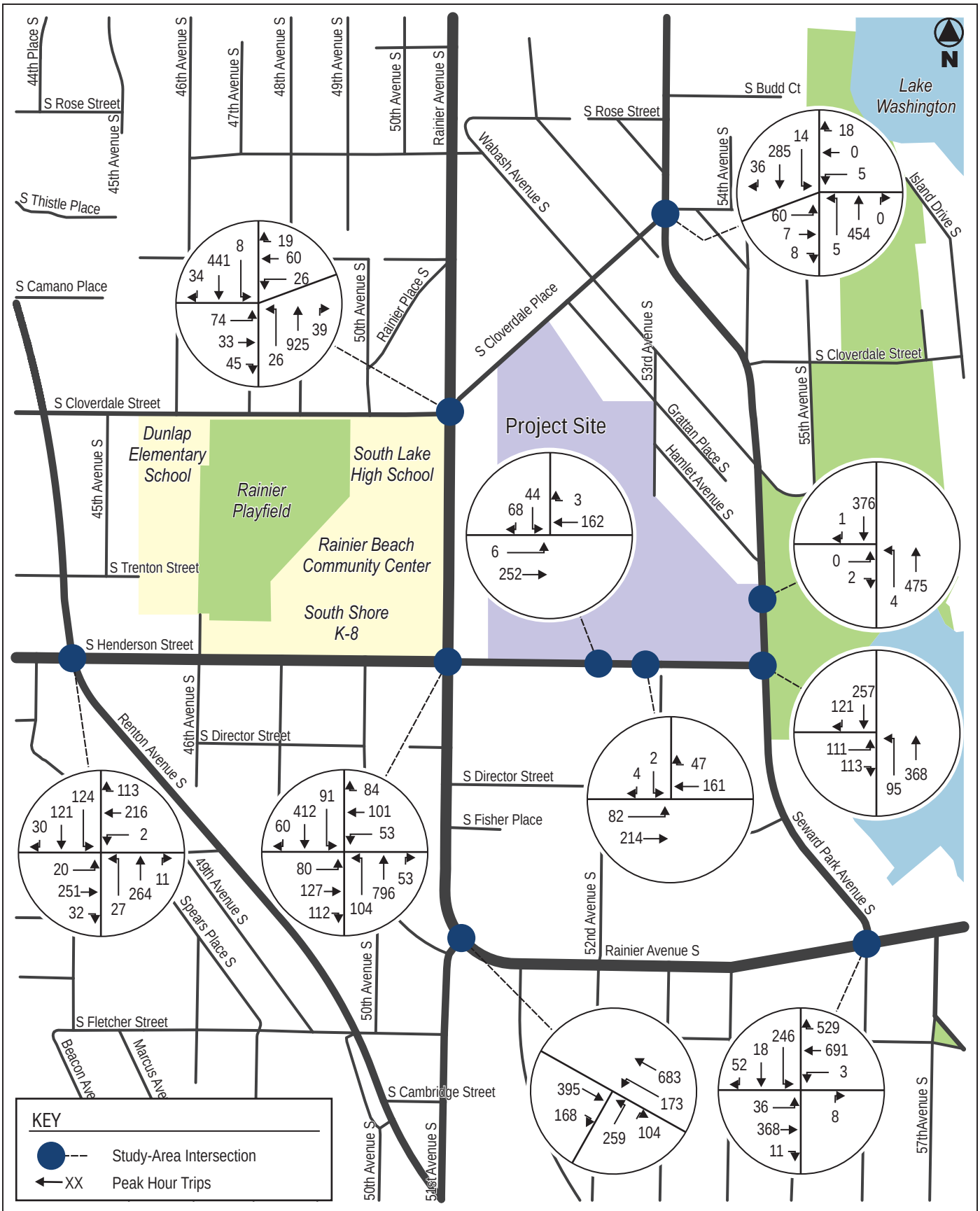
Permit #	Project Address	Program	Pipeline Trip Estimates			Sources
			Morning	Afternoon	PM	
3032366-LU	8600 Rainier Ave S	207 apt. units, 10,600 sf food bank, 39-43 pkg spaces	23	24	48	Fehr & Peers [1], Heffron Transp.[2]
3036963-EG	4524 S Henderson St	122 affordable apt. units, support spaces, 28 pkg spaces	28	29	40	Heffron Transp.[3]
3036645-LU	9025 46th Ave S	42 efficiency units, no pkg.	13	13	15	Heffron Transp.[3]
3033410-LU	9400 Rainier Ave S	306 apt. units, 8,453 sf retail, 146 pkg spaces	70	73	89	Transpo Group [4] Heffron Transp.[2]
3033729-LU	9280 Waters Ave S	31 apt. units, no pkg	9	10	11	Heffron Transp.[3]
3027128-LU	4215 S Trenton St & 8803 MLK Jr Wy S	34 condo units, 10 live-work units, 59 parking spaces	20	21	27	TENW [5] Heffron Transp.[2]

Source: SDCI Property and Building Activity portal, March 2021.

1. *Rainier Beach Transit-Oriented Development Transportation Impact Analysis, Fehr & Peers, July 2019.*
2. *Traffic study did not provide trip estimates for the school's morning or afternoon peak hours, those estimated by Heffron Transportation, Inc. based on available program data and time of day trip generation date from ITE's Trip Generation Manual.*
3. *Traffic study no available, trips estimated by Heffron Transportation, Inc. based on available program data.*
4. *9400 Rainier Avenue S – Trip Generation and Parking Analysis, Transpo Group, July 18, 2019*
5. *4215 S Trenton Street (MUP 3025113) and 8803 Martin Luther King Jr. Way S (MUP 3027128) Traffic & Parking Impact Analysis – Transportation Engineering NorthWest, June 29, 2017.*

Some of the above developments have been constructed and may be partially or fully occupied in 2021; however, since some of the traffic counts collected and used for this analysis occurred in 2019, trips expected to be generated by each project were added to study-area intersections during all three analysis peak hours. There are a number of smaller pipeline development projects (ranging from two to eight residential units) within the vicinity. However, those are expected to have negligible impacts to traffic and parking within the study area during the identified peak hours, were not required by the City to prepare traffic analyses, and would be accounted for by the 1% compound annual growth rate. Figure 8, Figure 9, and Figure 10 show the forecast 2025-without-project traffic volumes for the morning, afternoon, and PM peak hours, respectively.

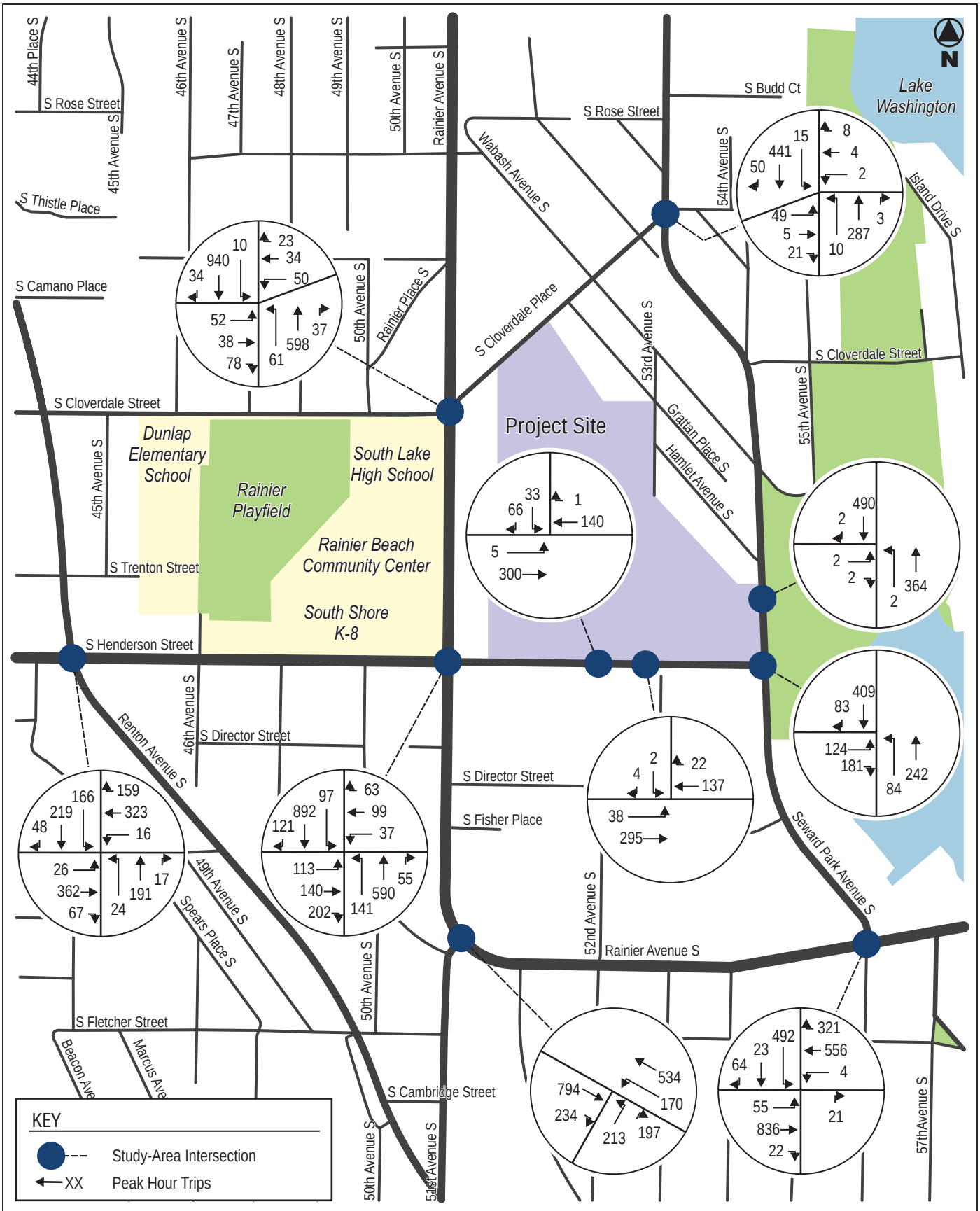
Typically, without-project traffic volumes would be adjusted to reflect the permitted enrollment capacity of Rainier Beach High School. However, to present a conservative worst-case analysis, the existing enrollment (ranging from 760 to 790 students) was assumed as part of the 2025-without-project condition.



Rainier Beach High School Replacement Project

Figure 8
Forecast 2025-Without-Project Traffic Volumes
Morning Peak Hour

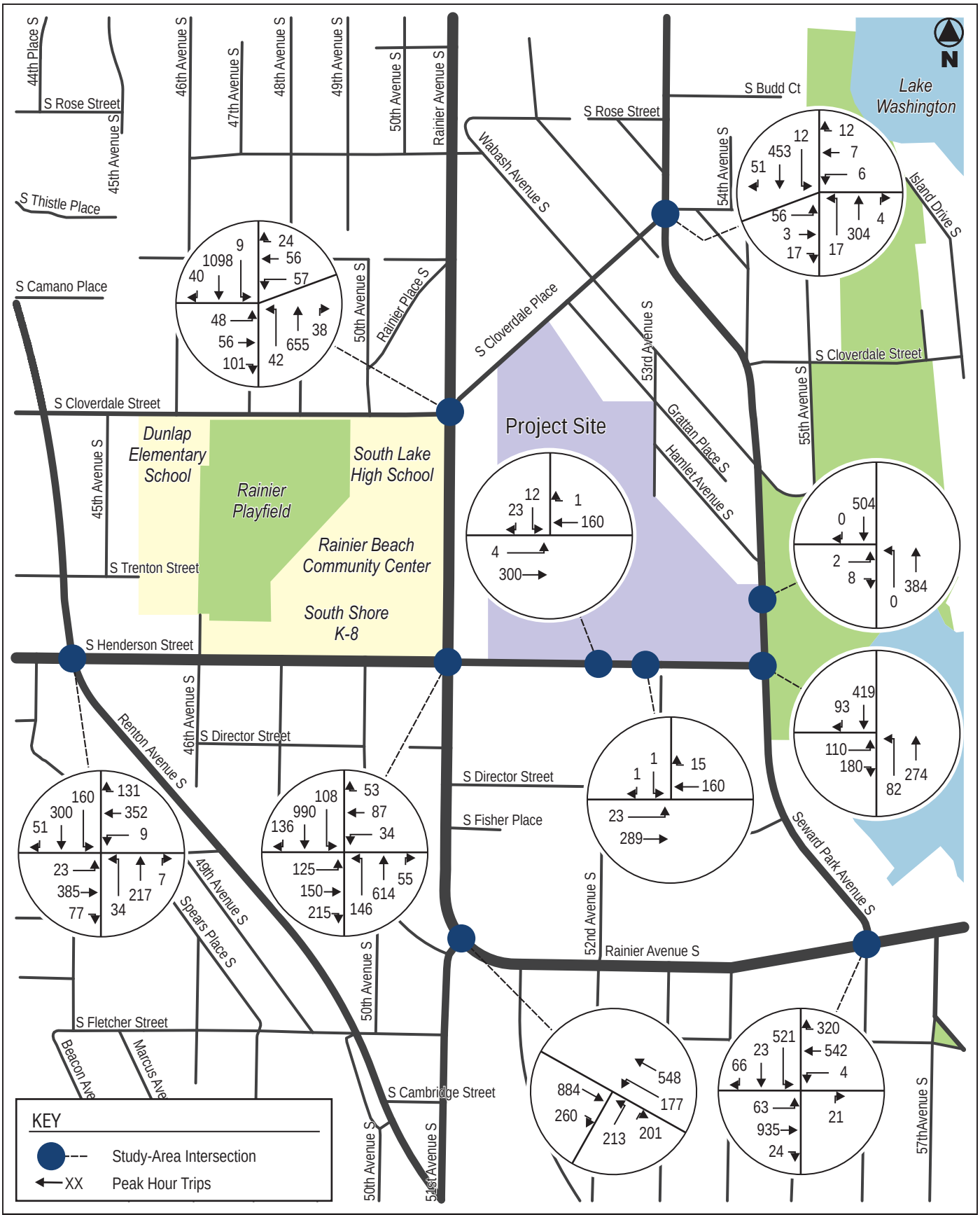
heffron transportation inc



Rainier Beach High School Replacement Project

Figure 9
Forecast 2025-Without-Project Traffic Volumes
Afternoon Peak Hour

heffron transportation inc



Rainier Beach High School Replacement Project

Figure 10
Forecast 2025-Without-Project Traffic Volumes
PM Peak Hour

heffron transportation inc

2.3. Traffic Operations

Level of service (LOS) is a qualitative measure used to characterize traffic operating conditions. Six letter designations, "A" through "F," are used to define level of service. LOS A is the best and represents good traffic operations with little or no delay to motorists. LOS F is the worst and indicates poor traffic operations with long delays. The City of Seattle does not have adopted intersection level of service standards; however, project-related intersection delay that causes a signalized intersection to operate at LOS E or F, or increases delay at a signalized intersection that is projected to operate at LOS E or F without the project, may be considered a significant adverse impact, if increases are greater than 5 seconds. The City may tolerate LOS E or F conditions for automobiles at signalized intersections where physical constraints limit opportunities for widening or where it has established priority for other modes such as transit, pedestrian, or bicycle movements. The City may also tolerate delays in the LOS E or F range at unsignalized intersections where changes such as conversion to all-way-stop-control or signalization are not applicable or desirable.

Levels of service for the study area intersections were determined based on methodologies established in the *Highway Capacity Manual (HCM), 6th Edition*[17] using the *Synchro 10.3* analysis software. Appendix A summarizes level of service thresholds and definitions for signalized and unsignalized intersections. The modeling assumptions for existing conditions, including signal timing and phase splits for all signalized intersections, were provided by SDOT.[18] The modeling assumptions for 2025-without-project conditions were modified to ensure compliance with SDOT's new policy for signal timing, which codifies support for mobility while minimizing delay to pedestrians[19] and recent/ongoing implementation of Leading Pedestrian Intervals (LPIs). Table 3 summarizes existing and forecast 2025-without-project levels of service at the study-area intersections for morning, afternoon, and PM peak hours.

Table 3. Level of Service Summary – Existing (2021) and 2025-Without-Project Conditions

Intersections	Morning Peak Hour (8:00–9:00 A.M.)				Afternoon Peak Hour (3:15–4:15 P.M.)				PM Peak Hour (4:30–5:30 P.M.)			
	Existing (2021)		2025 w/o Project		Existing (2021)		2025 w/o Project		Existing (2021)		2025 w/o Project	
Signalized	**LOS** [1]	**Delay** [2]	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
S Henderson St / Rainier Ave S	C	31.0	C	31.8	C	34.5	D	38.0	D	36.4	D	44.0
S Henderson St / Renton Ave S	C	25.4	C	26.3	C	28.6	C	29.8	C	30.5	C	32.0
Rainier Ave S / S Cloverdale St	B	16.7	B	19.2	C	30.3	C	34.1	D	37.9	D	47.1
Rainier Ave S / 51st Ave S	B	16.0	B	15.9	B	17.1	B	17.6	B	17.9	B	18.8
Rainier Ave S / Seward Park Ave S	B	10.4	B	11.5	B	14.0	B	14.9	B	15.1	B	16.4
All-Way-Stop Controlled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
S Henderson St / Seward Park Ave S	D	25.4	D	30.5	C	21.7	D	25.4	C	19.3	C	22.3
S Cloverdale Pl / Seward Park Ave S	C	17.0	C	19.1	C	16.2	C	18.0	C	17.2	C	19.6

Source: Heffron Transportation, Inc., April 2021.

1. *Level of service.*
2. *Average seconds of delay per vehicle.*

17 Transportation Research Board 2016.
18 M. Dunlap, SDOT, February 18, 2021.
19 SDOT, *Policy for Traffic Signal Cycle Time, and Pedestrian Signal Timing and Actuation*, January 27, 2021. The new policy reduces walk speed calculations, and establishes criteria for pedestrian recall phases.

As shown, all seven of the study area intersections currently operate at LOS D or better during the analysis peak hours. The assumed background growth and added pipeline development trips are forecast to increase average delays by up to nine seconds per vehicle and operations at two locations would degrade from LOS C to LOS D—the S Henderson Street intersections with Rainier Avenue S and Seward park Avenue S during the afternoon peak hour (due to increases in delay of less than four seconds). However, all study area intersections are expected to remain operating at LOS D or better during all three peak hours in 2025 without the project.

2.4. Parking Supply and Occupancy

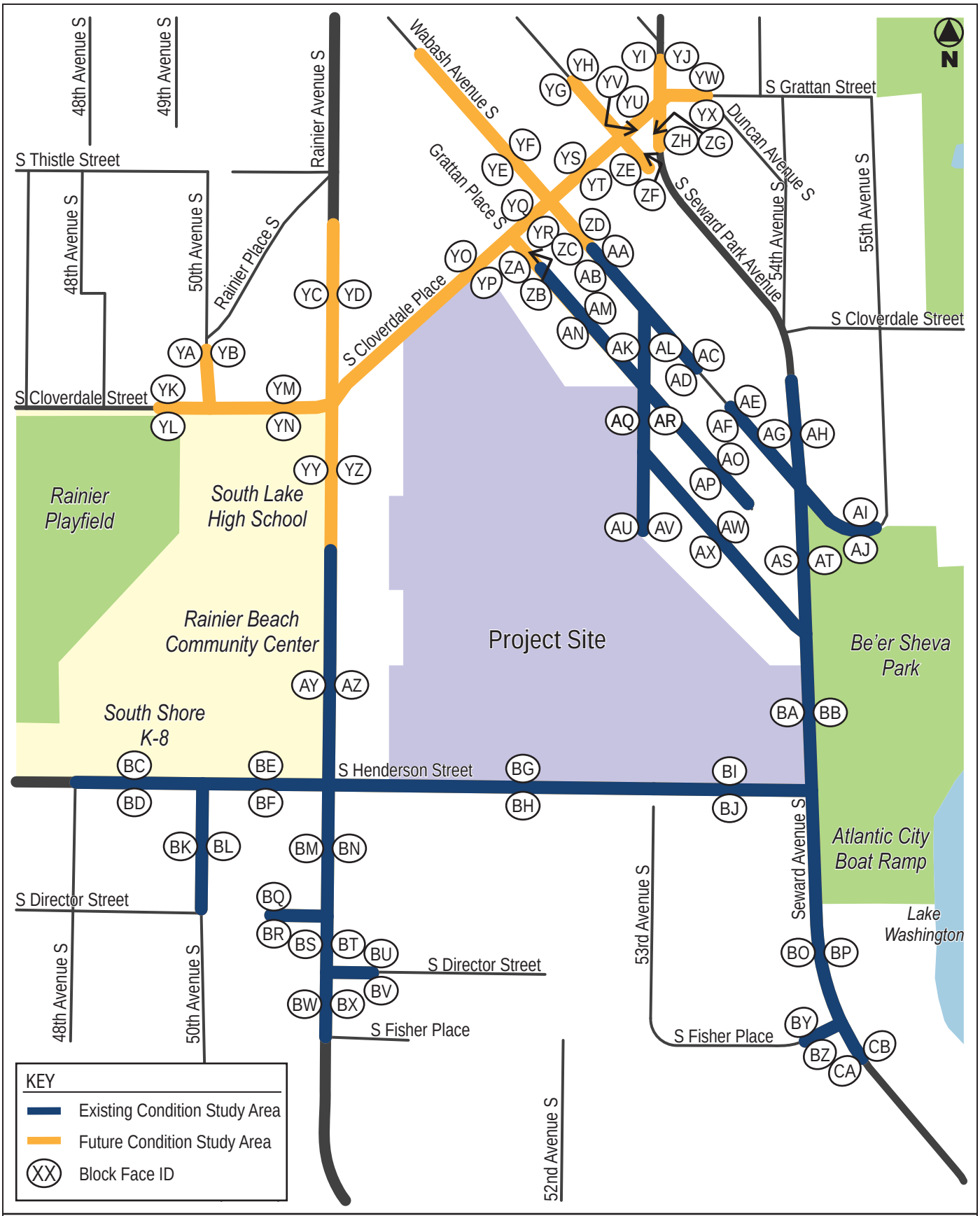
On-street parking at and around the Rainier Beach High School site was surveyed to determine the existing parking supply and parking occupancy. This information was then used to estimate how parking utilization could be affected by new parking demand generated with the school replacement project operating at its full capacity (which is presented later in Section 3.5). The following sections describe the parking supply as well as the current parking occupancy and utilization rates.

2.4.1. Methodology and Study Area

Detailed on-street parking studies were performed and supply was documented according to the methodology outlined in the City's Tip #117. Although Tip #117 was created for another purpose, it outlines the City's preferred methodology to determine the number and type of on-street parking spaces that may exist within a defined study area, and how much of that supply is currently utilized at different times of the day.

The study area for the on-street parking analysis included all roadways within an 800-foot *walking* distance from the school site, as is typically required by the City of Seattle. The 800-foot walking distance results in a study area that extends to 48th Avenue S to the west, S Cloverdale Place to the north, just east of Seward Avenue S, and just south of S Fisher Place. It is noted that, although there is site frontage along the south side of S Cloverdale Place, there is not currently any pedestrian access from that street to the school site; however, the project proposes to renovate the pedestrian connection to S Cloverdale Place at the northwest corner of the project site. The on-street parking near that future pedestrian access was considered as part of an expanded study area, and evaluated separate from the primary study area. The north and northeastern portion of study area consists primarily of single-family residential land uses, many of which have garages and driveways and/or off-street parking accessed via alleys. The remainder of the study area consists of multi-family, commercial, and institutional land uses. Details about parking supply and occupancy are provided in the following sections.

The study area was separated into individual block faces. A block face consists of one side of a street between two cross-streets. For example, the north side of S Henderson Street, between Rainier Avenue S and Seward Park Avenue S is one block face (identified as block face 'BG' for this study). Figure 11 shows the study area and block face designations.



Rainier Beach High School Replacement Project

Figure 11
Overall Study Area for On-Street Parking Occupancy Surveys

heffron transportation inc

2.4.2. Existing On-Street Parking Supply

Each block face was measured and analyzed to determine the number of available on-street parking spaces. First, common street features—such as driveways, fire hydrants, and special parking zones—were noted and certain distances adjacent to the street features were documented. No on-street parking capacity was assumed within 30 feet of a signalized or marked intersection, within 20 feet of an uncontrolled intersection, within 15 feet on either side of a fire hydrant, or within 5 feet on either side of a driveway or alley. The remaining unobstructed lengths between street features were converted to legal on-street parking spaces using values in the City's Tip #117. Based on extensive past experience of Heffron Transportation preparing on-street parking utilization studies, a trend has been observed that the increased popularity of smaller cars and the tendency for drivers to park closer together in areas with higher utilization can result in more available supply than would be suggested by the Tip #117 guidance. Detailed parking supply by block face is provided in Appendix B.

The parking supply survey determined that there are 206 on-street parking spaces within the primary study area (block faces currently within 800 feet walking distance to the site) and 181 have no signed restrictions. After accounting for school-bus and exempt vehicle parking restrictions along S Henderson Street (totaling 22 spaces), the total supply is 184 spaces in the morning and mid-morning, and 203 spaces in the evening. The expanded study area (the area expected to be within 800 feet walking distance after pedestrian site access is re-established on S Cloverdale Place) has an additional 157 on-street parking spaces, of which 156 have no signed restrictions. After accounting for school-bus and exempt vehicle parking restrictions along S Henderson Street, the total overall on-street parking supply is 341 spaces in the morning and mid-morning, and 360 spaces in the evening. Table 4 summarizes the existing parking supply for both study areas.

2.4.3. On-Street Parking Occupancy

At the time of this analysis, Seattle schools were operating with remote learning due to the COVID-19 pandemic crisis. Some residents also shifted to home-based work during the pandemic and despite the gradual reopening of businesses and services like indoor dining (which could operate at 25% capacity at the time of data collection). As a result, midday on-street parking demand generated by residents within Seattle's residential neighborhoods, such as the streets within the project study area, may be higher than normal, while school-related demand is limited or absent. In addition, it is noted that the Atlantic City Boat Ramp parking lot operated as a COVID-19 test site in February and as a vaccination site in March. Rainier Beach High School was providing student meals for pickup just outside of the Kitchen/Staff parking lot along S Henderson Street.

Parking occupancy counts were performed in February and March 2021. Weekday occupancy counts were performed during early morning (between 7:00 and 7:45 A.M.), the time when staff would typically begin to arrive at the school, and mid-morning (between 10:30 and 11:15 A.M.), the time when school-day parking is typically highest. Evening counts were performed (between 7:30 and 8:15 P.M.) when school events would typically occur. The counts for the existing study area were performed on Tuesday, February 23 and Thursday, February 25, 2021; counts for the entire study area (including the block faces that would be added with new access to S Cloverdale Place) were performed on Tuesday, March 23 and Thursday, March 25, 2021. In addition, historic counts that reflect conditions when school was in session were obtained from Google Earth aerial photography (May 2017 and May 2019). The aerials were estimated to have been taken between 10:30 A.M. and 12:00 P.M. aligning roughly with the mid-morning time-period. The counts for each day were compiled and averaged.

The results of the parking occupancy surveys are summarized in Table 4. On-street parking utilization was calculated using the methodology described in Tip #117 and is the number of vehicles parked on-street divided by the number of legal on-street parking spaces within the study area or on a specific block

face. The study area utilization totals are also summarized in Table 4. Detailed summaries of the on-street parking occupancy by block face for all counts are provided in Appendix B.

Table 4. On-Street Parking Occupancy Survey Results

Time Period Surveyed	Existing Condition (Primary) Study Area [a]			Future Condition (Extended) Study Area [b]		
	Parking Supply	Total Vehicles Parked	% Utilization	Parking Supply	Total Vehicles Parked	% Utilization
Weekday Early Morning (7:00 to 7:45 A.M.)						
Tuesday, February 23, 2021	184 [c]	92	50%		n/a [f]	
Thursday, February 25, 2021	184 [c]	89	48%		n/a [f]	
Tuesday, March 23, 2021	184 [c]	89	48%	341 [c]	149	44%
Thursday, March 25, 2021	184 [c]	92	50%	341 [c]	147	43%
Average	*184* [c]	*91*	*49%*	*341* [c]	*148*	*43%*
Weekdays Mid-Morning (10:30 to 11:15 A.M.)						
Tuesday, February 23, 2021	184 [c]	94	51%		n/a [f]	
Thursday, February 25, 2021	184 [c]	86	47%		n/a [f]	
Tuesday, March 23, 2021	184 [c]	84	46%	341 [c]	141	41%
Thursday, March 25, 2021	184 [c]	87	47%	341 [c]	140	41%
Average	*184* [c]	*88*	*48%*	*341* [c]	*141*	*41%*
Historic Weekdays Mid-Morning (10:30 to 12:00 P.M.)						
Monday, May 22, 2017	184 [c, d]	92	50%	341 [c, d]	155	45%
Thursday, May 9, 2019	184 [c, d]	89	48%	341 [c, d]	136	40%
Average	*184* [c, d]	*91*	*49%*	*341* [c, d]	*146*	*43%*
Weekday Evenings (7:30 to 8:15 P.M.)						
Tuesday, February 23, 2021	203 [e]	88	43%		n/a [f]	
Thursday, February 25, 2021	203 [e]	85	42%		n/a [f]	
Tuesday, March 23, 2021	203 [e]	95	47%	360 [e]	164	46%
Thursday, March 25, 2021	203 [e]	91	45%	360 [e]	160	44%
Average	*203* [e]	*90*	*44%*	*360* [e]	*162*	*45%*

Source: Heffron Transportation, Inc., April 2021

a. *Existing Condition Study Area consists of all block faces currently accessible within an 800-foot walking distance of the site reflecting no current pedestrian access from S Cloverdale Place.*
b. *Future Condition Study Area consists of all block faces anticipated to be accessible within an 800-foot walking distance of the site reflecting planned re-establishment of pedestrian access from S Cloverdale Place.*
c. *Parking supply values exclude 19 spaces signed for School Bus Only (7 am –7 pm excluding Sat/Sun/Hol) and 3 spaces signed for King County Exempt Vehicles Only.*
d. *Restrictions for the historic counts may vary slightly from the current restrictions identified.*
e. *Parking supply value excludes 3 spaces signed for King County Exempt Vehicles Only.*
f. *n/a – Parking occupancy counts not performed for Future Condition Study Area on these dates.*

For the purpose of evaluating the potential on-street parking impacts associated with new developments, the City considers utilization rates of 85% or higher to be effectively full, and when City staff may start to evaluate parking management measures to reduce utilization. As shown, the survey determined that parking utilization was below this level during all time periods, including the historic counts, and ranged

between 40% and 51% over the 12 separate observations in 2021. The results based on the historic aerial images indicate that on-street demand and occupancy was virtually identical to the 2021 observations.

Published residential parking accumulation rates for suburban areas[20] suggest weekday demand typically begins to decline after 6:00 A.M. when residents leave their homes for work and school. By mid-morning demand may be 36% to 50% of the overnight peak demand. Past observations and parking demand surveys performed around numerous other Seattle school sites have shown that during normal (non-pandemic) conditions, on-street demand typically declines 15% to 25% between 7:00 and 10:00 A.M. As a result, demand that may normally be generated by the school may be off-set when residents leave parking for trips to work or other destinations. Within the study area, unused parking averaged between 90 and 118 spaces over the 14 separate observations within the existing conditions study area. Within the overall study area anticipated for future conditions, unused parking average between 186 and 205 spaces across eight separate observation periods.

As noted previously in Section 2.2.3, new residential and commercial development projects are planned or under construction within the site vicinity. One of the developments—at 8600 Rainier Avenue S—may contribute new on-street parking demand within the parking study area described. This development will have up to 221 affordable housing units and a 10,600-sf food bank with on-site parking for up to 43 vehicles. The transportation and parking analysis prepared for the project indicates it could generate a peak parking demand overspill of up to 75 vehicles during the overnight hours. Demand estimates for the defined study periods (early morning, midday, and early evening) were derived using time-of-day parking accumulation data published for multi-family residential uses in ITE's *Parking Generation*. Based on their locations, sizes, and proximity, the remaining five pipeline development projects are expected to generate negligible on-street parking demand within the study area. Based on this analysis, on-street parking utilization within the study area is estimated to increase to about 61% in the early morning, 56% in the midday, and 59% in the early evenings. Utilization would remain well below the 85% level considered full by the City with between 130 and 150 unused spaces.

2.4.4. Off-Street Parking

There are three formally-established parking lots on the campus totaling about 160 spaces. The largest lot west of the main school building (with 72 spaces) and the linear lot along the east side of the grass utility field and baseball field (with 51 spaces) are accessed from two driveways on S Henderson Street. The eastern lot (with about 16 spaces though striping has faded and evolved over the years) is accessed from a driveway on Seward Park Avenue S. There are four reserved spaces for kitchen staff located between the main school building and S Henderson Street with a wide curb cut on S Henderson Street. The paved areas north of the gymnasium and performing arts center and surrounding the wood shop and auto shop buildings are used for occasional parking (with 16 striped spaces but room for many more vehicles). Access to those paved areas occurs from the north via 53rd Avenue S, which ends at the school site just south of Hamlet Avenue S.

Parking occupancy counts in February and March 2021 found negligible school-day (morning and midday) demand due to the ongoing COVID-19-related remote learning conditions in effect at the time. However, occupancy counts for the on-site lots were recorded from the same historic aerials referenced previously for the on-street portion of the study. The demand from the historic aerials was 110 vehicles in May 2017 and 125 vehicles in May 2019; enrollment levels reported for the school at the time of those images was 682 and 745, respectively, which indicates a parking demand rate of about 0.165 vehicles per student. This rate is within the range of rates observed at other Seattle high schools—0.14 vehicles per student at Roosevelt and Garfield High Schools and 0.20 vehicles per students at Ingraham High School.

[20] ITE, *Parking Generation*, 5th Edition, January 2019, Time of Day Distribution for Parking Demand, Multifamily Housing.

Although there was negligible parking demand within the on-site parking lots on school days, counts performed on-site in March 2021 found some demand generated as a result of use of the athletic facilities. The baseball and softball fields were in use (with fields lighted) on March 23 and 25 with participants and spectators. Parking demand (totaling 56 and 51 vehicles, respectively) was observed in the main lot, the parking adjacent to the athletic fields, and in the un-marked paved area north of the school buildings. This level of demand reflects typical use of the baseball and softball fields common during spring, and is consistent with studies performed for other athletic field complexes at SPS sites.

2.5. Traffic Safety

Collision data for the study-area intersections and nearby roadway segments were obtained from SDOT's Open Data Portal for the period between January 1, 2018 and the most recent records available as of March 9, 2021 (3.2 years). The data, summarized below in Table 5, were examined to determine if there are any unusual traffic safety conditions that could impact or be impacted by the proposed project.

Table 5. Collision Summary (January 1, 2018 through March 1, 2021)

Intersection	Rear-End	Side-Swipe	Left Turn	Right Angle	Ped / Cycle	Other [a]	Total for 3.2 Years	Average/ Year
S Henderson St / Rainier Ave S	2	1	1	7	5	2	18	5.7
Rainier Ave S / 51st Ave S	1	0	2	5	1	3	12	3.8
Rainier Ave S / Seward Park Ave S	1	0	2	8	0	0	11	3.5
S Henderson St / Renton Ave S	0	0	1	1	5	1	8	2.5
S Cloverdale St / Rainier Ave S	2	0	20	1	1	0	6	1.9
S Henderson St / Seward Park Ave S	0	0	0	0	0	0	0	0.0
S Cloverdale Pl / Seward Park Ave S	0	0	0	0	0	0	0	0.0
Roadway Segment	**Rear-End**	**Side-Swipe**	**Left Turn**	**Right Angle**	**Ped / Cycle**	**Other [a]**	**Total for 3.2 Years**	**Average/ Year**
Rainier Avenue S (between S Cloverdale St & S Henderson St)	15	4	0	2	2	2	25	7.9
S Henderson St (between Rainier Ave S and Seward Park Ave S)	5	0	0	1	1	1	8	2.5
Seward Park Avenue S (between Hamlet Ave S & S Henderson St)	1	0	0	1	1	1	4	1.3
S Cloverdale Pl (between Rainier Ave S and Grattan Place	0	0	0	0	0	0	0	0.0

Source: City of Seattle Department of Transportation, https://data-seattlecitygis.opendata.arcgis.com/datasets/collisions, March 9, 2021.

a. *'Other' collisions included eight vehicles striking an object of the roadway, three vehicles striking parked vehicles, one vehicle striking a fixed object, and one collision with insufficient information to determine type.*

Unsignalized intersections with five or more collisions per year and signalized intersections with 10 or more collisions per year are considered high collision locations by the City. None of the intersections meet the criteria for a high-collision location. The study area intersection with the highest number of collisions was the S Henderson Street / Rainier Avenue S intersection west of the site, which has averaged 5.7 collisions per year since January 2018. Of the 18 total collisions at this intersection, 9 occurred in

2018, with fewer occurrences each subsequent year and no collisions were reported for 2021 at the time the data were reviewed. At this same location, four of the five pedestrian incidents occurred in 2018, with no pedestrian incidents reported since 2019.

The study-area roadway segment with the highest total number of collisions was along Rainier Avenue S, between Cloverdale Place S and Hamlet Avenue S. Of 15 rear-end collisions along this segment, 8 occurred in 2020, five of which occurred on days when schools were closed (either due to COVID-19 or during summer). None of the reported collisions at study-area intersections or roadway segments resulted in fatalities. Overall, these data do not indicate any unusual traffic safety conditions.

2.6. Transit Facilities and Service

The school site is directly served by King County Metro Transit (Metro). Stops served by Routes 7 and 106 are located on S Henderson Street. The eastbound stop for Route 7 is located across the street from the main school building just east of 53rd Avenue S (private street); the westbound stop for Route 106 is located at the southwest corner of the site just east of Rainier Avenue S. Link light rail service is provided by Sound Transit at Rainier Beach Station located about ½-mile west of the school site at Martin Luther King Jr. Way S just south of S Henderson Street. In the site vicinity, the City has designated Rainier Avenue S as a Major Transit Street; S Henderson Street, Seward Park Avenue S, and Renton Avenue S are all designated as Minor Transit Street. To the west, Martin Luther King Jr. Way S is designated as a Major Transit Street north of S Henderson Street and a Minor Transit Street to the south.[21] Table 6 summarizes transit service provided within one-half mile of the project site.

Table 6. Existing Transit Service within One-Half Mile of the Project Site

Route	Closest Stops	Areas Served	Typical Weekday Headways [a] (minutes)
Link Light Rail	Rainier Beach Station	Angle Lake, SeaTac Airport, Rainier Beach, Mount Baker, Columbia City, Beacon Hill, Downtown, Capitol Hill, University of Washington	6 – 15
7	Rainier Avenue S / S Henderson Street / Seward Park Avenue S	Downtown, Mount Baker, Columbia City, Rainier Beach, S Prentice Street	7 – 15
106	Rainier Avenue S / S Henderson Street / Seward Park Avenue S	Chinatown/International District, Mount Baker, Columbia City, Rainier Beach, Skyway, Renton	10 – 30
107	Rainier Avenue S / S Henderson Street / Seward Park Avenue S	Beacon Hill Station, Georgetown, Rainier Beach Station, Lakeridge, Renton Transit Center	15 – 32

Sources: Sound Transit and King County Metro Transit online schedules and route information, March 2021.

a. Headway is the time between consecutive trains or buses by direction.

SPS provides transportation to Rainier Beach High School students who qualify. As outlined in the current *Transportation Service Standards*:[22]

> *High school students who live within the boundaries of the Seattle School District and who live more than 2 miles from their assigned school are eligible for an ORCA card.*

[21] Seattle Department of Transportation (SDOT), Interactive Street Classification Maps, accessed March 2021.
[22] SPS, *Revised Transportation Service Standards 2020-21: Ridership Eligibility*, Effective Sept. 1, 2020.

a. *ORCA cards will not be provided for students who do not attend an SPS school but continue to participate in a SPS-school athletics program.*

Specialized transportation is provided in the following circumstances:

a. *Students who require specialized transportation services as determined by their Individualized Education Program (IEP).*

b. *Students requiring medical transportation as approved by District Health Services.*

A segment of the curb lane on the north side of S Henderson Street adjacent to the school site is reserved for "School Bus Only, 7 AM to 7 PM." This area is occasionally used to load/unload school buses carrying Special Education (SPED) students to and from school. Under normal (non-COVID) conditions, approximately eight yellow school buses (typically smaller 25-feet long) serve the site. In addition, this area is used by school buses transporting students to and from field trips, off-site athletics, or other off-site extra-curricular activities.

Metro Connects[23] is the adopted long-range vision for Metro's future service and capital projects. It provides plans for new local, frequent, and RapidRide service by 2025. A new local route is indicated along Seward Park Avenue S and S Henderson Street that would connect Link stations at Mount Baker and Rainier Beach. It also indicates a new RapidRide R Line along Rainier Avenue S between the University of Washington and Rainier Beach, which would replace the existing Route 7 service. Metro has completed conceptual project design for the new RapidRide R Line, but due to the ongoing COVID-19 pandemic and related budget and ridership impacts, has paused planning, design, and implementation. It is uncertain if the R Line will be implemented before 2027; however, if and when it is implemented, it is expected to operate along Rainier Avenue S and west along S Henderson Street, with stop locations to be determined during future planning phases.

2.7. Non-Motorized Facilities

Sidewalks exist on both sides of the arterial streets in the vicinity of the project site; they are intermittent on local access streets. There is a shared-use non-motorized trail along 52nd Avenue S south of the school site between S Fisher Place and S Henderson Street. The signalized study-area intersections have crosswalks across all legs with pedestrian signals (except for the east leg at the Rainier Avenue S / Seward Park Avenue S intersection, which has no crossing). There are crosswalks with signage across S Henderson Street at 46th, 50th, 52nd, and 53rd Avenues S; the crossings at 46th and 50th Avenues S are equipped with pedestrian-actuated Rectangular Rapid Flashing Beacons (RRFBs). There are protected bike lanes in each direction along S Henderson Street, which transition to sharrows in the outside lanes east of 50th Avenue S. In April 2020, due to the COVID-19 pandemic crisis, the City implemented a Stay Healthy Street along the Rainier Valley NGW.

The 2019 counts at the S Henderson Street / Rainier Avenue S intersection indicated a high level of pedestrian activity, with more than 340 pedestrian crossings recorded in the morning peak period and over 580 in the PM peak period. Pedestrian volumes in the afternoon were slightly lower. The count data indicated low bicycle volume, with eight or fewer recorded in all directions over two hours in the morning and afternoon. It is noted that those counts were conducted in May when weather on the count day was dry and temperatures were above average. School staff[24] indicated that pre-pandemic bicycle usage at the school site was relatively low, with about 10 students and staff with bikes on campus on a regular basis.

[23] King Country Metro; adopted January 23, 2017.
[24] Email from A. Thomas – Activity Coordinator, Rainier Beach High School, March 25, 2021.

The City of Seattle's currently adopted *CIP* was reviewed to determine if any pedestrian facility improvements are planned in the area. As described previously *Section 2.1.2*, the *CIP* includes the ongoing *Route 7 Transit-Plus Multimodal Corridor project*, which will complete improvements to crossings and transit connections. In addition, the *Vision Zero Rainier Improvements* effort includes funding for sidewalk upgrades along the corridor. The CIP also includes funding over the next five years to advance the *Pedestrian Master Plan*[25] recommendations; however, no specific planned non-motorized facility improvements are listed for the study area roadways or intersections.[26]

The *Safe Routes to School 5-Year Action Plan for Seattle*[27] identified the Rainier Beach Campus Safe Passage Project as a community-led initiative using place-based interventions to improve safety and security in the Rainier Beach campus area. Among other agencies and organizations, SDOT supported the program to increase adult guardianship in the Rainier Beach campus area and improve safety for students.

The *BMP* identifies planned bicycle infrastructure improvements and the recommended network is shown on Figure 12. As shown, a future cycle track facility (protected bike lane) is proposed to extend east from Martin Luther King Jr. Way S along S Henderson Street to Rainier Avenue S and then continue south along Rainier Avenue S to the south City limit. A Neighborhood Greenway (referred to as the Rainier Valley NGW) was implemented along the 46th Avenue S corridor west of the South Shore K-8 site extending north from S Henderson Street to S Holly Street before turning west to 39th Avenue S. An in-street local connector is proposed along Seward Park Avenue S. As described previously, the signal operations analyses reflect recent policy changes to increase crossing times for pedestrians as well as advance signal for pedestrians using crosswalks.

25 SDOT, June 2017.
26 SDOT, December 2019.
27 Seattle Department of Transportation; *Safe Streets, Healthy Schools and Communities*; Fall 2015.

Figure 12. Bicycle Master Plan Recommended Network

Source: Adopted Seattle Bicycle Master Plan (BMP), City of Seattle, April 2014.

3. PROJECT IMPACTS

This section describes conditions that would exist with the Rainier Beach High School Replacement project and the school operating at its planned enrollment capacity of up to 1,600 students. Vehicle trip estimates associated with the school replacement and expansion were added to the 2025-without-project traffic volume forecasts. Level of service analyses were performed to determine the proposed project's impact on traffic operations in the study area. Parking demand and the potential change to on-street parking utilization was also estimated. Potential impacts to safety, transit, and non-motorized facilities are also presented along with analysis of possible construction-related transportation impacts.

3.1. Transportation Network

The project would consolidate vehicular access on S Henderson Street to one driveway—located about 30 feet west of the existing eastern driveway serving the main parking lot. The western driveway and the wide access serving the kitchen staff parking would be eliminated. The access driveway on Seward Park Avenue S would be reconstructed in about its existing location. In coordination with SDOT, the segment of 53rd Avenue S along the site frontage would be widened and improved with curb and sidewalk on the west side (adjacent to the school). For all frontages (including S Henderson Street, Seward Park Avenue S, 53rd Avenue S, and S Cloverdale Place), sidewalk and curb ramps would be improved as required by SDOT. No other physical changes to the surrounding transportation network are proposed as part of the project. School buses would continue to have the option to use the load zone on the north (westbound) side of S Henderson Street.

3.2. Traffic Volumes

The proposed project is expected to result in new vehicular, pedestrian, and bicycle activity on the surrounding transportation network. With the replacement and expansion, the school is expected to have a peak enrollment capacity of up to 1,600 students. The school project is expected to generate an increase in daily and peak hour traffic compared to without-project conditions, which assumed the existing enrollment level of 762 students. The following describes the method used to estimate project-generated traffic.

3.2.1. School Trip Generation

For expansions of existing schools, actual counts of the existing school are preferred. This method works best for schools located in areas where school-related traffic can easily be isolated and identified, and traffic counts can be used to develop rates specifically for that school. However, due to the ongoing COVID-19 pandemic crisis and remote learning since March 2020, it was not possible to obtain representative counts at the existing Rainier Beach High School site. Therefore, trip generation for the proposed replacement project was estimated using average rates derived from counts collected previously at three other Seattle high schools—Garfield, Roosevelt, and Ingraham High Schools. These rates reflect the likely transportation conditions that exist at and around Rainier Beach High School, including limited availability of parking and anticipated student use of Metro. Standard rates for a high school published in the Institute of Transportation Engineers' *Trip Generation Manual*[28] were not used since the published ITE rates are based on data from schools that had considerable variability in number of students transported by bus, on-site parking available for students/staff, and the types of facilities provided.

For morning peak hour conditions when students and staff would arrive at the school, a rate of 0.36 trips per student, the average of counts performed around Garfield High School,[29] Roosevelt High School,[30]

[28] ITE, 10th Edition, September 2017.
[29] Heffron Transportation, Inc., 2004.
[30] Heffron Transportation, Inc., 2009.

and Ingraham High School,[31] was selected and applied. This rate is about 65% of the published ITE rate and accounts for a higher number of students that are expected to arrive by transit (due to limited parking availability and common mode-of-travel trends for Seattle high schools). For the afternoon peak hour condition when students are dismissed and many leave the site for the day, a rate of 0.25 trips per student (also derived from counts performed around Roosevelt,[32] Garfield, and Ingraham High School) was applied. This rate is about 75% of the published ITE rate. Trip generation for high schools during the afternoon is typically spread out over several hours as students often stay at the site after the school day for extracurricular activities and as staff have variable end-of-day schedules. As a result, the afternoon peak hour volume is usually less than the morning peak hourly volume.

During the commuter PM peak hour, high schools typically generate relatively little traffic compared to the morning arrival and afternoon dismissal periods. A rate of 0.11 trips per student, which matches the high-end of rates derived from counts at Roosevelt and Garfield, was applied and is about 80% of the published ITE rate for high schools. This is reasonable given that commuter PM peak hour trips for high schools typically include some staff leaving for the day, and student or public use of site amenities such as theater spaces, gymnasiums, athletic fields, and or commons spaces. Table 7 shows the resulting trip generation estimates for the expanded Rainier Beach High School at its planned enrollment capacity of 1,600 students. The estimated net change from normalized current conditions is also presented. The trip generation values presented include school bus trips, employee trips, and student trips.

Table 7. Rainier Beach High School Replacement Project – Trip Generation Estimates

Site Condition	Enrollment (students)	Morning Peak Hour (8:00 to 9:00 A.M.)			Afternoon Peak Hour (3:15 to 4:15 P.M.)			PM Peak Hour (4:30 to 5:30 P.M.)		
		In	Out	Total	In	Out	Total	In	Out	Total
Proposed School	1,600 [a]	315	260	575	155	245	400	80	95	175
Existing School	-762 [b]	-150	-125	-275	-75	-115	-190	-40	-45	-85
Net Change	**838**	**165**	**135**	**300**	**80**	**130**	**210**	**40**	**50**	**90**

Source: Heffron Transportation, Inc., March 2021.

a. Proposed future capacity of the school.

b. Average enrollment of the existing school from 2017 to 2021.

3.2.2. Trip Distribution and Assignment

The proposed building replacement project would modify access and on-site parking at the school, which would also affect the distribution of site-generated traffic. The existing configuration of the school includes access points at the southeast corner of the site with two access driveways on S Henderson Street for visitor parking, as well as automobile load/unload, and one access driveway for staff on Seward Park Avenue S. The project would reconfigure and expand student and visitor parking as well as automobile load/unload at the southeast corner of the site. Access on S Henderson Street would be consolidated to one two-way driveway and the Seward Park Avenue S access would be connected to all parking on the site. These changes are expected to change the trip patterns on the local roadway network. Special Education (SPED) buses load and unload students on the north side of S Henderson Street just west of the Seward Park Avenue S intersection. A new on-site load/unload area would be provided for SPED buses along the east side of the school building with inbound access from the north using 53rd Avenue S and

31 Heffron Transportation, Inc., 2017.
32 Heffron Transportation, Inc., 2002 and 2009.

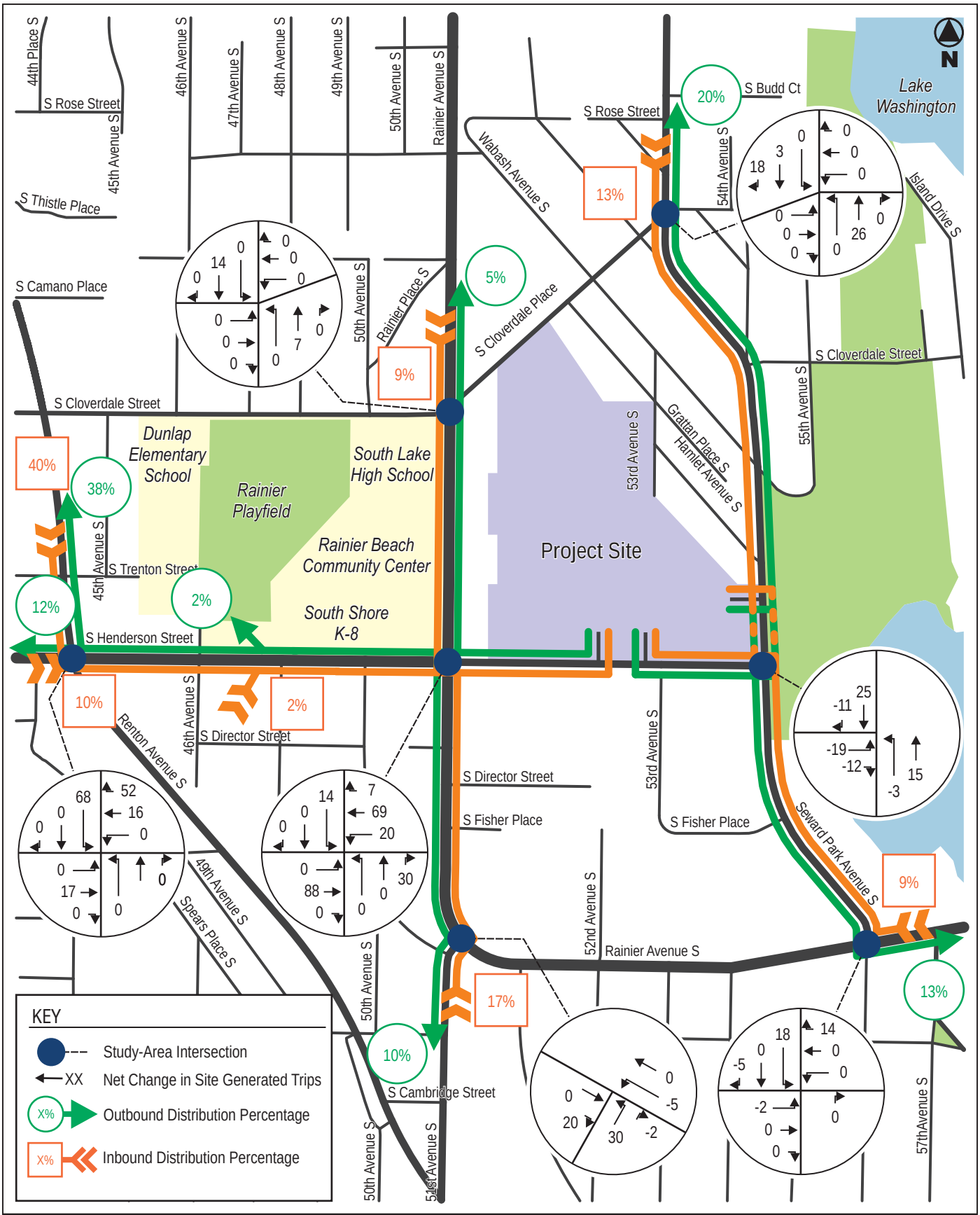
egress to Seward Park Avenue S. The on-street school bus load unload zone is proposed to remain for occasional use by school buses for athletics, activities, and field trips.

Project trip distribution patterns and assignments were developed for the morning, afternoon, and commuter PM peak hours using a combination of resources including: 1) the school's enrollment and draw areas, 2) historical traffic counts and directional patterns at intersections adjacent to the site, 3) population density data within the subsectors of the draw areas; 4) employment location of residents living within the enrollment draw areas from *OnTheMap*,[33] 5) school-bus volume information from the District; and 6) *Google Maps* predictive travel-route and travel-time mapping resource. The resulting trip patterns also reflect typical habits of some family drivers linking student drop-off and pick-up trips with trips to and from work or other destinations.

Peak hour trip assignments for two school conditions—1) existing school and access configuration and 2) proposed expanded school at capacity with the new access configuration—were compared to determine the net changes in trips and travel routes expected to occur with the project. Figure 13, Figure 14, and Figure 15 show the traffic distribution patterns and assignments of net new trips for the morning, afternoon, and PM peak hours, respectively.

The net new peak hour school trips were added to the forecast 2025-without-project traffic volumes to reflect future conditions with the expanded school. Figure 16, Figure 17, and Figure 18 show the forecast 2025-with-project volumes for the morning, afternoon, and PM peak hours, respectively.

