CAMPUS MASTER PLAN

for the

UNIVERSITY OF WASHINGTON BOTHELL and CASCADIA COLLEGE

Draft Environmental Impact Statement

UNIVERSITY OF WASHINGTON AND CASCADIA COLLEGE

March 2017

UNIVERSITY of WASHINGTON
CAPITAL PLANNING & DEVELOPMENT

PUBLIC NOTICE
UNIVERSITY OF WASHINGTON AND CASCADIA COLLEGE

Pursuant to the provisions of WAC 197-11-455, 197-11-510 and WAC 478-324-140, the University of Washington hereby provides public notice of the:

AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)

Project Name: University of Washington Bothell/Cascadia College Campus Master Plan

Proponents: University of Washington Bothell and Cascadia College

Description of Proposal: The UW Bothell and Cascadia College Campus Master Plan will guide development, building on the 2010 (rev 2011) Campus Master Plan and extending the continuity of planning developed over the next 20 years. The Campus Master Plan will include guidelines and policies for new development on the campus. It will be formulated to maintain and enhance the fundamental missions of the University and College, including multiple important roles in undergraduate and professional education and dedication to research and public service. Campus growth is needed to accommodate the projected growth in students, faculty, and staff. The scope of the Campus Master Plan includes defining open spaces, environmental sensitive areas, circulation patterns, development areas and campus physical capacity along with planned growth. The City of Bothell, University and College recognize the need for coordinated development that allows the University and College to continue to pursue instruction and service goals. At the same time, the EIS process is intended to foresee, assess, and outline mitigation measures for the direct, indirect and cumulative impacts of development. The anticipated outcome of the planning process is to maximize the positive impacts and minimize adverse impacts upon the City, communities surrounding the campus and promote the health and vitality of the residential, business and academic communities.

Location of Proposal: The current UW Bothell/Cascasdia College campus is generally bounded by I-405 and SR-522 on the East; SR-522 on the South; 110th Avenue NE, NE 185th Street and Beardslee Boulevard on the West; and Beardslee Boulevard on the North. The Campus Master Plan proposes to extend the boundary to include four parcels adjacent to and West of campus between Beardslee Boulevard to the North and 108th Avenue NE to the West.

Lead Agency: University of Washington

Comment Deadline: April 17, 2017

EIS Availability: The Draft EIS covers all elements of the environment relevant to the project and can be found online at: https://www.uwb.edu/campusplanning/master-plan. A copy will be available in the campus library.

Public Meeting: Comments will also be taken at a meeting to be held on April 10, 2017 at the North Creek Event Center 18225 Campus Way NE, Bothell, WA 98011 from 4:00 to 7:00 PM. If you cannot attend the meeting to make your comments, you can e-mail them to jblakesl@uw.edu or mail them to the contact address below:

Contact Person: Julie Blakeslee, Environmental and Land Use Planner
Capital Planning & Development
Box 352205
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Date: March 17, 2017 **Signature:** JBlakeslee

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

for the

CAMPUS MASTER PLAN

for

UNIVERSITY OF WASHINGTON BOTHELL and CASCADIA COLLEGE

University of Washington

Capital Planning and Development Department

The Draft EIS (DEIS) for the *Campus Master Plan* for the University of Washington Bothell and Cascadia College has been prepared in compliance with the State Environmental Policy Act (SEPA) of 1971 (Chapter 43.21C, Revised Code of Washington); the SEPA Rules, effective April 4, 1984, as amended (Chapter 197-11, Washington Administrative Code); and rules adopted by the University of Washington implementing SEPA (478-324 WAC). Preparation of this DEIS is the responsibility of the University's Capital Planning and Development Department. The Capital Planning and Development Department and the University's SEPA Advisory Committee have determined that this document has been prepared in a responsible manner using appropriate methodology and they have directed the areas of research and analysis that were undertaken in preparation of this DEIS. This document is not an authorization for an action, nor does it constitute a decision or a recommendation for an action; in its final form, it will accompany the *Proposed Action* and will be considered in making the final decisions on the proposal.

Date of DEIS Issuance.....**March 17, 2017**

Date Comments are Due on the DEIS.....**April 17, 2017**

FACT SHEET

PROJECT TITLE	**Campus Master Plan** University of Washington Bothell (UW Bothell) and Cascadia College (CC)
PROPONENT/APPLICANT	University of Washington and Cascadia College
LOCATION	The UW Bothell/CC Campus is located in the city of Bothell. The area of the campus is approximately 135 acres. The campus is located east of downtown Bothell and is generally bounded by Beardslee Boulevard to the north; I-405 to the east; SR-522 to the south; and residential neighborhoods to the west.
PROPOSED ACTION	The Proposed Action is a *Campus Master Plan* for the joint UW Bothell and CC campus. The *Campus Master Plan* has been developed based on the following Guiding Principles: • Cohesive Campus Character; • Durable and Adaptable Facilities and Infrastructure; • Enriched Community Experience; • Enhanced Environmental and Human Health; • Integration with the City of Bothell; and, • Mobility, Access and Safety. Based on the Guiding Principles, the *Campus Master Plan* is intended to achieve the following development goals over the 20-year planning horizon: • Accommodate the projected increase of students, faculty and staff;

- Meet the academic building space benchmark of 150 gsf per UW Bothell and CC on-campus FTE student;
- Provide opportunities to house 10 to 20 percent of UW Bothell students (representing 600 to 1,200 beds, respectively);
- Relocate current off-campus lease uses within 0.25-miles of campus to campus; and,
- Improve multi-modal access to campus from downtown Bothell and beyond.

Through its master planning process, the UW Bothell and CC have identified additional campus growth that will be needed over the 20-year planning horizon, including approximately 907,300 gsf to 1,072,300 gsf of net new building space space; approximately 600 to 1,200 total student housing beds; and 3,700 to 4,200 total parking stalls on campus.

EIS ALTERNATIVES

For the purposes of environmental review, three action alternatives and a no action alternative are analyzed in this Draft EIS, including: No Action Alternative (Scenario A-Baseline and Scenario B-Allowed in Planned Unit Development [PUD]); Alternative 1 – Develop Institutional Identity (Southward Growth) Alternative 2 – Develop the Core (Central Growth); and, Alternative 3 – Growth along Topography (Northward Growth).

No Action Alternative

Two scenarios are analyzed under the No Action Alternative: Scenario A (Baseline) – Continuation of existing conditions; and, Scenario B (Allowed in PUD) – Development reflecting the remaining capacity in the current PUD.

Scenario A (Baseline)

Under Scenario A, the Campus Master Plan would not be approved and no development would occur on campus. The current student population would remain at 7,040 FTE students. The current 683,500 gsf of academic space and 74,200 gsf of housing space on campus (total of 757,700 gsf on campus), along with the 70,700 gsf of off-site academic space within 0.25 mile of campus, would remain. No changes to the current vehicular or pedestrian circulation systems, or the amount of parking (current 2,272 spaces) would occur.

Scenario B (Allowed in PUD)

Under Scenario B, the proposed *Campus Master Plan* would not be approved. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area under the current PUD, reaching the total of 1.14 million gsf of building space identified on campus under the PUD. Student enrollment of up to 10,000 FTEs on campus is assumed, consistent with the PUD. No additional housing beds would be provided. An on-campus parking supply totaling 4,200 to 6,000 stalls would be provided on campus.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 reflects a focus of development in the south portion of campus under the *Campus Master Plan*. Approximately 1,072,300 gsf of net new building space would be located in southern and central portions of campus (generally Development Areas A, B and F). Up to 960 new student housing beds (1,200 total beds) would be located in the south portion of campus (Development Area A). Student enrollment of 10,000 FTEs is assumed. An on-campus parking supply totaling 3,700 stalls would be provided.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 reflects development under that *Campus Master Plan* that would be focused in the central portion of campus. Approximately 907,300 gsf of net new building space would be located in the central campus (Development Area B and portions of Development Areas A, C, E and F). Up to 360 new student housing beds (600 total beds) would be located in the central portion of campus (Development Area F). Student enrollment of 10,000 FTEs is assumed. An on-campus parking supply totaling 3,700 stalls would be provided.

Alternative 3 – Growth along Topography (Northward Growth)

Alternative 3 represents development under that *Campus Master Plan* that would be focused in the northern portion of campus. Approximately 907,300 gsf of net new building space would be located in the central and northern portions of campus (Development Area B, C, D, E and F), and Alternative 3 assumes the demolition of Husky Hall (31,800 gsf) and Husky Village (74,200 gsf and 240 beds) to accommodate new development. Up to 600 new student housing beds (360 net new beds) would be located in the northern and central portion of campus (Development Areas D and F). Student enrollment of 10,000 FTEs is assumed. An on-campus parking supply totaling 4,200 stalls would be provided.

LEAD AGENCY

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PURPOSE OF THIS DRAFT EIS

The SEPA environmental review process is designed to be used along with other decision-making factors to provide a comprehensive review of the proposal (WAC 197-11-055). The purpose of SEPA is to ensure that environmental values are given appropriate deliberation, along with other considerations.

The approval of the *Campus Master Plan* is classified under SEPA as a project action. As SEPA Lead Agency, the University of Washington is responsible for ensuring SEPA compliance.

FINAL ACTION

The decision by the University of Washington Board of Regents and the Cascadia College Board of Trustees, after consideration of environmental impacts and mitigation, to approve the *Campus Master Plan* and associated Final EIS.

PERMITS AND APPROVALS

Preliminary investigation indicates that the following permits and/or approvals could be required or requested for the Proposed Actions. Additional permits/approvals may be identified during the review process associated with specific development projects.

University of Washington

- ***Board of Regents***
  - Approval of the Final *Campus Master Plan* and associated Final EIS
  - Adoption of the Final *Campus Master Plan*

Cascadia College

- ***Board of Trustees***
  - Approval of the Final *Campus Master Plan* and associated Final EIS
  - Adoption of the Final *Campus Master Plan*

Agencies with Jurisdiction

- ***State of Washington***
  - Dept. of Labor and Industries
  - Dept. of Ecology, Construction Stormwater General Permit

- ***Puget Sound Clean Air Agency***
  - Demolition and Asbestos Notification

- ***City of Bothell***
  - City Council approval of the *Campus Master Plan*
  - Grading Permit
  - Shoring Permit
  - Building Permits
  - Electrical Permits
  - Mechanical Permits
  - Occupancy Permits
  - Comprehensive Drainage Control Plan, Inspection and Maintenance Schedule
  - Construction Stormwater Control Plan Approvals
  - Street Use Permits (i.e., construction staging, construction operations, etc.)
  - Street Improvements (i.e., sidewalks, curbcuts, etc.)

- ***Seattle-King County Department of Health***
  - Plumbing Permits

DRAFT EIS AUTHORS AND PRINCIPAL CONTRIBUTORS

The *Campus Master Plan* Draft EIS has been prepared under the direction of the University of Washington Bothell and Cascadia College and analyses were provided by the following consulting firms:

Draft EIS Project Manager, Primary Author, Earth, Air Quality, Energy, Wetlands/Plants and Animals, Environmental Health, Land Use and Relationship to Plans/Policies, Population and Housing, Aesthetics, Recreation and Open Space, Historic and Cultural Resources, and Public Services and Utilities.
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PREVIOUS ENVIRONMENTAL DOCUMENTS

Per WAC 191-11-635, this Draft EIS incorporates by reference the following environmental document:

- Cascadia Community College and University of Washington Bothell Collocated Campus EIS (1995)

LOCATION OF BACKGROUND INFORMATION

Background material and supporting documents are located at the office of:

University of Washington
Capital Planning & Development
University Facilities Building
Box 352205
Seattle, WA 98195-2205
(206) 543-5200

DATE OF DRAFT EIS ISSUANCE

March 17, 2017

DATE DRAFT EIS COMMENTS ARE DUE

Pursuant to the SEPA Rules (WAC 197-11-502), a 30-day comment period is required for Draft EIS documents. Comments on the Draft EIS are due on:

April 17, 2017

PUBLIC HEARING

A public hearing for the Draft EIS has been scheduled for April 10, 2017 from 4 PM to approximately 7 PM. The public hearing will be held at:

North Creek Event Center
18225 Campus Way NE
Bothell, WA 98011

AVAILABILITY OF THE DRAFT EIS

This Draft EIS has been distributed to agencies, organizations and individuals noted on the Distribution List contained in **Appendix A** to this document. Copies of the Draft EIS are also available for review at the University Capital Planning & Development (University Facilities Building), on the University of Washington's Online Public Information Center (https://cpo.uw.edu/projects/sepa), the UW Bothell website (https://www.uwb.edu/campusplanning/master-plan), the CC website (http://www.cascadia.edu/discover/about/campus

/master_plan.aspx) and at the following University and Public Libraries:

University of Washington

- Suzzallo Library
- Health Sciences Library

UW Bothell and CC

- Library (LB1)

King County Libraries

- Downtown Bothell Library (18215 98th Avenue NE)

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CHAPTER 1
SUMMARY

1.1 INTRODUCTION

This section provides a summary of the Draft Environmental Impact Statement (DEIS) for the *Campus Master Plan* for the University of Washington Bothell (UW Bothell) and Cascadia College (CC). It briefly describes the *Proposed Actions* and *EIS Alternatives* and it highlights results of the environmental impact analysis. A matrix in this chapter contains a comparative overview of environmental impacts identified for the alternatives and is followed by a list of applicable mitigation measures and significant unavoidable adverse impacts. Refer to **Chapter 2** of this DEIS for a more detailed description of the Proposed Action and Alternatives, and **Chapter 3** for a detailed description of the affected environment, environmental impacts, mitigation measures and significant unavoidable adverse impacts.

1.2 PROJECT OVERVIEW

The Proposed Action is a new campus master plan for the UW Bothell and CC campus. As described in detail in **Chapter 3** of this Draft EIS (Historic and Cultural Resources), the campus development has occurred over the last approximately 20 years and the previous Campus Master Plan and associated Planned Unit Development prepared for the University and College over this timeframe have influenced campus decision-making in terms of the siting of buildings, location of open space, and provision of circulation systems. Building on the previous master planning efforts, the University of Washington Bothell and Cascadia College have determined that a new plan for the campus is necessary to meet anticipated growth and identified goals for the next 20-year planning horizon.

Building on the 2010 (revised 2011) Campus Master Plan, the 2017 *Campus Master Plan* is intended to extend the continuity of campus planning over the next 20 years. The *Campus Master Plan* will include guidelines and policies for new development on campus, and will be formulated to maintain and enhance the mission of the University of Washington Bothell and Cascadia College, their multiple important roles in associate, undergraduate and professional education, and dedication to research and public service.

1.3 MISSION STATEMENT AND PROJECT GUIDING PRINCIPLES (OBJECTIVES)

Mission Statement

The following presents the overall mission statements of the University of Washington Bothell and Cascadia College.

University of Washington Bothell

UW Bothell holds the student-faculty relationship to be paramount. We provide access to excellence in higher education through innovative and creative curricula, interdisciplinary teaching and research, and a dynamic community of multicultural learning.

Cascadia College

Transforming lives through integrated education in a learning-centered community.

Guiding Principles (Objectives)

The *Campus Master Plan* is intended to provide a flexible framework to guide land use, development, and infrastructure investments on campus through close collaboration with the City of Bothell and the community. The guiding principles identify a shared vision for actions and outcomes that meet multiple objectives to ensure land use and capital investment decisions to support the institutional missions of UW Bothell and Cascadia College.

- **Cohesive Campus Character -** The physical setting of the campus expresses the institutional values and commitment to educational excellence with regard to contextual integration within the surrounding community and region. The architectural expression of buildings, landscapes and circulation patterns should be context-driven to enhance the character and quality of the campus while retaining the identity of each institution and providing a welcoming and user-friendly experience for first time and daily users.
- **Durable and Adaptable Facilities and Infrastructure -** Ongoing demands to maximize the versatility of space must be considered in the design of academic buildings to meet evolving program needs. Buildings should be designed with flexible interiors to allow for the reconfiguration of space over time without major structural or utility modifications and infrastructure should be provided to meet current and future technology needs.
- **Enriched Community Experience -** Providing a vibrant, student-centered campus with ease of access and amenities that encourage the interdisciplinary exchange of ideas and

discovery is vital to achieving academic excellence. Maximizing resources and co-location opportunities to meet the needs of commuting and residential students - accessibility of information, social and cultural events, housing, dining, group and individual study, rest and comfort, recreation, physical fitness, and health and wellness – through inclusiveness and equity will enrich the student experience. Providing resources and co-location opportunities for faculty and staff to socially and academically interact with each other and with students will help enhance a culture of innovation and partnership.

- **Enhanced Environmental and Human Health -** UW Bothell and Cascadia College's commitment to environmental protection, sustainability, and the well-being of students, staff, faculty, and the surrounding community is integral to the campus master plan. Energy conservation, natural daylight and ventilation, efficient use of resources, optimization of campus infrastructure, life cycle cost decision-making, preservation of environmentally valuable features, and a mix of vibrant and passive open spaces are all means of enhancing the environmental and human health of campus. The campus' environmental resources and critical habitats will continue to be managed in a manner that promotes academic, research, and partnership opportunities for UW Bothell, Cascadia College, and the community-at-large.
- **Integration with City of Bothell -** Considerations for enrollment growth of UW Bothell and Cascadia College and the physical development of the campus to meet space needs require close collaboration and connectivity with the City of Bothell's long range vision. Development along the edges of campus should complement adjacent uses. Connections between the campus and downtown core should be strengthened.
- **Mobility, Access, and Safety -** Safe, efficient, and effective movement of people and vehicles (including personal, service, emergency, and transit) to and through campus requires regular monitoring and management to adapt to evolving needs. Sufficient and appropriately located parking, transit connectivity, universally accessible pathways, and intentionally designed intersections and crossings are necessary both on and off campus, requiring close collaboration with the City of Bothell and local transit agencies.

1.4 PROPOSED ACTIONS

Building on the 2010 (revised 2011) Campus Master Plan, the 2017 *Campus Master Plan* is intended to extend the continuity of campus planning over the next 20 years. The *Campus Master Plan* will include guidelines and policies for new development on campus, and will be formulated to maintain and enhance the mission of the University of Washington Bothell and Cascadia College, their multiple important roles in associate, undergraduate and professional education, and dedication to research and public service.

Guided by the Mission Statements and Guiding Principles provided in **Section 2.6**, the proposed *Campus Master Plan* is also intended to achieve the following development goals over the 20-year planning horizon:

- Accommodate projected increase in the number of students, faculty and staff;
- Meet the academic building space benchmark of 150 gsf per University of Washington Bothell and Cascadia College student;
- Provide opportunities to house between 10 percent and 20 percent of University of Washington Bothell student population (representing 600 beds and 1,200 beds respectively);
- Relocate current off-campus lease uses within 0.25 mile from campus to campus; and,
- Improve multi-modal access to campus from downtown Bothell and beyond, through strategic partnerships.

Campus growth beyond the current approximately 757,700 gsf of total campus building space (including 683,500 gsf of academic space and 74,200 gsf of housing space[1]) is needed to accommodate the projected increase in campus population and other development goals. It is estimated that approximately 907,300 gsf to 1,072,300 gsf of net new building space and 600 to 1,200 total student housing beds will be needed over the 20-year planning horizon[2]. It is also proposed that the approximately 70,700 gsf of off-campus academic space located within 0.25 mile of the campus (located at two locations on Beardslee Boulevard) be relocated to the campus.

The *Campus Master Plan* includes limitations on maximum building heights and setbacks for buildings from adjacent residential uses. A 65-foot maximum building height would be established for the majority of campus (Development Areas A, B, C, D and G), with a 100-foot maximum height for a portion of campus east of Campus Way NE (Development Areas E and F). The provision of landscape buffers and building setbacks would be established for the portions of campus located adjacent to residential neighborhoods. For example, the western portions of Development Area A adjacent to single family residences along Valley View Road and Circle Drive would contain 45-foot to 60-foot wide building setbacks that would include a 30-foot wide landscape buffer, and the western portion of Development Area C adjacent to off-campus residences on NE 182nd Court and NE 183rd Court would contain a 45-foot wide building setback including a 30-foot wide landscape buffer.

[1] *Rounded to the nearest 100.*

[2] *Depending on the percentage of students housed on campus and strategy regarding retention of Husky Village units.*

The *Campus Master Plan* includes retention of the North Creek Stream and Wetland Area on campus. This approximately 58-acre area encompassing the eastern third of the campus contains restored stream and wetland reflecting a native floodplain ecosystem. The existing trail and outlook system would be retained and maintained during the 20-year planning horizon.

The *Campus Master Plan* provides for a total of 3,700 to 4,200 parking stalls on campus, representing an increase from the current 2,272 parking stalls on campus. Vehicular circulation changes are considered, including the potential to provide a second northern access from Beardslee Boulevard via a realigned 110th Avenue NE, and potential access scenarios for NE 185th Street.

1.5 EIS ALTERNATIVES

No Action Alternative

Under the No Action Alternative, the physical improvements that are proposed as part of the *Campus Master Plan* (as analyzed under Alternatives 1, 2 and 3) would not occur. Two scenarios are analyzed for this alternative in the Draft EIS: Scenario A (Baseline) – Continuation of existing conditions; and, Scenario B (Allowed in PUD) – future campus development reflecting remaining capacity under the original (Phase 1) and the current PUD as evaluated in the 1995 EIS. The No Action Alternative under either Scenario A or Scenario B would not meet the UW Bothell and Cascadia College Guiding Principles and development goals.

Scenario A – Baseline Condition

Under Scenario A, the proposed Campus Master Plan would not be approved and no additional development would occur on campus. The current 683,500 gsf of academic space and 74,200 gsf of housing space on campus (total of 757,700 gsf on campus), along with the 70,700 gsf of off-site academic space within 0.25 mile of campus, would remain. No changes to the current vehicular or pedestrian circulation systems, or the amount of parking (current 2,272 spaces), would occur. The approximately 240 student beds associated with Husky Village would remain. Existing natural and recreational open spaces would remain, including the North Creek Stream and Wetland Area.

Scenario B – Allowed in PUD

Under Scenario B, the proposed Campus Master Plan would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining

approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the PUD. Student enrollment of up to 10,000 FTEs on campus is assumed, consistent with the PUD. The approximately 240 student beds associated with Husky Village would remain, although no additional housing beds would be provided.

The current vehicular and pedestrian circulation systems would remain. An on-campus parking supply totaling 4,200 to 6,000 spaces would be provided on campus.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Under Alternative 1 – Develop Institutional Identity (Southward Growth), development would occur in the southwestern portion of campus under the *Campus Master Plan,* with a net increase of approximately 1,072,300 gsf of building space (generally in Development Areas B and F) and up to 960 new beds – 1,200 total beds (generally located in Development Area A). It is assumed the Corp Yard would be located west of 110th Avenue NE in Development Area C, and the existing Truly House and Chase House would remain in their current locations. A campus student population of 10,000 FTEs is assumed.

Existing open space areas under Alternative 1 would be retained, including the approximately 58-acre North Creek Stream and Wetland Area in the eastern portion of campus, the approximately 2.9 acres of sports fields in campus Development Areas E and F, and the various plazas and gather spaces throughout campus. New green and urban open spaces would be provided in association with new buildings, with the majority of new open spaces located in the southwest portion of campus (Development Areas A and B).

Transportation improvements under Alternative 1 would include relocating the existing emergency access gate on NE 185th Street to the west, which would allow the internal campus roadway system to access Husky Hall in Development Area C. Additionally, NE 180th Street would be realigned further south to accommodate the assumed building development, traffic-calming features would be added to Campus Way NE, and the capacity of the Transit Center would be expanded to four bays. A total of 1,428 new parking stalls would be added (3,700 total), about 50 percent of which would be located in the southwestern portion of campus (Development Area A) and the other 50 percent distributed throughout Development Areas C, E and F.

Alternative 2 – Develop the Core (Central Growth)

Under Alternative 2 – Develop the Core (Central Growth), development would occur in the central portion of campus, with a net increase of approximately 907,300 gsf of building space generally located in Development Areas A, B, C, E and F. Up to 360 new beds (600 total beds) would be located in the central portion of campus in Development Area F. It is assumed that the Corp Yard would be located in the western portion of the surface parking lot south of NE 180th Street in Development Area A. The Truly House would be demolished or relocated to an on-campus or off-campus location to accommodate assumed development. The Chase House would remain in its current location. A campus student population of 10,000 FTEs is assumed.

Existing open space areas under Alternative 2 would be retained, including the approximately 58-acre North Creek Stream and Wetland Area in the eastern portion of campus, the approximately 2.9 acres of sports fields in campus Development Areas E and F, and the various plazas and gather spaces throughout campus. New green and urban open spaces would be provided in association with new buildings, with the majority of new open spaces located in the central portion of campus (Development Areas B and F).

Transportation improvements under Alternative 2 would include direct transit access to campus via a new opening on NE 185th Street, between Beardslee Boulevard and 110th Avenue NE. Additionally, traffic calming measure on Campus Way NE would be provided, the Transit Center would be relocated to NE 185th Street and its capacity would be increased to four bays, and the existing comfort station and layover for transit would be removed. A total of 1,428 new parking stalls would be added (3,700 total), about half of which would be located in a stand-alone parking structure located south of the South Parking Garage in Development Area A, and in an addition to the North Parking Garage in Development Area E. The other 50 percent of the new parking would be associated with new building development in Development Areas B, C and F.

Alternative 3 – Growth along Topography (Northward Growth)

Under Alternative 3 – Growth along Topography (Northward Growth), development would follow the north/south topography of campus, with a net increase of approximately 907,300 gsf of building space throughout the central and northern portions of campus (Development Areas B, C, D, E and F) and would include the demolition of Husky Hall (31,800 gsf) and Husky Village (74,200 gsf and 240 beds). Up to 360 net new student housing beds (600 total beds) would be located in the northern and central portion of campus (Development Areas D and F). The Corp Yard would be located immediately north of the Chase House in Development

Area G, and the existing Truly House and Chase House would remain in their current locations. A campus student population of 10,000 FTEs is assumed.

Existing open space areas under Alternative 2 would be retained, including the approximately 58-acre North Creek Stream and Wetland Area in the eastern portion of campus, the approximately 2.9 acres of sports fields in campus Development Areas E and F, and the various plazas and gather spaces throughout campus. New green and urban open spaces would be provided in association with new buildings in the northwest portion of campus (Development Areas C and D), with open spaces also provided in association with new building throughout campus (Development Areas A, B, E, F and G).

Transportation improvements under Alternative 3 include a new, signalized access from Beardslee Boulevard via a realigned 108th Avenue NE, conversion of the existing NE 185th Street between 108th Avenue NE and 110th Avenue NE into campus open space (Development Areas C and D), and realignment of the southern end of 110th Avenue NE eastward, into the Northern Parking Garage. The existing transit center would be relocated to Beardslee Boulevard (adjacent to Development Area D). A total of 1,928 new parking stalls (4,200 total) would be provided, with approximately 38 percent of new parking occurring in the southwest portion of campus (Development Area A), 37 percent in the central portion (Development Areas E and F), and approximately 25% in the northwest portion (Development Areas C and D).

1.6 IMPACT SUMMARY

The following highlights the impacts that would potentially occur from the alternatives analyzed in this Draft EIS. **Table 1-1** provides a summary of the potential impacts that would be anticipated under the EIS Alternatives. This summary is not intended to be a substitute for the complete discussion of each element that is contained in **Chapter 3** of this Draft EIS.

Table 1-1
IMPACT SUMMARY MATRIX

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
3.1 - Earth				
• No excavation or erosion-related impacts are anticipated.	• Development of 386,100 gsf of net new building space would result a lower amount of excavation than Alternatives 1-3.	• Development of 1,072,300 gsf of net new building space would result in approximately 25,800 cubic yards of grading/excavation, most of which would occur in the southwest portion of campus.	• Development of 907,300 gsf of net new building space would result in approximately 10,700 cubic yards of grading/ excavation, most of which would occur in the central portion of campus.	• Development of 907,300 gsf of net new building space would result in approximately 33,900 cubic yards of grading/ excavation, most of which would occur in the northern portion of campus.
• No impacts to geologic hazards are anticipated.	• Development could occur in Erosion Hazard Areas (Development Areas A and B), Landslide Hazard Areas (Development Areas A, E and F), and Seismic Hazard Areas (Development Areas E and F).	• Development would occur in Erosion Hazard Areas (Development Areas A and B), Landslide Hazard Areas (A, E and F), and Seismic Hazard Areas (E and F).	• Development would occur in Erosion Hazard Areas (Development Areas B, E and F), Landslide Hazard Areas (E and F), and Seismic Hazard Areas (E and F).	• Less development in potential Erosion Hazard Areas than Alternatives 1 and 2; similar amount of development in potential Landslide Hazard Areas and Seismic Hazard Areas to **Alternatives 1** and **2**.
3.2 – Air Quality				
• No new construction would occur; no	• Construction associated with 386,100 gsf of net	• Short-term construction-related air quality impacts associated with 1,072,300 gsf	• Short-term construction-related air quality impacts associated with 907,300 gsf of	• Short-term construction-related air quality impacts associated with 907,300 gsf of

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
substantial changes to air quality would be anticipated.	new building space would result in localized short-term increases in particulates and vehicle/equipment emissions.	of net new building space, with a focus in the southwest portion of campus.	net new building space, with a focus in the central portion of campus.	net new building space (including the demolition of 106,000 gsf associated with Husky Village and Husky Hall), with a focus in the northern portion of campus.
• No substantial changes to air quality resulting from building operations would occur.	• Emissions from exhaust vents and laboratory fume hoods during operation of 386,100 gsf of new building space would occur but would not result in air quality impacts.	• Operation-related emissions associated with 1,072,300 gsf of net new building space would be greater than **No Action – Scenario B**, but would not result in air quality impacts.	• Operation-related emissions associated with 907,300 gsf of net new building space would be greater than **No Action – Scenario B** but less than **Alternative 1**.	• Operation-related impacts would be similar to **Alternative 2**.
• No substantial changes to greenhouse gas emissions would occur.	• New development would result in total lifespan GHG emissions of approximately 403,660 MTCO2e.	• New development would result in total lifespan GHG emissions of approximately 1,121,069 MTCO2e.	• New development would result in total lifespan GHG emissions of approximately 948,564 MTCO2e.	• GHG emissions would be similar to **Alternative 2**.
3.3 – Wetlands and Plants/Animals				
• No impacts to wetlands would be anticipated.	• Direct impacts to wetlands would not occur. Wetland 14 (Development Area C) could be filled;	• Direct impacts to wetlands would not occur, including impacts to the North Creek Stream and Wetland Area. Wetland 14 (Development	• Impacts to wetlands would be similar to **Alternative 1**.	• Approximately 0.16-acre of Category III wetlands in Development Areas C and D could be filled. Wetland conditions associated with the

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
	fill of this wetland was accounted for under previous review and development.	Area C) could be filled; fill of this wetland was accounted for under previous review and development.		North Creek Stream and Wetland Areas would be similar to Alternatives 1 and 2.
• No impacts to plants would be anticipated.	• Depending on the location, development could potential impacts to some moderate ecological value trees along the west edge of Development Area A, the central portion of Development Area B, the south and east portion of Development Area C, the northeast portion of Development Area D and the south portion of the Development Area F.	• Construction could result in potential impacts to some moderate ecological trees, particularly within the central portion of Development Area B, the south portion of the Development Area C and the south portion of Development Area F.	• Development under Alternative 2 would have a higher potential for impacts to moderate ecological value trees in Development Area B, but would have a lower potential for impacts in Development Area C than Alternative 1. Potential impacts to moderate ecological values trees in Development Area F would be similar to **Alternative 1**.	• Development under Alternative 3 would have a higher potential for impacts to moderate ecological value trees in Development Area D than Alternative 1, but would have a lower potential for impacts in Development Areas B and C. Potential impacts to moderate ecological value trees in Development Areas F would be similar to **Alternative 1**.

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
• No impacts to fish would be anticipated.	• Increases in erosion and stormwater discharge would occur but would not be anticipated to affect fish habitat.	• Increases in erosion and stormwater discharge would occur but would not be anticipated to affect fish habitat within North Creek.	• Impacts to fish habitat within North Creek would be similar to **Alternative 1**.	• Impacts to fish habitat within North Creek would be similar to **Alternative 1** and **2**.
• No impacts to animals would be anticipated.	• Development would result in increased loss of existing urban habitat and temporary construction-related disturbances to animals.	• Development in Development Areas A, B, E and F would result in loss of existing urban habitat and increased temporary construction-related disturbances to animals.	• Development within Development Areas B, E and F would result in a loss of existing urban habitat. Impacts from construction-related disturbances would be greater than **Alternative 1**, due to the increased amount of development in Development Areas E and F.	• Construction disturbances in Development Areas B, E and F would be similar to **Alternative 2** and result in the loss of existing urban habitat.
3.4 – Energy				
• No change in electricity demand would be anticipated.	• Development of 386,100 gsf of net new building space would utilize approximately 3,583,000 kWh of electricity annually (approx. 52 percent increase). Expansion of the existing chiller	• Development of 1,072,300 gsf of net new building space would utilize approximately 9,950,000 kwh of electricity annually (approx. 144 percent increase). Expansion of the existing chiller station west of the South Parking Garage required to meet air conditioning needs.	• Development of 907,000 gsf of net new building space would utilize approximately 8,419,000 kwh of electricity annually (approx. 122 percent increase). Expansion of the existing chiller station west of the South Parking Garage required to meet air conditioning needs.	• Increased demand for electrical power from new building uses would be as described for **Alternative 2**. Compared to expansion of the chiller station, Alternative 3 assumes development of a new satellite station in Development Area C.

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
	station west of the South Parking Garage required to meet air conditioning needs.			
• No change in natural gas demand would be anticipated.	• Development of 386,100 gsf of net new building space would utilize approx. 24,239,000 kBtu of natural gas annually (approx. 47 percent increase).	• Development of 1,072,300 gsf of net new building space would utilize approx. 67,318,000 kBtu of natural gas annually (approx. 131 percent increase).	• Increased demand for natural gas power from new building space would utilize approx. 56,960,000 kBtu of natural gas annually (approx. 111 percent increase).	• Increased demand for natural gas power from new building uses would be as described for **Alternative 2**.
3.5 – Environmental Health				
• No environmental health impacts would occur.	• To the extent research/laboratory uses are developed, an increase in research chemicals and hazardous materials would occur. Overall human health conditions would not be anticipated to change.	• The potential for new research/laboratory facilities would be higher than **No Action – Scenario B** due to the increased amount of academic space. Impacts to human health would not be anticipated.	• Impacts to human health would be as described for **Alternative 1** due to the similar amount of net new academic space.	• Impacts to human health would be as described for **Alternative 1** due to the similar amount of net new academic space.

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
• No noise impacts would occur.	• Development of 386,100 gsf of net new building space would result in noise-related impacts associated with temporary construction and operation of new uses.	• Development of 1,072,300 gsf of net new building space would result in noise-related impacts associated with temporary construction and operation of new uses would be anticipated, particularly within and adjacent to Development Areas A, B and F.	• Development of 907,300 gsf of net new building space would result in noise-related impacts that would be similar but less than **Alternative 1**, due to the lower amount of student housing.	• Noise-related impacts would be similar to **Alternative 2**.
3.6 – Land Use				
• No construction-related impacts would be anticipated.	• Temporary construction-related impacts would be similar but less than **Alternatives 1-3**.	• Temporary construction-related impacts associated with noise, emissions, vibration and traffic would occur primarily in and adjacent to Development Areas A, B and F.	• Temporary-construction Impacts would be similar to **Alternative 1**, but in Development Areas A, B, C, E, and F.	• Impacts would be similar but greater than **Alternatives 1** and **2**, due to the additional demolition activities associated with the removal of Husky Hall and Husky Village.
• No new development would occur on campus	• Development of 386,100 gsf of net new building space would result in increased density and activity levels, but would be less than **Alternatives 1-3**.	• Development of 1,072,300 gsf of net new building space, up to 960 new student housing beds, and 1,428 new parking stalls would result in increased density and activity levels on campus, primarily in the southwest portion of campus.	• Approx. 907,300 gsf of net new building space, up to 360 new student housing beds, and 1,428 new parking stalls would result in increased density and activity levels (particularly in the central portion of campus).	• Approx. 907,300 gsf of net new building space, 165,000 up to 360 new student housing beds, and 1,928 new parking stalls would result in increased density and activity levels, primarily in the northern portion of campus. A second campus access roadway from Beardslee

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
				Boulevard would also increase activity levels.
3.7 – Populations and Housing				
• No changes in student population would be anticipated.	• The total increase in campus population would be approximately 1,961 people (FTE students, faculty and staff).	• The total increase in campus population would be approximately 1,961 people (FTE students, faculty and staff).	• Population increases would be as described for **Alternative 1**.	• Population increases would be as described for **Alternative 1**.
• No changes in housing would be anticipated.	• New housing would not be provided and the increase in population would be anticipated to reside in the City of Bothell and surrounding areas.	• New housing would be located in Development Area A and the existing student housing facilities (Husky Village). Capacity to house FTE students would increase from four percent to 20 percent.	• New housing would be located in Development Area F and the existing student housing facilities (Husky Village). Capacity to house FTE students would be 10 percent (less than **Alternative 1**).	• Student housing associated with Husky Village would be demolished and new student housing facilities would be developed within Development Areas D and F. Capacity to house FTE students would be 10 percent (less than **Alternative 1**).
3.8 – Aesthetics				
• No aesthetic changes would occur.	• Development of 386,100 gsf of net new building space would change the aesthetic character to reflect new building on campus. Development	• Development of 1,072,300 gsf of net new building space would change the aesthetic character to reflect new buildings on campus, particularly Development Areas A, B and F. Existing open space areas would be retained and new open spaces would	• Development of 907,300 gsf of net new building space would change the aesthetic character to reflect new buildings on campus, particularly in Development Areas B, E and F. Existing open space areas would be retained and new open spaces would be	• Development of 907,300 gsf of net new building space would change the aesthetic character to reflect new buildings on campus, particularly in Development Areas B, C, D, E and F. Existing open space areas would be retained and new open spaces

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
	would occur without an overall plan for the entire campus.	be included with new building development.	included with new building development.	would be included with new building development.
• No changes to existing views would occur.	• Depending on the location of development, views on campus could change to reflect increased density.	• Views to the campus would change to reflect portions of new building development (primarily in the southwest portion of campus). Views to new campus development from surrounding areas would primarily be afforded from NE 180th St., 110th Ave NE, Beardslee Boulevard, NE 182nd Ct, and NE 183rd Ct.	• Views to the campus would change to reflect portions of new building development (primarily in the central portion of campus). Views to new campus development from surrounding areas would primarily be afforded from NE 180th St., 110th Ave NE, Beardslee Boulevard, NE 182nd Ct, and NE 183rd Ct.	• Views to the campus would change to reflect portions of new building development (primarily in the northern portion of campus). Views to new campus development from surrounding areas would primarily be afforded from NE 180th St., 110th Ave NE, Beardslee Boulevard, NE 182nd Ct, and NE 183rd Ct.
3.9 – Recreation and Open Space				
• No impacts to open spaces would be anticipated.	• Demand for recreation and open space would increase with increased student enrollment. New open space areas would be provided as a part of development.	• Demand for recreation and open space would increase and would be greater than **No Action – Scenario B**, due to the increase in students living on-campus. New open space areas would be provided as a part of development and an expansion of the existing ARC building could be provided.	• Impacts would be similar to **Alternative 1**, although demand would be somewhat less than **Alternative 1** due to fewer students living on-campus.	• Impacts would be similar to **Alternative 2**.

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
3.10 – Historic and Cultural Resources				
• No historic resources impacts would occur.	• No direct impacts to the Truly House or Chase House would be anticipated. Potential for indirect impacts could occur to these historic resources, as well as the off-campus Bothell Pioneer Cemetery.	• No direct impacts to the Truly House or Chase House would be anticipated. Potential for indirect impacts to the Truly House and the off-campus Bothell Pioneer Cemetery could occur.	• The Truly House would be relocated or demolished to accommodate development in Development Area B. Indirect impacts to the off-campus Bothell Pioneer Cemetery could occur as a result of construction in Development Areas A, B and C.	• No direct impacts to the Truly House or Chase House would be anticipated. Less potential for indirect impacts to the Truly House and the off-campus Bothell Pioneer Cemetery than **Alternative 1**, but a greater potential for indirect impacts to the Chase House.
• No cultural resources impacts would occur.	• Moderate to high risk for encountering archaeological resources if development occurs in Development Areas A, B, E, F or G.	• Moderate to high risk for encountering archaeological resources, particularly in Development Areas A, B, E and F.	• Higher potential for encounter archeological resources than **Alternative 1** due to the focus of development in Development Areas E and F.	• The risk for encountering potential archaeological resources is similar to **Alternative 2**.
3.11 – Public Services and Utilities				
• There would be no increase in demand for fire services.	• Fire service incidents estimated to increase by approx. 1.3	• Fire service incidents estimated to increase similar to **No Action – Scenario B**. An increase student housing and on-campus residents could	• Impacts related to fire services would increase but at a slightly lower level than **Alternative 1**, due to fewer students living on-campus.	• Impacts related to fire services would increase but at a slightly lower level than **Alternative 1**, due to fewer students living on-campus

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
	incidents a year (22 percent increase).	result in a slightly higher potential for incidents.		
• There would be no increase in demand for police services.	• Police service incidents estimated to increase by approx. 2.6 calls a year (22 percent increase).	• Police service incidents estimated to increase similar to **No Action – Scenario B**. An increase student housing and on-campus residents could result in a slightly higher potential for incidents.	• Impacts related to police services would increase but at a slightly lower level than **Alternative 1**, due to fewer students living on-campus.	• Impacts related to police services would increase but at a slightly lower level than **Alternative 1**, due to fewer students living on-campus.
• There would be no increase in demand utilities.	• Development of 386,100 gsf of net new building space would result in increased demand for water service and sewer service, as well as an increase in impervious surface and associated stormwater.	• Development of 1,072,300 gsf of net new building space would result in increased demand for water service and sewer service, as well as and an increase in impervious surface and associated stormwater. Increased demand for services and stormwater would be greater than **No Action – Scenario B**.	• Development of 907,300 gsf of net new building space would result in increased demand for water service and sewer service, as well as increased impervious surface and associated stormwater.	• Increased demand for water service, sewer service and stormwater would be similar to **Alternative 2**.
3.12 – Transportation				
• No changes to pedestrian or bicycle routes would occur.	• No changes to pedestrian or bicycle routes would occur.	• Traffic calming measures would be implemented along Campus Way NE.	• The primary pedestrian and bicycle route would occur on Campus Way NE by eliminating transit use on this street.	• The primary pedestrian connection would be through the center of campus connecting to the transit center on Beardslee Boulevard.

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
• No changes to transit access and circulation would occur.	• No changes to transit access and circulation would occur.	• No changes to transit access or circulation. Up to 4 bays would be provided which would be insufficient for future increases in transit service	• Two-way transit circulation along NE 185th Street. Up to 8 bays would be provided which would be sufficient for future increases in transit service.	• Two-way transit circulation along Beardslee Boulevard which could increase travel times/delays for transit. Up to 6 bays would be provided which would not be sufficient for future increases in transit service.
• No increases in traffic volumes would occur.	• Increases in campus population would result in approximately 4,590 net new daily trips, including 531 AM peak hour trips and 568 PM peak hour trips.	• Approximately 3,870 net new daily trips, including 397 AM peak hour trips and 491 PM peak hour trips.	• Traffic volumes would be greater than **Alternative 1**, with approximately 4,320 net new daily trips, including 481 AM peak hour trips and 539 PM peak hour trips.	• Traffic volumes would be greater than **Alternative 1**, with approximately 4,320 net new daily trips, including 481 AM peak hour trips and 539 PM peak hour trips.
• All corridors would operate at LOS E and meet the City of Bothell's standard (LOS E).	• All corridors would operate at LOS E and meet the City of Bothell's standard (LOS E).	• All corridors would operate at LOS E and meet the City of Bothell's standard (LOS E).	• All corridors would operate at LOS E and meet the City of Bothell's standard (LOS E).	• All corridors would operate at LOS E and meet the City of Bothell's standard (LOS E).
• LOS and delays at campus access intersections would increase	• LOS and delays at campus access intersections would be greater than **No Action – Scenario A**.	• LOS and delays at campus access intersections would be lower than **No Action – Scenario B**.	• LOS and delays at campus access intersections would be lower than **No Action – Scenario B**.	• LOS and delays at campus access intersections would be lower than **No Action – Scenario B**.

No Action Alternative		Alternative 1 – Develop Institutional Identity	Alternative 2 – Develop the Core	Alternative 3 – Growth along Topography
Scenario A – Baseline Condition	**Scenario B – Allowed in PUD**			
• No changes to parking supply; approximately 2,500 parking stalls would exist on campus.	• Approximately 4,600-6,600 parking stalls would be provided and would accommodate on-campus parking demand.	• Approximately 3,700 parking stalls would be provided which would be anticipated to accommodate on-campus parking demand.	• Approximately 3,700 parking stalls would be provided would be anticipated to accommodate on-campus parking demand.	• Approximately 4,200 parking stalls would be provided and would be anticipated to accommodate on-campus parking demand.

1.7 MITIGATION MEASURES AND SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Earth

Mitigation Measures

- All earthwork and site preparation on the campus would be conducted in compliance with relevant grading requirements of the City of Bothell Design and Construction Standards and Specifications Manual.

- Temporary Erosion and Sedimentation Control (TESC) measures would be implemented, as appropriate for individual sites, as part of code compliance to reduce the risk of construction-related erosion.

- Site specific geotechnical recommendations would be provided as individual projects and measures would be implemented as part of code compliance, based on the specific conditions at the individual sites, including measures related to potential landslide hazard conditions, seismic hazard conditions and groundwater.

- Whenever possible, construction could be scheduled to minimize overlapping of excavation periods for projects planned for construction in the same biennium.

- Construction activities conducted in portions of the campus identified as containing earth-related environmentally critical areas as identified by the City of Bothell would comply with applicable development standards (BMC 14.04).

Significant Unavoidable Adverse Impacts

With implementation of the mitigation measures identified above, no significant unavoidable earth-related impacts are anticipated.

Air Quality and Greenhouse Gases

Mitigation Measures

The proposed *Campus Master Plan* includes guiding principles to create a more sustainable campus environment. These principles would, in part, guide future campus development and would indirectly relate to the overall air quality and GHG environment. In addition to compliance with applicable regulations related to construction and operations (including EPA, PSCAA and City of Bothell regulations), the following potential measures are intended to further reduce the potential for air quality and GHG impacts.

Air Quality - Construction

During construction, applicable BMPs to control dust, vehicle and equipment emissions would be implemented. The UW Bothell and CC would coordinate with adjacent sensitive users to temporarily duct and protect air intakes to minimize the potential for the intake of fugitive dust and exhaust fumes.

- Building construction and demolition would be conducted in compliance with the *City of Bothell Design and Construction Standards and Specifications Manual*.

- Where appropriate, temporary asphalt roadways would be provided at development sites to reduce the amount of dust and dirt that would be generated.

- As applicable, a Construction Management Plan would be prepared for each individual construction project to establish parking areas, construction staging areas, truck haul routes, and provisions for maintaining pedestrian and vehicle routes. These measures are intended to, among other things, minimize traffic delays and associated vehicle idling.

- As applicable, control measures in the Washington Associated General Contractors *Guide to Handling Fugitive Dust from Construction Projects* would be used, including:
    - using only equipment and trucks that are maintained in optimal operational condition;
    - implementing restrictions on construction truck and other vehicle idling (e.g., limit idling to a maximum of 5 minutes);
    - spraying exposed soil with water or other suppressant to reduce emissions of and deposition of particulate matter;
    - covering all trucks transporting materials, wetting materials in trucks, or providing adequate freeboard (space from the top of the material to the top of the truck bed), to reduce particulate matter emissions and deposition during transport;
    - providing wheel washers to remove particulate matter that would otherwise be carried off-site by vehicles in order to decrease deposition of particulate matter on area roadways; and
    - covering dirt, gravel, and debris piles as needed to reduce dust and wind-blown debris.

Air Quality - Operations

- Implementation of the proposed Transportation Management Plan would reduce vehicle trips and associated vehicle emissions.

- Laboratory fume hoods would be provided within laboratory areas and would be regulated and inspected by the UW Bothell and CC.

Greenhouse Gas Emissions

- Implementation of the proposed Transportation Management Plan would reduce vehicle trips and associated GHG emissions.

- The UW Bothell and CC would embrace sustainability as an objective for all development on campus, including LEED provisions. Key measures that could be explored include:
  - installation of high performance glazing with low-E coatings to further reduce heat gain;
  - maximizing use of outside air for heating, ventilating, and air conditioning;
  - installation of efficient light fixtures, including occupancy and daylight sensors, as well as nighttime sweep controls;
  - use of low VOC emitting materials for finishes, adhesives primers and sealants;
  - incorporation of recycled content and rapidly renewable materials into project designs, including: concrete, steel and fibrous materials (bamboo, straw, jute, etc.); and,
  - salvage of demolished material and construction waste for recycling.

Significant Unavoidable Adverse Impacts

With implementation of the mitigation measures identified above, no significant unavoidable adverse impacts on air quality would be anticipated under all of the Alternatives. Climate change and other issues associated with GHG emissions is a global issue, and it is not possible to discern the impacts of the GHG emissions from a single campus master plan.

Wetlands and Plants/Animals

Mitigation Measures

The proposed *Campus Master Plan* includes goals and objectives to create a more sustainable environment and retain existing, significant campus open spaces, landscapes and natural features to the extent feasible. No development would occur within the North Creek Stream and Wetland Area. In addition to compliance with applicable regulations related to construction and operations, the following potential measures are intended to further reduce the potential for wetland, plant or animal impacts.

- All development would comply with federal, state and local regulatory standards (including BMC 14.04 regulations related to critical areas and wetlands) for development and mitigation BMPs could include: site disturbance controls,

construction staging, erosion and spill control, drainage control (water quantity and quality), vegetation retention and re-vegetation plans, and BMP training and monitoring.

- In the event that a specific project would result in a direct impacts to the wetlands in Development Areas C and D, a wetland delineation survey would be completed to facilitate a determination of the extent to which theses wetlands were accounted for as part of the North Creek Stream and Wetland Area Restoration Project. Any direct impact to wetlands or wetland buffers not accounted for under the North Creek Stream and Wetland Area Restoration Project would comply with applicable critical areas and wetland requirements (including BMC 14.04).

- Plant and animal mitigation opportunities include impact avoidance (e.g., working when fish species are not particularly sensitive to disturbance or avoiding identified terrestrial habitats), stormwater drainage control, site and construction best management practices (BMP), site design (including vegetation retention and landscaping), and habitat enhancement or restoration, as feasible. Planned development would be sensitive to areas that are proximate to the North Creek Stream and Wetland Area.

- As specific projects are defined and sites are selected, the campus would perform an evaluation of existing trees to inform the project design team of trees that are considered significant, in an effort to preserve and maintain these trees to the extent feasible. Documentation of trees removed due to construction activities would be tracked on a campus-wide basis.

- Trees that must be removed to accommodate potential projects would be replaced consistent with provisions of the Bothell Municipal Code (BMC 12.18.030).

- A temporary soil erosion and sedimentation control plan and a drainage control plan would be implemented to mitigate construction-related impacts.

- Landscaped areas affected by construction staging or parking would be restored to their existing condition or better following construction.

- Stormwater controls would be applied during construction activities and over the long term. These controls and BMPs would control on-site erosion and transport of sediment and pollutants off site, by minimizing disturbance, stabilizing unworked materials, applying vegetative or mulch controls, and implementing other controls to reduce and treat contaminants in drainage water.

- Vegetation controls would continue to include an Integrated Pest Management Plan and a revegetation plan that emphasizes the propagation of native vegetation.
- Additional interpretative or education materials would be developed or made available to foster an appreciation of campus wetlands to help limit unnecessary disturbance or destruction of native vegetation or wildlife.

Significant Unavoidable Adverse Impacts

With implementation of the mitigation measures identified above, no significant unavoidable adverse impacts to wetlands, plants or animals would be anticipated under the EIS Alternatives.

Energy Resources

Mitigation Measures

The proposed *Campus Master Plan* includes goals and objectives to create a more sustainable environment that would build upon conservation measures that have already been implemented on campus as part of the CACES. These policies would guide future campus development and would indirectly relate to the overall energy demand. In addition to compliance with applicable regulations related to construction and operations, the following potential measures are intended to further reduce the potential for energy demand impacts.

- New facilities would comply with applicable energy codes, including the *2015 International Energy Conservation Code* as adopted by the City of Bothell (BMC 20.04.125).
- Because the UW Bothell and CC must operate and maintain the facilities on a long-term basis, the economics of energy management and conservation are a primary design consideration. A standard of practicality must also be applied that assures that the building designs can be maintained properly. Sophisticated monitoring systems are available to assure efficient operations.
- As plans for development of facilities are developed, the UW Bothell and CC Design Team would contact PSE customer services to confirm specific requirements for service.
- Aggressive energy conservation measures could continue to be studied and implemented on campus.
- Adopt Leadership in Energy and Environmental Design (LEED) standards for all new development to increase building sustainability in all state funded projects.

Significant Unavoidable Adverse Impacts

New campus building development under the *Campus Master Plan* would increase the consumption of electricity and natural gas on the campus. With the implementation of identified mitigation measures, significant energy demand impacts are not anticipated.

Environmental Health

Mitigation Measures

The following measures would be available for development under the *Campus Master Plan* to minimize potential environmental health impacts.

Hazardous Materials

- Future development projects under the *Campus Master Plan* would verify the presence, use and/or potential generation of hazardous materials on the project site prior to development.

- Hazardous materials generated and used on campus would continue to be managed in accordance with existing policies/standards established by the Environmental Health and Safety Department, as well as applicable local, state and federal standards/regulations.

Noise

- For each new development project, construction activities would comply with the City of Bothell Noise Ordinance requirements (BMC 8.26).

- The UW Bothell and CC also have additional conditions/considerations that project-specific campus contractors meet the following noise control criteria:

    - The sound pressure level of construction noise inside adjacent buildings and/or rooms cannot exceed 60 dBA (with windows closed) between the hours of 8 AM and 5 PM on week days. Barriers can be erected between construction activities and such interior areas, or equipment noise attenuators can be provided.
    - The use of electric equipment and machinery is preferred. If noise levels on any equipment or device cannot reasonably be reduced to criteria levels, either that equipment or device will not be allowed on the job or use times will have to be scheduled subject to approval.
    - The sound pressure level of each piece of equipment cannot be greater than 85 dBA at a distance of 50 feet. Rubber-tired equipment is to be used whenever possible instead of equipment with metal tracks. Mufflers for

stationary engines are to be used in the hospital areas. Construction traffic should be routed through nearest campus exit.
- Air compressors are to be equipped with silencing packages
- Jack hammers and roto hammers may be used where no other alternative is available; core drilling and saw cutting equipment is preferred.

- Potential future development projects under the *Campus Master Plan* that are located in areas that are proximate to noise-sensitive uses (i.e., existing academic uses on campus or existing off-campus residential uses) would require project-specific coordination with adjacent noise-sensitive users to determine potential noise-related issues associated with development on those sites and could require additional noise analysis and mitigation measures (if necessary).

Significant Unavoidable Adverse Impacts

In the event that research/laboratory uses are development on campus, it is also anticipated that an increase in hazardous materials storage and use would occur. During construction activities, some temporary noise impacts would occur adjacent to development sites. Operation noise on campus would also increase with new development and additional campus population. However, with the implementation of the mitigation measures identified above, no significant unavoidable adverse environmental health impacts are anticipated.

Land Use

Mitigation Measures

The following measures would minimize potential land use impacts that could occur with the implementation of the *Campus Master Plan*.

- Construction activities would comply with the City of Bothell Design and Construction Standards and Specifications Manual to minimize impacts from dust, emissions and construction-related stormwater, as well as the City of Bothell Noise Ordinance (BMC 8.26) regarding construction-related noise. See Section 3.2 **Air Quality**, Section 3.5 **Environmental Health**, and Section 3.11 **Public Services and Utilities** for further details.

- Existing open space areas (North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path) would be retained to minimize potential land use impacts.

- The provision of building setbacks (including landscape buffers) would be provided immediately adjacent to off-campus single family residential uses to the west of campus (Development Areas A, B and C) to minimize potential land use impacts to off-campus residences.

- Increases in density under the *Campus Master Plan* would be minimized through the implementation of the proposed general policies and development standards for the campus (including those standards identified within the *Campus Master Plan*).

- New opportunities for potential open space areas and landscapes would be provided as part of building development under Alternatives 1 – 3.

Significant Unavoidable Adverse Impacts

Under Alternatives 1 through 3 intensification in land uses on the campus would occur as a result of the increased density that would be provided under the *Campus Master Plan*. Increased density on the campus would also result in increases in activity levels on the campus. The greatest potential for increases in development would occur in Development Areas A, B and F under Alternative 1; Development Areas B, E and F under Alternative 2; and, Development Areas B, C, D, E and F under Alternatives 3. With implementation of the mitigation measures identified above, no significant unavoidable adverse land use impacts would be anticipated under the EIS Alternatives.

Population and Housing

Mitigation Measures

No direct population-related mitigations measures would be necessary. Mitigation associated with indirect population impacts identified above are discussed under their respective sections.

Alternatives 1 – 3 identify approximately 600 to 1,200 new student beds on-campus over the life of the plan that would allow the UW Bothell to house a higher percentage of students in on-campus facilities compared to existing conditions and minimize potential off-campus housing demand associated with new students. Additional growth in students, faculty and staff would not be anticipated to result in significant housing impacts to the private housing market in the surrounding areas and region, and no additional mitigation measures would be necessary.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to population or housing are anticipated.

Aesthetics

Mitigation Measures

- Potential future development projects would be consistent with the proposed general policies and development standards for the campus (including those standards identified within the *Campus Master Plan*).

- The existing UW Bothell and CC design review processes for the campus (architectural, landscaping and environmental review) would continue to review all building projects on campus and consider views as part of individual projects, as necessary.
- Existing open space areas (i.e., North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path) would be retained, and new green, urban open spaces would also be included as part of new building development which would help enhance the aesthetic character surrounding new buildings.
- The provision of building setbacks (including landscape buffers) would be provided immediately adjacent to off-campus single family residential uses to the west of campus (Development Areas A, B and C) to minimize potential aesthetic impacts to off-campus residences.

Significant Unavoidable Adverse Impacts

Development under the *Campus Master Plan* would result in changes to the aesthetic character of the campus, including new building development and increased density. The aesthetic/visual changes that would result under Alternatives 1 – 3 could be perceived by some to be significant; however, perception regarding such changes would ultimately be based on the subjective opinion of the viewer. The implementation of general policies, development programs, and development standards in the *Campus Master Plan* are intended to mitigate the change in aesthetic character on the campus.

Recreation and Open Space

Mitigation Measures

The following measures would minimize potential recreation and open space impacts that could occur with the implementation of the *Campus Master Plan*.

- The *Campus Master Plan* includes substantial open space and recreation areas that would be retained on the campus, including the Sports and Recreation Complex (existing fields and courts), the ARC building, the 58-acre North Creek Stream and Wetland area (including the North Creek Trail), and various open spaces/gathering spaces adjacent to existing buildings on campus (including plazas associated with Discovery Hall and Mobius Hall, as well as the Crescent Path).
- New building development projects under the Campus Master Plan would include new green, urban open space areas as part of development to create spaces for passive recreation.

- Additional maintenance staff and acquisition of equipment for existing recreational facilities could be needed to effectively address the increase in use of active and passive recreational resources.

Significant Unavoidable Adverse Impacts

With proposed mitigation measures, significant unavoidable adverse impacts to recreational and open space resources are not expected to occur.

Historic and Cultural Resources

Mitigation Measures

The following measures would be available for development under the *Campus Master Plan*.

Historic Resources

- The UW Bothell and CC's existing internal design review processes would continue to review and authorize major building projects in terms of siting, scale, and the use of compatible materials relative to recognized historic structures.

- The UW Bothell and CC would continue to follow the Historic Resources Addendum (HRA) process for all proposed projects that include exterior alterations to buildings over 50 years old, or are located adjacent to buildings or features over 50 years old. The HRA is intended to insure that important elements of the campus, its historic character and value, environmental considerations and landscape context are valued.

- The potential for indirect impacts to on-campus and identified off-campus historic resources associated with construction noise, dust, and pedestrian/bicycle circulation distribution would be mitigated by the following the measures identified in Sections 3.2 (Air Quality), 3.5 (Environmental Health) and 3.13 (Transportation).

- Development under Alternative 2 would require the relocation or demolition of the existing Truly House. As part of the development process, the potential to relocate Truly House would be explored, including the consideration of a suitable new location on-campus or a potential off-campus location.

- If the Truly House were to be demolished as considered under Alternative 2, the building would be evaluated by a salvage contractor, and applicable building elements and materials would be salvaged and made available for reuse.