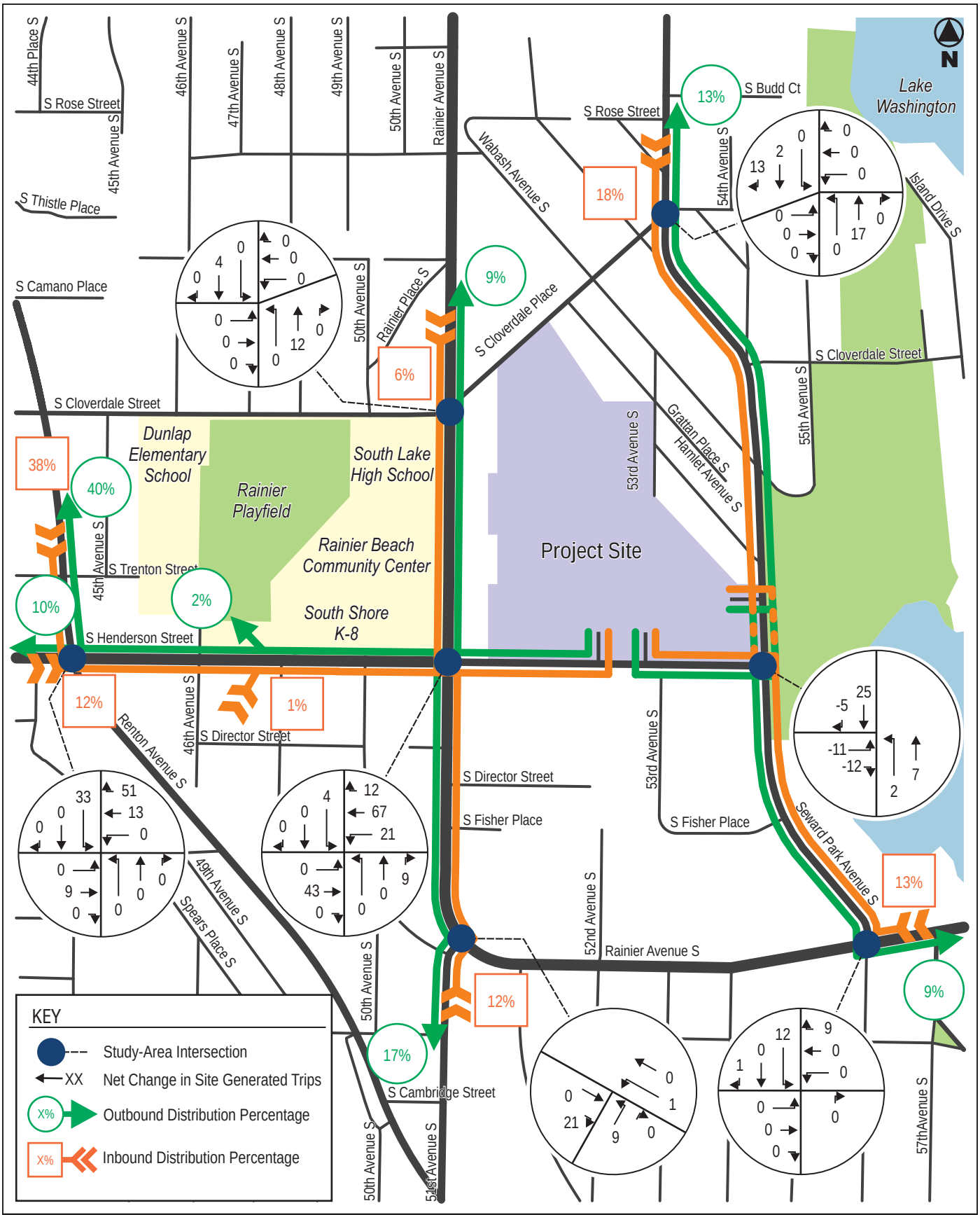
[33] Version 6, United States Census Bureau, web-based mapping and reporting application, https://onthemap.ces.census.gov/, accessed March 2021.



Rainier Beach High School Replacement Project

Figure 13
Net Project Trip Distribution and Assignment
Morning Peak Hour

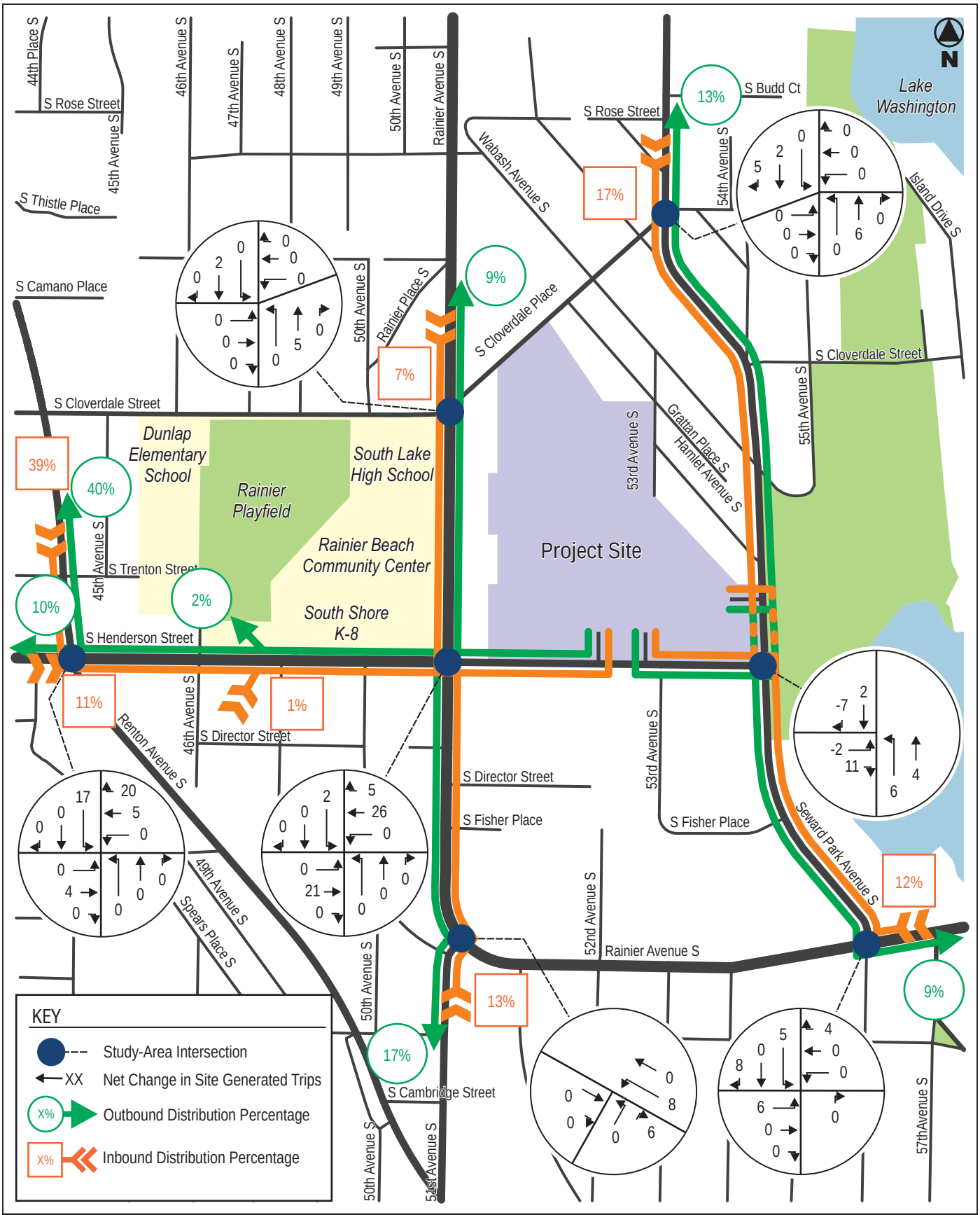
heffron transportation inc



Rainier Beach High School Replacement Project

Figure 14
Net Project Trip Distribution and Assignment
Afternoon Peak Hour

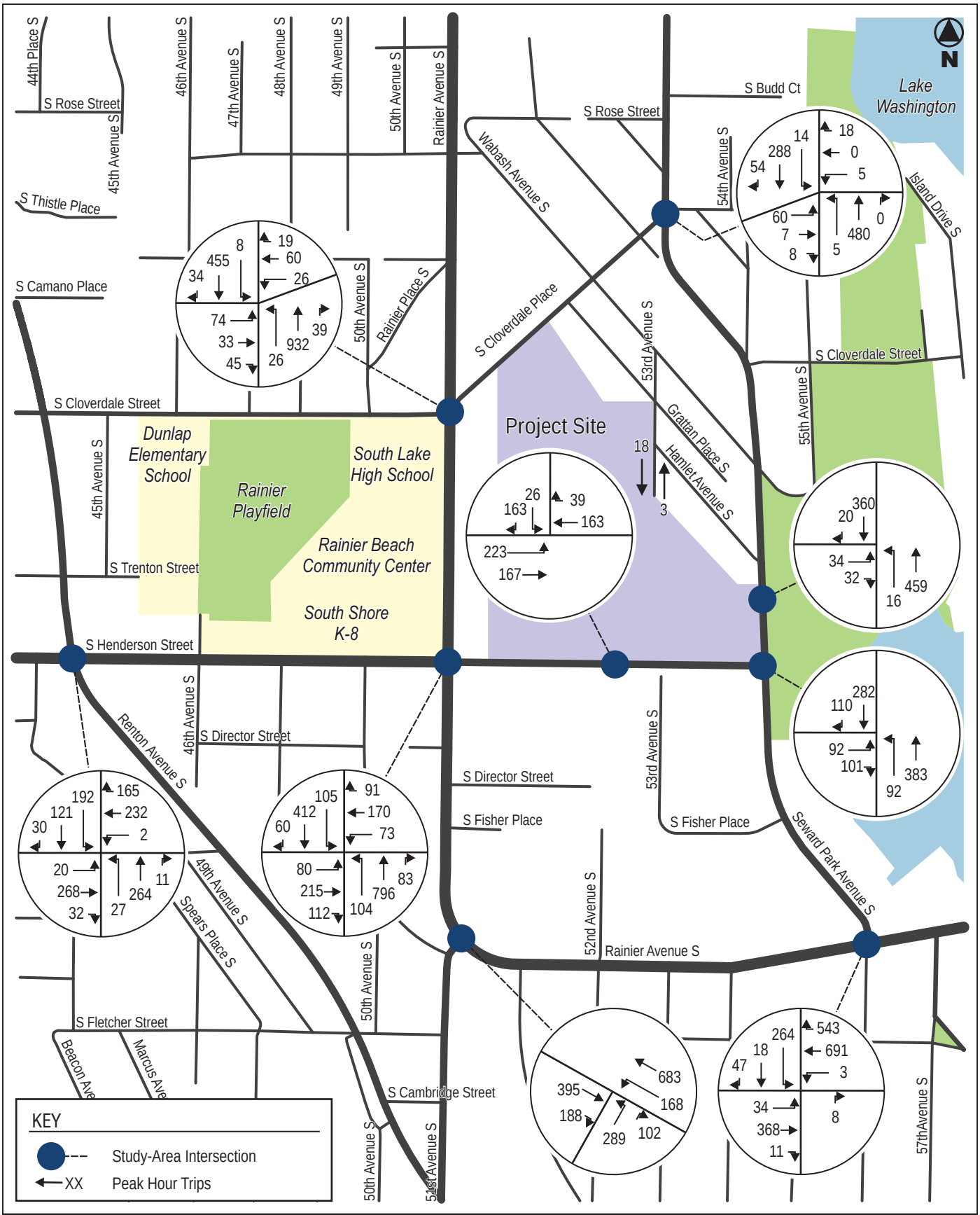
heffron transportation inc



Rainier Beach High School Replacement Project

Figure 15
Net Project Trip Distribution and Assignment
PM Peak Hour

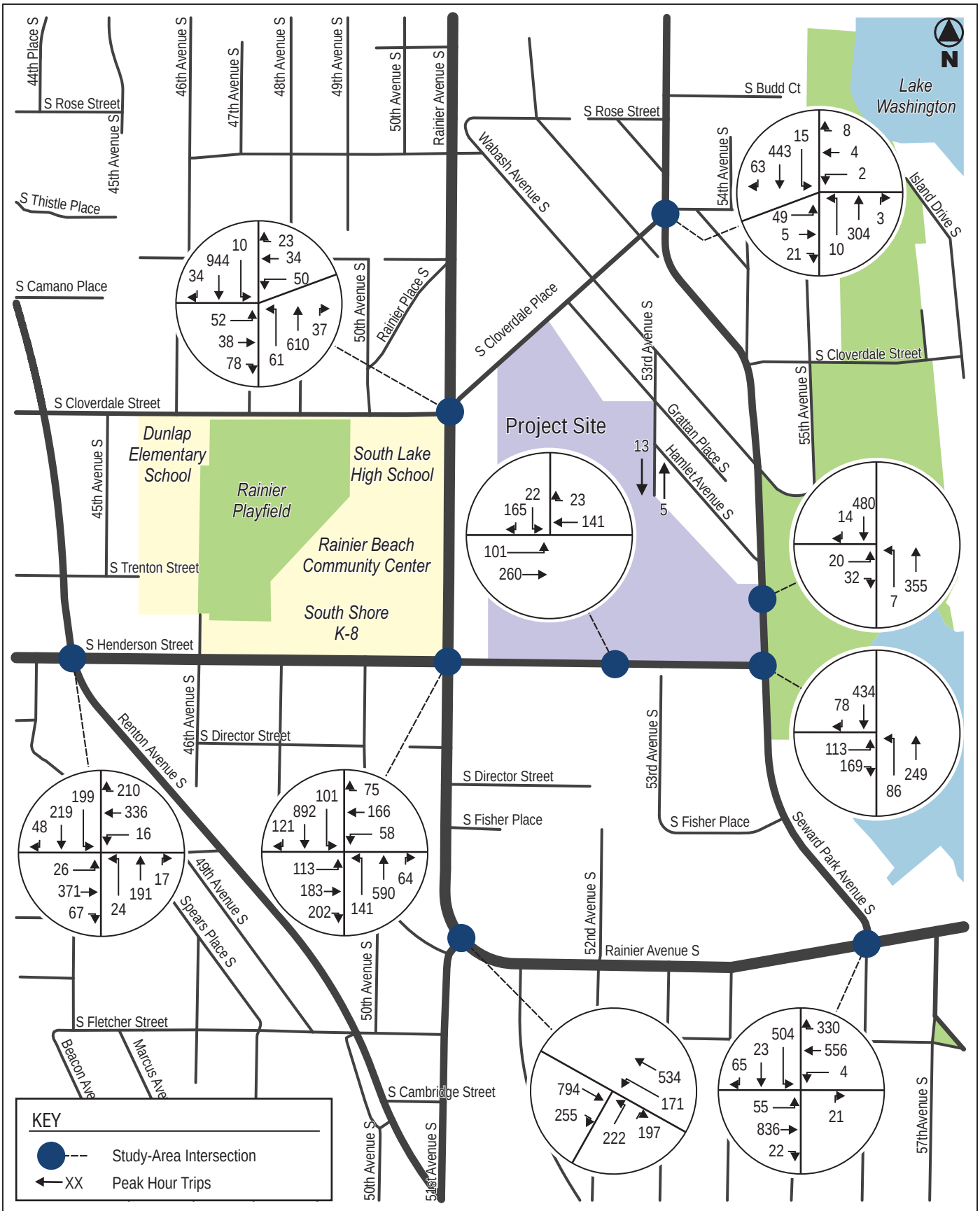
heffron transportation inc



Rainier Beach High School Replacement Project

Figure 16
Forecast 2025-With-Project Traffic Volumes
Morning Peak Hour

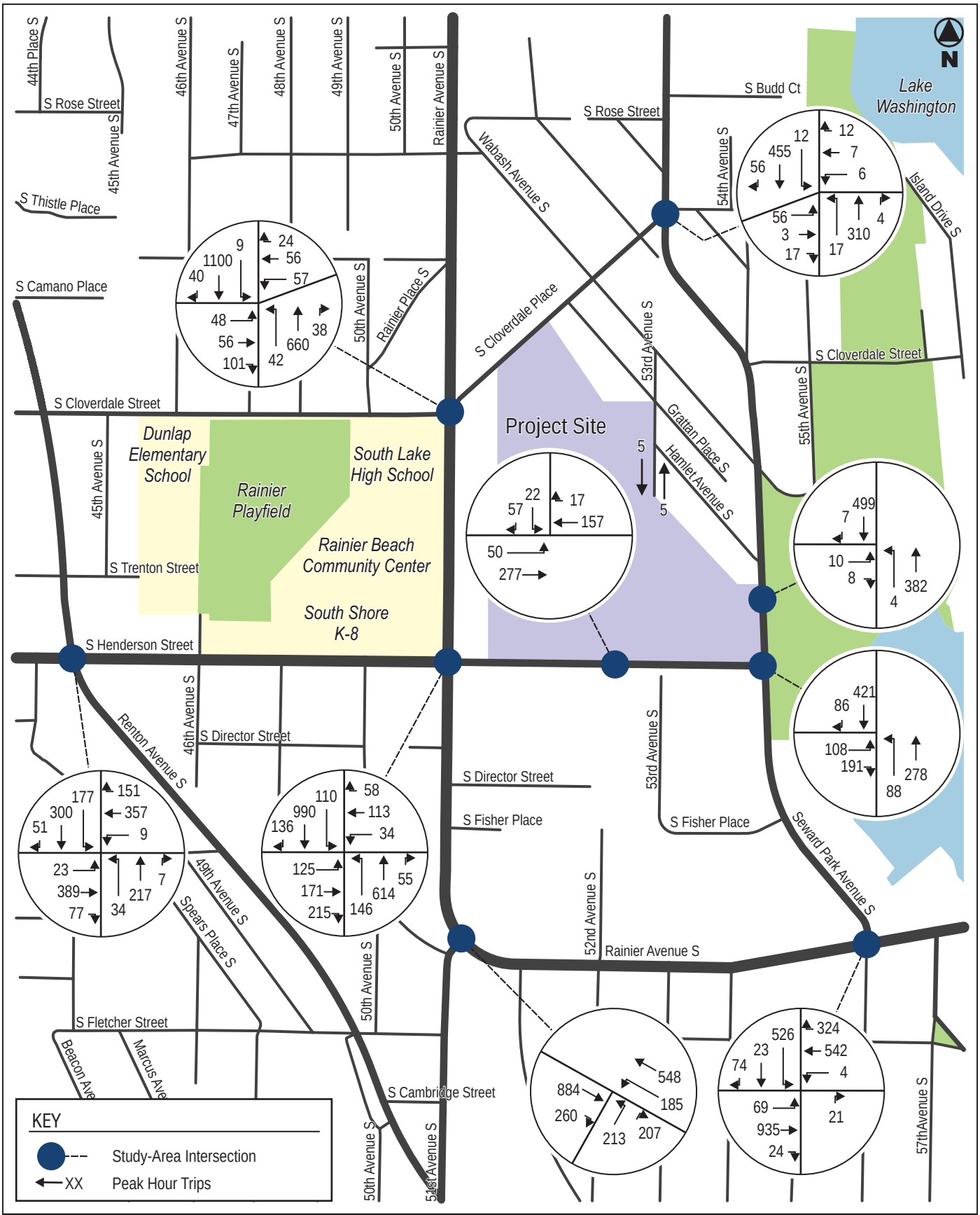
heffron transportation inc



Rainier Beach High School Replacement Project

Figure 17
Forecast 2025-With-Project Traffic Volumes
Afternoon Peak Hour

heffron transportation inc



Rainier Beach High School Replacement Project

Figure 18
Forecast 2025-With-Project Traffic Volumes
PM Peak Hour

heffron transportation inc

3.3. Traffic Operations

Intersection levels of service for future with-project conditions were evaluated using the same methodology described previously. The additional enrollment capacity is expected to increase pedestrian trips and the number of pedestrian crossings at nearby study intersections, including pedestrian trips between the site and transit stops (such as the Rainier Beach Link Station and future RapidRide R Line west of the site). The operational analyses accounted for potential increases in pedestrian crossing activity, the peaking characteristics of school traffic (school drop-off and pick-up primarily occurs during about 20 minutes in the peak hours), and changes to access patterns (including SPED school buses).

Table 8 shows the results of the analysis; levels of service for the without-project conditions are shown for comparison. The table shows that traffic generated by the proposed expanded and reconfigured Rainier Beach High School is expected to add between zero and 5.4 average seconds of delay per vehicle to the study area intersections. All seven study-area intersections are forecast to remain operating at LOS D or better during all three analysis peak hours, which is an acceptable level of service. Therefore, the project would not result in significant adverse impacts to study-area traffic operating conditions.

Table 8. Level of Service Summary – Forecast 2025 Conditions Without- and With-Project

Intersections	Morning Peak Hour (8:00–9:00 A.M.)				Afternoon Peak Hour (3:15–4:15 P.M.)				PM Peak Hour (4:30–5:30 P.M.)			
	Without Project		With Project		Without Project		With Project		Without Project		With Project	
Signalized	**LOS [1]**	**Delay [2]**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
S Henderson St / Rainier Ave S	C	31.8	D	37.2	D	38.0	D	39.6	D	44.0	D	44.3
S Henderson St / Renton Ave S	C	26.3	C	31.7	C	29.8	C	31.0	C	32.0	C	32.6
Rainier Ave S / S Cloverdale St	B	19.2	B	19.0	C	34.1	C	34.3	D	47.1	D	47.4
Rainier Ave S / 51st Ave S	B	15.9	B	17.1	B	17.6	B	18.2	B	18.8	B	18.9
Rainier Ave S / Seward Park Ave S	B	11.5	B	11.8	B	14.9	B	15.0	B	16.4	B	16.8
All-Way-Stop Controlled	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
S Henderson St / Seward Park Ave S	D	30.5	D	30.7	D	25.4	D	27.2	C	22.3	C	22.9
S Cloverdale Pl / Seward Park Ave S	C	19.1	C	23.1	C	18.0	C	19.3	C	19.6	C	20.1

Source: Heffron Transportation, Inc., April 2021.

1. *Level of service.*
2. *Average seconds of delay per vehicle.*

3.4. Site Access

Passenger vehicle load/unload would occur in a designated area within the main parking lot on the southeast corner of the site. Some students may also be dropped off or picked up by family members from on-street parking spaces in the site vicinity for convenience; however, the trip assignments assume all traffic entering and exiting the site to reflect worst-case conditions. Analysis of the site access driveways indicates all three would operate at LOS A overall and all movements operating at LOS C or better during all three analysis periods with the project.

3.5. Parking Supply and Demand

3.5.1. Changes to Parking Supply

Because the school is located within an Urban Village, there is no City of Seattle minimum code-requirement for parking supply and no code-departure for reduced parking is required. However, the project would reconfigure and expand on-site parking at the school, providing a total of about 190 spaces—an increase of about 30 spaces compared to existing site conditions. Two main parking lots would be located at the southeastern portion of the site—one with 64 spaces and the new on-site passenger vehicle load/unload loop accessed from S Henderson Street and a second lot with 95 spaces accessed from Seward Park Avenue S. These two parking areas would be physically connected by a tabletop driveway designed to emphasize pedestrian movement, but would allow connection between the parking areas during peak-use periods. An additional 33 spaces are proposed along the northeast edge of the site with primary access from the same driveway on Seward Park Avenue S and/or from the south end of 53rd Avenue S.

The consolidation of access along S Henderson Street would eliminate two existing curb cuts and allow for an increase in on-street parking supply (adding about four spaces) along the site frontage. No other proposed changes to site frontage are expected to effect on-street parking supply in the vicinity.

3.5.2. Parking Demand

School Day Parking

Parking demand estimates for the expanded Rainier Beach High School were developed based on the counts and observations from historical aerials of the existing school, combined with rates and data derived from counts at three other Seattle high schools. The estimated peak school-day parking demand is expected to range from 0.14- to 0.165-vehicles-per-student. These are the range of rates observed at Rainier Beach, Roosevelt, and Garfield High Schools, but lower than the rate observed at Ingraham High School. Based on the observations and rate derived for Rainier Beach High School and given its proximity to Link light-rail and the future RapidRide R transit service, the school is expected to generate demand at the lower end of the range of observed rates. Therefore, the expanded school with enrollment of up to 1,600 students could generate a peak school-day demand ranging from 224 to 264 vehicles.

With the proposed on-site supply of about 190 spaces, the expanded school could generate excess demand of between 34 and 74 vehicles that may occur along on-street parking in the site vicinity. This potential new parking overspill would most likely occur on-street in areas nearest the school that have unrestricted parking on school days. Based on the parking utilization study performed around the school, there were over 120 unused unrestricted on-street parking spaces along S Cloverdale Street, Grattan Place S, Wabash Avenue S, 53rd Avenue S, Hamlet Avenue S, and Seward Park Avenue S. After accounting for potential new overspill demand from nearby pipeline development projects (described previously) and the potential range of new overspill from Rainier Beach High School (when fully enrolled to capacity), on-street parking utilization in the study area is expected to remain between 65% and 77% with between 80 and 120 unused spaces remaining. Based on these estimates, the added school day demand would not represent a significant adverse impact.

Event Parking

Rainier Beach High School would continue to host activities and events regularly throughout the school year. The types, sizes, and frequency of events will depend on the curriculum, programs, and enrollment level of the school at that time. However, based on activity and event schedules at the existing school, many of these events and activities are expected to consist of meetings, club activities, and sports practices or games (on the athletic fields and in the gymnasium). These types of activities

may occur daily and consist of between 15 and 50 participants and/or spectators. They may include monthly booster meetings, parent organization meetings and programs, student presentations, evening club activities and movies, and specialized activities (e.g., robotics). It is likely that there would be two or more activities in various locations on the site simultaneously. Parking demand generated by these smaller types of events and activities would typically be accommodated within the on-site parking lots with some generating demand on-street near the site.

In addition, the school would also continue to have three or four larger events each month that may draw higher levels of participation and/or spectators. The following lists and describes the types of larger evening or weekend events likely to occur on site during each of the three school-year quarters. About three or four of the larger events each quarter (about one per month) involve full-school attendance with parents/guardians and staff. These are expected to be the highest-attendance events. The remaining events listed often involve only a portion of the student body (e.g., only one grade level or only athletes from one sports season) and would have lower attendance.

Fall

- **Viking Family Night (Open House / Curriculum Night)** – Parents and guardians of students in all four grades attend with activities held in the entire school including assembly spaces.
- **Senior Parent Night** – Parents/guardians of senior students attend to learn about graduation requirements, classroom expectations, staff and community organization, and other items.
- **Homecoming** – May consist of combination of events such as dance, community tailgate, and/or other activities.
- **Fall Plays / Concerts** – Drama and music performances held in the performing arts center, auditorium/theater with students, families, and staff attending.
- **Financial Aid Night** – Students and families learn about financial aid opportunities (e.g., grants and scholarships) for future education.
- **Ninth-Grade Family Night** – Ninth-grade students and families meet teachers and receive information about credit requirements, counseling, and other programs.
- **Halloween Events** – Events such as a Haunted House may be held in commons, assembly spaces, or theater over one or more days.
- **Fall Sports banquets** – Fall sports athletes (football, cross-country, girls' soccer, volleyball, girls swimming, and golf), parents/guardians, and coaches may attend events held in assembly spaces and/or commons.

Winter

- **Senior Fundraiser / Movie Night** – Seniors attend movie night in the Performing Arts Center.
- **Future Viking (New Student) and Family Night** – Incoming students, families, staff and coaches attend event held in the commons, gymnasium, auditorium/theater, and other areas.
- **Winter Music, Drama, and or Talent Shows** – Students perform for families, staff, and guests in the performing arts center
- **Winter Ball/Dance** – Students, some staff, and chaperones may attend from all four grades—usually held in a commons or assembly spaces.
- **Winter Sports Banquets** – Winter sport teams may hold separate recognition event for team participants, coaches, and families.

Spring

- **Spring Sports Banquets** – Spring sports athletes (baseball, softball, boys' soccer, track, and tennis) and parents, guardians, and coaches may attend event in the commons.
- **Multicultural Assembly Night** – All school event with students, staff, and families attending in the performing arts center and/or other locations on campus.
- **College Signing Party** – Junior and/senior students and families celebrate their college selections in the cafeteria or other assembly spaces.
- **International Baccalaureate (IB) Program Orientation** – Students and families learn about IB program to prepare them for college, usually held in library.
- **Spring Dance** – All-school dance may be held in commons or assembly spaces or off-site.
- **Spring Drama, Music, or Talent Shows** – Student performances with parents, students, staff, and community attending in the performing arts center, some with evening rehearsals and some over multiple days or weekends.
- **Future Viking (New Student) and Family Night** – Incoming students, families, staff and coaches attend event held in the commons, gymnasium, auditorium/theater, and other areas.
- **Graduation Reception** – Graduating seniors, families, guests and staff may attend a reception in a commons space (graduation and Senior Prom typically held off-site).

The following describes the events, approximate participation, and estimated attendance, as well as the estimated changes expected due to the school replacement and enrollment capacity increase.

Concerts, Plays, and Talent Shows:

- School performances may occur four to eight times per year in the performing arts center with seating for about 520. Conditions would be similar to the existing performing arts center.

Open House:

- An Open House for current students is held in late-September or October. Attendance at other Seattle high schools at the proposed level of enrollment may be 800 or more.
- Open Houses for incoming students are held in Winter and Spring; attendance at other Seattle high schools at the proposed level of enrollment may be about 500.
- Attendance is likely to increase above existing levels due to larger enrollment.

Athletic Games

- ***Basketball*** – The school hosts 8 to 10 home varsity games per year each for boys' and girls' basketball. The larger events include 50 to 100 participants on days with double headers (e.g., junior varsity and varsity); the numbers of spectators/attendees can range from 200 to 1,500, depending on the teams' performance and opponents.
- ***Football*** – The school hosts four to six varsity football games per year for both Rainier Beach and Cleveland High School, with about 50 participants and attendance that ranges from 200 to 800 for most games. Games with higher expected attendance are held off-site at Memorial Stadium.
- The above levels of attendance are similar to other Seattle high schools with enrollments of approximately 1,600 to 1,700; therefore, the replacement project and added enrollment is not expected to change participation levels or attendance at the athletic games. Based on Heffron Transportation's experience working with schools and athletic directors evaluating traffic and parking demand associated with varsity football and basketball games (including the four SPS facilities located at Nathan Hale/Jane Addams, Ingraham, Rainier Beach, and Denny/Sealth), the

primary influence on attendance for high school games is team performance (i.e., record or expected record) and rivalry games.

Other Events

- The school would continue to hosts a variety of specialized events that may include Multicultural Assembly Night, IB Program orientation, College Signing Night, and sports banquets, which may draw attendance of 200 about 400 persons.
- Other evening events (such as parent meetings) for schools enrolled at up to 1,600 students typically have fewer than 200 participants and attendance is not expected to be affected by the larger enrollment capacity.

Non-Scholastic and Other Schools Use of Athletic Facilities:

- The school's athletic facilities are regularly used on weekends, evenings, and summer days for other school sports and recreational sports by adult and youth sports organizations that are scheduled by Seattle Parks and Recreation (SPR) pursuant to the *Joint Use Agreement*[34] between SPS and SPR.
- These activities would continue to occur at the site and would not be affected by the change in enrollment capacity of Rainier Beach High School.

Based on the above information about current events and the anticipated changes that may occur with the larger enrollment capacity, two of the larger events—the Open Houses—are anticipated to experience higher levels of attendance and participation. Since on-site parking for these two events is likely often full, added demand would be expected to occur on-street surrounding the site. The school has an event planner and administrative staff who work to avoid two large events on the same night and communicate with SPR when there is a large school event to avoid overlapping parks events.[35]

The new performing arts center would have the same capacity as the existing facility—550 seats. The new main gymnasium would have bleacher seating for about 1,430 persons (the existing gym has bleacher seating for about 1,800); the auxiliary gym could accommodate about 600. Typically for larger events, there are between 2.5 and 3.5 persons attending for each parked vehicle. These rates account for higher levels of carpooling (parents and students in a single vehicle) as well as drop-off activity that does not generate parked vehicles. At these rates, a capacity event in the performing arts center could generate parking demand between 160 and 220 vehicles, nearly all of which could be accommodated on site. However, similar to existing conditions, a full event in the gymnasium (such as a well-attended basketball game) could cause parking demand to exceed the on-site supply and spill over to on-street parking.

As presented previously, the on-street parking study performed around the site indicated that utilization on non-event weeknights averaged 45% with nearly 200 unused spaces. After accounting for potential added demand from other development projects in the vicinity, utilization may increase to about 59% with about 150 unused spaces. At this level, an increase of about 100 vehicles parked on street would cause utilization to exceed the 85% level considered full by the City; 150 additional on-street vehicles would push utilization to 100% full. Based on the attendee-per-parked-vehicle rates above, events with total attendance of 830 to 1,000 would likely cause on-street parking utilization to exceed the 85% level; events with more than about 1,200 attendees are estimated to result in full parking conditions (100%) within 800 feet of the site and could impact streets beyond 800 feet.

Based on these analyses, the on-street supply could accommodate the overflow demand of some of the larger events at the high school. However, for the largest events, all on-street parking along the roadways

[34] *An Agreement for the Joint Use of Facilities between the Seattle School District No. l and Seattle Parks and Recreation 2016-2019*, Extended to August 9, 2021.
[35] Email communications, L. Thomasson, RBHS Admin. Secretary and F. Griffin, SPS Dir. Facility Operations, June 2021.

surrounding the school site could be at or above capacity. These conditions likely already occur occasionally with well-attended basketball games and the change in school enrollment capacity is not expected to change these existing conditions.

The outdoor athletic fields at Rainier Beach High School are also known as the Southeast Athletic Complex (SEAC) and serve as the home fields for Rainier Beach High School as well as for some sports at other Seattle high schools (e.g., Cleveland High School varsity football, softball, and baseball). The use of the site by other schools' sports teams would not be affected by the replacement project. However, the larger enrollment capacity made possible by the school-replacement project could result in more evenings with multiple concurrent smaller events that cause on-street parking overspill more frequently. In order to mitigate potential event-related impacts, additional event parking mitigation measures (expanding on the existing measures) are recommended and are summarized in the *Findings and Recommendations* section.

3.6. Traffic Safety

The project could increase traffic at the study-area intersections and statistically, the number of collisions could increase as traffic increases. However, the collision data provided for the study area did not indicate any unusual collision patterns that would impact or be impacted by the proposed project.

3.7. Transit

New transit trips are expected to be generated by students, teachers, and staff at the site; however, the traffic and parking demand estimates do not specifically rely on reductions in auto trips to account for any added transit usage. Student trips are expected to occur on Metro and Sound Transit Link light rail as ORCA cards are provided for eligible students. SPS coordinates with Metro to address expected student demand on certain routes. Since the nearest stops are located adjacent to and west of the school on S Henderson Street, coordination with Metro is recommended to confirm service availability and capacity as enrollment approaches its design capacity of 1,600 students. As noted previously, SPS does not anticipate full enrollment for 10 years or more after completion.

3.8. Non-Motorized Facilities

Rainier Beach High School, with its proposed increased enrollment capacity, is expected to generate more pedestrian trips within the site vicinity than the existing school. It is anticipated that some increase in pedestrian activity would occur along S Henderson Street, S Cloverdale Place, 53rd Avenue S, and Seward Park Avenue S adjacent to the school, and Rainier Avenue S to the west. There would also likely be increases in bicycle trips within the site vicinity. The additional pedestrian activity was accounted for in the off-site and driveway operations analysis.

The site frontages already have sidewalks and marked crosswalks along primary school walking routes. SPS would coordinate sidewalk and other non-motorized improvements with SDOT as part of the Street Improvement Permitting (SIP) process, which occurs during building permitting with the City. Improvements to sidewalks and ramps may be required as part of the SIP to bring those facilities up to current design standards.

On site, the project would provide the code-required 196 bicycle parking spaces (147 long-term covered and secured spaces and 49 short-term spaces), which would be a substantial increase compared to current conditions and is expected to accommodate the level of demand for the expanded school. The project is not expected to result in adverse impacts to non-motorized facilities.

3.9. Short-Term Construction Impacts

Construction activities at the site would occur in phases while the school remains open and in operation for the duration of the effort. Construction is planned to begin in 2022, and be substantially completed by August 2025. The following describes the anticipated construction-related transportation impacts based on current planning being conducted by the General Contractor / Construction Manager (GCCM) contractor and SPS.[36]

3.9.1. Demolition, Earthwork, and Employee Activity

Construction would require demolition and earthwork that would also occur in phases. Current construction plans anticipate an early site package, tentatively planned to begin in early 2022, with drilling for geothermal wells, which will require some site demolition and preparatory excavation, plus drilling spoils that will be exported. After the early site work, Phase 1 earthwork for construction of the main athletics and classroom wing is estimated to require export of about 16,050 cubic yards (cy) of excavated material and import of about 5,550 cy of fill material. This effort is planned to begin at permit issuance—currently targeted for summer 2022 and involve transport over about two to three months. Phase 2 earthwork is estimated to require export of about 17,650 cy of excavated material and import of about 8,900 cy of fill material. Phase 2 would begin with demolition of the main school classroom building in early summer 2024 with subsequent earthwork planned to begin in summer 2024. Phase 2 earthwork and transport would likely extend two to three months into fall 2024.

The Phase 1 earthwork and transport effort would haul about 21,600 cy over two to three months beginning in summer 2022. Assuming an average of 20-cubic yards per truck (truck/trailer combination), the Phase 1 transport could generate a total of about 1,080 truckloads (one truck trip in and one truck trip-out for each truckload), an average of 18 to 30 truckloads per day, and 4 to 8 truck trips per hour on an average eight-hour day. The Phase 2 earthwork and transport effort would haul about 26,550 cy over two to three months beginning in summer 2024. The Phase 2 transport could generate a total of about 1,330 truckloads, an average of 22 to 35 truckloads per day, and 3 to 9 truck trips per hour on an average day. These volumes of truck traffic may be noticeable to residents living adjacent to the site or near the truck access points, but are not expected to result in significant impacts to traffic operations in the site vicinity.

The construction of the project would also generate employee, equipment, and material-delivery trips to and from the site. It is anticipated that construction workers would arrive at the construction site before the morning peak traffic period on local area streets and depart the site prior to the PM peak period; construction work shifts for schools are usually from 7:00 A.M. to 3:30 P.M., with workers arriving between 6:30 and 6:45 A.M. but work not starting until 7:00 A.M. Generally, it is preferred that construction employee arrival and departures as well as transport and delivery of materials for construction not occur during student arrival or dismissal times to avoid conflicts. The number of workers at the project site at any one time would vary depending upon the construction element being implemented; however, the peak number of workers is expected to range from 150 to 200 persons.

3.9.2. Construction-Period Access Operations

The proposed new main school building would be constructed in Phase 1 north of the football / soccer / track facility. The staging area for Phase 1 will be focused on the northeast corner of the site. Access for employees, equipment, and materials may occur from both S Henderson Street at the western access driveway and from 53rd Avenue S at the north. Current construction planning anticipates that large-truck access for early site work will primarily occur from S Henderson Street; large-truck access during Phase 1 would first occur from S Henderson Street and then transition to 53rd Avenue S. Large-truck access

[36] Email communications, P. McGlothlin – Senior Project Manager, Lydig Construction, April and June, 2021.

during Phase 2 would occur from a combination of both access points with final-stage construction being entirely accessed from S Henderson Street. Daily access for construction employee vehicles and smaller trucks are expected to occur via 53rd Avenue S for the duration of the construction effort.

During construction, pedestrians (including students) will be routed around construction activities using temporary walkways, fencing, and signage, but movements around the campus would be partially restricted. Student and staff access between the school buildings and the athletic fields would be provided along designated walking paths managed with coordinated delivery times and dedicated flaggers with access control fencing and gates, as needed. Due to their existing narrow width, construction access may affect or require interim modifications to the existing access driveways on S Henderson Street.

The curb-side frontage on the north side of S Henderson Street, which is currently used for school-bus load/unload, would remain and is expected to adequately accommodate the number of buses that serve the school during the construction effort, until the on-site SPED bus load area is completed.

3.9.3. Construction-Period Parking Conditions

Parking that is currently located along the east side of the ball fields and north of and surrounding the auto shop and performing arts center would be unavailable since access to those areas would be eliminated for construction and staging. In addition, two portable classrooms may be temporarily placed in the main parking lot and could displace 12 spaces. Minor modifications to other on-site parking may also occur during various stages of construction; however, current construction planning indicates the project would retain parking supply for 76 vehicles (or 88 vehicles if portables are not placed in the main lot). Based on the historical parking demand rates, this could result in added parking overspill of 32 to 42 vehicles on school days during the construction period and on-street utilization between 65% and 74%. The added demand may be noticeable to residents living near the school, but it would not represent a significant adverse impact to parking.

The loss of 32 to 42 spaces during construction could cause added overspill to street parking during events held at the school and could result in increased frequency for utilization approaching or above 85%. Therefore, an event parking management plan is recommended for the construction period to reduce demand and minimize concurrent large events.

For construction employee parking, the *Student and Community Workforce Agreement (SCWA)*,[37] requires that either on-site or on-street parking be available within four blocks of the project site or that the contractor will secure a designated lot for off-site parking and shuttle workers to and from that lot. During times with peak levels of construction employees, it is anticipated that off-site parking will be needed. Although, the construction effort is not expected to result in significant new impacts to study area parking conditions, it would be appropriate for the school to periodically review the on-site parking utilization to determine if adjustments to student parking policies or temporary parking locations should be considered during the major construction phases.

[37] SPS, *SCWA Master Template*, Adopted and Executed October 1, 2020.

4. SUMMARY AND RECOMMENDATIONS

The following sections summarize the findings and recommendations of the analysis.

4.1. Short-Term Conditions – Construction

- Construction activities at the site would occur in phases while the school remains open and in operation for the duration of the effort. Construction is planned to begin in 2022, and be substantially completed by August 2025.
- During construction, pedestrians (including students) will be routed around construction activities using temporary walkways, fencing, and signage. Movements around the campus would be partially restricted over the length of construction.
- Parking supply on the campus may fluctuate during the construction effort; however, current construction planning indicates the project would retain parking supply for 76 vehicles (or 88 vehicles if portables are not placed in the main lot). On-street utilization could increase to between 65% and 74% on school days during the construction effort, which may be noticeable to residents living near the school, but it would not represent a significant adverse impact to parking.
- During times with peak levels of construction employees, it is anticipated that the SCWA will require off-site parking with a shuttle connection to the site.
- The Phase 1 earthwork and transport effort would haul about 21,600 cy over two to three months beginning in summer 2022 and could generate an average of 18 to 30 truckloads per day, and 4 to 8 truck trips per hour on an average day. The Phase 2 earthwork and transport effort would haul about 26,550 cy over two to three months beginning in summer 2024 and could generate 22 to 35 truckloads per day, and 3 to 9 truck trips per hour on an average day.
- Large-truck access for early site work will primarily occur from S Henderson Street; large-truck access during Phase 1 would first occur from S Henderson Street and then transition to 53rd Avenue S. Large-truck access during Phase 2 would occur from a combination of both access points with final-stage construction being entirely accessed from S Henderson Street. Daily access for construction employee vehicles and smaller trucks are expected to occur via 53rd Avenue S for the duration of the construction effort.

It is recommended that the contractor and SPS develop a Construction Transportation Management Plan that addresses student and staff access to, from, and within campus during each major construction phase. Details to be included in this plan are described in Section 4.3.

4.2. Long-Term Conditions – Operations

- With the proposed replacement and expanded capacity, Rainier Beach High School could have enrollment of up to 1,600 students with between 130 and 160 employees when enrolled to capacity. This is nearly double the school's existing enrollment of 762 students and 85 staff.
- When fully enrolled at its proposed capacity (not expected for 10 or more years after completion), the school is estimated to generate increases of 300 trips (165 in, 135 out) in the morning peak hour (8:00 to 9:00 A.M.), 210 trips (80 in, 130 out) in the afternoon peak hour (3:15 to 4:15 P.M.); and 90 trips in the PM peak hour (4:30 to 5:30 P.M.).
- The additional traffic and pedestrian activity generated by the proposed expanded and reconfigured Rainier Beach High School is expected to add some delay to several study-area intersections (up to 5.4 seconds of delay per vehicle); however, all seven study-area intersections are forecast to remain operating at LOS D or better during all three analysis peak hours. The project would not result is significant adverse impacts to study-area traffic operating conditions.

- Analysis of the site access driveways indicates all three would operate at LOS A overall and all movements would operate at LOS C or better during all three analysis periods with the project.
- The expanded school with enrollment of up to 1,600 students could generate a peak school-day demand ranging from 224 to 264 vehicles. With the proposed on-site supply (about 190 spaces), the expanded school could generate excess demand of between 24 and 64 vehicles that may occur along on-street parking in the site vicinity. On-street parking utilization in the study area is expected to remain between 65% and 77% with between 80 and 120 unused spaces. The added school day demand would not represent a significant adverse impact.
- The school would continue to host evening events regularly during the school year. Two of the larger events—the Open Houses—are anticipated to experience higher levels of attendance and participation when the school is enrolled to its proposed enrollment capacity. Since on-site parking for these two events is typically full, any added demand would be expected to occur on-street surrounding the site.
- Capacity events in the performing arts center could generate parking demand between 160 and 220 vehicles, nearly all of which could be accommodated on site. However, as currently occurs, a full event in the gymnasium (such as a well-attended basketball game) could cause parking demand to exceed the on-site supply and spill over to on-street parking. The on-street supply could accommodate the overflow demand of some of the larger events at the high school. However, for the largest events, all on-street parking along the roadways surrounding the school site could be at or above capacity. These conditions likely already occur occasionally with well-attended basketball games and the change in school enrollment capacity is not expected to change these existing conditions.

In order to mitigate potential parking impacts of large events, an Event Parking Management Plan is recommended and elements of the recommended plan are re summarized in the following section.

4.3. Recommendations

The following identifies measures to reduce adverse impacts during short-term construction and long-term operations of the Rainier Beach High School Replacement project.

4.3.1. Short-Term Conditions – Construction

A. **Construction Transportation Management Plan (CTMP):** The District should require the selected contractor to develop a Construction Transportation Management Plan (CTMP) that addresses traffic and pedestrian control during each major construction phase of the new facility. It would define truck routes, lane closures, walkway closures, and parking or load/unload area disruptions, as necessary. To the extent possible, the CTMP would direct trucks along the shortest route to arterials and away from residential streets to avoid unnecessary conflicts with resident and pedestrian activity. The CTMP may also include measures to keep adjacent streets clean on a daily basis at the truck exit points (such as street sweeping or on-site truck wheel cleaning) to reduce tracking dirt offsite.

B. **Construction-period Parking Management Plan:** Due to the temporary loss of on-site parking and added event-related parking overspill to on-street parking, SPS and school administration staff should develop an Event Parking Management Plan for implementation during the construction period. The plan would encourage students and families to use non-auto modes (e.g., Metro and Link service) for events and expand on existing practices of school staff who already work to avoid two large events on the same night and communicate with SPR when there is a large school event to avoid overlapping parks events.

4.3.2. Long-Term Conditions – Operations

C. **Event Management Plan:** Prior to each school year, the SPS should work with the school principal to develop an Event Management Plan (building on existing practices) to reduce parking impacts during large evening events (those expected to have 830 or more attendees/participants). Measures could include: 1) Avoid scheduling large in-school events concurrent with a large event at the Southeast Athletic Complex; 2) providing information to families about transportation alternatives for the events (e.g., Metro and Link service details); and 3) separating large events by grade to reduce overall attendance on any given evening.

D. **Develop Neighborhood Communication Plan for School Events:** The District and school administration should develop a neighborhood communication plan to inform nearby neighbors of large events each year. The plan should be updated annually (or as events are scheduled) and should provide information about the dates, times, and rough magnitude of attendance. The communication would be intended to allow neighbors to plan for the occasional increase in on-street parking demand that would occur with large events.

E. **Update right-of-way and curb-side signage:** The District should work with SDOT to confirm the locations, extent, and signage (such as times of restrictions) of the school-bus load zone on the north side of S Henderson Street.

F. **Coordinate with Metro Transit:** The District should coordinate with Metro to confirm transit service availability and capacity as enrollment approaches its design capacity of 1,600 students.

APPENDIX A

LEVEL OF SERVICE DEFINITIONS

Levels of service (LOS) are qualitative descriptions of traffic operating conditions. These levels of service are designated with letters ranging from LOS A, which is indicative of good operating conditions with little or no delay, to LOS F, which is indicative of stop-and-go conditions with frequent and lengthy delays. Levels of service for this analysis were developed using procedures presented in the *Highway Capacity Manual, Sixth Edition* (Transportation Research Board, 2016).

Signalized Intersections

Level of service for signalized intersections is defined in terms of average delay for all vehicles that travel through the intersection. Delay can be a cause of driver discomfort, frustration, inefficient fuel consumption, and lost travel time. Specifically, level-of-service criteria are stated in terms of the average delay per vehicle in seconds. Delay is a complex measure and is dependent on a number of variables including: number and type of vehicles by movement, intersection lane geometry, signal phasing, the amount of green time allocated to each phase, transit stops and parking maneuvers. Table A-1 shows the level of service criteria for signalized intersections from the *Highway Capacity Manual, Sixth Edition.*

Table A-1. Level of Service for Signalized Intersections

Level of Service	Average Control Delay Per Vehicle
A	≤ 10 seconds
B	> 10 – 20 seconds
C	> 20 – 35 seconds
D	> 35 – 55 seconds
E	> 55 – 80 seconds
F	> 80 seconds

Source: Transportation Research Board, Highway Capacity Manual, Exhibit 19.8, 2016.

Unsignalized Intersections

For unsignalized intersections, level of service is based on the average delay per vehicle for each turning movement. The level of service for all-way stop or roundabout-controlled intersections is based upon the average delay for all vehicles that travel through the intersection. The level of service for a one- or two-way, stop-controlled intersection, delay is related to the availability of gaps in the main street's traffic flow, and the ability of a driver to enter or pass through those gaps. Table A-2 shows the level of service criteria for unsignalized intersections from the *Highway Capacity Manual, Sixth Edition*.

Table A-2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle
A	0 – 10 seconds
B	> 10 – 15 seconds
C	> 15 – 25 seconds
D	> 25 – 35 seconds
E	> 35 – 50 seconds
F	> 50 seconds

Source: Transportation Research Board, Highway Capacity Manual, Exhibit 20.2, 2016.