Cultural Resources

- If a project is proposed in an area identified as having moderate risk to contain cultural resources, then the project would follow pertinent cultural resources regulations, including the preparation of an IDP.
- If a project is located in an area identified as having a high risk for containing cultural resources, the project would follow pertinent cultural resources, including the preparation of an IDP and archaeological monitoring during ground disturbance activities.
- If a project is located in an area identified as having a very high risk for containing cultural resources, the project would follow pertinent cultural resources regulations, including an archaeological survey.
- Noticing and coordination with Native American tribes will take place on projects conducted by the UW Bothell or CC as the lead agency under the State Environmental Policy Act (SEPA) and/or Governor's Executive Order 05-05.

Inadvertent Discovery of Archaeological Resources

- In the event that archaeological deposits are inadvertently discovered during construction of a potential development site, ground-disturbing activities would be halted immediately, and the UW Bothell and/or CC would be notified. The UW Bothell and/or CC would then contact DAHP and the interested Tribes, as appropriate, and as described in the recommended inadvertent discovery plan.

Discovery of Human Remains

- Any human remains that are discovered during construction at a potential development site would be treated with dignity and respect.
    - If ground-disturbing activities encounter human skeletal remains during the course of construction, then all activity that may cause further disturbance to those remains must cease, and the area of the find must be secured and protected from further disturbance. In addition, the finding of human skeletal remains must be reported to the county coroner and local law enforcement in the most expeditious manner possible. The remains shall not be touched, moved, or further disturbed.
    - The county coroner will assume jurisdiction over the human skeletal remains, and make a determination of whether those remains are forensic or non-forensic. If the county coroner determines the remains are non-forensic, they

will report that finding to the DAHP. DAHP will then take jurisdiction over those remains and report them to the appropriate cemeteries and affected tribes. The State Physical Anthropologist will make a determination of whether the remains are Indian or non-Indian, and report that finding to any appropriate cemeteries and the affected tribes. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

Significant Unavoidable Adverse Impacts

Campus development under EIS Alternatives 1 – 3 and No Action – Scenario B would occur within the context of a campus with a historic building (Chase House) and potentially historic building (Truly House). Demolition or relocation of the Truly House under Alternative 2 would not be considered to result in a significant historic resources impact.

Development under the EIS Alternatives would also be located in portions of areas that could have a moderate to very high risk for encountering archaeological resources. With implementation of the identified mitigation measures, no significant adverse impacts are anticipated.

Public Services and Utilities

Mitigation Measures

The following measures would minimize potential public service and utility impacts that could occur with development under the *Campus Master Plan*.

- All potential future development under the *Campus Master Plan* would be constructed in accordance with applicable *City of Bothell Fire Code* requirements and would include fire alarms and fire suppression systems in accordance with applicable standards.
- During the construction process for potential future development, Bothell Fire & EMS would be notified of any major utility shutdowns or campus street closures/detours.
- In the case of an emergency, during the construction process for potential future development, the BPD could provide police escort services for fire and emergency service vehicles.
- The designs of specific development projects would be reviewed for potential life/safety and personnel security issues.
- The Campus Safety Department would increase its staff capacity and expand operations, as necessary, to meet the increased security needs associated with development and increased population under the *Campus Master Plan*.

- New campus development would be designed to be consistent with the applicable provisions of the *City of Bothell Design and Construction Standards and Specifications - Surface Water Design Manual*.
- As part of the UW Bothell and CC's commitment to environmental protection and sustainability, potential future development projects would continue to consider the use of sustainable features that would result in the efficient use of resources and minimize impacts on utilities.

Significant Unavoidable Adverse Impacts

Potential future development and the associated increase in campus population under the *Campus Master Plan* would result in an increase in demand for fire and emergency services, police services and utilities on the campus. With the implementation of mitigation measures identified above, significant unavoidable impacts to public services and utilities would not be anticipated.

Transportation

Mitigation Measures

Proposed Transportation Management Program

With the goal of reducing reliance on single-occupancy vehicles (SOV) trips to the UW Bothell/CC campus, the Commuter Services Department currently provides transportation resources to students and faculty. Transportation impacts would continue to be mitigated through the implementation of the Transportation Management Program (TMP) to reduce overall SOV traffic and parking needs for the campus. Specific strategies would continue to be refined annually.

Other potential TMP strategies include, but are not limited to, maintenance or enhancements to programs related to:

- U-PASS
- Transit
- Parking Management
- Pedestrian and Bicycle Travel
- Telecommuting

Potential Roadway Improvements

The current PUD conditions with the City of Bothell require additional road right-of-way along the Beardslee Boulevard frontage (east of 110th Avenue NE) for future dedication sufficient to accommodate final road widening, as determined by the Director of Community Development and Public Works. In addition, a 10-foot wide utility easement is required adjacent to the new right-of-way on the campus side of Beardslee Boulevard. The agreement also notes that some of the additional right-of-way to be reserved is constrained by the wetland restoration which was required as part of the original campus development. Given the limits of the existing proposed *Campus Master Plan*, the right-of-way dedication could extend along the Husky Village frontage. Mitigation of project-related impacts along Beardslee Boulevard could include:

- Dedication of right-of-way for the City to provide improvements, or
- Payment of transportation impact fees (see discussion below)

Transportation Impact Fees

Development of the *Campus Master Plan* would require payment of the City of Bothell and Snohomish County transportation impact fee to mitigate potential off-site impacts of the proposal. Transportation impact fees are assessed based on increases in student FTE associated with the development of buildings on-campus. Impact fees would be calculated at the time of permitting for specific campus buildings.

Significant Unavoidable Adverse Impacts

Development of the *Campus Master Plan* and increase in on-campus population to up to 10,000 student FTE by the year 2037 would result in increases in all travel modes – vehicles, transit, pedestrians, and bicycles. It is anticipated that with the proposed mitigation there would be no specific significant and unavoidable impacts related solely to campus growth.

The SR 522/Campus Way NE intersection would operate at LOS F under the No Action Alternative – Scenario B and Alternatives 1 through 3, and potential improvements at this location are limited due to right-of-way constraints. This is considered a cumulative significant and unavoidable adverse impact that would likely occur with or without the proposed *Campus Master Plan*.

As noted in the analysis of vehicle operations, the SR 522/Campus Way NE intersection is forecasted to operate at LOS F under all No Action Alternative conditions during the weekday AM peak hour. Congestion and poor intersection operations are largely due to growth along SR 522 as shown in the evaluation of the No Action Alternative – Scenario A conditions where campus growth is limited. On-going TMP measures implemented by the Campus would reduce overall campus trip generation and reduce related impacts at this intersection.

CHAPTER 2

Description of Proposed Action and Alternatives

CHAPTER 2

INTRODUCTION AND DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter of the Draft Environmental Impact Statement (EIS) provides a discussion of the planning activities conducted in support of the proposed *Campus Master Plan* for the University of Washington Bothell (UW Bothell) and Cascadia College (CC), information on the campus and surrounding area, and a description of the *Campus Master Plan* EIS Alternatives (Alternatives 1 through 3). A description of the No Action Alternative is also provided in this chapter. A detailed description of the affected environment, environmental impacts, mitigation measures and significant unavoidable adverse impacts is provided in **Chapter 3** of this Draft EIS.

2.1 PROJECT LOCATION

The campus encompasses an area of approximately 135 acres[1]. As shown in **Figures 2-1** and **2-2**, the campus is located in the City of Bothell within the eastern portion of downtown Bothell; west of I-405, north of SR-522, and south of Beardslee Boulevard.

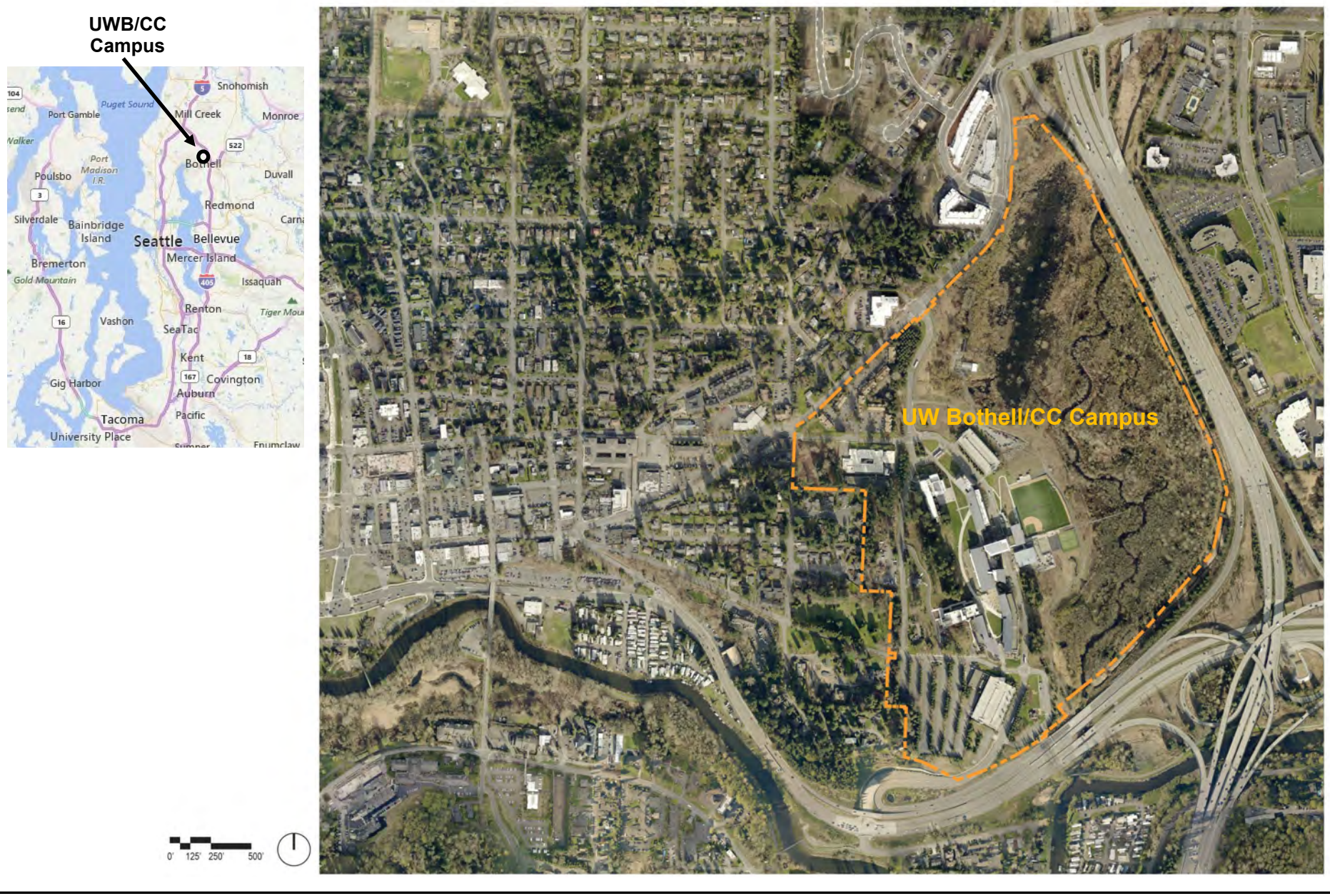
2.2 PROJECT SUMMARY

As described in detail in **Chapter 3** of this Draft EIS (Historic and Cultural Resources), the campus development has occurred over the last approximately 20 years. The previous Master Plan and associated Planned Unit Development prepared for the University and College over this timeframe have influenced campus decision-making in terms of the siting of buildings, location of open space, and provision of circulation systems. Building on the previous master planning efforts, the University of Washington Bothell and Cascadia College have determined that a new plan for the campus is necessary to meet anticipated growth and identified goals for the next 20-year planning horizon.

2.3 ENVIRONMENTAL REVIEW AND PURPOSE

Consistent with the provisions of the State Environmental Policy Act (SEPA) (RCW 43.21C and WAC 197-11-050), the University of Washington is serving as the lead agency under SEPA (WAC 478-324-010 through -230) for the new *Campus Master Plan*.

[1] *Includes the approximately 128 acres associated with the original campus and approximately seven (7) acres associated with subsequent acquisition of the Husky Village and Marvin properties.*



Source: Mahlum Architects. and Bing Maps, 2017.

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Figure 2-1
Vicinity Map

Note: This map is not to scale.

Source: UW Bothell and CC, 2017.

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Figure 2-2
Campus Map

In November 2016, the University of Washington Bothell and Cascadia College began the formal environmental review process for the *Campus Master Plan*. As lead agency under SEPA, the University of Washington determined that implementation of the *Campus Master Plan* would result in the potential for significant impacts and that an EIS should be prepared. The process was initiated by gathering public and agency input regarding specific topics and issues that should be analyzed as part of this EIS.

On October 31, 2016, the University of Washington issued a Determination of Significance and initiated the scoping process for this EIS. From October 31 through November 29, the University conducted the scoping comment period during which the public, public agencies and tribes were encouraged to provide input regarding the scope of the EIS. During the scoping period, 12 comment letters and emails were received. The University of Washington Bothell and Cascadia College held a public scoping meeting on November 14, during which public input was received.

Based in part on the input received during the scoping period, the scope of the EIS was defined. The following environmental elements were identified for analysis in the EIS[2].

- *Earth*
- *Air Quality and Greenhouse Gases*
- *Wetlands/Plants and Animals*
- *Energy*
- *Environmental Health*
- *Land Use/Relationship to Plans & Policies*
- *Population and Housing*
- *Aesthetics*
- *Recreation and Open Space*
- *Historic and Cultural Resources*
- *Public Services/Utilities*
- *Transportation*

This EIS is intended to address the probable significant adverse impacts that could occur as a result of approval and implementation of the *Campus Master Plan* by the University of Washington Board of Regents, Cascadia College Board of Trustees and the City of Bothell of the *Campus Master Plan* and the Development Agreement that would implement it. Three action alternatives and the No Action Alternative are analyzed in this EIS (see **Section 2.8** later in this chapter) that are intended, in part, to: **1)** encompass a range of focuses for campus development that can reasonably accommodate the projected building space needs; and, **2)** meet the identified campus master plan goals and objectives. The alternatives function to provide representative levels and locations of campus development for analysis in this EIS.

The *Campus Master Plan* and its implementing Development Agreement are together classified under SEPA as a project action, because together they will authorize the development set forth in the *Campus Master Plan*. When development is proposed that is consistent with the *Campus Master Plan*, additional SEPA review will occur when appropriate

[2] Conditions associated with construction and operation of development under the EIS Alternatives will be analyzed for each of the elements.

under Section 191-11-600 of the SEPA Rules, but the impacts of development approved in the *Campus Master Plan* and Development Agreement are identified and analyzed in this EIS.

As the SEPA lead agency, the University of Washington is responsible for ensuring SEPA compliance.

2.4 BACKGROUND

The following provides an overview of the campus and includes a brief historical perspective of development; a description of enrollment/staffing; and an overview of the master planning process.

University of Washington Bothell/Cascadia College Campus History

In 1989, the Washington State Legislature authorized the creation of two campuses of the University of Washington, including one to be located in the Bothell/Woodinville area and the other in Tacoma. In 1990, the State Board of Community and Technical Colleges (SBCTC) identified the area of north King County and south Snohomish County as the area of greatest recent growth and least access to a community college. Site selection and planning studies for the University of Washington Bothell (UW Bothell) campus were conducted concurrently with the site selection process for a new community college (now referred to as Cascadia College - CC). In 1993, subsequent to these planning studies, the Higher Education Coordinating Board (HECB) recommended the new community college be collocated with the UW Bothell branch campus. Three sites were evaluated for the collocated campus and in 1994, HECB selected and acquired the property for the new collocated campus and began campus planning activities for the campus at the Bothell location. Construction of the campus started in 1998 and classes began at the new campus in 2000. In 2005, the Washington State Legislature authorized the UW Bothell to transition from a two-year branch campus to a four-year university.

Previous Environmental Review

In 1995, a Draft EIS and Final EIS (1995 EIS) were issued for the previous campus master plan. The Draft EIS analyzed four action alternatives for the collocated campus, with the primary difference between them being the treatment of North Creek and its associated wetlands and floodplain. Each alternative included approximately 1,143,800 gross square feet of campus buildings. Alternative 1 (Preferred Alternative) analyzed the return of North Creek to its original floodplain and provided 4,200 parking spaces; Alternative 1a was similar but provided approximately 6,600 parking spaces. Alternative 2 assumed the retention of North Creek in its existing location and approximately 4,200 parking spaces; Alternative 2a was

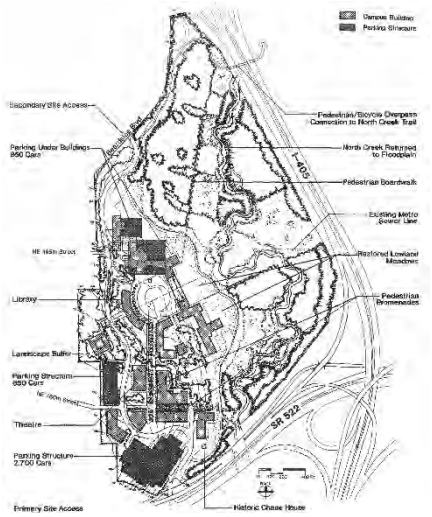
similar to Alternative 2, but provided approximately 6,600 parking spaces. The Preferred Alternative analyzed environmental impacts associated with campus development that would accommodate approximately 10,000 full-time equivalent (FTE) students within the approximately 1,143,800 gross square feet of campus buildings.

The following environmental elements were analyzed in the 1995 EIS:

- *Earth*
- *Air*
- *Water and Wetlands*
- *Plants and Animals*
- *Environmental Health*
- *Land and Shoreline Use*
- *Relationship to Plans and Policies*
- *Population and Housing*
- *Light, Glare, and Shadows*
- *Aesthetics and Scenic Resources*
- *Historic and Cultural Resources*
- *Agricultural Crops*
- *Transportation*
- *Public Services*
- *Utilities*

Campus Master Plan

In conjunction with the 1995 EIS process, a campus master plan and associated preliminary planned unit development (PUD) were approved by the City of Bothell in 1996. Under the master plan, the western portion of the campus (approximately 69 acres) consisted of college buildings of approximately 1,143,800 square feet in floor area; between 4,200 and 6,600 parking spaces; two formal promenades and a secondary trail system for pedestrian and bicycle access from parking and transit areas; and, interior open spaces and exterior buffers. The eastern portion of the campus (approximately 58 acres) was proposed for environmental restoration and enhancement of North Creek and its associated floodplain and wetland system (including relocation of North Creek to its natural meander); stream crossings; observation points; and, onsite trails and regional trail connections.



1995 Campus Master Plan

Primary vehicular access to the campus was from the south end of campus at a new intersection on SR-522, which was anticipated to include a grade-separated crossing, new traffic signals, turn lanes and bridge structures; development of this access point was assumed to occur after Phase 1. Secondary vehicular access was assumed to be provided from Beardslee Boulevard to the north. Primary transit access to the campus was from

Beardslee Boulevard, including transit stops/shelters on campus and pedestrian/bicycle access into the campus.

Campus buildings were identified to be primarily between two- and four-stories in height and would be located along the proposed promenades. Parking structures were to be located on the periphery of the site to allow for a contiguous academic campus landscape that is unobscured by pedestrian/vehicular conflicts. A series of informal paths were planned to link buildings throughout the campus and would offer campus pedestrians an option to get to their destination. As described in the 1995 EIS, campus buildings were generally to be located in the upland western portion of the campus, and the specific building placement and configuration could be reasonably adjusted to accommodate for future flexibility.

Development under Prior Campus Master Plan

Subsequent to the issuance of the 1995 EIS and approval of the initial Planned Unit Development (PUD[3]) for the collocated campus, in 1998 the development process for Phase 1 of the campus was initiated and included the development of three buildings: the UWB1 building, the CC1 building; and, the LB1 building (shared campus library). In addition to building development, Phase 1 also included the restoration of North Creek and associated wetland and floodplain area. Trails, observation points, sewer, water and storm drainage extensions and improvements, central plant and utility infrastructure, surface parking, and access from Beardslee Boulevard were also provided under Phase 1.

Phase 2A of campus development was completed in 2001 and included the UWB2 building (Founders Hall), the CC2 building (classrooms and offices for CC), an expansion to the shared campus library, a north parking garage, and a south parking garage. A portion of the campus roadway infrastructure was also completed during Phase 2A, including 110th Avenue NE and a portion of Campus Way NE.

Phase 3 of campus development was completed in 2010 and included the construction of Mobius Hall (CC3). Vehicular access from the south end of campus was also constructed concurrently with Phase 3 development. The new south access was designed in coordination with the Washington State Department of Transportation (WSDOT) and provides access from Campus Way NE and SR-522. Construction of the new south access was completed in January 2010.

Phase 4 of campus development was completed in 2014 and included the development of the Discovery Hall – Science and Academic Building (UWB3) which houses programs for science, technology, engineering and math. In addition to the UWB3 building, Phase 4 also

[3] *Per City of Bothell requirements, each phase of development on the campus requires the approval of a PUD application.*

included the development of a new open space area and plaza, as well as the development of a pedestrian pathway/stairway to the north of UWB3, a pedestrian/service drive to the west of UWB3, and an ADA accessible service drive to the west of the library.

Phase 5 of campus development was completed in 2013 and included the development of the UW Bothell Sports and Recreation Complex, as well as the UW Bothell Sarah Simonds Green Conservatory. The 2.5-acre Sports and Recreation Complex is located east of Campus Way NE and includes a multi-purpose field for soccer, softball, flag football and ultimate Frisbee; two tennis courts; a basketball court; and, a sand volleyball court. Seating, paved pathways, lighting, a scoreboard and storage areas is also provided as part of the complex. The Sarah Simonds Green Conservatory is located at the north end of the campus wetlands and serves as a working educational center for the campus.

Phase 6 was completed in 2015 and included construction of the initial phase of the UW Bothell/CC Activities and Recreation Center (ARC) in the center of campus immediately east of Campus Way NE. The ARC provides fitness/recreation areas, meeting rooms, offices, and student gathering space.

Phase 7 was completed in 2016 and included construction of a surface parking lot at the northeast corner of the NE 180th Street/110th Avenue NE intersection (immediately south of Truly House).

Additionally, in 2011 the approximately 4.4-acre Husky Village property, containing 10 apartment buildings with approximately 240 student-housing beds, was purchased by the UW Bothell. In 2012, the approximately 2.7-acre Husky Hall property, containing the approximately 31,800 gsf Husky Hall building and associated surface parking, was acquired by the UW Bothell[4]. **Table 2-1** provides a summary of the existing building development on the campus.

Table 2-1
EXISTING BUILDING DEVELOPMENT

	Shared Buildings	UW Bothell Buildings	CC Buildings	Total Development
Academic Use	6 Buildings 172,491 sq. ft.	6 Buildings 353,092 sq. ft.	3 Buildings 157,897 sq. ft.	15 Buildings 683,480 sq. ft.
Housing	None	10 Buildings 74,152 sq. ft.	None	10 Buildings 74,152 sq. ft.
Total	6 Buildings 172,491 sq. ft.	16 Buildings 427,244 sq. ft.	3 Buildings 157,897 sq. ft.	25 Buildings 757,632 sq. ft.

Source: UW Bothell and CC, 2017.
Note: The campus also includes two shared parking garage structures that total approximately 391,775 sq. ft.

[4] *The Marvin Property was purchased and Husky Hall was leased with an option to purchase.*

Programs, Enrollment and Staffing

University of Washington Bothell

The University of Washington Bothell is a fully accredited, publicly-funded regional institution of higher education. The University's academic program is divided into five academic schools (containing approximately 45 undergraduate and graduate programs). The University of Washington Bothell schools include the following.

- School of Interdisplinary Arts and Sciences
- School of Business
- School of Science, Technology, Engineering and Math
- School of Nursing and Health Sciences
- School of Educational Studies

As of Fall 2016, the University of Washington Bothell's full-time equivalent (FTE) student population was 5,375.

Cascadia College

Cascadia College is accredited by the Northwest Commission on Colleges and Universities, and offers six associate degrees and one applied bachelor degree. The degrees offered by Cascadia College are listed below.

Associate Degrees

- Integrated Studies
- Science
- Applied Science
- Business
- Pre-Nursing
- Global Studies

Applied Bachelor Degrees

- Applied Science in Sustainable Practices

As of Fall 2016, Cascadia College's FTE population was 2,842.

Master Planning Process

Since approximately 1995, development on the campus has occurred under the provisions of the approved planned unit development (PUD) and associated master planning efforts. The

University of Washington and Cascadia College are now proposing a new master plan to build upon the previous planning efforts, extend the continuity of planning development, and provide a more efficient project review process over the 20-year planning horizon.

The campus master plan process is intended to allow the two institutions, in collaboration with the City of Bothell, community members, and neighbors, to develop a comprehensive approach to campus growth. Major aspects of the plan include: preserving existing natural and campus open spaces, planning for increased academic building space to accommodate forecasted growth and meet academic space benchmarks, providing transportation circulation and parking improvements, providing opportunities for increased student housing opportunities on campus, and encouraging sustainability in the construction and operation of campus facilities.

As an element of the master planning process, the developable portions of campus have been divided into seven Development Areas[5] (Areas A through G). The Development Areas are illustrated in **Figure 2-3** and are briefly described in Section 2.5 (Existing Conditions) that follows.

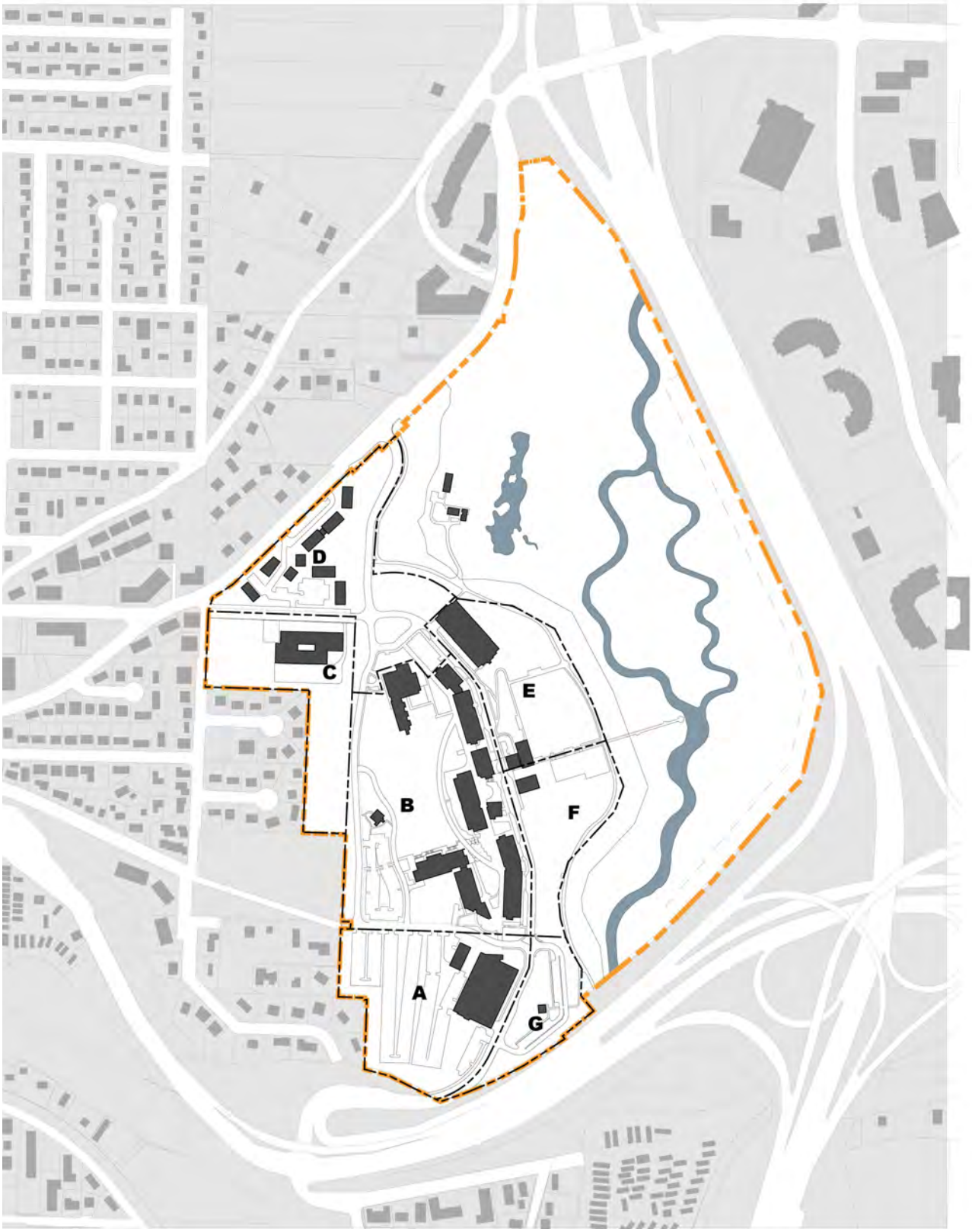
2.5 EXISTING CONDITIONS

Existing Campus

As indicated earlier, the developable portions of campus, those areas that lie outside the wetland and wetland buffer, have been divided into the following seven Development Areas (Areas A through G). The Development Areas have been delineated based on site characteristics that distinguish them from each other, such as topography, soils, existing development, and adjacent uses.

- Development Area A encompasses the southwest corner of the campus and includes the South Parking Garage, Physical Plant Building and surface parking lots south of NE 180th Street. Development Area A is generally bordered by NE 180th Street on the north, Campus Way NE and SR-522 on the south and east, and the campus boundary on the west (adjacent to off-campus single family residences).

[5] *The North Creek Stream and Wetland Area in the eastern portion of campus is not assumed for potential master plan development and is not identified as Campus Areas for planning purposes.*



Note: This figure is not to scale.

Source: Mahlum Architects, 2017.

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

Figure 2-3
CMP Development Areas Map

- Development Area B encompasses the central portion of campus and includes the majority of the existing buildings on campus. In general, UW Bothell buildings are located in the south portion of Area B, CC buildings are located in the north portion and shared buildings are located central to both. Development Area B also includes undeveloped space, a surface parking lot, and the Truly House. This area is generally bordered by 110th Avenue NE on the west, NE 180th Street on the south, Campus Way NE on the east, and the northern edge of Mobius Hall (CC3) on the north.
- Development Area C encompasses the western portion of campus and includes Husky Hall (leased by UW Bothell), and parcels referred to as the Marvin Property and the Development Reserve. Development Area C is generally bordered by 110th Avenue NE on the east, NE 180th Street on the south, the campus boundary on portions of the west and south (adjacent to off-campus single family residences), 108th Avenue NE to the west, and NE 185th Street to the north.
- Development Area D encompasses the northern portion of the campus including primarily Husky Village (acquired by the UW Bothell for student housing) and surrounding roadways and vegetated area. This area also includes the northern entrance to campus from Beardslee Boulevard, 110th Avenue NE. Development Area D is generally boarded by the wetland buffer and the North Creek Trail on the east, Beardslee Boulevard on the north, 108th Avenue NE on the west, and NE 185th Street, Mobius Hall and the North Parking Garage on the south.
- Development Area E encompasses the eastern portion of the campus, north of the pedestrian path leading to the wetlands, including the sports fields (multipurpose baseball and soccer field) and surrounding undeveloped space. It is bordered by Campus Way NE on the west, the wetland buffer and North Creek Trail on the east, the viewing platform path on the south, and the northern edge of the North Parking Garage on the north.
- Development Area F encompasses the eastern portion of the campus, south of the pedestrian path leading to the wetlands, including the undeveloped space and sports courts (tennis, basketball and volleyball courts). This area is generally bordered by the viewing platform path on the north, the wetland buffer and North Creek Trail on the east, Campus Way NE on the west, and NE 180th Street on the south.
- Development Area G encompasses the southeastern portion of the campus including the Chase House and associated driveways/parking and landscaped space in the southern portion of campus. This area is generally bordered by Campus Way NE on the west, NE 180th Street on the north, the wetland buffer and North Creek Trail on the east, and SR-522 on the south.

Surrounding Area

Surrounding Areas to the North of Campus

The area to the north of the campus (adjacent to Development Area D), beyond Beardslee Boulevard, is primarily comprised of single family and multifamily residential uses and commercial/retail uses. A four-story commercial office building is located immediately north of campus at the intersection of Beardslee Boulevard/110th Avenue NE and provides space for off-campus UW Bothell offices, laboratories and classroom space, as well as other commercial office uses. Single-family residences are also located along Beardslee Boulevard, as well as a three-story multifamily apartment building. A fire station for the Bothell Fire Department is also located in this area at the intersection of Beardslee Boulevard/NE 185th Street. Further to the northeast, along Beardslee Boulevard, are additional single family residences and a mixed-use development which includes off-campus UW Bothell offices, commercial office space, retail and restaurant uses, professional services (dentist offices, etc.), and multifamily apartments.

Surrounding Areas to the East of Campus

I-405 is located along the eastern boundary of the campus and separates the campus from existing development to the east. Existing land uses beyond I-405 include a mix of commercial and industrial office park uses, recreation uses, commercial retail uses, hotels, churches, and vegetated areas. One- to three-story commercial and industrial office park buildings and associated surface parking lots are located adjacent to I-405; several multi-story hotels are also located in this area. Further to the east are additional commercial and industrial office park uses, and the North Creek Sports Fields which include four separate sports field complexes that are used by the City of Bothell and other local recreation programs for soccer, baseball, softball and other activities.

Surrounding Areas to the South of Campus

Immediately south of the campus (Development Areas A and G) is SR-522 which provides access to Seattle, Woodinville and I-405. Beyond SR-522 is the Bracketts Landing single-family residential neighborhood, Bracketts Landing Park[6] and the Sammamish River. The area further to the south, beyond the Sammamish River, is primarily comprised of single-family

[6] Bracketts Landing Park is owned by the City of Bothell and is a small pocket park of open space along the Sammammish River.

residential uses, the Riverside Mobile Estates (mobile home park), a senior center, several senior living complexes, and multifamily residential uses.

Surrounding Areas to the West of Campus

The area adjacent to the western boundary of the campus (Development Areas A, B, C and D) is primarily comprised of single-family residential neighborhoods and the Bothell Pioneer Cemetery. Further to the west are single-family residences, multifamily apartment buildings and commercial/retail uses within downtown Bothell.

2.6 MISSION STATEMENT AND PROJECT GUIDING PRINCIPLES (OBJECTIVES)

Mission Statement

The following presents the overall mission statements of the University of Washington Bothell and Cascadia College.

University of Washington Bothell

UW Bothell holds the student-faculty relationship to be paramount. We provide access to excellence in higher education through innovative and creative curricula, interdisciplinary teaching and research, and a dynamic community of multicultural learning.

Cascadia College

Transforming lives through integrated education in a learning-centered community.

Guiding Principles (Objectives)

The *Campus Master Plan* is intended to provide a flexible framework to guide land use, development, and infrastructure investments on campus through close collaboration with the City of Bothell and the community. The guiding principles identify a shared vision for actions and outcomes that meet multiple objectives to ensure land use and capital investment decisions to support the institutional missions of UW Bothell and Cascadia College.

- **Cohesive Campus Character -** The physical setting of the campus expresses the institutional values and commitment to educational excellence with regard to contextual integration within the surrounding community and region. The architectural expression of buildings, landscapes and circulation patterns should be context-driven to enhance the character and quality of the campus while retaining the identity of each

institution and providing a welcoming and user-friendly experience for first time and daily users.

- **Durable and Adaptable Facilities and Infrastructure -** Ongoing demands to maximize the versatility of space must be considered in the design of academic buildings to meet evolving program needs. Buildings should be designed with flexible interiors to allow for the reconfiguration of space over time without major structural or utility modifications and infrastructure should be provided to meet current and future technology needs.
- **Enriched Community Experience -** Providing a vibrant, student-centered campus with ease of access and amenities that encourage the interdisciplinary exchange of ideas and discovery is vital to achieving academic excellence. Maximizing resources and co-location opportunities to meet the needs of commuting and residential students - accessibility of information, social and cultural events, housing, dining, group and individual study, rest and comfort, recreation, physical fitness, and health and wellness – through inclusiveness and equity will enrich the student experience. Providing resources and co-location opportunities for faculty and staff to socially and academically interact with each other and with students will help enhance a culture of innovation and partnership.
- **Enhanced Environmental and Human Health -** UW Bothell and Cascadia College's commitment to environmental protection, sustainability, and the well-being of students, staff, faculty, and the surrounding community is integral to the campus master plan. Energy conservation, natural daylight and ventilation, efficient use of resources, optimization of campus infrastructure, life cycle cost decision-making, preservation of environmentally valuable features, and a mix of vibrant and passive open spaces are all means of enhancing the environmental and human health of campus. The campus' environmental resources and critical habitats will continue to be managed in a manner that promotes academic, research, and partnership opportunities for UW Bothell, Cascadia College, and the community-at-large.
- **Integration with City of Bothell -** Considerations for enrollment growth of UW Bothell and Cascadia College and the physical development of the campus to meet space needs require close collaboration and connectivity with the City of Bothell's long range vision. Development along the edges of campus should complement adjacent uses. Connections between the campus and downtown core should be strengthened.
- **Mobility, Access, and Safety -** Safe, efficient, and effective movement of people and vehicles (including personal, service, emergency, and transit) to and through campus requires regular monitoring and management to adapt to evolving needs. Sufficient and appropriately located parking, transit connectivity, universally accessible pathways, and intentionally designed intersections and crossings are necessary both on and off campus, requiring close collaboration with the City of Bothell and local transit agencies.

2.7 PROPOSED ACTION(S)

Introduction

Building on the 2010 (revised 2011) Campus Master Plan, the 2017 *Campus Master Plan* is intended to extend the continuity of campus planning over the next 20 years. The *Campus Master Plan* will include guidelines and policies for new development on campus, and will be formulated to maintain and enhance the mission of the University of Washington Bothell and Cascadia College, their multiple important roles in associate, undergraduate and professional education, and dedication to research and public service. Implementation of development under the *Campus Master Plan* would occur under a Development Agreement between the University of Washington Bothell, Cascadia College and the City of Bothell.

Guided by the Mission Statements and Guiding Principles provided in **Section 2.6**, the proposed *Campus Master Plan* is also intended to achieve the following development goals over the 20-year planning horizon:

- Accommodate projected increase in the number of students, faculty and staff;
- Meet the academic building space benchmark of 150 gsf per University of Washington Bothell and Cascadia College student;
- Provide opportunities to house between 10 percent and 20 percent of University of Washington Bothell student population (representing 600 beds and 1,200 beds respectively);
- Relocate current off-campus lease uses within 0.25 mile from campus to campus; and,
- Improve multi-modal access to campus from downtown Bothell and beyond, through strategic partnerships.

Campus growth beyond the current approximately 757,700 gsf of total campus building space (including 683,500 gsf of academic space and 74,200 gsf of housing space[7]) is needed to accommodate the projected increase in campus population and other development goals. It is estimated that approximately 907,300 gsf to 1,072,300 gsf of net new building space and 600 to 1,200 total student housing beds will be needed over the 20-year planning horizon[8]. It is also proposed that the approximately 70,700 gsf of off-campus academic space located within 0.25 mile of the campus (located at two locations on Beardslee Boulevard) be relocated to the campus (see **Section 2.8** for a detailed description of the EIS Alternatives).

[7] *Rounded to the nearest 100.*

[8] *Depending on the percentage of students housed on campus and strategy regarding retention of Husky Village units.*

The *Campus Master Plan* includes limitations on maximum building heights and setbacks for buildings from adjacent residential uses. As indicated in **Figure 2-4**, a 65-foot maximum building height would be established for the majority of campus (Development Areas A, B, C, D and G), with a 100-foot maximum height for a portion of campus east of Campus Way NE (Development Areas E and F). Under each of the EIS Alternatives, the provision of landscape buffers and building setbacks would also be established for the portions of campus located adjacent to residential neighborhoods. For example, the western portions of Development Area A adjacent to single family residences along Valley View Road and Circle Drive would contain 45-foot to 60-foot wide building setbacks (including a 30-foot wide landscape buffer), and the western portion of Development Area C adjacent to off-campus residences on NE 182nd Court and NE 183rd Court would contain a 45-foot wide building setback (including a 30-foot wide landscape buffer). See **Figure 2-5** for an illustration of buffers and setbacks under the EIS Alternatives.

The UW Bothell's change from a two-year, primarily commuter school, to a four-year school in 2005 facilitates an opportunity to enhance the community nature of campus and reduce vehicular trips associated with commuter students. Accordingly, the *Campus Master Plan* includes the opportunity to house between 10 to 20 percent of UW Bothell students in on-campus housing facilities. The *Campus Master Plan* includes retention of the North Creek Stream and Wetland Area on campus. This approximately 58-acre area encompassing the eastern portion of the campus contains restored stream and wetland reflecting a native floodplain ecosystem. The existing trail and outlook system would be retained and maintained during the 20-year planning horizon.

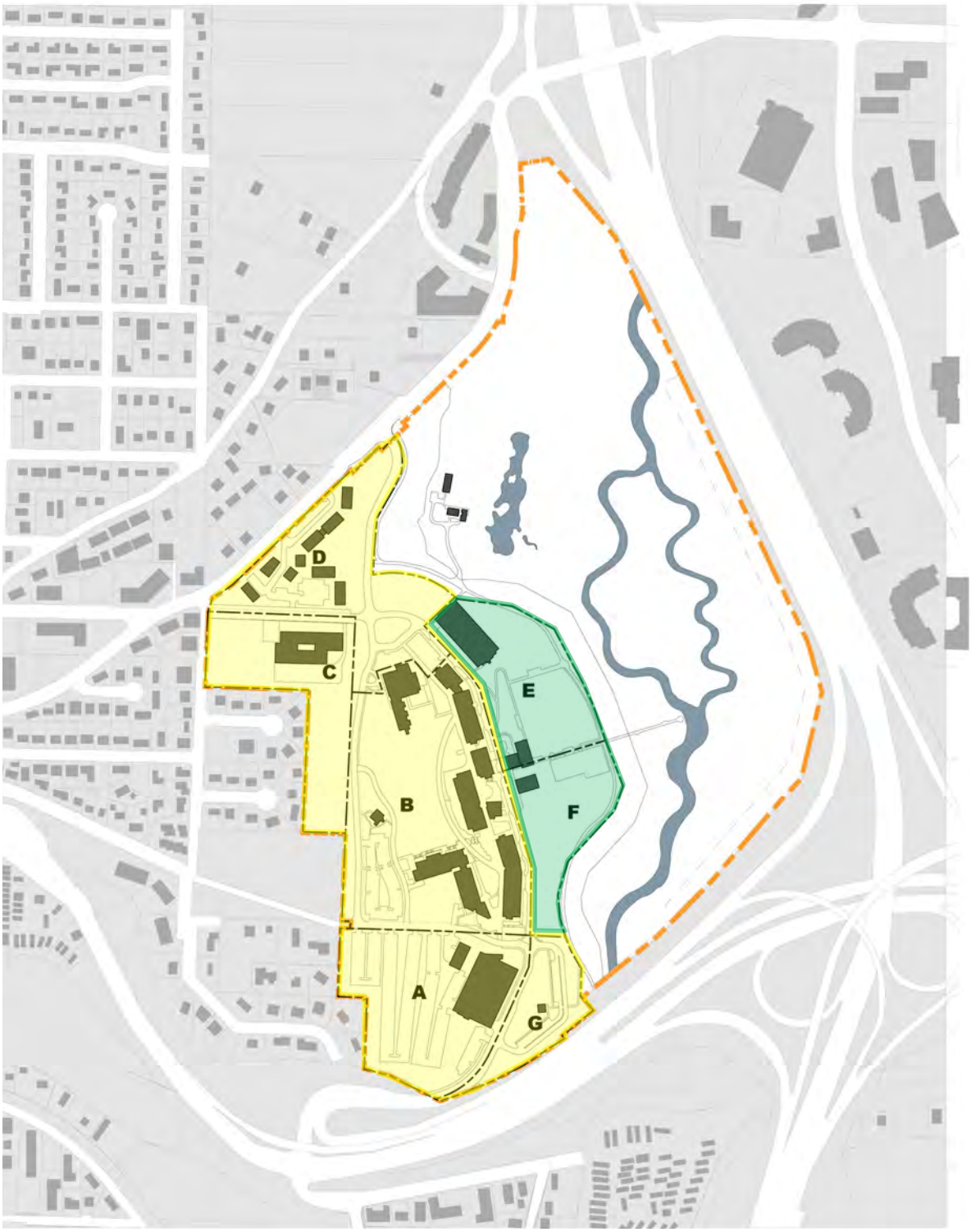
The *Campus Master Plan* provides for a total of 3,700 to 4,200 parking stalls on campus, representing an increase from the current 2,272 parking stalls on campus. Vehicular circulation changes are considered, including the potential to provide a second northern access from Beardslee Boulevard via a realigned 110th Avenue NE, and potential access scenarios for NE 185th Street.

2.8 EIS ALTERNATIVES

EIS Alternatives Summary

As indicated earlier in this chapter, it has been determined through the master planning process that to meet the identified goals and anticipated demand for building space during the 20-year planning horizon of the *Campus Master Plan*, the University of Washington Bothell and Cascadia College would need a net increase of up to approximately 848,300 gsf of net new academic space and approximately 255,800 gsf of net new housing space[9]

[9] *Depending on the percentage of students housed on campus and strategy regarding retention of Husky Village.*



65-foot maximum building height

100-foot maximum building height

Note: This figure is not to scale.

Source: Mahlum Architects and EA Engineering, 2017.

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Figure 2-4

Campus Master Plan Building Heights

Note: This map is not to scale.

Source: Mahlum Architects and EA Engineering, 2017.

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

Figure 2-5
EIS Alternative Landscape Buffers and Setbacks

As SEPA lead agency, the University of Washington is responsible for ensuring SEPA compliance for future projects as they are proposed.

In order to conduct a comprehensive environmental review, three development alternatives (the Action Alternatives) and No Action Alternative have been developed for analysis in this EIS. The No Action Alternative is intended to reflect conditions on the campus if no new master plan is approved, and improvements to address increased campus student, faculty and staff populations are not implemented (two no action scenarios are analyzed).

The EIS Alternatives are formulated to create an envelope of potential development (without having specific building plans) and allow for the analysis of probable significant environmental impacts under SEPA. As indicated above, the alternatives analyzed in this EIS include:

- **No Action Alternative** *(Scenario A - Baseline and Scenario B - Allowed in PUD)***;**
- **Alternative 1** – *Develop Institutional Identity (Southward Growth);*
- **Alternative 2** – *Develop the Core (Central Growth)*; and,
- **Alternative 3** – *Growth along Topography (Northward Growth).*

Alternatives 1, 2 and 3 reflect implementation of the *Campus Master Plan* for campus development and improvements to meet existing space needs on campus and anticipated increased demands associated with growth in student, faculty and staff populations, as well as meeting other goals, over the 20-year planning horizon of the master plan. The No Action Alternative reflects conditions with no master plan under two scenarios (Scenario A – continuation of Existing Conditions, and Scenario B – future campus development reflecting remaining capacity under the original and current PUD). The overall development assumptions under the EIS Alternatives are summarized in **Table 2-2** and **Table 2-3** and include: **1)** on-campus student FTE population; **2)** number of student housing beds; **3)** location of student housing; **4)** assumed level of building development; **5)** location of Corp Yard; **6)** retention of Truly House; and, **7)** amount and location of new parking.

No Action Alternative

Under the No Action Alternative, it is assumed that the demand for increased instructional, research and public service needs in the state of Washington would continue. However, this Alternative would not result in the physical improvements that are proposed as part of the *Campus Master Plan* (as analyzed under Alternatives 1, 2 and 3). Two scenarios are analyzed for this alternative in the Draft EIS: Scenario A (Baseline) – Continuation of existing conditions; and, Scenario B (Allowed in PUD) – future campus development reflecting remaining capacity under the original (Phase 1) and the current PUD as evaluated in the 1995 EIS.

TABLE 2-2
SUMMARY OF EIS ALTERNATIVES LAND USE ASSUMPTIONS

	No Action Alternative – Scenario A	***No Action Alternative – Scenario B***	***Alternative 1 Develop Institutional Identity (Southward Growth)***	***Alternative 2 Develop the Core (Central Growth)***	***Alternative 3 Growth along Topography (Northward Growth)***
Total Student FTE Campus Population	7,040	10,000	10,000	10,000	10,000
Total Student Housing Beds	240	240	1,200	600	600
Existing Building Demolition GSF	0	0	0	3,200[10]	106,000[11]
Total Net New Building GSF	0	386,100	1,072,300	907,300	907,300
Total Campus Building GSF[12]	757,700	1,143,800	1,830,000	1,665,000	1,665,000
Location of New Housing	NA	No new housing	South Campus (Development Area A)	Central Campus (Development Area F)	North/Central Campus (Development Areas D and F)
Location of Corp Yard	Current Location	Current Location	West Central Campus (Development Area C)	Southwest Campus (Development Area A)	South – Near Chase House (Development Area G)
Truly House	Remains	Remains	Remains	Removed or Relocated	Remains
Total Parking (Spaces)	2,272	4,200 – 6,600	3,700	3,700	4,200

Source: Mahlum Architects and the University of Washington, 2017.

[10] *Assumes the demolition of the 3,200 gsf Truly House.*
[11] *Includes demolition of 74,200 gsf Husky Village and 31,800 gsf Husky Hall.*
[12] *Includes existing 757,700 gsf of building space on campus.*

TABLE 2-3
SUMMARY OF NET NEW DEVELOPMENT UNDER THE EIS ALTERNATIVES BY DEVELOPMENT AREA

	Alternative 1 (Southward Growth)	Alternative 2 (Central Growth)	Alternative 3 (Northward Growth)
Development Area A	293,000 GSF	13,400 GSF	0 GSF
Development Area B	340,000 GSF	404,200 GSF	184,200 GSF
Development Area C	10,000 GSF	70,000 GSF	49,600 GSF
Development Area D	53,100 GSF	0 GSF	295,800 GSF
Development Area E	0 GSF	125,000 GSF	125,100 GSF
Development Area F	379,000 GSF	293,000 GSF	244,200 GSF
Development Area G	0 GSF	0 GSF	10,000 GSF

Source: Mahlum Architects, 2017.

Note: Building development assumptions in this table indicate net new building space under the EIS Alternatives for comparison purposes and any differences in total net new campus development under the EIS Alternatives when compared to Table 2-2 are due to rounding.

Scenario A – Baseline Condition

Under Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus. The current number of student FTEs is assumed to remain at 7,040. The current 683,500 gsf of academic space and 74,200 gsf of housing space on campus (total of 757,700 gsf on campus), along with the 70,700 gsf of off-site academic space within 0.25 mile of campus, would remain. No changes to the current vehicular or pedestrian circulation systems, or the amount of parking (current 2,272 spaces), would occur. The approximately 240 student beds associated with Husky Village would remain. Existing natural and recreational open spaces would remain.

Scenario B – Allowed in PUD

Under Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the PUD. Student enrollment of up to 10,000 FTEs on campus is assumed, consistent with the PUD. The approximately 240 student beds associated with Husky Village would remain, although no additional housing beds would be provided.

The current vehicular and pedestrian circulation systems would remain. An on-campus parking supply totaling 4,200 to 6,000 spaces would be provided on campus.[13]

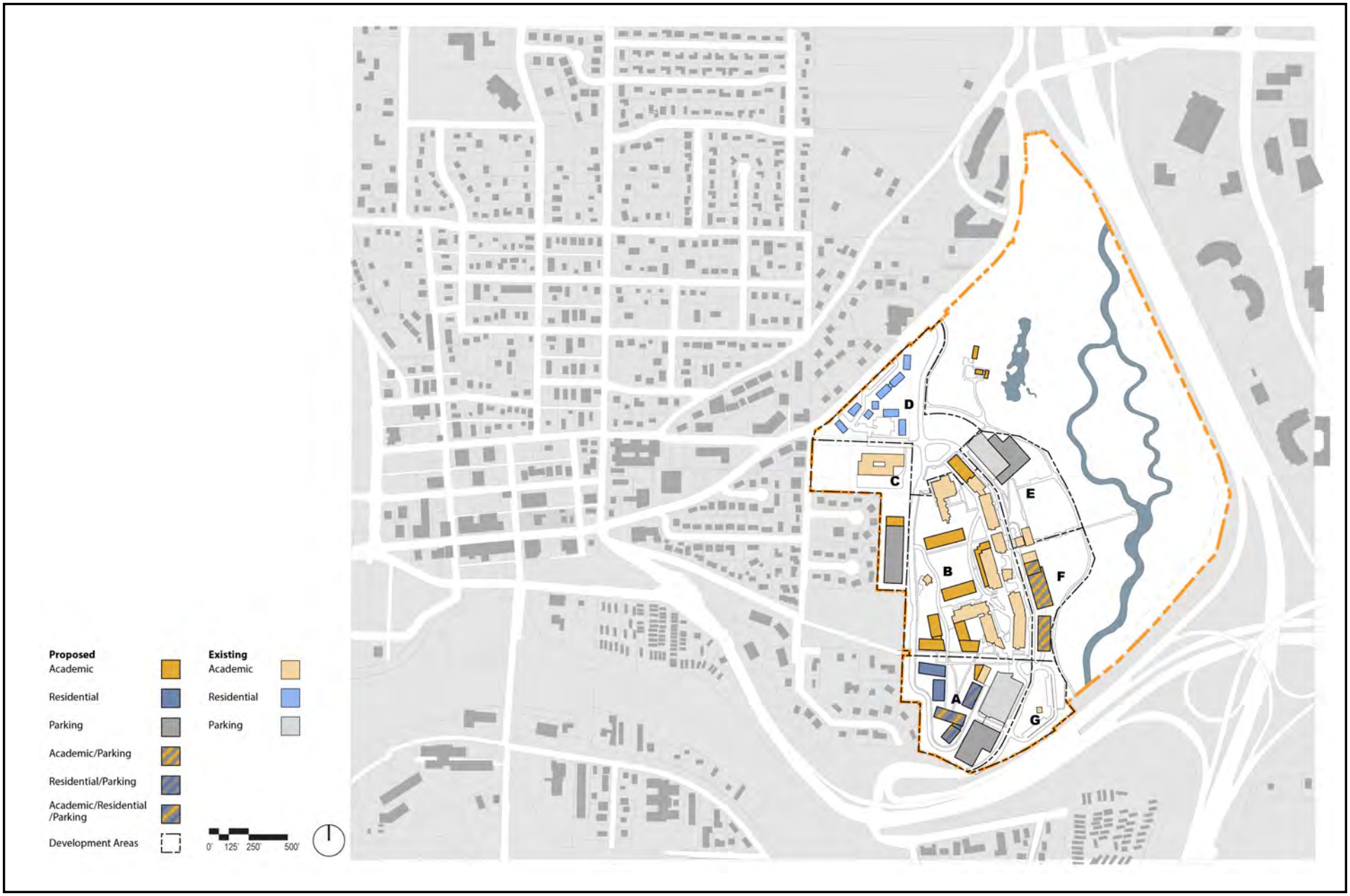
The No Action Alternative under either Scenario A or Scenario B would not meet the UW Bothell and Cascadia College Guiding Principles and development goals.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Introduction

Alternative 1 represents a level of development and improvements on the campus deemed sufficient to meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. This alternative reflects a focus of development in the southwestportion of the campus, with the majority of development assumed for Development Areas A and B (see **Figure 2-6** for a site plan of Alternative 1). Alternative 1 assumes a campus student population of 10,000 FTEs, and a total of 1,200 student housing beds (representing approximately 20 percent of the assumed University of Washington

[13] *The range in parking supply is due to changes in mode split assumptions for the on-campus population*.



Source: Mahlum Architects, 2017.

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Figure 2-6
Alternative 1 Site Plan

Bothell student FTEs). See the discussion below under Building Development and **Table 2-2** for detail.

Under Alternative 1 the existing north campus access from Beardslee Boulevard and existing south campus access would remain as under current conditions. Certain transportation improvements related to access from NE 185th Street, new parking, and internal vehicular and transit circulation would occur. See the discussion below under Vehicular Circulation and Parking and **Table 2-2** for detail.

Building Development

Alternative 1 assumes a net increase in building space on campus of approximately 1,072,300 gsf, for a total of 1,830,000 gsf on the campus over the 20-year planning horizon. Up to 960 new student housing beds would also be provided under Alternative 1 for a total of 1,200 beds over the planning horizon. New academic building space would primarily be clustered in central campus (Development Areas B and F), with some new academic building space immediately west of 110th Avenue NE in Development Area C, and south of NE 180th Street in Development Area A. The new student housing space under Alternative 1 is assumed to be located in the southwestern portion of campus within Development Area A; the existing Husky Village buildings would also be retained in Development Area D.

Under Alternative 1, it is assumed the Corp Yard would be located west of 110th Avenue NE in Development Area C, and the existing Truly House and Chase House would remain.

Open Space

Alternative 1 assumes the retention of the approximately 58-acre North Creek Stream and Wetland Area in the eastern portion of the campus, the approximately 2.9 acres of sports fields in the central portion of campus in Development Areas E and F (including multipurpose field, tennis courts, basketball court and sand volleyball court), and various open spaces/gathering spaces on campus (including plazas associated with Discovery Hall, Mobius Hall and the Crescent Path).

New green and urban open spaces would be provided in association with new buildings, with the majority of new open spaces located in the southwest portion of campus (Development Areas A and B) under Alternative 1.

Vehicular Circulation and Parking

Alternative 1 assumes improvements related to access from NE 185th Street, amount and location of parking, and internal vehicular and transit circulation as described below.

- Access from NE 185th Street - The existing north access to campus from Beardslee Boulevard and south access to campus from SR-522 are assumed to remain unchanged under Alternative 1. The existing emergency access gate on NE 185th Street would be relocated to the west which would result in access to the Husky Hall in Development Area C to be provided from the internal campus roadway system. Access between Husky Village and NE 185th Street would be closed to prevent the potential for cut-through traffic.

- Internal Vehicular and Transit Circulation - Under Alternative 1 it is assumed that NE 180th Street would be realigned further south to accommodate assumed building development, and traffic-calming features would be added to Campus Way NE. It is also assumed that the Transit Center remains in its existing location near the intersection of Campus Way NE and 110th Avenue NE in Development Area D, although the capacity of the Transit Center would be expanded from the current two bays to four bays. Also assumed is the existing comfort station and layover for transit is retained.

- Parking - A total of 3,700 parking stalls would be provided on campus representing an increase of 1,428 stalls compared to existing conditions. Approximately 50 percent of the new parking stalls under Alternative 1 would be located within structures in the southwestern portion of campus (Development Area A)[14]. The remaining approximately 50 percent of the new parking would distributed throughout Development Areas C, E and F[15].

Alternative 2 – Develop the Core (Central Growth)

Introduction

Alternative 2 represents a level of development and improvements on the campus deemed sufficient to meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. This alternative reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F (see **Figure 2-7** for a site plan under Alternative 2). Alternative 2 assumes a campus student population of 10,000 FTEs, and a total of 600 student housing beds (representing approximately 10 percent of the assumed University of Washington Bothell student FTEs). See the discussion below under Building Development and **Table 2-2** for detail.

[14] *Includes stalls associated with a stand-alone parking structure and structured parking associated with residential buildings.*

[15] *Includes stalls within a stand-alone parking structure in Development Area C, addition to the North Parking Garage in Development Area E, and structured parking associated with academic buildings in Development Area F.*

Under Alternative 2 the existing north campus access from Beardslee Boulevard and existing south campus access would remain as under current conditions. Certain transportation improvements related to access from NE 185th Street, new parking, and internal vehicular and transit circulation would occur. See the discussion below under Vehicular Circulation and Parking .

Building Development

Alternative 2 assumes a net increase in building space on campus of approximately 907,300 gsf of building space, for a total of 1,665,000 gsf on the campus over the 20-year planning horizon. Up to 360 new student housing beds would also be provided over the planning horizon for a total of 600 beds on campus. The new academic building space under Alternative 2 is assumed to be clustered in the central portion of campus west of the existing campus core buildings (Development Area B), with some new academic building space in Development Areas A, C, E and F. The new student housing space under Alternative 2 is assumed to be located in the central portion of campus within Development Area F; the existing Husky Village buildings would also be retained.