APPENDIX B

PARKING UTILIZATION STUDY DATA

Project **Rainier Beach High School**

				Existing Parking Supply								
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted Parking	School Bus Only 7a-7p Exc Sat/Sun/Hol	3 Minute PLZ	30 Min L/U Only 7a-6p Everyday	King County Exempt Vehicles Only	**Total Parking Spaces**	**Total Parking Spaces - Morning**	**Total Parking Spaces - Midday**	**Total Parking Spaces - Evening**
AA	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	NE	10	0	0	0	0	**10**	**10**	**10**	**10**
AB	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	SW	9	0	0	0	0	**9**	**9**	**9**	**9**
AC	Wabash Avenue S	53rd Avenue S and 800' Boundary	NE	6	0	0	0	0	**6**	**6**	**6**	**6**
AD	Wabash Avenue S	53rd Avenue S and 800' Boundary	SW	5	0	0	0	0	**5**	**5**	**5**	**5**
AE	Wabash Avenue S	800' Boundary and Seward Park Avenue S	NE	7	0	0	0	0	**7**	**7**	**7**	**7**
AF	Wabash Avenue S	800' Boundary and Seward Park Avenue S	SW	10	0	0	0	0	**10**	**10**	**10**	**10**
AG	Seward Park Avenue S	800' Boundary and Wabash Avenue S	W	0	0	0	0	0	**0**	**0**	**0**	**0**
AH	Seward Park Avenue S	800' Boundary and Wabash Avenue S	E	1	0	0	0	0	**1**	**1**	**1**	**1**
AI	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	NE	2	0	0	0	0	**2**	**2**	**2**	**2**
AJ	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	SW	6	0	0	0	0	**6**	**6**	**6**	**6**
AK	53rd Avenue S	Wabash Avenue S and Grattan Place S	W	5	0	0	0	0	**5**	**5**	**5**	**5**
AL	53rd Avenue S	Wabash Avenue S and Grattan Place S	E	0	0	0	0	0	**0**	**0**	**0**	**0**
AM	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	NE	0	0	0	0	0	**0**	**0**	**0**	**0**
AN	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	SW	2	0	0	0	0	**2**	**2**	**2**	**2**
AO	Grattan Place S	53rd Avenue S and Dead End	NE	0	0	0	0	0	**0**	**0**	**0**	**0**
AP	Grattan Place S	53rd Avenue S and Dead End	SW	0	0	0	0	0	**0**	**0**	**0**	**0**
AQ	53rd Avenue S	Grattan Place S and Hamlet Avenue S	W	5	0	0	0	0	**5**	**5**	**5**	**5**
AR	53rd Avenue S	Grattan Place S and Hamlet Avenue S	E	0	0	0	0	0	**0**	**0**	**0**	**0**
AS	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	W	0	0	0	0	0	**0**	**0**	**0**	**0**
AT	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	E	8	0	0	0	0	**8**	**8**	**8**	**8**
AU	53rd Avenue S	Hamlet Avenue S and Dead End	W	0	0	0	0	0	**0**	**0**	**0**	**0**
AV	53rd Avenue S	Hamlet Avenue S and Dead End	E	0	0	0	0	0	**0**	**0**	**0**	**0**
AW	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	NE	18	0	0	0	0	**18**	**18**	**18**	**18**

Project **Rainier Beach High School**

				Existing Parking Supply								
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted Parking	School Bus Only 7a-7p Exc Sat/Sun/Hol	3 Minute PLZ	30 Min L/U Only 7a-6p Everyday	King County Exempt Vehicles Only	**Total Parking Spaces**	**Total Parking Spaces - Morning**	**Total Parking Spaces - Midday**	**Total Parking Spaces - Evening**
AX	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	SW	19	0	0	0	0	**19**	**19**	**19**	**19**
AY	Rainier Avenue S	800' Boundary and S Henderson Street	W	0	0	0	0	0	**0**	**0**	**0**	**0**
AZ	Rainier Avenue S	800' Boundary and S Henderson Street	E	0	0	0	0	0	**0**	**0**	**0**	**0**
BA	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	W	9	0	0	0	0	**9**	**9**	**9**	**9**
BB	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	E	13	0	0	0	0	**13**	**13**	**13**	**13**
BC	S Henderson Street	48th Avenue S and 50th Avenue S	N	11	0	0	0	0	**11**	**11**	**11**	**11**
BD	S Henderson Street	48th Avenue S and 50th Avenue S	S	6	0	0	0	0	**6**	**6**	**6**	**6**
BE	S Henderson Street	50th Avenue S and Rainier Avenue S	N	0	0	0	0	0	**0**	**0**	**0**	**0**
BF	S Henderson Street	50th Avenue S and Rainier Avenue S	S	0	0	0	0	0	**0**	**0**	**0**	**0**
BG	S Henderson Street	Rainier Avenue S and 53rd Avenue S	N	0	6	0	0	0	**6**	**0**	**0**	**6**
BH	S Henderson Street	Rainier Avenue S and 53rd Avenue S	S	0	0	0	0	0	**0**	**0**	**0**	**0**
BI	S Henderson Street	53rd Avenue S and Seward Park Avenue S	N	0	13	0	0	0	**13**	**0**	**0**	**13**
BJ	S Henderson Street	53rd Avenue S and Seward Park Avenue S	S	0	0	0	0	3	**3**	**0**	**0**	**0**
BK	50th Avenue S	S Henderson Street and S Director Street	W	13	0	0	0	0	**13**	**13**	**13**	**13**
BL	50th Avenue S	S Henderson Street and S Director Street	E	0	0	0	0	0	**0**	**0**	**0**	**0**
BM	Rainier Avenue S	S Henderson Street and S Director N Street	W	0	0	0	0	0	**0**	**0**	**0**	**0**
BN	Rainier Avenue S	S Henderson Street and S Director N Street	E	0	0	0	0	0	**0**	**0**	**0**	**0**
BO	Seward Park Avenue S	S Henderson Street and S Fisher Place	W	0	0	0	0	0	**0**	**0**	**0**	**0**
BP	Seward Park Avenue S	S Henderson Street and S Fisher Place	E	7	0	3	0	0	**10**	**10**	**10**	**10**
BQ	S Director Street	Dead End and Rainier N Avenue S	N	0	0	0	0	0	**0**	**0**	**0**	**0**
BR	S Director Street	Dead End and Rainier N Avenue S	S	0	0	0	0	0	**0**	**0**	**0**	**0**
BS	Rainier Avenue S	S Director N Street and S Director S Street	W	0	0	0	0	0	**0**	**0**	**0**	**0**
BT	Rainier Avenue S	S Director N Street and S Director S Street	E	0	0	0	0	0	**0**	**0**	**0**	**0**

Project **Rainier Beach High School**

				Existing Parking Supply								
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted Parking	School Bus Only 7a-7p Exc Sat/Sun/Hol	3 Minute PLZ	30 Min L/U Only 7a-6p Everyday	King County Exempt Vehicles Only	**Total Parking Spaces**	**Total Parking Spaces - Morning**	**Total Parking Spaces - Midday**	**Total Parking Spaces - Evening**
BU	S Director Street	Rainier S Avenue S and 800' Boundary	N	1	0	0	0	0	**1**	**1**	**1**	**1**
BV	S Director Street	Rainier S Avenue S and 800' Boundary	S	4	0	0	0	0	**4**	**4**	**4**	**4**
BW	Rainier Avenue S	S Director S Street and S Fisher Place	W	0	0	0	0	0	**0**	**0**	**0**	**0**
BX	Rainier Avenue S	S Director S Street and S Fisher Place	E	0	0	0	0	0	**0**	**0**	**0**	**0**
BY	S Fisher Place	800' Boundary and Seward Park Avenue S	N	0	0	0	0	0	**0**	**0**	**0**	**0**
BZ	S Fisher Place	800' Boundary and Seward Park Avenue S	S	0	0	0	0	0	**0**	**0**	**0**	**0**
CA	Seward Park Avenue S	S Fisher Place and 800' Boundary	SW	0	0	0	0	0	**0**	**0**	**0**	**0**
CB	Seward Park Avenue S	S Fisher Place and 800' Boundary	NE	4	0	0	0	0	**4**	**4**	**4**	**4**
			Total	**181**	**19**	**3**	**0**	**3**	**206**	**184**	**184**	**203**

Project **Rainier Beach High School**

				Existing Supply			Existing Parking Occupancy																	
							Early Morning					Mid-Morning					Mid-Morning (Historic)			Evening				
							7:00 A.M. to 7:45 A.M					10:30 A.M. to 11:15 A.M.								7:30 P.M to 8:15 P.M.				
Block Face ID	Street Name	Street Segment	Side of Street	Total Parking Spaces - Morning	Total Parking Spaces - Midday	Total Parking Spaces - Evening	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average	5/22/2017 Monday (11:40 A.M.)	5/9/2019 Thursday	Average	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average
AA	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	NE	**10**	**10**	**10**	0	0	0	0	0	1	0	0	2	1	4	5	5	0	0	0	1	0
AB	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	SW	**9**	**9**	**9**	2	2	4	3	3	2	1	2	2	2	2	3	3	2	2	3	5	3
AC	Wabash Avenue S	53rd Avenue S and 800' Boundary	NE	**6**	**6**	**6**	8	6	7	8	7	7	4	6	6	6	3	2	3	7	4	7	5	6
AD	Wabash Avenue S	53rd Avenue S and 800' Boundary	SW	**5**	**5**	**5**	1	1	0	0	1	1	1	2	1	1	2	2	2	1	1	0	0	1
AE	Wabash Avenue S	800' Boundary and Seward Park Avenue S	NE	**7**	**7**	**7**	4	4	4	4	4	5	4	4	4	4	3	3	3	5	6	5	8	6
AF	Wabash Avenue S	800' Boundary and Seward Park Avenue S	SW	**10**	**10**	**10**	6	7	4	6	6	6	7	5	4	6	1	1	1	8	7	7	5	7
AG	Seward Park Avenue S	800' Boundary and Wabash Avenue S	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AH	Seward Park Avenue S	800' Boundary and Wabash Avenue S	E	**1**	**1**	**1**	1	2	1	2	2	1	2	1	2	2	1	2	2	1	1	2	1	1
AI	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	NE	**2**	**2**	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AJ	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	SW	**6**	**6**	**6**	0	0	0	0	0	0	0	0	0	0	3	2	3	2	1	6	3	3
AK	53rd Avenue S	Wabash Avenue S and Grattan Place S	W	**5**	**5**	**5**	3	3	3	3	3	2	2	2	2	2	0	3	2	3	3	3	3	3
AL	53rd Avenue S	Wabash Avenue S and Grattan Place S	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	NE	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AN	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	SW	**2**	**2**	**2**	3	3	3	2	3	2	1	1	1	1	0	2	1	4	4	3	2	3
AO	Grattan Place S	53rd Avenue S and Dead End	NE	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AP	Grattan Place S	53rd Avenue S and Dead End	SW	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AQ	53rd Avenue S	Grattan Place S and Hamlet Avenue S	W	**5**	**5**	**5**	1	2	1	2	2	0	2	0	1	1	4	0	2	1	1	1	1	1
AR	53rd Avenue S	Grattan Place S and Hamlet Avenue S	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AS	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AT	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	E	**8**	**8**	**8**	3	3	2	3	3	2	3	2	3	3	2	5	4	2	3	3	2	3
AU	53rd Avenue S	Hamlet Avenue S and Dead End	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AV	53rd Avenue S	Hamlet Avenue S and Dead End	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
AW	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	NE	**18**	**18**	**18**	10	10	11	9	10	6	7	7	6	7	7	9	8	8	10	8	8	9
AX	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	SW	**19**	**19**	**19**	11	12	8	9	10	11	11	6	8	9	7	10	9	12	12	9	10	11
AY	Rainier Avenue S	800' Boundary and S Henderson Street	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AZ	Rainier Avenue S	800' Boundary and S Henderson Street	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BA	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	W	**9**	**9**	**9**	2	2	1	2	2	4	3	2	2	3	8	8	8	0	2	3	0	1
BB	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	E	**13**	**13**	**13**	5	3	5	4	4	7	4	7	3	5	10	8	9	4	3	3	5	4
BC	S Henderson Street	48th Avenue S and 50th Avenue S	N	**11**	**11**	**11**	1	1	5	5	3	4	6	5	7	6	8	4	6	3	1	3	4	3
BD	S Henderson Street	48th Avenue S and 50th Avenue S	S	**6**	**6**	**6**	6	5	4	3	5	5	3	3	5	4	5	6	6	4	4	4	4	4
BE	S Henderson Street	50th Avenue S and Rainier Avenue S	N	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BF	S Henderson Street	50th Avenue S and Rainier Avenue S	S	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BG	S Henderson Street	Rainier Avenue S and 53rd Avenue S	N	**0**	**0**	**6**	3	4	3	4	4	3	4	1	3	3	4	1	3	3	4	5	3	4
BH	S Henderson Street	Rainier Avenue S and 53rd Avenue S	S	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BI	S Henderson Street	53rd Avenue S and Seward Park Avenue S	N	**0**	**0**	**13**	8	7	7	10	8	11	10	13	12	12	9	1	5	7	4	8	7	7
BJ	S Henderson Street	53rd Avenue S and Seward Park Avenue S	S	**0**	**0**	**0**	1	0	3	0	1	2	1	3	1	2	1	0	1	0	0	0	0	0
BK	50th Avenue S	S Henderson Street and S Director Street	W	**13**	**13**	**13**	2	2	2	2	2	2	2	2	2	2	1	3	2	2	3	2	2	2
BL	50th Avenue S	S Henderson Street and S Director Street	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BM	Rainier Avenue S	S Henderson Street and S Director N Street	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BN	Rainier Avenue S	S Henderson Street and S Director N Street	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Project **Rainier Beach High School**

				Existing Supply			Existing Parking Occupancy																	
							Early Morning					Mid-Morning					Mid-Morning (Historic)			Evening				
							7:00 A.M. to 7:45 A.M					10:30 A.M. to 11:15 A.M.								7:30 P.M to 8:15 P.M.				
Block Face ID	Street Name	Street Segment	Side of Street	Total Parking Spaces - Morning	Total Parking Spaces - Midday	Total Parking Spaces - Evening	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average	5/22/2017 Monday (11:40 A.M.)	5/9/2019 Thursday	Average	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average
BO	Seward Park Avenue S	S Henderson Street and S Fisher Place	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BP	Seward Park Avenue S	S Henderson Street and S Fisher Place	E	**10**	**10**	**10**	7	6	7	7	7	6	4	7	7	6	3	5	4	5	6	7	8	7
BQ	S Director Street	Dead End and Rainier N Avenue S	N	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BR	S Director Street	Dead End and Rainier N Avenue S	S	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BS	Rainier Avenue S	S Director N Street and S Director S Street	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BT	Rainier Avenue S	S Director N Street and S Director S Street	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BU	S Director Street	Rainier S Avenue S and 800' Boundary	N	**1**	**1**	**1**	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0
BV	S Director Street	Rainier S Avenue S and 800' Boundary	S	**4**	**4**	**4**	0	1	0	0	0	0	1	0	0	0	2	0	1	0	0	0	0	0
BW	Rainier Avenue S	S Director S Street and S Fisher Place	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BX	Rainier Avenue S	S Director S Street and S Fisher Place	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BY	S Fisher Place	800' Boundary and Seward Park Avenue S	N	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BZ	S Fisher Place	800' Boundary and Seward Park Avenue S	S	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA	Seward Park Avenue S	S Fisher Place and 800' Boundary	SW	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CB	Seward Park Avenue S	S Fisher Place and 800' Boundary	NE	**4**	**4**	**4**	4	3	4	4	4	4	2	3	3	3	2	3	3	3	3	3	4	3
			Total	**184**	**184**	**203**	**92**	**89**	**89**	**92**	**91**	**94**	**86**	**84**	**87**	**88**	**92**	**89**	**91**	**88**	**85**	**95**	**91**	**90**

Project **Rainier Beach High School**

				Existing Parking Supply			Existing Parking Utilization																	
							Early Morning					Mid-Morning					Mid-Morning (Historic)			Evening				
							7:00 A.M. to 7:45 A.M					10:30 A.M. to 11:15 A.M.								7:30 P.M to 8:15 P.M.				
Block Face ID	Street Name	Street Segment	Side of Street	Total Parking Spaces - Morning	Total Parking Spaces - Midday	Total Parking Spaces - Evening	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average	5/22/2017 Monday (11:40 A.M.)	5/9/2019 Thursday	Average	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average
AA	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	NE	**10**	**10**	**10**	0%	0%	0%	0%	0%	10%	0%	0%	20%	8%	40%	50%	45%	0%	0%	0%	10%	3%
AB	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	SW	**9**	**9**	**9**	22%	22%	44%	33%	30%	22%	11%	22%	22%	19%	22%	33%	28%	22%	22%	33%	56%	33%
AC	Wabash Avenue S	53rd Avenue S and 800' Boundary	NE	**6**	**6**	**6**	133%	100%	117%	133%	121%	117%	67%	100%	100%	96%	50%	33%	42%	117%	67%	117%	83%	96%
AD	Wabash Avenue S	53rd Avenue S and 800' Boundary	SW	**5**	**5**	**5**	20%	20%	0%	0%	10%	20%	20%	40%	20%	25%	40%	40%	40%	20%	20%	0%	0%	10%
AE	Wabash Avenue S	800' Boundary and Seward Park Avenue S	NE	**7**	**7**	**7**	57%	57%	57%	57%	57%	71%	57%	57%	57%	61%	43%	43%	43%	71%	86%	71%	114%	86%
AF	Wabash Avenue S	800' Boundary and Seward Park Avenue S	SW	**10**	**10**	**10**	60%	70%	40%	60%	58%	60%	70%	50%	40%	55%	10%	10%	10%	80%	70%	70%	50%	68%
AG	Seward Park Avenue S	800' Boundary and Wabash Avenue S	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AH	Seward Park Avenue S	800' Boundary and Wabash Avenue S	E	**1**	**1**	**1**	100%	200%	100%	200%	150%	100%	200%	100%	200%	150%	100%	200%	150%	100%	100%	200%	100%	125%
AI	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	NE	**2**	**2**	**2**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AJ	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	SW	**6**	**6**	**6**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	33%	42%	33%	17%	100%	50%	50%
AK	53rd Avenue S	Wabash Avenue S and Grattan Place S	W	**5**	**5**	**5**	60%	60%	60%	60%	60%	40%	40%	40%	40%	40%	0%	60%	30%	60%	60%	60%	60%	60%
AL	53rd Avenue S	Wabash Avenue S and Grattan Place S	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AM	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	NE	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AN	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	SW	**2**	**2**	**2**	150%	150%	150%	100%	138%	100%	50%	50%	50%	63%	0%	100%	50%	200%	200%	150%	100%	163%
AO	Grattan Place S	53rd Avenue S and Dead End	NE	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AP	Grattan Place S	53rd Avenue S and Dead End	SW	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AQ	53rd Avenue S	Grattan Place S and Hamlet Avenue S	W	**5**	**5**	**5**	20%	40%	20%	40%	30%	0%	40%	0%	20%	15%	80%	0%	40%	20%	20%	20%	20%	20%
AR	53rd Avenue S	Grattan Place S and Hamlet Avenue S	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AS	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AT	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	E	**8**	**8**	**8**	38%	38%	25%	38%	35%	25%	38%	25%	38%	32%	25%	63%	44%	25%	38%	38%	25%	32%
AU	53rd Avenue S	Hamlet Avenue S and Dead End	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AV	53rd Avenue S	Hamlet Avenue S and Dead End	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AW	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	NE	**18**	**18**	**18**	56%	56%	61%	50%	56%	33%	39%	39%	33%	36%	39%	50%	45%	44%	56%	44%	44%	47%
AX	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	SW	**19**	**19**	**19**	58%	63%	42%	47%	53%	58%	58%	32%	42%	48%	37%	53%	45%	63%	63%	47%	53%	57%
AY	Rainier Avenue S	800' Boundary and S Henderson Street	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AZ	Rainier Avenue S	800' Boundary and S Henderson Street	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BA	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	W	**9**	**9**	**9**	22%	22%	11%	22%	19%	44%	33%	22%	22%	30%	89%	89%	89%	0%	22%	33%	0%	14%
BB	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	E	**13**	**13**	**13**	38%	23%	38%	31%	33%	54%	31%	54%	23%	41%	77%	62%	70%	31%	23%	23%	38%	29%
BC	S Henderson Street	48th Avenue S and 50th Avenue S	N	**11**	**11**	**11**	9%	9%	45%	45%	27%	36%	55%	45%	64%	50%	73%	36%	55%	27%	9%	27%	36%	25%
BD	S Henderson Street	48th Avenue S and 50th Avenue S	S	**6**	**6**	**6**	100%	83%	67%	50%	75%	83%	50%	50%	83%	67%	83%	100%	92%	67%	67%	67%	67%	67%
BE	S Henderson Street	50th Avenue S and Rainier Avenue S	N	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BF	S Henderson Street	50th Avenue S and Rainier Avenue S	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BG	S Henderson Street	Rainier Avenue S and 53rd Avenue S	N	**0**	**0**	**6**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	50%	67%	83%	50%	63%
BH	S Henderson Street	Rainier Avenue S and 53rd Avenue S	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BI	S Henderson Street	53rd Avenue S and Seward Park Avenue S	N	**0**	**0**	**13**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	54%	31%	62%	54%	50%
BJ	S Henderson Street	53rd Avenue S and Seward Park Avenue S	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BK	50th Avenue S	S Henderson Street and S Director Street	W	**13**	**13**	**13**	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	8%	23%	16%	15%	23%	15%	15%	17%
BL	50th Avenue S	S Henderson Street and S Director Street	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BM	Rainier Avenue S	S Henderson Street and S Director N Street	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BN	Rainier Avenue S	S Henderson Street and S Director N Street	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Project **Rainier Beach High School**

				Existing Parking Supply			Existing Parking Utilization																	
							Early Morning					Mid-Morning					Mid-Morning (Historic)			Evening				
							7:00 A.M. to 7:45 A.M					10:30 A.M. to 11:15 A.M.								7:30 P.M to 8:15 P.M.				
Block Face ID	Street Name	Street Segment	Side of Street	Total Parking Spaces - Morning	Total Parking Spaces - Midday	Total Parking Spaces - Evening	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average	5/22/2017 Monday (11:40 A.M.)	5/9/2019 Thursday	Average	Tuesday 2/23/2021	Thursday 2/25/21	Tuesday 3/23/2021	Thursday 3/25/21	Average
BO	Seward Park Avenue S	S Henderson Street and S Fisher Place	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BP	Seward Park Avenue S	S Henderson Street and S Fisher Place	E	**10**	**10**	**10**	70%	60%	70%	70%	68%	60%	40%	70%	70%	60%	30%	50%	40%	50%	60%	70%	80%	65%
BQ	S Director Street	Dead End and Rainier N Avenue S	N	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BR	S Director Street	Dead End and Rainier N Avenue S	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BS	Rainier Avenue S	S Director N Street and S Director S Street	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BT	Rainier Avenue S	S Director N Street and S Director S Street	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BU	S Director Street	Rainier S Avenue S and 800' Boundary	N	**1**	**1**	**1**	0%	0%	0%	0%	0%	0%	100%	0%	0%	25%	0%	100%	50%	0%	0%	0%	0%	0%
BV	S Director Street	Rainier S Avenue S and 800' Boundary	S	**4**	**4**	**4**	0%	25%	0%	0%	6%	0%	25%	0%	0%	6%	50%	0%	25%	0%	0%	0%	0%	0%
BW	Rainier Avenue S	S Director S Street and S Fisher Place	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BX	Rainier Avenue S	S Director S Street and S Fisher Place	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BY	S Fisher Place	800' Boundary and Seward Park Avenue S	N	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BZ	S Fisher Place	800' Boundary and Seward Park Avenue S	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CA	Seward Park Avenue S	S Fisher Place and 800' Boundary	SW	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CB	Seward Park Avenue S	S Fisher Place and 800' Boundary	NE	**4**	**4**	**4**	100%	75%	100%	100%	94%	100%	50%	75%	75%	75%	50%	75%	63%	75%	75%	75%	100%	81%
			Total	**184**	**184**	**203**	**50%**	**48%**	**48%**	**50%**	**49%**	**51%**	**47%**	**46%**	**47%**	**48%**	**50%**	**48%**	**49%**	**43%**	**42%**	**47%**	**45%**	**44%**

Project **Rainier Beach High School**

				Overall Parking Supply								
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted Parking	School Bus Only 7a-7p Exc Sat/Sun/Hol	3 Minute PLZ	30 Min L/U Only 7a-6p Everyday	King County Exempt Vehicles Only	**Total Parking Spaces**	**Total Parking Spaces - Morning**	**Total Parking Spaces - Midday**	**Total Parking Spaces - Evening**
AA	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	NE	10	0	0	0	0	**10**	**10**	**10**	**10**
AB	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	SW	9	0	0	0	0	**9**	**9**	**9**	**9**
AC	Wabash Avenue S	53rd Avenue S and 800' Boundary	NE	6	0	0	0	0	**6**	**6**	**6**	**6**
AD	Wabash Avenue S	53rd Avenue S and 800' Boundary	SW	5	0	0	0	0	**5**	**5**	**5**	**5**
AE	Wabash Avenue S	800' Boundary and Seward Park Avenue S	NE	7	0	0	0	0	**7**	**7**	**7**	**7**
AF	Wabash Avenue S	800' Boundary and Seward Park Avenue S	SW	10	0	0	0	0	**10**	**10**	**10**	**10**
AG	Seward Park Avenue S	800' Boundary and Wabash Avenue S	W	0	0	0	0	0	**0**	**0**	**0**	**0**
AH	Seward Park Avenue S	800' Boundary and Wabash Avenue S	E	1	0	0	0	0	**1**	**1**	**1**	**1**
AI	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	NE	2	0	0	0	0	**2**	**2**	**2**	**2**
AJ	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	SW	6	0	0	0	0	**6**	**6**	**6**	**6**
AK	53rd Avenue S	Wabash Avenue S and Grattan Place S	W	5	0	0	0	0	**5**	**5**	**5**	**5**
AL	53rd Avenue S	Wabash Avenue S and Grattan Place S	E	0	0	0	0	0	**0**	**0**	**0**	**0**
AM	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	NE	0	0	0	0	0	**0**	**0**	**0**	**0**
AN	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	SW	2	0	0	0	0	**2**	**2**	**2**	**2**
AO	Grattan Place S	53rd Avenue S and Dead End	NE	0	0	0	0	0	**0**	**0**	**0**	**0**
AP	Grattan Place S	53rd Avenue S and Dead End	SW	0	0	0	0	0	**0**	**0**	**0**	**0**
AQ	53rd Avenue S	Grattan Place S and Hamlet Avenue S	W	5	0	0	0	0	**5**	**5**	**5**	**5**
AR	53rd Avenue S	Grattan Place S and Hamlet Avenue S	E	0	0	0	0	0	**0**	**0**	**0**	**0**
AS	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	W	0	0	0	0	0	**0**	**0**	**0**	**0**
AT	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	E	8	0	0	0	0	**8**	**8**	**8**	**8**
AU	53rd Avenue S	Hamlet Avenue S and Dead End	W	0	0	0	0	0	**0**	**0**	**0**	**0**
AV	53rd Avenue S	Hamlet Avenue S and Dead End	E	0	0	0	0	0	**0**	**0**	**0**	**0**
AW	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	NE	18	0	0	0	0	**18**	**18**	**18**	**18**
AX	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	SW	19	0	0	0	0	**19**	**19**	**19**	**19**

Project **Rainier Beach High School**

				Overall Parking Supply								
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted Parking	School Bus Only 7a-7p Exc Sat/Sun/Hol	3 Minute PLZ	30 Min L/U Only 7a-6p Everyday	King County Exempt Vehicles Only	**Total Parking Spaces**	**Total Parking Spaces - Morning**	**Total Parking Spaces - Midday**	**Total Parking Spaces - Evening**
AY	Rainier Avenue S	800' Boundary and S Henderson Street	W	0	0	0	0	0	**0**	**0**	**0**	**0**
AZ	Rainier Avenue S	800' Boundary and S Henderson Street	E	0	0	0	0	0	**0**	**0**	**0**	**0**
BA	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	W	9	0	0	0	0	**9**	**9**	**9**	**9**
BB	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	E	13	0	0	0	0	**13**	**13**	**13**	**13**
BC	S Henderson Street	48th Avenue S and 50th Avenue S	N	11	0	0	0	0	**11**	**11**	**11**	**11**
BD	S Henderson Street	48th Avenue S and 50th Avenue S	S	6	0	0	0	0	**6**	**6**	**6**	**6**
BE	S Henderson Street	50th Avenue S and Rainier Avenue S	N	0	0	0	0	0	**0**	**0**	**0**	**0**
BF	S Henderson Street	50th Avenue S and Rainier Avenue S	S	0	0	0	0	0	**0**	**0**	**0**	**0**
BG	S Henderson Street	Rainier Avenue S and 53rd Avenue S	N	0	6	0	0	0	**6**	**0**	**0**	**6**
BH	S Henderson Street	Rainier Avenue S and 53rd Avenue S	S	0	0	0	0	0	**0**	**0**	**0**	**0**
BI	S Henderson Street	53rd Avenue S and Seward Park Avenue S	N	0	13	0	0	0	**13**	**0**	**0**	**13**
BJ	S Henderson Street	53rd Avenue S and Seward Park Avenue S	S	0	0	0	0	3	**3**	**0**	**0**	**0**
BK	50th Avenue S	S Henderson Street and S Director Street	W	13	0	0	0	0	**13**	**13**	**13**	**13**
BL	50th Avenue S	S Henderson Street and S Director Street	E	0	0	0	0	0	**0**	**0**	**0**	**0**
BM	Rainier Avenue S	S Henderson Street and S Director N Street	W	0	0	0	0	0	**0**	**0**	**0**	**0**
BN	Rainier Avenue S	S Henderson Street and S Director N Street	E	0	0	0	0	0	**0**	**0**	**0**	**0**
BO	Seward Park Avenue S	S Henderson Street and S Fisher Place	W	0	0	0	0	0	**0**	**0**	**0**	**0**
BP	Seward Park Avenue S	S Henderson Street and S Fisher Place	E	7	0	3	0	0	**10**	**10**	**10**	**10**
BQ	S Director Street	Dead End and Rainier N Avenue S	N	0	0	0	0	0	**0**	**0**	**0**	**0**
BR	S Director Street	Dead End and Rainier N Avenue S	S	0	0	0	0	0	**0**	**0**	**0**	**0**
BS	Rainier Avenue S	S Director N Street and S Director S Street	W	0	0	0	0	0	**0**	**0**	**0**	**0**
BT	Rainier Avenue S	S Director N Street and S Director S Street	E	0	0	0	0	0	**0**	**0**	**0**	**0**
BU	S Director Street	Rainier S Avenue S and 800' Boundary	N	1	0	0	0	0	**1**	**1**	**1**	**1**
BV	S Director Street	Rainier S Avenue S and 800' Boundary	S	4	0	0	0	0	**4**	**4**	**4**	**4**

Project **Rainier Beach High School**

				Overall Parking Supply								
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted Parking	School Bus Only 7a-7p Exc Sat/Sun/Hol	3 Minute PLZ	30 Min L/U Only 7a-6p Everyday	King County Exempt Vehicles Only	**Total Parking Spaces**	**Total Parking Spaces - Morning**	**Total Parking Spaces - Midday**	**Total Parking Spaces - Evening**
BW	Rainier Avenue S	S Director S Street and S Fisher Place	W	0	0	0	0	0	**0**	**0**	**0**	**0**
BX	Rainier Avenue S	S Director S Street and S Fisher Place	E	0	0	0	0	0	**0**	**0**	**0**	**0**
BY	S Fisher Place	800' Boundary and Seward Park Avenue S	N	0	0	0	0	0	**0**	**0**	**0**	**0**
BZ	S Fisher Place	800' Boundary and Seward Park Avenue S	S	0	0	0	0	0	**0**	**0**	**0**	**0**
CA	Seward Park Avenue S	S Fisher Place and 800' Boundary	SW	0	0	0	0	0	**0**	**0**	**0**	**0**
CB	Seward Park Avenue S	S Fisher Place and 800' Boundary	NE	4	0	0	0	0	**4**	**4**	**4**	**4**
YA	50th Avenue S	800' Boundary and S Cloverdale Street	W	0	0	0	0	0	**0**	**0**	**0**	**0**
YB	50th Avenue S	800' Boundary and S Cloverdale Street	E	5	0	0	0	0	**5**	**5**	**5**	**5**
YC	Rainier Avenue S	800' Boundary and S Cloverdale Street	W	0	0	0	0	0	**0**	**0**	**0**	**0**
YD	Rainier Avenue S	800' Boundary and S Cloverdale Street	E	5	0	0	1	0	**6**	**6**	**6**	**6**
YE	Wabash Avenue S	800' Boundary and Cloverdale Place S	SW	19	0	0	0	0	**19**	**19**	**19**	**19**
YF	Wabash Avenue S	800' Boundary and Cloverdale Place S	NE	19	0	0	0	0	**19**	**19**	**19**	**19**
YG	Wolcott Avenue S	800' Boundary and Cloverdale Place S	SW	0	0	0	0	0	**0**	**0**	**0**	**0**
YH	Wolcott Avenue S	800' Boundary and Cloverdale Place S	NE	9	0	0	0	0	**9**	**9**	**9**	**9**
YI	Seward Park Avenue S	Duncan Avenue S and S Grattan Street	W	0	0	0	0	0	**0**	**0**	**0**	**0**
YJ	Seward Park Avenue S	Duncan Avenue S and S Grattan Street	E	0	0	0	0	0	**0**	**0**	**0**	**0**
YK	S Cloverdale Street	800' Boundary and 50th Avenue S	N	4	0	0	0	0	**4**	**4**	**4**	**4**
YL	S Cloverdale Street	800' Boundary and 50th Avenue S	S	6	0	0	0	0	**6**	**6**	**6**	**6**
YM	S Cloverdale Street	50th Avenue S and Rainier Avenue S	N	2	0	0	0	0	**2**	**2**	**2**	**2**
YN	S Cloverdale Street	50th Avenue S and Rainier Avenue S	S	3	0	0	0	0	**3**	**3**	**3**	**3**
YO	S Cloverdale Place	Rainier Avenue S and Grattan Place S	NW	21	0	0	0	0	**21**	**21**	**21**	**21**
YP	S Cloverdale Place	Rainier Avenue S and Grattan Place S	SE	19	0	0	0	0	**19**	**19**	**19**	**19**
YQ	S Cloverdale Place	Grattan Place S and Wabash Avenue S	NW	3	0	0	0	0	**3**	**3**	**3**	**3**
YR	S Cloverdale Place	Grattan Place S and Wabash Avenue S	SE	2	0	0	0	0	**2**	**2**	**2**	**2**

Project **Rainier Beach High School**

				Overall Parking Supply								
Block Face ID	Street Name	Street Segment	Side of Street	Unrestricted Parking	School Bus Only 7a-7p Exc Sat/Sun/Hol	3 Minute PLZ	30 Min L/U Only 7a-6p Everyday	King County Exempt Vehicles Only	**Total Parking Spaces**	**Total Parking Spaces - Morning**	**Total Parking Spaces - Midday**	**Total Parking Spaces - Evening**
YS	S Cloverdale Place	Wabash Avenue S and Wolcott Avenue S	NW	8	0	0	0	0	**8**	**8**	**8**	**8**
YT	S Cloverdale Place	Wabash Avenue S and Wolcott Avenue S	SE	6	0	0	0	0	**6**	**6**	**6**	**6**
YU	S Cloverdale Place	Wolcott Avenue S and Seward Park Avenue S	NW	4	0	0	0	0	**4**	**4**	**4**	**4**
YV	S Cloverdale Place	Wolcott Avenue S and Seward Park Avenue S	SE	1	0	0	0	0	**1**	**1**	**1**	**1**
YW	S Grattan Street	Duncan Avenue S and Seward Park Avenue S	N	1	0	0	0	0	**1**	**1**	**1**	**1**
YX	S Grattan Street	Duncan Avenue S and Seward Park Avenue S	S	1	0	0	0	0	**1**	**1**	**1**	**1**
YY	Rainier Avenue S	S Cloverdale Street and Blockface AY	W	0	0	0	0	0	**0**	**0**	**0**	**0**
YZ	Rainier Avenue S	S Cloverdale Street and Block Face AZ	E	0	0	0	0	0	**0**	**0**	**0**	**0**
ZA	Grattan Place S	Cloverdale Place S and Blockface AN	SW	4	0	0	0	0	**4**	**4**	**4**	**4**
ZB	Grattan Place S	Cloverdale Place S and Blockface AM	NE	0	0	0	0	0	**0**	**0**	**0**	**0**
ZC	Wabash Avenue S	Cloverdale Place S and Blockface AB	SW	9	0	0	0	0	**9**	**9**	**9**	**9**
ZD	Wabash Avenue S	Cloverdale Place S and Blockface AA	NE	4	0	0	0	0	**4**	**4**	**4**	**4**
ZE	Wolcott Avenue S	Cloverdale Place S and Dead End	SW	1	0	0	0	0	**1**	**1**	**1**	**1**
ZF	Wolcott Avenue S	Cloverdale Place S and Dead End	NE	0	0	0	0	0	**0**	**0**	**0**	**0**
ZG	Seward Park Avenue S	800' Boundary and S Cloverdale Street	SW	0	0	0	0	0	**0**	**0**	**0**	**0**
ZH	Seward Park Avenue S	800' Boundary and S Cloverdale Street	NE	0	0	0	0	0	**0**	**0**	**0**	**0**
			Total	**337**	**19**	**3**	**1**	**3**	**363**	**341**	**341**	**360**

Project **Rainier Beach High School**

Block Face ID	Street Name	Street Segment	Side of Street	Overall Supply			Overall Occupancy											
							Early Morning			Mid-Morning			Mid-Morning (Historic)			Evening		
							7:00 A.M. to 7:45 A.M			10:30 A.M. to 11:15 A.M.						7:30 P.M to 8:15 P.M.		
				Total Parking Spaces - Morning	**Total Parking Spaces - Midday**	**Total Parking Spaces - Evening**	Tuesday 2/23/2021	Thursday 2/25/21	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average	5/22/2017 Monday (11:40 A.M.)	5/9/2019 Thursday	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average
AA	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	NE	**10**	**10**	**10**	0	0	0	0	2	1	4	5	5	0	1	1
AB	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	SW	**9**	**9**	**9**	4	3	4	2	2	2	2	3	3	3	5	4
AC	Wabash Avenue S	53rd Avenue S and 800' Boundary	NE	**6**	**6**	**6**	7	8	8	6	6	6	3	2	3	7	5	6
AD	Wabash Avenue S	53rd Avenue S and 800' Boundary	SW	**5**	**5**	**5**	0	0	0	2	1	2	2	2	2	0	0	0
AE	Wabash Avenue S	800' Boundary and Seward Park Avenue S	NE	**7**	**7**	**7**	4	4	4	4	4	4	3	3	3	5	8	7
AF	Wabash Avenue S	800' Boundary and Seward Park Avenue S	SW	**10**	**10**	**10**	4	6	5	5	4	5	1	1	1	7	5	6
AG	Seward Park Avenue S	800' Boundary and Wabash Avenue S	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
AH	Seward Park Avenue S	800' Boundary and Wabash Avenue S	E	**1**	**1**	**1**	1	2	2	1	2	2	1	2	2	2	1	2
AI	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	NE	**2**	**2**	**2**	0	0	0	0	0	0	0	0	0	0	0	0
AJ	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	SW	**6**	**6**	**6**	0	0	0	0	0	0	3	2	3	6	3	5
AK	53rd Avenue S	Wabash Avenue S and Grattan Place S	W	**5**	**5**	**5**	3	3	3	2	2	2	0	3	2	3	3	3
AL	53rd Avenue S	Wabash Avenue S and Grattan Place S	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
AM	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	NE	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
AN	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	SW	**2**	**2**	**2**	3	2	3	1	1	1	0	2	1	3	2	3
AO	Grattan Place S	53rd Avenue S and Dead End	NE	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
AP	Grattan Place S	53rd Avenue S and Dead End	SW	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
AQ	53rd Avenue S	Grattan Place S and Hamlet Avenue S	W	**5**	**5**	**5**	1	2	2	0	1	1	4	0	2	1	1	1
AR	53rd Avenue S	Grattan Place S and Hamlet Avenue S	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
AS	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
AT	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	E	**8**	**8**	**8**	2	3	3	2	3	3	2	5	4	3	2	3
AU	53rd Avenue S	Hamlet Avenue S and Dead End	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
AV	53rd Avenue S	Hamlet Avenue S and Dead End	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
AW	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	NE	**18**	**18**	**18**	11	9	10	7	6	7	7	9	8	8	8	8
AX	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	SW	**19**	**19**	**19**	8	9	9	6	8	7	7	10	9	9	10	10
AY	Rainier Avenue S	800' Boundary and S Henderson Street	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
AZ	Rainier Avenue S	800' Boundary and S Henderson Street	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BA	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	W	**9**	**9**	**9**	1	2	2	2	2	2	8	8	8	3	0	2
BB	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	E	**13**	**13**	**13**	5	4	5	7	3	5	10	8	9	3	5	4
BC	S Henderson Street	48th Avenue S and 50th Avenue S	N	**11**	**11**	**11**	5	5	5	5	7	6	8	4	6	3	4	4
BD	S Henderson Street	48th Avenue S and 50th Avenue S	S	**6**	**6**	**6**	4	3	4	3	5	4	5	6	6	4	4	4
BE	S Henderson Street	50th Avenue S and Rainier Avenue S	N	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BF	S Henderson Street	50th Avenue S and Rainier Avenue S	S	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0

Project **Rainier Beach High School**

Block Face ID	Street Name	Street Segment	Side of Street	Overall Supply			Overall Occupancy											
							Early Morning			Mid-Morning			Mid-Morning (Historic)			Evening		
							7:00 A.M. to 7:45 A.M			10:30 A.M. to 11:15 A.M.						7:30 P.M to 8:15 P.M.		
				Total Parking Spaces - Morning	**Total Parking Spaces - Midday**	**Total Parking Spaces - Evening**	Tuesday 2/23/2021	Thursday 2/25/21	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average	5/22/2017 Monday (11:40 A.M.)	5/9/2019 Thursday	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average
BG	S Henderson Street	Rainier Avenue S and 53rd Avenue S	N	**0**	**0**	**6**	3	4	4	1	3	2	4	1	3	5	3	4
BH	S Henderson Street	Rainier Avenue S and 53rd Avenue S	S	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BI	S Henderson Street	53rd Avenue S and Seward Park Avenue S	N	**0**	**0**	**13**	7	10	9	13	12	13	9	1	5	8	7	8
BJ	S Henderson Street	53rd Avenue S and Seward Park Avenue S	S	**0**	**0**	**0**	3	0	2	3	1	2	1	0	1	0	0	0
BK	50th Avenue S	S Henderson Street and S Director Street	W	**13**	**13**	**13**	2	2	2	2	2	2	1	3	2	2	2	2
BL	50th Avenue S	S Henderson Street and S Director Street	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BM	Rainier Avenue S	S Henderson Street and S Director N Street	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BN	Rainier Avenue S	S Henderson Street and S Director N Street	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BO	Seward Park Avenue S	S Henderson Street and S Fisher Place	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BP	Seward Park Avenue S	S Henderson Street and S Fisher Place	E	**10**	**10**	**10**	7	7	7	7	7	7	3	5	4	7	8	8
BQ	S Director Street	Dead End and Rainier N Avenue S	N	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BR	S Director Street	Dead End and Rainier N Avenue S	S	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BS	Rainier Avenue S	S Director N Street and S Director S Street	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BT	Rainier Avenue S	S Director N Street and S Director S Street	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BU	S Director Street	Rainier S Avenue S and 800' Boundary	N	**1**	**1**	**1**	0	0	0	0	0	0	0	1	1	0	0	0
BV	S Director Street	Rainier S Avenue S and 800' Boundary	S	**4**	**4**	**4**	0	0	0	0	0	0	2	0	1	0	0	0
BW	Rainier Avenue S	S Director S Street and S Fisher Place	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BX	Rainier Avenue S	S Director S Street and S Fisher Place	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BY	S Fisher Place	800' Boundary and Seward Park Avenue S	N	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
BZ	S Fisher Place	800' Boundary and Seward Park Avenue S	S	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
CA	Seward Park Avenue S	S Fisher Place and 800' Boundary	SW	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
CB	Seward Park Avenue S	S Fisher Place and 800' Boundary	NE	**4**	**4**	**4**	4	4	4	3	3	3	2	3	3	3	4	4
YA	50th Avenue S	800' Boundary and S Cloverdale Street	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
YB	50th Avenue S	800' Boundary and S Cloverdale Street	E	**5**	**5**	**5**	1	0	1	1	0	1	2	1	2	1	0	1
YC	Rainier Avenue S	800' Boundary and S Cloverdale Street	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
YD	Rainier Avenue S	800' Boundary and S Cloverdale Street	E	**6**	**6**	**6**	3	2	3	6	4	5	0	0	0	3	5	4
YE	Wabash Avenue S	800' Boundary and Cloverdale Place S	SW	**19**	**19**	**19**	14	12	13	14	10	12	12	13	13	14	16	15
YF	Wabash Avenue S	800' Boundary and Cloverdale Place S	NE	**19**	**19**	**19**	16	13	15	12	13	13	13	6	10	18	15	17
YG	Wolcott Avenue S	800' Boundary and Cloverdale Place S	SW	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
YH	Wolcott Avenue S	800' Boundary and Cloverdale Place S	NE	**9**	**9**	**9**	6	7	7	4	5	5	2	2	2	7	5	6
YI	Seward Park Avenue S	Duncan Avenue S and S Grattan Street	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
YJ	Seward Park Avenue S	Duncan Avenue S and S Grattan Street	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0

Project **Rainier Beach High School**

Block Face ID	Street Name	Street Segment	Side of Street	Overall Supply			Overall Occupancy											
							Early Morning			Mid-Morning			Mid-Morning (Historic)			Evening		
							7:00 A.M. to 7:45 A.M			10:30 A.M. to 11:15 A.M.						7:30 P.M to 8:15 P.M.		
				Total Parking Spaces - Morning	**Total Parking Spaces - Midday**	**Total Parking Spaces - Evening**	Tuesday 2/23/2021	Thursday 2/25/21	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average	5/22/2017 Monday (11:40 A.M.)	5/9/2019 Thursday	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average
YK	S Cloverdale Street	800' Boundary and 50th Avenue S	N	**4**	**4**	**4**	1	0	1	2	1	2	0	0	0	0	0	0
YL	S Cloverdale Street	800' Boundary and 50th Avenue S	S	**6**	**6**	**6**	0	1	1	3	2	3	0	0	0	1	1	1
YM	S Cloverdale Street	50th Avenue S and Rainier Avenue S	N	**2**	**2**	**2**	0	0	0	0	0	0	2	0	1	0	0	0
YN	S Cloverdale Street	50th Avenue S and Rainier Avenue S	S	**3**	**3**	**3**	0	0	0	0	0	0	1	0	1	0	0	0
YO	S Cloverdale Place	Rainier Avenue S and Grattan Place S	NW	**21**	**21**	**21**	2	1	2	1	1	1	3	2	3	2	3	3
YP	S Cloverdale Place	Rainier Avenue S and Grattan Place S	SE	**19**	**19**	**19**	0	1	1	1	1	1	6	8	7	1	1	1
YQ	S Cloverdale Place	Grattan Place S and Wabash Avenue S	NW	**3**	**3**	**3**	0	0	0	0	3	2	4	2	3	1	0	1
YR	S Cloverdale Place	Grattan Place S and Wabash Avenue S	SE	**2**	**2**	**2**	1	0	1	1	0	1	1	0	1	0	0	0
YS	S Cloverdale Place	Wabash Avenue S and Wolcott Avenue S	NW	**8**	**8**	**8**	3	3	3	2	3	3	2	3	3	6	5	6
YT	S Cloverdale Place	Wabash Avenue S and Wolcott Avenue S	SE	**6**	**6**	**6**	2	3	3	2	3	3	4	3	4	2	4	3
YU	S Cloverdale Place	Wolcott Avenue S and Seward Park Avenue S	NW	**4**	**4**	**4**	0	0	0	0	0	0	0	0	0	0	0	0
YV	S Cloverdale Place	Wolcott Avenue S and Seward Park Avenue S	SE	**1**	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0
YW	S Grattan Street	Duncan Avenue S and Seward Park Avenue S	N	**1**	**1**	**1**	3	3	3	2	2	2	1	2	2	2	3	3
YX	S Grattan Street	Duncan Avenue S and Seward Park Avenue S	S	**1**	**1**	**1**	0	0	0	0	0	0	2	1	2	0	0	0
YY	Rainier Avenue S	S Cloverdale Street and Blockface AY	W	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
YZ	Rainier Avenue S	S Cloverdale Street and Block Face AZ	E	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
ZA	Grattan Place S	Cloverdale Place S and Blockface AN	SW	**4**	**4**	**4**	3	3	3	1	1	1	1	2	2	3	3	3
ZB	Grattan Place S	Cloverdale Place S and Blockface AM	NE	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
ZC	Wabash Avenue S	Cloverdale Place S and Blockface AB	SW	**9**	**9**	**9**	1	1	1	1	1	1	4	1	3	4	3	4
ZD	Wabash Avenue S	Cloverdale Place S and Blockface AA	NE	**4**	**4**	**4**	3	3	3	3	3	3	2	1	2	2	3	3
ZE	Wolcott Avenue S	Cloverdale Place S and Dead End	SW	**1**	**1**	**1**	1	2	2	1	0	1	1	0	1	2	2	2
ZF	Wolcott Avenue S	Cloverdale Place S and Dead End	NE	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
ZG	Seward Park Avenue S	800' Boundary and S Cloverdale Street	SW	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
ZH	Seward Park Avenue S	800' Boundary and S Cloverdale Street	NE	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0
			Total	**341**	**341**	**360**	**149**	**147**	**148**	**141**	**140**	**141**	**155**	**136**	**146**	**164**	**160**	**162**

Project **Rainier Beach High School**

				Overall Supply			Overall Parking Utilization											
							Early Morning			Mid-Morning			Mid-Morning (Historic)			Evening		
							7:00 A.M. to 7:45 A.M			10:30 A.M. to 11:15 A.M.						7:30 P.M to 8:15 P.M.		
Block Face ID	Street Name	Street Segment	Side of Street	Total Parking Spaces - Morning	Total Parking Spaces - Midday	Total Parking Spaces - Evening	Tuesday 2/23/2021	Thursday 2/25/21	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average	5/22/2017 Monday (11:40 A.M.)	5/9/2019 Thursday	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average
AA	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	NE	**10**	**10**	**10**	0%	0%	0%	0%	20%	10%	40%	50%	45%	0%	10%	5%
AB	Wabash Avenue S	Existing 800' Boundary and 53rd Avenue S	SW	**9**	**9**	**9**	44%	33%	39%	22%	22%	22%	22%	33%	28%	33%	56%	45%
AC	Wabash Avenue S	53rd Avenue S and 800' Boundary	NE	**6**	**6**	**6**	117%	133%	125%	100%	100%	100%	50%	33%	42%	117%	83%	100%
AD	Wabash Avenue S	53rd Avenue S and 800' Boundary	SW	**5**	**5**	**5**	0%	0%	0%	40%	20%	30%	40%	40%	40%	0%	0%	0%
AE	Wabash Avenue S	800' Boundary and Seward Park Avenue S	NE	**7**	**7**	**7**	57%	57%	57%	57%	57%	57%	43%	43%	43%	71%	114%	93%
AF	Wabash Avenue S	800' Boundary and Seward Park Avenue S	SW	**10**	**10**	**10**	40%	60%	50%	50%	40%	45%	10%	10%	10%	70%	50%	60%
AG	Seward Park Avenue S	800' Boundary and Wabash Avenue S	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AH	Seward Park Avenue S	800' Boundary and Wabash Avenue S	E	**1**	**1**	**1**	100%	200%	150%	100%	200%	150%	100%	200%	150%	200%	100%	150%
AI	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	NE	**2**	**2**	**2**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AJ	Wabash Avenue S	Seward Park Avenue S and 55th Avenue S	SW	**6**	**6**	**6**	0%	0%	0%	0%	0%	0%	50%	33%	42%	100%	50%	75%
AK	53rd Avenue S	Wabash Avenue S and Grattan Place S	W	**5**	**5**	**5**	60%	60%	60%	40%	40%	40%	0%	60%	30%	60%	60%	60%
AL	53rd Avenue S	Wabash Avenue S and Grattan Place S	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AM	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	NE	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AN	Grattan Place S	Existing 800' Boundary and 53rd Avenue S	SW	**2**	**2**	**2**	150%	100%	125%	50%	50%	50%	0%	100%	50%	150%	100%	125%
AO	Grattan Place S	53rd Avenue S and Dead End	NE	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AP	Grattan Place S	53rd Avenue S and Dead End	SW	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AQ	53rd Avenue S	Grattan Place S and Hamlet Avenue S	W	**5**	**5**	**5**	20%	40%	30%	0%	20%	10%	80%	0%	40%	20%	20%	20%
AR	53rd Avenue S	Grattan Place S and Hamlet Avenue S	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AS	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AT	Seward Park Avenue S	Wabash Avenue S and Hamlet Avenue S	E	**8**	**8**	**8**	25%	38%	32%	25%	38%	32%	25%	63%	44%	38%	25%	32%
AU	53rd Avenue S	Hamlet Avenue S and Dead End	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AV	53rd Avenue S	Hamlet Avenue S and Dead End	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AW	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	NE	**18**	**18**	**18**	61%	50%	56%	39%	33%	36%	39%	50%	45%	44%	44%	44%
AX	Hamlet Avenue S	53rd Avenue S and Seward Park Avenue S	SW	**19**	**19**	**19**	42%	47%	45%	32%	42%	37%	37%	53%	45%	47%	53%	50%
AY	Rainier Avenue S	800' Boundary and S Henderson Street	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
AZ	Rainier Avenue S	800' Boundary and S Henderson Street	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BA	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	W	**9**	**9**	**9**	11%	22%	17%	22%	22%	22%	89%	89%	89%	33%	0%	17%
BB	Seward Park Avenue S	Hamlet Avenue S and S Henderson Street	E	**13**	**13**	**13**	38%	31%	35%	54%	23%	39%	77%	62%	70%	23%	38%	31%
BC	S Henderson Street	48th Avenue S and 50th Avenue S	N	**11**	**11**	**11**	45%	45%	45%	45%	64%	55%	73%	36%	55%	27%	36%	32%
BD	S Henderson Street	48th Avenue S and 50th Avenue S	S	**6**	**6**	**6**	67%	50%	59%	50%	83%	67%	83%	100%	92%	67%	67%	67%
BE	S Henderson Street	50th Avenue S and Rainier Avenue S	N	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BF	S Henderson Street	50th Avenue S and Rainier Avenue S	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BG	S Henderson Street	Rainier Avenue S and 53rd Avenue S	N	**0**	**0**	**6**	NS	NS	NS	NS	NS	NS	NS	NS	NS	83%	50%	67%
BH	S Henderson Street	Rainier Avenue S and 53rd Avenue S	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Project **Rainier Beach High School**

				Overall Supply			Overall Parking Utilization											
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							7:00 A.M. to 7:45 A.M			10:30 A.M. to 11:15 A.M.						7:30 P.M to 8:15 P.M.		
Block Face ID	Street Name	Street Segment	Side of Street	Total Parking Spaces - Morning	Total Parking Spaces - Midday	Total Parking Spaces - Evening	Tuesday 2/23/2021	Thursday 2/25/21	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average	5/22/2017 Monday (11:40 A.M.)	5/9/2019 Thursday	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average
BI	S Henderson Street	53rd Avenue S and Seward Park Avenue S	N	**0**	**0**	**13**	NS	NS	NS	NS	NS	NS	NS	NS	NS	62%	54%	58%
BJ	S Henderson Street	53rd Avenue S and Seward Park Avenue S	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BK	50th Avenue S	S Henderson Street and S Director Street	W	**13**	**13**	**13**	15%	15%	15%	15%	15%	15%	8%	23%	16%	15%	15%	15%
BL	50th Avenue S	S Henderson Street and S Director Street	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BM	Rainier Avenue S	S Henderson Street and S Director N Street	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BN	Rainier Avenue S	S Henderson Street and S Director N Street	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BO	Seward Park Avenue S	S Henderson Street and S Fisher Place	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BP	Seward Park Avenue S	S Henderson Street and S Fisher Place	E	**10**	**10**	**10**	70%	70%	70%	70%	70%	70%	30%	50%	40%	70%	80%	75%
BQ	S Director Street	Dead End and Rainier N Avenue S	N	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BR	S Director Street	Dead End and Rainier N Avenue S	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BS	Rainier Avenue S	S Director N Street and S Director S Street	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BT	Rainier Avenue S	S Director N Street and S Director S Street	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BU	S Director Street	Rainier S Avenue S and 800' Boundary	N	**1**	**1**	**1**	0%	0%	0%	0%	0%	0%	0%	100%	50%	0%	0%	0%
BV	S Director Street	Rainier S Avenue S and 800' Boundary	S	**4**	**4**	**4**	0%	0%	0%	0%	0%	0%	50%	0%	25%	0%	0%	0%
BW	Rainier Avenue S	S Director S Street and S Fisher Place	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BX	Rainier Avenue S	S Director S Street and S Fisher Place	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BY	S Fisher Place	800' Boundary and Seward Park Avenue S	N	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BZ	S Fisher Place	800' Boundary and Seward Park Avenue S	S	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CA	Seward Park Avenue S	S Fisher Place and 800' Boundary	SW	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CB	Seward Park Avenue S	S Fisher Place and 800' Boundary	NE	**4**	**4**	**4**	100%	100%	100%	75%	75%	75%	50%	75%	63%	75%	100%	88%
YA	50th Avenue S	800' Boundary and S Cloverdale Street	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
YB	50th Avenue S	800' Boundary and S Cloverdale Street	E	**5**	**5**	**5**	20%	0%	10%	20%	0%	10%	40%	20%	30%	20%	0%	10%
YC	Rainier Avenue S	800' Boundary and S Cloverdale Street	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
YD	Rainier Avenue S	800' Boundary and S Cloverdale Street	E	**6**	**6**	**6**	50%	33%	42%	100%	67%	84%	0%	0%	0%	50%	83%	67%
YE	Wabash Avenue S	800' Boundary and Cloverdale Place S	SW	**19**	**19**	**19**	74%	63%	69%	74%	53%	64%	63%	68%	66%	74%	84%	79%
YF	Wabash Avenue S	800' Boundary and Cloverdale Place S	NE	**19**	**19**	**19**	84%	68%	76%	63%	68%	66%	68%	32%	50%	95%	79%	87%
YG	Wolcott Avenue S	800' Boundary and Cloverdale Place S	SW	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
YH	Wolcott Avenue S	800' Boundary and Cloverdale Place S	NE	**9**	**9**	**9**	67%	78%	73%	44%	56%	50%	22%	22%	22%	78%	56%	67%
YI	Seward Park Avenue S	Duncan Avenue S and S Grattan Street	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
YJ	Seward Park Avenue S	Duncan Avenue S and S Grattan Street	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
YK	S Cloverdale Street	800' Boundary and 50th Avenue S	N	**4**	**4**	**4**	25%	0%	13%	50%	25%	38%	0%	0%	0%	0%	0%	0%
YL	S Cloverdale Street	800' Boundary and 50th Avenue S	S	**6**	**6**	**6**	0%	17%	9%	50%	33%	42%	0%	0%	0%	17%	17%	17%
YM	S Cloverdale Street	50th Avenue S and Rainier Avenue S	N	**2**	**2**	**2**	0%	0%	0%	0%	0%	0%	100%	0%	50%	0%	0%	0%
YN	S Cloverdale Street	50th Avenue S and Rainier Avenue S	S	**3**	**3**	**3**	0%	0%	0%	0%	0%	0%	33%	0%	17%	0%	0%	0%

Project **Rainier Beach High School**

				Overall Supply			Overall Parking Utilization											
							Early Morning			Mid-Morning			Mid-Morning (Historic)			Evening		
							7:00 A.M. to 7:45 A.M			10:30 A.M. to 11:15 A.M.						7:30 P.M to 8:15 P.M.		
Block Face ID	Street Name	Street Segment	Side of Street	Total Parking Spaces - Morning	Total Parking Spaces - Midday	Total Parking Spaces - Evening	Tuesday 2/23/2021	Thursday 2/25/21	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average	5/22/2017 Monday (11:40 A.M.)	5/9/2019 Thursday	Average	Tuesday 2/23/2021	Thursday 2/25/21	Average
YO	S Cloverdale Place	Rainier Avenue S and Grattan Place S	NW	**21**	**21**	**21**	10%	5%	8%	5%	5%	5%	14%	10%	12%	10%	14%	12%
YP	S Cloverdale Place	Rainier Avenue S and Grattan Place S	SE	**19**	**19**	**19**	0%	5%	3%	5%	5%	5%	32%	42%	37%	5%	5%	5%
YQ	S Cloverdale Place	Grattan Place S and Wabash Avenue S	NW	**3**	**3**	**3**	0%	0%	0%	0%	100%	50%	133%	67%	100%	33%	0%	17%
YR	S Cloverdale Place	Grattan Place S and Wabash Avenue S	SE	**2**	**2**	**2**	50%	0%	25%	50%	0%	25%	50%	0%	25%	0%	0%	0%
YS	S Cloverdale Place	Wabash Avenue S and Wolcott Avenue S	NW	**8**	**8**	**8**	38%	38%	38%	25%	38%	32%	25%	38%	32%	75%	63%	69%
YT	S Cloverdale Place	Wabash Avenue S and Wolcott Avenue S	SE	**6**	**6**	**6**	33%	50%	42%	33%	50%	42%	67%	50%	59%	33%	67%	50%
YU	S Cloverdale Place	Wolcott Avenue S and Seward Park Avenue S	NW	**4**	**4**	**4**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
YV	S Cloverdale Place	Wolcott Avenue S and Seward Park Avenue S	SE	**1**	**1**	**1**	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
YW	S Grattan Street	Duncan Avenue S and Seward Park Avenue S	N	**1**	**1**	**1**	300%	300%	300%	200%	200%	200%	100%	200%	150%	200%	300%	250%
YX	S Grattan Street	Duncan Avenue S and Seward Park Avenue S	S	**1**	**1**	**1**	0%	0%	0%	0%	0%	0%	200%	100%	150%	0%	0%	0%
YY	Rainier Avenue S	S Cloverdale Street and Blockface AY	W	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
YZ	Rainier Avenue S	S Cloverdale Street and Block Face AZ	E	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ZA	Grattan Place S	Cloverdale Place S and Blockface AN	SW	**4**	**4**	**4**	75%	75%	75%	25%	25%	25%	25%	50%	38%	75%	75%	75%
ZB	Grattan Place S	Cloverdale Place S and Blockface AM	NE	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ZC	Wabash Avenue S	Cloverdale Place S and Blockface AB	SW	**9**	**9**	**9**	11%	11%	11%	11%	11%	11%	44%	11%	28%	44%	33%	39%
ZD	Wabash Avenue S	Cloverdale Place S and Blockface AA	NE	**4**	**4**	**4**	75%	75%	75%	75%	75%	75%	50%	25%	38%	50%	75%	63%
ZE	Wolcott Avenue S	Cloverdale Place S and Dead End	SW	**1**	**1**	**1**	100%	200%	150%	100%	0%	50%	100%	0%	50%	200%	200%	200%
ZF	Wolcott Avenue S	Cloverdale Place S and Dead End	NE	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ZG	Seward Park Avenue S	800' Boundary and S Cloverdale Street	SW	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
ZH	Seward Park Avenue S	800' Boundary and S Cloverdale Street	NE	**0**	**0**	**0**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Total	**341**	**341**	**360**	**44%**	**43%**	**43%**	**41%**	**41%**	**41%**	**45%**	**40%**	**43%**	**46%**	**44%**	**45%**

APPENDIX B: LIGHT AND GLARE REPORT

Rainier Beach High School
Athletic Field Lighting

Light and Glare Report

September 30, 2021

Prepared for:

Seattle Public Schools
Capital Projects
Seattle, Washington

Prime Consultant:

ESA

Lighting Consultant:

Stantec

Proposal

A new practice field at Rainier Beach High School is proposed to be constructed with lights. Included is the replacement of the existing floodlights on the existing poles at the football, baseball and softball fields. Two of the existing 95' tall football field light poles are being relocated due to placement of the new school building.

The design levels for the new practice field lighting are proposed at a Class IV level of play. Class IV is the lowest recommended level listed in RP-8 (Recommended Practice for Sports Lighting) by the Illuminating Engineering Society. The field is designed to an average maintained lighting level of 29 foot-candles. The lighting system is designed using a .95 design factor to achieve the initial lighting levels.

These lighting design levels meet current practices for both the City of Seattle and Seattle School District for the lighting of athletic fields. The proposed lighting levels will be consistent with recently lighted fields at Roosevelt High School and Ballard High School.

The existing designed lighting levels for the football, baseball and softball fields will not be increased and remain at IES Class IV level of play.

Existing Codes and Policies

Section 23.51B.002 (Public schools in residential zones) of the Seattle Municipal Code limits the height of lighting standards in Single Family and Lowrise zones. Section D-6-a permits light standards up to a maximum height of 100 feet, "if the Director determines that the additional height is necessary to ensure adequate illumination and that impacts from light and glare are minimized to the greatest extent practicable". In addition, Section 23.46.020 (Light and glare standards) paragraph A of the Seattle Municipal Code also requires that "Exterior lighting be shielded or directed away from adjacent uses". Also, current City of Seattle guidelines recommend that athletic field spill light not exceed 1.0 foot-candles initial at residential property lines.

To comply with existing codes an exemption to the height limit is requested. This exemption will ensure adequate illumination and reduce the number of impacts from light and glare into the neighborhood.

Existing Conditions

A survey of the existing site was conducted on May 20th, 2021. The school site is located within a residential community between Rainier Avenue South – Seward Park Avenue South (East to West) and South Henderson Street - Grattan Place South (North to South). The field is located on the west side of the school site. The site is adjacent to residential homes along Grattan Place South and Hamlet Avenue South to the north and northeast. The existing fields are located adjacent to apartment units to the west.

The school site is generally flat. The fields and the school buildings are at a slightly lower elevation than the properties located to the west, north and northeast.

Field View From S. Henderson Street

S Henderson Street Looking West

Properties West of Football Field

Apartments West of Baseball Field

View of Homes NE of Baseball Field

Property West of Softball Field

View of Homes North of Softball Field

View of Homes Northeast of Existing Basketball Courts

View of Homes East of Existing Basketball Courts

View Looking SW from 53rd Ave. S. at Hamlet Ave S.

View Looking East from 53rd Ave. S at Hamlet Ave S.

View Overlooking Softball Field from Grattan Place S.

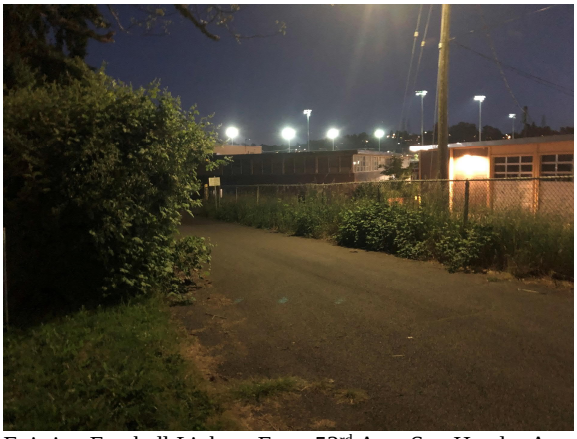
Existing Light and Glare

A survey of the existing lighting in the area was conducted on May 20th, 2021. Light readings were taken at the school site on and surrounding the athletic fields and on several residential streets.

The existing light sources on the school site consist of parking lot lighting, building perimeter lighting, school covered area lighting and the football, baseball and softball fields. The primary component of the lighting are the high wattage shielded floodlights at the athletic fields. The parking lot lights were not turned on during the survey.


Existing School Building Wall Pack Lights


Existing Covered Area and Parking Lot Lights


Existing Football Lights - From 53rd Ave. S at Hamlet Ave S.

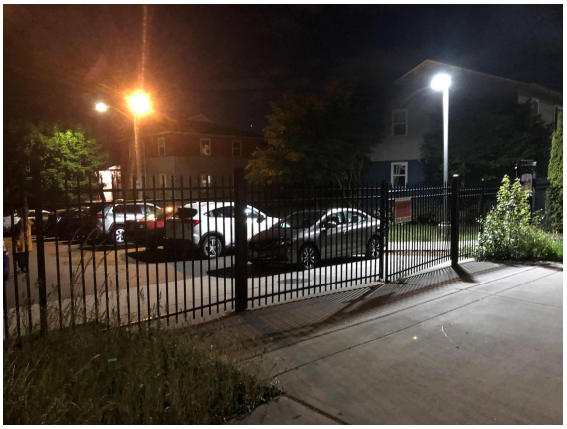

Existing Baseball Lights - From 53rd Ave. S at Hamlet Ave S.


Existing Softball\Baseball Lights - From Grattan Place S.


Existing Wall Pack Light – Maintenance Building

The existing light sources surrounding the site are typical for a suburban residential area. The primary component of the lighting is associated with streetlights surrounding the school. The streetlights along South Henderson Street, Hamlet Avenue South, 53rd Avenue South and Grattan Place South are LED cobra head style mounted to existing utility poles at an approximate height of 20' above grade. The balance of the lighting is associated with adjacent commercial and residential properties with parking lights, porch\yard lights and interior lighting visible through windows.


Existing Street Lighting S. Henderson Street


Existing Parking Lot Lighting S. Henderson Street


Existing Street Lighting 53rd Ave. S.


Existing Residential Lights – Grattan Place S.

Various measured lighting levels on and surrounding the site are as follows (Foot-Candles).

Athletic Fields	10 - 50 ft-c (Horizontal)
Spill Light East of Softball Field	1.9 - 3.4 ft-c (Horizontal)
Spill Light East of Baseball Field	1.4 - 2.8 ft-c (Horizontal)
Wall Pack Light on School Building	15.0 ft-c (Max Horizontal)
Canopy Light on School Building	20.0 ft-c (Max Horizontal)
School Parking Lot Floodlight	4.0 ft-c (Max Horizontal)
Streetlight – S. Henderson Street	5.0 ft-c (Max Horizontal)
Crosswalk – S. Henderson Street	3.3 ft-c (Max Horizontal)
Streetlight – 53rd Avenue South	1.4 ft-c (Max Horizontal)
Streetlight – Grattan Place South	1.4 ft-c (Max Horizontal)

Proposed Equipment

The new athletic field lighting system at the practice field will consist of four 60' tall, galvanized steel poles with LED shielded floodlights. The proposed lighting for the field consists of 4 - 600 watt and 12 – 400 watt shielded LED floodlights. The floodlights will be mounted at the top of the poles. One additional low wattage "full cutoff" area light will be mounted at a height of 30' above grade on the two poles located on the west side of the field.

The existing 1000 watt shielded floodlights at the existing football, baseball and softball fields will be upgraded to shielded LED floodlights.

Seattle Public Schools has proposed to use an athletic field lighting system designed to mitigate the negative impacts of light and glare. The proposed system consists of the latest technology available on the market for shielded LED floodlights designed for the lighting of athletic fields.

The use of high efficiency LED arrays provide more precise control of light to be delivered to the field. The reflector and shielding design further reduce the amount of light transmitted off site and into the atmosphere. The floodlights utilize an additional external visor mounted to the floodlight that extends in front of the floodlight. The floodlight design is similar to "full cutoff" style lights as they dramatically limit the amount of light that is emitted above the plane of the floodlight. The proposed lighting system is similar to recently lighted fields at Roosevelt High School and Ballard High School.

Shielded LED Floodlight used at Roosevelt\Ballard HS Fields

Analysis

For the purposes of this report lighting impacts associated with the demolition of existing school buildings and construction of new school buildings are recognized as similar. The quantity and location of the light sources associated with building perimeter, pedestrian access and parking will vary. However, the use of newer LED technology with improved shielding and lighting controls will ensure no large increase in lighting impacts.

The proposed lighting system at the new practice field will increase the amount of light in that area of the school site during evening hours. The primary impacts of the lighting system are direct glare, reflected glare, spill light (light trespass), and "sky glow".

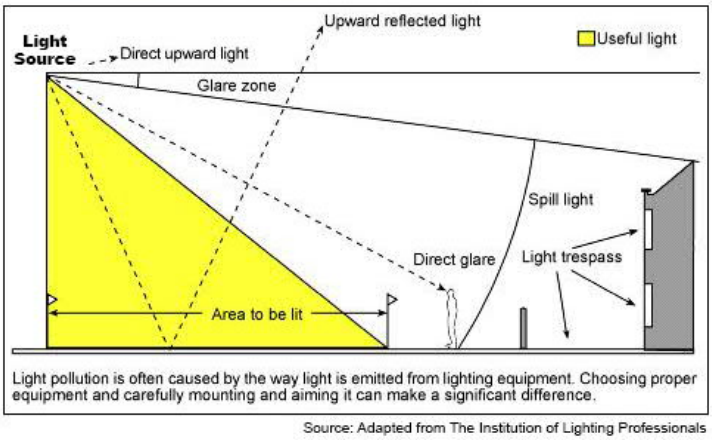


Diagram illustrating Direct-Glare, Spill Light and Light Trespass

GLARE

The athletic field lighting system will generate visible glare. The primary sources of glare from the proposed lighting system consist of direct glare from the floodlights and reflected glare (luminance) off the poles, floodlights, athletic field surface, and surfaces around the playing field.

The amount of glare that is present correlates directly to how much of the floodlight lamp and reflector can be observed. The intent of Seattle Municipal Code Section 23.24.020 is to have floodlight luminaires directed as far down as possible to reduce the amount of glare that is visible from off-site locations.

To reduce the amount of glare that is visible off-site the floodlights will need to be mounted higher than 30 feet. At a height of 30 feet the visibility of the high wattage LED's and reflectors from the adjacent residences is excessive. With the increased mounting heights floodlights will have steeper aiming angles resulting in more effective use of the floodlight shields. A very small portion of the LED diodes and reflectors will be visible off site with the increased height.

Direct glare will be visible from all directions overlooking the site. The amount of glare visible depends on proximity to the site, orientation of the floodlights, distribution of intervening buildings, terrain or vegetation that would block the glare. The impacts of direct glare are extremely difficult to quantify, as varying conditions such as existing ambient light levels and current atmospheric conditions will vary the impact. Elevation differences between the level of the sports field lights and the viewpoint is a key determinant in the existence of glare at any given viewing location.

To maximize glare reduction, the owner is providing additional mitigation with the use of "full cutoff" style LED floodlights that provide the most advanced light control and shielding currently available in the sports lighting industry. Additional reduction in direct glare is also provided by internal shielding of the LED diodes. The additional shielding nearly eliminates direct view of the very bright LED's from off-site viewing locations.

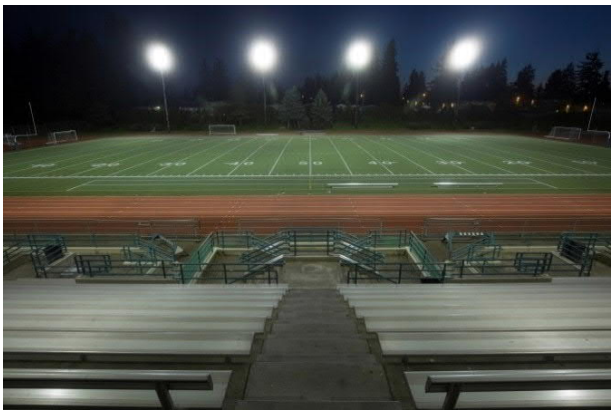
Off-site exposure to low levels of direct glare is primarily to the residential properties directly east of the proposed field across 53rd Avenue South and the residential properties immediately adjacent to the north. These properties are at a slightly higher elevation to the field with direct exposure to the light poles and floodlight assemblies. Other residential properties located next to the adjacent residential properties will have minimal exposure to direct glare. Residential properties located farther away from the field will have minimal to no direct glare impacts.

The removal of the existing unshielded building mounted wall packs and parking lot floodlight will reduce the existing direct glare impacts to these residences. The replacement of the existing athletic field floodlights at the football, baseball and softball fields will provide a significant reduction in the amount of direct glare impacts surrounding the entire school site. The replacement LED floodlights will include extensive shielding as compared to the existing floodlights. The floodlights will be high efficiency resulting in an approximate 30% decrease in the quantity of floodlights and overall light needed to light the fields.

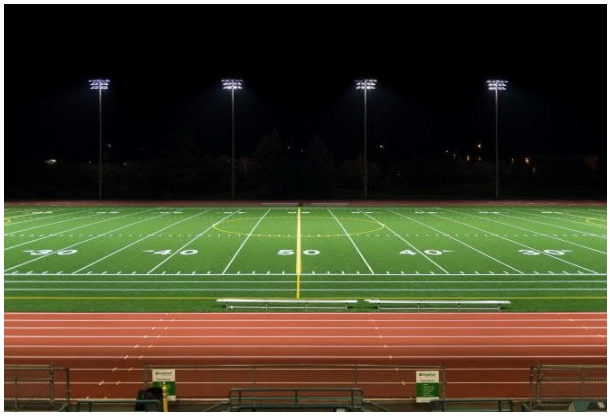
Reflected glare would be visible from all directions overlooking the site, depending direct views into the site, exposure to poles\floodlights, distribution of intervening buildings, terrain or vegetation that would block the glare. Of the surfaces that are visible from off site locations, the synthetic athletic field surface would be the greatest contributor to reflected glare. The amount of light reflected from synthetic turf is generally equivalent to natural turf. It may be slightly higher depending on how the surfaces wear, direction of how the fibers lay and which direction they are viewed from. The difference in amount of reflected glare visible between the surfaces is minimal. Reflected light off the floodlight housings, floodlight visors. poles are a lesser contributor.

The residential properties to the north and east are at a higher elevation and have the greatest amount of exposure to reflected glare. These properties are close to the fields with direct view of the field surfaces, adjacent grass\pavement surfaces, light poles, and floodlight assemblies. The main component of the impact is the light reflected off the synthetic turf field surface.

Residential properties that are located farther away from the field or below the field will have low to minimal reflected glare impacts. These properties will have limited to no direct views of the playing surface due to their location away from the fields. The reflected glare impact associated with the poles and floodlights is much less from more remote viewing points, as the impact is reduced at greater distances. This is true even though reflected glare from the floodlights and tops of the poles will be visible at greater distances due to their elevation above the field.



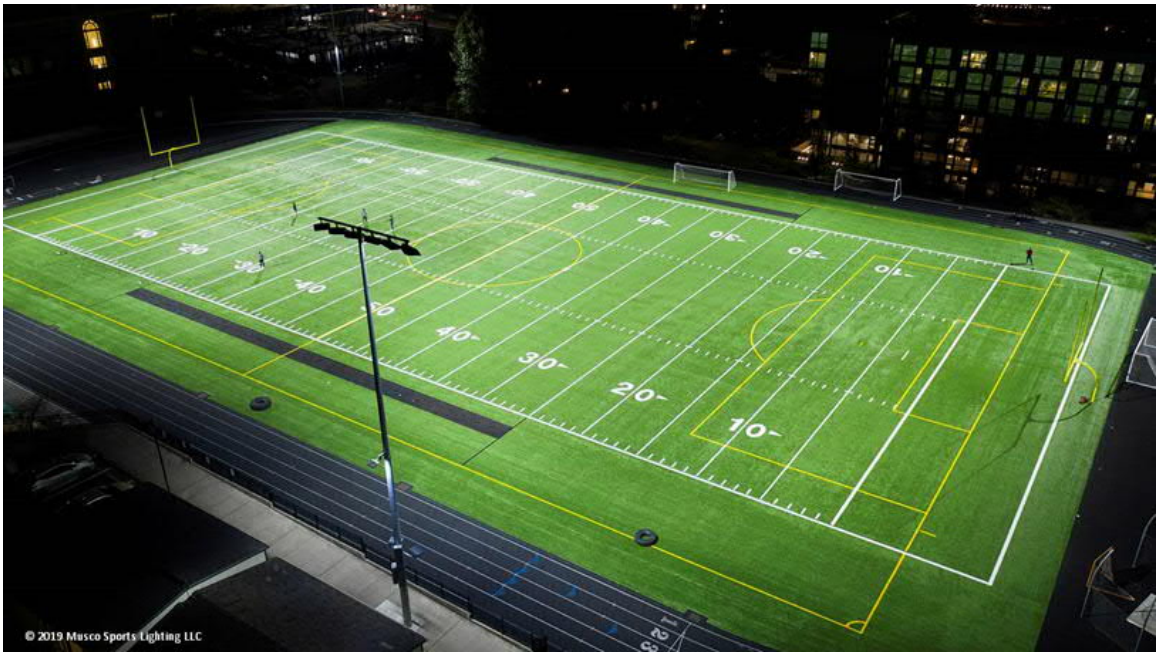
Direct glare from unshielded floodlights (Edmonds-Woodway HS), Reflected glare from synthetic turf surface.



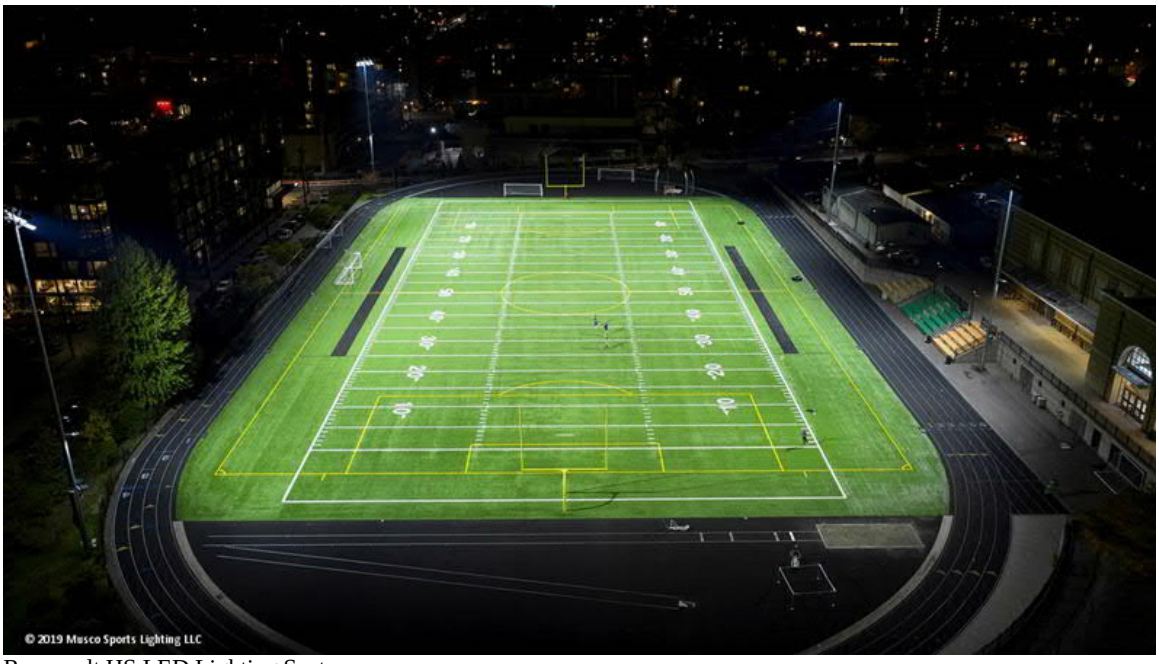
Direct glare reduction with use of shielded LED floodlights Reflected glare from synthetic turf surface.

The below photos show the athletic field lighting system recently installed at Roosevelt HS. The use of the highly shielded LED floodlights dramatically minimizes lighting impacts to the surrounding properties. The shielding was adjusted post installation to further reduce spill and glare impacts into the ROW and condominiums located south of the football field.

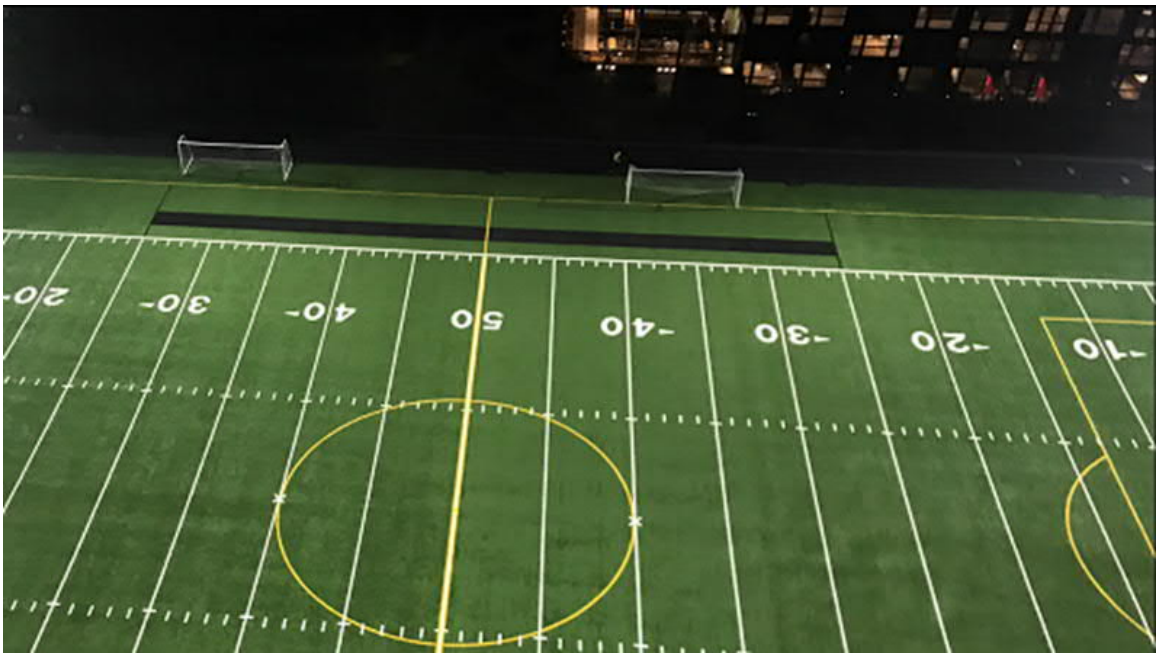
Roosevelt HS LED Lighting System



Roosevelt HS LED Lighting System



Roosevelt HS LED Lighting System


Roosevelt HS LED Lighting System

The increased mounting heights for the practice field light poles will dramatically decrease the overall amount of glare visible from off-site locations as compared to using 30' pole height. The use of the latest generation of shielded floodlights will dramatically reduce the amount of visible glare compared to standard shielded and unshielded LED floodlighting systems. It is critical that taller poles are used to minimize glare as much as practical. At 30-foot mounting heights the surrounding residences will be more fully exposed to excessive levels of direct glare from the floodlights. Glare impacts will be evaluated after construction of the lighting system and adjustments to the shielding and aiming of the new practice field floodlights will be implemented as necessary. Replacement of the existing athletic field floodlights with new high efficiency shielded LED floodlights will reduce the overall impacts of direct glare at the site.

SPILL LIGHT

The athletic field lighting system will generate minimal amounts of spill light. Spill light impacts will be below the maximum recommended allowable level of 0.80 foot-candles set by the City of Seattle.

The increase in pole height from 30 feet to 60 feet tall dramatically reduces the amount of spill light generated by the practice field lighting system. The higher pole heights allow the floodlights to be aimed down to the athletic field and away from the adjacent properties. This height also provides for greater effectiveness of the internal\external shielding on the floodlights to control emitted light and prevent light escaping beyond the site.

The increased mounting heights increase the angle of aiming below the horizontal level of the floodlights. At a mounting height of 30 feet this project would require aiming angles of 15 degrees (worst case) and 24 degrees (best case) below the horizontal plane of the floodlight. The increased mounting height to 60 feet will provide for aiming angles of 30 degrees (worst case) and 45.0 degrees (best case) below the horizontal plane of the floodlight.

The use of steeper aiming angles allows for less direct light to be delivered beyond the boundaries of the playing surface. The external shielding blocks more direct light and more light is delivered to the field with the use of increased mounting heights. The proposed taller mounting heights are typical for this application and similar to many existing installations throughout the City. The use of shorter mounting heights is typical to the lighting of driving ranges which requires that light is delivered over hundreds of feet down range to light the back of a golf ball to distances over 300 feet.

The spill light from the new practice field lighting has been calculated along the adjacent residential property lines north of the practice field and east of 53rd Avenue South (See sheets SPL-1 and SPL-2). The light readings are calculated in foot-candles. The calculated light readings do not account for the existing trees and vegetation that will provide some screening to reduce spill light at the property lines.

The spill light impacts are minor. The maximum amount of spill light along a small section of the north property line is 0.63 foot-candles. The maximum amount of spill light along a small section of the property line east of 53rd Avenue South is 0.27 foot-candles. The spill light drops off to 0.0 footcandles within 20 feet of these property lines.

At the non-standard mounting height of 30 feet the maximum amount of measurable light generated along the residential property line north of the practice field is 3.45 foot-candles. At the non-standard mounting height of 30 feet the amount of measurable light generated along the residential property line east of 53rd Avenue South is 2.1 foot-candles.

The replacement of the existing athletic field floodlights at the football, baseball and softball fields will provide a significant reduction in the amount of spill light impacts surrounding the athletic fields. The replacement LED floodlights utilize precise optics and include extensive shielding as compared to the existing floodlights. The amount of spill light generated at the residential properties to the north and west of the fields will be less than the current amount of spill light.

The increased mounting height for the practice field light poles will dramatically reduce the maximum spill light at the residential property lines as compared to using 30' pole height. Increased mounting height also reduces spill light to meet recommended practice of maximum of 0.8 foot-candles set by the City of Seattle. Spill light impacts will be evaluated after construction of the lighting system and light readings will be taken at the property lines. Adjustments to the shielding and aiming of the new practice field lights floodlights will be implemented as necessary to ensure spill light levels do not exceed 0.8 foot-candles. Replacement of the existing athletic field floodlights with new high efficiency shielded LED floodlights will reduce the overall impacts of spill light at the site.

SKY GLOW

The practice field lighting system will generate a minimal amount of "sky glow". The "sky glow" impacts will be located near the practice field.

The amount of "sky glow" that is visible from a lighting system is difficult to quantify. There is no current method to calculate "sky glow" but it is recognized that there is a direct correlation to the amount of direct and reflected light that is emitted into the atmosphere. The amount of visible "sky glow" is dependent on a multitude of factors. Several factors include the amount of ambient light that exists, darkness of the night sky, amount of moonlight, atmospheric conditions, level of cloud ceiling, amount particulate matter, location of the observer and age of the observer.

To reduce the amount of "sky glow" that is visible the floodlights will need to be mounted higher than 30 feet. At a height of 30 feet the amount of direct light emitted into the atmosphere is excessive. With the increased mounting heights floodlights will have steeper aiming angles resulting in more effective use of the external shields. Most of the total light output will be directed down to the field with the increased mounting height.

To maximize "sky glow" reduction the owner is providing additional mitigation with the use of "full cutoff" style LED floodlights that provide the most advanced light control and shielding currently available in the sports lighting industry. The use of this equipment will block a significant amount of direct light that is emitted into the atmosphere.

Based on the existing conditions and the limited impact expected with the installation of the new practice field lights, the impact of the project on "sky-glow" evident in the surrounding area will likely be minor. "The appearance of "sky-glow" will be very minor with heavy low overcast skies and be most prevalent during conditions of dense fog.

The replacement of the existing athletic field floodlights at the football, baseball and softball fields will provide a reduction in the amount of "sky-glow" impacts surrounding the entire school site. The replacement LED floodlights will include extensive shielding limiting the amount of direct light emitted up into the atmosphere as compared to the existing floodlights. The new floodlights will be high efficiency with an approximate 30% decrease in the quantity of overall light needed to light the fields resulting in a corresponding reduction of reflected light from the field and adjacent surfaces.

The increased mounting heights for the practice field light poles will decrease the overall amount of "sky-glow" visible as compared to using 30' pole height. The use of the latest generation of shielded floodlights will dramatically reduce the amount of direct light emitted into the atmosphere compared to the older shielded floodlighting systems. It is critical that taller poles are used to minimize "sky-glow". The amount of "sky-glow" visible will be localized to the area above the practice field and immediate vicinity. The amount of "sky-glow" generated will be less than the recently lighted fields using LED floodlights at Ballard High School and Roosevelt High School and will be much less as compared to the amount generated using 30' poles. Replacement of the existing athletic field floodlights with new high efficiency shielded LED floodlights will reduce the overall impacts of "sky glow" at the site.

<u>Controls</u>

The new athletic field lighting system will be connected to a fully programmable control system with remote operation. There will be separate switches installed to manually operate the lights at the site if necessary. The field lights will be on a separate lighting zone with a separate switch. This will allow the field lights to be turned off after play is completed. The area lights are on a separate zone and will remain on for a short time after each event to provide ample light for egress from the site.

APPENDIX C: ENVIRONMENTALLY CRITICAL AREAS MEMO

ESA

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memorandum

date	June 23, 2021
to	Paul Popovich, Seattle Public Schools
from	Jessica Redman, PWS
subject	Rainier Beach High School Replacement Project Environmentally Critical Areas Assessment

Environmental Science Associates (ESA) was retained by Seattle Public Schools to delineate wetlands and streams located within 200 feet of the Rainier Beach High School property. The critical areas assessment is part of the Rainier Beach High School Replacement Project (Project). The Project proposes to replace the existing Rainier Beach High School with a new multi-story high school, renovate the existing performance arts center, and improve the existing athletic fields. Construction on the new Rainier Beach High School is scheduled to begin during the summer of 2022.

The Project is located at 8815 Seward Park Avenue South in Seattle, Washington. The 13.9-acre site is located in Section 35, Township 24N, Range 04E, and is a combination of three parcels (King County Parcels 3534049124, 3524049146, and 3524049149). The site is bordered by South Henderson Street to the south, Seward Park Avenue South to the east, and Cloverdale Place South to the northwest. Residential developments border the site to the west and northeast. Athletic fields take up the majority of the property and include a softball field, a baseball field, and a track. The general area is highly developed and primarily comprised of single-family homes. Be'er Sheva Park is located to the east of the site across Seward Park Avenue South on the shore of Lake Washington.

The findings of the critical areas assessment are based on an analysis of existing background information, a field investigation conducted by ESA biologists on November 19, 2020, and a review of the current City of Seattle Municipal Code (SMC) Chapter 25.09 – *Regulations for Environmentally Critical Areas*.

Methods

Prior to conducting field work, ESA staff reviewed existing literature, maps, and other materials to identify wetlands and streams or site characteristics indicative of wetlands on the parcel.

The characteristics of an area that result in a "wetland" classification have been formally defined by federal and state agencies. Methods defined in the Regional Supplement to the U.S. Army Corps of Engineers 1987 Wetlands Delineation Manual (Corps, 2010) were used to determine the presence and extent of wetlands on the site. The methodology is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric

soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered). The "routine on-site determination method" was used to determine the wetland boundaries. The routine method is used for areas equal to or less than 5 acres in size, or for larger areas with relatively homogeneous vegetative, soil, and hydrologic properties.

During the November 19, 2020 field effort, formal wetland data plots were established where information regarding each of the three wetland parameters (vegetation, soils, and hydrology) was recorded. Data sheets for each of the formal data plots are provided in Attachment A. This information was used to distinguish wetlands from non-wetlands. Wetland boundaries were identified and recorded using a Trimble Global Positioning System (GPS unit).

Wetland functions were assessed using the Washington State Department of Ecology's (Ecology) Wetland Rating System for Western Washington: 2014 Update (Hruby, 2014). Ratings are based on whether a specific wetland performs a specific function and the relative level to which the function is performed. An assessment of wetland functions is inherent in the system. This system was developed to differentiate wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the beneficial functions they provide to society. Attachment B provides additional information about the Ecology rating system wetland categories and completed Ecology rating forms for the project.

Findings

Review of Existing Information

Natural Resources Conservation Service (NRCS) soil maps show one soil type within the parcel: urban land-Alderwood complex (USDA, 2020). This soil type is composed of a gravelly sandy loam profile, with a moderately well-drained drainage class, and is not considered to be hydric by the NRCS (USDA, 2020).

The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps an 0.9-acre freshwater forested/shrub wetland at the northern portion of the Project site, southeast of Cloverdale Place South. A second freshwater/forested shrub wetland, 0.6-acre in size, is mapped offsite on the northwest side of Cloverdale Place South (USFWS, 2020). The King County Development Services Office's (DSO) Water & Sewer Map also maps these features (King County, 2020a).

No streams are mapped onsite. However, the King County Interactive Mapping Tool (iMap) maps Mapes Creek as flowing east along South Henderson Street to the south, into Be'er Sheva Park to the east, before flowing into Lake Washington (King County, 2020b). According to the Washington Department of Fish and Wildlife (WDFW) SalmonScape interactive mapping, this creek is an intermittent stream that does not support salmonid species (WDFW, 2020).

Field Investigation

The following section describes the results of the field investigation conducted by ESA wetland ecologists (Jessica Redman and Amanda Brophy) on November 19, 2020. Ecologists identified and delineated the boundary of one on-site wetland (Wetland A). Wetland A is approximately 1.20 acres (52,570 Sq. feet) in size. No other

wetlands or streams occur onsite. A detailed discussion of Wetland A is provided below. One wetland and one stream were also observed offsite. These offsite features are also discussed in the following sections.

Table 1. Wetland Characteristics

Wetland Name	Approximate Wetland Area (square feet)	Hydrogeomorphic Type	Cowardin Class
Wetland A	52,570	Depressional	PFO/PSS/PEM

Onsite Features

Wetland A

Overview: Wetland A is a depressional, palustrine forested (PFO), palustrine scrub-shrub (PSS), and palustrine emergent (PEM) wetland located in the northern extent of the project site. The wetland is located to the southeast of Cloverdale Place South and is bordered by the softball field to the southwest and residences to the northeast. Data plots (DP) 1 and 3 characterize the wetland, DP2 and 4 characterize the adjacent upland (see Attachment A).

Vegetation: The forested and scrub-shrub classes of Wetland A were dominated by Pacific willow (*Salix lucida*) and Nootka rose (*Rosa nutkana*), respectively. Pacific willow has a wetland indicator status of FACW and Nootka rosa has a wetland indicator status of facultative (FAC), which meet the hydrophytic vegetation criteria. The emergent class of Wetland A is dominated by slough sedge (*Carex obnupta*) and reed canarygrass (*Phalaris arundinacea*), which have a wetland indicator status of obligate (OBL) and facultative wetland (FACW), respectively, and meet the hydrophytic vegetation criteria. Other vegetation present included bind weed (*Calystegia sepium*) and Himalayan blackberry (*Rubus armeniacus*), which are both tolerant to wet conditions.

Soils: Soils within the wetland are generally a grayish brown (10YR 5/2) sandy loam with redoximorphic features (7.5YR 5/8) as concentrations in the matrix. These soils meet criterion for hydric soil indicator F3 (Depleted Matrix). Soils meeting criteria for hydric indicator S5 (Sandy Redox) were also found and included coated sand grains colored reddish brown (5YR 4/6) located in a black (10YR 2/1) matrix.

Hydrology: During the November 2020 site visit, a high-water table (within 12-inches) and soils saturated to the surface were observed; therefore, the wetland meets criteria for wetland hydrology indicators A2 (High Water Table) and A3 (Saturation). Hydrology inputs to the wetland appear to be primarily a shallow water table and precipitation.

Wetland Rating and Functions: Using Ecology's 2014 updated Wetland Rating System (Hruby, 2014), Wetland A scores 17 points, categorizing it as a Category III wetland (see Attachment B). It has moderate function (7 points) for improving water quality due to its lack of an outlet, persistent plants which cover more than 95% of its surface area, and its location in a basin where an aquatic resource is on the 303(d) list. However, it has a low function (5 points) to reduce flooding because it is located in a subbasin where little flooding occurs. The wetland

also has a low habitat function (4 points) due to its lack of plant and hydroperiod diversity. Additionally, the area surrounding the wetland has little potential to support its habitat functions, as its land use is characterized as high intensity due to its location in a highly developed landscape.

Uplands

During observation of upland areas adjacent to the wetland, hydrophytic vegetation was recorded. Red fescue (*Festuca rubra*) was the dominant species, which has an indicator status of facultative (FAC). Other species observed in these areas, including tansy ragwort (*Sencio jacobaea*) and Scotch broom (*Cytisus scoparius*) are more adapted to upland conditions. Soils met the hydric indicator F3 (depleted matrix). However, throughout the areas determined to be upland, no wetland hydrology indicators were met, confirming upland conditions.

Offsite Features

Wetlands

ESA did not have permission to access the private parcel to the north (King County parcel 3870400051) where NWI and King County DSO maps an offsite wetland. However, during the November 19, 2020 site visit, conditions in this area were observed from the public right-of-way. Vegetation observed was largely grasses and Himalayan blackberry. The forested overstory was a mix of deciduous species including bigleaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*). No apparent wetland conditions were observed.

ESA also performed a topographic analysis using the elevation contours provided on iMap. The lowest point of this parcel is within a depressional area measured at 25-foot elevation. The parcel then rises to a 35-foot elevation at an approximately 32 percent slope. If a wetland was present on the site, it would likely occur within this depression. Based on aerial photo interpretation, observed conditions, its position in the landscape, and using Wetland A as a reference, a wetland on this parcel would likely also be Categorized as a Category III wetland with a low habitat score. Category III wetlands with a "low" habitat score are allotted a 60-foot buffer per SMC (see discussion below). The closest point of this depression to the Project parcel is approximately 115 feet. Therefore, the wetland and associated buffer are likely located away from all anticipated project impacts. Accordingly, this wetland will not be part of any future wetland and wetland buffer impacts analyses for this project. No other offsite wetlands were observed within 200 feet of the Project parcel.

Streams

One stream, Mapes Creek, was observed offsite to the east within the limits of Be'er Sheva Park. The stream was observed to enter the park through the outlet of a culvert in the southwest corner of the park. Upstream portions of this stream north of South Henderson Street within the vicinity of the school are piped. During the November 19, 2020 site visit, the stream was flowing and was approximately 4 to 6 inches deep. The channel was a low gradient stream channel with a bankful width of 4 to 6 feet, meeting the requirements of a Type F (fish-bearing stream). Per SMC 25.09.912.D(5), a 100-foot riparian management area protective buffer is required from the ordinary high water mark (OHWM) of all streams. The riparian management area, along with the watercourse itself, are known as the riparian corridor and subjected to critical area regulations put forth in SMC 25.09. During the site visit, the eastern extent of the Project parcel was determined to be approximately 115 to 120 feet away from westernmost portion of the stream, and therefore, located outside of the riparian corridor. As a result, Mapes

Creek will not be part of any future stream or stream buffer impact analysis for this project. No other offsite streams were observed within 200 feet of the Project parcel.

Regulatory Implications

Wetlands are protected and regulated by law under Sections 404 and 401 of the Clean Water Act, which is upheld in the state of Washington by the U.S. Army Corps of Engineers (USACE) and Ecology. Wetlands are locally regulated by the City of Seattle under SMC Chapter 25.09 – *Regulations for Environmentally Critical Areas*. Per SMC 25.09.160, wetlands are rated and the habitat function is determined according to Ecology's 2014 updated Wetland Rating System (Hruby, 2014). The size of the wetland buffer is based on the category and habitat score (low, moderate, or high). According to SMC 25.09.160(B), habitat scores between 3 and 4 points are considered "low", habitat scores of 5, 6 or 7 are considered "moderate", and habitats scores of 8 or 9 are considered "high" (Ecology 2018).

Per Table A for SMC 25.09.160, the standard buffer width for a Category III wetlands over 100 square feet in total size with a low level of habitat function is 60 feet.

Table 2: Wetland buffers at the Rainier Beach High School Site

Wetland Name	Wetland Category	Habitat Score	SMC Standard Wetland Buffer (feet)
Wetland A	III	4 (low)	60

Regulatory Requirements

The project is still in design and the potential effects to Wetland A or its associated buffer were not estimated for this critical areas assessment. However, the replacement of grass with turf on two areas of the field that intersect with the wetland buffer has been discussed. According to a personal communication with the City, if it is an existing use and the only change is in material (from grass to turf) it would be reviewed as maintenance and repair (Curry 2021). Per SMC 25.09.045.F, maintenance and repair of an existing development is exempt from the provisions of Chapter 25.09 – *Regulations for Environmentally Critical Areas*, and therefore, would not undergo local critical areas review.

Depending on any additional project elements still in design, and their proposed location to the wetland and required buffer area, the following are regulatory considerations that may apply to the project.

Section 404 Permit

The USACE regulates discharges of dredged or fill materials into waters of the United States, including wetlands and streams, under Section 404 of the Clean Water Act. The purpose of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." A Section 404 permit may be

required if a proposed project involves filling wetlands or altering streambeds or other waters of the U.S. The USACE will determine if wetlands are jurisdictional under Section 404.

To apply for a Section 404 permit, the applicant submits a Joint Aquatic Resources Permit Application (JARPA) and supporting information. The USACE has established two types of permit programs under Section 404: Nationwide and Individual. Nationwide permits (NWPs) are issued when a proposed activity will have minimal adverse impacts to wetlands and fits into the limitations for one of the 52 NWPs authorized in 2017. All other projects are evaluated under the Individual Permit process. The USACE determines which permitting process is used for a proposed project. The USACE will require that wetland impacts be avoided or minimized to the extent practicable, and mitigation will likely be required for unavoidable wetland impacts.

For activities that require a federal permit, occur on federal lands, or receive federal funding, the federal lead agency is required to consult with the National Marine Fisheries Service (NMFS) and the USFWS with respect to the proposed activities direct and indirect effects on species and habitats that are afforded protection under the Endangered Species Act. In addition, compliance with the National Historic Preservation Act is required, including consultation with affected Native American tribes and potentially a cultural resources survey.

Section 401 Water Quality Certification

State permitting for activities in wetlands is administered by Ecology. The Water Quality Certification process under Section 401 of the federal Clean Water Act is usually triggered through a Section 404 permit application. Section 401 directs each state to certify that proposed in-water activities will not adversely affect water quality or violate state aquatic protection laws. Any conditions attached to the 401-certification become part of the Section 404 permit.

Local Critical Areas Review

The City of Seattle regulates activities allowed in wetlands and wetland buffer through SMC 25.09.160 – *Development Standards for Wetlands and Wetland Buffers.* Per 25.09.160(C), development and any alteration to the functions and values of Category III wetlands and their associated buffer is prohibited. However, some low impact developments that are frequently associated with field improvements may be allowed with permission of the Director. If impacts to wetlands and/or their buffers cannot be avoided, mitigation will be required.

Wetland Mitigation

Mitigation sequencing:

Before approving a project that will impact wetlands, agencies require project applicants to document that impacts have been avoided and minimized in accordance with the following preferred sequence for mitigation:

a) Avoiding the impact altogether by not taking a certain action or parts of an action;

b) Minimizing the impacts by limiting the degree or magnitude of the action;

c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

d) Reducing or eliminating the impact over time by preservation and maintenance operations;

e) Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and

f) Monitoring the impact and the compensation projects undertaken under subsection 25.09.065.B.1.e and taking appropriate corrective measures.

Applicants for permits to alter wetlands or their buffers must demonstrate that the above sequence has been followed to the greatest extent possible. Wetland impacts that cannot be avoided through the first two steps of the above sequence will require compensatory mitigation as described below.

If compensatory mitigation is required, per SMC 25.09.065(B)3, compensatory mitigation should occur onsite. If onsite mitigation is not feasible, the preferred location of mitigation sites is in the following order: within the same creek watershed; followed by within City of Seattle limits; and lastly, within the same Watershed Resource Inventory Area.

City of Seattle Mitigation Ratios

The City of Seattle mitigation requirements for wetlands are included in Table A for SMC 25.09.065. Impacts to Category III wetlands require the following mitigation ratios (replacement: impact area):

- Restoration or creation – 2:1
- Rehabilitation – 4:1
- Enhancement – 8:1

Wetland Buffer Averaging

Per SMC 25.09.160 (E), buffer width averaging may be allowed, on a case-by-case basis, when the following conditions are met:

a) development in the buffer area will not reduce wetland functions or values,

b) the total area contained in the buffer area after averaging is no less than the total area that would be contained within the buffer required (110 feet for Category III wetland), and

c) the buffer at its narrowest point is never less than 75 percent of the buffer width required.

To ensure a no net loss of ecological function, as a result of the buffer averaging, mitigation of the buffer post-construction may be required. Mitigation may include buffer enhancement through plantings of native shrubs and trees, since existing conditions of the buffer are largely degraded.

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Photos

Photograph 1. Forested portion of Wetland A with Pacific willow in the overstory and slough sedge dominating the understory

Photograph 2: Scrub-shrub portion of Wetland A dominated by Nutka rose and Himalayan blackberry

Photograph 3: Emergent portion of wetland dominated by slough sedge and reed canarygrass

Photograph 4. Southern extent of Wetland A and buffer

Figures

SOURCE: King County, 2017; ESA, 2020

SPS Rainier Beach High School

Figure 2
Wetland Delineation
Seattle, WA

Wetland Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rainier Beach High School | City/County: Seattle | Sampling Date: 19-Nov-2020
Applicant/Owner: Seattle Public Schools | State: WA | Sampling Point: DP-1
Investigator(s): JR, AB | Section, Township, Range: 35/24N/04E
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 1
Subregion (LRR): A | Lat: 47.526692 | Long: -122.26815 | Datum:
Soil Map Unit Name: Urban land -- Alderwood complex, 0 to 5 percent slopes | NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Wetland Hydrology Present?	Yes X	No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30' R)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' R)			
1. Carex obnupta	100	Y	OBL
2. Rubus armeniacus	15		FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1=
FACW species	x 2=
FAC species	x 3=
FACU species	x 4=
UPL species	x 5=
Column Totals: (A)	(B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:
X 1- Rapid Test For Hydrophytic Vegetation
X 2- Dominance Test is >50%
___ 3- Prevalence Index is ≤3.0[1]
___ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5- Wetland Non-Vascular Plants[1]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)
[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks:

SOIL Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/2	97	7.5YR 5/8	3	C	M	Slty loam	lots of roots, organics
5-14	10YR 5/1	90	7.5YR 5/8	10	C	M	Sily loam	lots of fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Cobble/fill

Depth (inches): 14

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery(B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (Inches): NA

Water Table Present? Yes X No ___ Depth (Inches): 2

Saturation Present? Yes X No ___ Depth (Inches): surface

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rainier Beach High School | City/County: Seattle | Sampling Date: 19-Nov-2020
Applicant/Owner: Seattle Public Schools | State: WA | Sampling Point: DP-2
Investigator(s): JR, AB | Section, Township, Range: 35/24N/04E
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): A | Lat: 47.526692 | Long: -122.26815 | Datum:
Soil Map Unit Name: Urban land -- Alderwood complex, 0 to 5 percent slopes | NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	
Hydric Soil Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Populus balsamifera	15	Y	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 5' R)			
1. Festuca rubra	55	Y	FAC
2. Achillea millefolium	10		FACU
3. Geranium robertianum	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1=	
FACW species		x 2=	
FAC species	70	x 3=	210
FACU species	15	x 4=	60
UPL species		x 5=	
Column Totals:	85 (A)		270 (B)

Prevalence Index = B/A = 3.12

Hydrophytic Vegetation Indicators:
___ 1- Rapid Test For Hydrophytic Vegetation
X 2- Dominance Test is >50%
___ 3- Prevalence Index is ≤3.0[1]
___ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5- Wetland Non-Vascular Plants[1]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1-3	10YR 3/2	100					Lo Sand	
3-8	7.5YR 4/1	93	10YR 4/6	7	C	M	Clay loam	
8-12	10YR 5/1	93	5YR 3/4	93	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Cobble/fill

Depth (inches): 12

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery(B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (Inches): ___

Water Table Present? Yes ___ No X Depth (Inches): ___

Saturation Present? Yes ___ No X Depth (Inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils are wet in upper 3 inches only; likley holding water from recent rain in sandy layer; no hyrdology observed below

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rainier Beach High School | City/County: Seattle | Sampling Date: 19-Nov-2020
Applicant/Owner: Seattle Public Schools | State: WA | Sampling Point: DP-3
Investigator(s): JR, AB | Section, Township, Range: 35/24N/04E
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 1
Subregion (LRR): A | Lat: 47.609358 | Long: -122.267578 | Datum:
Soil Map Unit Name: Urban land -- Alderwood complex, 0 to 5 percent slopes | NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes X** **No**
Wetland Hydrology Present?	Yes X	No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30' R)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' R)			
1. Phalaris arundinacea	80	Y	FACW
2. Carex obnupta	25		OBL
3. Rubus armeniacus	15		FAC
4. Calystegia sepium	7		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	127 = Total Cover		
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1=	25
FACW species	80	x 2=	160
FAC species	22	x 3=	66
FACU species		x 4=	
UPL species		x 5=	
Column Totals:	127 (A)		251 (B)

Prevalence Index = B/A = 1.97

Hydrophytic Vegetation Indicators:
___ 1- Rapid Test For Hydrophytic Vegetation
X 2- Dominance Test is >50%
X 3- Prevalence Index is ≤3.0[1]
___ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5- Wetland Non-Vascular Plants[1]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)
[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No**

Remarks:

SOIL Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Silty loam	
5-14	10YR 4/2	98	5YR 4/6	2	CS	M	Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Cobble/Fill

Depth (inches): 14

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery(B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (Inches): ___

Water Table Present? Yes X No ___ Depth (Inches): 12

Saturation Present? Yes X No ___ Depth (Inches): surface

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Rainier Beach High School | City/County: Seattle | Sampling Date: 19-Nov-2020
Applicant/Owner: Seattle Public Schools | State: WA | Sampling Point: DP-4
Investigator(s): JR, AB | Section, Township, Range: 35/24N/04E
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 1
Subregion (LRR): A | Lat: 47.609358 | Long: -122.267578 | Datum:
Soil Map Unit Name: Urban land -- Alderwood complex, 0 to 5 percent slopes | NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	
Hydric Soil Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes	No X
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30' R)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' R)			
1. Phalaris arundinacea	80	Y	FAC
2. Rubus armeniacus	40	Y	FAC
3. Carex Obnupta	5		OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	125 = Total Cover		
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1=	5
FACW species		x 2=	
FAC species	120	x 3=	360
FACU species		x 4=	
UPL species		x 5=	
Column Totals:	125 (A)		365 (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:
___ 1- Rapid Test For Hydrophytic Vegetation
X 2- Dominance Test is >50%
X 3- Prevalence Index is ≤3.0[1]
___ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5- Wetland Non-Vascular Plants[1]
___ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL Sampling Point: DP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/2	100					Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery(B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (Inches): _____
Water Table Present? Yes ___ No X Depth (Inches): _____
Saturation Present? Yes ___ No X Depth (Inches): _____
(includes capillary fringe)

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Rating Form

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 11/19/2020

Rated by J. Redman Trained by Ecology? ☑ Yes ☐ No Date of training 3/15/2015

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
_____ **Category II** - Total score = 20 - 22
X **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		List appropriate rating (H, M, L)		
Site Potential	H	M	M	
Landscape Potential	M	M	L	
Value	H	L	L	**Total**
Score Based on Ratings	8	5	4	**17**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Wetland name or number ___A___

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	N/A
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	1
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 3 points = 2 points = 1 points = 1	3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > $^1/_{10}$ of area Wetland has persistent, ungrazed plants < $^1/_{10}$ of area	points = 5 points = 3 points = 1 points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ¼ total area of wetland Area seasonally ponded is < ¼ total area of wetland	 points = 4 points = 2 points = 0	4
Total for D 1	Add the points in the boxes above	**12**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	 Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	2
Total for D 3	Add the points in the boxes above	**3**

Rating of Value If score is: ☑ **2 - 4 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	4
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 ☑ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 ☐ The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	3
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* ☐ The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 ☐ Entire wetland is in the Flats class points = 5	0
Total for D 4 Add the points in the boxes above	**7**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?	
D 5.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 ☐ • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 ☐ Flooding from groundwater is an issue in the sub-basin. points = 1 ☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why points = 0 ☑ There are no problems with flooding downstream of the wetland. points = 0	0
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0

Total for D 6	Add the points in the boxes above	0

Rating of Value If score is: ☐ **2 - 4 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- ☐ Aquatic bed
- ☑ Emergent
- ☑ Scrub-shrub (areas where shrubs have > 30% cover)
- ☑ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
1 structure: points = 0

If the unit has a Forested class, check if:

- ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- ☐ Permanently flooded or inundated
- ☑ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☑ Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

1

H 1.3. Richness of plant species

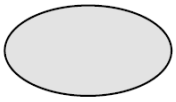
Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted:
- > 19 species — points = 2
- 5 - 19 species — points = 1
- < 5 species — points = 0

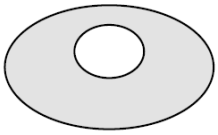
1

H 1.4. Interspersion of habitats

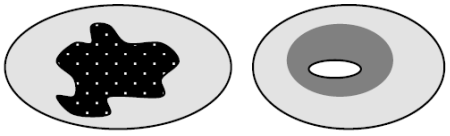
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

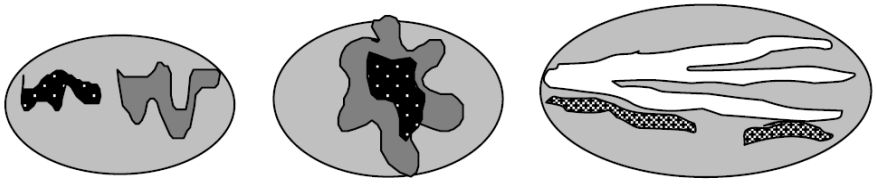


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3 points



3

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	**8**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* <1 % undisturbed habitat + (____ % moderate & low intensity land uses / 2) = If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 21 % undisturbed habitat + (2 % moderate & low intensity land uses / 2) = 22% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**-1**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☐ **1 - 3 = M** ☑ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☐ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	0

Wetland name or number A

Rating of Value If Score is: ☐ **2 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☑ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☑ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed	

in Table 4 provide more than 30% of the cover under the canopy?

☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

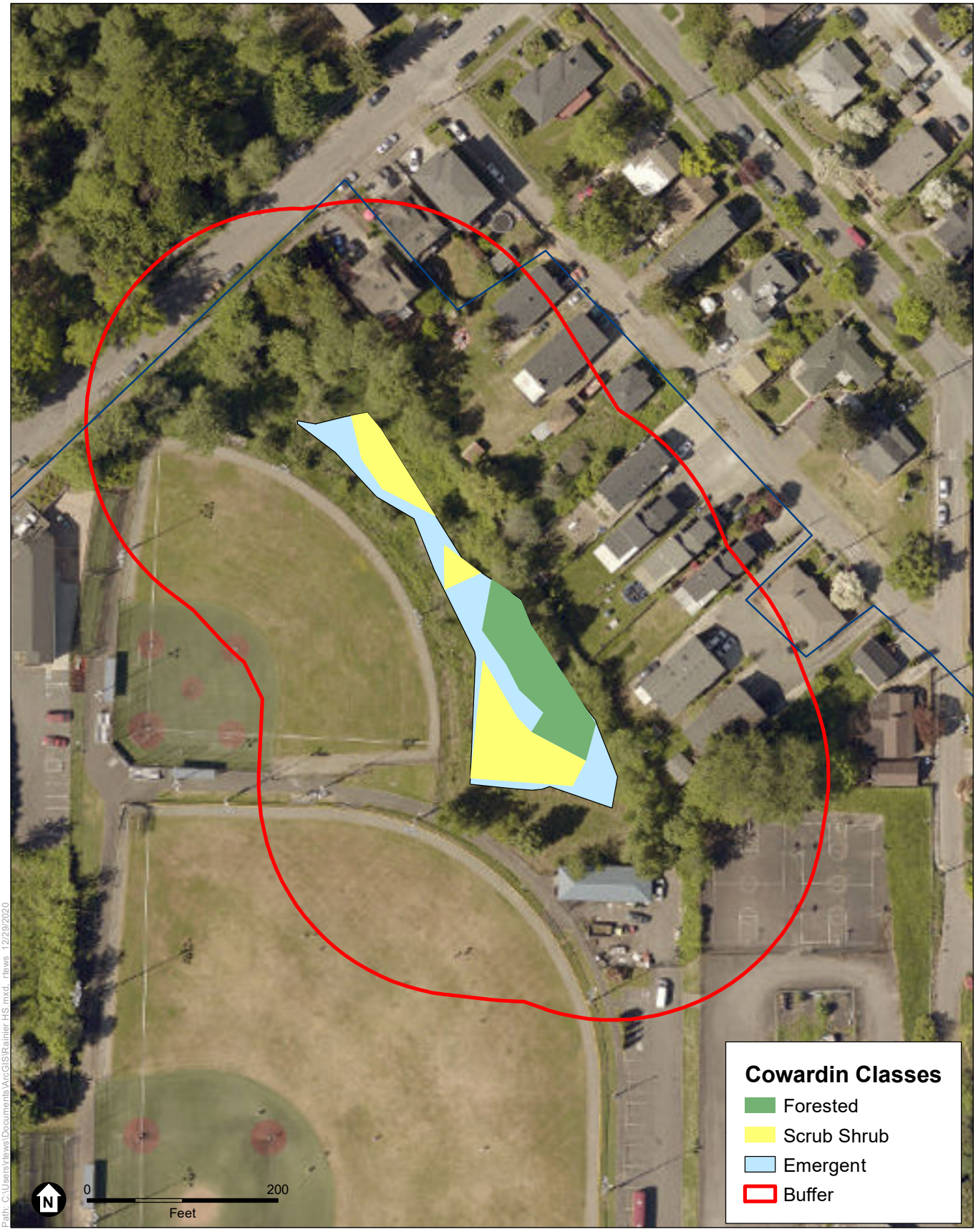
☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form



King County 2019

SPS Rainier Beach High School

Figure 1
Cowardin Plant Classes and Boundary Within 150 of Wetland
Seattle, WA

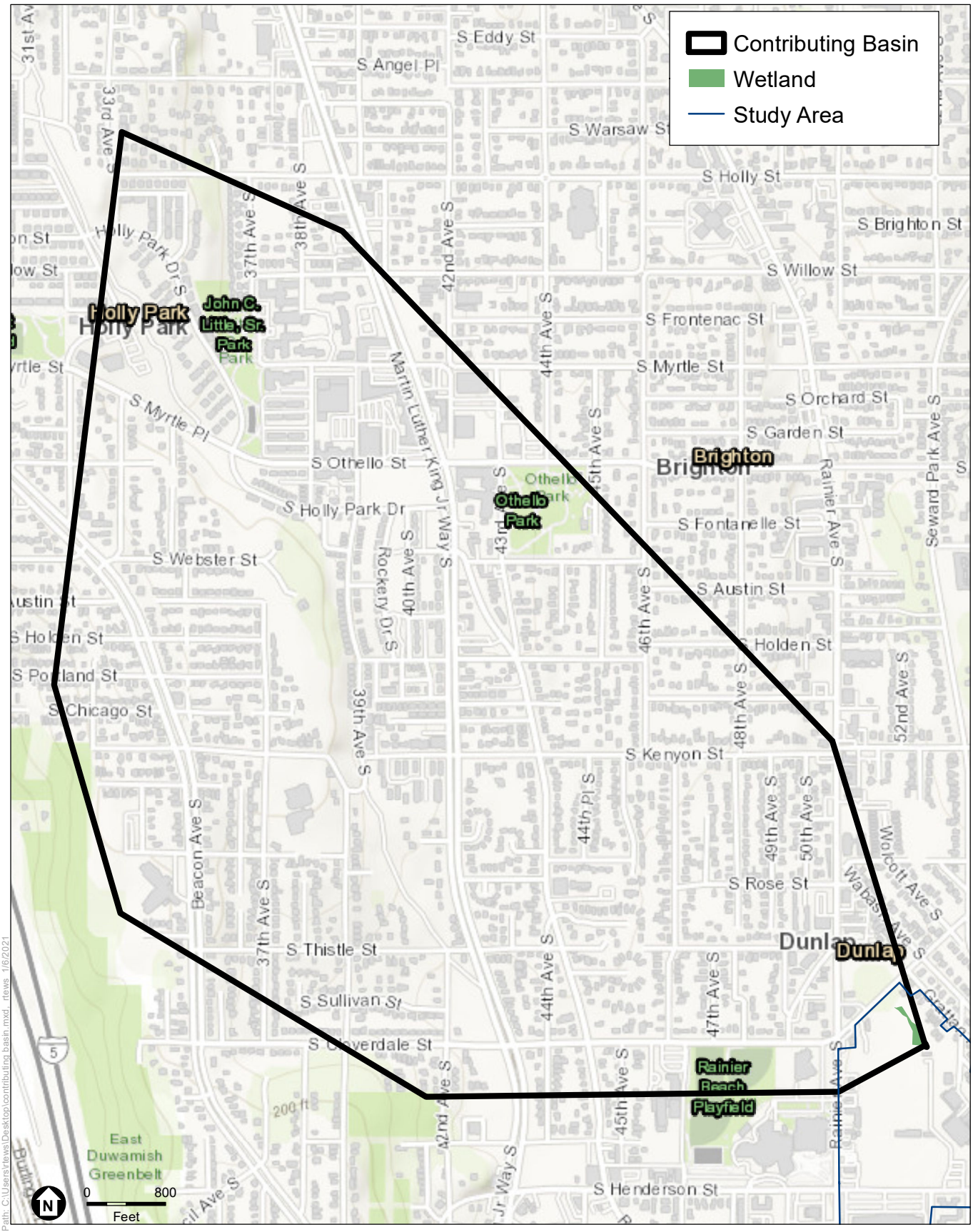
ESA

King County 2019

SPS Rainier Beach High School

Figure 2
Hydroperiods
Seattle, WA

ESA

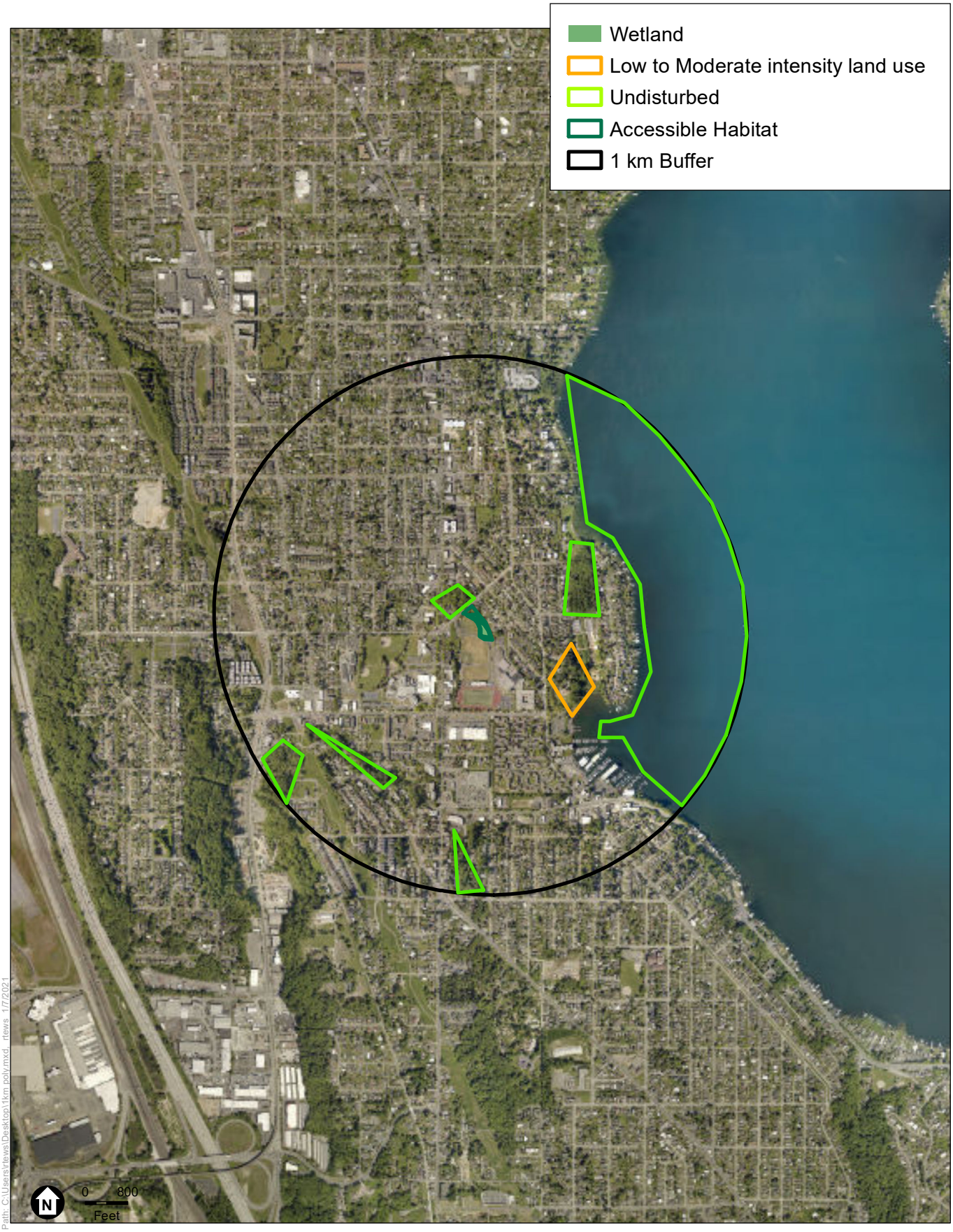


King County 2019

SPS Rainier Beach High School

Figure 3
Map of Contributing Basin
Seattle, WA

ESA



King County 2019

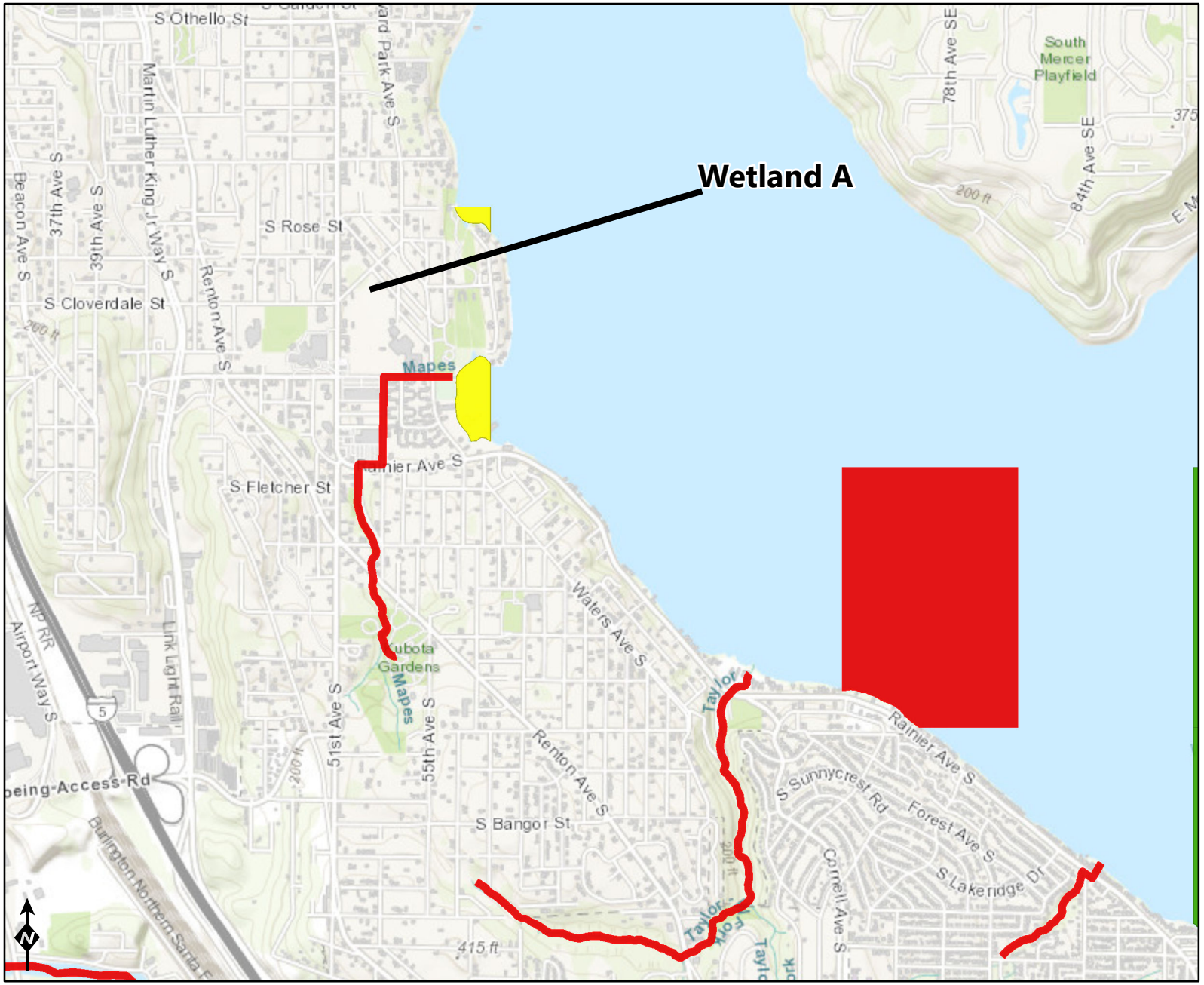
SPS Rainier Beach High School

Figure 4
Area that extends 1km from entire wetland edge
Seattle, WA

ESA

Figure 5

Screenshot of 303d Waters Downstream of Wetland A



Assessed Water/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

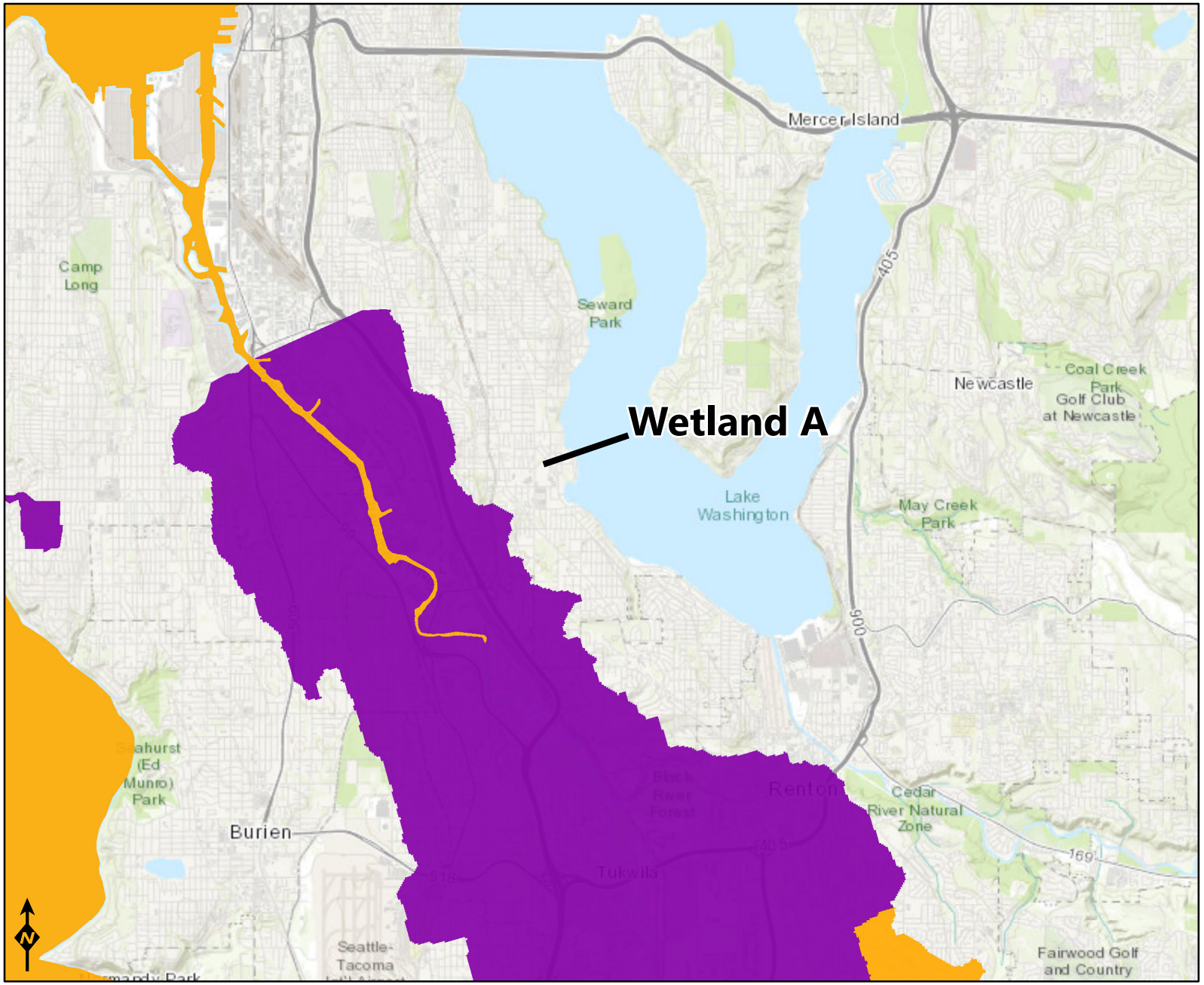
Miles
0 0.25 0.5 1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

DEPARTMENT OF ECOLOGY
State of Washington

Figure 6

Screen Capture of List of TMDLs for WRIA in Which Unit is Found



WQ Improvement Projects

- Approved
- In Development

Miles 0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

DEPARTMENT OF ECOLOGY State of Washington

APPENDIX D: NOISE MEMO

ESA

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www.esassoc.com

memorandum

date June 18, 2021

to Paul Popovich, Seattle Public Schools

from Susumu Shirayama, ESA

subject Rainier Beach High School Replacement Project - Noise Technical Memorandum

Seattle Public Schools (SPS) is proposing to replace Rainier Beach High School (RBHS) as part of the 2019 Building Excellence V (BEX V) funding. RBHS is located at 8815 Seward Park Avenue S., Seattle, WA 98118.

The proposed project would construct a new multi-story high school with up to approximately 283,000 square feet and improvements to the existing athletic fields. When complete, the school would have permanent enrollment capacity for up to 1,600 students in grades 9 through 12; however, it is noted that SPS does not anticipate full enrollment for 10 years or more after completion. Based on staffing for other Seattle high schools, SPS estimates that Rainier Beach High School could have between 130 and 160 employees if/when it is enrolled to its capacity of 1,600 students.

The proposed new school building would be located in the central portion of the site now occupied by the natural practice field and wood shop building. Two parking lots would be located at the southeastern portion of the site.

This memorandum describes the methodology of identifying potential noise impacts due to the replacement of RBHS.

Fundamentals of Noise

The decibel (dB) is a conventional unit for measuring the amplitude of sound as it accounts for the large variations in sound pressure amplitude and reflects the way people perceive changes in sound. When describing sound and its effect on humans, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. The term "A-weighted" refers to a filtering of the noise signal in a manner corresponding to the way the human ear perceives sound. Leq is the equivalent sound level over a specified period of time, typically, 1 hour (i.e., Leq(h)). Leq is also referred to as the average sound level.

People judge the relative magnitude of sound sensation by subjective terms such as "loudness" or "noisiness." A change in sound level of 3 dB is considered "just perceptible," a change in sound level of 5 dB is considered "clearly noticeable," and a change of 10 dB is recognized as "twice as loud."

Because decibels are logarithmic values, they cannot be combined by normal algebraic addition. For example, when the decibel values of two sources differ by 0 to 1 dB, combining them would add 3 dB to the higher level for the combined sound level. When the decibel levels of two sources differ by more than 1 dB, combining them

would add between 0 to 3 dBA to the higher level, depending on the relative difference. At a difference of 10 dB or more, the higher noise source dominates, and there is no addition to the higher level source (i.e., there is no effective change in the overall decibel value with or without the addition of the lower noise level source).

When noise propagates over a distance, the noise level reduces (i.e., attenuates) with distance. The degree to which it diminishes depends on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." Stationary point sources of noise, including stationary mobile sources, such as idling vehicles, attenuate at a rate of 6 dBA for acoustically "hard" sites and 7.5 dBA for acoustically "soft" sites, for each doubling of distance from the reference measurement, as their energy is continuously spread out over a spherical surface. Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No attenuation from the ground surface is assumed for hard sites, and the 6 dBA reduction in noise levels with doubling of distance is only from the geometric spreading of the noise from the source (e.g., for hard sites, 80 dBA at 50 feet attenuates to 74 at 100 feet, 68 dBA at 200 feet). Soft sites are those with an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees; in addition to the 6 dBA reduction from geometric spreading, soft sites provide an additional attenuation of up to 1.5 dBA per doubling distance from the surface. In a typical analysis the given ground surface is somewhere between a hard and a soft site; therefore, for a conservative estimate, the hard-site attenuation rate of 6 dBA for point sources is typically used in analyses, rather than attempt to determine the exact surface conditions between each source and receptor.

Roadways and highways consist of several localized noise sources on a defined path and hence are treated as "line" sources, which approximate the effect of several point sources. Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading." Line sources (e.g., traffic noise from vehicles) attenuate at a rate of between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement. Therefore, noise due to a line source attenuates less (about half) with distance than that of a point source.

City of Seattle Municipal Code

The City of Seattle Municipal Code (SMC Chapter 25.08) regulates noise in the City. Noise is typically defined as an unwanted sound that can disrupt quality of life (EPA, 2016). The City sets exterior sound level limits according to the land use of both the property generating the noise (the source) and the property receiving the noise. From one property to another when both properties are within a residential district, the maximum allowable noise during weekday daytime and evening hours (7:00 a.m. to 10:00 p.m.) is limited to 55 Leq (dBA). This is the maximum noise that may be generated from a specific property that is experienced by another property (not the cumulative noise from all surrounding properties and activities).

SMC Chapter 25.08.500E further regulates noises considered "unreasonable" including "loud and raucous, and frequent repetitive or continuous sounds made by the amplified or unamplified human voice" between the hours of 10:00 p.m. and 7:00 a.m. During these nighttime hours, maximum allowable noise from one property to another within residential districts is reduced to 45 Leq (dBA). RBHS is located within residential districts per City of Seattle Zoning.

Table 1. Exterior Sound Level Limits

	Residential Receiving Property (Experiencing the Noise)	
District of Sound Source	**7a.m. – 10 p.m. Limit (Leq)**	**10 p.m.– 7a.m. Limit (Leq)**
Residential	55 dBA	45 dBA
Commercial	57 dBA	47 dBA
Industrial	60 dBA	50 dBA

Source: SMC Chapter 25.08.410

For noise sources that are not continuous, higher levels are allowed for short durations. The code specifies that shorter duration noises up to 15 dBA above the continuous limit are allowable, as long as the hourly Leq exterior sound level limit is not exceeded (SMC 25.08.410.B).

SMC Chapter 25.08.425 describes sounds created by construction and maintenance equipment. Considering the proposed project is a public project, the exterior sound level limits presented in Table 1, as measured from the property line of the real property of another person or at a distance of 50 feet from the construction or maintenance equipment making the sound, whichever is greater, may be exceeded between 7 a.m. and 10 p.m. on weekdays and between 9 a.m. and 10 p.m. On weekends and legal holidays, it may be exceeded by 25 dBA for equipment on construction sites, including but not limited to crawlers, tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, graders, off-highway trucks, ditchers, trenchers, compactors, compressors, and pneumatic-powered equipment.

SMC Chapter 25.08.540A exempts sounds created by bells, chimes, or carillons not operating for more than 5 minutes in any one hour for the hours between 7 a.m. and 10 p.m. on weekdays and between 9 a.m. and 10 p.m. on weekends and legal holidays.

Noise Sensitive Receivers

Noise sensitive receivers in the vicinity of RBHS include single- and multi-family residences. A large apartment complex is located to the south of S Henderson St. Two apartment buildings along Rainier Ave S are located to the west. Single-family residences are located to the northeast.

Existing Condition

Due to COVID-19 and school closure, existing noise conditions were not measured for this project. Instead, existing noise levels are estimated based on the existing traffic volumes. **Table 2** includes the existing PM Peak Hour traffic volumes and estimated noise levels in hourly Leq. Noise levels are calculated by using Federal Highway Administration's Traffic Noise Model. Note that all traffic volumes are considered as regular auto. No trucks/buses were included. This is considered a conservative approach because the estimated existing noise levels would be lower than the one including trucks/buses.

Table 2. Existing Noise Levels

Roadways	PM Peak Hour Traffic Volumes	Estimated Noise Levels at Receiver Property Line Closest to RBHS	Distance between Roadway and Receiver Property Line Closest to RBHS
S Henderson St	473	53.7 dBA Leq(h)	45 feet
Rainier Ave S	1896	53.2 dBA Leq(h)	200 feet
S Cloverdale Place	210	48.9 dBA Leq(h)	60 feet
Seward Park Ave S	859	56.8 dBA Leq(h)	40 feet

Source: Heffron, 2021; ESA, 2021.

Noise levels in Table 2 can be lower when receivers are further away from roadways. However, considering the project site is an urban environment, the existing noise levels will not be much quiet than what is included in Table 2.

Proposed Project Noise Assessments

Increasing student capacity by replacing the existing school would not change the types of noise or timing of noise at the school. Residents of neighboring properties would likely notice a slight increase in noise at the beginning and end of the school day and during lunch and recess periods from the increased number of students. Additional car and bus trips for student drop-off and pickup would likely increase noise to neighboring residents. The following subsections describe potential noise sources and its effects to the neighboring properties.

Parking

The proposed project includes new parking spaces. Two main parking lots would be located at the southeastern portion of the site—one with 62 spaces and the new on-site passenger vehicle load/unload loop accessed from S Henderson Street and a second lot with 106 spaces accessed from Seward Park Avenue S. These two parking areas would be physically connected by a tabletop driveway designed to emphasize pedestrian movement, but would allow connection between the parking areas during peak-use periods. An additional 46 spaces are proposed along the northeast edge of the site with primary access from the same driveway on Seward Park Avenue S and/or from the south end of 53rd Avenue S.

Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment Manual includes the methodology to estimate parking noise based on the number of cars. From each parking space, the estimated noise levels would be 44 dBA, 47 dBA, and 43 dBA for 62 spaces, 106 spaces, and 46 spaces, respectively. Since none of the parking spaces exceed 55 dBA, it is considered less than significant impact.

Students

Students would exit the building for recess, lunch, and/or beginning and end of the school. Students may be located on available benches throughout the school for recess and lunch time. However, it is assumed that the duration of recess and lunch time would be short-term events. In the mornings and afternoons, students would gather around the drop off, pick up, and building entrance areas. The noise from student's voices would also be short-term events. The main entrance area is approximately 400 feet away from the southern residential property line. The drop-off area is approximately 200 feet away from the eastern residential property line. Due to the short-

term events and their distance away from residential properties, the hourly noise level would not exceed 55 dBA and it would be considered less than significant.

Vehicular Traffic

The traffic report included 2025 traffic volumes with and without the project. Table 3 includes the PM peak hour volumes and predicted noise levels at the receiver property line closest to RBHS.

Table 3. 2025 Traffic Volumes and Estimated Noise Levels

Roadways	2025 PM Peak Hour Traffic Volumes		Estimated Noise Levels at Receiver Property Line Closest to RBHS		Distance between Roadway and Receiver Property Line Closest to RBHS
	Without Project	With Project	Without Project	With Project	
S Henderson St	500	580	53.9 dBA	54.6 dBA	45 feet
Rainier Ave S	2,026	2,033	53.5 dBA	53.5 dBA	200 feet
S Cloverdale Place	240	240	49.5 dBA	49.5 dBA	60 feet
Seward Park Ave S	898	910	57.0 dBA	57.0 dBA	40 feet
53rd Ave S	--	10	--	43.0 dBA	20 feet

Notes:
The traffic volume without project for 53rd Ave S was not included in the traffic report.
Source: Heffron, 2021; ESA, 2021.

Noise levels due to vehicular traffic would not exceed 55 dBA for the proposed project except Seward Park Avenue S. However, the noise levels from Seward Park Ave S exceeds 55 dBA without the proposed project and there would be no increase due to the project. Therefore, all noise due to vehicular traffic would be considered less than significant impact.

Athletic Activities

The level of athletic activities would be similar to existing school conditions and the bleacher capacity would also be similar to the existing capacity. The practice field would be relocated from its current location north of the football/soccer field to the northeastern portion of the school where the existing basketball courts are. Considering that athletic activities already are occurring at the basketball courts in the northeast portion of the site, the noise environment is not expected to change significantly with the location of the practice field there. With the proposed project, the noise level generated from athletic activities would not be expected to increase significantly because the new practice field would be for school use only.

Construction

As described in the section of City of Seattle Municipal Code, SMC Chapter 25.08.425 describes sounds created by construction and maintenance equipment. Considering the proposed project is a public project, the exterior sound level limits presented in Table 1, as measured from the property line of the real property of another person or at a distance of 50 feet from the construction or maintenance equipment making the sound, whichever is

greater, may be exceeded between 7 a.m. and 10 p.m. on weekdays and between 9 a.m. and 10 p.m. on weekends and legal holidays. It may be exceeded by 25 dBA for equipment on construction sites, including but not limited to crawlers, tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, graders, off-highway trucks, ditchers, trenchers, compactors, compressors, and pneumatic-powered equipment. Following is the common practice to reduce the noise from construction activities.

- Construction hours should be limited to follow SMC.
- Construction equipment is maintained in a good condition and equipped with mufflers.
- If feasible, stay away from noise sensitive receivers.
- When equipment is not used, it should be turned off instead of idling.
- If necessary, temporary noise barrier can be installed to block the direct line-of-sight.
- Residences in the vicinity of the school should be notified before construction starts.

It is assumed that the contractor would follow SMC to limit the noise levels less than 80 dBA as measured from the property line of the real property of another person or at a distance of 50 feet from the construction or maintenance equipment making the sound, whichever is greater. Therefore, the impact would be considered less than significant.

References

Seattle Public Schools (SPS). 2021. Rainier Beach High School Replacement. 95% Schematic Design. January 2021.

City of Seattle. City of Seattle Municipal Code.

Cummins. 2020. Packaged Engine Generator Section 263213. September, 2020.

Greenheck. 2021. Roof Upblast/Sidewall Exhaust specifications.

Heffron. 2021. Draft Transportation Technical Report for the Rainier Beach High School Replacement Project. April 14, 2021.

APPENDIX E: ARBORIST REPORT

Tree Solutions Inc
Consulting Arborists

Project No. TS - 7542

Arborist Report

TO:	Seattle Public Schools c/o Paul S. Popovich
SITE:	Rainier Beach High School, 8815 Seward Park Ave S, Seattle, WA 98118, USA
RE:	Rainier Beach High School Replacement Arborist and Tree Services
DATE:	March 25, 2021
PROJECT TEAM:	Sean Dugan, ISA Certified Arborist #PN-5459B Registered Consulting Arborist 457 ISA Qualified Tree Risk Assessor
	Joseph Sutton-Holcomb, ISA Certified Arborist #PN-8397A ISA Qualified Tree Risk Assessor
ATTACHED:	Tree Inventory Table of Trees, Risk Table of Trees, Annotated Survey with Tree Numbers
REFERENCED:	PACE Engineering Base map, dated June 15, 2020

Summary
Tree Solutions inventoried and assessed 189 trees on the Rainier Beach High School site and adjacent Rights-of-Ways (ROW) as required for development projects by the city of Seattle.[1] Of the trees assessed, 34* meet the exceptional tree criteria outlined in the Seattle Director's Rule 16-2008.[2] Twenty-nine (29) of these trees are located in a Native Growth Protection Area (NGPA) or environmental critical area (ECA).

Seventeen (17) trees (205 through 232) are listed on the city's website to be within the city of Seattle Department of Transportation(SDOT) ROW. Trees 205 through 210 are shown on the SDOT street tree map but not shown on survey to be on SDOT property. An additional three trees (202, 203* 204) are shown on the marked-up survey to be in the ROW but not included on the city's website.

Seventeen (17) trees inventoried are located on adjacent properties with overhanging canopies. These trees are labeled A through Q. Trees H through M are located within an offsite Exceptional grove.

**Tree 203 may or may not be classified as exceptional depending on if it is on private or public property. Tree 203 was not on the survey and only visually located by Tree Solutions.*

Additional information on tree locations should be collected and included in the survey. Proposed development plans should be created and evaluated for potential negative impacts to trees. Tree

[1] SMC 25.11
[2] Sugimura, D.W. "DPD Director's Rule 16-2008". Seattle, WA, 2009

protection specifications should be included in the plan sets and accounted for in the proposed development scheme.

Assignment & Scope of Report
This report outlines the site inspections by Sean Dugan, Joseph Sutton-Holcomb, and Connor McDermott, of Tree Solutions Inc, between January and March 2021. Included are observations and data collected at the site located at 8815 Seward Park Ave S, Seattle, WA 98118.

We were asked to document and evaluate all regulated trees on the site and identify any exceptional trees, as defined by Seattle Director's Rule 16-2008. We were asked to evaluate trees on adjacent properties with overhanging canopies. We were asked to assess trees within the city's rights-of-ways adjacent to the site.

We were asked to produce an Arborist Report outlining our findings. Paul Popovich, of Parametrix representing Seattle Public Schools, requested these services to acquire information for project planning purposes.

On-site trees and trees in the ROW were assigned a numerical identifier between 101 and 289. On-site trees were physically tagged. The numbers shown on the annotated survey correspond with the physical tags on-site, unless otherwise noted in the tree inventory table of trees and marked-up site survey. Notable differences are:

- Tree 193 = Tagged as 359
- Tree 124 = Tagged as 360
- Tree 125 = Tagged as 361
- Tree 126 = Tagged as 362
- Tree 127 = Tagged as 363
- Tree 128= Tagged as 365
- Tree 129 = Tagged as 364

Trees 188, 189, 190, 201, 242, 247, and 248 are identified on the marked-up site survey and in the tree inventory table but not tagged on site due to access limitations.

The following trees are not shown on the original survey but have been included in the attached marked-up survey: 122, 124, 125, 126, 127, 128, 129, 130, 132, 136, 137, 174, 188, 189, 190, 192, 197, 198, 203, 233-248, 250-255, 257, 259 -272, and 280. Data should be collected for these trees to properly locate them on the site survey. Please note the locations of these trees are approximate based on the survey data available. These trees are physically tagged in the field unless otherwise noted in the paragraph above.

ROW trees
Seventeen trees (205 through 232) are listed on the city's website to be within the city of SDOT ROW. Shown on SDOT street tree map but not shown on survey to be on SDOT property are 205 through 210. An additional three trees (202, 203 204) are shown on the marked-up survey to be in the ROW but not included on the city's website.

Off-site trees (not including ROW trees)
The off-site trees were assigned an alphabetical identifier for the purpose of this report but were not tagged. These trees are identified as A through Q. Trees H through M are located within an Exceptional grove. These trees have a contiguous canopy with off-site trees not included in the inventory.

Observations, Discussion, and Recommendations
Site
The Seattle Department of Construction and Inspections (SDCI) GIS map indicates that the entire site is listed as an environmentally critical areas (ECAs)(Figure 1). The majority of the site including fields, buildings, and infrastructure is within liquefaction and/or peat settlement zones.

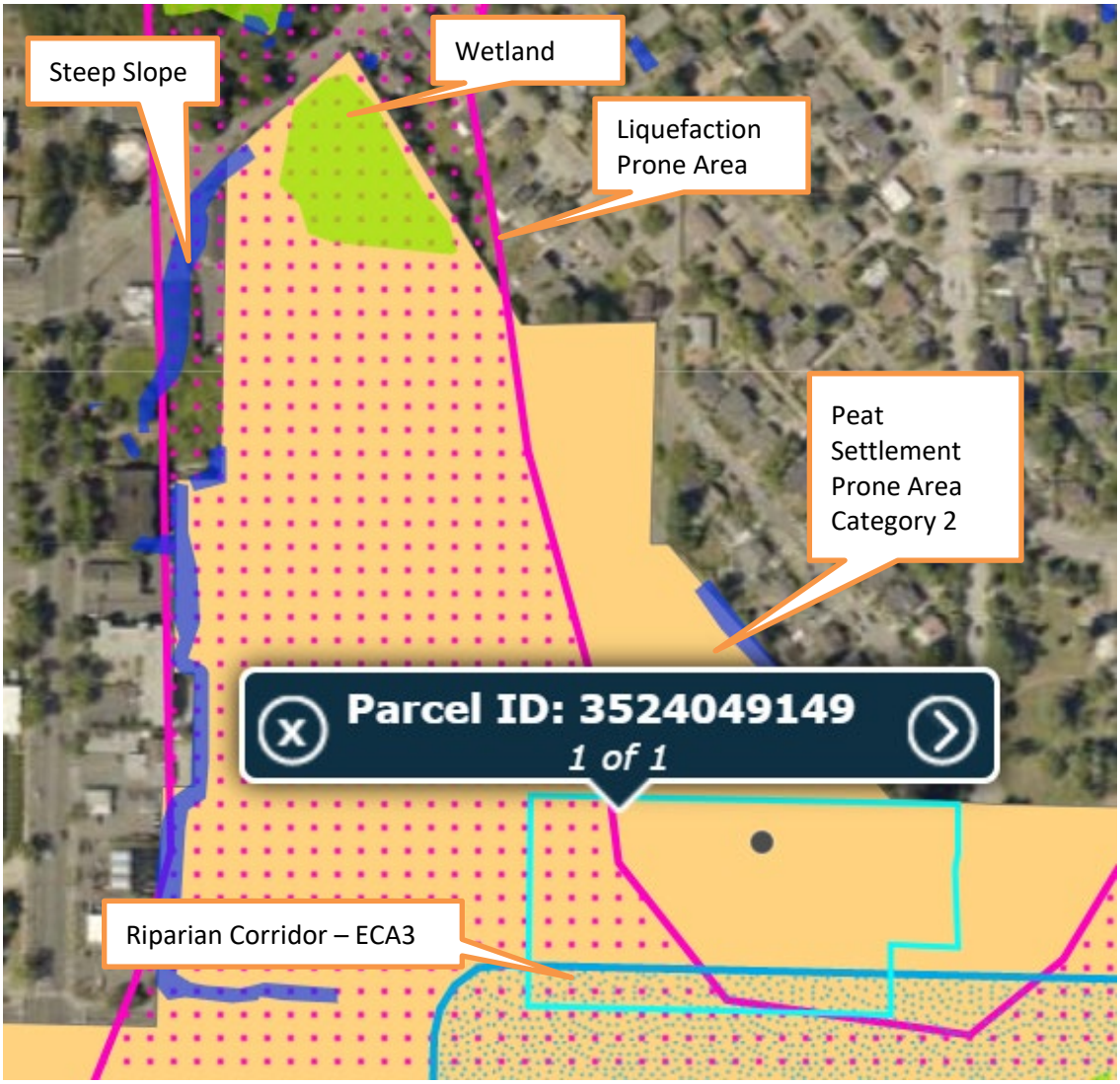

Figure 1. An aerial view of the site. The red lines indicate the approximate boundaries of the property. The blue diagonal lines indicate Steep Slope Environmentally Critical Areas (Source: Seattle Department of Construction and Inspections GIS)

Steep slopes are located primarily along the west perimeter and to the southwest portion of the site. There is a small steep slope section behind the existing building on the east perimeter. There is a Native Growth Protection Area (NGPA)/Wetland on the north portion of the site.

Trees

A total of 189 trees were inventoried on-site and in the adjacent ROW. Seventeen trees located on adjacent private properties were also assessed. Specific details about each on-site tree, including size and health condition, are listed in the attached Tree Inventory Table of Trees and the Risk Table of Trees. Exceptional trees have been highlighted in yellow on the Marked-up site survey.

On-site trees

We assessed 189 trees regulated trees with a diameter at standard height of six inches and greater. One hundred and seventy-two are on the Seattle Public Schools property and 17 are in the adjacent ROW.

Approximately, thirty-four of the regulated private property trees met the exceptional tree criteria as outlined in the Seattle Director's Rule 16-2008,[3] which include trees: 105, 119, 123, 124, 125, 127, 129, 132, 136, 139, 143, 154, 159, 192, 193, 196, 198, 201, 241, 244, 245, 246, 249 – 254, 256, 258 -261, and 271. It is unclear if tree 203 is on public or private property. The tree was not included on the original survey. If the tree is on private property, it will meet the exceptional tree criteria.

Of the exceptional trees, the following are located in an NGPA or ECA – 124, 125, 127, 129, 132, 136, 139, 143, 192, 193, 196, 198, 201, 241, 244, 245, 246, 249 – 254, 256, 258 – 261, and 271.

Tree 119 stands out as truly being an exceptional tree due to its unique structure and age. Development plans should be carefully considered within 45 feet of the tree. It is advised to have input from the project arborist regarding any activities proposed near this, regardless of the extent of the dripline.

Risk Trees

Trees 193 and 196 present a **high-risk** potential to the adjacent targets. Information specific to these trees can be found in the attached risk table of trees. The trees are located along the west perimeter, on an ECA due to being a steep slope, and are exceptional trees. The trees target an adjacent apartment building. Both trees require mitigation to decrease the risk potential, which includes possible snagging or removal. Exceptional trees can only be removed if they present a high-risk potential.

Trees 124, 125, 127, 129, 159 and 191 present a moderate risk potential. All of the trees are located along the west perimeter in an ECA due to being a steep slope, except for tree 159, which is located next to the school. Trees 124, 125, 127, 129 and 159 are exceptional trees. The city requires that exceptional trees that do not present a high-risk potential must be retained. The trees will require mitigation to reduce the risk potential.

Tree 144 is an English oak (*Quercus robur*) tree that presents a **moderate to high risk** to people in the adjacent walkway and in parked cars. The tree has extensive decay at the base and a significant lean to the north. Options for mitigation are limited. Removal is recommended.

[3] Sugimura, D.W. "DPD Director's Rule 16-2008". Seattle, WA, 2009

Tree 159 had recent large limb failures prior to our assessment. The tree is located within several feet of an existing structure. The tree currently presents a **moderate risk** to the surrounding targets. Reduction pruning to reduce the leverage on any overextended branches could prevent future limb loss. Tree retention will need to be assessed based on the proposed development plans.
Tree s 101, 107, 111, and 112 are English hawthorn (*Crataegus laevigata*) trees, located in the southeast portion of the property and near the adjacent ROW. The trees are in fair to good structural condition. There is concern that the trees produce significant size thorns that could present a potential hazard.

Bigleaf maple (Acer macrophyllum) trees - 191, 192, 193 (tagged as 359) 194, 195, 196
Tree Solutions conducted a follow up risk assessment of this row of bigleaf maple trees on March 12, 2021. These trees are growing at the top of a steep slope ECA near the western edge of the school district parcel boundary. Tree Solutions recommended this additional assessment because we observed structural defects in the trees during the initial inventory and observed that the trees target the adjacent Starliter apartment building to the west in the event of failure.

We rated trees 196 and 193 (tagged 359) to pose a high risk to nearby targets in a 3-year timeframe. Tree 196 has experienced large stem and branch failures in the past and has extensive decay in the lower trunk. We recommend the school district remove the tree's west stem at minimum and consider removing the entire tree or converting it into a wildlife snag.

Tree 193 (tagged 359) also has a large cavity with decay at the base, with only a thin shell wall of sound wood keeping the tree alive. Given that the tree is approximately 75 feet in height, such a defect is of concern as there is considerable weight and leverage above it. We rated the likelihood of failure as probable in a 3-year timeframe, and a high risk to nearby targets.

In addition, we recommend that the remaining trees in this row of maples be managed with pruning to mitigate the risk of branch and stem failure. Specifics on pruning and management recommendations for all trees in the row can be found in the master table of trees and in a separate risk assessment table of trees attached to this report.

The removal of these trees will require a permit from the Seattle Department of Construction and Inspections (SDCI), as the trees are Exceptional in size and located on a steep slope ECA. Revegetation and restoration of the slope will likely be required as a condition of the permit if it is approved. Tree Solutions can assist with permitting and creating a revegetation plan upon request.

Oregon ash trees 124 through 129 (tagged 361, 362, 363, 365, & 364 respectively)
This grove of Oregon ash trees is located on a steep slope ECA near the northwestern edge of the school district parcel boundary. They are growing in proximity to S Cloverdale Pl and target that street and the powerlines that run along it in the event of failure.

We assessed trees 125, 127 and 129 (tagged 361, 363, and 364) as posing a moderate risk to the right-of-way and powerlines in a three-year timeframe. We rated Trees 362 and 365 as low risk in the same timeframe.

It is important to note that while these trees were not rated as high risk, we observed significant structural defects on these trees including large cavities and evidence of past stem failures. Additionally, invasive ivy is so well established on these trees that a complete structural assessment is not possible.

This is a significant limitation to the risk assessment we performed, meaning the actual risk from these trees could be higher or lower than reported.

We recommend removing Ivy from the crowns and trunks of trees 125 through 127, & 129 and pruning all four trees to mitigate the risk of stems and branches failing into S Cloverdale Pl. This should be accomplished through a combination of reduction and removal cuts on stems that overhang the right of way, or stems that have defects at or near their points of attachment such as codominant unions or previous tear outs.

The recommended scope of pruning work for these trees will be difficult to clarify until the invasive ivy issue is dealt with. Tree Solutions did some work to sever or girdle ivy stems at the base of the trees, but in order to accurately assess and prune the trees Ivy removal from the upper trunk and crown will be necessary, which requires that climbing arborists ascend into the canopies to manage the vines and assess the crown structure.

Depending on the scope of pruning work, this management may require a permit from SDCI, as the work may exceed the standard for "normal and routine pruning, tree and vegetation maintenance" allowed by SMC 25.09.045.J "Exemptions."

Off-site trees

We inventoried seventeen off-site trees. These trees were not included on the survey but included in the attached marked-up survey as A, B, C, D, E, F, G (Grove - H, I, J, K, l, M+ trees with non-overhanging canopy), N, O, P, Q. Off-site trees require protection at their dripline during both demolition and construction activities.

Development Impacts

This report is preliminary as we have not reviewed design or construction plans for this area.

Work within the dripline of retained trees should be carefully planned with the project arborist. Areas where alternative construction methods are planned should be called out on the plan set.

According to SMC 25.11.50[4], work within the dripline of exceptional trees can only impact one-third of the outer one-half of the dripline area. In some cases, depending on the tree species, tree health, and existing conditions this level of impact may be too great. All work within the dripline of exceptional trees must be planned with the project arborist. An assessment of impacts within the dripline area of retained exceptional trees should be produced.

All retained trees should be protected following the tree protection specifications outlined in Appendix B. Tree protection specifications should be included in the project manual and on the plan set. Tree protection specifications include but are not limited to the following:

- Install chain-link fencing at the dripline of the tree or at the combined dripline of groves unless otherwise specified.

[4] Seattle Municipal Code 25.11.050. General Provisions for Exceptional Trees

- Move fencing only when work specified within the tree protection area is planned to occur under the observation of the project arborist. This will prevent damage to trees from the use of unplanned construction methods within the tree protection area.
- Apply 6-inches of coarse woodchip mulch within the tree protection area to protect soils. We recommend applying woodchip mulch as soon as possible prior to construction to improve the health condition of the trees.
- Install temporary irrigation to water trees during construction.
- Use alternative excavation methods such as pneumatic air excavation or hand digging within the dripline of trees.
- Have the project arborist monitor all soil disturbance activities including demolition and grading within the tree protection area.

Tree Replacement

Tree Solutions recommends a replacement rate of 1:1 for trees below regulated size outside of ECAs. Trees that are removed within an ECA are subject to replacement requirements as outlined in SMC 25.09.070.[5] Replacement of exceptional trees and trees greater than 24-inches DSH are subject to requirements as outlined in SMC 25.11.090.[6]

Overall Recommendations

- Locate trees not included on the original survey.
- Determine if tree 203 is on private property and therefore exceptional.
- Site planning around exceptional trees must follow the guidelines outlined in SMC 25.11.050.[7]
- Site planning around trees in critical areas must follow the guidelines outlined in SMC 25.09.070.[8]
- All pruning should be conducted by an ISA certified arborist and following current ANSI A300 specifications.[9]
- Utilize a common tree layer across the plan set that shows tree numbers, identifiers, accurate driplines, exceptional status, and limits of disturbance. This is critical on civil drawings and any drawings that show excavation near trees.
    - Coordinate with Tree Solutions to plan excavation methods to be used within the driplines of retained trees.
    - Call out alternative construction methods within tree protection areas on plan sets.
- Produce an assessment of impacts within the dripline of all exceptional trees.
- Utilize small plant stock (maximum 1 to 2-gallon size) for installation within the tree protection area of retained trees. Install plants within driplines of retained trees by hand.
- Avoid trenching for irrigation within the dripline of retained trees.

[5] Seattle Municipal Code 25.09.070 Standards for Trees and Vegetation in Critical Areas

[6] Seattle Municipal Code 25.11.090 Tree replacement and site restoration

[7] Seattle Municipal Code 25.11.050. General Provisions for Exceptional Trees

[8] Seattle Municipal Code 25.09.070 Standards for Trees and Vegetation in Critical Areas

[9] ANSI A300 (Part 1) – 2017 American National Standards Institute. American National Standard for Tree Care Operations: Tree, Shrub, and Other Woody Plant Maintenance: Standard Practices (Pruning). New York: Tree Care Industry Association, 2017.

- Implement temporary irrigation for all retained trees on-site throughout the dry season: May through September.
- Include tree protection specification language provided in Appendix B in all plan sets. Incorporate all provisions in the provided specifications into the formal tree protection specifications.
- Plan for arborist monitoring of demolition, excavation activities, and any other soil disturbance within the tree protection area of any protected tree.

Appendix A – Photographs

Photo 1. A view of the crown of Tree 119, an Exceptional tree that should be a high priority for retention and protection.

Photo 2. A view of the base of tree English oak tree 144. The yellow shapes indicate cavities with decay. This tree targets the right-of-way on Henderson St. and is recommended for removal.

Photo 3. A view of exceptional deodar cedar tree 159. Which experienced large diameter stem tearouts during recent winter storms.

Photo 4. A view of the cavity with decay at the base of tree 193. This tree was assessed to be a high risk to the adjacent apartment building and is recommended for removal.

Photo 5. A view looking up at tree 196, which is indicated with a red arrow. A large stem that previously failed downslope is indicated with yellow arrows.

Photo 6. A view of the primary stem union of tree 196. The red shape indicates a column of central decay that extends to the base of the tree.

Photo 7. A view of the canopies of Oregon ash trees 124-129. Note that although the trees are not in leaf in the photo, the evergreen leaves of the ivy are a substantial presence in the crowns of all trees. This ivy should be removed as soon as possible.

Appendix B – Tree Protection Specifications

1. **Project Arborist:** The project arborists shall at minimum have an International Society of Arboriculture (ISA) Certification and ISA Tree Risk Assessment Qualification.
2. **Tree Protection Area (TPA):** The city of Seattle requires a tree protection area (TPA) of the dripline of the tree. In some cases, the TPA may extend outside tree protection fencing. Work within the TPA must be approved and monitored by the project arborist.
3. **Tree Protection Fencing:** Tree protection shall consist of 6-foot chain-link fencing installed at the TPA or at the limits of disturbance as approved by the project arborist. Fence posts shall be anchored into the ground or bolted to existing hardscape surfaces. Where trees are being retained as a group the fencing shall encompass the entire area including all landscape beds or lawn areas associated with the grove that are not needed for construction access or staging. Where chain link fencing is installed at the limits of disturbance to accommodate future project work, high visibility fencing will be placed at the TPA with signage indicating that work in the TPA shall be monitored by the project arborist and permission from the site manager is required for entry. Where trees are protected at the edge of the project boundary, construction limits fencing shall be incorporated as the boundary of tree protection fencing. Where tree protection will be placed at the top of a rockery, high visibility fencing shall be used.
4. **Access Beyond Tree Protection Fencing:** In areas where work such as installation of utilities is required within the TPA, a locking gate will be installed in the fencing to facilitate access. The project manager or project arborist shall be present when tree protection areas are accessed.
5. **Tree Protection Signage:** Tree protection signage shall be affixed to fencing every 20 feet. Signage shall be fluorescent, at least 2’ x 2’ in size, with 3” tall text. Signage will note: “Tree Protection Area – Do Not Enter: Entry into the tree protection area is prohibited unless authorized by the project manager.” Signage shall include the contact information for the project manager and instructions for gaining access to the area.
6. **Filter Fencing:** Filter fencing within the TPA of retained trees shall be installed in a manner that does not sever roots. Do not trench to insert fabric into the ground. Install so that filter fabric sits on the ground and is weighed in place by sandbags or gravel.
7. **Monitoring:** The project arborist shall monitor all ground disturbance at the edge of or within the TPA, including where the TPA extends beyond the tree protection fencing.
8. **Soil Protection:** No parking, foot traffic, materials storage, or dumping (including excavated soils) are allowed within the TPA. Heavy machinery shall remain outside of the TPA. Access to the tree protection area will be granted under the supervision of the project arborist. If project arborist allows, heavy machinery can enter the area if soils are protected from the load. Acceptable methods of soil protection include applying 3/4-inch plywood over 4 to 6 inches of wood chip mulch or use of Alturna mats (or equivalent product approved by the project arborist). Retain existing paved surfaces within or at the edge of the TPA for as long as possible.
9. **Soil Remediation:** Soil compacted within the TPA of retained trees shall be remediated using pneumatic air excavation according to a specification produced by the project arborist.
10. **Canopy Protection**: Where fencing is installed at the limits of disturbance within the TPA, canopy management (pruning or tying back) shall be conducted to ensure that vehicular traffic does not damage canopy parts. Exhaust from machinery shall be located five feet outside the dripline of retained trees. No exhaust shall encounter foliage for prolonged periods of time.