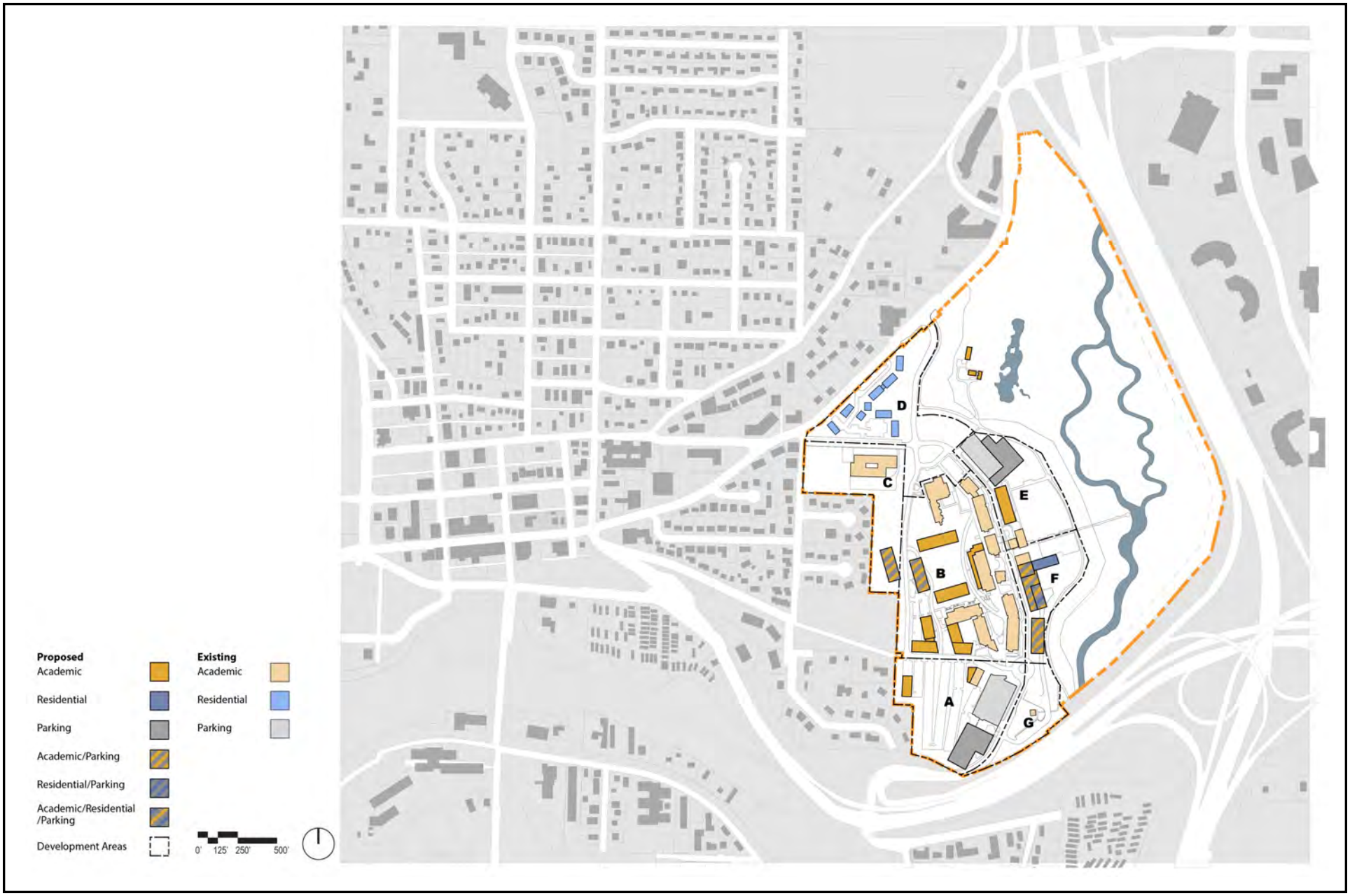
Under Alternative 2 it is assumed that the Corp Yard would be located in the western portion of the surface parking lot south of NE 180th Street in Development Area A.

The Truly House under Alternative 2 would be demolished or relocated to an on-campus or off-campus location to accommodate assumed academic development. The Chase House would remain in its current location under Alternative 2.

Open Space

Alternative 2 assumes the retention of the approximately 58-acre North Creek Stream and Wetland Area in the eastern portion of the campus, the approximately 2.9 acres of sports fields in the central portion of campus in Development Areas E and F (including multipurpose field, tennis courts, basketball court and sand volleyball court), and various open spaces/gathering spaces on campus (including plazas associated with Discovery Hall, Mobius Hall and the Crescent Path).

New green and urban open spaces would be provided in association with new buildings, with the majority of new open spaces located in the central portion of campus (Development Areas B and F) under Alternative 2.



Source: Mahlum Architects, 2017.

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Figure 2-7
Alternative 2 Site Plan

Vehicular Circulation and Parking

Alternative 2 assumes improvements related to access from NE 185th Street, amount and location of parking, and internal vehicular and transit circulation as described below.

- Access from NE 185th Street - The existing north access to campus from Beardslee Boulevard and south access to campus from SR-522 are assumed to remain unchanged under Alternative 2. Under Alternative 2, NE 185th Street would be opened between Beardslee Boulevard and 110th Avenue NE to allow direct transit access to campus.

- Internal Vehicular and Transit Circulation – Substantial traffic calming measures would be provided on Campus Way NE, with Campus Way NE being a primary pedestrian and bicycle route on campus. Vehicular traffic on campus would primarily utilize NE 180th Street and 110th Avenue NE.

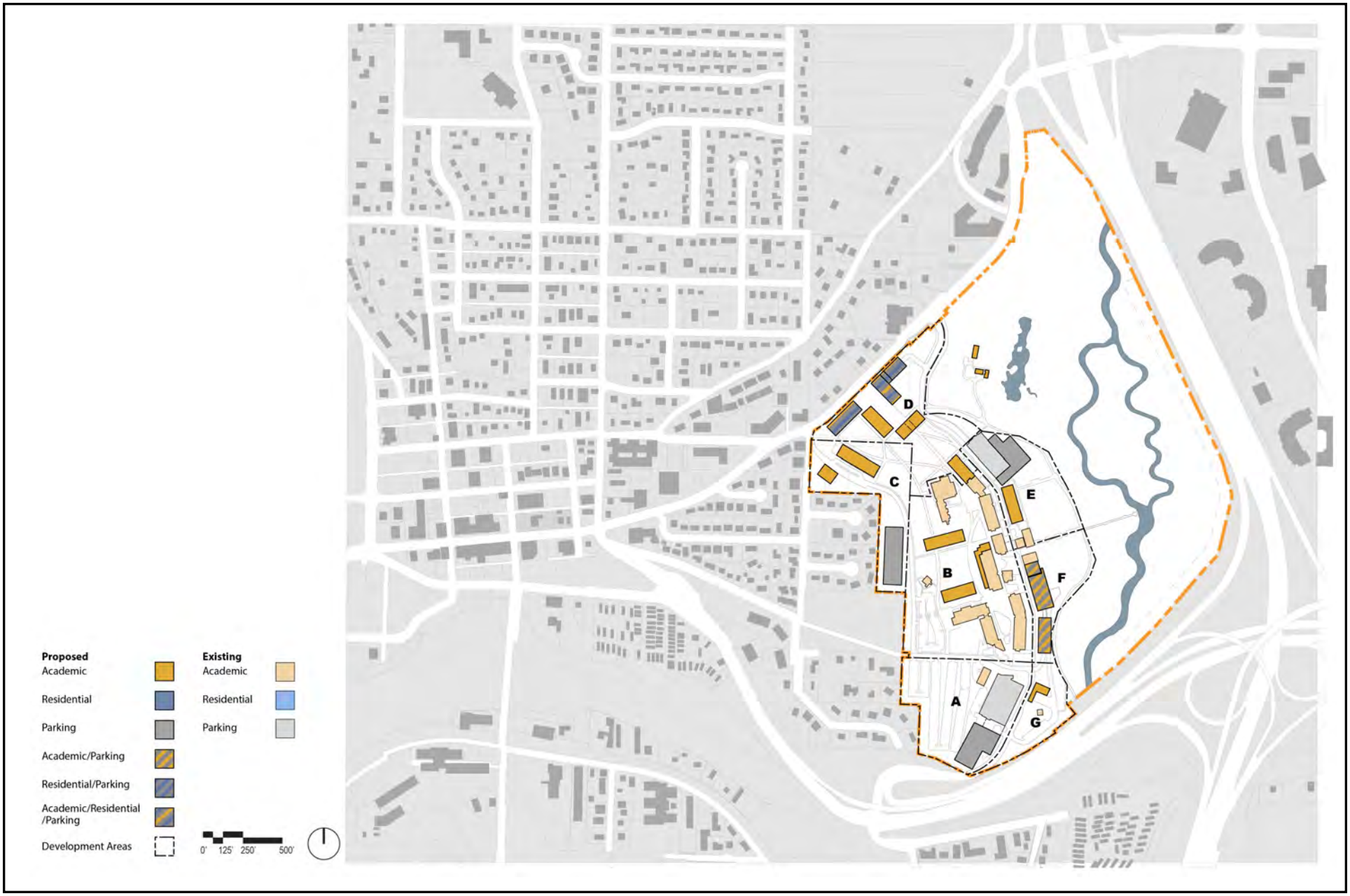
  The Transit Center would be relocated from the current location to NE 185th Street on-campus. The capacity of the Transit Center would increase from the current two bays to up to eight bays. The existing comfort station and layover for transit would be removed.

- Parking – A total of 3,700 parking stalls would be provided on campus, representing an increase of 1,428 stalls compared to existing conditions. Approximately 50 percent of the new parking stalls under Alternative 2 would be provided by a stand-alone parking structure located south of the South Parking Garage in Development Area A, and in an addition to the North Parking Garage in Development Area E. The remaining approximately 50 percent of the new parking would be associated with new building development in Development Areas B, C and F.

Alternative 3 – Growth along Topography (Northward Growth)

Introduction

Alternative 3 represents a level of development and improvements on the campus deemed sufficient to meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. Development under this alternative is assumed to follow the north/south topography of campus, with the majority of development assumed for the northern portion of campus in Development Areas B, C, D and E (see **Figure 2-8** for a site plan of Alternative 3). Alternative 3 assumes a campus student population of 10,000 FTEs, and a total of 600 student housing beds (representing approximately 10 percent of the assumed



Source: Mahlum Architects, 2017.

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Figure 2-8
Alternative 3 Site Plan

University of Washington Bothell student FTEs). See the discussion below under Building Development and **Table 2-2** for detail.

Under Alternative 3 the existing north campus access from Beardslee Boulevard would remain and a second access to Beardslee Boulevard would be provided via a realigned 110th Avenue NE. The existing south campus access would remain as under current conditions. Certain transportation improvements related to access from NE 185th Street, new parking, and internal vehicular and transit circulation would occur. See the discussion below under Vehicular Circulation and Parking.

Building Development

Alternative 3 assumes a net increase in building space on campus of approximately 907,300 gsf, for a total of 1,665,000 gsf on the campus over the 20-year planning horizon. New academic building space under Alternative 3 is assumed to be distributed throughout the central and northern portions of campus (Development Areas B, C, D, E and F). The student housing space under Alternative 3 is assumed to be located in the northwestern portion of campus within three buildings, replacing Husky Village in Development Area D, and east of Campus Way NE in Development Area F.

Alternative 3 assumes the demolition of approximately 106,000 gsf of existing building space, including approximately 74,200 gsf associated with Husky Village (Development Area D) and approximately 31,800 gsf associated with Husky Hall (Development Area C). All of the assumed building demolition is located in the northwest portion of campus.

Under Alternative 3 it is assumed that the Corp Yard would be located immediately north of the Chase House in Development Area G, and the existing Truly House and Chase House would remain.

Open Space

Alternative 3 assumes the retention of existing approximately 58-acre North Creek Stream and Wetland Area in the eastern portion of the campus, the approximately 2.9 acres of sports fields in the central portion of campus in Areas E and F (including multipurpose field, tennis courts, basketball court and sand volleyball court), and various open spaces/gathering spaces on campus (including plazas associated with Discovery Hall, Mobius Hall and the Crescent Path).

New green and urban open spaces would be provided in association with new buildings, with the majority of new open spaces located in the northwest portion of campus (Development

Areas C and D), with open spaces also provided in association with new buildings throughout campus in Development Areas A, B, E, F and G.

Vehicular Circulation and Parking

Alternative 3 assumes improvements related to access from Beardslee Boulevard, vacation of NE 185th Street, amount and location of parking, and internal vehicular and transit circulation as described below. The existing south access to campus from SR-522 would remain.

- Access to Beardslee Boulevard – The existing north campus access from Beardslee Boulevard, 110th Avenue NE would remain (Development Area D), and a second signalized campus access from Beardslee Boulevard would be provided via a realigned 108th Avenue NE (Campus Areas C and D). The new second access from Beardslee Boulevard would be located at the current Beardslee Boulevard/108th Avenue NE intersection.

- Access from NE 185th Street – Under Alternative 3, the existing NE 185th Street between 108th Avenue NE and 110th Avenue NE would be vacated and converted to campus open space use in Development Areas C and D.

- Internal Vehicular and Transit Circulation - Under Alternative 3 it is assumed that the southern end of 110th Avenue NE would be realigned eastward to enter directly into the North Parking Garage .

  Under Alternative 3, the Transit Center would be relocated from the current location to Beardslee Boulevard adjacent to Development Area D. The capacity of the Transit Center would increase from the current two bays to up to six bays.

- Parking - A total of 4,200 parking stalls would be provided on campus representing an increase of 1,928 stalls compared to existing conditions. New parking would be distributed throughout campus with approximately 38 percent in the southwest portion of campus (Development Area A), approximately 37 percent in the central portion of campus (Development Areas E and F), and approximately 25 percent in the northwest portion of campus (Development Areas C and D).

2.9 BENEFITS AND DISADVANTAGES OF DEFERRING IMPLEMENTATION OF THE PROPOSAL

The benefits of deferring approval of the Proposed Action and implementation of development of the *Campus Master Plan* include the deferral of:

- Temporary construction-related impacts associated with vibration, noise, air pollution and traffic.

The disadvantages of deferring the approval of the Proposed Action and development of the *Campus Master Plan* include:

- Inability to develop new academic facilities to meet existing space needs and anticipated future growth in students for the University of Washington Bothell and Cascadia College.

- Inability to meet the academic building space benchmark goal and collocation of UW Bothell/CC on campus

- Inability of provide additional on-campus University of Washington Bothell student housing opportunities.

- Inability to provide new facilities to support the service goals of the University of Washington Bothell and Cascadia College.

Deferral would not meet the mission statements and objectives of the University of Washington Bothell and Cascadia College.

CHAPTER 3

Affected Environment, Impacts, Mitigation Measures, and Significant Unavoidable Adverse Impacts

CHAPTER 3
AFFECTED ENVIRONMENT, SIGNIFICANT IMPACTS, MITIGATION MEASURES AND SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

This chapter describes the affected environment, impacts of the alternatives, mitigation measures and any significant unavoidable adverse impacts on the environment that are anticipated with construction and operation of development under the *Campus Master Plan* for the University of Washington Bothell (UW Bothell)/Cascadia College (CC) through the 20-year planning horizon, as assumed under the Draft EIS alternatives.

3.1 EARTH

This section of the Draft EIS describes the existing geologic and geologic-related critical area conditions on the UW Bothell/CC campus and in the site vicinity, and evaluates the potential impacts that could occur as a result of the *Campus Master Plan*.

3.1.1 Affected Environment

Campus Background

The UW Bothell/CC campus can generally be characterized as consisting of two primary topographic settings: the western upland portion of campus (development portion of campus) and the lower alluvial valley that occupies the eastern portion of campus (North Creek Stream and Wetland Area). Most of the western slope is inclined at less than 15%, although there are areas with slopes of 15% to 40% along both the base and higher portions of the western slope. The alluvial valley, after restoration work that took place from 1998 to 2002, has a very gradual north to south drainage. The topographic characteristics in the lower portion of campus reflect those found in natural floodplain ecosystems, including small-scale topographic variation in the form of pits and mounds ("microdepressions") and large woody debris.

Geologic units at the western upland portion campus are primarily composed of glacial till, with recent alluvium deposits and peat in the lower eastern portion of campus. Soils at the campus include Seattle, Snohomish and Puget series at the lower eastern portion of campus, with Alderwood series at the western upland portion of campus.

Construction on campus subsequent to approximately 1998 resulted in the modification of site topography including excavations of up to 30 feet deep and fills of up to 26 feet deep on

the western upland portion of the campus. Additionally, the eastern lowland portion of the campus was graded as a part of the wetland restoration project. Although a substantial amount of excavation and grading occurred, changes to the overall topography in the eastern lowland portion of campus were minor.

Much of this development occurred in portions of campus corresponding with erosion hazard areas, as described below, and required extensive erosion control measures via an erosion and sedimentation control plan (*King County Surface Water Design Manual*, 1994). Mitigation measures also provided sediment control, groundwater control, and compressible soil control, consistent with City of Bothell regulations.

City of Bothell Environmentally Critical Areas

City of Bothell Municipal Code (BMC) Chapter 14.04 provides regulations for environmentally critical areas, including critical areas related to geologic and soil conditions. Designations for geologic and soils related critical areas include: Erosion Hazard; Landslide Hazard; Seismic Hazard; and other geologic events including mass wasting, debris flows, rock falls, and differential settlement. The UW Bothell/CC campus contains geologic hazard areas, as defined in the City of Bothell Municipal Code, including Erosion Hazard Area, Landslide Hazard Area, and Seismic Hazard Area. Note that wetlands, also designated as Environmentally Critical Areas by the City of Bothell, are discussed separately in Section 3.3.

The following provides a brief definition of the City of Bothell designated geologic and soils critical areas applicable to the UW Bothell/CC campus. The UW Bothell and CC follow existing critical areas regulations to avoid adverse environmental impacts.

- **Erosion Hazard Area** – BMC Chapter 14.04 defines Erosion Hazard Area as moderate to severe erosion hazard and/or containing soils which according to the SCS may experience severe to very severe erosion hazard. The City of Bothell Environmentally Critical Areas chapter does not specifically identify erosion hazards on the campus. However, it is anticipated that isolated areas of the upland western portion of campus (developable portion of campus) could contain soils that meet this definition, including the areas that are steeper than 15 percent, excluding slope areas that are less than five to six feet in total relief.

  Erosion Hazard Area on campus is generally associated with isolated slope areas distributed throughout Development Areas A and B, and the western slope portions of Development Areas E, F and G. Given the relatively level topography of Development Areas C and D, Erosion Hazard Areas are not anticipated in these Development Areas.

- **Landslide Hazard Area** – BMC Chapter 14.04 defines Landslide Hazard Area as areas of historic failure or potentially subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors. The City of Bothell Landslide – Prone Deposits map does not identify any area of campus as within the known landslide deposits area, although a known landslide is identified to the southwest of Development Area A. However, it is possible that areas with seepage and saturated soil along the base of the western slope could meet the landslide definition.

  The potential for Landslide Hazard Area on campus is generally isolated to the western slope area within Development Areas A, E and F (see **Figure 3.1-1** for a map of existing Landslide Hazard Areas).

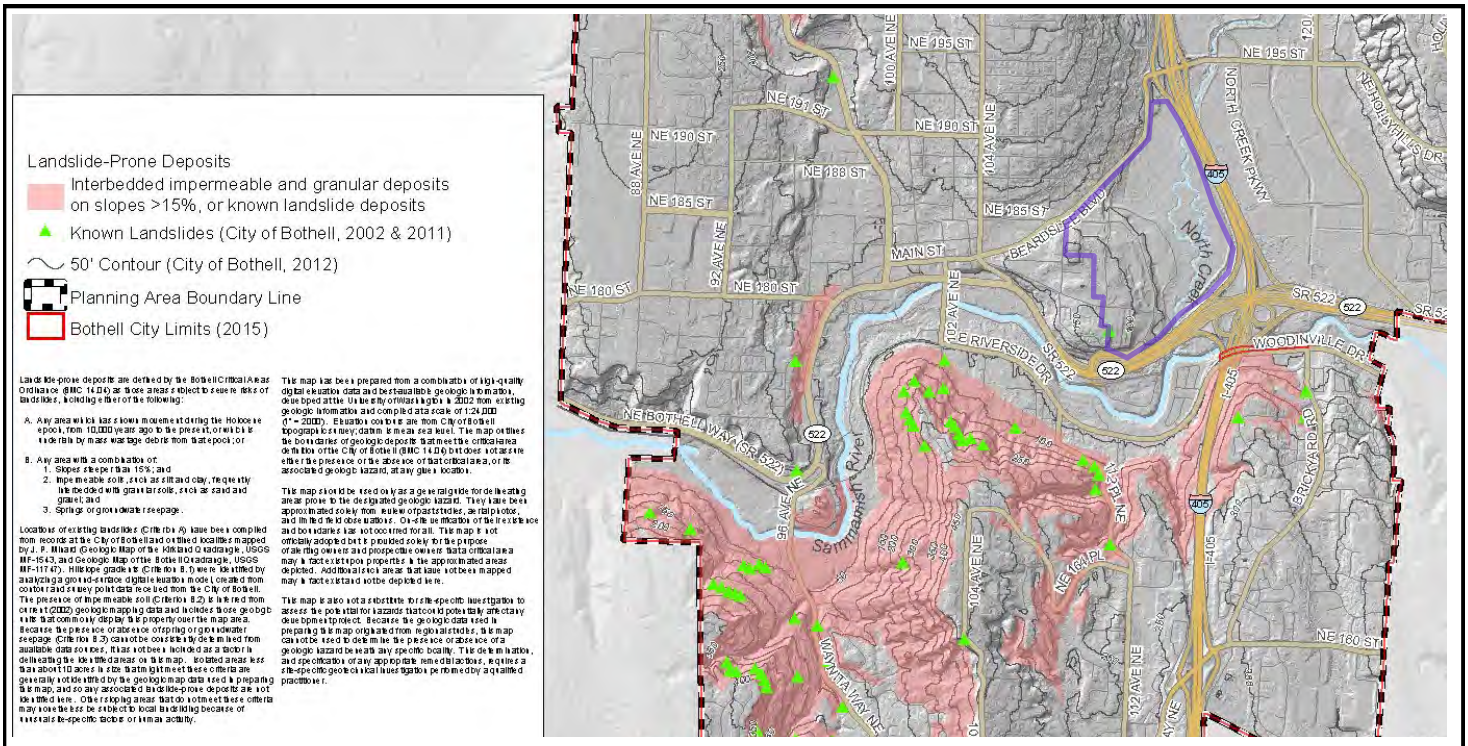
- **Seismic Hazard Area** – BMC Chapter 14.04 defines Seismic Hazard Area as areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, lateral spreading, or surface faulting. The Puget Sound region is seismically active and has experienced thousands of earthquakes over the course of history. The City of Bothell DNR Liquefaction Map (Seismic hazard) identifies much of the lower elevation eastern portion of the campus as moderate to high potential for liquification.

  Seismic Hazard Area (liquefaction) on the campus is generally comprised of the lower elevation portion of campus, including portions Development Areas E, F and G, as well as the North Creek and associated wetland area (see **Figure 3.1-1** for a map of existing Seismic Hazard Areas).

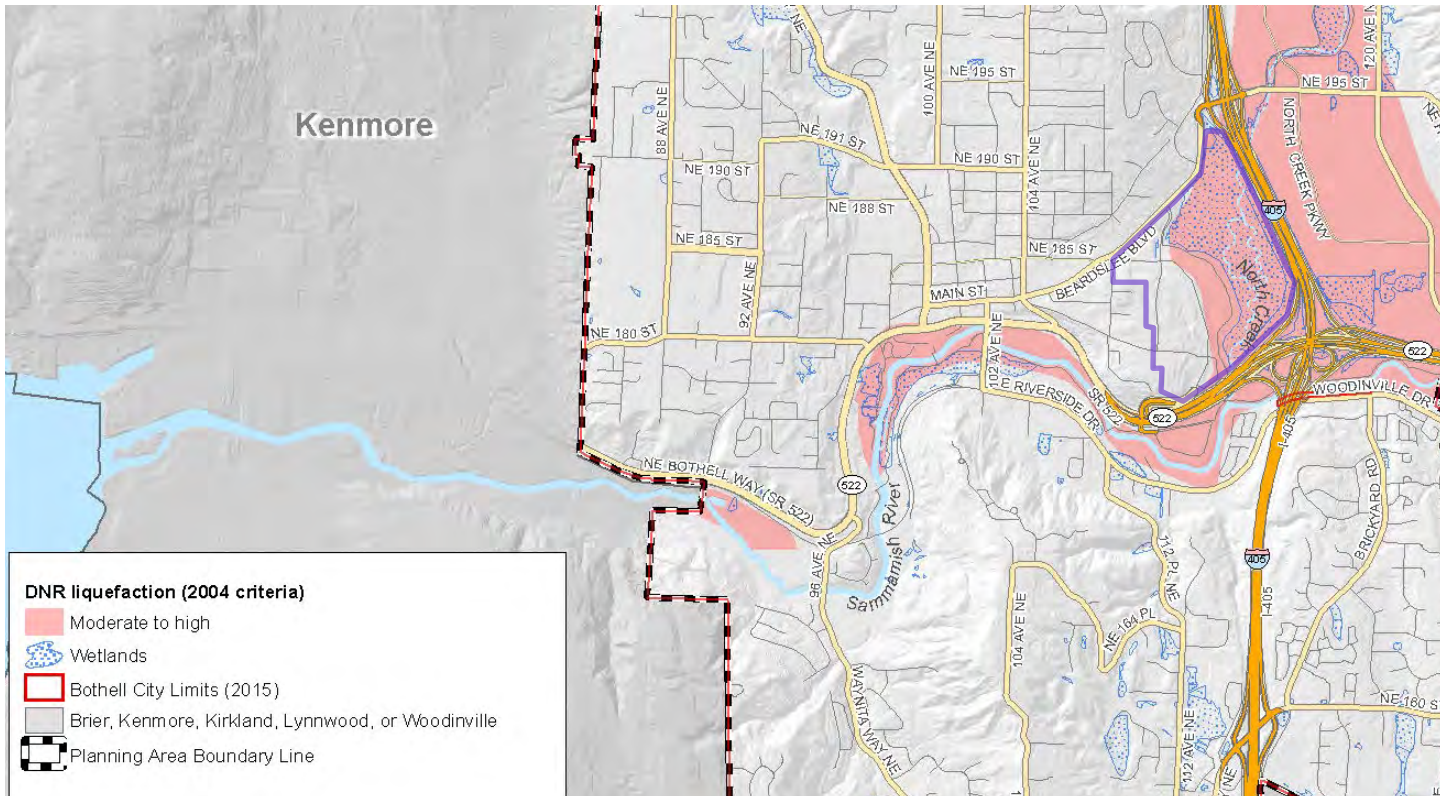
Groundwater

Previous explorations on the UW Bothell/CC campus have not encountered groundwater constraints on the western portion of the campus. Water tables in the eastern portion of campus have been observed to be within approximately two feet of the ground surface. Groundwater on the campus generally moves downslope and eastward beneath the western portion of the campus and southward through the alluvial soils in the eastern portion of the campus. Groundwater seepages have been observed on areas in the western portion of the campus, south of NE 180th Street[1].

[1] Cascadia Community College and University of Washington Bothell Draft EIS. June 1995.



Existing Landslide Hazard Areas



Existing Seismic Hazard Areas

Note: This figure is not to scale.

UW Bothell/CC Campus

Source: City of Bothell, 2017.

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

Figure 3.1-1

Existing Geologic Critical Areas

3.1.2 Impacts

This section of the Draft EIS identifies potential effects that the existing earth environment on the campus may have on development under the EIS Alternatives, and discusses how development under the EIS Alternatives would relate to the earth environment during construction and under long-term operations.

No Action Alternative

Scenario A – Baseline Condition

Under Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus. Existing natural and recreational open spaces would remain. No excavation-related activities on the campus and no development would occur within or adjacent to existing geologic or soils-related critical areas.

Scenario B – Allowed in PUD

Under Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the PUD.

Under the No Action – Scenario B, earth-related impacts would primarily be related to the approximately 386,100 net new gsf of building development that would be constructed under the current PUD. It is anticipated that excavation and the potential for earth-related impacts on campus would be less than under Alternatives 1 – 3 due to the lower amount of development on the campus. In the event that building development were to occur in areas of campus that contain environmentally critical areas (i.e., Development Areas A, B, E, F and G), each development project would follow the existing critical areas requirements and potential impacts would be mitigated through compliance with current codes and regulations.

As described under existing conditions, previous explorations on the UW Bothell/CC campus have not encountered groundwater on the western portion of the campus, which comprises the majority of the developable areas on the campus. As result, impacts to groundwater are not anticipated as part of development on campus. Site specific geotechnical recommendations would be provided for individual projects and in the event that groundwater issues are identified on specific project site, measures would be implemented as part of code compliance, based on the specific conditions at the individual sites.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 represents a level of development and improvements that would meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. This alternative reflects a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A and B. Development under Alternative 1 would include approximately 1,072,300 gsf of net new building space that would generally be clustered in the central and south campus areas. New development in Development Areas A, B and F would generally be located on existing surface parking areas or undeveloped areas.

New building development would result in approximately 25,800 cubic yards of grading/excavation. Excavated material could be reused on campus as backfill on individual development projects or it could be transported to undetermined approved off-campus disposal locations. In addition, fill material for site preparation and landscaping could be imported to the campus during the development process. Construction-related earth impacts could result in erosion. Compliance with existing regulations and codes would minimize potential impacts.

In the event that building development were to occur in areas of campus that contain environmentally critical geologic and soil-related areas (generally Development Areas A and B for potential Erosion Hazard Areas; the western portions of Development Areas A, E and F for potential Landslide Hazard Areas; and, Development Areas E and F for potential Seismic Hazard Areas), each development project would be required to follow the existing critical areas requirements and potential impacts would be mitigated through compliance with current codes and regulations.

As described under existing conditions, previous explorations on the UW Bothell/CC campus have not encountered groundwater on the western portion of the campus, which comprises the majority of the developable areas on the campus. As result, impacts to groundwater are not anticipated as part of development on campus. Site specific geotechnical recommendations would be provided for individual projects and in the event that groundwater issues are identified on a specific project site, measures would be implemented as part of code compliance, based on the specific conditions at the individual sites.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F. Development under Alternative 2 would include approximately 907,300 gsf of net new building space. New

development in Development Areas B, E and F would generally be located on existing surface parking areas or undeveloped areas.

New building development would result in approximately 10,700 cubic yards of grading/excavation, which would be less than under Alternative 1 (25,800 cubic yards of grading/excavation). Excavated material could be reused on campus as backfill on individual development projects or it could be transported to undetermined approved off-campus disposal locations. In addition, fill material for site preparation and landscaping could be imported to the campus during the development process. Construction-related earth impacts could result in erosion. Compliance with existing regulations and codes would minimize potential impacts.