11. **Duff/Mulch:** Apply 4 to 6 inches of arborist wood chip mulch or hog fuel over bare soil within the TPA to prevent compaction and evaporation. Keep mulch 1 foot away from the base of trees and 6 inches from retained understory vegetation. Retain and protect as much of the existing duff and understory vegetation as possible.
12. **Excavation:** Excavation done at the edge of or within the TPA shall use alternative methods such as pneumatic air excavation or hand digging. If heavy machinery is used, use flat front buckets with the project arborist spotting for roots. When roots are encountered, stop excavation and cleanly sever roots. The project arborist shall monitor all excavation done within the TPA.
13. **Fill:** Limit fill to 1 foot of uncompacted well-draining soil, within the TPA of retained trees. In areas where additional fill is required, consult with the project arborist. Fill must be kept at least 1 foot from the trunks of trees.
14. **Root Pruning:** Limit root pruning to the extent possible. All roots shall be pruned with a sharp saw making clean cuts. Do not fracture or break roots with excavation equipment.
15. **Root Moisture:** Root cuts and exposed roots shall be immediately covered with soil, mulch, or clear visqueen and kept moist. Water to maintain moist condition until the area is back filled. Do not allow exposed roots to dry out before replacing permanent back fill.
16. **Hardscape Removal:** Retain hardscape surfaces for as long as practical. Remove hardscape in a manner that does not require machinery to traverse newly exposed soil within the TPA. Where equipment must traverse the newly exposed soil, apply soil protection as described in section 8. Replace fencing at edge of TPA if soil exposed by hardscape removal will remain for any period of time.
17. **Tree Removal:** All trees to be removed that are located within the TPA of retained trees shall not be ripped, pulled, or pushed over. The tree should be cut to the base and the stump either left or ground out. A flat front bucket can also be used to sever roots around all sides of the stump, or the roots can be exposed using hydro or air excavation and then cut before removing the stump.
18. **Irrigation:** Retained trees with soil disturbance within the TPA will require supplemental water from June through September. Acceptable methods of irrigation include drip, sprinkler, or watering truck. Trees shall be watered three times per month during this time.
19. **Pruning:** Pruning required for construction and safety clearance shall be done with a pruning specification provided by the project arborist in accordance with American National Standards Institute ANSI-A300 2017 Standard Practices for Pruning. Pruning shall be conducted or monitored by an arborist with an ISA Certification.
20. **Plan Updates:** All plan updates or field modification that result in impacts within the TPA or change the retained status of trees shall be reviewed by the senior project manager and project arborist prior to conducting the work.
21. **Materials:** Contractor shall have the following materials onsite and available for use during work in the TPA:
    - Sharp and clean bypass hand pruners
    - Sharp and clean bypass loppers
    - Sharp hand-held root saw
    - Reciprocating saw with new blades
    - Shovels
    - Trowels
    - Clear visqueen
    - Burlap
    - Water

Appendix C - Assumptions & Limiting Conditions

1. Consultant assumes that the Site and its use do not violate, and is following all applicable codes, ordinances, statutes or regulations.

2. The Consultant may provide report or recommendation based on published municipal regulations. The Consultant assumes that the municipal regulations published on the date of the report are current municipal regulations and assumes no obligation related to unpublished city regulation information.

3. Any report by Consultant and any values expressed therein represent the opinion of the Consultant, and the Consultant's fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event, or upon any finding to be reported.

4. All photographs included in our reports were taken by Tree Solutions, Inc. during the documented Site visit, unless otherwise noted. Sketches, drawings and photographs in any report by Consultant, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by Consultant as to the sufficiency or accuracy of the information.

5. Unless otherwise agreed, (1) information contained in any report by Consultant covers only the items examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, climbing, or coring.

6. These findings are based on the observations and opinions of the authoring arborist, and does not provide guarantees regarding the future performance, health, vigor, structural stability or safety of the plants described assessed.

7. Measurements are subject to typical margins of error, considering the oval or asymmetrical cross-section of most trunks and canopies.

8. Tree Solutions did not review any reports or perform any tests related to the soil located on the subject property unless outlined in the scope of services. Tree Solutions staff are not and do not claim to be soils experts. An independent inventory and evaluation of the site's soil should be obtained by a qualified professional if an additional understanding of the site's characteristics is needed to make an informed decision.

9. Our assessments are made in conformity with acceptable evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.

Tree Solutions Inc
Consulting Arborists

SPS Rainier - Table of Trees

8815 Seward Park Ave. S , Seattle, WA 98118

Arborist: SD/JH
Date of Inventory: 01.20.2021
Table Prepared: 01.26.2021

DSH (Diameter at Standard Height) is measured 4.5 feet above grade, or as specified in the Guide for Plant Appraisal, 10th Edition , published by the Council of Tree and Landscape Appraisers.
DSH for multi-stem trees are noted as a single stem equivalent, which is calculated using the method defined in the Director's Rule 16-2008.
Letters are used to identify trees on neighboring properties with overhanging canopies.
Dripline is measured from the center of the tree to the outermost extent of the canopy.
Yellow highlight areas = see notes

							Dripline Radius (feet)								
Tree ID	**Scientific Name**	**Common Name**	**DSH** (inches)	**DSH Multistem**	**Health Condition**	**Structural Condition**	**N**	**E**	**S**	**W**	**Exceptional Threshold**	**Exceptional by Size**	**Exceptional Grove**	**Proposed Action**	**Notes**
101	*Crataegus laevigata*	English hawthorn	12.0		Good	Good	11.5	12.5	14.5	9.5	*16.0*	-		Retain/Remove/Impacted	many sprouts at base. Sprouts possibly insect related, 3.5 feet from sidewalk
102	*Pinus nigra*	Austrian black pine	23.1	16.5,16.2	Good	Fair	14.0	17.0	23.0	18.0	*24.0*	-			codominant stems with included bark seam at 4 feet
103	*Pinus nigra*	Austrian black pine	18.5		Good	Good	15.8	13.8	15.8	19.8	*24.0*	-			on branch starting to reiterate
104	*Acer rubrum*	Red maple	17.3		Good	Good	18.7	19.7	20.7	14.7	*25.0*	-			some rubbing branches
105	*Thuja occidentalis*	Arborvitae	12.0	7.6,7.6,5.3	Good	Good	5.0	5.0	5.0	5.0	*11.8*	Exceptional			9 inch stem removed, phototropic to south, 2 feet from building
106	*Chamaecyparis lawsoniana*	Lawson cypress	9.2		Good	Good	7.4	7.4	7.4	7.4	*30.0*	-			no signs of phytophthora, which is a common issue for this species
107	*Crataegus laevigata*	English hawthorn	7.5		Good	Good	9.3	10.3	6.3	6.3	*16.0*	-			issues at graft union near base, 3.5 feet from sidewalk, maintain for sidewalk clearence, all hawthorn trees inventoried have thorns, which can be a safety issue
108	*Prunus cerasifera*	Cherry plum	15.3		Good	Good	13.6	18.6	13.6	11.6	*21.0*	-			3 feet from retaining wall to north, many epicormic sprouts in canopy, which is typical for the species when heavily pruned
109	*Prunus sp.*	Flowering cherry	10.3		Good	Good	17.4	12.4	13.4	13.4	*23.0*	-			unknown cherry species, likely ornamental cultivar
110	*Prunus cerasifera*	Cherry plum	15.5		Good	Good	10.6	13.6	15.6	16.6	*21.0*	-			flush cuts on trunk and branches with good response, many epicormic sprouts
111	*Crataegus laevigata*	English hawthorn	7.2	5.5,4.7	Good	Fair	7.3	7.3	7.3	7.3	*16.0*	-			included bark, wounds on trunk

SPS Rainier - Table of Trees

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112	*Crataegus laevigata*	English hawthorn	7.9	3.5,3.5,3.5, 3,4	Good	Fair	8.3	8.3	8.3	8.3	*16.0*	-			concrete rubble at base, stems previously removed
113	*Acer rubrum*	Red maple	13.0	11,7	Good	Good	15.5	14.5	15.5	14.5	*25.0*	-			7 feet from sidewalk to west
114	*Cornus sp.*	Dogwood species	7.9	5.4,5.7	Good	Fair	9.3	8.3	6.3	4.3	*12.0*	-			likely ornamental hybrid dogwood species, wounds on lower trunk with response, low live crown ratio from being limbed up, dead hanger in canopy
115	*Prunus emarginata var. mollis*	Bitter cherry	7.1	5,5	Good	Fair	5.3	7.3	14.3	7.3	*Not Exceptional except in grove*	-			trunks very close together, suppressed by large pine tree 119
116	*Prunus emarginata var. mollis*	Bitter cherry	9.1		Good	Fair	7.4	7.4	14.4	7.4	*Not Exceptional except in grove*	-			suppressed by large pine tree 119
117	*Prunus emarginata var. mollis*	Bitter cherry	8.0		Good	Fair	7.3	15.3	11.3	7.3	*Not Exceptional except in grove*	-			phototropic to southeast, suppressed by large pine tree 119, powerline runs through canopy
118	*Thuja plicata*	Western redcedar	20.0		Good	Fair	13.8	20.8	21.8	8.8	*30.0*	-			likely 'Zebrina' cultivar, previously topped, ivy on trunk
119	*Pinus jeffreyi*	Jeffrey pine	45.0		excellent	Fair	35.9	23.9	25.9	32.9	*30.0*	Exceptional			tridominant at 40 feet, growing on slope, substantial grade changes in dripline, an amazing specimen, upper crown should be inspected and managed for structural stability, confirm species
120	*Pseudotsuga menziesii*	Douglas-fir	14.1		Good	Good	16.6	16.6	16.6	16.6	*30.0*	-			unusual foliage for species, on property line
121	*Pseudotsuga menziesii*	Douglas-fir	9.2		Fair	Fair	8.4	8.4	16.4	8.4	*30.0*	-			suppressed by off site pine tree
122	*Pseudotsuga menziesii*	Douglas-fir	14.0		Good	Good	15.6	15.6	17.6	14.6	*30.0*	-			not on survey

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123	*Pinus contorta var. contorta*	Shore pine	17.4		Good	Good	12.7	16.7	15.7	14.7	*12.0*	Exceptional			some dieback in canopy, less than 15 percent, raised garden bed abuts trunk, metal bolt in trunk, dead reiterated stem in lower canopy
124	*Fraxinus latifolia*	Oregon ash	29.3		Fair	Fair	15.2	9.2	25.2	23.2	*24.0*	Exceptional			codominant at 7 feet with narrow union and included bark seam, west stem would fail into road, recommend ivy removal and possible shortening of west stem once trunk condition can be better assessed, labled 124 on survey - Tagged 360
125	*Fraxinus latifolia*	Oregon ash	26.0		Fair	Poor	15.1	15.1	15.1	25.1	*24.0*	Exceptional			large diameter tearout on east side of trunk, cavity with decay at base, probable that more failures will occur, unable to determine whether high or moderate risk to powerlines and road, asymetric canopy to west, recommend shortening stems to west and removing ivy., labeled 125 on
126	*Fraxinus latifolia*	Oregon ash	18.0		Fair	Fair	18.8	18.8	16.8	7.8	*24.0*	-			no signs of major decay, east trunk has good apical dominance, west trunk overhangs road and has ben shortened for powerline clearence, labeled 126 on the survey - Tagged 362

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Exceptional Grove	Proposed Action	Notes
127	*Fraxinus latifolia*	Oregon ash	25.0		Fair	Poor	9.0	29.0	31.0	11.0	*24.0*	Exceptional			codominant unions with narrow attcahment angle, one stem failed and is hanging in the canopy of tree 364, another is still partially attached and hanging horizontally to west toward playfield, one stem remains intact, labeled 127 on survey - tagged 363
128	*Fraxinus latifolia*	Oregon ash	11.4	4.7,5.2,9.0	Fair	Poor	5.5	20.5	5.5	5.5	*24.0*	-			heavy ivy, codominant with narrow unions, 3 feet to west of tree 364, labeled 128 on survey - tagged 365
129	*Fraxinus latifolia*	Oregon ash	24.7	22,7.7,8.3	Fair	Fair	7.0	13.0	21.0	16.0	*24.0*	Exceptional			large tearout in lower trunk with significant decay wound extends from 4 feet above grade to 18 feet, majority the tree failed at that time, what is left is mostly epicormic response growth, ivy limits assessment of integrity of remaining stems, cavity with decay at base on west side as well, labeled 129 on survey - tagged 364
130	*Salix sp. (native)*	Native Willow	7.7		Good	Fair	9.3	9.3	9.3	9.3	*8.0*	-			native willow, not on survey
131	*Populus trichocarpa*	Black cottonwood	20.0		Good	Good	18.8	18.8	18.8	18.8	*Not Exceptional except in grove*	-			near scoreboard
132	*Salix sp. (native)*	Native Willow	13.1	6, 10, 6	Good	Fair	12.5	12.5	12.5	12.5	*8.0*	Exceptional			not on survey, behind cottonwood tree 131
133	*Pseudotsuga menziesii*	Douglas-fir	14.0		Good	Good	16.6	16.6	16.6	16.6	*30.0*	-			blackberry near base
134	*Pseudotsuga menziesii*	Douglas-fir	12.0		Good	Good	14.5	14.5	14.5	14.5	*30.0*	-			blackberry near base
135	*Pseudotsuga menziesii*	Douglas-fir	13.0		Good	Good	12.5	12.5	12.5	12.5	*30.0*	-			blackberry near base
136	*Salix sp. (native)*	Scoulurs willow	18.0		Good	Fair	11.8	18.8	25.8	15.8	*8.0*	Exceptional			native willow, not on survey

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137	*Prunus emarginata var. mollis*	Bitter cherry	9.9	7,7	Good	Good	5.4	6.4	9.4	10.4	*Not Exceptional except in grove*	-			not on survey
138	*Prunus emarginata var. mollis*	Bitter cherry	11.0		Good	Good	2.5	9.5	9.5	9.5	*Not Exceptional except in grove*	-			
139	*Salix sp. (native)*	Native Willow	15.3	9.3,12.1	Good	Fair	20.6	20.6	20.6	20.6	*8.0*	Exceptional			native willow, overhangs Cloverdale Pl, stub cuts for powerline clearence
140	*Prunus emarginata var. mollis*	Bitter cherry	24.0		Fair	Poor	16.0	16.0	26.0	15.0	*Not Exceptional except in grove*	-			fungal fruiting bodies at base, failing branches, large inclusions
141	*Robinia pseudoacacia*	Black locust	18.0		Good	Fair	5.8	5.8	16.8	20.8	*30.0*	-			previous branch failures, deadwood in crown
142	*Aesculus hippocastanum*	Horsechestnut	7.8		Good	Good	14.3	14.3	14.3	14.3	*30.0*	-			ivy at base
143	*Salix sp. (native)*	Native Willow	14.0		Good	Good	15.6	8.6	11.6	15.6	*8.0*	Exceptional			native willow
144	*Quercus robur*	English oak	17.6		Good	Poor	6.7	13.7	16.7	16.7	*30.0*	-		Remove	columnar variety or cultivar, large cavity from 3.5 feet to base, root damage on tension side, large flush cuts on trunk, epicormic sprouts, tree is likely moderate to high risk to cars parked on street, recommend removal
145	*Quercus robur*	English oak	23.7		Good	Fair	17.0	25.0	22.0	24.0	*30.0*	-			columnar variety, encroaching on powerlines to south,
146	*Malus domestica*		13.7		Good	Good	6.6	8.6	16.6	17.6	*20.0*	-			unknown crabapple hybrid or cultivar, wounds on trunk, sprouts at base
147	*Carpinus betulus*	European hornbeam	13.0		Good	Good	9.5	8.5	8.5	12.5	*16.0*	-			necrotic area on trunk with good response
148	*Carpinus betulus*	European hornbeam	11.7		Good	Good	14.5	6.5	12.5	14.5	*16.0*	-			flush cuts

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149	*Carpinus betulus*	European hornbeam	14.0		Good	Good	14.6	6.6	12.6	15.6	*16.0*	-			flush cuts
150	*Carpinus betulus*	European hornbeam	15.5		Good	Good	14.6	7.6	13.6	16.6	*16.0*	-			sunscald, flush cuts
151	*Carpinus betulus*	European hornbeam	13.5		Good	Good	14.6	8.6	14.6	17.6	*16.0*	-			
152	*Carpinus betulus*	European hornbeam	10.7		Good	Good	11.4	5.4	12.4	12.4	*16.0*	-			flush cuts, epicormic sprouts
153	*Carpinus betulus*	European hornbeam	10.8		Good	Good	14.5	4.5	12.5	14.5	*16.0*	-			flush cuts
154	*Pinus parviflora*	Japanese white pine	9.6		Good	Fair	8.4	7.4	10.4	10.4	*7.6*	Exceptional			two stems previously removed
155	*Carpinus betulus*	European hornbeam	7.9		Good	Good	7.3	3.3	8.3	11.3	*16.0*	-			
156	*Carpinus betulus*	European hornbeam	6.8		Good	Good	6.3	3.3	7.3	12.3	*16.0*	-			wound on trunk with good response
157	*Carpinus betulus*	European hornbeam	8.3		Good	Good	7.3	3.3	8.3	14.3	*16.0*	-			
158	*Carpinus betulus*	European hornbeam	8.7		Good	Good	9.4	3.4	7.4	12.4	*16.0*	-			large stem on east side removed with flush cut, good response growth
159	*Cedrus atlantica*	Atlas cedar	34.7		Good	Fair	21.4	30.4	26.4	31.4	*30.0*	Exceptional			recently dropped 18 inch stem and 10 inch scaffold branch in Jan 2021 storm, additional older branch failures with good response growth observed, moderate risk to building, risk can mitigated with pruning
160	*Pinus parviflora*	Japanese white pine	6.7		Good	Good	8.3	7.3	7.3	7.3	*10.2*	-			
161	*Chamaecyparis pisifera*	Sawara cypress	13.3	10.1, 6, 6.2	Fair	Fair	8.6	7.6	7.6	7.6	*26.9*	-			sparse foliage, root flare buried
162	*Chamaecyparis pisifera*	Sawara cypress	10.0	4.5, 7, 5.5	Good	Good	8.4	6.4	8.4	8.4	*26.9*	-			ivy at base, short and stout form
163	*Pseudotsuga menziesii*	Douglas-fir	12.4		Good	Fair	14.5	14.5	14.5	13.5	*30.0*	-			asphalt 7 feet to east, minor lawnmower damage to surface roots, topped for clearence from powerlines, the row of douglas-firs will continue to cause powerline conflicts as they mature
164	*Pseudotsuga menziesii*	Douglas-fir	14.8		Good	Fair	14.6	12.6	14.6	15.6	*30.0*	-			pitch moth symptoms, entered through old pruning wounds, topped for clearence from powerlines
165	*Pseudotsuga menziesii*	Douglas-fir	13.5		Good	Fair	12.6	13.6	12.6	13.6	*30.0*	-			previously topped for powerline clearence

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Exceptional Grove	Proposed Action	Notes
166	*Pseudotsuga menziesii*	Douglas-fir	13.0		Good	Fair	14.5	14.5	14.5	14.5	*30.0*	-			previously topped for powerline clearence
167	*Thuja plicata*	Western redcedar	15.0		Good	Good	11.6	11.6	11.6	11.6	*30.0*	-			may cause powerline clearence issues in future
168	*Thuja plicata*	Western redcedar	12.5		Fair	Good	12.5	12.5	12.5	12.5	*30.0*	-			may cause powerline clearence issues in future
169	*Pseudotsuga menziesii*	Douglas-fir	16.0		Good	Fair	12.7	12.7	12.7	12.7	*30.0*	-			100 percent live crown ratio, topped for powerline clearence
170	*Thuja plicata*	Western redcedar	11.0		Good	Good	11.5	11.5	11.5	11.5	*30.0*	-			may cause powerline clearence issues in future
171	*Thuja plicata*	Western redcedar	16.1	14,8	Good	Good	13.7	13.7	13.7	13.7	*30.0*	-			may cause powerline clearence issues in future
172	*Acer macrophyllum*	Bigleaf maple	14.2	8,6,6,5,5,4	Good	Fair	12.6	15.6	10.6	15.6	*30.0*	-			likely a stump sprout, very high vigor, encroaching on powerlines
173	*Pseudotsuga menziesii*	Douglas-fir	14.0		Good	Good	15.6	14.6	12.6	12.6	*30.0*	-			
174	*Pseudotsuga menziesii*	Douglas-fir	10.0		Good	Good	13.4	7.4	9.4	12.4	*30.0*	-			
175	*Pseudotsuga menziesii*	Douglas-fir	12.5		Good	Good	14.5	14.5	14.5	14.5	*30.0*	-			
176	*Thuja plicata*	Western redcedar	8.0		Fair	Poor	10.3	10.3	10.3	10.3	*30.0*	-			multiple leaders, bark sloughing, sparse foliage, canopy dieback
177	*Pseudotsuga menziesii*	Douglas-fir	13.0		Good	Good	13.5	13.5	13.5	13.5	*30.0*	-			clematis in crown, blackberry within dripline, concrete wall 3 feet to east of trunk
178	*Pseudotsuga menziesii*	Douglas-fir	10.0		Good	Good	12.4	12.4	12.4	12.4	*30.0*	-			blackberry in crown
179	*Pseudotsuga menziesii*	Douglas-fir	10.0		Good	Good	12.4	12.4	12.4	12.4	*30.0*	-			blackberry in crown
180	*Thuja plicata*	Western redcedar	9.5		Good	Good	11.4	11.4	11.4	11.4	*30.0*	-			
181	*Thuja plicata*	Western redcedar	17.0		Good	Good	13.7	13.7	13.7	13.7	*30.0*	-			blackberry in crown
182	*Pseudotsuga menziesii*	Douglas-fir	16.0		Good	Good	18.7	18.7	18.7	18.7	*30.0*	-			blackberry in crown
183	*Pseudotsuga menziesii*	Douglas-fir	11.0		Good	Good	12.5	12.5	14.5	12.5	*30.0*	-			blackberry in crown
184	*Pseudotsuga menziesii*	Douglas-fir	13.0		Good	Good	15.5	15.5	15.5	15.5	*30.0*	-			blackberry in crown, prune for pathway clearence, minor twig dieback
185	*Pseudotsuga menziesii*	Douglas-fir	10.0		Good	Good	10.4	14.4	14.4	10.4	*30.0*	-			blackberry in crown
186	*Pseudotsuga menziesii*	Douglas-fir	13.0		Good	Good	12.5	12.5	12.5	12.5	*30.0*	-			blackberry in crown
187	*Pseudotsuga menziesii*	Douglas-fir	11.0		Good	Good	9.5	9.5	9.5	9.5	*30.0*	-			blackberry in crown, corrected trunk lean to east

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188	*Acer macrophyllum*	Bigleaf maple	0.0		x	x	16.0	16.0	16.0	16.0	*30.0*	-			not on survey, likely not exceptional, likely multi stem, blackberry in crown, not on survey
189	*Salix sp. (native)*	Native Willow	0.0		x	x	17.0	17.0	17.0	17.0	*8.0*	-			native willow with history of recent failures, not on survey
190	*Thuja plicata*	Western redcedar	8.1		Good	Good	10.3	10.3	10.3	10.3	*30.0*	-			blackberry in crown, not on survey
191	*Acer macrophyllum*	Bigleaf maple	29.2		Good	Fair	26.2	31.2	36.2	19.2	*30.0*	-			Growing on steep slope, No major decay at base, dead parts to 4 inches diameter in crown, past branch failures with sprout response in crown, two west scaffold branches target apartment building
192	*Acer macrophyllum*	Bigleaf maple	46.8		Good	Fair	24.0	30.0	24.0	24.0	*30.0*	Exceptional			Growing on steep slope, 3 stems divide at 4 feet with very wide codominant union, stems measure approx. 22, 35, and 20 inches diameter. Trunk diameter measurement taken at narrowest point below union, canopy soil and Kretzschmaria deusta fungus observed at codominant union, west stem died back and resprouted at 15 feet, decay and cavities observed on this stem, which overhangs the parking lot to west

SPS Rainier - Table of Trees

8815 Seward Park Ave. S , Seattle, WA 98118

Arborist: SD/JH
Date of Inventory: 01.20.2021
Table Prepared: 01.26.2021

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Exceptional Grove	Proposed Action	Notes
193	*Acer macrophyllum*	Bigleaf maple	30.0		Fair	Poor	27.3	13.3	13.3	13.3	*30.0*	Exceptional			High Risk - Tagged 359 - large cavity at base comprising approx. 35 percent of trunk circumference, thin shell of reaction wood keeping tree alive, not much holding strength in lower trunk given height and leverage of the whole tree, estimate 80 percent of trunk diameter is decayed at base, live reaction wood "ribs"present, codominant at five feet with shorter west stem completly dead, labeled 193 on survey
194	*Acer macrophyllum*	Bigleaf maple	14.6	11.1,5.4,7.8	Good	Fair	10.6	10.6	10.6	18.6	*30.0*	-			multiple codominant stems divide at base, suppressed by larger maple tree 196, good overall vigor, branches overhang parking lot to west, no major defects or signs of decay observed
195	*Prunus emarginata var. mollis*	Bitter cherry	9.0		Good	Fair	6.4	6.4	6.4	12.4	*Not Exceptional except in grove*	-			stem impacting fence on east side, suppressed by large maple tree 196, poor candidate for long term retention, but would require a permit to remove

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196	*Acer macrophyllum*	Bigleaf maple	43.0		Fair	Poor	36.8	29.8	15.8	18.8	*30.0*	Exceptional			High Risk - tearout in trunk from 18 inch stem that previously failed to northeast, substantial cavity with decay at tearout, basal cavity, stem to east has dead parts to 12 inches and big tearout some years ago, both remaining stems have decay, west stem targets cars in lot and potentially building north of apartment complex, remove west stem at minimum, consider snagging entire tree, all 3 stems are structurally compromised by a central cavity extending down to base of tree
197	*Pseudotsuga menziesii*	Douglas-fir	7.2		Good	Good	12.8	12.8	12.3	8.3	*30.0*	-			blackberry in crown
198	*Salix sp. (native)*	Native Willow	12.4	12,3	Fair	Poor	6.5	6.5	6.5	6.5	*8.0*	Exceptional			scouler or other native willow,previously failed at root plate and survived, multiple large stems previously removed, decay at base, good vigor
199	*Acer macrophyllum*	Bigleaf maple	23.9	6.6, 4.5, 20, 5, 9	Good	Fair	15.0	15.0	15.0	15.0	*30.0*	-			on property line, trunks have enveloped fence, roots under asphalt lot to north, tearouts in canopy, likely a regrown stump sprout, good vigor
200	*Pseudotsuga menziesii*	Douglas-fir	7.2		Good	Good	6.3	10.8	9.8	6.3	*30.0*	-			suppressed by big leaf maple 199 to west, trunk lean to east, asymetric canopy

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201	*Quercus garryana*	Garry oak	17.5	16,7	Good	Fair	10.7	12.7	15.7	12.2	*6.0*	Exceptional			growing on property line adjacent to fence, fence abrading trunk, root flare abuts sidewalk, stems to west pruned to stubs for powerline clearence, diameter estimated due to lack of access from fence and undergrowth
202	*Prunus serrulata*	Flowering cherry	9.5		Good	Good	10.9	10.9	11.4	14.4	*23.0*	-			pruning wounds from branch removal for sidewalk clearence, overhangs ROW
203	*Arbutus unedo*	Strawberry tree	15.0	6.1,8.4,8.1, 6.2,3.8	Good	Good	6.6	10.1	14.1	18.6	*10.2*	Exceptional			old flush cuts with good response growth, not on survey
204	*Prunus serrulata*	Flowering cherry	15.8	11.1,11.2	Good	Good	17.2	12.2	5.7	15.7	*23.0*	-			large flush cut on west side for sidewalk clearance, prominant surface root with sprouts growing to northwest, overhangs ROW
205	*Ulmus* 'Homestead'	Homestead Elm	17.3		Good	Good	15.7	13.2	22.7	17.2	*30.0*	-			minor deadwood, tagged as 14, overhangs ROW, shown on SDOT street tree map
206	*Ulmus* 'Homestead'	Homestead Elm	16.5		Good	Good	14.2	10.7	20.7	18.2	*30.0*	-			tagged as 15, minor dieback in lower canopy, possibly from shading, overhangs ROW, shown on SDOT street tree map
207	*Ulmus* 'Homestead'	Homestead Elm	16.0		Good	Good	10.2	12.2	20.2	21.2	*30.0*	-			tagged as 16, prominant surface roots to north and south,overhangs ROW, shown on SDOT street tree map
208	*Ulmus* 'Homestead'	Homestead Elm	15.2		Good	Good	15.1	13.1	19.1	21.1	*30.0*	-			overhangs ROW, shown on SDOT street tree map
209	*Ulmus* 'Homestead'	Homestead Elm	14.7		Good	Good	14.6	10.1	15.1	17.6	*30.0*	-			minor dieback, overhangs ROW, shown on SDOT street tree map
210	*Ulmus* 'Homestead'	Homestead Elm	18.4		Good	Good	13.8	13.3	24.3	18.8	*30.0*	-			overhangs ROW, shown on SDOT street tree map

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Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Exceptional Grove	Proposed Action	Notes
211	*Acer truncatum x platanoides*	Pacific Sunset Maple	7.1		Good	Good	9.3	9.3	9.3	9.3	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
212	*Acer truncatum x platanoides*	Pacific Sunset Maple	7.4		Good	Good	9.3	9.3	9.3	9.3	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
213	*Acer truncatum x platanoides*	Pacific Sunset Maple	5.0		Good	Good	7.2	7.2	7.2	7.2	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
214	*Acer truncatum x platanoides*	Pacific Sunset Maple	8.1		Good	Good	9.3	9.3	9.3	9.3	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
215	*Acer truncatum x platanoides*	Pacific Sunset Maple	5.0		Good	Good	8.2	8.2	8.2	8.2	*30.0*	-			sprouts from english oak at base, perhaps from tree that previously failed in this location,Planted in parking strip in ROW, on SDOT street tree map
216	*Acer truncatum x platanoides*	Pacific Sunset Maple	6.6		Good	Good	9.3	9.3	9.3	9.3	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
217	*Acer truncatum x platanoides*	Pacific Sunset Maple	10.3		Good	Good	11.9	11.9	11.9	11.9	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map, surface root damage to north
218	*Acer truncatum x platanoides*	Pacific Sunset Maple	10.1		Good	Good	12.4	12.4	12.4	12.4	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map girdling root at base, growing, sidewalk damage to north
219	*Acer truncatum x platanoides*	Pacific Sunset Maple	10.6		Good	Good	9.9	9.9	9.9	9.9	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map, beginning to encroach on powerlines to north
220	*Acer truncatum x platanoides*	Pacific Sunset Maple	6.8		Good	Good	7.8	7.8	7.8	7.8	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
221	*Acer truncatum x platanoides*	Pacific Sunset Maple	8.0		Good	Good	7.8	7.8	7.8	7.8	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
222	*Acer truncatum x platanoides*	Pacific Sunset Maple	7.3		Good	Good	11.3	11.3	11.3	11.3	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map

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223	*Acer truncatum x platanoides*	Pacific Sunset Maple	6.5		Good	Good	10.3	10.3	10.3	10.3	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map, girdling roots, surface root damage
224	*Acer truncatum x platanoides*	Pacific Sunset Maple	7.9		Good	Good	8.8	8.8	8.8	8.8	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
225	*Acer truncatum x platanoides*	Pacific Sunset Maple	6.9		Good	Good	8.8	8.8	8.8	8.8	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
226	*Acer truncatum x platanoides*	Pacific Sunset Maple	7.0		Good	Good	7.3	7.3	7.3	7.3	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map,girdling roots, surface root damage
227	*Acer truncatum x platanoides*	Pacific Sunset Maple	6.8		Good	Fair	10.8	10.8	7.3	10.8	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map, suckers from root graft failure, some pruning wounds
228	*Acer truncatum x platanoides*	Pacific Sunset Maple	9.8		Good	Good	11.9	11.9	11.9	11.9	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map, not on survey
229	*Acer truncatum x platanoides*	Pacific Sunset Maple	7.3		Good	Good	11.3	11.3	11.3	11.3	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
230	*Acer truncatum x platanoides*	Pacific Sunset Maple	6.8		Good	Good	8.8	8.8	8.8	8.8	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map, surface roots
231	*Acer truncatum x platanoides*	Pacific Sunset Maple	7.9		Good	Good	9.3	9.3	9.3	9.3	*30.0*	-			acer truncatum x platanoides, surface roots
232	*Acer truncatum x platanoides*	Pacific Sunset Maple	7.7		Good	Good	7.8	7.8	7.8	7.8	*30.0*	-			Planted in parking strip in ROW, on SDOT street tree map
233	*Robinia pseudoacacia*	Black locust	11.5		Good	Good	17.5	10.5	10.5	17.5	*30.0*	-			phototropic to northwest
234	*Robinia pseudoacacia*	Black locust	12.8	10,8	Fair	Poor	5.5	5.5	5.5	5.5	*30.0*	-			8 to 10 foot tall living snag, original stems previously failed
235	*Robinia pseudoacacia*	Black locust	20.5	14,15	Good	Fair	25.9	25.9	25.9	25.9	*30.0*	-			
236	*Robinia pseudoacacia*	Black locust	16.0		Good	Good	14.7	14.7	14.7	14.7	*30.0*	-			
237	*Robinia pseudoacacia*	Black locust	9.0		Poor	Poor	7.4	7.4	7.4	7.4	*30.0*	-			dead top, in decline

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Exceptional Grove	Proposed Action	Notes
238	*Robinia pseudoacacia*	Black locust	16.0		Good	Fair	12.7	30.7	30.7	12.7	*30.0*	-			prominant trunk lean, on property line, recommend management by reducing to living wildlife snag
239	*Robinia pseudoacacia*	Black locust	18.0		Good	Fair	17.8	17.8	17.8	17.8	*30.0*	-			tearouts with decay in crown
240	*Robinia pseudoacacia*	Black locust	14.1	6,8,10	Good	Fair	0.6	0.6	0.6	0.6	*30.0*	-			largest stem experienced partial top failure, top still attached
241	*Salix sp. (native)*	Native Willow	15.4	5,7,10,8	Good	Fair	10.6	10.6	10.6	11.6	*8.0*	Exceptional			
242	*Robinia pseudoacacia*	Black locust	14.0		Good	Fair	10.1	10.1	10.1	10.1	*30.0*	-			cannot access base to tag or fully assess, growing on property line
243	*Salix sp. (native)*	Native Willow	6.6	2,2,6	Good	Poor	8.3	8.3	8.3	8.3	*8.0*	-			several stems have failed completely or partially
244	*Salix sp. (native)*	Native Willow	16.2	9,9,10	Good	Fair	8.7	15.7	8.7	8.7	*8.0*	Exceptional			
245	*Salix sp. (native)*	Native Willow	28.4	14,17,18	Fair	Poor	9.7	9.7	9.7	9.7	*8.0*	Exceptional			living snag, all large stems have failed
246	*Salix sp. (native)*	Native Willow	10.5	5,5,6,5	Good	Fair	8.4	8.4	8.4	8.4	*8.0*	Exceptional			wounds and tearouts in crown
247	*Robinia pseudoacacia*	Black locust	0.0		x	x	0.0	0.0	0.0	0.0	*30.0*	-			on property line, inaccessible due to blackberry
248	*Salix sp. (native)*	Native Willow	0.0		x	x	0.0	0.0	0.0	0.0	*8.0*	-			on property line, inaccessible due to blackberry
249	*Salix sp. (native)*	Native Willow	20.4	11,9,12,6,5,3	Good	Fair	9.8	9.8	9.8	9.8	*8.0*	Exceptional			multiple tearouts, dead stems, necrotic tissue
250	*Salix sp. (native)*	Native Willow	20.0		Good	Fair	15.8	15.8	15.8	15.8	*8.0*	Exceptional			multiple tearouts, dead stems, necrotic tissue
251	*Salix sp. (native)*	Native Willow	22.0	17,14	Good	Fair	9.9	9.9	9.9	9.9	*8.0*	Exceptional			multiple tearouts, dead stems, necrotic tissue
252	*Salix sp. (native)*	Native Willow	18.4	12,14	Good	Fair	14.8	14.8	14.8	14.8	*8.0*	Exceptional			multiple tearouts, dead stems, necrotic tissue
253	*Salix sp. (native)*	Native Willow	9.0		Good	Good	8.4	8.4	8.4	8.4	*8.0*	Exceptional			minor twig and stem dieback
254	*Salix sp. (native)*	Native Willow	24.2	7,10,11,11,14	Good	Fair	14.0	14.0	14.0	14.0	*8.0*	Exceptional			overhangs neighbor's backyard, dead hangers in canopy, tearouts, minor dieback
255	*Salix sp. (native)*	Native Willow	7.0		Good	Good	9.3	9.3	9.3	9.3	*8.0*	-			
256	*Salix sp. (native)*	Native Willow	18.1	7,7,10,9,7	Good	Good	15.8	15.8	15.8	15.8	*8.0*	Exceptional			

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257	*Pseudotsuga menziesii*	Douglas-fir	8.0		Good	Good	8.3	8.3	8.3	8.3	*30.0*	-			on property line, lower branches shaded out
258	*Salix sp. (native)*	Native Willow	11.5		Good	Good	17.5	9.5	9.5	9.5	*8.0*	Exceptional			
259	*Salix sp. (native)*	Native Willow	17.8	9,4,10,11	Good	Good	15.7	15.7	15.7	6.2	*8.0*	Exceptional			2 stems enveloping eachother
260	*Salix sp. (native)*	Native Willow	13.0	12,5	Good	Good	7.5	7.5	16.5	7.5	*8.0*	Exceptional			minor branch breakage
261	*Salix sp. (native)*	Native Willow	11.7	10,6	Good	Fair	14.5	16.5	10.5	5.5	*8.0*	Exceptional			codominant with included bark seam
262	*Robinia pseudoacacia*	Black locust	9.3	6,5,3,4	Good	Fair	8.4	8.4	8.4	8.4	*30.0*	-			soil indicates area is frequently saturated
263	*Robinia pseudoacacia*	Black locust	10.0		Fair	Poor	7.4	7.4	12.4	12.4	*30.0*	-			soil indicates area is frequently saturated
264	*Robinia pseudoacacia*	Black locust	7.8	7,3.5	Good	Good	8.3	8.3	8.3	8.3	*30.0*	-			soil indicates area is frequently saturated
265	*Robinia pseudoacacia*	Black locust	7.8	6,3,4	Good	Fair	7.3	7.3	7.3	7.3	*30.0*	-			soil indicates area is frequently saturated
266	*Robinia pseudoacacia*	Black locust	11.3	8,8	Good	Fair	12.5	12.5	12.5	12.5	*30.0*	-			soil indicates area is frequently saturated
267	*Robinia pseudoacacia*	Black locust	9.0		Poor	Poor	8.4	8.4	8.4	8.4	*30.0*	-			mushrooms on stem, top broke out,soil indicates area is frequently saturated
268	*Robinia pseudoacacia*	Black locust	9.0		Good	Fair	8.4	8.4	8.4	23.4	*30.0*	-			phototropic to west
269	*Robinia pseudoacacia*	Black locust	8.0		Fair	Poor	7.3	7.3	7.3	7.3	*30.0*	-			broken top
270	*Robinia pseudoacacia*	Black locust	14.8	9,7,9,3	Good	Fair	8.6	8.6	14.1	14.1	*30.0*	-			base buried in brush pile
271	*Salix sp. (native)*	Native Willow	19.5	9,6,10,10,8	Good	Good	9.8	9.8	9.8	9.8	*8.0*	Exceptional			
272	*Populus trichocarpa*	Black cottonwood	7.0		Good	Good	11.3	11.3	11.3	11.3	*Not Exceptional except in grove*	-			prominant surface roots
273	*Populus trichocarpa*	Black cottonwood	6.0		Good	Good	7.3	7.3	11.3	11.3	*Not Exceptional except in grove*	-			abutting fence, raising asphalt walkway to southwest
274	*Populus trichocarpa*	Black cottonwood	11.3	8.5,7.5	Good	Good	10.0	10.0	10.0	10.0	*Not Exceptional except in grove*	-			near fence, possible sidewalk lifting

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275	*Populus trichocarpa*	Black cottonwood	8.7		Good	Good	10.4	10.4	10.4	10.4	*Not Exceptional except in grove*	-			
276	*Robinia pseudoacacia*	Black locust	9.0		Good	Good	7.9	7.9	7.9	7.9	*30.0*	-			
277	*Populus trichocarpa*	Black cottonwood	13.6	8,11	Good	Fair	16.6	16.6	16.6	16.6	*Not Exceptional except in grove*	-			prominant serpentine surface roots with sprouts, very unusual specimen, recommend preserving and managing if possible
278	*Populus trichocarpa*	Black cottonwood	7.2		Good	Fair	11.3	11.3	11.3	11.3	*Not Exceptional except in grove*	-			trunk abuts maintenance building
279	*Populus trichocarpa*	Black cottonwood	7.9		Good	Good	9.8	9.8	9.8	9.8	*Not Exceptional except in grove*	-			
280	*Populus trichocarpa*	Black cottonwood	8.0		Good	Good	6.8	6.8	6.8	6.8	*Not Exceptional except in grove*	-			ivy and blackberry at base
281	*Populus trichocarpa*	Black cottonwood	11.7	10,6	Good	Fair	12.5	12.5	12.5	12.5	*Not Exceptional except in grove*	-			stems enveloping and crossing one another
282	*Populus trichocarpa*	Black cottonwood	9.0		Good	Good	11.4	11.4	11.4	11.4	*Not Exceptional except in grove*	-			
283	*Populus trichocarpa*	Black cottonwood	7.0		Good	Good	10.3	10.3	10.3	10.3	*Not Exceptional except in grove*	-			growing out of large roll (3' x 20')of carpet or flooring, roll is abutting trunk. tree appears healthy

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284	*Populus trichocarpa*	Black cottonwood	14.8	13,7	Good	Fair	12.6	12.6	12.6	12.6	*Not Exceptional except in grove*	-			larger stem has broken top
285	*Populus trichocarpa*	Black cottonwood	8.0		Good	Good	7.8	7.8	7.8	7.8	*Not Exceptional except in grove*	-			possible soil failure on south side of root plate, garbage in root zone
286	*Populus trichocarpa*	Black cottonwood	16.3	8.2,12.1,5.5,3,3.5	Good	Fair	13.7	13.7	6.7	13.7	*Not Exceptional except in grove*	-			
287	*Populus trichocarpa*	Black cottonwood	7.2		Good	Good	6.3	12.3	12.3	12.3	*Not Exceptional except in grove*	-			overhangs building to south
288	*Populus trichocarpa*	Black cottonwood	9.0		Good	Good	11.4	11.4	11.4	11.4	*Not Exceptional except in grove*	-			
289	*Populus trichocarpa*	Black cottonwood	7.3		Good	Good	7.3	7.3	7.3	7.3	*Not Exceptional except in grove*	-			
Adjacent Site Trees with Overhanging Canopy															
a	*Pinus jeffreyi*	Jeffrey pine	21.0		Good	Fair			23.9	23.9	*30.0*	-			adjacent tree, previously topped at 15 feet with reiterated leaders arising from old topping cut
b	*Ulmus americana*	American elm	31.0		Good	Good			26.3	26.3	*30.0*	Exceptional			on private lot to northeast of site
c	*Prunus emarginata var. mollis*	Bitter cherry	16.5	9, 9.5, 10	Good	Good			13.7	13.7	*Not Exceptional except in grove*	-			

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Table Prepared: 01.26.2021

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Exceptional Grove	Proposed Action	Notes
d	*Cupressus macrocarpa*	Monterey cypress	32.0		Good	Good			20.3		*24.9*	Exceptional			debris at base, growing on property line, branches touching school building
e	*Picea abies*	Norway spruce	18.0		Good	Good			18.8		*30.0*	-			not on survey, sewer manhole lid in dripline, minor dieback
f	*Picea abies*	Norway spruce	18.0		Good	Good			18.8		*30.0*	-			lost top previously, good response and formation of new leaders, minor dieback
g	*Aesculus hippocastanum*	Horsechestnut	26.5	10, 9, 11, 20	Good	Fair			17.1	17.1	*30.0*	-			multiple stems, short and stout, wide canopy, ivy on trunk
h	*Fraxinus latifolia*	Oregon ash	12.0		Good	Good			6.5		*24.0*	-			
i	*Acer saccharinum*	Silver maple	13.0		Good	Fair			16.5		*30.0*	-			suppressed, phototropic to southeast
j	*Populus trichocarpa*	Black cottonwood	29.0		Good	Fair		28.2	28.2		*Not Exceptional except in grove*	-			phototropic to southeast
k	*Populus trichocarpa*	Black cottonwood	36.0		Good	Fair			33.5		*Not Exceptional except in grove*	-			possible decay at base, part of exceptional offsite grove
l	*Acer macrophyllum*	Bigleaf maple	23.0		Good	Fair			24.0		*30.0*	-			failure at top, history of stub cuts for basketball court clearence
m	*Acer macrophyllum*	Bigleaf maple	19.0	8,9,9,6,10	Good	Fair			20.8	20.8	*30.0*	-			phototrpic to southwest, ivy on trunks
n	*Fraxinus latifolia*	Oregon ash	13.0		Good	Good		14.5			*24.0*	-			codominant with stable union
o	*Pseudotsuga menziesii*	Douglas-fir	32.0		Good	Good		19.3			*30.0*	Exceptional			overhangs access to school at dead end on 53rd ave, minor damage to top, recent branch tearouts, diameter estimated but likely exceptional, good vigor

SPS Rainier - Table of Trees

8815 Seward Park Ave. S , Seattle, WA 98118

Arborist: SD/JH
Date of Inventory: 01.20.2021
Table Prepared: 01.26.2021

Tree ID	Scientific Name	Common Name	DSH (inches)	DSH Multistem	Health Condition	Structural Condition	N	E	S	W	Exceptional Threshold	Exceptional by Size	Exceptional Grove	Proposed Action	Notes
p	*Pseudotsuga menziesii*	Douglas-fir	23.0		Good	Fair	1.0	16.0	1.0	1.0	*30.0*	-			twisting corkscrew stem at 30 feet, likely from past trunk failure, secondary break higher in stem, asymetric canopy due to competition with tree O

Tree Solutions Inc
Consulting Arborists

Risk Table of Trees

8815 Seward Park Ave. S Seattle, WA 98118

Arborist: JSH, CM
Date of Inventory: 03.12.2021
Table Prepared: 03.18.2021

DSH (Diameter at Standard Height) is measured 4.5 feet above grade, or as specified in the Guide for Plant Appraisal, 10th Edition , published by the Council of Tree and Landscape Appraisers.
DSH for multi-stem trees are noted as a single stem equivalent, which is calculated using the method defined in the Guide for Plant Appraisal, 10th Edition .
Letters are used to identify trees on neighboring property with overhanging canopies.
Dripline is measured from the center of the tree to the outermost extent of the canopy.

The trees

Tree ID	Scientific Name	Common Name	DSH (inches)	Health Condition	Structural Condition	Tree Height (ft)	Dripline Radius (ft)	Distance from Target (ft)	Part to fail	Target	Likelihood of failure: (Improbable, Possible, Probable, Imminent)	Likelihood of Impacting a target: (Very Low, Low, Medium, High)	Matrix combined: (Unlikely, Somewhat likely, Likely, Very Likely)	Consequences to target: (Negligible, Minor, Significant, Severe)	Risk potential: (Low, Moderate, High, Very High)	Management Options	Notes
191	*Acer macrophyllum*	Bigleaf Maple	29.2	good	fair	95	30	10-20ft	scaffold branch to west	apartment building	Possible	High	Somewhat likely	Significant	Moderate	Reduce sprouts on western scaffold branches near previous breakages, reduction cuts to provide building clearence, reduce smaller western stem just above larger western scaffold, reduce overall length of both western scaffold branches	Growing on steep slope, No major decay at base, dead parts to 4 inches diameter in crown, past branch failures with sprout response in crown, two west scaffold branches target apartment building.
192	*Acer macrophyllum*	Bigleaf Maple	46.8	good	fair	80	27			cars in parking lot to north of apartment building	Possible	Medium	Unlikely	Signifcant	Low	Selective reduction and removal of epicormic branches on west stem to reduce leverage on weak attachments	Growing on steep slope, 3 stems divide at 4 feet with very wide codominant union, stems measure approx. 22, 35, and 20 inches diameter above this union. Trunk diameter measurement taken at narrowest point below union, canopy soil and *Kretzschmaria deusta* fungus observed at codominant union, west stem died back and resprouted at 15 feet, decay and cavities observed on this stem, which overhangs the parking lot to
193	*Acer macrophyllum*	Bigleaf Maple	30.0	fair	poor	75	21			cars in parking lot to west, equipment shed near ecology block material bays to east	Probable	High	Likely	Significant	High	Remove tree or create short wildlife snag and girdle at base to prevent resprout	Tagged 359 - large cavity at base comprising approx. 35 percent of trunk circumference, thin shell of reaction wood keeping tree alive, not much holding strength in lower trunk given height and leverage of the whole tree, estimate 80 percent of trunk diameter is decayed at base, live reaction wood "ribs"present, codominant at five feet with shorter west stem completly dead, labeled 193 on survey

Tree Solutions Inc
Consulting Arborists

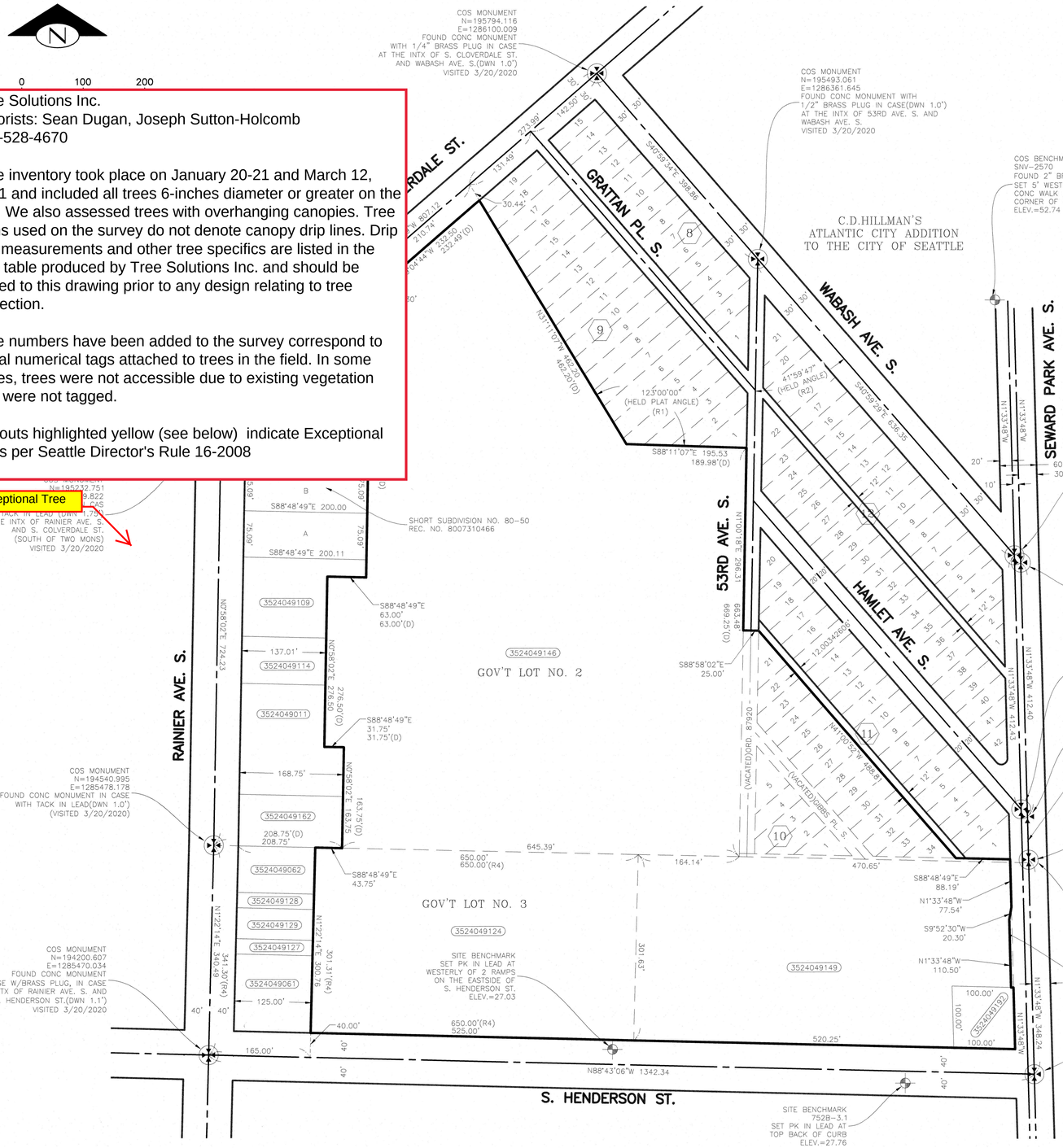
Risk Table of Trees

8815 Seward Park Ave. S Seattle, WA 98118

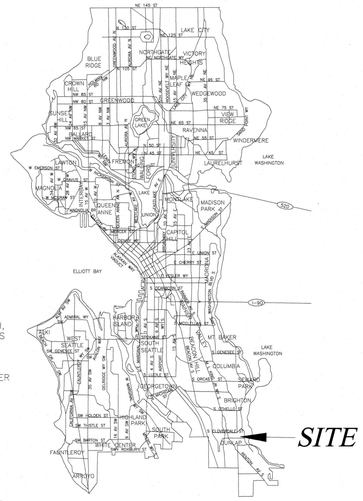
Arborist: JSH, CM
Date of Inventory: 03.12.2021
Table Prepared: 03.18.2021

Tree ID	Scientific Name	Common Name	DSH (inches)	Health Condition	Structural Condition	Tree Height (ft)	Dripline Radius (ft)	Distance from Target (ft)	Part to fail	Target	Likelihood of failure: (Improbable, Possible, Probable, Imminent)	Likelihood of Impacting a target: (Very Low, Low, Medium, High)	Matrix combined: (Unlikely, Somewhat likely, Likely, Very Likely)	Consequences to target: (Negligible, Minor, Significant, Severe)	Risk potential: (Low, Moderate, High, Very High)	Management Options	Notes
194	*Acer macrophyllum*	Bigleaf maple	11.1, 5.4, 7.8	good	fair	50	20			parking lot to west	Improbable	Medium	Unlikely	Significant	Low	reduce branches to west for parking lot clearence	multiple codominant stems divide at base, suppressed by larger maple tree 196, good overall vigor, branches overhang parking lot to west, no major defects or signs of decay observed
195	*Prunus emarginata*	Bitter cherry	9.0	good	fair	25	18			parking lot to west	improbable	Medium	Unlikely	Minor	Low	reduce branches to west for lot clearence,	stem impacting fence on east side, suppressed by large maple tree 196, poor candidate for long term retention, but would require a permit to remove
196	*Acer macrophyllum*	Bigleaf Maple	43.0	poor	poor	60	25			parking lot to west, Balance Chiorpractic Center building to west	Probable	High	Likely	Significant	High	remove west stem or snag entire tree	tearout in trunk from 18 inch stem that previously failed to northeast, substantial cavity with decay at tearout, basal cavity, stem to east has dead parts to 12 inches and big tearout some years ago, both remaining stems have decay, west stem targets cars in lot and potentially building north of apartment complex, remove west stem at minimum, consider snagging entire tree, all 3 stems are structurally compromised by a central cavity extending down to

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	1



VICINITY MAP NTS



LEGAL DESCRIPTION

(PER TITLE REPORT BY STEWART TITLE GUARANTY COMPANY DATED AUGUST 29, 2019. ORDER NUMBER 510233, GUARANTEE NO. G-6329-11605)

PARCEL A:

THAT PORTION OF GOVERNMENT LOT 2 IN SECTION 35, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M., SITUATE IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SOUTH LINE OF SAID GOVERNMENT LOT 2 WHICH IS SOUTH 89°54'13" EAST 208.75 FEET FROM THE SOUTHWEST CORNER THEREOF;

THENCE NORTH 00°07'22" WEST PARALLEL WITH THE WEST LINE OF GOVERNMENT LOT 2, A DISTANCE OF 163.75 FEET;

THENCE NORTH 89°54'13" WEST 31.75 FEET;

THENCE NORTH 00°07'22" WEST 276.50 FEET;

THENCE SOUTH 89°54'13" EAST 63 FEET;

THENCE NORTH 00°07'22" WEST 459.47 FEET IN THE SOUTHERLY MARGIN OF CLOVERDALE STREET AS ESTABLISHED BY ORDINANCE NO. 35610;

THENCE NORTH 47°54'48" EAST ALONG THE MARGIN OF CLOVERDALE STREET 232.49 FEET TO THE WESTERLY LINE OF BLOCK 9, C.D. HILLMAN'S ATLANTIC CITY ADDITION;

THENCE SOUTH 33°05'12" EAST 462.20 FEET TO THE SOUTHWESTERLY CORNER OF SAID BLOCK 9;

THENCE SOUTH 89°54'00" EAST 189.98 FEET ALONG THE SOUTH LINE OF BLOCK 9 TO THE WEST LINE OF 53RD AVENUE SOUTH;

THENCE SOUTH 00°06'00" EAST ALONG SAID AVENUE LINE 669.25 FEET TO THE SOUTH LINE OF SAID GOVERNMENT LOT 2;

THENCE NORTH 89°54'13" WEST 645.45 FEET TO THE POINT OF BEGINNING;

TOGETHER WITH LOTS 1 THROUGH 5 INCLUSIVE BLOCK 10 AND LOTS 21 THROUGH 34 INCLUSIVE BLOCK 11, C.D. HILLMAN'S ATLANTIC CITY ADDITION,

AS RECORDED IN VOLUME 12 OF PLATS, PAGE 45, RECORDS OF KING COUNTY, WASHINGTON;

ALSO TOGETHER WITH VACATED GIBBS PLACE SOUTH AND VACATED 53RD AVENUE SOUTH VACATED BY ORDINANCE NO. 87920;

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

PARCEL B:

THAT PORTION OF GOVERNMENT LOT 3 IN SECTION 35, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M., SITUATE IN KING COUNTY, WASHINGTON, LYING NORTH OF SOUTH HENDERSON ST AND WEST OF THE EAST LINE OF 52ND AVE S PROJECTED NORTHERLY AND LYING EAST A LINE 125 FEET EAST OF AND PARALLEL OF RAINIER AVE S.;

REFERENCES:

1. C.D. HILLMAN'S, ATLANTIC CITY ADDITION TO THE CITY OF SEATLE
2. RECORD OF SURVEY REC. NO. 20030603900013
3. SEATTLE PUBLIC UTILITY SEWER CARD NO'S 3670, 3670-2, 1413 & 1428
4. CITY OF SEATTLE 1/4 SECTION MAP FOR NW AND SW 1/4, SECTION 35, T. 24 N., R. 4 E.(MAP 183 AND 185)

LEGEND

- CENTER LINES
- RIGHT-OF-WAY LINES
- PROPERTY LINES
- PLATTED LOT LINES
- VACATED LOT LINES
- FOUND MONUMENT
- FOUND SURFACE MONUMENT
- FOUND PK NAIL

NOTES:

HORIZONTAL DATUM: NAD 83-2011
VERTICAL DATUM: NAVD 88 (CITY OF SEATTLE)
•BASED ON RTK GPS MEASUREMENTS CONSTRAINED USING THE WASHINGTON STATE REFERENCE NETWORK AND MEASURED AT THE MONUMENTS.
SITE AREA: 946,654 SQUARE FEET, OR 21.732 ACRES, MORE OR LESS.

ALL DISTANCES SHOWN ARE GROUND DISTANCES UNLESS OTHERWISE NOTED.

THE LOCATION AND DESCRIPTION OF ALL SURVEY MARKERS SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS TAKEN IN MAY 2020, UNLESS OTHERWISE INDICATED.

WORK PERFORMED IN CONJUNCTION WITH THIS SURVEY UTILIZED THE FOLLOWING EQUIPMENT AND PROCEDURES: (A) 1" TRIMBLE S6 SERIES ELECTRONIC TOTAL STATION, MAINTAINED TO THE MANUFACTURER'S SPECIFICATIONS PER W.A.C. 332-130-100. (B) TOPCON HIPER SR GPS SYSTEM (MAY 20, 2020) (C) FIELD TRAVERSE, EXCEEDING REQUIREMENTS SET FORTH IN W.A.C. 332-130-090.

THIS TOPOGRAPHIC SURVEY DRAWING ACCURATELY PRESENTS SURFACE FEATURES LOCATED DURING THE COURSE OF THIS SURVEY. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED SOLELY UPON INFORMATION PROVIDED BY OTHERS AND PACE ENGINEERS, INC. DOES NOT ACCEPT RESPONSIBILITY OR ASSUME LIABILITY FOR THEIR ACCURACY OR COMPLETENESS.
CONTRACTOR/ENGINEERS SHALL VERIFY EXACT SIZE AND LOCATION PRIOR TO CONSTRUCTION.
CALL FOR LOCATE: UTILITY LOCATION SERVICE: 811.

NOTE: NO PROPERTY CORNERS WERE FOUND ON THE WEST LINE OF THE BOUNDARY AT THE TIME OF THIS SURVEY.

VAULT SERIAL #	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
###						

P:\P20\20432 Rainier Beach High School\CAD\SURVEY\C3D\REFS\V20432-BNDRY.dwg
duoneb Jun-11-20 10:21am

11/16

BOUNDARY DRAWING

PACE
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BY: . . . . . .
CITY PURCHASING & CONTRACTING SERVICES DIRECTOR

INITIALS AND DATE
DESIGNED _____
CHECKED _____
DRAWN DAB/DMB
CHECKED ARB

INITIALS AND DATE
REVIEWED:
DES. _____ CONST. _____
SDOT _____ PROJ. MGR. _____
RECEIVED _____
REVISED AS BUILT _____
ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF SEATTLE STANDARD PLANS AND SPECIFICATIONS AND OTHER DOCUMENTS CALLED FOR IN SECTION 0-02.3 OF THE PROJECT MANUAL.

AARON B. BLASDELL STATE OF WASHINGTON 41276 REGISTERED PROFESSIONAL LAND SURVEYOR

Seattle Public Utilities
ORDINANCE NO. PW NO.
FUND:
SCALE: 1" = 100'

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO 1

JOB PC ____ CO ____
VPI # ____
SHEET 1 OF 16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	2

LEGEND

GAS VALVE
GAS METER GM
SEWER MANHOLE SMH
CLEANOUT CO
STORM DRAIN MANHOLE SDMH
CATCH BASIN
PRIVATE CATCH BASIN
AREA DRAIN (AD)
STORM DRAINAGE INLET
ROOF DRAIN RD
TELEPHONE MANHOLE TMH
TELEPHONE POLE
BOLLARD
SIGN
MAILBOX
CONIFEROUS TREE
DECIDUOUS TREE

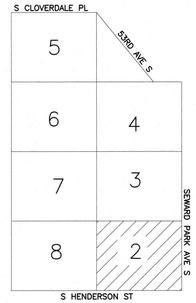
WATER VALVE
WATER GATE VALVE (WMH)
FIRE HYDRANT
WM WATER METER
WMH WATER MANHOLE
H.B. HOSE BIB
IRRIGATION VALVE (IRR)
EMH ELECTRIC MANHOLE
ELECTRIC HANDHOLE
ELECTRIC/COMM JUNCTION BOX
POWER POLE
GUY ANCHOR
GUY POLE
POWER WITH LIGHT
LIGHT POLE
AREA LIGHT
CRW CONCRETE RET WALL
AW ASPHALT WALK
CW CONCRETE WALK
RD ROOF DRAIN
STADIUM LIGHT
FDC FIRE DEPT. CONNECT
TP TEST PIT

CENTER LINES
RIGHT-OF-WAY LINES
PROPERTY LINES
PLATTED LOT LINES
VACATED LOT LINES
G UNDERGROUND GAS LINES
W UNDERGROUND WATER LINES
P UNDERGROUND POWER LINES
UNDERGROUND STORM DRAINAGE LINES
UNDERGROUND SANITARY SEWER LINES
COMBINED SANITARY & STORM LINES
SANITARY SEWER SERVICE LINES
STORM DRAINAGE SERVICE LINES
OHP OVERHEAD POWER LINES
OHC OVERHEAD COMMUNICATIONS LINES
BUILDING LINES
BUILDING OVERHANG LINES
ROCKERY
CHAIN-LINK FENCE LINES (CLF)
WOOD FENCE LINES

NOTE: FOR IMPROVEMENTS WITHIN THE SITE SEE SHEETS 2 THROUGH 8 OF 16.

UTILITY LINES DEPICTED HEREON ARE BASED FROM RECORD INFORMATION AND MAY NOT BE IN USE (ABANDONED) OR WERE NOT CONSTRUCTED IN THIS AREA. MORE EVIDENCE MAY BE NEEDED, SUCH AS POTHOLING, FOR THE ACCURATE LOCATION , MATERIAL, SIZE AND DEPTH OF THE LINES.

SITE SHEET LAYOUT



SV2
BASE MAP

SEE SHEET 8

SEE SHEET 3

Tree A

Tree B (outside survey limits)

Non-regulated sawara cypress

161 (single tree)

Removed

Removed

AREA INACCESSIBLE

BUILDING 2 STORY UNIT A

RAINIER BEACH HIGH SCHOOL 2 STORY BUILDING UNIT A

ASPHALT

GRASS

PLANTER

CONC

GRAVEL PATH

CONC DWY

CONC WALL

CONC COLUMN (TYP)

BENCH (TYP)

BIKE RACK

CONC PADS

SCHOOL SIGN

8' CHN LNK FNC

8' CHN LNK ENC

15' CHN LINK ENC

ASPHALT ROADWAY

CB RIM=27.93
IE 6" DI (NE)=26.9
SUMP=25.4

CB RIM=28.62
IE 4" DI (NW)=27.5
IE 3" DI (SE)=27.8
SUMP=25.7

SDMH RIM=28.65
IE 12" CONC (NW)=22.2
IE 15" CONC (SE)=22.2

SDMH RIM=28.82
IE 15" CONC (NW)=22.3
IE 15" CONC (S)=22.3

SDMH RIM=24.07
IE 10" CONC (NW)=17.6
IE 10" CONC (S)=17.6

CB RIM=23.02
IE 8" DI (S)=19.5
SUMP=17.8

CB RIM=22.71
IE 8" DI (S)=21.0
SUMP=17.6

CB RIM=22.70
IE 8" DI (NW)=18.5
IE 6" PVC (SE)=19.7
SUMP=18.2

CB RIM=23.09
IE 4" PVC (N)=20.3
IE 10" CONC (W)=18.6
IE 10" CONC (E)=18.4
IE 10" CONC (SE)=18.4
IE 18" CONC (S)=18.3
SUMP=16.0

CB RIM=23.42
IE 4" DI (E)=21.9
SUMP=18.6

EVLT TOP=26.66
SUMP=23.0

SMH RIM=29.55
IE CL CHAN 8" CONC (NW/SE)=20.9
IE 8" CONC (W)=

SDMH RIM=29.12
IE 15" CONC (NW)=22.0
IE 15" CONC (S)=21.9

CB RIM=28.0
IE 6" DI (W)=26.0
BTM ELBOW=25.6
IE 6" DI (S)=26.4

CB RIM=28.05
IE 8" CONC (E)=26.5
SUMP=23.6

SMH RIM=28.3
IE CL CHAN 8" CONC (NW) 8" CONC (SE)=18.9

S88°48'49"E 88.19

N1°33'48"W 77.54

S9°52'30"W 20.30'

N1°33'48"W 100.00

N1°33'48"W 110.56

S88°43'06"E

N88°43'06"W 520.25

FF=29.28

FF=29.29

FF=29.33

FF=29.44

FF=29.42

FF=29.40

FF=29.46

FF=29.56

OHP ELEV =69.3

OHP ELEV =71.1

OHP ELEV =69.1

OHP ELEV =69.7

OHP ELEV =78.79

BUILD HEIGHT=2

OHP ELEV =74.8

159 158 157 156 155 160 162 153 154 152 151 150 149 148 147 146 145 144 105 114 115 116 117 112 113 111 110 108 109 106 107 104 103 102 101 120 119 118

NOTE: FOR IMPROVEMENTS WITHIN THE SITE SEE SHEETS 2 THROUGH 8 OF 16.

VAULT SERIAL #	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
###						

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CITY PURCHASING & CONTRACTING SERVICES DIRECTOR

INITIALS AND DATE	
DESIGNED	
CHECKED	
DRAWN	DAB/DMB 6-15-20
CHECKED	ABB 6-15-20

INITIALS AND DATE	
REVIEWED:	
DES.	CONST.
SDOT	PROJ. MGR.
RECEIVED	
REVISED AS BUILT	

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF SEATTLE STANDARD PLANS AND SPECIFICATIONS AND OTHER DOCUMENTS CALLED FOR IN SECTION 0-02.3 OF THE PROJECT MANUAL.

AARON B. BLAISDELL STATE OF WASHINGTON 41278 REGISTERED PROFESSIONAL LAND SURVEYOR

ORDINANCE NO.
FUND:
SCALE: 1" = 20'

SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB PC ____
CO ____
VPI # ____
SHEET 2 OF 16

C:\Users\dennyb\cppdata\local\temp\AcPublish_15272\V20432-SRV.dwg
dennyb Jun-15-20 2:40pm
2/16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	3

SEE SHEET 4

SEE SHEET 7

SEE SHEET 2

CB RIM=23.45
IE 10" PVC (W)=20.9

SDMH RIM=24.49
IE 12" PVC (N)=18.1
IE 12" PVC (S)=18.1
IE 15" PVC (W)=18.1

EMH RIM=24.22
SUMP=13.4

EMH RIM=24.29
IE 6" CONC (S)=19.8

CB RIM=23.52
IE 10" PVC (W)=21.4
SUMP=18.5

CB RIM=23.78
IE 10" PVC (W)=20.5
SUMP=18.3

CB RIM=27.86
IE 6" DI (SE)=26.9
SUMP=25.3

CB RIM=23.42
IE 10" PVC (W)=20.5

SDMH RIM=28.64
IE 10" CONC (NE)=23.0
IE 12" CONC (SE)=23.0

SDMH RIM=23.90
IE 12" PVC (N)=18.6
IE 8" PVC (SE)=18.4
SUMP=17.6

CB RIM=24.57
IE 3" PVC (SW)=21.8
IE 3" PVC (E)=22.1

CB RIM=24.16
IE 10" PVC (SW)=21.2
SUMP=18.9

CB RIM=36.31
IE 8" DI (NE)=34.8
SUMP=31.2

SDMH RIM=36.31
IE 8" CONC (NW)=23.7
IE 8" CONC (SE)=23.7
IE 8" CONC (SW)=23.9

SMH RIM=35.04
IE CL CHAN 8" DI
(SW/SE)=23.0

CB RIM=30.20
IE 8" PVC (NE)=26.50

CB RIM=29.24
IE (2) 6" PVC (N)=25.2
IE 6" PVC (SE)=26.2

CB RIM=28.77
IE 6" PVC (NE)=28.0
SUMP=24.4

CB RIM=27.93
IE 6" DI (NE)=26.9
SUMP=25.4

EVLT=25.14
SUMP=24.1

Tree C
Tree D
Tree E
Tree F
122
123

BUILDING
2 STORY
UNIT D

BUILDING
MULTI-LEVEL
UNIT B

BUILDING
2 STORY
UNIT C

BUILDING
HEIGHT=15.5'

BUILDING
HEIGHT=30.6

2" TUNNEL DRAIN
ANCHOR 4" STM,
1-1/2" RET.,
3/4" HWL, 1" HW

OIL TANK

RESTROOMS

PORTABLE

PORTABLE

ASPHALT

GRAVEL

GRASS

COVERED CONC WALK

CONC CURB

CONC WALL

6' CHN LNK FNC

4' CHN LNK FNC

RAMP

PLANTER
AREA

FF=25.58

FF=25.59

LEGEND

GAS VALVE		WATER VALVE	
GAS METER	GM	WATER GATE VALVE (WMH)	
SEWER MANHOLE	SMH	FIRE HYDRANT	
CLEANOUT	CO	WATER METER	WM
STORM DRAIN MANHOLE	SDMH	WATER MANHOLE	WMH
CATCH BASIN		HOSE BIB	H.B.
PRIVATE CATCH BASIN		IRRIGATION VALVE (IRR)	
AREA DRAIN (AD)		ELECTRIC MANHOLE	EMH
STORM DRAINAGE INLET		ELECTRIC HANDHOLE	
ROOF DRAIN	RD	ELECTRIC/COMM JUNCTION BOX	
TELEPHONE MANHOLE	TMH	POWER POLE	
TELEPHONE POLE		GUY ANCHOR	
BOLLARD		GUY POLE	
SIGN		POWER WITH LIGHT	
MAILBOX		LIGHT POLE	
CONIFEROUS TREE		AREA LIGHT	
		CONCRETE RET WALL	CRW
DECIDUOUS TREE		ASPHALT WALK	AW
		CONCRETE WALK	CW
		ROOF DRAIN	RD
		STADIUM LIGHT	
		FIRE DEPT. CONNECT	FDC
		TEST PIT	TP

CENTER LINES
RIGHT-OF-WAY LINES
PROPERTY LINES
PLATTED LOT LINES
VACATED LOT LINES
UNDERGROUND GAS LINES
UNDERGROUND WATER LINES
UNDERGROUND POWER LINES
UNDERGROUND STORM DRAINAGE LINES
UNDERGROUND SANITARY SEWER LINES
COMBINED SANITARY & STORM LINES
SANITARY SEWER SERVICE LINES
STORM DRAINAGE SERVICE LINES
OVERHEAD POWER LINES
OVERHEAD COMMUNICATIONS LINES
BUILDING LINES
BUILDING OVERHANG LINES
ROCKERY
CHAIN-LINK FENCE LINES (CLF)
WOOD FENCE LINES

NOTE: FOR IMPROVEMENTS WITHIN THE SITE SEE SHEETS 2 THROUGH 8 OF 16.

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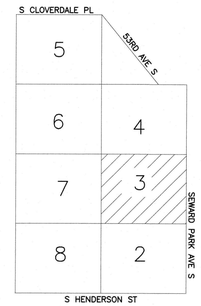
SITE SHEET LAYOUT



N

20 10 0 20 40
SCALE IN FEET

SV3
BASE MAP

VAULT SERIAL #	DATE	MARK	NATURE OF REVISIONS	MADE	CHK'D	REV'D
###						

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3/16

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INITIALS AND DATE		INITIALS AND DATE	
DESIGNED		REVIEWED:	
CHECKED		DES.	CONST.
		SDOT	PROJ. MGR.
DRAWN	DAB/DMB 6-15-20	RECEIVED	
CHECKED	ABB 6-15-20	REVISED AS BUILT	

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AARON B. BLAISDELL
STATE OF WASHINGTON
41078
REGISTERED
PROFESSIONAL LAND SURVEYOR

ORDINANCE NO.
FUND:
SCALE: 1" = 20'

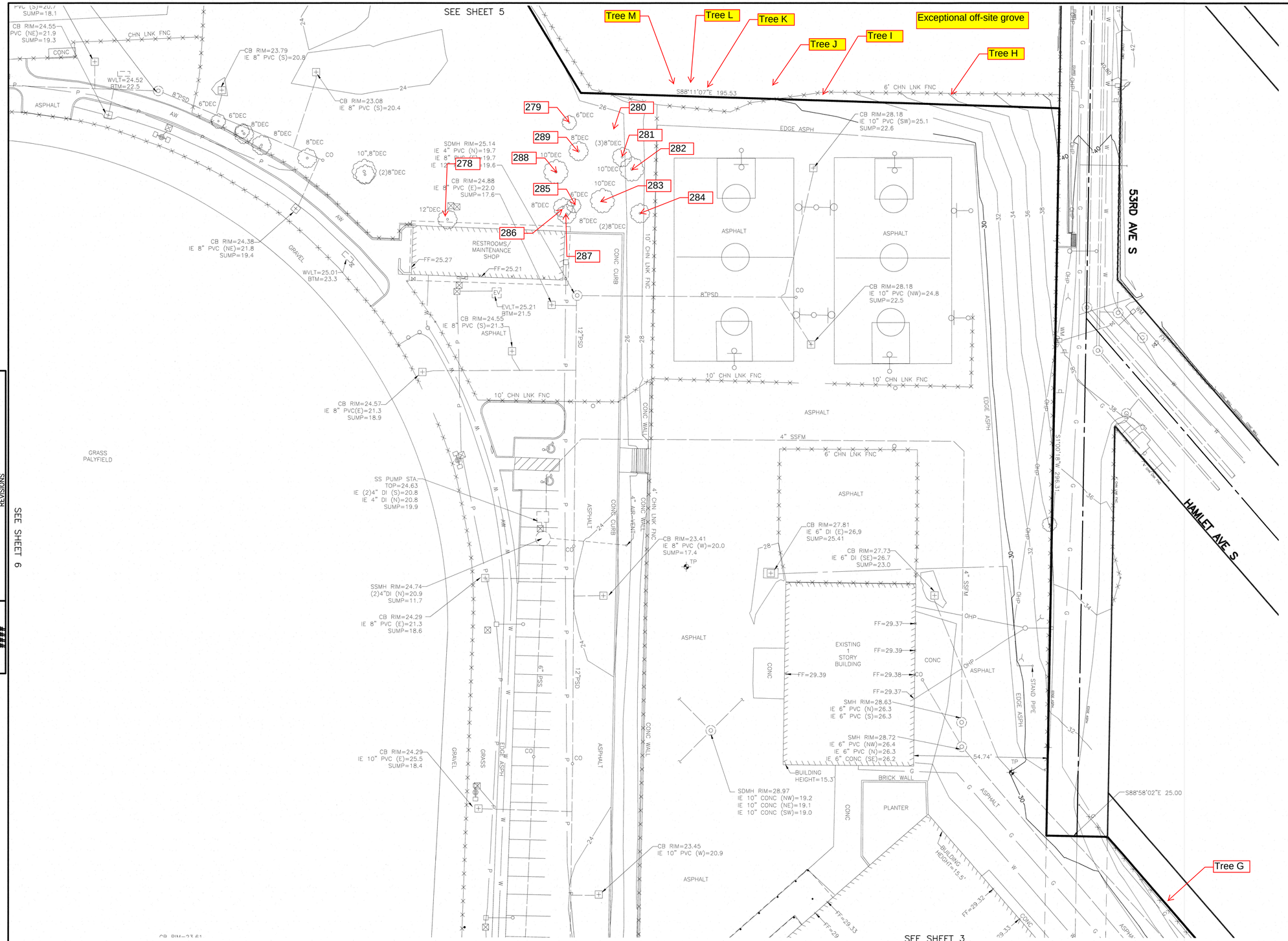
SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB PC ____ CO ____
VPI # ____

SHEET 3 OF 16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	4



LEGEND

- GAS VALVE
- GAS METER GM
- SEWER MANHOLE SMH
- CLEANOUT CO
- STORM DRAIN MANHOLE SDMH
- CATCH BASIN
- PRIVATE CATCH BASIN
- AREA DRAIN (AD)
- STORM DRAINAGE INLET
- ROOF DRAIN RD
- TELEPHONE MANHOLE TMH
- TELEPHONE POLE
- BOLLARD
- SIGN
- MAILBOX MB
- CONIFEROUS TREE
- DECIDUOUS TREE
- WATER VALVE
- WATER GATE VALVE (WMH)
- FIRE HYDRANT
- WM WATER METER
- WMH WATER MANHOLE
- H.B. HOSE BIB
- IRRIGATION VALVE (IRR)
- EMH ELECTRIC MANHOLE
- ELECTRIC HANDHOLE
- ELECTRIC/COMM JUNCTION BOX
- POWER POLE
- GUY ANCHOR
- GUY POLE
- POWER WITH LIGHT
- LIGHT POLE
- AREA LIGHT
- CRW CONCRETE RET WALL
- AW ASPHALT WALK
- CW CONCRETE WALK
- RD ROOF DRAIN
- STADIUM LIGHT
- FDC FIRE DEPT. CONNECT
- TP TEST PIT

- CENTER LINES
- RIGHT-OF-WAY LINES
- PROPERTY LINES
- PLATTED LOT LINES
- VACATED LOT LINES
- G UNDERGROUND GAS LINES
- W UNDERGROUND WATER LINES
- P UNDERGROUND POWER LINES
- UNDERGROUND STORM DRAINAGE LINES
- UNDERGROUND SANITARY SEWER LINES
- COMBINED SANITARY & STORM LINES
- SANITARY SEWER SERVICE LINES
- STORM DRAINAGE SERVICE LINES
- OHP OVERHEAD POWER LINES
- OHC OVERHEAD COMMUNICATIONS LINES
- BUILDING LINES
- BUILDING OVERHANG LINES
- ROCKERY
- CHAIN-LINK FENCE LINES (CLF)
- WOOD FENCE LINES

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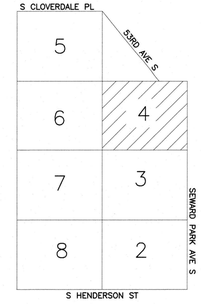
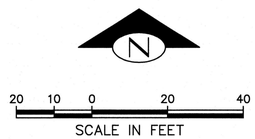
SITE SHEET LAYOUT





SV4
BASE MAP

VAULT SERIAL #	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
###						

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CHECKED _____	DES. _____ CONST. _____
	SDOT _____ PROJ. MGR. ___
DRAWN DAB/DMB 6-15-20	RECEIVED _____
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AARON B. BLAISDELL STATE OF WASHINGTON 21278 REGISTERED PROFESSIONAL LAND SURVEYOR

ORDINANCE NO.
FUND:
SCALE: 1" = 20'

SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB	PC ____ CO ____
VPI #	____
SHEET	4 OF 16

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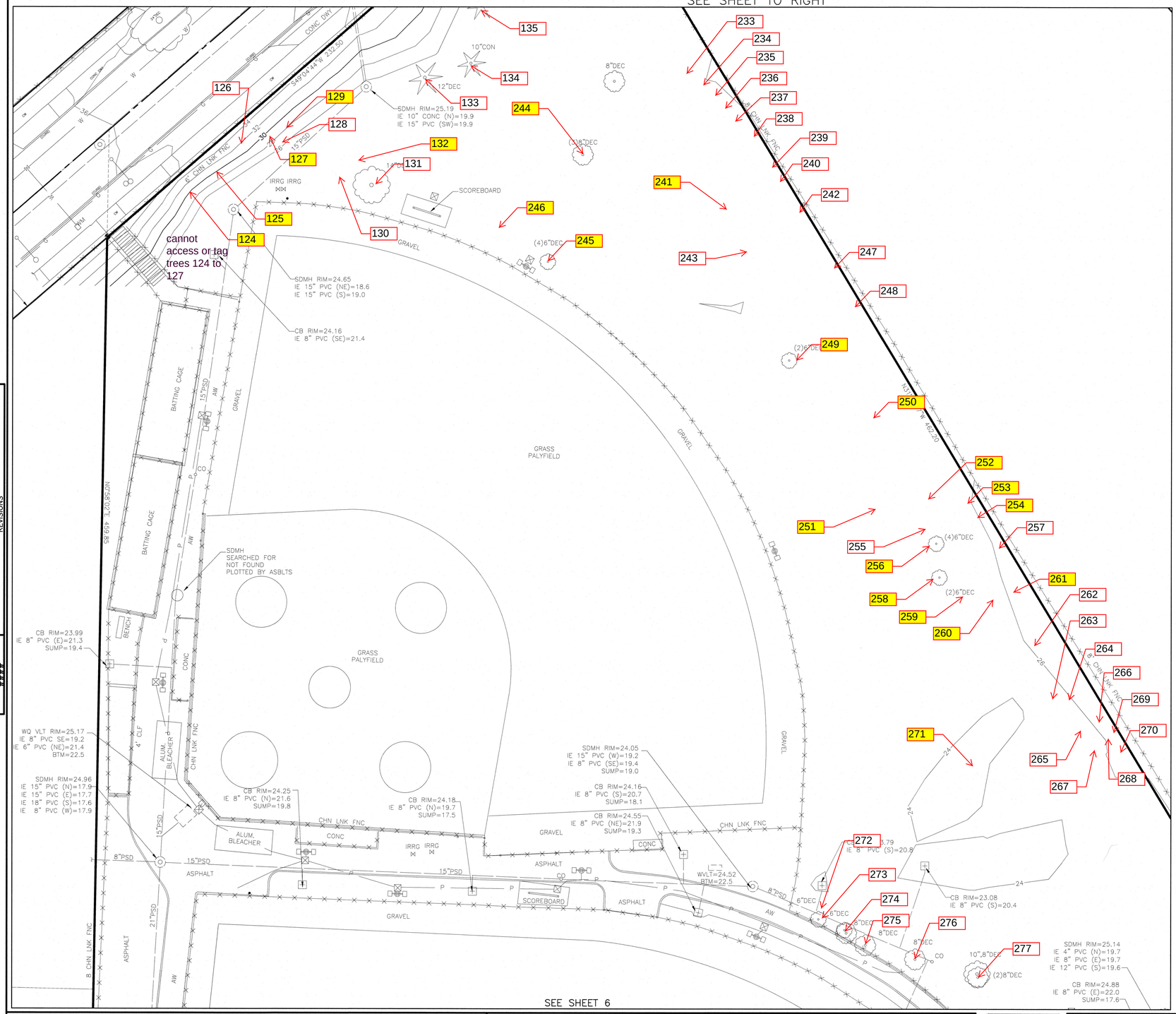
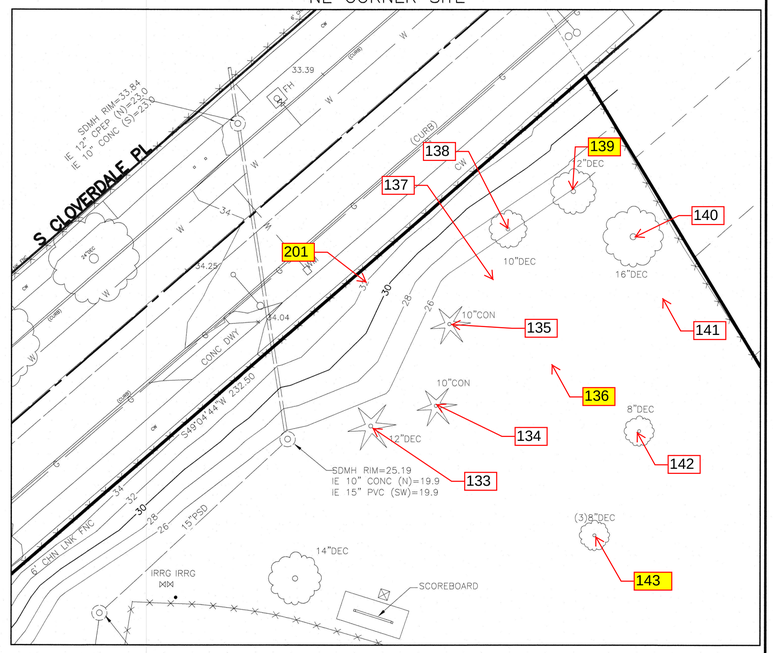
4/16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	5

SEE SHEET TO RIGHT



NE CORNER SITE



LEGEND

GAS VALVE		WATER VALVE	
GAS METER	GM	WATER GATE VALVE (WMH)	
SEWER MANHOLE	SMH	FIRE HYDRANT	
CLEANOUT	CO	WATER METER	WM
STORM DRAIN MANHOLE	SDMH	WATER MANHOLE	WMH
CATCH BASIN		HOSE BIB	H.B.
PRIVATE CATCH BASIN		IRRIGATION VALVE (IRR)	
AREA DRAIN (AD)		ELECTRIC MANHOLE	EMH
STORM DRAINAGE INLET		ELECTRIC HANDHOLE	
ROOF DRAIN	RD	ELECTRIC/COMM JUNCTION BOX	
TELEPHONE MANHOLE	TMH	POWER POLE	
TELEPHONE POLE		GUY ANCHOR	
BOLLARD		GUY POLE	
SIGN		POWER WITH LIGHT	
MAILBOX		LIGHT POLE	
CONIFEROUS TREE		AREA LIGHT	
	CRW	CONCRETE RET WALL	
DECIDUOUS TREE	AW	ASPHALT WALK	
	CW	CONCRETE WALK	
	RD	ROOF DRAIN	
		STADIUM LIGHT	
	FDC	FIRE DEPT. CONNECT	
	TP	TEST PIT	

CENTER LINES	
RIGHT-OF-WAY LINES	
PROPERTY LINES	
PLATTED LOT LINES	
VACATED LOT LINES	
UNDERGROUND GAS LINES	G
UNDERGROUND WATER LINES	W
UNDERGROUND POWER LINES	P
UNDERGROUND STORM DRAINAGE LINES	
UNDERGROUND SANITARY SEWER LINES	
COMBINED SANITARY & STORM LINES	
SANITARY SEWER SERVICE LINES	
STORM DRAINAGE SERVICE LINES	
OVERHEAD POWER LINES	OHP
OVERHEAD COMMUNICATIONS LINES	OHC
BUILDING LINES	
BUILDING OVERHANG LINES	
ROCKERY	
CHAIN-LINK FENCE LINES (CLF)	
WOOD FENCE LINES	

NOTE: FOR IMPROVEMENTS WITHIN THE SITE SEE SHEETS 2 THROUGH 8 OF 16.

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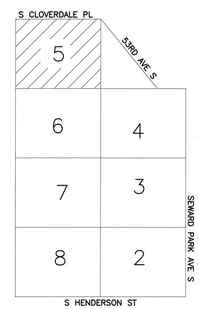
N

20 10 0 20 40

SCALE IN FEET

SITE SHEET LAYOUT



SV5 BASE MAP

VAULT SERIAL #	DATE	MARK	NATURE REVISIONS
####			

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DESIGNED	
CHECKED	
DRAWN	DAB/DMB 6-15-20
CHECKED	ABB 6-15-20

INITIALS AND DATE	
REVIEWED:	
DES.	CONST.
SDOT	PROJ. MGR.
RECEIVED	
REVISED AS BUILT	

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AARON B. BLANSETT
STATE OF WASHINGTON
41276
REGISTERED
PROFESSIONAL LAND SURVEYOR

ORDINANCE NO.
FUND:
SCALE: 1" = 20'

SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB PC ____ CO ____
VPI # ____
SHEET 5 OF 16

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5/16

REGION NO. 10 | STATE WA | FEDERAL AID PROJECT NO. #### | SHEET NO. 6
SEE SHEET 5
SEE SHEET 5
SEE SHEET 4
SEE SHEET 7
LEGEND
GAS VALVE
GAS METER GM
SEWER MANHOLE SMH
CLEANOUT CO
STORM DRAIN MANHOLE SDMH
CATCH BASIN
PRIVATE CATCH BASIN
AREA DRAIN (AD)
STORM DRAINAGE INLET
ROOF DRAIN RD
TELEPHONE MANHOLE TMH
TELEPHONE POLE
BOLLARD
SIGN
MAILBOX
CONIFEROUS TREE
DECIDUOUS TREE
FDC FIRE DEPT. CONNECT
TP TEST PIT
WATER VALVE
WATER GATE VALVE
FIRE HYDRANT
WM WATER METER
WMH WATER MANHOLE
H.B. HOSE BIB
IRRIGATION VALVE (IRR)
EMH ELECTRIC MANHOLE
ELECTRIC HANDHOLE
ELECTRIC/COMM JUNCTION BOX
POWER POLE
GUY ANCHOR
GUY POLE
POWER WITH LIGHT
LIGHT POLE
AREA LIGHT
CRW CONCRETE RET WALL
AW ASPHALT WALK
CW CONCRETE WALK
RD ROOF DRAIN
STADIUM LIGHT
CENTER LINES
RIGHT-OF-WAY LINES
PROPERTY LINES
PLATTED LOT LINES
VACATED LOT LINES
UNDERGROUND GAS LINES
UNDERGROUND WATER LINES
UNDERGROUND POWER LINES
UNDERGROUND STORM DRAINAGE LINES
UNDERGROUND SANITARY SEWER LINES
COMBINED SANITARY & STORM LINES
SANITARY SEWER SERVICE LINES
STORM DRAINAGE SERVICE LINES
OVERHEAD POWER LINES
OVERHEAD COMMUNICATIONS LINES
BUILDING LINES
BUILDING OVERHANG LINES
ROCKERY
CHAIN-LINK FENCE LINES (CLF)
WOOD FENCE LINES
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SITE SHEET LAYOUT
S CLOVERDALE PL
53RD AVE S
SEWARD PARK AVE S
S HENDERSON ST
5 6 4 7 3 8 2
SCALE IN FEET
20 10 0 20 40
SV6
BASE MAP
GRASS PALYFIELD
GRASS PALYFIELD
RESTROOMS/ MAINTENANCE SHOP
BATTING CAGE
BATTING CAGE
ALUM. BLEACHER
ALUM. BLEACHER
Tree N
198
199
200
SDMH RIM=25.14 IE 4" PVC (N)=19.7 IE 8" PVC (E)=19.7 IE 12" PVC (S)=19.6
CB RIM=24.88 IE 8" PVC (E)=22.0 SUMP=17.6
CB RIM=23.21 IE 8" PVC (S)=20.4 SUMP=18.3
CB RIM=24.38 IE 8" PVC (NE)=21.8 SUMP=19.4
WVLT=25.01 BTM=23.3
FF=25.27
FF=25.21
EVLT=25.21 BTM=21.5
CB RIM=24.55 IE 8" PVC (S)=21.3
CB RIM=24.57 IE 8" PVC(E)=21.3 SUMP=18.9
SS PUMP STA. TOP=24.63 IE (2)4" DI (S)=20.8 IE 4" DI (N)=20.8 SUMP=19.9
CB RIM=23.41 IE 8" PVC (W)=20.0 SUMP=17.4
SSMH RIM=24.74 (2)4"DI (N)=20.9 SUMP=11.7
CB RIM=24.29 IE 8" PVC (E)=21.3 SUMP=18.6
CB RIM=23.40 IE 8" PVC (E)=20.9 SUMP=18.6
SDMH RIM=25.20 IE 18" PVC (N)=17.1 IE 18" PVC (S)=15.5
S88°48'44"E 63.00
CB RIM=24.29 IE 10" PVC (E)=25.5 SUMP=18.4
CB RIM=23.45 IE 10" PVC (W)=20.9
CB RIM=23.65 IE 8" PVC (E)=20.7 SUMP=18.5
SDMH RIM=25.04 IE 18" PVC (N)=15.1 IE 15" PVC (E)=15.3 IE 21" PVC (S)=14.9
CB RIM=23.61 IE 6" PVC (W)=20.5 IE 4" PVC (SE)=21.2 SUMP=18.2
SDMH RIM=24.49 IE 12" PVC (N)=18.1 IE 12" PVC (S)=18.1 IE 15" PVC (W)=18.1
EMH RIM=24.22 SUMP=13.4

MARK	DATE	NATURE	MADE / CHK'D / REV'D

REVISIONS
VAULT SERIAL # ####

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CHECKED
DRAWN DAB/DMB 6-15-20
CHECKED ABB 6-15-20

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REVIEWED:
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RECEIVED ________
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AARON B. BLAISDELL — STATE OF WASHINGTON — 41278 — PROFESSIONAL LAND SURVEYOR

ORDINANCE NO.
FUND:
SCALE: 1" = 20'

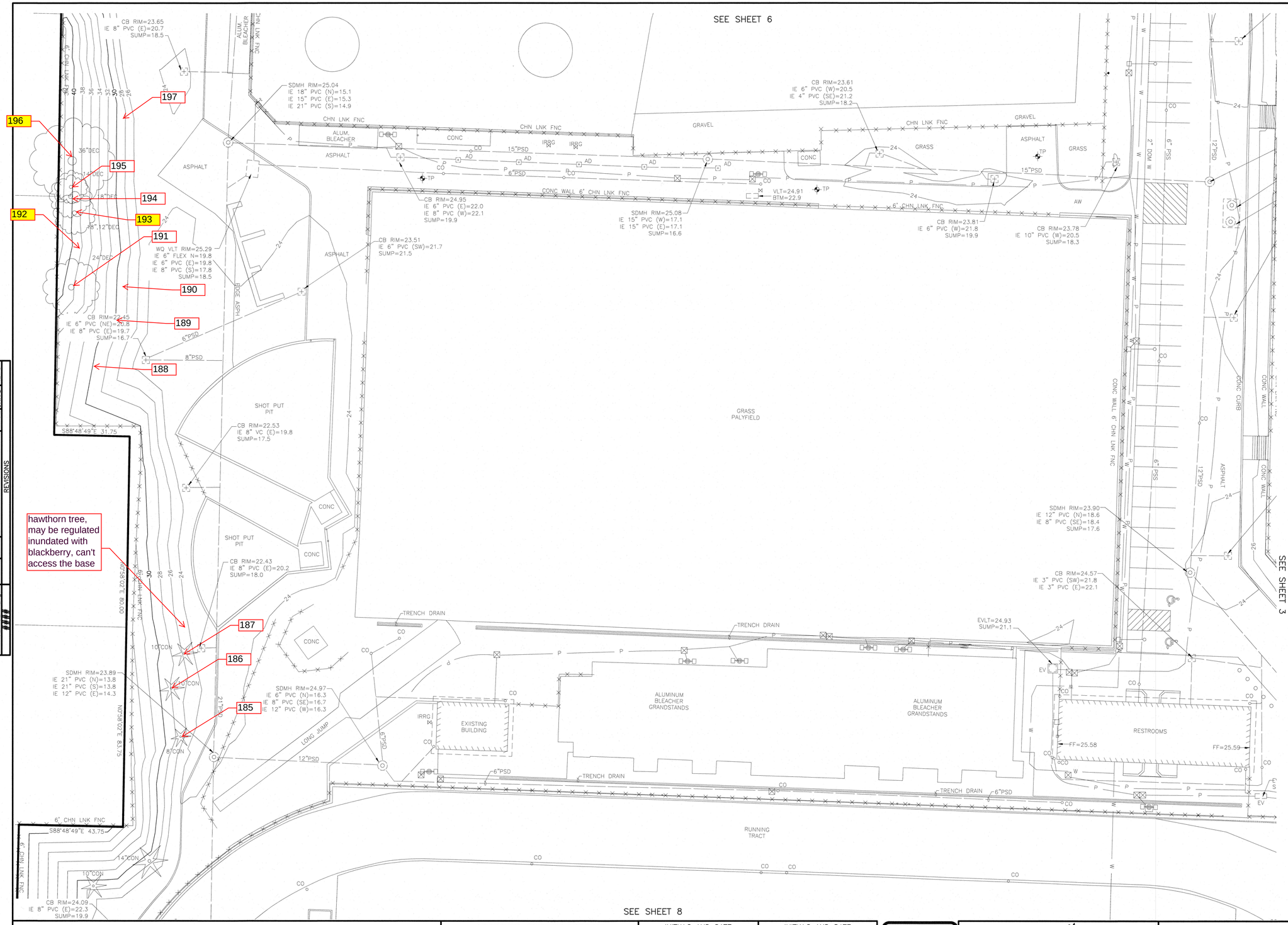
SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB PC ____
CO ____
VPI # ____

SHEET 6 OF 16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	7



LEGEND

GAS VALVE		WATER VALVE	
GAS METER	GM	WATER GATE VALVE (WMH)	
SEWER MANHOLE	SMH	FIRE HYDRANT	
CLEANOUT	CO	WATER METER	WM
STORM DRAIN MANHOLE	SDMH	WATER MANHOLE	WMH
CATCH BASIN		HOSE BIB	H.B.
PRIVATE CATCH BASIN		IRRIGATION VALVE (IRR)	
AREA DRAIN (AD)		ELECTRIC MANHOLE	EMH
STORM DRAINAGE INLET		ELECTRIC HANDHOLE	
ROOF DRAIN	RD	ELECTRIC/COMM JUNCTION BOX	
TELEPHONE MANHOLE	TMH	POWER POLE	
TELEPHONE POLE		GUY ANCHOR	
BOLLARD		GUY POLE	
SIGN		POWER WITH LIGHT	
MAILBOX		LIGHT POLE	
CONIFEROUS TREE		AREA LIGHT	
		CONCRETE RET WALL	CRW
DECIDUOUS TREE		ASPHALT WALK	AW
		CONCRETE WALK	CW
FDC	FIRE DEPT. CONNECT	ROOF DRAIN	RD
TP	TEST PIT	STADIUM LIGHT	

- CENTER LINES
- RIGHT-OF-WAY LINES
- PROPERTY LINES
- PLATTED LOT LINES
- VACATED LOT LINES
- G — UNDERGROUND GAS LINES
- W — UNDERGROUND WATER LINES
- P — UNDERGROUND POWER LINES
- UNDERGROUND STORM DRAINAGE LINES
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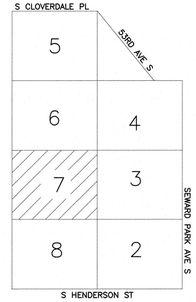
SITE SHEET LAYOUT



SV7 BASE MAP

REVISIONS			
NATURE	MADE	CHK'D	REV'D

VAULT SERIAL #	DATE	MARK
####		

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AARON D. BLASDELL — STATE OF WASHINGTON — 41276 — REGISTERED PROFESSIONAL LAND SURVEYOR — 6/16/20

ORDINANCE NO.
FUND:
SCALE: 1" = 20'

SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

BOB
PC ____
CO ____
VPI # ____

SHEET 7 OF 16

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7/16

SEE SHEET 7
SEE SHEET 2
cluster of prunus sp. trees inundated with blackberry, may be regulated
native willow tree inundated with blackberry, may be regulated
Tree Q
Trunk of tree 172
184
182
181
180
179
178
177
176
175
174
173
172
171
170
169
168
167
166
165
164
163
RUNNING TRACT
GRASS PALYFIELD
SAND PIT
GOAL POST
SCOREBOARD
6' CHN LNK FNC
S88°48'49"E 43.75'
CB RIM=24.09
IE 8" PVC (E)=22.3
SUMP=19.9
CB RIM=24.63
IE 10" PVC (NE)=21.7
SUMP=19.4
CB RIM=23.74
IE 8" PVC (E)=21.9
SUMP=19.3
SDMH RIM=31.33
PUMP STATION
SUMP=8.5
SDMH RIM=25.16
IE 12" CONC (N)=12.9
IE 12" CONC (E)=13.0
IE 21" CONC(W)=12.4
IE 21" CONC (S)=12.4
SUMP=12.3
SDMH RIM=25.15
IE 21" PVC (N)=11.3
IE 21" PVC (E)=11.3
SUMP=12.7
CB RIM=24.03
IE 6" PVC (W)=21.3
IE 4" PVC (S)=22.0
SUMP=19.1
CB RIM=23.83
IE 6" PVC (N)=21.9
SUMP=19.3
CB RIM=23.76
IE 6" PVC (N)=21.5
SUMP=19.0
EVLT=27.35
IE 4" PVC (N)=25.9
IE 4" PVC (S)=25.9
SUMP=21.8
EVLT=31.04
SUMP=12.0
EVLT=25.14
SUMP=24.1
DCVA=26.80
SUMP=25.8/22.8
FF=25.58
FF=25.59
TRENCH DRAIN
4' CHN LNK FNC
8' CHN LNK FNC
2" DOM W
8
SEE PREVIOUS SHEET FOR SHEET LAYOUT
GRASS
ASPHALT

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	8

DATE	MARK	NATURE	MADE	CHK'D	REV'D
		REVISIONS			

VAULT SERIAL # ####

SV8
BASE MAP

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20 10 0 20 40
SCALE IN FEET

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BY: . . . .
CITY PURCHASING & CONTRACTING SERVICES DIRECTOR

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DESIGNED ________
CHECKED ________
DRAWN DAB/DMB 6-15-20
CHECKED ABB 6-15-20

INITIALS AND DATE
REVIEWED:
DES. ________ CONST. ________
SDOT ________ PROJ. MGR. ________
RECEIVED ________
REVISED AS BUILT ________

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF SEATTLE STANDARD PLANS AND SPECIFICATIONS AND OTHER DOCUMENTS CALLED FOR IN SECTION 0-02.3 OF THE PROJECT MANUAL.

ORDINANCE NO.
FUND:
SCALE: 1" = 20'

SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB PC CO
VPI #
SHEET 8 OF 16

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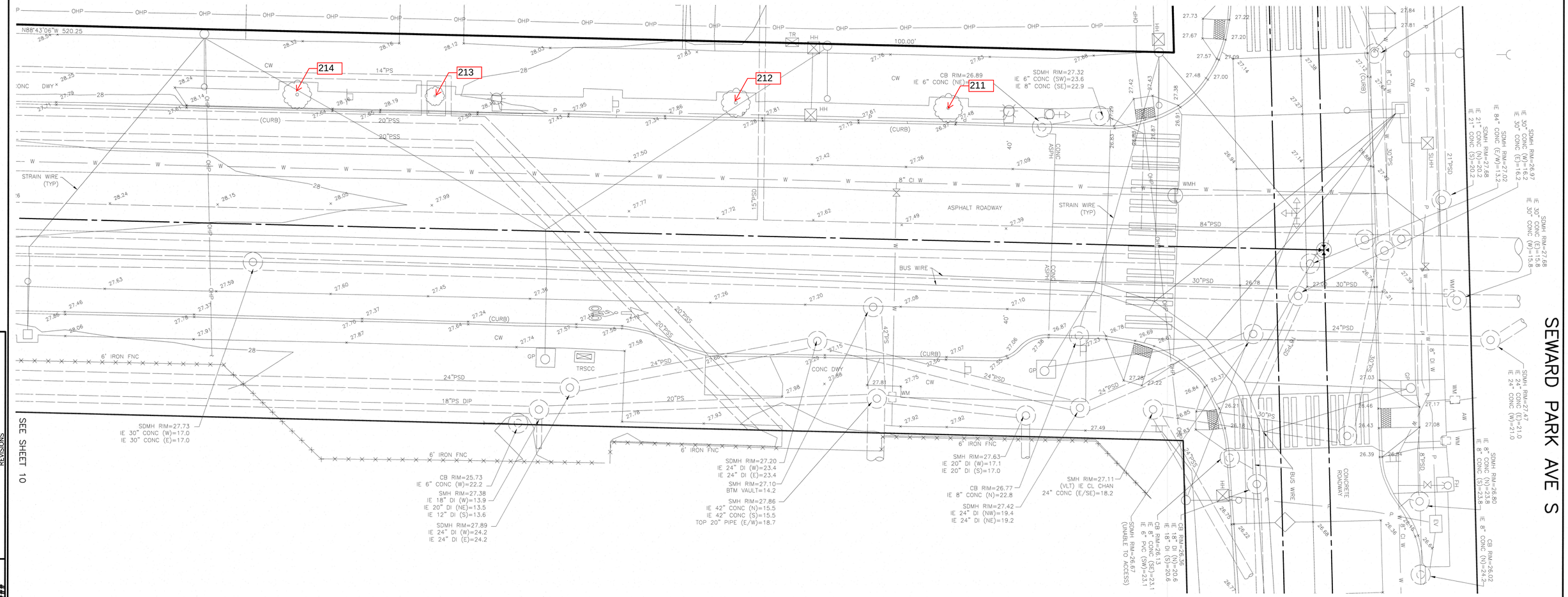
8/16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	9

S HENDERSON ST



SEE SHEET 10

SEWARD PARK AVE S

LEGEND

GAS VALVE		WATER VALVE	
GAS METER	GM	WATER GATE VALVE (WMH)	
SEWER MANHOLE	SMH	FIRE HYDRANT	
CLEANOUT	CO	WM	WATER METER
STORM DRAIN MANHOLE	SDMH	WMH	WATER MANHOLE
CATCH BASIN		H.B.	HOSE BIB
PRIVATE CATCH BASIN		IRRIGATION VALVE (IRR)	
AREA DRAIN (AD)		EMH	ELECTRIC MANHOLE
STORM DRAINAGE INLET			ELECTRIC HANDHOLE
ROOF DRAIN	RD		ELECTRIC/COMM JUNCTION BOX
TELEPHONE MANHOLE	TMH		POWER POLE
TELEPHONE POLE			GUY ANCHOR
BOLLARD			GUY POLE
SIGN			POWER WITH LIGHT
MAILBOX			LIGHT POLE
CONIFEROUS TREE			AREA LIGHT
		CRW	CONCRETE RET WALL
DECIDUOUS TREE		AW	ASPHALT WALK
		CW	CONCRETE WALK
		RD	ROOF DRAIN
FDC	FIRE DEPT. CONNECT		STADIUM LIGHT
TP	TEST PIT	+100.00	SPOT ELEVATION

- CENTER LINES
- RIGHT-OF-WAY LINES
- PROPERTY LINES
- PLATTED LOT LINES
- VACATED LOT LINES
- G — UNDERGROUND GAS LINES
- W — UNDERGROUND WATER LINES
- P — UNDERGROUND POWER LINES
- UNDERGROUND STORM DRAINAGE LINES
- UNDERGROUND SANITARY SEWER LINES
- COMBINED SANITARY & STORM LINES
- SANITARY SEWER SERVICE LINES
- STORM DRAINAGE SERVICE LINES
- OHP — OVERHEAD POWER LINES
- OHC — OVERHEAD COMMUNICATIONS LINES
- BUILDING LINES
- BUILDING OVERHANG LINES
- ROCKERY
- CHAIN-LINK FENCE LINES (CLF)
- WOOD FENCE LINES

NOTE: FOR IMPROVEMENTS WITHIN THE SITE SEE SHEETS 9 THROUGH 16 OF 16.

UTILITY LINES DEPICTED HEREON ARE BASED FROM RECORD INFORMATION AND MAY NOT BE IN USE (ABANDONED) OR WERE NOT CONSTRUCTED IN THIS AREA. MORE EVIDENCE MAY BE NEEDED, SUCH AS POTHOLING, FOR THE ACCURATE LOCATION , MATERIAL, SIZE AND DEPTH OF THE LINES.

N

10 5 0 10 20

SCALE IN FEET

SV9
S HENDERSON ST

VAULT SERIAL #	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
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9/16

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INITIALS AND DATE		INITIALS AND DATE	
DESIGNED		REVIEWED:	
CHECKED		DES.	CONST.
		SDOT	PROJ. MGR.
DRAWN	DAB/DMB 6-15-20	RECEIVED	
CHECKED	ABB 6-15-20	REVISED AS BUILT	

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF SEATTLE STANDARD PLANS AND SPECIFICATIONS AND OTHER DOCUMENTS CALLED FOR IN SECTION 0-02.3 OF THE PROJECT MANUAL.