In the event that building development were to occur in areas of campus that contain environmentally critical areas (generally Development Areas B, E and F for potential Erosion Hazard Areas; Development Areas E and F for potential Landslide Hazard Areas and potential Seismic Hazard Areas), each development project would be required to follow the existing critical areas requirements and potential impacts would be mitigated through compliance with current codes and regulations. Compared to Alternative 1, more building development would be located in potential Landslide Hazard Areas and potential Seismic Hazard Areas, and less development would be located in potential Erosion Hazard Areas.

Groundwater conditions and control measures under Alternative 2 would be as described under Alternative 1.

Alternative 3 – Growth along Topography (Northward Growth)

Alternative 3 represents a focus of development that is assumed to follow the north/south topography of the campus, with the majority of development assumed for the north portion of campus in Development Areas B, C, D, E and F. Assumed development under Alternative 3 would include approximately 907,300 gsf of new building space. New development in Development Areas B, E and F would generally be located on undeveloped areas of the campus while new development in Development Areas C and D would displace existing academic and student housing uses (Husky Hall and Husky Village) which would be demolished under Alternative 3.

New building development would result in approximately 33,900 cubic yards of excavation, which would be greater than under Alternative 1 (25,800 cubic yards of excavation). Excavated material could be reused on campus as backfill on individual development projects or it could be transported to undetermined approved off-campus disposal locations. In addition, fill material for site preparation and landscaping could be imported to the campus during the development process. Construction-related earth impacts could result in erosion. Compliance with existing regulations and codes would minimize potential impacts.

In the event that building development were to occur in areas of campus that contain environmentally critical areas (generally Development Areas B, E and F for potential Erosion Hazard Areas; and, Development Areas E, F and G for potential Landslide Hazard Areas and potential Seismic Hazard Areas), each development project would be required to follow the existing critical areas requirements and potential impacts would be mitigated through compliance with current codes and regulations. Compared to Alternatives 1 and 2, Alternative 3 would locate less development in potential Erosion Hazard Areas and a similar amount of development in potential Landslide Hazard Areas and Seismic Hazard Areas.

Groundwater conditions and control measures under Alternative 3 would be as described under Alternative 1.

Potential Indirect/Cumulative Impacts

Development under Alternatives 1 – 3, as well as No Action – Scenario B, would contribute to the amount of overall construction in the area and, in combination with future new development in the area, would contribute to indirect construction-related earth impacts including short-term, localized dust, erosion and increased street maintenance requirements associated with the removal of dirt tracked onto area streets (see Section 3.2 **Air Quality**, Section 3.5 **Environmental Health**, and Section 3.12 **Transportation**). To the extent that increased campus population and development increase the pressure for supporting development in the area, campus growth could contribute to earth-related impacts in the area. All construction activities in the area, both on the campus and in the campus vicinity, would be required to follow applicable regulations, and significant impacts would not be anticipated.

3.1.3 Mitigation Measures

The following measures would minimize potential geologic and soil-related impacts that could occur with the implementation of the *Campus Master Plan*.

- All earthwork and site preparation on the campus would be conducted in compliance with relevant grading requirements of the City of Bothell Design and Construction Standards and Specifications Manual.

- Temporary Erosion and Sedimentation Control (TESC) measures would be implemented, as appropriate for individual sites, as part of code compliance to reduce the risk of construction-related erosion.

- Site specific geotechnical recommendations would be provided as individual projects and measures would be implemented as part of code compliance, based on the

specific conditions at the individual sites, including measures related to potential landslide hazard conditions, seismic hazard conditions and groundwater.

- Whenever possible, construction could be scheduled to minimize overlapping of excavation periods for projects planned for construction in the same biennium.

- Construction activities conducted in portions of the campus identified as containing earth-related environmentally critical areas as identified by the City of Bothell would comply with applicable development standards (BMC 14.04)

3.1.4 Significant Unavoidable Adverse Impacts

With implementation of the identified mitigation measures, significant earth related impacts are not anticipated.

3.2 AIR QUALITY AND GREENHOUSE GAS

This section of the Draft EIS describes the existing air quality conditions on the University of Washington Bothell (UW Bothell)/Cascadia College (CC) campus and in the site vicinity and evaluates the potential impacts that could occur as a result of the *Campus Master Plan*.

3.2.1 Affected Environment

Climate

The Puget Sound region has a winter-wet, summer-dry climate. Winters are moderate in temperature with few cold periods below 32 degrees Fahrenheit, and summers are relatively cool with short spells between 85 degrees and 100 degrees Fahrenheit. Annual precipitation, concentrated in the winter months, averages 35 inches. Winds generally range south to southwest in the winter, and west to northwest in warmer periods.

In winter, inversions with very stable atmospheric conditions occur for periods of one to several days. Climate affects air quality in regards to wind conditions and temperatures; both factors influence ambient concentrations of pollutants. Due to low solar heating of the land in winter, temperature inversions may occur, accompanied by stagnant atmospheric conditions. In most cases, these pollutant-trapping inversions have an upper 'lid' at altitudes between 1,000 and 6,000 feet, and break up by early afternoon daily. In cases where the inversions do not break up on a daily basis, stagnated atmospheric conditions can result in the degradation of air quality. During such stagnated atmospheric conditions, the local air quality authorities (identified below) can issue impaired air quality burn bans that limit the use of wood burning devices.

Air Quality

Air Quality Regulatory Overview

Air quality is generally assessed in terms of whether concentrations of air pollutants are higher or lower than ambient air quality standards set to protect human health and welfare. Ambient air quality standards are set for what are referred to as "criteria" pollutants (e.g., carbon monoxide - CO, particulate matter, nitrogen dioxide - NO_2, and sulfur dioxide - SO_2). Three agencies have jurisdiction over the ambient air quality in the campus area: the U.S. Environmental Protection Agency (EPA), the Washington State Department of Ecology (Ecology), and the Puget Sound Clean Air Agency (PSCAA). These agencies establish regulations that govern both the concentrations of pollutants in the outdoor air and rates of contaminant emissions from air pollution sources. Although their regulations are similar in stringency, each agency has established its own standards. Unless the state or local

jurisdiction has adopted more stringent standards, EPA standards apply. These standards have been set at levels that EPA and Ecology have determined will protect human health with a margin of safety, including the health of sensitive individuals like the elderly, the chronically ill, and the very young.

Ecology and PSCAA maintain a network of air quality monitoring stations throughout the Puget Sound area. In general, these stations are located where there may be air quality problems, and so are usually in or near urban areas or close to specific large air pollution sources. Other stations located in more remote areas provide indications of regional or background air pollution levels. Based on monitoring information for criteria air pollutants collected over a period of years, Ecology and EPA designate regions as being "attainment" or "nonattainment" areas for particular pollutants. Attainment status is, therefore, a measure of whether air quality in an area complies with the federal health-based ambient air quality standards for criteria pollutants. Once a nonattainment area achieves compliance with the National Ambient Air Quality Standards (NAAQSs), the area is considered an air quality "maintenance" area. The campus area is considered an air quality maintenance area for CO, and there has not been a violation of the CO standards in the area in many years.

Existing Air Quality

Existing sources of air pollution in the area include a variety of institutional and commercial sources, along with and dominated by local traffic sources. With typical vehicular traffic, the air pollutant of concern is CO. Other air pollutants include ozone precursors (hydrocarbons and nitrogen oxides – NOx), coarse and fine particulate matter (PM10 and PM2.5), and SO_2. The amounts of particulate matter generated by well-maintained individual vehicles are minimal compared with other sources (e.g., a wood-burning stove), and concentrations of SO_2 and NOx are usually not high except near large industrial facilities. Existing air quality in the area is generally considered good.

Major roadways around the UW Bothell/CC campus that carry pollutant-emitting traffic include I-405, which borders the North Creek wetland area to the east of campus, and SR-522, which borders the North Creek wetland area and campus Development Areas A and G to the south. I-405 is a four-lane freeway that provides connections to I-5, southwest Snohomish County, and the Eastside. SR-522 is a four-lane arterial which runs through Bothell, Kenmore, and Lake Forest Park, and provides access to I-5 and I-405. Other roadways carrying pollutant-emitting traffic in the area include Beardslee Boulevard which borders campus Development Area D along the northwestern edge of campus, and residential streets to the west of campus in the vicinity of Development Areas A, B, and C.

Greenhouse Gas Emissions

Earth's Natural Climate and Human Influence on Climate

The global climate is continuously changing, as evidenced by repeated episodes of warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. Scientists have observed, however, an unprecedented increase in the rate of warming in the past 150 years. This recent warming has coincided with the global Industrial Revolution, which resulted in widespread deforestation to accommodate development and agriculture, and an increase in the use of fossil fuels which has released substantial amounts of greenhouse gases (GHGs) into the atmosphere.

GHGs, such as carbon dioxide, methane and nitrous oxide, trap heat in the atmosphere and are emitted by both natural processes and human activities. The accumulation of GHG in the atmosphere affects the earth's temperature. While research has shown that earth's climate has natural warming and cooling cycles, evidence indicates that human activity has elevated the concentration of GHG in the atmosphere beyond the level of naturally occurring concentrations resulting in more heat being held within the atmosphere. The Intergovernmental Panel on Climate Change (IPCC), an international group of scientists from 130 governments has concluded that it is "very likely" (a probability listed at more than 90 percent) that human activities and fossil fuels explain most of the warming over the past 50 years.[1]

The IPCC predicts that under current human GHG emission trends, the following results could be realized within the next 100 years:[2]

- global temperature increases between 1.1 – 6.4 degrees Celsius;
- potential sea level rise between 18 to 59 centimeters or 7 to 22 inches;
- reduction in snow cover and sea ice;
- potential for more intense and frequent heat waves, tropical cycles and heavy precipitation; and
- impacts to biodiversity, drinking water, and food supplies.

The Climate Impacts Group (CIG), a Washington-state based interdisciplinary research group which collaborates with federal, state, local, tribal, and private agencies, organizations, and businesses, studies impacts of natural climate variability and global climate change on the

[1] IPCC, Fifth Assessment Report, November 2014.

[2] IPCC, Summary for Policymakers, November 2014.

Pacific Northwest. CIG research and modeling indicates the following possible impacts of human-based climate change in the Pacific Northwest:[3]

- changes in water resources such as decreased snowpack; earlier snowmelt; decreased water for irrigation, fish and summertime hydropower production; increased conflict over water; and increased urban demand for water;
- changes in salmon migration and reproduction;
- changes in forest growth and species diversity and increases in forest fires; and
- changes along the coast such as increased coastal erosion and beach loss due to rising sea levels; increased landslides due to increased winter rainfall, permanent inundation in some areas; and increased coastal flooding due to sea level rise and increased winter streamflow.

Regulatory Context for Global Climate Change

There are no specific emission reduction requirements or targets applicable to potential future campus development, nor are there any generally accepted emission level "impact" thresholds with which to assess potential localized or global impacts related to GHG emissions. Instead, there are State and local policies and programs intended to consider and reduce GHG emissions over time, as described below. The University of Washington is also considered a leader in global climate change and performs critical research on the issue.

Western Regional Climate Action Initiative

On February 26, 2007, the Governors of Arizona, California, New Mexico, Oregon, and Washington signed the Western Climate Initiative (WCI) to develop regional strategies to address climate change. WCI is identifying, evaluating, and implementing collective and cooperative ways to reduce GHGs in the region. Subsequent to this original agreement, the Governors of Utah and Montana, as well as the Premiers of British Columbia and Manitoba joined the Initiative. The WCI objectives include setting an overall regional reduction goal for GHG emissions, developing a design to achieve the goal and participating in The Climate Registry, a multi-state registry to enable tracking, management, and crediting for entities that reduce their GHG emissions.

On September 23, 2008, the WCI released their final design recommendations for a regional cap-and-trade program. This program would cover GHG emissions from electricity generation, industrial and commercial fossil fuel combustion, industrial process emissions, gas and diesel consumption for transportation, and residential fuel use. The first phase of the program began January 1, 2012, and regulates electricity emissions and some industrial

[3] Climate Impacts Group, Climate Impacts in Brief, accessed February 7, 2008, http://www.cses.washington.edu/cig/pnwc/ci.shtml.

emission sources not present on the campus. Thus, this program is not applicable to the proposed *2018 Campus Master Plan*, per se.

State of Washington

In February of 2007, Executive Order No. 07-02 established goals for Washington regarding reductions in climate pollution, increases in jobs, and reductions in expenditures on imported fuel (Washington, Office of the Governor, 2007). The goals for reducing GHG emissions were as follows: to reach 1990 levels by 2020 and to reduce emissions 25 percent below 1990 levels by 2035 and 50 percent below 1990 levels by 2050. This order was intended to address climate change, grow the clean energy economy, and move Washington toward energy independence. The Washington Legislature in 2007 passed SB 6001, which among other things, adopted the Executive Order No. 07-02 goals into statute.

In 2008, the Washington Legislature built on SB 6001 by passing the Greenhouse Gas Emissions Bill (E2SHB 2815). While SB 6001 set targets to reduce emissions, the E2SHB 2815 made those state-wide requirements (RCW 70.235.020) and directed the state to submit a comprehensive GHG reduction plan to the Legislature by December 1, 2008. As part of the plan, the Department of Ecology was mandated to develop a system for reporting and monitoring GHG emissions within the state and a design for a regional multi-sector, market-based system to reduce statewide GHG emissions, consistent with the requirements in RCW 70.235.020.

In 2008, Ecology issued a memorandum stating that climate change and GHG emissions should be included in all State Environmental Policy Act (SEPA) analyses and committed to providing further clarification and analysis tools (Manning, 2008). Ecology direction on SEPA and GHG emissions indicates that SEPA cannot be relied upon exclusively or even primarily for achieving GHG reductions, and that the state is pursuing many actions to reduce GHGs.

In 2009, Executive Order 09-05 ordered Washington State agencies to reduce climate-changing GHG emissions, to increase transportation and fuel-conservation options for Washington residents, and protect the State's water supplies and coastal areas. This Executive Order directs state agencies to develop a regional emissions reduction program; develop emission reduction strategies and industry emissions benchmarks to make sure 2020 reduction targets are met; work on low-carbon fuel standards or alternative requirements to reduce carbon emissions from the transportation sector; address rising sea levels and the risks to water supplies; and increase transit options (e.g., buses, light rail, and ride-share programs) and give Washington residents more choices for reducing the effect of transportation emissions.

On December 1, 2010, Ecology adopted Chapter 173-441 WAC – *Reporting of Emission of Greenhouse Gases*. This rule aligns the State's GHG reporting requirements with EPA regulations, and requires facilities and transportation fuel suppliers that directly emit 10,000

metric tons carbon dioxide equivalents ($MTCO_2e$) or more per year, to report their GHG emissions to Ecology. Requirements for reporting began on January 1, 2012.

City of Bothell

The Bothell City Council adopted the Natural Environment Element into its Comprehensive Plan goals and policies in 1994; amended periodically, with the latest update in 2015. The Natural Environment Element contains goals and policies related to achieving reductions in GHG emissions and implementing climate change mitigation strategies include the following:

- **NE-P42** - Climate change is a phenomenon that atmospheric and climate experts theorize could lead to significant adverse impacts upon features of the natural environment such as air, water, plants, wildlife, and people. Whether climate change is caused by human activity or is a natural weather cycle, the prudent approach is to establish policies and actions that reduce the potential for human-caused actions to contribute to climate change. Accordingly, the City of Bothell should participate in climate change and greenhouse gas emission reduction efforts.

- **NE-P43 -** Minimize climate change impacts by:
  - Encouraging employment and population growth within the City's activity centers and mixed use areas that support mass transit, encourage non-motorized modes of travel and reduce commute trip lengths;
  - Using natural systems to reduce carbon in the atmosphere by establishing regulations that retain existing forests and promote the creation of forests on lands not anticipated to develop;
  - Encouraging and incentivizing energy efficiency, conservation methods and sustainable energy sources in public and private development;
  - Working toward developing a common framework with other jurisdictions to analyze climate change impacts when conducting environmental review under SEPA; and,
  - Participating in regional efforts to anticipate, prepare for, and adapt as necessary to the impacts of climate to public health and safety, the economy, public and private infrastructure, water resources, and wildlife habitat.

- **NE-P44 -** Minimize greenhouse gas emissions by:
  - Encouraging or incentivizing new development to use low emission construction practices, low or zero net lifetime energy requirements and "green" building techniques;

- Participating in regional programs or initiatives to reduce greenhouse gas emissions;
- Encouraging mass transit, non-motorized, and other forms of transportation that does not rely upon single occupant vehicle trips;
- Focusing on those initiatives which produce the most effective and cost efficient reductions; and,
- Increasing and encouraging the use of low emission vehicles, such as efficient electric- powered vehicles.

University of Washington

The University of Washington (encompassing the Seattle, Tacoma and Bothell campuses) is a signatory on the American College and University Presidents Climate Commitment. The University is also one of the founding partners of the Seattle Climate Partnerships and has prepared an initial quantitative estimate of the University's GHG emissions profile. In October 2007, the University of Washington also released the "2005 Inventory of Greenhouse Gas Emissions Ascribable to the University of Washington," which provided a quantitative estimate of the total GHG emissions produced on the University of Washington Campus. In 2008, the University of Washington also established the Environmental Stewardship and Sustainability Office to support the University's Campus Sustainability Fund, coordinate University initiatives such as the Climate Action Plan, and promote campus projects that encourage resource conservation.

Existing Greenhouse Gas Emissions

In order to provide a context for GHG emissions associated with the *Campus Master Plan*, it is useful to consider the existing estimated overall emissions on UW Bothell/CC campus. For the purposes of discussion of climate change impacts in this EIS*,* the *SEPA Greenhouse Gas Emissions Worksheet* formulated by King County (see **Appendix B** for the completed worksheets) was used to estimate the emissions that are currently generated by existing development on campus[4]. **Table 3.2-1** summarizes the existing lifespan and annual emissions generated by existing campus development[5].

[4] The King County worksheet was utilized rather than the Washington State Department of Ecology form because the King County Worksheet calculation characteristics most closely reflect those of the Proposed Action.

[5] It should be noted that the calculation of existing GHG emissions on-campus represent a conservative estimate of emissions as the King County worksheet includes emissions associated with the construction of buildings and these emissions would have already occurred as part of the previous development of the existing campus buildings.

Table 3.2-1
GREENHOUSE GAS EMISSIONS – 2017 UW BOTHELL/CC EXISTING ON-CAMPUS CONDITIONS

	Building Square Feet	Lifespan Emissions ($MTCO_2e$)[6]	Anticipated Lifespan (years)	Estimated Annual Emissions ($MTCO_2e$)
Academic and Housing	757,700	792,160	62.5	12,675

Source: EA Engineering, Science, and Technology, 2017.
Note: any inconsistencies in this table are due to rounding.

It should also be noted that the UW Bothell currently leases approximately 70,700 GSF of off-campus academic facilities[7] (within 0.25 mile of campus), which would contribute an additional 73,915 lifespan emissions ($MTCO_2e$) and 1,183 annual emissions ($MTCO_2e$), not accounted for in **Table 3.2-1**.

3.2.2 Impacts

This section of the Draft EIS identifies how development under the EIS Alternatives would relate to air quality and GHG emissions during construction and long-term operations.

No Action Alternative

Scenario A – Baseline Condition

Under Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus and no aesthetic changes or changes in views would occur. The current 683,500 gsf of academic space and 74,200 gsf of housing space on campus (total of 757,700 gsf on campus), along with the 70,700 gsf of off-site academic space within 0.25 mile of campus, would remain. No changes to the amount of parking (current 2,272 spaces) would occur. Since no new development would occur on campus, no significant air quality impacts would be anticipated under Scenario A.

Scenario B – Allowed in PUD

Under Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase

[6] $MTCO_2e$ is defined as Metric Ton Carbon Dioxide Equivalent which is a standard measure of amount of CO_2 emissions reduced or sequestered.

[7] Leased off-campus space is located along Beardslee Boulevard and does not include Husky Hall.

1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the PUD. No additional student housing beds would be provided. The current vehicular and pedestrian circulation systems would remain. An on-campus parking supply totaling 4,200 to 6,000 spaces would be provided on campus.

Air Quality - Construction

Construction of new development under Scenario B would result in localized short-term increases in particulates (dust) and vehicle/equipment emissions (carbon monoxide) in the vicinity of construction sites. Key construction activities causing potential impacts include: removal of existing pavement and/or buildings, excavation, grading, stockpiling of soils, soil compaction, and operation of diesel-powered trucks and equipment (i.e., generators and compressors) on the individual potential development sites. With appropriate code and regulation compliance, construction-related dust and vehicle/equipment emissions would not be likely to substantially affect air quality in the vicinity of any potential development site.

Although some construction could cause odors, particularly during paving operations that involve the using tar and asphalt, any odors related to construction would be short-term and localized (and in some areas located within a busy traffic area where such odors would likely go unnoticed). Construction contractor(s) would be required to comply with PSCAA regulations that prohibit the emission of any air contaminant in sufficient quantities and of such characteristics and duration as is, or is likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interferes with enjoyment of life and property. With implementation of the controls required for the various aspects of construction activities and consistent use of best management practices (BMPs) to minimize emissions, construction activities under Alternative 1 would not be expected to significantly affect air quality.

Air Quality - Operations

Operation of certain uses on the campus could result in direct exhaust emissions from enclosed/interior truck loading areas, research and laboratory operations, and other exhaust venting sources. Exhaust vents would likely be located either near ground level or at elevated positions on building (including on the roof). Laboratory fume hoods are also provided within laboratory areas and are regulated and inspected by the UW Bothell and CC. Emissions from any vents near ground level could have the greatest potential to be perceived by pedestrians and users of nearby buildings. While such emissions could, at times, be noticeable, these emissions would be unlikely to result in air quality impacts. Any emissions would be subject to applicable requirements of the UW Bothell/CC and the Puget Sound Clean Air Agency.

Greenhouse Gas Emissions

Climate change is a global problem and it is not possible to discern the impact that GHG emissions from a single campus master plan may have on global climate change.

Neither the EPA, State of Washington, nor City of Bothell currently have regulations in place to provide guidance on analysis of the impacts of climate change and associated GHG emissions. For the purposes of discussion of the climate change impacts of the Proposed Action for this EIS, the *SEPA Greenhouse Gas Emissions Worksheet* formulated by King County was used to estimate the emissions footprint of the Proposed Action for the lifecycle of the development,[8] specifically:

- the extraction, processing, transportation, construction and disposal of materials and landscape disturbance (embodied emissions);
- energy demands created by the development after it is completed (energy emissions); and
- transportation demands created by the development after it is completed (transportation emissions) (see **Appendix B** for the completed worksheet).

It is estimated that assumed new development under No Action – Scenario B would generate GHG emissions associated with construction activities (including demolition), production/extraction of construction materials, energy consumption from construction and operation, and vehicle emissions from associated vehicle trips. **Table 3.2-2** shows the anticipated lifespan GHG emissions and estimated annual GHG emissions associated with new development under No Action – Scenario B (403,660 $MTCO_2e$ and 6,459 $MTCO_2e$, respectively).

Table 3.2-2
GREENHOUSE GAS EMISSIONS – NO ACTION ALTERNTIVE-SCENARIO B

	Building Square Feet	Lifespan Emissions ($MTCO_2e$)[9]	Anticipated Lifespan	Estimated Annual Emissions ($MTCO_2e$)
Academic Use	386,100	403,660	62.5	6,459

Source: EA Engineering, Science, and Technology, 2017.
Note: Emissions represent new emissions from development under Scenario B and would be in addition to existing emissions from existing campus development noted in Table 3.2-1. Any inconsistencies in this table are due to rounding.

[8] The King County worksheet was used rather than the Washington State Department of Ecology form because the King County Worksheet calculation characteristics most closely reflect those of the Proposed Action.

[9] $MTCO_2e$ is defined as Metric Ton Carbon Dioxide Equivalent which is a standard measure of amount of CO2 emissions reduced or sequestered.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 reflects a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A and B. Development under Alternative 1 would include approximately 1,072,300 gsf of net new building space that would generally be clustered in the central and south campus areas (Development Areas A, B and F). With assumed development under Alternative 1, the campus would contain a total of approximately 1,830,000 gsf of building space.

Air Quality

Construction

The types of construction-related air quality impact that would be anticipated under Alternative 1 are similar to those described for No Action – Scenario B and include localized short-term increases in particulates (dust) and equipment emissions (carbon monoxide) in the vicinity of construction sites. Key construction activities causing potential impacts include: removal of existing pavement and/or buildings, excavation, grading, stockpiling of soils, soil compaction, and operation of diesel-powered trucks and equipment (i.e., generators and compressors) on the individual potential development sites. Some construction could cause odors, particularly during paving operations that involve the using tar and asphalt, any odors related to construction would be short-term and localized (and in some areas located within a busy traffic area where such odors would likely go unnoticed). Due to the amount of development assumed for Alternative 1, it is anticipated that potential air quality impacts would be greater than under No Action – Scenario B; however, with appropriate code and regulation compliance, as well as the consistent use of Best Management Practices (BMPs) to minimize emissions, it is anticipated that construction activities under Alternative 1 would not be expected to significantly affect air quality.

Operations

Operation of certain uses on the campus could result in direct exhaust emissions from enclosed/interior truck loading areas, research and laboratory operations, and other exhaust venting sources. Exhaust vents would likely be located either near ground level or at elevated positions on building (including on the roof). Laboratory fume hoods are also provided within laboratory areas and are regulated and inspected by the UW Bothell and CC. Emissions from any vents near ground level could have the greatest potential to be perceived by pedestrians and users of nearby buildings. Operation-related emissions would be greater than under No Action – Scenario B due to the increased amount of development on the campus under

Alternative 1. While such emissions could, at times, be noticeable, these emissions would be unlikely to result in air quality impacts. Any emissions would also be subject to applicable requirements of the UW Bothell/CC and the Puget Sound Clean Air Agency.

Greenhouse Gas Emissions

As indicated under No Action – Scenario B, climate change is a global problem and it is not possible to discern the impact that GHG emissions from a single campus master plan may have on global climate change. **Table 3.2-3** shows the anticipated lifespan GHG emissions and estimated annual GHG emissions associated with new building development under Alternative 1 (1,121,069 $MTCO_2e$ and 17,937 $MTCO_2e$, respectively).

Table 3.2-3
GREENHOUSE GAS EMISSIONS – ALTERNATIVE 1

	Building Square Feet	Lifespan Emissions ($MTCO_2e$)[10]	Anticipated Lifespan	Estimated Annual Emissions ($MTCO_2e$)
Academic & Student Housing	1,072,300	1,121,069	62.5	17,937

Source: EA Engineering, Science, and Technology, 2017.
Note: Emissions represent new emissions from development under Alternative 1 and would be in addition to existing emissions from existing campus development as noted in Table 3.2-1. Any inconsistencies in this table are due to rounding.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F. Development under Alternative 2 would include approximately 907,300 gsf of net new building space that would generally be clustered in the central portion of campus (Development Areas B, E and F). With assumed development under Alternative 2, the campus would contain a total of approximately 1,665,000 gsf of building space.

Air Quality

Construction

The types of construction-related air quality impacts that would be anticipated under Alternative 2 are similar to those described for the No Action – Scenario B and Alternative 1. Due to the amount of development assumed for Alternative 2, it is anticipated that potential air quality impacts would be greater than under No Action – Scenario B, but less than under

[10] $MTCO_2e$ is defined as Metric Ton Carbon Dioxide Equivalent which is a standard measure of amount of CO2 emissions reduced or sequestered.

Alternative 1. With appropriate code and regulation compliance, as well as the consistent use of BMPs to minimize emissions, it is anticipated that construction activities under Alternative 2 would not be expected to significantly affect air quality.

Operations

Operation-related air quality impacts under Alternative 2 are anticipated to be similar to those described for the No Action – Scenario B and Alternative 1. Due to the amount of development assumed for Alternative 2, it is anticipated that potential operation emissions would be greater than under No Action – Scenario B, but less than under Alternative 1. However, Alternative 2 would also include the relocation of the existing on-campus Transit Center to NE 185th Street which would result in emissions from buses being located in closer proximity to existing off-campus single family residences. While such emissions could, at times, be noticeable, these emissions would be unlikely to result in air quality impacts. Any emissions would also be subject to applicable requirements of the UW Bothell/CC and the Puget Sound Clean Air Agency.

Greenhouse Gas Emissions

As indicated under No Action – Scenario B, climate change is a global problem and it is not possible to discern the impact that GHG emissions from a single campus master plan may have on global climate change. **Table 3.2-4** shows the anticipated lifespan GHG emissions and estimated annual GHG emissions associated with new building development under Alternative 2 (948,564 $MTCO_2e$ and 15,177 $MTCO_2e$, respectively).

Table 3.2-4
GREENHOUSE GAS EMISSIONS – ALTERNATIVE 2

	Building Square Feet	Lifespan Emissions ($MTCO_2e$)[11]	Anticipated Lifespan	Estimated Annual Emissions ($MTCO_2e$)
Academic & Student Housing	907,300	948,564	62.5	15,177

Source: EA Engineering, Science, and Technology, 2017.
Note: Emissions represent new emissions from development under Alternative 2 and would be in addition to existing emissions from existing campus development noted in Table 3.2-1. Any inconsistencies in this table are due to rounding.

[11] $MTCO_2e$ is defined as Metric Ton Carbon Dioxide Equivalent which is a standard measure of amount of CO2 emissions reduced or sequestered.

Alternative 3 – Grow along Topography (Northward Growth)

Alternative 3 represents a focus of development that would follow the north/south topography of the campus, with the majority of development assumed for Development Areas B, C, D, E and F. Development under Alternative 3 would include 907,300 gsf of net new building space. Husky Hall and Husky Village would be demolished under Alternative 3 to accommodate new development and would result in the removal of approximately 106,000 gsf associated with those buildings. With assumed development under Alternative 3, the campus would contain a total of approximately 1,665,000 gsf of building space.

Air Quality

Construction

The types of construction-related air quality impacts that would be anticipated under Alternative 3 are similar to those described for the No Action – Scenario B and Alternatives 1 and 2. Due to the amount of development assumed for Alternative 3, it is anticipated that potential air quality impacts would be less than under Alternative 1, but greater than under No Action – Scenario B. Alternative 3 would also be anticipated to have greater air quality impacts than Alternative 2 due to the assumed demolition of Husky Hall and Husky Village and additional construction that would be required. With appropriate code and regulation compliance, as well as the consistent use of BMPs to minimize emissions, it is anticipated that construction activities under Alternative 3 would not be expected to significantly affect air quality.

Operations

Based on the amount of net new campus building space that would result from Alternative 3 (907,300 gsf) , it is anticipated that operation-related air quality impacts associated with new building development would be the same as Alternative 2. Under Alternative 3, a new campus access roadway would be provided from Beardslee Boulevard via a realigned 108th Avenue NE, which would result in additional vehicle traffic and associated emissions in this area adjacent to existing off-campus residences. The relocation of the existing on-campus Transit Center to Beardslee Boulevard (adjacent to Development Area D) would also result in additional emissions associated with buses in this area.