AARON B. BEASLEY
STATE OF WASHINGTON
41276
REGISTERED
PROFESSIONAL LAND SURVEYOR
6/16/20

ORDINANCE NO.
FUND:
SCALE: 1" = 10'

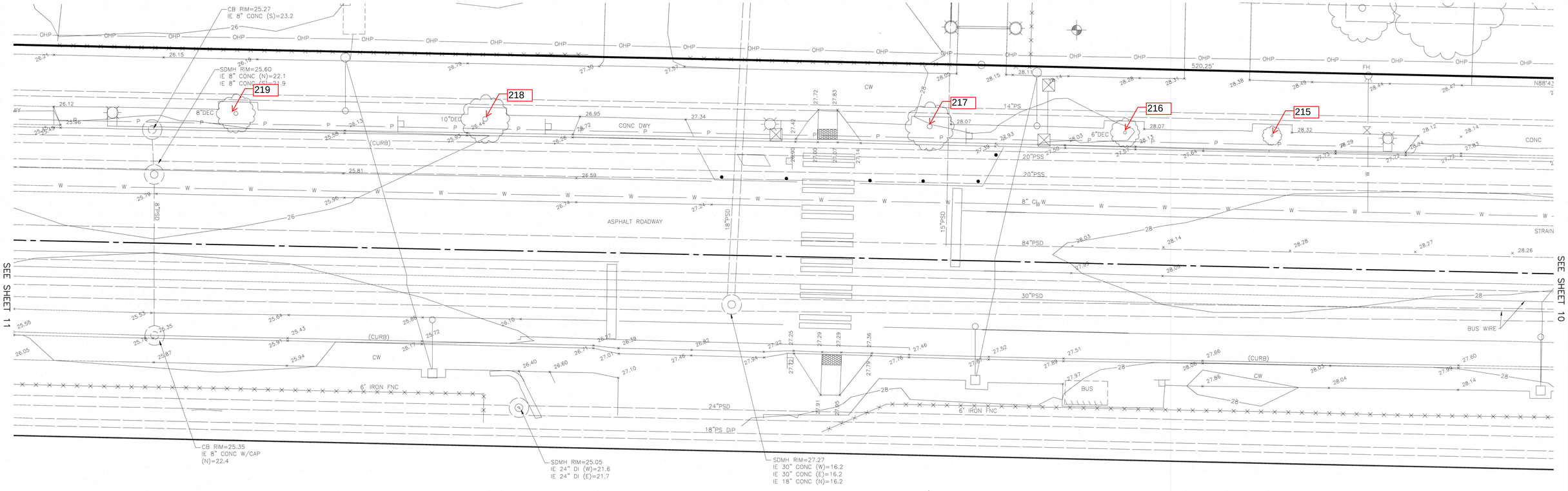
SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB PC ____ CO ____
VPI # ____
SHEET 9 OF 16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	10

S HENDERSON ST



LEGEND

GAS VALVE		WATER VALVE	
GAS METER	GM	WATER GATE VALVE (WMH)	
SEWER MANHOLE	SMH	FIRE HYDRANT	
CLEANOUT	CO	WM	WATER METER
STORM DRAIN MANHOLE	SDMH	WMH	WATER MANHOLE
CATCH BASIN		H.B.	HOSE BIB
PRIVATE CATCH BASIN		IRRIGATION VALVE (IRR)	
AREA DRAIN (AD)		EMH	ELECTRIC MANHOLE
STORM DRAINAGE INLET		ELECTRIC HANDHOLE	
ROOF DRAIN	RD	ELECTRIC/COMM JUNCTION BOX	
TELEPHONE MANHOLE	TMH	POWER POLE	
TELEPHONE POLE		GUY ANCHOR	
BOLLARD		GUY POLE	
SIGN		POWER WITH LIGHT	
MAILBOX		LIGHT POLE	
CONIFEROUS TREE		AREA LIGHT	
	CRW	CONCRETE RET WALL	
DECIDUOUS TREE	AW	ASPHALT WALK	
	CW	CONCRETE WALK	
	RD	ROOF DRAIN	
		STADIUM LIGHT	
	FDC	FIRE DEPT. CONNECT	
	TP	TEST PIT	
+100.00 SPOT ELEVATION			

- CENTER LINES
- RIGHT-OF-WAY LINES
- PROPERTY LINES
- PLATTED LOT LINES
- VACATED LOT LINES
- G — UNDERGROUND GAS LINES
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- STORM DRAINAGE SERVICE LINES
- OHP — OVERHEAD POWER LINES
- OHC — OVERHEAD COMMUNICATIONS LINES
- BUILDING LINES
- BUILDING OVERHANG LINES
- ROCKERY
- CHAIN-LINK FENCE LINES (CLF)
- WOOD FENCE LINES

NOTE: FOR IMPROVEMENTS WITHIN THE SITE SEE SHEETS 9 THROUGH 16 OF 16.

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N

10 5 0 10 20

SCALE IN FEET

SV10
S HENDERSON ST

NATURE REVISIONS	MADE	CHK'D	REV'D

VAULT SERIAL #	DATE	MARK
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10/16

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INITIALS AND DATE	
DESIGNED	
CHECKED	
DRAWN	DAB/DMB 6-15-20
CHECKED	ABB 6-15-20

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INITIALS AND DATE	
REVIEWED:	
DES.	CONST.
SDOT	PROJ. MGR.
RECEIVED	
REVISED AS BUILT	

AARON D. BRASSELL
STATE OF WASHINGTON
21276
REGISTERED
PROFESSIONAL LAND SURVEYOR

ORDINANCE NO.
FUND:
SCALE: 1" = 10'

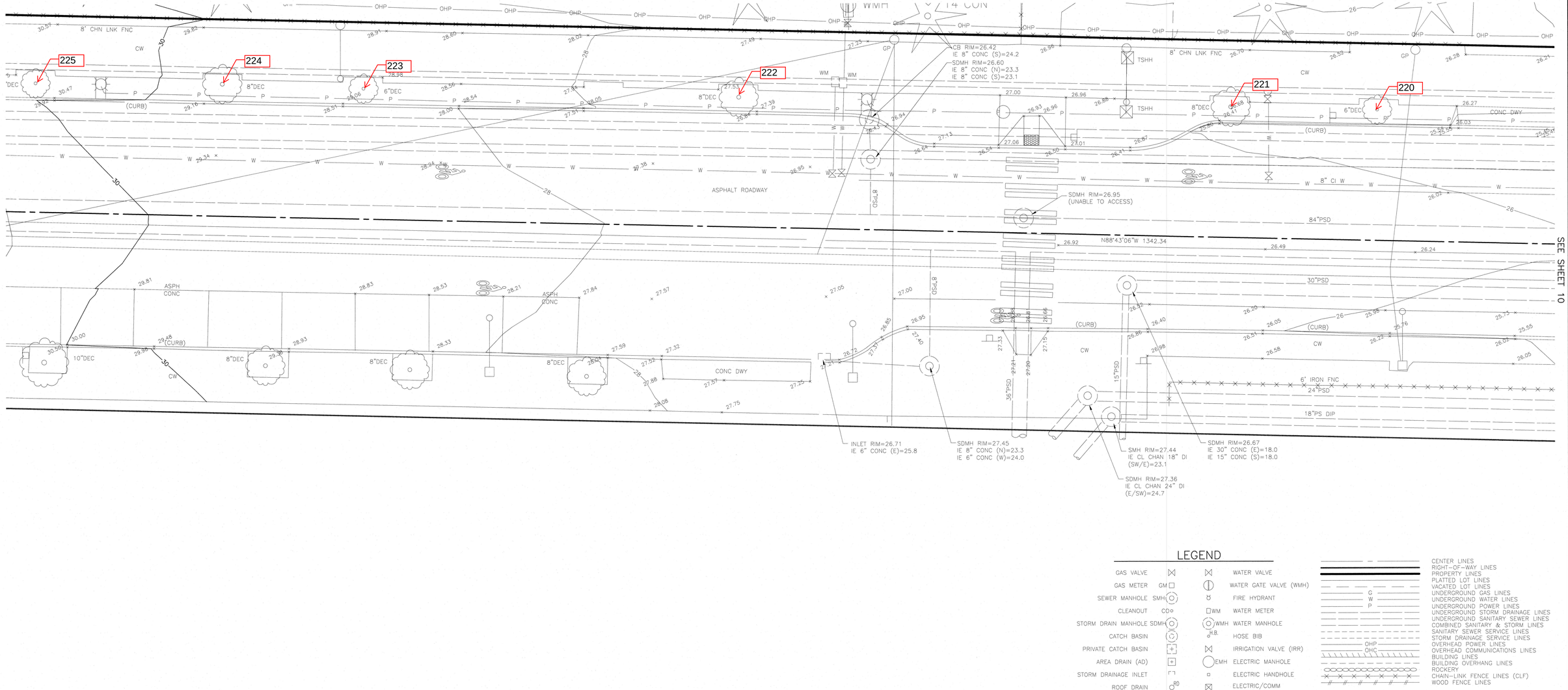
SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB	PC	
	CO	
VPI #		
SHEET	10	OF 16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	12

S HENDERSON ST



SEE SHEET 12

SEE SHEET 10

LEGEND

GAS VALVE		WATER VALVE	
GAS METER	GM	WATER GATE VALVE (WMH)	
SEWER MANHOLE	SMH	FIRE HYDRANT	
CLEANOUT	CO	WM	WATER METER
STORM DRAIN MANHOLE	SDMH	WMH	WATER MANHOLE
CATCH BASIN		H.B.	HOSE BIB
PRIVATE CATCH BASIN		IRRIGATION VALVE (IRR)	
AREA DRAIN (AD)		EMH	ELECTRIC MANHOLE
STORM DRAINAGE INLET			ELECTRIC HANDHOLE
ROOF DRAIN	RD		ELECTRIC/COMM JUNCTION BOX
TELEPHONE MANHOLE	TMH		POWER POLE
TELEPHONE POLE			GUY ANCHOR
BOLLARD			GUY POLE
SIGN			POWER WITH LIGHT
MAILBOX			LIGHT POLE
CONIFEROUS TREE			AREA LIGHT
		CRW	CONCRETE RET WALL
DECIDUOUS TREE		AW	ASPHALT WALK
		CW	CONCRETE WALK
		RD	ROOF DRAIN
			STADIUM LIGHT
		+100.00	SPOT ELEVATION

CENTER LINES
RIGHT-OF-WAY LINES
PROPERTY LINES
PLATTED LOT LINES
VACATED LOT LINES
G — UNDERGROUND GAS LINES
W — UNDERGROUND WATER LINES
P — UNDERGROUND POWER LINES
UNDERGROUND STORM DRAINAGE LINES
UNDERGROUND SANITARY SEWER LINES
COMBINED SANITARY & STORM LINES
SANITARY SEWER SERVICE LINES
STORM DRAINAGE SERVICE LINES
OHP — OVERHEAD POWER LINES
OHC — OVERHEAD COMMUNICATIONS LINES
BUILDING LINES
BUILDING OVERHANG LINES
ROCKERY
CHAIN-LINK FENCE LINES (CLF)
WOOD FENCE LINES

NOTE: FOR IMPROVEMENTS WITHIN THE SITE SEE SHEETS 9 THROUGH 16 OF 16.

UTILITY LINES DEPICTED HEREON ARE BASED FROM RECORD INFORMATION AND MAY NOT BE IN USE (ABANDONED) OR WERE NOT CONSTRUCTED IN THIS AREA. MORE EVIDENCE MAY BE NEEDED, SUCH AS POTHOLING, FOR THE ACCURATE LOCATION , MATERIAL, SIZE AND DEPTH OF THE LINES.

N

10 5 0 10 20
SCALE IN FEET

SV11
S HENDERSON ST

VAULT SERIAL #	DATE	MARK	NATURE REVISIONS	MADE	CHK'D	REV'D
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CHECKED		DES.	CONST.
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CHECKED	ABB 6-15-20	RECEIVED	
		REVISED AS BUILT	

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AARON B. BLASDELL — STATE OF WASHINGTON — 41278 — REGISTERED PROFESSIONAL LAND SURVEYOR

ORDINANCE NO.
FUND:
SCALE: 1" = 10'

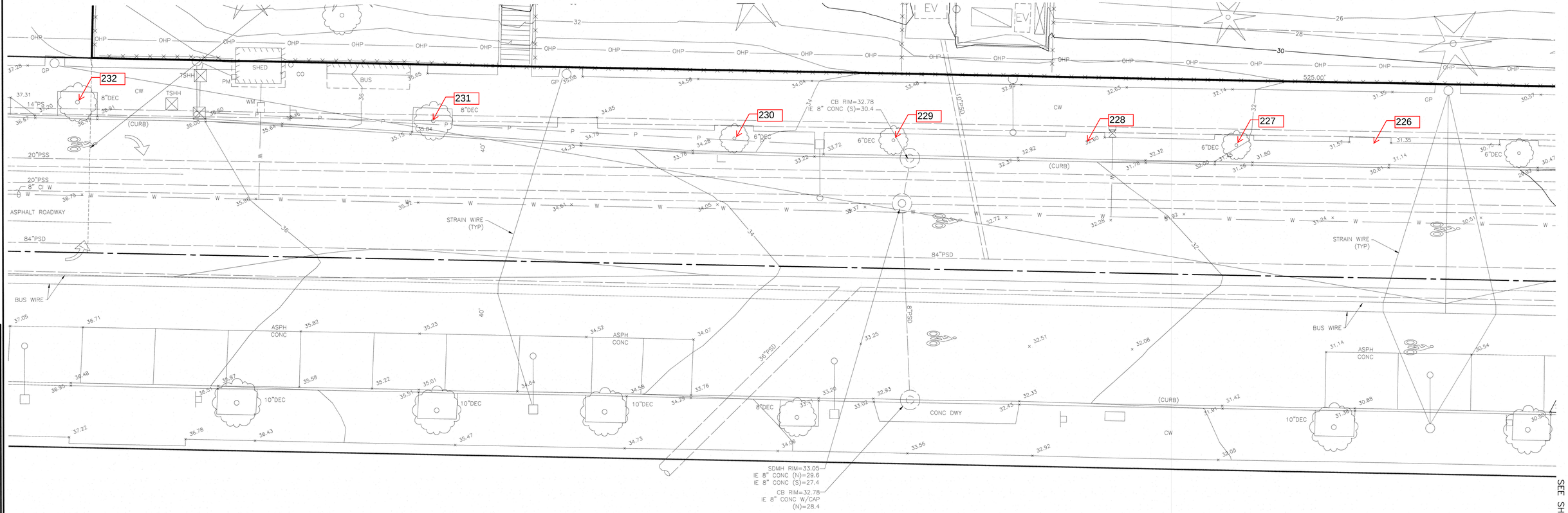
SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB PC ____ CO ____
VPI # ____
SHEET 11 OF 16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	12

S HENDERSON ST



SEE SHEET 11

LEGEND

- GAS VALVE
- GAS METER
- SEWER MANHOLE
- CLEANOUT
- STORM DRAIN MANHOLE
- CATCH BASIN
- PRIVATE CATCH BASIN
- AREA DRAIN (AD)
- STORM DRAINAGE INLET
- ROOF DRAIN
- TELEPHONE MANHOLE
- TELEPHONE POLE
- BOLLARD
- SIGN
- MAILBOX
- CONIFEROUS TREE
- DECIDUOUS TREE
- WATER VALVE
- WATER GATE VALVE (WMH)
- FIRE HYDRANT
- WATER METER
- WATER MANHOLE
- HOSE BIB
- IRRIGATION VALVE (IRR)
- ELECTRIC MANHOLE
- ELECTRIC HANDHOLE
- ELECTRIC/COMM JUNCTION BOX
- POWER POLE
- GUY ANCHOR
- GUY POLE
- POWER WITH LIGHT
- LIGHT POLE
- AREA LIGHT
- CRW CONCRETE RET WALL
- AW ASPHALT WALK
- CW CONCRETE WALK
- RD ROOF DRAIN
- STADIUM LIGHT
- +100.00 SPOT ELEVATION

- CENTER LINES
- RIGHT-OF-WAY LINES
- PROPERTY LINES
- PLATTED LOT LINES
- VACATED LOT LINES
- UNDERGROUND GAS LINES
- UNDERGROUND WATER LINES
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- WOOD FENCE LINES

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N

10 5 0 10 20

SCALE IN FEET

SV12
S HENDERSON ST

NATURE	MADE	CHK'D	REV'D
REVISIONS			

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BY: . . . . . .
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CHECKED _____	DES. _____ CONST. _____
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AARON B. BEASLEY STATE OF WASHINGTON 41276 REGISTERED PROFESSIONAL LAND SURVEYOR 6/16/20

ORDINANCE NO.
FUND:
SCALE: 1" = 10'

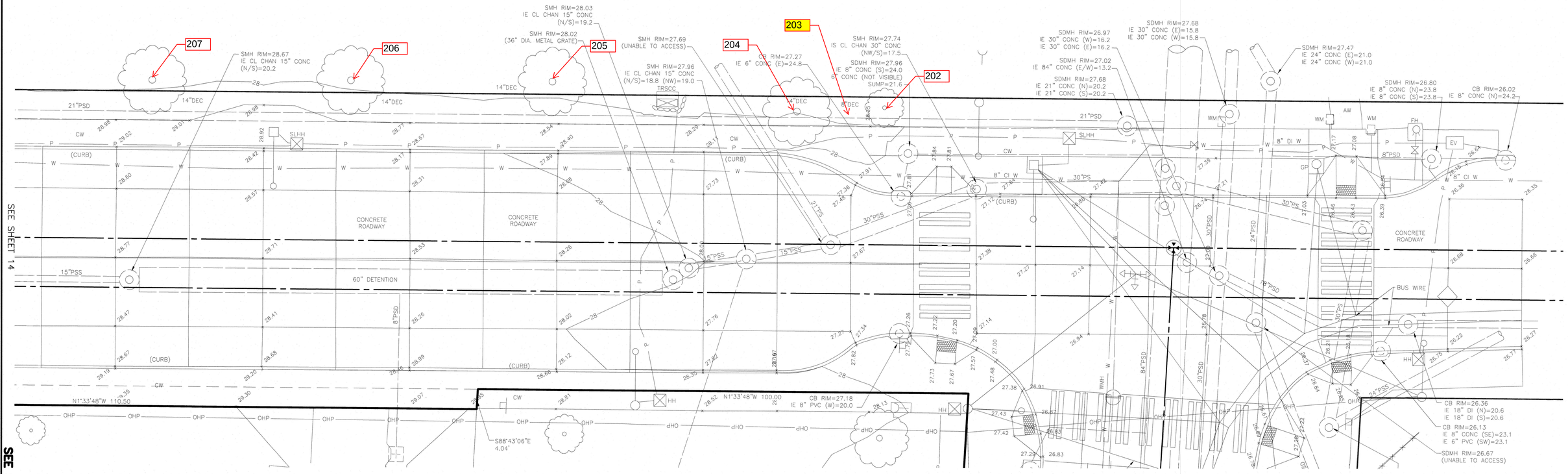
SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB	PC ____ CO ____
	VPI # _____
SHEET	12 OF 16

SEWARD PARK AVE S

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	13



LEGEND

GAS VALVE		WATER VALVE	
GAS METER	GM	WATER GATE VALVE (WMH)	
SEWER MANHOLE	SMH	FIRE HYDRANT	
CLEANOUT	CO	WATER METER	
STORM DRAIN MANHOLE	SDMH	WATER MANHOLE	WMH
CATCH BASIN		HOSE BIB	R.B.
PRIVATE CATCH BASIN		IRRIGATION VALVE (IRR)	
AREA DRAIN (AD)		ELECTRIC MANHOLE	EMH
STORM DRAINAGE INLET		ELECTRIC HANDHOLE	
ROOF DRAIN	RD	ELECTRIC/COMM JUNCTION BOX	
TELEPHONE MANHOLE	TMH	POWER POLE	
TELEPHONE POLE		GUY ANCHOR	
BOLLARD		GUY POLE	
SIGN		POWER WITH LIGHT	
MAILBOX		LIGHT POLE	
CONIFEROUS TREE		AREA LIGHT	
		CONCRETE RET WALL	CRW
DECIDUOUS TREE		ASPHALT WALK	AW
		CONCRETE WALK	CW
		ROOF DRAIN	RD
		STADIUM LIGHT	
		+100.00 SPOT ELEVATION	

- CENTER LINES
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- WOOD FENCE LINES

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10 5 0 10 20
SCALE IN FEET

SV13
S HENDERSON ST

NATURE REVISIONS	MADE	CHK'D	REV'D	MARK	DATE

VAULT SERIAL # ####

13/16

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AARON B. BLAISDELL STATE OF WASHINGTON 41878 REGISTERED PROFESSIONAL LAND SURVEYOR 6/16/20

ORDINANCE NO.
FUND:
SCALE: 1" = 10'

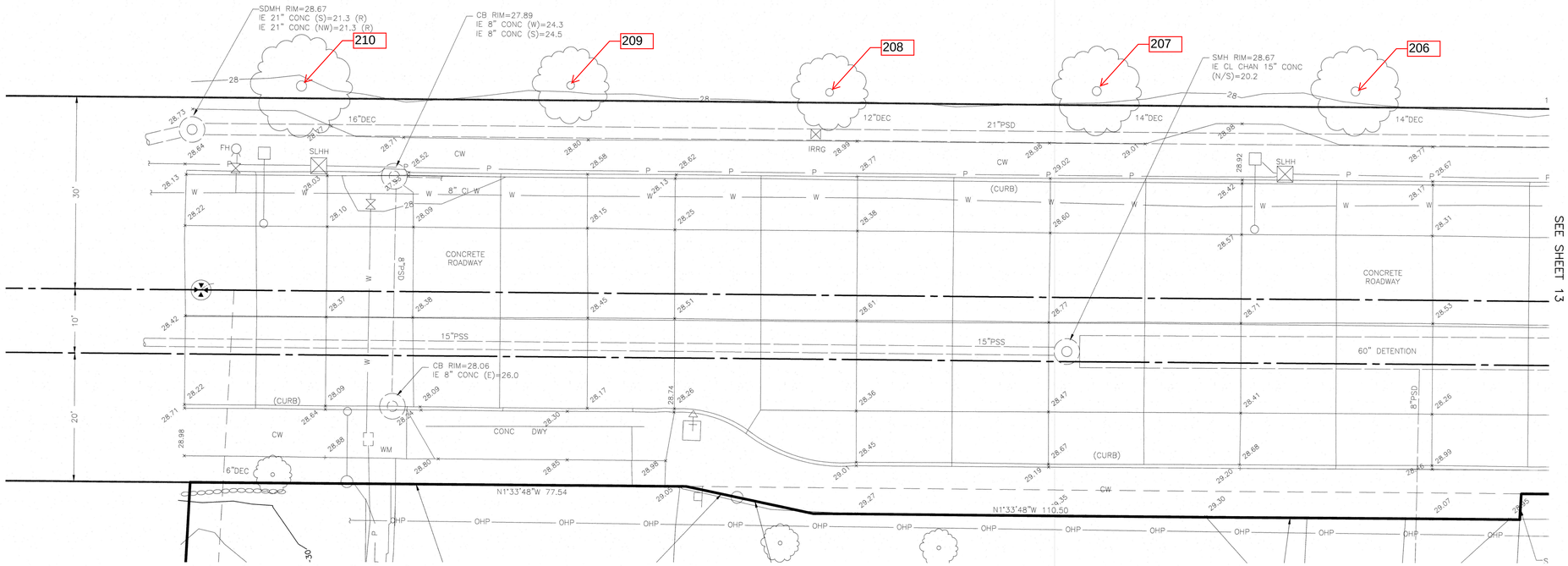
SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB PC ____ CO ____
VPI # ____
SHEET 13 OF 16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	14

SEWARD PARK AVE S



LEGEND

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CLEANOUT	CO	WM	WATER METER
STORM DRAIN MANHOLE	SDMH	WMH	WATER MANHOLE
CATCH BASIN		H.B.	HOSE BIB
PRIVATE CATCH BASIN		IRRIGATION VALVE (IRR)	
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STORM DRAINAGE INLET			ELECTRIC HANDHOLE
ROOF DRAIN	RD		ELECTRIC/COMM JUNCTION BOX
TELEPHONE MANHOLE	TMH		POWER POLE
TELEPHONE POLE			GUY ANCHOR
BOLLARD			GUY POLE
SIGN			POWER WITH LIGHT
MAILBOX			LIGHT POLE
CONIFEROUS TREE			AREA LIGHT
		CRW	CONCRETE RET WALL
		AW	ASPHALT WALK
DECIDUOUS TREE		CW	CONCRETE WALK
		RD	ROOF DRAIN
			STADIUM LIGHT
		+100.00	SPOT ELEVATION

CENTER LINES
RIGHT-OF-WAY LINES
PROPERTY LINES
PLATTED LOT LINES
VACATED LOT LINES
G UNDERGROUND GAS LINES
W UNDERGROUND WATER LINES
P UNDERGROUND POWER LINES
UNDERGROUND STORM DRAINAGE LINES
UNDERGROUND SANITARY SEWER LINES
COMBINED SANITARY & STORM LINES
SANITARY SEWER SERVICE LINES
STORM DRAINAGE SERVICE LINES
OHP OVERHEAD POWER LINES
OHC OVERHEAD COMMUNICATIONS LINES
BUILDING LINES
BUILDING OVERHANG LINES
ROCKERY
CHAIN-LINK FENCE LINES (CLF)
WOOD FENCE LINES

NOTE: FOR IMPROVEMENTS WITHIN THE SITE SEE SHEETS 9 THROUGH 16 OF 16.

UTILITY LINES DEPICTED HEREON ARE BASED FROM RECORD INFORMATION AND MAY NOT BE IN USE (ABANDONED) OR WERE NOT CONSTRUCTED IN THIS AREA. MORE EVIDENCE MAY BE NEEDED, SUCH AS POTHOLING, FOR THE ACCURATE LOCATION , MATERIAL, SIZE AND DEPTH OF THE LINES.

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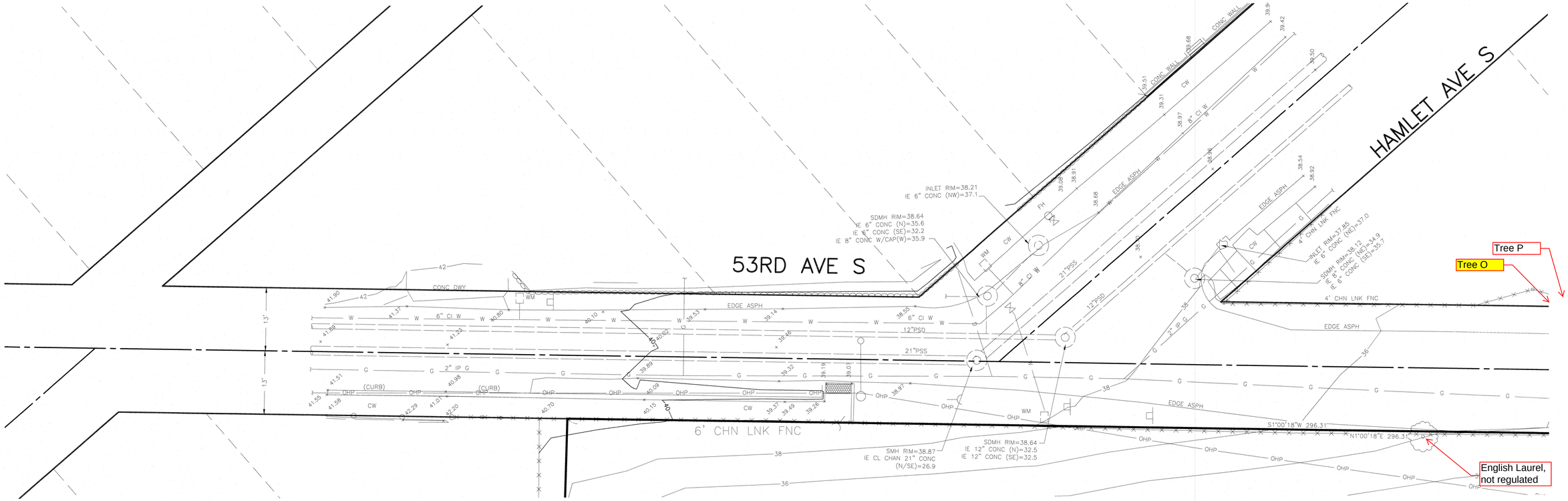
ORDINANCE NO.
FUND:
SCALE: 1" = 10'

SEATTLE PUBLIC SCHOOLS

RAINIER BEACH HIGH SCHOOL
SEATTLE SCHOOL DISTRICT NO. 1

JOB PC ____ CO ____
VPI # ____
SHEET 14 OF 16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
10	WA	####	15



LEGEND

GAS VALVE		WATER VALVE	
GAS METER	GM	WATER GATE VALVE (WMH)	
SEWER MANHOLE	SMH	FIRE HYDRANT	
CLEANOUT	CO	WATER METER	WM
STORM DRAIN MANHOLE	SDMH	WATER MANHOLE	WMH
CATCH BASIN		HOSE BIB	H.B.
PRIVATE CATCH BASIN		IRRIGATION VALVE (IRR)	
AREA DRAIN (AD)		ELECTRIC MANHOLE	EMH
STORM DRAINAGE INLET		ELECTRIC HANDHOLE	
ROOF DRAIN	RD	ELECTRIC/COMM JUNCTION BOX	
TELEPHONE MANHOLE	TMH	POWER POLE	
TELEPHONE POLE		GUY ANCHOR	
BOLLARD		GUY POLE	
SIGN		POWER WITH LIGHT	
MAILBOX		LIGHT POLE	
CONIFEROUS TREE		AREA LIGHT	
		CONCRETE RET WALL	CRW
DECIDUOUS TREE		ASPHALT WALK	AW
		CONCRETE WALK	CW
		ROOF DRAIN	RD
		STADIUM LIGHT	
		+100.00 SPOT ELEVATION	

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- COMBINED SANITARY & STORM LINES
- SANITARY SEWER SERVICE LINES
- STORM DRAINAGE SERVICE LINES
- OHP — OVERHEAD POWER LINES
- OHC — OVERHEAD COMMUNICATIONS LINES
- BUILDING LINES
- BUILDING OVERHANG LINES
- ROCKERY
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- WOOD FENCE LINES

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AARON B. BOALSDELL
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41278
REGISTERED
PROFESSIONAL LAND SURVEYOR
6/16/20

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SEATTLE PUBLIC SCHOOLS

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SEATTLE SCHOOL DISTRICT NO. 1

JOB	PC	
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SHEET	15	OF 16

REGION NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
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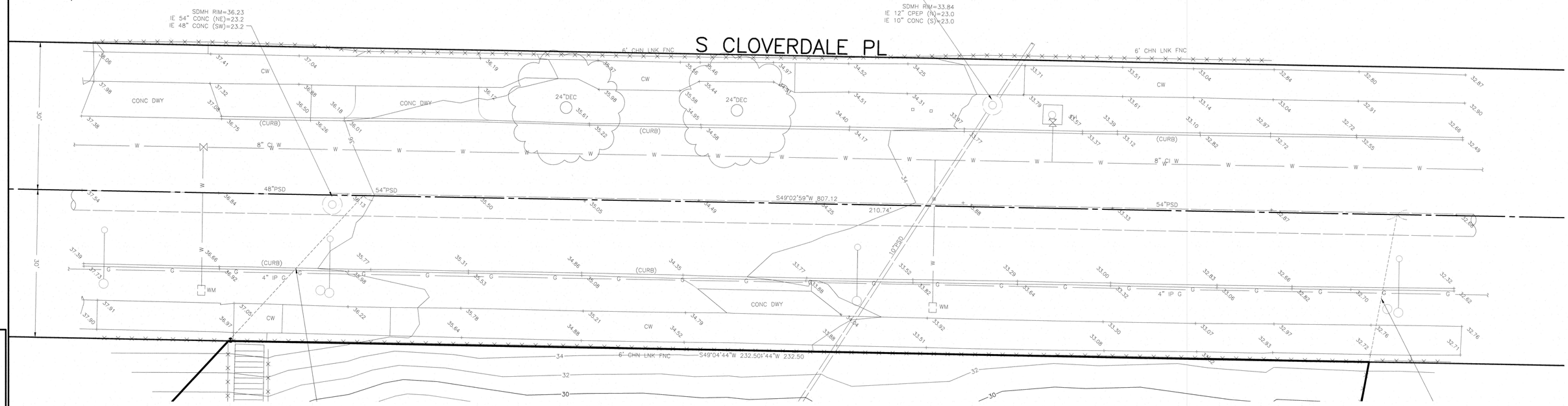

LEGEND

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CLEANOUT	CO	WATER METER	WM
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- OVERHEAD COMMUNICATIONS LINES (OHC)
- BUILDING LINES
- BUILDING OVERHANG LINES
- ROCKERY
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- WOOD FENCE LINES

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SHEET 16 OF 16

APPENDIX F: GHG EMISSIONS WORKSHEET

City of Seattle Department of Planning and Development
SEPA GHG Emissions Worksheet
Version 1.7 12/26/07

Introduction

The Washington State Environmental Policy Act (SEPA) requires environmental review of development proposals that may have a significant adverse impact on the environment. If a proposed development is subject to SEPA, the project proponent is required to complete the SEPA Checklist. The Checklist includes questions relating to the development's air emissions. The emissions that have traditionally been considered cover smoke, dust, and industrial and automobile emissions. With our understanding of the climate change impacts of GHG emissions, the City of Seattle requires the applicant to also estimate these emissions.

Emissions created by Development

GHG emissions associated with development come from multiple sources:

- The extraction, processing, transportation, construction and disposal of materials and landscape disturbance (Embodied Emissions)
- Energy demands created by the development after it is completed (Energy Emissions)
- Transportation demands created by the development after it is completed (Transportation Emissions)

GHG Emissions Worksheet

This GHG Emissions Worksheet has been developed to assist applicants in answering the SEPA Checklist question relating to GHG emissions. The worksheet was originally developed by King County, but the City of Seattle and King County are working together on future updates to maintain consistency of methodologies across jurisdictions.

The SEPA GHG Emissions worksheet estimates all GHG emissions that will be created over the life span of a project. This includes emissions associated with obtaining construction materials, fuel used during construction, energy consumed during a buildings operation, and transportation by building occupants.

Using the Worksheet

1. Descriptions of the different residential and commercial building types can be found on the second tabbed worksheet ("Definition of Building Types"). If a development proposal consists of multiple projects, e.g. both single family and multi-family residential structures or a commercial development that consists of more than on type of commercial activity, the appropriate information should be estimated for each type of building or activity.

2. For paving, estimate the total amount of paving (in thousands of square feet) of the project.

3. The Worksheet will calculate the amount of GHG emissions associated with the project and display the amount in the "Total Emissions" column on the worksheet. The applicant should use this information when completing the SEPA checklist.

4. The last three worksheets in the Excel file provide the background information that is used to calculate the total GHG emissions.

5. The methodology of creating the estimates is transparent; if there is reason to believe that a better estimate can be obtained by changing specific values, this can and should be done. Changes to the values should be documented with an explanation of why and the sources relied upon.

6. Print out the “Total Emissions” worksheet and attach it to the SEPA checklist. If the applicant has made changes to the calculations or the values, the documentation supporting those changes should also be attached to the SEPA checklist.

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO2e) Embodied	Energy	Transportation	**Lifespan Emissions (MTCO2e)**
Single-Family Home.....	0		98	672	792	**0**
Multi-Family Unit in Large Building	0		33	357	766	**0**
Multi-Family Unit in Small Building	0		54	681	766	**0**
Mobile Home.....	0		41	475	709	**0**
Education		276.0	39	646	361	**288553**
Food Sales		0.0	39	1,541	282	**0**
Food Service		0.0	39	1,994	561	**0**
Health Care Inpatient		0.0	39	1,938	582	**0**
Health Care Outpatient		0.0	39	737	571	**0**
Lodging		0.0	39	777	117	**0**
Retail (Other Than Mall).....		0.0	39	577	247	**0**
Office		0.0	39	723	588	**0**
Public Assembly		0.0	39	733	150	**0**
Public Order and Safety		0.0	39	899	374	**0**
Religious Worship		0.0	39	339	129	**0**
Service		0.0	39	599	266	**0**
Warehouse and Storage		0.0	39	352	181	**0**
Other .....(light poles).....		0.0	39	1,278	257	**16**
Vacant		0.0	39	162	47	**0**

4617.104

Section II: Pavement.....

Pavement.....		0.01				**1**

Total Project Emissions: **288569**

Definition of Building Types

Type (Residential) or Principal Activity (Commercial)	Description
Single-Family Home.....	Unless otherwise specified, this includes both attached and detached buildings
Multi-Family Unit in Large Building	Apartments in buildings with more than 5 units
Multi-Family Unit in Small Building	Apartments in building with 2-4 units
Mobile Home.....	
Education	Buildings used for academic or technical classroom instruction, such as elementary, middle, or high schools, and classroom buildings on college or university campuses. Buildings on education campuses for which the main use is not classroom are included in the category relating to their use. For example, administration buildings are part of "Office," dormitories are "Lodging," and libraries are "Public Assembly."
Food Sales	Buildings used for retail or wholesale of food.
Food Service	Buildings used for preparation and sale of food and beverages for consumption.
Health Care Inpatient	Buildings used as diagnostic and treatment facilities for inpatient care.
Health Care Outpatient	Buildings used as diagnostic and treatment facilities for outpatient care. Doctor's or dentist's office are included here if they use any type of diagnostic medical equipment (if they do not, they are categorized as an office building).
Lodging	Buildings used to offer multiple accommodations for short-term or long-term residents, including skilled nursing and other residential care buildings.
Retail (Other Than Mall).....	Buildings used for the sale and display of goods other than food.
Office	Buildings used for general office space, professional office, or administrative offices. Doctor's or dentist's office are included here if they do not use any type of diagnostic medical equipment (if they do, they are categorized as an outpatient health care building).
Public Assembly	Buildings in which people gather for social or recreational activities, whether in private or non-private meeting halls.
Public Order and Safety	Buildings used for the preservation of law and order or public safety.
Religious Worship	Buildings in which people gather for religious activities, (such as chapels, churches, mosques, synagogues, and temples).
Service	Buildings in which some type of service is provided, other than food service or retail sales of goods
Warehouse and Storage	Buildings used to store goods, manufactured products, merchandise, raw materials, or personal belongings (such as self-storage).
Other	Buildings that are industrial or agricultural with some retail space; buildings having several different commercial activities that, together, comprise 50 percent or more of the floorspace, but whose largest single activity is agricultural, industrial/ manufacturing, or residential; and all other miscellaneous buildings that do not fit into any other category.
Vacant	Buildings in which more floorspace was vacant than was used for any single commercial activity at the time of interview. Therefore, a vacant building may have some occupied floorspace.

Sources: .....

Residential — 2001 Residential Energy Consumption Survey
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

Commercial — Commercial Buildings Energy Consumption Survey (CBECS),
Description of CBECS Building Types
http://www.eia.doe.gov/emeu/cbecs/pba99/bldgtypes.html

Embodied Emissions Worksheet

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# thousand sq feet/ unit or building	Life span related embodied GHG missions (MTCO2e/ unit)	Life span related embodied GHG missions (MTCO2e/ thousand square feet) - See calculations in table below
Single-Family Home	2.53	98	39
Multi-Family Unit in Large Building	0.85	33	39
Multi-Family Unit in Small Building	1.39	54	39
Mobile Home	1.06	41	39
Education	25.6	991	39
Food Sales	5.6	217	39
Food Service	5.6	217	39
Health Care Inpatient	241.4	9,346	39
Health Care Outpatient	10.4	403	39
Lodging	35.8	1,386	39
Retail (Other Than Mall)	9.7	376	39
Office	14.8	573	39
Public Assembly	14.2	550	39
Public Order and Safety	15.5	600	39
Religious Worship	10.1	391	39
Service	6.5	252	39
Warehouse and Storage	16.9	654	39
Other	21.9	848	39
Vacant	14.1	546	39

Section II: Pavement

All Types of Pavement			50

	Columns and Beams	Intermediate Floors	Exterior Walls	Windows	Interior Walls	Roofs		
Average GWP (lbs CO2e/sq ft): Vancouver, Low Rise Building	5.3	7.8	19.1	51.2	5.7	21.3		
Average Materials in a 2,272-square foot single family home	0.0	2269.0	3206.0	285.0	6050.0	3103.0	Total Embodied Emissions (MTCO2e)	Total Embodied Emissions (MTCO2e/ thousand sq feet)
MTCO2e	0.0	8.0	27.8	6.6	15.6	30.0	88.0	38.7

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

Residential floorspace per unit
2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

Floorspace per building
EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Average GWP (lbs CO2e/sq ft): Vancouver, Low Rise Building
Athena EcoCalculator
Athena Assembly Evaluation Tool v2.3- Vancouver Low Rise Building
Assembly Average GWP (kg) per square meter
http://www.athenasmi.ca/tools/ecoCalculator/index.html
Lbs per kg 2.20
Square feet per square meter 10.76

Average Materials in a 2,272-square foot single family home
Buildings Energy Data Book: 7.3 Typical/Average Household
Materials Used in the Construction of a 2,272-Square-Foot Single-Family Home, 2000
http://buildingsdatabook.eren.doe.gov/?id=view_book_table&TableID=2036&t=xls
See also: NAHB, 2004 Housing Facts, Figures and Trends, Feb. 2004, p. 7.

Average window size
Energy Information Administration/Housing Characteristics 1993
Appendix B, Quality of the Data. Pg. 5.
ftp://ftp.eia.doe.gov/pub/consumption/residential/rx93hcf.pdf

Pavement Emissions Factors
MTCO2e/thousand square feet of asphalt
or concrete pavement 50 (see below)

Embodied GHG Emissions……Worksheet Background Information

Buildings
Embodied GHG emissions are emissions that are created through the extraction, processing, transportation, construction and disposal of building materials as well as emissions created through landscape disturbance (by both soil disturbance and changes in above ground biomass).

Estimating embodied GHG emissions is new field of analysis; the estimates are rapidly improving and becoming more inclusive of all elements of construction and development.

The estimate included in this worksheet is calculated using average values for the main construction materials that are used to create a typical family home. In 2004, the National Association of Home Builders calculated the average materials that are used in a typical 2,272 square foot single-family household. The quantity of materials used is then multiplied by the average GHG emissions associated with the life-cycle GHG emissions for each material.

This estimate is a rough and conservative estimate; the actual embodied emissions for a project are likely to be higher. For example, at this stage, due to a lack of comprehensive data, the estimate does not include important factors such as landscape disturbance or the emissions associated with the interior components of a building (such as furniture).

King County realizes that the calculations for embodied emissions in this worksheet are rough. For example, the emissions associated with building 1,000 square feet of a residential building will not be the same as 1,000 square feet of a commercial building. However, discussions with the construction community indicate that while there are significant differences between the different types of structures, this method of estimation is reasonable; it will be improved as more data become available.

Additionally, if more specific information about the project is known, King County recommends two online embodied emissions calculators that can be used to obtain a more tailored estimate for embodied emissions: www.buildcarbonneutral.org and www.athenasmi.ca/tools/ecoCalculator/.

Pavement
Four recent life cycle assessments of the environmental impacts of roads form the basis for the per unit embodied emissions of pavement. Each study is constructed in slightly different ways; however, the aggregate results of the reports represent a reasonable estimate of the GHG emissions that are created from the manufacture of paving materials, construction related emissions, and maintenance of the pavement over its expected life cycle. For specifics, see the worksheet.

Special Section: Estimating the Embodied Emissions for Pavement

Four recent life cycle assessments of the environmental impacts of roads form the basis for the per unit embodied emissions of pavement. Each study is constructed in slightly different ways; however, the aggregate results of the reports represent a reasonable estimate of the GHG emissions that are created from the manufacture of paving materials, construction related emissions, and maintenance of the pavement over its expected life cycle.

The results of the studies are presented in different units and measures; considerable effort was undertaken to be able to compare the results of the studies in a reasonable way. For more details about the below methodology, contact matt.kuharic@kingcounty.gov.

The four studies, Meil (2001), Park (2003), Stripple (2001) and Treolar (2001) produced total GHG emissions of 4-34 MTCO2e per thousand square feet of finished paving (for similar asphalt and concrete based pavements). This estimate does not including downstream maintenance and repair of the highway. The average (for all concrete and asphalt pavements in the studies, assuming each study gets one data point) is ~17 MTCO2e/thousand square feet.

Three of the studies attempted to thoroughly account for the emissions associated with long term maintenance (40 years) of the roads. Stripple (2001), Park et al. (2003) and Treolar (2001) report 17, 81, and 68 MTCO2e/thousand square feet, respectively, after accounting for maintenance of the roads.

Based on the above discussion, King County makes the conservative estimate that 50 MTCO2e/thousand square feet of pavement (over the development's life cycle) will be used as the embodied emission factor for pavement until better estimates can be obtained. This is roughly equivalent to 3,500 MTCO2e per lane mile of road (assuming the lane is 13 feet wide).

It is important to note that these studies estimate the embodied emissions for roads. Paving that does not need to stand up to the rigors of heavy use (such as parking lots or driveways) would likely use less materials and hence have lower embodied emissions.

Sources:

Meil, J. A Life Cycle Perspective on Concrete and Asphalt Roadways: Embodied Primary Energy and Global Warming Potential. 2006. Available: http://www.cement.ca/cement.nsf/eee9ec7bbd630126852566c40052107b/6ec79dc8ae03a782852572b90061b914/$FILE/ATTK0WE3/athena%20report%20Feb.%202%202007.pdf

Park, K, Hwang, Y., Seo, S., M.ASCE, and Seo, H. , "Quantitative Assessment of Environmental Impacts on Life Cycle of Highways," Journal of Construction Engineering and Management , Vol 129, January/February 2003, pp 25-31, (DOI: 10.1061/(ASCE)0733-9364(2003)129:1(25)).

Stripple, H. Life Cycle Assessment of Road. A Pilot Study for Inventory Analysis. Second Revised Edition. IVL Swedish Environmental Research Institute Ltd. 2001. Available: http://www.ivl.se/rapporter/pdf/B1210E.pdf

Treloar, G., Love, P.E.D., and Crawford, R.H. Hybrid Life-Cycle Inventory for Road Construction and Use. Journal of Construction Engineering and Management. P. 43-49. January/February 2004.

Energy Emissions Worksheet

Type (Residential) or Principal Activity (Commercial)	Energy consumption per building per year (million Btu)	Carbon Coefficient for Buildings	MTCO2e per building per year	Floorspace per Building (thousand square feet)	MTCE per thousand square feet per year	MTCO2e per thousand square feet per year	Average Building Life Span	Lifespan Energy Related MTCO2e emissions per unit	Lifespan Energy Related MTCO2e emissions per thousand square feet
Single-Family Home	107.3	0.108	11.61	2.53	4.6	16.8	57.9	672	266
Multi-Family Unit in Large Building	41.0	0.108	4.44	0.85	5.2	19.2	80.5	357	422
Multi-Family Unit in Small Building	78.1	0.108	8.45	1.39	6.1	22.2	80.5	681	489
Mobile Home	75.9	0.108	8.21	1.06	7.7	28.4	57.9	475	448
Education	2,125.0	0.124	264.2	25.6	10.3	37.8	62.5	16,526	646
Food Sales	1,110.0	0.124	138.0	5.6	24.6	90.4	62.5	8,632	1,541
Food Service	1,436.0	0.124	178.5	5.6	31.9	116.9	62.5	11,168	1,994
Health Care Inpatient	60,152.0	0.124	7,479.1	241.4	31.0	113.6	62.5	467,794	1,938
Health Care Outpatient	985.0	0.124	122.5	10.4	11.8	43.2	62.5	7,660	737
Lodging	3,578.0	0.124	444.9	35.8	12.4	45.6	62.5	27,826	777
Retail (Other Than Mall)	720.0	0.124	89.5	9.7	9.2	33.8	62.5	5,599	577
Office	1,376.0	0.124	171.1	14.8	11.6	42.4	62.5	10,701	723
Public Assembly	1,338.0	0.124	166.4	14.2	11.7	43.0	62.5	10,405	733
Public Order and Safety	1,791.0	0.124	222.7	15.5	14.4	52.7	62.5	13,928	899
Religious Worship	440.0	0.124	54.7	10.1	5.4	19.9	62.5	3,422	339
Service	501.0	0.124	62.3	6.5	9.6	35.1	62.5	3,896	599
Warehouse and Storage	764.0	0.124	95.0	16.9	5.6	20.6	62.5	5,942	352
Other	3,600.0	0.124	447.6	21.9	20.4	74.9	62.5	27,997	1,278
Vacant	294.0	0.124	36.6	14.1	2.6	9.5	62.5	2,286	162

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

Energy consumption for residential buildings

2007 Buildings Energy Data Book: 6.1 Quad Definitions and Comparisons (National Average, 2001)
Table 6.1.4: Average Annual Carbon Dioxide Emissions for Various Functions
http://buildingsdatabook.eren.doe.gov/
Data also at: http://www.eia.doe.gov/emeu/recs/recs2001_ce/ce1-4c_housingunits2001.html

Energy consumption for commercial buildings
and
Floorspace per building

EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls

Note: Data in plum color is found in both of the above sources (buildings energy data book and commercial buildings energy consumption survey).

Carbon Coefficient for Buildings

Buildings Energy Data Book (National average, 2005)
Table 3.1.7. 2005 Carbon Dioxide Emission Coefficients for Buildings (MMTCE per Quadrillion Btu)
http://buildingsdatabook.eere.energy.gov/?id=view_book_table&TableID=2057
Note: Carbon coefficient in the Energy Data book is in MTCE per Quadrillion Btu.
To convert to MTCO2e per million Btu, this factor was divided by 1000 and multiplied by 44/12.

Residential floorspace per unit

2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

average lief span of buildings,
estimated by replacement time method

	Single Family Homes	Multi-Family Units in Large and Small Buildings	All Residential Buildings
New Housing Construction, 2001	1,273,000	329,000	1,602,000
Existing Housing Stock, 2001	73,700,000	26,500,000	100,200,000
Replacement time:	57.9	80.5	62.5

(national average, 2001)

Note: Single family homes calculation is used for mobile homes as a best estimate life span.
Note: At this time, KC staff could find no reliable data for the average life span of commercial buildings.
Therefore, the average life span of residential buildings is being used until a better approximation can be ascertained.

Sources:

New Housing Construction, 2001 Quarterly Starts and Completions by Purpose and Design - US and Regions (Excel)
http://www.census.gov/const/quarterly_starts_completions_cust.xls
See also: http://www.census.gov/const/www/newresconstindex.html

Existing Housing Stock, 2001 Residential Energy Consumption Survey (RECS) 2001
Tables HC1:Housing Unit Characteristics, Million U.S. Households 2001
Table HC1-4a. Housing Unit Characteristics by Type of Housing Unit, Million U.S. Households, 2001
Million U.S. Households, 2001
http://www.eia.doe.gov/emeu/recs/recs2001/hc_pdf/housunits/hc1-4a_housingunits2001.pdf

Transportation Emissions Worksheet

Type (Residential) or Principal Activity (Commercial)	# people/ unit or building	# thousand sq feet/ unit or building	# people or employees/ thousand square feet	vehicle related GHG emissions (metric tonnes CO2e per person per year)	MTCO2e/ year/ unit	MTCO2e/ year/ thousand square feet	Average Building Life Span	Life span transportation related GHG emissions (MTCO2e/ per unit)	Life span transportation related GHG emissions (MTCO2e/ thousand sq feet)
Single-Family Home	2.8	2.53	1.1	4.9	13.7	5.4	57.9	792	313
Multi-Family Unit in Large Building	1.9	0.85	2.3	4.9	9.5	11.2	80.5	766	904
Multi-Family Unit in Small Building	1.9	1.39	1.4	4.9	9.5	6.8	80.5	766	550
Mobile Home	2.5	1.06	2.3	4.9	12.2	11.5	57.9	709	668
Education	30.0	25.6	1.2	4.9	147.8	5.8	62.5	9247	361
Food Sales	5.1	5.6	0.9	4.9	25.2	4.5	62.5	1579	282
Food Service	10.2	5.6	1.8	4.9	50.2	9.0	62.5	3141	561
Health Care Inpatient	455.5	241.4	1.9	4.9	2246.4	9.3	62.5	140506	582
Health Care Outpatient	19.3	10.4	1.9	4.9	95.0	9.1	62.5	5941	571
Lodging	13.6	35.8	0.4	4.9	67.1	1.9	62.5	4194	117
Retail (Other Than Mall)	7.8	9.7	0.8	4.9	38.3	3.9	62.5	2394	247
Office	28.2	14.8	1.9	4.9	139.0	9.4	62.5	8696	588
Public Assembly	6.9	14.2	0.5	4.9	34.2	2.4	62.5	2137	150
Public Order and Safety	18.8	15.5	1.2	4.9	92.7	6.0	62.5	5796	374
Religious Worship	4.2	10.1	0.4	4.9	20.8	2.1	62.5	1298	129
Service	5.6	6.5	0.9	4.9	27.6	4.3	62.5	1729	266
Warehouse and Storage	9.9	16.9	0.6	4.9	49.0	2.9	62.5	3067	181
Other	18.3	21.9	0.8	4.9	90.0	4.1	62.5	5630	257
Vacant	2.1	14.1	0.2	4.9	10.5	0.7	62.5	657	47

Sources

All data in black text — King County, DNRP. Contact: Matt Kuharic, matt.kuharic@kingcounty.gov

people/ unit

Estimating Household Size for Use in Population Estimates (WA state, 2000 average)
Washington State Office of Financial Management
Kimpel, T. and Lowe, T. Research Brief No. 47. August 2007
http://www.ofm.wa.gov/researchbriefs/brief047.pdf
Note: This analysis combines Multi Unit Structures in both large and small units into one category;
the average is used in this case although there is likely a difference

Residential floorspace per unit

2001 Residential Energy Consumption Survey (National Average, 2001)
Square footage measurements and comparisons
http://www.eia.doe.gov/emeu/recs/sqft-measure.html

employees/thousand square feet

Commercial Buildings Energy Consumption Survey commercial energy uses and costs (National Median, 2003)
Table B2 Totals and Medians of Floorspace, Number of Workers, and Hours of Operation for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set1/2003excel/b2.xls

Note: Data for # employees/thousand square feet is presented by CBECS as square feet/employee.
In this analysis employees/thousand square feet is calculated by taking the inverse of the CBECS number and multiplying by 1000.

vehicle related GHG emissions

Estimate calculated as follows (Washington state, 2006)_

56,531,930,000	2006 Annual WA State Vehicle Miles Traveled
	Data was daily VMT. Annual VMT was 365*daily VMT.
	http://www.wsdot.wa.gov/mapsdata/tdo/annualmileage.htm
6,395,798	2006 WA state population
	http://quickfacts.census.gov/qfd/states/53000.html
8839	vehicle miles per person per year
0.0506	gallon gasoline/mile
	This is the weighted national average fuel efficiency for all cars and 2 axle, 4 wheel light trucks in 2005. This includes pickup trucks, vans and SUVs. The 0.051 gallons/mile used here is the inverse of the more commonly known term “miles/per gallon” (which is 19.75 for these cars and light trucks).
	Transportation Energy Data Book. 26th Edition. 2006. Chapter 4: Light Vehicles and Characteristics. Calculations based on weighted average MPG efficiency of cars and light trucks.
	http://cta.ornl.gov/data/tedb26/Edition26_Chapter04.pdf
	Note: This report states that in 2005, 92.3% of all highway VMT were driven by the above described vehicles.
	http://cta.ornl.gov/data/tedb26/Spreadsheets/Table3_04.xls
24.3	lbs CO2e/gallon gasoline
	The CO2 emissions estimates for gasoline and diesel include the extraction, transport, and refinement of petroleum as well as their combustion.
	Life-Cycle CO2 Emissions for Various New Vehicles. RENew Northfield.
	Available: http://renewnorthfield.org/wpcontent/uploads/2006/04/CO2%20emissions.pdf
	Note: This is a conservative estimate of emissions by fuel consumption because diesel fuel,
2205	with a emissions factor of 26.55 lbs CO2e/gallon was not estimated.
4.93	lbs/metric tonne
	vehicle related GHG emissions (metric tonnes CO2e per person per year)

average lief span of buildings, estimated by replacement time method — See Energy Emissions Worksheet for Calculations

Commercial floorspace per unit — EIA, 2003 Commercial Buildings Energy Consumption Survey (National Average, 2003)
Table C3. Consumption and Gross Energy Intensity for Sum of Major Fuels for Non-Mall Buildings, 2003
http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set9/2003excel/c3.xls