Greenhouse Gas Emissions

Alternative 3 would include the same amount of net new building space as Alternative 2 (907,300 gsf) and it is anticipated that GHG emissions would be the same (see **Table 3.2-4**).

Potential Indirect/Cumulative Impacts

Development under Alternatives 1 – 3 and No Action – Scenario B would contribute to the amount of overall construction in the area and, in combination with future new development in the area, would contribute to indirect construction-related air quality impacts including short-term, dust, equipment emissions and localized traffic congestion. To the extent that increased campus population and development increase the pressure for supporting development in the area, campus growth could contribute to air quality related impacts in the area, but compliance with current air quality requirements (i.e., Puget Sound Clean Air Agency) would prevent any potential significant air quality impacts.

3.2.3 Mitigation Measures

The proposed *Campus Master Plan* includes guiding principles to create a more sustainable campus environment. These principles would, in part, guide future campus development and would indirectly relate to the overall air quality and GHG environment. In addition to compliance with applicable regulations related to construction and operations (including EPA, PSCAA and City of Bothell regulations), the following potential measures are intended to further reduce the potential for air quality and GHG impacts.

Air Quality - Construction

During construction, applicable BMPs to control dust, vehicle and equipment emissions would be implemented. The UW Bothell and CC would coordinate with adjacent sensitive users to temporarily duct and protect air intakes to minimize the potential for the intake of fugitive dust and exhaust fumes.

- Building construction and demolition would be conducted in compliance with the *City of Bothell Design and Construction Standards and Specifications Manual*.

- Where appropriate, temporary asphalt roadways would be provided at development sites to reduce the amount of dust and dirt that would be generated.

- As applicable, a Construction Management Plan would be prepared for each individual construction project to establish parking areas, construction staging areas, truck haul routes, and provisions for maintaining pedestrian and vehicle routes. These measures are intended to, among other things, minimize traffic delays and associated vehicle idling.

- As applicable, control measures in the Washington Associated General Contractors *Guide to Handling Fugitive Dust from Construction Projects* would be used, including:

- using only equipment and trucks that are maintained in optimal operational condition;
- implementing restrictions on construction truck and other vehicle idling (e.g., limit idling to a maximum of 5 minutes);
- spraying exposed soil with water or other suppressant to reduce emissions of and deposition of particulate matter;
- covering all trucks transporting materials, wetting materials in trucks, or providing adequate freeboard (space from the top of the material to the top of the truck bed), to reduce particulate matter emissions and deposition during transport;
- providing wheel washers to remove particulate matter that would otherwise be carried off-site by vehicles in order to decrease deposition of particulate matter on area roadways; and
- covering dirt, gravel, and debris piles as needed to reduce dust and wind-blown debris.

Air Quality - Operations

- Implementation of the proposed Transportation Management Plan would reduce vehicle trips and associated vehicle emissions.

- Laboratory fume hoods would be provided within laboratory areas and would be regulated and inspected by the UW Bothell and CC.

Greenhouse Gas Emissions

- Implementation of the proposed Transportation Management Plan would reduce vehicle trips and associated GHG emissions.

- The UW Bothell and CC would embrace sustainability as an objective for all development on campus, including LEED provisions. Key measures that could be explored include:
  - installation of high performance glazing with low-E coatings to further reduce heat gain;
  - maximizing use of outside air for heating, ventilating, and air conditioning;
  - installation of efficient light fixtures, including occupancy and daylight sensors, as well as nighttime sweep controls;
  - use of low VOC emitting materials for finishes, adhesives primers and sealants;
  - incorporation of recycled content and rapidly renewable materials into project designs, including: concrete, steel and fibrous materials (bamboo, straw, jute, etc.); and,
  - salvage of demolished material and construction waste for recycling.

3.2.4 Significant Unavoidable Adverse Impacts

With implementation of the mitigation measures identified above, no significant unavoidable adverse impacts on air quality would be anticipated under all of the Alternatives. Climate change and other issues associated with GHG emissions is a global issue, and it is not possible to discern the impacts of the GHG emissions from a single campus master plan.

3.3 WETLANDS AND PLANTS/ANIMALS

This section of the Draft EIS describes the existing wetland resources, plant and animal conditions on the UW Bothell/CC campus and in the site vicinity, and evaluates the potential impacts that could occur as a result of development under the *Campus Master Plan*.

3.3.1 Affected Environment

The UW Bothell/CC campus contains developed areas, upland wooded areas, wetlands, ponds, sloughs and shoreline vegetation, educational plantings, recreational and lawn areas. Existing wetlands, plant and animal conditions are described in detail below.

Wetland Resources

Overview

The UW Bothell/CC campus, which encompasses a portion of North Creek and associated wetlands, is located to the north of North Creek's confluence with the Samammish River. With headwaters to the north in the City of Everett, North Creek flows through five jurisdictions, including the city of Everett, the city of Mill Creek, Snohomish County, King County, and the city of Bothell.

Prior to European settlement, the North Creek and associated wetland area on campus was a forested freshwater wetland, made up of various ponds, depressions, and streams. Over the last 100 years, the landscape has been highly modified by human activities, including logging, the straightening of North Creek, levee construction, and more recently by cattle ranching. As a result, many of the natural ecosystem services and native plants and animals in this area were adversely affected prior to campus development.

Wetlands

Prior to the development of the UW Bothell/CC campus, the campus area was comprised of two distinct areas: a sparsely developed hillside, and the lowland along North Creek. The hillside surface water moved in sheet flows from the higher elevations in the west, to the east, as well as in channelized flows through ditches along NE 180th and 113th Avenue NE. The lowland area was a historical floodplain that had been heavily modified by human activities, as previously described.

Before construction associated with the campus development, there were approximately 34.5 acres of wetland area. Original campus construction took place on the upland hillside above the North Creek floodplain, which required the filling of approximately 6.1 acres of waters and wetlands in these upland areas. In order to mitigate impacts from wetland fill as a part of campus development, the State of Washington undertook one of the largest

floodplain restoration efforts in the Pacific Northwest. The goals of the North Creek Stream and Wetland restoration project was to, "…recreate the natural path of North Creek, restore wetland hydrological functions, reestablish native plant and animal species, and increase the environmental complexity of the ecosystem." (Baum 2010)

North Creek Stream & Wetland Area

In total, approximately 58.5 acres of floodplain wetlands along North Creek were restored or created as part of the restoration project to mitigate for the development within the approximately 57 acre upland area of the campus; this restoration exceeded the mitigation requirements of regulatory agencies. The project design emphasized the restoration of the physical, chemical, and hydrological features that support healthy floodplain ecosystems. This included the construction of a new, meandering stream, and topography to reflect the natural characteristics of comparable systems in the region. Upon completion of the project, ten years of compliance monitoring documented changes in stream morphology, native plant species coverage versus invasive plant species, water quality, and species community complexity. By year seven, the North Creek Stream and Wetland Area project goals had been met, shifting the highly modified pastureland into a functioning floodplain with natural ecosystem services and improved habitat for salmon, birds, and other plants and animals.

At the time of original campus construction, some of the upland wetlands that were identified to be filled as a part of campus development were never filled. Among these is Wetland 14 (0.11 acres), an isolated depressional located west of 110th Avenue NE (within Development Area C). Although original campus development planned and permitted for the filling of this wetland, it has remained unfilled. Given the lack of hydrologic connection to the North Creek riverine ecosystem and the mitigation efforts associated with previous permitting, it was determined that impacts to Wetland 14 were accounted for under the original review for the development of the campus and that future development of the reserve parcel will not adversely affect adjacent wetlands areas, water quality, or fish and wildlife habitat. Further, by restoring the entire North Creek reverine ecosystem, the State of Washington compensated for any impacts Wetland 14 (*ARCADIS U.S., Inc., 2015 and 2016*).

As part of the analysis for the *Campus Master Plan*, further preliminary wetland investigations were conducted on the Husky Hall site (portion of Development Area C) and the Husky Village site (portion of Development Area D) to identify any additional potential wetland areas. A closed depression wetland feature was identified along the eastern edge of Development Area C, between the existing Husky Hall parking lot and 110th Avenue NE; this wetland area is approximately 0.05-acres in area. A seasonally fed wetland area was also identified along

the eastern edge of the Husky Village site in Development Area D; this wetland area is approximately 0.11-acres in area. Preliminary analysis of these areas indicates that based on City of Bothell critical area regulations (Bothell Municipal Code [BMC] Section 14.04) they could meet the criteria to be classified as Category III wetlands (moderate level of function) which requires a buffer of 100 feet (*Raedeke, 2016*).

It is possible that the wetland areas, or portions of these areas, associated with the Husky Hall (Development Area C) and Husky Village (Development Area D) sites are remenants of the upland wetlands previously identified at the time of initial campus development and were accounted for under the original review.

Wetland Plant Communities

Wetland plants were planted in five different community types within the campus' wetland restoration area, including: evergreen forest types, floodplain and riparian forest types, floodplain scrub-shrub types, emergent marsh types, and mircodressions. The community-types were planted in an intricate mosaic design, to serve as a foundation for natural floodplain ecosystem development. The following represents a sample of the common species planted in each community-type. In the everygreen forest community-type: douglas-fir (*Psuedotsuga menziesii*), big leaf maple (Acer *macrophyllum*), red elderberry (*Sambucus racemosa*) and sitka brome (*Bromus sitchensis*). In the floodplain and riparian forest community-type: red alder (*Alnus rubra)*, western red cedar (*Thuja plicata)*, black cottonwood (*Populus trichocarpa)*, viburnum *(Viburnum edule)*, and skunk cabbage (*Lysichitum americanum*). In the floodplain scrub-shrub community-types: pacific willow *(Salix lasiandra)*, sitka willow *(Salix sitchensis)*, redosier dogwood *(Cornus stolonifera),* and small-fruited bulrush (*Scirpus microcarpus)*. In emergent marsh community-types: lenticular sedge (*Carex* kelloggii) (among several other sedge species), water parsley (*Oenanthe sarmentosa*), and marsh cinquefoil (*Potentialla palustris*). And in microdepression community-types: Oregon ash (*Fraxinus latifolia*), western red cedar (*Thuja plicata*), red huckleberry (*Vaccinium parvifolium*), hardhack spirea (*Spirea douglasii*), and sitka sedge (*Carex sitchensis*).

Wetland Habitat

Many species of wildlife (e.g., waterfowl and freshwater fish) require certain types of wetland habitat to breed, nest, rear young, and acquire nutrient stores for winter and during migration. Restoring the plant community-types on the floodplain has increased available habitat for wildlife, with a total of thirteen plant communities defined as of July 2013. The new, meandering North Creek main channel provides fish habitat via pools, riffles, and wood. The secondary channels offer backwater habitat in the areas where flow levels are lower. These restored streams are particularly important for the region's reduced populations of

salmon, which could potentially use the habitat for migration, spawning, and rearing juveniles.

Plants

Trees on campus range from native to non-native species of varying size and condition. The most prominent native species within the developable portions of campus, those areas that lie outside the wetland and wetland buffer, include Douglas-fir (Pseudotsuga menziesii) and western redcedar (Thuja plicata), often with salal (Gaultheria shallon) and vine maple (Acer circinatum) understory species. The estimated number of significant trees on campus is approximately 525 within the developable portions of campus based on the city of Bothell Municipal Code which defines significant trees as any tree greater than 8-inch in diameter, excluding alders and cottonwoods (BMC 12.18.030).

Vegetation within Development Areas A though G have been assigned a forest type description based on species composition and forest structure. In addition, each Development Area was also assigned a relative rating based on the ecological value it likely provides. The ecological value ratings are defined as low, moderate, or high and are based on tree species, size, condition, location, and stand structure. Based on this information, forested areas on the campus with the most coniferous trees over 30-inches diameter were estimated to provide greater ecological value. No high ratings were assigned due to the existing layout and usage of the campus, presence of invasive species, and/or human interaction required to maintain vegetated areas.

The following provides a summary of existing trees/vegetation within each development area (see **Figure 3.3-1** for an illustration of tree canopy ecological values on campus).

- ***Development Area A***
  Forest Type: Young, mixed-conifer forest; approximately 80 trees.
  Ecological Value: Low
  As indicated in **Figure 3.3-1**, Development Area A is mostly comprised of parking lot with Douglas-fir (*Pseudotsuga menziesii*), sweetgum (*Liquidambar styraciflua*), and some vine maple (*Acer circinatum*) trees primarily within medians throughout the parking lot. The west edge of the parking lot has the most notable native trees with moderate ecological value trees along the western boundary of campus. Prominent species include Douglas-fir and western redcedar.

- ***Development Area B***
  Forest Type: Mature mixed-conifer forest; approximately 100 trees.
  Ecological Value: Moderate

Source: Walker Macy and the University of Washington, 2017.

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

Figure 3.3-1

Existing Tree Canopy Ecological Values

As indicated on **Figure 3.3-1**, Development Area B contains a mix of moderate ecological value trees (located in the central portion of Development Area B) and low ecological value trees (located in the northern and southern portion of Development Area B) Based on a previous survey of 55 trees, 28 of them measured over 30-inches diameter at standard height (DSH). The northern portion of Development Area B consists of forest grown Douglas-fir trees that showed early signs of canopy decline and have a low live crown ratio (LCR)[1].

- ***Development Area C***
  Forest Type: Mixed conifer forest; approximately 238 trees.
  Ecological Value: Moderate
  This area consists of the large swath of trees just west of 110th Ave NE, as well as the landscaped and forested areas surrounding the existing Husky Hall. As indicated in **Figure 3.3-1**, moderate ecological value trees are located in the southern and eastern portion of Development Area C and low ecological value trees are located in the western portion. When considering development in this area, trees should be retained in clusters or groves as much as possible to decrease the likelihood of windthrow. The forested area west of Husky Hall is mostly Douglas-fir and bigleaf maple (*Acer macrophyllum*) with a high volume of invasive species in the understory including both ivy (*Hedera* spp.) and Japanese knotweed (*Fallopia japonica*).

- ***Development Area D***
  Forest Type: Variable forest type and structure including riparian, mature Douglas-fir, and early successional closed canopy forest; approximately 120 trees.
  Ecological Value: Low to Moderate
  The forest types for this area of campus vary greatly and include many species. The northeastern portion of Development Area D contains Douglas-fire trees that are considered moderate ecological value trees (see **Figure 3.3-1**). The western portion includes mostly mature conifer trees and the center of Husky Village is mainly ornamental cherry trees that were likely planted when the housing was constructed; these areas are considered to contain low ecological value trees.

- ***Development Area E***
  Forest Type: Young, newly planted trees; approximately 14 trees.
  Ecological Value: Low
  There are very few significant trees throughout Development Area E and trees in this area are considered to be low ecological value (see **Figure 3.3-1**). Much of this area is composed of open, grassy areas. Restoration tree plantings were located sporadically throughout the area south of the sports and recreation complex. Species primarily

[1] Trees with a lower live crown ratio are typically less tolerant of exposure to new weather patterns that can result from adjacent tree removal and are more susceptible to windthrow.

include western redcedar, shore pine, and Douglas-fir. The area around the sports complex has a few small, planted trees. It is likely that many of the smaller trees present would be good candidates for transplanting, if needed.

- ***Development Area F***
  Forest Type: Mixed-conifer forest; approximately 32 trees.
  Ecological Value: Moderate
  This area consists of mainly mature coniferous trees with some younger deciduous trees emerging in the understory. Trees in the southern portion are considered to be moderate ecological value while trees in the central and northern portion are considered to be low ecological value (see **Figure 3.3-1**). Trees within the northern portion have been heavily managed in the past, including topping. Several dead western redcedar trees are located throughout this area and likely provide habitat for wildlife.

- ***Development Area G***
  Forest Type: Young coniferous tree planting; approximately 20 trees.
  Ecological Value: Low
  This area has few trees, most of which are located along the east edge of Campus Way NE and are considered to be low ecological value (see **Figure 3.3-1**). There is also a small orchard just north of the Chase House.

Animals

Fish and Fish Habitat

Fish habitat areas on campus are associated with North Creek and there are no fish habitat areas within the upland developed portion of campus. Primary fish species inhabiting North Creek and associated wetland area include cutthroat trout, pumpkinseed sunfish, sticklebacks, salmon (Chinook, Sockeye, and Coho), kokanee, largescale sucker, northern pikeminnow, sculpins, brook lamprey, and crayfish. Common creek animals include beaver, river otter, nutria, muskrat, mink, weasel, merganser ducks, freshwater mussels, and turtles (infrequent).

Terrestrial Species and Habitat

The UW Bothell/CC campus generally provides foraging and nesting habitat for small mammals and for both resident and migratory songbirds common to the region. The North Creek Stream and Wetland Area provides the primary wildlife habitat areas on the campus, including habitat for a variety of species. Wildlife that have been observed in the North Creek Stream and Wetland Area include, deer, coyote, raccoon, possum, beaver,

North Creek Wildlife

river otter, muskrat, grey squirrel, and rabbits. Common birds in the area include, but are not limited to, crows, sparrows, hawks, falcons, Bald eagle, herons, several duck species, cormorant, hummingbirds and kingfishers. Several frog species, long toed salamander, and garter snakes are also occasionally observed in the wetland areas.

Existing developed, landscaped and undeveloped areas of the upland portion of campus (Development Areas A through G) primiarily provide habitat for suburban disturbance tolerant wildlife such as squirrels, rabbits, raccoons, crows, etc.

Threatened and Endangered Animal Species

According to the U.S. Fish and Wildlife Service, no endangered species are located on or in the campus vicinity. Four types of threatened species may be present on campus or in the site vicinity, including the streaked horned lark (*Eremolphila alepstris strigata*), the yellow-billed cuckoo (*Coccyzus americanus*), the marbled murrelets (*Brachyramphus marmoratus*), and the bull trout (*Salvelinus confluentus*). According to the Endangered Species Act, a threatened species is one that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range (*U.S. Fish and Wildlife Service, 2017*).

3.3.2 Impacts

This section of the Draft EIS identifies how development under the EIS Alternatives would affect wetland, plants, and animals resources on the UW Bothell/CC campus.

No Action Alternative

Scenario A – Baseline Condition

Under Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus and existing natural and recreational open spaces would remain. Since no development would occur on campus it is anticipated that there would be no impacts to wetland, plants or animals.

Scenario B – Allowed in PUD

Under Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the PUD.

Wetlands

The North Creek Stream and Wetland Area would be retained under Scenario B and impacts to that area would not be anticipated. Development under Scenario B could be located within portions of Development Area C that could require the filling of Wetland 14. As described above, fill of Wetland 14 was accounted for under the original environmental review for the development of the campus and restoration of the future fill of Wetland 14 was included as part of the North Creek Stream and Wetland Area restoration project in the eastern portion of campus and significant impacts would not be anticipated. Development under Scenario B is not anticipated to be located in proximity to the additional wetlands located in Development Areas C and D, and it is assumed that there would be no direct or indirect impacts to these wetlands.

Plants

Development under Scenario B would result in temporary impacts from construction due to the removal of existing trees and vegetation on campus. Depending on the location of development, construction activities could result in potential impacts to some moderate ecological value trees located along the western edge of Development Area A, the central portion of Development Area B, the southern and eastern portion of Development Area C, the northeastern portion of Development Area D, and the southern portion of Development Area F (see **Figure 3.3-1**).

Management of campus trees requires a campus-wide approach to ensure proper growing conditions relative to daylight, hydrology, and other environmental considerations. Efforts to create a live database of existing trees, with information relative to species, size, condition, and maintenance records are currently being initiated in a partnership between campus grounds personnel working with campus faculty and students. This tool would become instrumental to increase the general knowledge and awareness of the trees on campus, and to identify opportunities to become better stewards of the campus landscape. As specific projects are defined and sites are selected, the campus would perform an evaluation of existing trees to inform the design team of trees that are considered significant, in an effort to preserve and maintain these to the extent feasible. Documentation of trees removed due to construction activities is currently and would continue to be tracked on a campus-wide basis.

Animals

Potential development under Scenario B is not anticipated to be located adjacent to fish habitiat areas. In the event that development is located within Development Areas E, F and G, it could be located in proximity to North Creek and erosion and additional stormwater generated on the site could affect fish habitat areas. An increase in impervious surface and

associated stormwater from new development on the campus could also result in new/increased stormwater discharges from the campus. Continued management of the campus in accordance with Salmon-Safe certification standards[2] would ensure that fish habitat areas would be maintained on campus. With implementation of appropriate erosion and sedimentation controls, and stormwater management mitigation measures (e.g., such as Salmon-Safe provisions and LID practices), it is not anticipated that fish habitat within North Creek would be significantly affected by development under Scenario B.

Trees, vegetation, landscaping and open spaces on the upland campus provide limited urban habitat areas for disturbance-tolerant birds and small mammals. Development under Scenario B would result in construction disturbances that could temporarily affect existing animals on the campus. The removal of trees and vegetation to accommodate development would also result in a loss of habitat areas. The implementation of tree replacement plans and landscaping plans as part of specific development projects would provide new trees, landscaping and associated urban habitat areas on campus and significant impacts would not be anticipated.

The potential impacts identified above for fish and wildlife habitat could also affect threatened species that may be located on campus or in the surrounding area. To the extent that mitigation measures identified above are provided as part of development, no significant impacts to threatened species are anticipated.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 represents a level of development and improvements that would meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. This alternative reflects a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A and B. Development under Alternative 1 would include approximately 1,072,300 gsf of net new building space that would generally be clustered in the central and south campus areas (Development Areas A, B and F).

Wetlands

Under Alternative 1, the North Creek Stream and Wetland Area would be retained and direct impacts to that area would not be anticipated. New development could be located within portions of Development Area C that could require the filling of Wetland 14, but as described above, fill of Wetland 14 was accounted for under the original environmental review for the

[2] The UW Bothell and CC campus was awarded Salmon-Safe certification in March 2008. Salmon-Safe certification indicates that property owners go above and beyond regulations to adopt specific measures to restore habitat, conserve water, protect streamside habitat and wetlands, reduce erosion/sedimentation and reduce the use of chemical pestisides.

development of the campus and restoration associated with the potential fill of Wetland 14 was included as part of the North Creek Stream and Wetland Area restoration project. Development under Alternative 1 would not be located in proximity to the additional wetlands located in Development Areas C and D, and it is assumed that there would be no impacts to these wetlands or associated buffers.

Plants

Development under Alternative 1 would result in temporary impacts from construction due to the removal of existing trees and vegetation on campus. Due to the assumed located of new development under Alternative 1 it is anticipated that construction activities would result in potential impacts to some moderate ecological value trees, particularly within the central portion of Development Area B, the southern portion of Development Area C and the southern portion oof Development Area F (see **Figure 3.3-1** for a map of existing trees).

Management of campus trees requires a campus-wide approach to ensure proper growing conditions relative to daylight, hydrology, and other environmental considerations. Efforts to create a live database of existing trees, with information relative to species, size, condition, and maintenance records are currently being initiated in a partnership between campus grounds personnel working with campus faculty and students. This tool would become instrumental to increase the general knowledge and awareness of the trees on campus, and to identify opportunities to become better stewards of the campus landscape. As specific projects are defined and sites are selected, the campus would perform an evaluation of existing trees to inform the design team of trees that are considered significant, in an effort to preserve and maintain these to the extent feasible. Documentation of trees removed due to construction activities is currently and would continue to be tracked on a campus-wide basis.

Animals

Under Alternative 1, potential development is not anticipated to be located adjacent to fish habitiat areas associated with the North Creek Stream and Wetland Area. Assumed development within Development Areas E and F would be located the most proximate to North Creek. However, development within these areas would still be located at least 350 feet or more away from North Creek and as such, erosion and sedimentation from construction-related activities would not be anticipated to affect fish habitat areas. An increase in impervious surface and associated stormwater from new development on the campus could also result in new/increased stormwater discharges from the campus. Continued management of the campus in accordance with Salmon-Safe certification standards would ensure that fish habitat areas would be maintained on campus. With implementation of appropriate erosion and sedimentation controls, and stormwater

management mitigation measures (e.g., such as Salmon-Safe provisions and LID practices), no significant impacts to fish habitat within North Creek would be anticipated under Alternative 1.

Trees, vegetation, landscaping and open spaces in the upland portion of the campus provide limited urban habitat areas for disturbance-tolerant birds and small mammals. Development under Alternative 1 would result in construction disturbances (i.e., noise, activity and removal of tree/vegetation) that could temporarily affect existing wildlife and habitat in the upland portion of campus. The removal of trees and vegetation to accommodate development within Development Areas A and B would result in a loss of existing habitat areas.

New buildings within Development Areas E and F would also result in increased construction-related noise and activity that would be the most proximate to the North Creek Stream and Wetland Area and associated wildlife habitat, and would result in temporary disturbances to wildlife in and adjacent to these areas. The removal of trees and vegetation to accommodate development within Development Areas E and F would also result in a loss of existing habitat areas.

The implementation of tree replacement plans and landscaping plans as part of specific development projects would provide new trees, landscaping and associated urban habitat areas on campus and significant impacts would not be anticipated. With the mitigation measures identified as part of development, no significant impacts to wildlife or threatened species are anticipated.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F. Development under Alternative 2 would include approximately 907,300 gsf of net new building space within the central portion of campus (Development Areas B, E and F).

Wetlands

Similar to Alternative 1, the North Creek Stream and Wetland Area would be retained under Alternative 2 and direct impacts to that area would not be anticipated. New development within portions of Development Area C would not be anticipated to require the filling of Wetland 14. Development under Alternative 2 is also not anticipated to be located in proximity to the additional wetlands located in Development Areas C and D, and it is assumed that there would be no impacts to these wetlands or associated buffers.

Plants

Development under Alternative 2 would result in temporary impacts from construction due to the removal of existing trees and vegetation on the upland development portions of campus. Similar to Alternative 1, new development under Alternative 2 is anticipated to require construction activities would result in the loss of some moderate ecological value trees (see **Figure 3.3-1**). Development under Alternative 2 would have a higher potential for impacts to moderate ecological value trees in Development Area B, but would have a lower potential for impacts in Development Area C than Alternative 1. Potential impacts to moderate ecological values trees in Development Area F would be similar to Alternative 1.

Management of campus trees under Alternative 2 would follow the process identified under Alternative 1.

Animals

Under Alternative 2, potential development is not anticipated to be located adjacent to fish habitiat areas associated with the North Creek Stream and Wetland Area. Assumed development within Development Areas E and F would be located the most proximate to North Creek. However, similar to Alternative 1, development within these areas would be located approximately 350 feet or more from North Creek and erosion and sedimentation from construction-related activities would not be anticipated to affect fish habitat areas. An increase in impervious surface and associated stormwater from new development on the campus could also result in new/increased stormwater discharges from the campus. Continued management of the campus in accordance with Salmon-Safe certification standards would ensure that fish habitat areas would be maintained on campus. With implementation of appropriate erosion and sedimentation controls, and stormwater management mitigation measures (e.g., such as Salmon-Safe provisions and LID practices), no significant impacts to fish habitat within North Creek would be anticipated under Alternative 2.

Trees, vegetation, landscaping and open spaces in the upland portion of the campus provide limited urban habitat areas for disturbance-tolerant birds and small mammals. Development under Alternative 2 would result in construction disturbances (i.e., noise, activity and removal of tree/vegetation) that could temporarily affect existing wildlife and habitat in the upland portion of campus. The removal of trees and vegetation to accommodate development within Development Area B would result in a loss of existing habitat areas.

New buildings within Development Areas E and F would also result in increased construction-related noise and activity that would be the most proximate to the North Creek Stream and Wetland Area and associated wildlife habitat, and would result in temporary disturbances to wildlife in and adjacent to these areas. The removal of trees and vegetation to accommodate

development within Development Areas E and F would also result in a loss of existing habitat areas. Construction disturbances to wildlife/habitat in this area would likely be greater than Alternative 1 due to the increased amount of development that would be located within Development Areas E and F, which would result in more temporary/short term construction noise and activity in proximity to the North Creek Stream and Wetland Area and associated wildlife habitat areas.

The implementation of tree replacement plans and landscaping plans as part of specific development projects would provide new trees, landscaping and associated urban habitat areas on campus and significant impacts would not be anticipated. With the mitigation measures identified as part of development, no significant impacts to wildlife or threatened species are anticipated.

Alternative 3 – Growth along Topography (Northward Growth)

Alternative 3 represents a focus of development that is assumed to follow the north/south topography of the campus, with the majority of development assumed for the north portion of campus in Development Areas B, C, D, E and F. Assumed development under Alternative 3 would include approximately 907,300 gsf of net new building space and assumes the demolition of the existing Husky Hall and Husky Village buildings to accommodate new development.

Wetlands

Similar to Alternative 1, the North Creek Stream and Wetland Area would be retained under Alternative 3 and direct impacts to that area would not be anticipated. New development would be located within portions of Development Area C that could require the filling of Wetland 14, but the potential filling of Wetland 14 was analyzed under the original environmental review for the development of the campus and restoration of the potential fill of Wetland 14 was included as part of the North Creek Stream and Wetland Area restoration project. Development of new buildings and the new campus access roadway from Beardslee Boulevared is anticipated to be located in proximity to the additional wetlands located in Development Areas C and D, and it is assumed that there would be impacts to the wetland (i.e., impacts to wetland buffers and/or filling of the wetland area). In the event that a specific project would result in direct impacts to the wetlands in Development Areas C and D, a wetland delineation survey would be completed to facilitate a determination of the extent to which these wetlands were accounted for as part of the North Creek Stream and Wetland Area Restoration Project. Any direct impacts to wetlands or wetland buffers not accounted for under the the North Creek Stream and Wetland Area Restoration Project would comply with the applicable critical areas and wetlands requirements (including City of Bothell BMC 14.04 – Article XI: Wetlands) and significant impacts would not be anticipated.

Plants

Development under Alternative 3 would result in temporary impacts from construction due to the removal of existing trees and vegetation on the upland development portion of the campus. New development under Alternative 3 it is anticipated to require construction activities that would result in potential impacts to some moderate ecological value trees (see **Figure 3.3-1**). Development under Alternative 3 would have a higher potential for impacts to moderate ecological value trees in Development Area D than Alternative 1, but would have a lower potential for impacts in Development Areas B and C. Potential impacts to moderate ecological value trees in Development Areas F would be similar to Alternative 1.

Management of campus trees under Alternative 3 would follow the process identified under Alternative 1.

Animals

Under Alternative 3, potential development is not anticipated to be located immediately adjacent to fish habitiat areas. Assumed development within Development Areas E and F would be located the most proximate to North Creek. However, similar to Alternatives 1 and 2, development within these areas would be located approximately 350 feet or more from North Creek and erosion and sedimentation from construction-related activities would not be anticipated to affect fish habitat areas. An increase in impervious surface and associated stormwater from new development on the campus could also result in new/increased stormwater discharges from the campus. Continued management of the campus in accordance with Salmon-Safe certification standards would ensure that fish habitat areas would be maintained on campus. With implementation of appropriate erosion and sedimentation controls, and stormwater management mitigation measures (e.g., such as Salmon-Safe provisions and LID practices), no significant impacts to fish habitat within North Creek would be anticipated under Alternative 3.

Trees, vegetation, landscaping and open spaces in the upland portion of the campus provide limited urban habitat areas for disturbance-tolerant birds and small mammals. Development under Alternative 3 would result in construction disturbances (i.e., noise, activity and removal of tree/vegetation) that could temporarily affect existing wildlife and habitat in the upland portion of campus. The removal of trees and vegetation to accommodate development within Development Area B and C would result in a loss of existing habitat areas.

New buildings within Development Areas E and F would also result in increased construction and operation-related noise and activity that would be the most proximate to the North Creek Stream and Wetland Area and associated wildlife habitat, and would result in temporary disturbances to wildlife in and adjacent to these areas. The removal of trees and vegetation to accommodate development within Development Areas E and F would also result in a loss

of existing habitat areas. Construction disturbances to wildlife/habitat in this area would likely be similar to Alternative 2.

The implementation of tree replacement plans and landscaping plans as part of specific development projects would provide new trees, landscaping and associated urban habitat areas on campus and significant impacts would not be anticipated. With the mitigation measures identified as part of development, no significant impacts to wildlife or threatened species are anticipated.

Potential Indirect/Cumulative Impacts

Development under Alternatives 1 – 3 and No Action – Scenario B would contribute to the overall amount of impervious surface and stormwater discharge in the area, as well as the overall amount of short-term (construction activity) and long-term (building operation and human activity) disturbances to wetlands, plants, and animals. Although the timing of constructicon of each individual structure is not known, it is possible that some level of concurrent development, and associated construction activities, would occur over a concurrent timeframe and in proximity to development under *Campus Master Plan*. This could result in the potential for cumulative water resource and plants/animal-related impacts associated with concurrent construction activities. Given the developed urban nature of the area and compliance with applicable code requirements, significant impacts to wetland, plants and animals resources associated with cumulative development would not be anticipated.

3.3.3 Mitigation Measures

The proposed *Campus Master Plan* includes goals and objectives to create a more sustainable environment and retain existing, significant campus open spaces, landscapes and natural features to the extent feasible. No development would occur within the North Creek Stream and Wetland Area. In addition to compliance with applicable regulations related to construction and operations, the following potential measures are intended to further reduce the potential for wetland, plant or animal impacts.

- All development would comply with federal, state and local regulatory standards (including BMC 14.04 regulations related to critical areas and wetlands) for development and mitigation BMPs could include: site disturbance controls, construction staging, erosion and spill control, drainage control (water quantity and quality), vegetation retention and re-vegetation plans, and BMP training and monitoring.

- In the event that a specific project would result in a direct impacts to the wetlands in Development Areas C and D, a wetland delineation survey would be completed to

facilitate a determination of the extent to which theses wetlands were accounted for as part of the North Creek Stream and Wetland Area Restoration Project. Any direct impact to wetlands or wetland buffers not accounted for under the North Creek Stream and Wetland Area Restoration Project would comply with applicable critical areas and wetland requirements (including BMC 14.04).

- Plant and animal mitigation opportunities include impact avoidance (e.g., working when fish species are not particularly sensitive to disturbance or avoiding identified terrestrial habitats), stormwater drainage control, site and construction best management practices (BMP), site design (including vegetation retention and landscaping), and habitat enhancement or restoration, as feasible. Planned development would be sensitive to areas that are proximate to the North Creek Stream and Wetland Area.

- As specific projects are defined and sites are selected, the campus would perform an evaluation of existing trees to inform the project design team of trees that are considered significant, in an effort to preserve and maintain these trees to the extent feasible. Documentation of trees removed due to construction activities would be tracked on a campus-wide basis.

- Trees that must be removed to accommodate potential projects would be replaced consistent with provisions of the Bothell Municipal Code (BMC 12.18.030).

- A temporary soil erosion and sedimentation control plan and a drainage control plan would be implemented to mitigate construction-related impacts.

- Landscaped areas affected by construction staging or parking would be restored to their existing condition or better following construction.

- Stormwater controls would be applied during construction activities and over the long term. These controls and BMPs would control on-site erosion and transport of sediment and pollutants off site, by minimizing disturbance, stabilizing unworked materials, applying vegetative or mulch controls, and implementing other controls to reduce and treat contaminants in drainage water.

- Vegetation controls would continue to include an Integrated Pest Management Plan and a revegetation plan that emphasizes the propagation of native vegetation.

- Additional interpretative or education materials would be developed or made available to foster an appreciation of campus wetlands to help limit unnecessary disturbance or destruction of native vegetation or wildlife.

3.3.4 Significant Unavoidable Adverse Impacts

With implementation of the mitigation measures identified above, no significant unavoidable adverse impacts to wetlands, plants or animals would be anticipated under the EIS Alternatives.

3.4 ENERGY RESOURCES

This section of the Draft EIS describes the existing energy conditions on the University of Washington Bothell (UW Bothell)/Cascadia College (CC) campus and in the vicinity, and evaluates the potential for energy impacts that could occur as a result of development under the *Campus Master Plan*.

3.4.1 Affected Environment

Overview

Energy demand at the campus is primarily met by a combination of electrical power and natural gas. Electrical power is primarily utilized for campus building lighting, ventilation, operation of office equipment/computers, operation of laboratory equipment and other uses. Fossil fuel use on the campus primarily relates to natural gas utilized for building heating. Electricity and natural gas are provided to the area by Puget Sound Energy (PSE).

The campus uses a live, energy and resource monitoring system for all campus buildings (UW Bothell Sustainability Dashboard) which is intended to help building operators make informed decisions about managing space and resource consumption. The historical data in **Table 3.4-1** and **Table 3.4-2** was obtained from this system and depicts electricity and natural gas usage in existing campus academic buildings over a 3-year period (2014-2016).

Table 3.4-1
CAMPUS ELECTRICITY USAGE 2014 - 2016[1]

Building	2016 (kWh[2])	2015 (kWh)	2014 (kWh)
UW1	1,106,721	1,117,804	1,185,191
CP1	931,793	830,109	851,725
Discovery Hall	878,678	753,233	329,986
CC1	867,083	446,349	919,509
LB1/LBA	854,317	814,155	876,588
UW2	630,393	558,006	595,970
LB2	476,883	446,275	556,781
CC3	443,426	536,528	477,770
CC2	411,726	230,602	418,363
ARC	281,799	72,628	0
Total	**6,882,819**	**5,805,689**	**6,211,883**

Source: UW Bothell Sustainability Dashboard, 2017.

[1] Does not include electrical usage associated with Husky Village, Husky Hall or the existing parking garages.
[2] Kilowatt hour is a unit of energy equal to 1,000 watt-hours.

Table 3.4-2
CAMPUS NATURAL GAS USAGE 2014 - 2016[3]

Building	2016 (kBtu[4])	2015 (kBtu)	2014 (kBtu)
Discovery Hall	41,143,136	28,892,834	12,247,446
ARC	4,071,983	1,562,687	0[5]
CC3	1,266,345	567,425	705,601
LB1/LBA	1,233,362	1,024,345	1,083,226
UW2	1,231,159	956,520	752,232
CC1	847,554	322,084	553,435
LB2	570,115	440,485	581,934
CC2	493,583	319,139	364,383
CP1	373,481	258,410	466,519
UW1	77,892	164,680	404,874
Total	**51,308,610**	**34,508,609**	**17,159,650**

Source: UW Bothell Sustainability Dashboard, 2017.

For the purposes of this EIS analysis, electricity and natural gas usage per building square foot has been calculated based on the average usage in 2015 and 2016[5] (**Table 3.4-1** and **Table 3.4-2)**, and the amount of existing academic building space on the campus (approximately 683,480 sq. ft.). Based on the existing usage data, the academic uses on campus utilize approximately 9.28 kWh of electricity per square foot of building space and approximately 62.78 kBtu of natural gas per square foot of building space.

As a part of UW Bothell and CC's commitment to reducing energy consumption, the schools incorporated principles of sustainability into its 21st Century Initiative in 2008. The Chancellor's Advisory Committee on Environmental Sustainability (CACES) oversees progress as it relates to this commitment to energy and natural resource conservation efforts for the campus' infrastructure, facilities, and grounds. Conservation measures that have been implemented by the UW Bothell and CC, as reported by CACES, include:

- Retrofitting lighting in garages to provide increased energy efficiency.
- Incentivizing alternative transportation efforts, including: offering discounted transit passes; bike racks, bike lockers, and showers for cyclists; rideshare matching programs; preferential parking for carpools and electric vehicles.
- Aiming for LEED Silver minimum certification on all future state-funded campus projects. Currently, Discovery Hall (LEED Gold) and CC3 (LEED Platinum) are the two LEED certified buildings on campus.
- Installation of solar panels on the roofs of the North and South Garages.

[3] Does not include natural gas usage for Husky Hall or Husky Village.
[4] Kilo British Thermal Units - a measure of heat energy
[5] Usage from 2014 was not utilized for this calculation because the ARC building was not operational at that time.

- Operating diesel vehicles and equipment used for grounds maintenance with 20% biodiesel fuel.
- HVAC and external lighting controlled by automated systems.
- Linking Variable Air Volume boxes with lighting occupancy sensors to reduce airflow when rooms are unoccupied.

3.4.2 Impacts

This section of the Draft EIS identifies the potential impacts on energy usage on the campus and in the surrounding areas that could occur with development under the EIS Alternatives.

No Action Alternative

Scenario A – Baseline Condition

Under Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus and no aesthetic changes or changes in views would occur. The current 683,500 gsf of academic space and 74,200 gsf of housing space on campus (total of 757,700 gsf on campus), along with the 70,700 gsf of off-site academic space within 0.25 mile of campus, would remain. Since no new development would occur on campus, no change in energy demand or significant energy impacts would occur under Scenario A.

Scenario B – Allowed in PUD

Under Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the PUD. No additional student housing beds would be provided. The current vehicular and pedestrian circulation systems would remain. An on-campus parking supply totaling 4,200 to 6,000 spaces would be provided on campus.

Development under Scenario B would increase demand for energy, including electrical power energy and natural gas. The increased demand for electrical power is assumed to generally follow historic trends and would primarily be related to building lighting and ventilation (fans), and operation of laboratory and process equipment, office-type equipment such as computers, and chillers for air conditioning. Assumed development under Scenario B (approximately 386,100 gsf of net new development) would result in an approximately 51 percent increase in building space on campus. Based on the average usage data identified above for the Affected Environment, it is anticipated that new

development on the campus could utilize approximately 3,583,000 kWh of electricity on an annual basis. This would represent an approximately 52 percent increase in electricity demand on campus[6]. The overall electrical power system is anticipated to be sufficient to meet additional demand, although expansion of the existing chiller station west of the South Parking Garage would be required to meet air conditioning needs.

Increased demand for natural gas is also assumed to follow historic trends and would primarily be utilized for building heating. Based on the usage data identified above for the Affected Environment, it is anticipated that new development on the campus could utilize approximately 24,239,000 kBtu of natural gas on an annual basis. This would also represent an approximately 47 percent increase in natural gas demand on campus.

Alternative 1 – Develop Institutional Identity (Southward Growth

Alternative 1 reflects a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A and B. Development under Alternative 1 would include approximately 1,072,300 gsf of net new building space that would generally be clustered in the central and south campus areas (Development Areas A, B and F). Development on the campus under Alternative 1 would result in additional demands for energy as discussed below.

Energy Demand

Campus growth under Alternative 1 would increase demand for energy, including electrical power energy and natural gas. The increased demand for electrical power is assumed to generally follow historic trends and would primarily be related to building lighting and ventilation (fans), and operation of laboratory and process equipment, office-type equipment such as computers, and chillers for air conditioning. As under current conditions, it is assumed that building lighting and ventilation would represent the largest demands for electrical power, followed by demands associated with operation of laboratory and office equipment. Assumed development under Alternative 1 would result in an approximately 141 percent increase in building space on campus. Based on current usage data, it is assumed that electricity demand on the campus under Alternative 1 would increase by approximately 9,950,000 kwh annually or approximately 144 percent over current conditions. Similar to No-Action – Scenario B, the overall electrical power system is anticipated to be sufficient to meet additional demand, although expansion of the existing chiller station west of the South Parking Garage would be required to meet air conditioning needs.

[6] This estimate is based on historic trends and does not include building design and operational measures that could further reduce the energy demand of the building.

Increased demand for natural gas is also assumed to follow historic trends and would primarily be utilized for building heating. Based on the usage data identified above for the Affected Environment, it is anticipated that new academic development on the campus under Alternative 1 (an increase of in campus building space of approximately 141 percent) could utilize approximately 67,318,000 kBtu of natural gas on an annual basis, which would represent an approximately 131 percent increase in natural gas demand on campus compared with the current usage.

As noted under the No Action – Scenario B, these estimates of increased demand under Alternative 1 do not reflect sustainable building design or operational measures that could reduce the amount of energy demand for new development. The UW Bothell and CC have committed to reducing energy consumption, and the CACES oversees progress as it relates to this commitment to energy and natural resource conservation efforts on the campus. Conservation measures have been previously implemented on the campus and would be anticipated to be implemented with future development under Alternative 1.

New development under Alternative 1 would comply with applicable energy codes, including the *2015 International Energy Conservation Code* as adopted by the City of Bothell (BMC 20.04.125). As plans for specific development projects are developed under the *Campus Master Plan*, the UW Bothell and CC design team would also contact PSE customer services to confirm specific requirements for service. As a result, significant energy impacts would not be anticipated.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F. Development under Alternative 2 would include approximately 907,300 gsf of net new building space that would generally be clustered in the central portion of campus (Development Areas B, E and F. Development on the campus under Alternative 2 would result in additional demands for energy as discussed below.

Energy Demand

Similar to Alternative 1, campus growth under Alternative 2 would increase demand for energy, including electrical power energy and natural gas. The increased demand for electrical power is assumed to generally follow historic trends and would primarily be related to building lighting and ventilation (fans), and operation of laboratory and process equipment, office-type equipment such as computers, and chillers for air conditioning.

Alternative 2 assumes approximately 907,300 gsf of net new building space (and approximately 120 percent increase in building space) and is anticipated to result in an increased demand for electrical power and natural gas. Based on current usage data, it is

assumed that electricity demand on the campus under Alternative 2 would increase by approximately 8,419,000 kwh annually or approximately 122 percent over current conditions. Similar to No-Action – Scenario B, the overall electrical power system is anticipated to be sufficient to meet additional demand, although expansion of the existing chiller station west of the South Parking Garage would be required to meet air conditioning needs.

Increased demand for natural gas is also assumed to follow historic trends and would primarily be utilized for building heating. Based on the usage data identified above for the Affected Environment, it is anticipated that new development on the campus under Alternative 2 could utilize approximately 56,960,000 kBtu of natural gas on an annual basis, which would represent an approximately 111 percent increase in natural gas demand on campus compared with the current usage.

As noted under Alternative 1, these estimates of increased demand under Alternative 2 do not reflect sustainable building design or operational measures that could reduce the amount of energy demand for new development. The UW Bothell and CC have committed to reducing energy consumption, and the CACES oversees progress as it relates to this commitment to energy and natural resource conservation efforts on the campus. Conservation measures have been previously implemented on the campus and would be anticipated to be implemented with future development under Alternative 2.

New development under Alternative 2 would comply with applicable energy codes, including the *2015 International Energy Conservation Code* as adopted by the City of Bothell (BMC 20.04.125). As plans for specific development projects are developed under the *Campus Master Plan*, the UW Bothell and CC design team would also contact PSE customer services to confirm specific requirements for service. As a result, significant energy impacts would not be anticipated.

Alternative 3 – Grow along Topography (Northward Growth)

Alternative 3 represents a focus of development that would follow the north/south topography of the campus, with the majority of development assumed for Development Areas B, C, D, E and F. Development under Alternative 3 would include 907,300 gsf of new building space. Husky Hall and Husky Village would be demolished under Alternative 3 to accommodate new development and would result in the removal of approximately 31,800 gsf for Husky Hall and 74,200 gsf for Husky Village. Development on the campus under Alternative 3 would result in additional demands for energy as discussed below.

Energy Demand

Similar to Alternative 2, campus growth under Alternative 3 would increase demand for energy, including electrical power energy and natural gas. The increased demand for

electrical power is assumed to generally follow historic trends and would primarily be related to building lighting and ventilation (fans), and operation of laboratory and process equipment, office-type equipment such as computers, and chillers for air conditioning.

Alternative 3 assumes a similar amount of net new building development on campus as Alternative 2 (907,300 gsf of net new building space) and it is anticipated that increased demand for electrical power and natural gas from new building uses would be the same as described above for Alternative 2. As under Alternative 2, additional chiller capacity would be required to meet air conditioning needs. However, compared to expansion of the existing chiller station under Alternative 1 and Alternative 2, Alternative 3 assumes development of a new satellite station in Development Area C.

The estimates of increased demand under Alternative 3 do not reflect sustainable building design or operational measures that could reduce the amount of energy demand for new development. The UW Bothell and CC have committed to reducing energy consumption, and the CACES oversees progress as it relates to this commitment to energy and natural resource conservation efforts on the campus. Conservation measures have been previously implemented on the campus and would be anticipated to be implemented with future development under Alternative 3.

New development under Alternative 3 would comply with applicable energy codes, including the *2015 International Energy Conservation Code* as adopted by the City of Bothell (BMC 20.04.125). As plans for specific development projects are developed under the *Campus Master Plan*, the UW Bothell and CC design team would also contact PSE customer services to confirm specific requirements for service. As a result, significant energy impacts would not be anticipated.

Potential Indirect/Cumulative Impacts

Development under Alternatives 1 – 3 and No Action – Scenario B would contribute to the amount of overall energy use (electricity and natural gas) in the area and, in combination with future new development in the area, would contribute to the overall PSE power generation and distribution system. To the extent that increased campus population and development increase the pressure for supporting development in the area, campus growth could also contribute to energy demands in the area. All construction activities in the area, both on the campus and in the campus vicinity, would be required to follow applicable regulations, and significant impacts would not be anticipated.

3.4.3 Mitigation Measures

The proposed *Campus Master Plan* includes goals and objectives to create a more sustainable environment that would build upon conservation measures that have already

been implemented on campus as part of the CACES. These policies would guide future campus development and would indirectly relate to the overall energy demand. In addition to compliance with applicable regulations related to construction and operations, the following potential measures are intended to further reduce the potential for energy demand impacts.

- New facilities would comply with applicable energy codes, including the *2015 International Energy Conservation Code* as adopted by the City of Bothell (BMC 20.04.125).
- Because the UW Bothell and CC must operate and maintain the facilities on a long-term basis, the economics of energy management and conservation are a primary design consideration. A standard of practicality must also be applied that assures that the building designs can be maintained properly. Sophisticated monitoring systems are available to assure efficient operations.
- As plans for development of facilities are developed, the UW Bothell and CC Design Team would contact PSE customer services to confirm specific requirements for service.
- Aggressive energy conservation measures could continue to be studied and implemented on campus.
- Adopt Leadership in Energy and Environmental Design (LEED) standards for all new development to increase building sustainability in all state funded projects.

3.4.4 Significant Unavoidable Adverse Impacts

New campus building development under the *Campus Master Plan* would increase the consumption of electricity and natural gas on the campus. With the implementation of identified mitigation measures, significant energy demand impacts are not anticipated.

3.5 ENVIRONMENTAL HEALTH

This section of the Draft EIS describes the existing environmental health conditions on the University of Washington Bothell (UW Bothell) and Cascadia College (CC) campus and in the site vicinity and evaluates the potential impacts that could occur as a result of the *Campus Master Plan.*

3.5.1 Affected Environment

Hazardous Materials

The UW Bothell/CC uses material in their laboratories that are considered hazardous due to their toxicity and flammability. These materials are generated in the course of conducting research and are typical in classroom laboratories.

The University of Washington Environmental Health and Safety (EH&S) Department is responsible for addressing environmental health issues on the UW Bothell/CC campus in order to provide a safe educational environment and work place[1]. University of Washington Administrative Policy Statement 11.2 regulates the management and disposal of hazardous wastes on campus and is in compliance with all local, state and federal environmental laws and regulations, including but not limited to Washington State Department of Ecology rules for Dangerous Waste Regulations; Washington State Department of Health (DOH) – Biomedical Waste Definitions; and the King County Board of Health Code for Biomedical Waste. Hazardous materials on campus primarily include hazardous chemical and fumes associated with laboratory activities. The EH&S Department maintains numerous guidelines and manuals for the handling and treatment of hazardous materials on campus, and ensures that the University is in compliance with all applicable Federal and State regulations; they also offer on-going staff training opportunities for the handling of chemicals and hazardous waste management.

All University of Washington facilities comply with the State of Washington occupational safety and health standards and local fire codes for the use of toxic and flammable materials in the campus environment. Required ventilation controls are available and maintained in work areas where toxic materials and volatile flammables are used. Code-conforming rooms and cabinets are provided for the storage and dispensing of flammable materials and chemicals.

The collection, treatment, and disposal of wastes from the operations using hazardous chemicals conform to the Washington State Department of Ecology and the U.S. Department of Transportation regulations. University of Washington personnel with special training for

[1] Cascadia College and the University of Washington are coordinating regarding a service level agreement to formalize the University of Washington providing EH&S services for the entire campus.

handling laboratory wastes are responsible for the collection and packaging of materials prior to shipping them to licensed treatment and disposal facilities.

Noise

Noise Regulations

Noise is defined as any sound that is undesirable because of speech and hearing interference or annoyance. The intensity, duration, and character of sounds can have an adverse effect on personal health and welfare. While one of the more serious consequences of noise is hearing loss, other significant effects include interference with sleep, disruption of conversation, and effect on work performance.

Sound level descriptors are ways of measuring and describing noise, including factors that account for sound duration, magnitude, frequency and pitch. Sound is measured in decibels (dB), a logarithmic ratio between pressures caused by a given sound spectrum. Environmental noise is measured as "A-weighted" sound level in decibels, symbolized as dBA. The A-weighted scale represents noise using the scale corresponding the most closely to the range and characteristics of the human ear. Equivalent sound level, shown as Leq, is a common descriptor for measuring fluctuating sounds. The Leq is the level of a constant sound that, over a given time period, contains the same amount of sound energy as the measured fluctuating sound. People commonly experience sound levels in the range of between 5 to 90 dBA. **Table 3.5-1** identifies sound levels of typical noise sources and activities. The smallest change in sound levels that is noticeable to most people is about 3 dBA.

Table 3.5-1
TYPICAL SOUND LEVELS

Noise Source or Activity	dBA
Jet takeoff (at 200 feet)	120
Construction Site, maximums (typical: 90 dBA)	110
Shout (at 5 feet)	100
Heavy truck (passing by at 50 feet)	90
Urban street on a main arterial	80
Automobile interior – freeway at 200 feet	70
Normal conversation (at 3 feet)	60
Office, classroom (with abundant activity sounds)	40 to 50
Living room (no audio or TV in use)	40
Bedroom (at a late hour, insulated windows)	20 to 30
Broadcast studio	20
Rustling leaves	10 to 15

Source: EPA, 1978.

Ambient noise is regulated by the City of Bothell under the City's Noise Ordinance (Bothell Municipal Code, Chapter 8.26). The Noise Ordinance adopts restrictions contained in Washington State's Maximum Environmental Noise Levels (WAC 173-60). City of Bothell maximum permissible sound levels are shown in **Table 3.5-2**.

Table 3.5-2
CITY OF BOTHELL MAXIMUM PERMISSIBLE ENVIRONMENTAL SOUND LEVELS (dBA)

Land Use of Noise Source	Land Use of Receiving Property		
	Residential Day/Night	Commercial	Industrial
Residential	55/45	57	60
Commercial	57/47	60	65
Industrial	60/50	65	70

Source: WAC 173-60-040.

While the City of Bothell's Noise Ordinance does not directly apply to University or college uses within the campus boundaries, it does serve to regulate noise between on-campus uses and adjacent land uses/properties (i.e., receiving properties). The City of Bothell considers academic use associated with major institutions such as the UW Bothell/CC campus to be commercial land uses for Noise Ordinance regulation purposes; student housing use associated with institutions is considered residential use. As indicated by **Table 3.5-2**, the allowable noise level from a commercial source received by another commercial source is 60 dBA (57 dBA from student housing use); the allowable noise level for residential receiving properties is 57 dBA (55 dBA from student housing use); and the allowable noise level for industrial receiving properties is 65 dBA (60 dBA from student housing use). For residential receiving properties, there is a 10-dBA reduction (to 47 dBA) during nighttime hours (10 PM to 7 AM on weekdays, and 10 PM to 9 AM on weekends). For commercial and industrial receiving properties, there is no nighttime 10-dBA reduction.

Certain provisions of the City of Bothell Noise Ordinance, namely BMC 8.26.065, regulate construction-related noise in the City of Bothell and the UW Bothell/CC follows those applicable provisions for construction noise. Construction noise hours are permissible Monday through Friday, 7am to 8pm and Saturday, 9am to 6pm.

The UW Bothell and CC also consider noise impacts on sensitive campus uses such as classrooms and student housing. As part of previous projects near noise sensitive uses on the campus, the UW Bothell and CC have implemented measures to minimize impacts on sensitive uses, such as limiting the use of higher noise equipment, limiting construction hours, ensuring properly sized mufflers and silencers, ensuring nighttime activities do not exceed allowable levels, and scheduling some activities at night (in accordance with applicable requirements) to minimize impacts to campus operations.

Existing Noise Conditions

On-Campus

The noise environment on the UW Bothell/CC campus varies considerably, from an urban noise environment surrounding the west side of campus (i.e., existing developed areas) to the natural noise environment (i.e., creek and wetland areas) surrounding much of the east side of the campus site. While the east side of the campus consists of a natural noise environment, it also is located adjacent to I-405 which is an interstate highway that produces a high level of noise from vehicle travel

Overall, existing noise conditions at the UW Bothell/CC campus are acceptable. Some isolated on-campus and adjoining areas, especially sensitive residential areas, experience noise from periodic construction and renovation work, pedestrian traffic, high traffic volumes, and temporary special campus events.

Surrounding Areas

Current noise conditions surrounding the campus also vary and are defined by the existing built environment features. The existing noise environment to east and south of campus are characterized by major highways, including I-405 to the east and SR-522 to the south. Both roadways exhibit high levels of vehicle travel and associated noise. The area to the north of campus is also characterized by an existing major roadway. Noise generated by vehicles traveling along Beardslee Boulevard are the primary source of noise to the north of campus; commercial offices and mixed-use development at Beardslee Crossing also contribute to the urban environment in this area. The noise environment to the west of campus is characterized by the residential neighborhoods and generally reflect lower noise levels than the other areas surrounding the UW Bothell/CC campus.

3.5.2 Impacts

This section of the Draft EIS identifies the potential environmental health-related impacts of the *Campus Master Plan* on the UW Bothell/CC campus and in the surrounding areas that could occur with development under the EIS Alternatives.

No Action Alternative

Scenario A – Baseline Condition

Under Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus and no aesthetic changes or changes in views would occur. The current 683,500 gsf of academic space and 74,200 gsf of housing space on campus (total of 757,700 gsf on campus), along with the 70,700 gsf of off-site

academic space within 0.25 mile of campus, would remain. Since no new development would occur on campus, no significant environmental health impacts would occur under Scenario A.

Scenario B – Allowed in PUD

Under Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the PUD. No additional student housing beds would be provided. Student enrollment of up to 10,000 FTEs on campus is assumed, consistent with the current PUD. The current vehicular and pedestrian circulation systems would remain and an on-campus parking supply totaling 4,200 to 6,000 spaces would be provided on campus.

Hazardous Materials

To the extent that new development under No Action – Scenario B includes research and/or laboratory facilities, an increase in the use of research chemicals, hazardous materials, and hazardous waste would occur. However, risks to human health would not be anticipated to increase significantly with development as the UW Bothell and CC would continue to manage hazardous materials on campus in accordance with existing policies/standards.

Noise

Potential noise impacts associated with the No Action – Scenario B would primarily occur during the construction of individual development projects. During construction, localized sound levels would temporarily increase in the vicinity of specific development sites and streets used by construction vehicles accessing the sites. The increase in sound levels would depend upon the type of equipment being used, the duration of such use, and the proximity of the equipment to the property line. Sound levels within 50 feet of construction equipment often exceed the levels typically recommended for residential and institutional land uses. **Table 3.5-3** provides a summary of noise levels from various types of construction equipment.

Table 3.5-3
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Equipment	Average Noise Level (dBA measured 50 ft. from the equipment)
Dump Truck (15-20 cu.yd. capacity)	91
Scraper	88
Backhoe	85
Concrete Mixer	85

Table 3.5-3 Continued

Equipment	Average Noise Level (dBA measured 50 ft. from the equipment)
Concrete Pump	82
Air Compressor	81
Bulldozer (D-8)	80
Generator	78
Pump	76

Source: US EPA, 1971.

Depending on the location of construction activity, construction noise would result in temporary annoyance and possible increased speech interference near the potential development sites. Such noise could impact academic activities on-campus that are in the vicinity of potential development sites. Construction activities located adjacent to off-campus areas (in particular near off-campus residential uses to the west of campus) would also result in temporary construction noise impacts to those adjacent land uses.

Operational noise associated with development under No Action – Scenario B would primarily be related to building operational systems (e.g., mechanical systems, etc.) and traffic noise. Increased traffic volumes from new development and increased campus population would result in an increase in traffic-related noise on-campus and on surrounding roadways. However, the campus and surrounding area is a highly developed urban area with existing traffic-related noise and the incremental increase in traffic volumes associated with No Action – Scenario B is not anticipated to result in significant noise impacts.

Due to the nature of academic and student housing uses on campus, as well as the proximity of adjacent off-campus residential uses along the western edge of the campus, it is anticipated that development under No Action – Scenario B would result in the potential for noise impacts associated with temporary construction and operation of new uses.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 represents a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A, B and F. Approximately 1,072,300 gsf of net new building space would be provided on the campus, including a total of 1,200 student housing beds. Similar to No Action – Scenario B, Alternative 1 assumes a total campus student population of 10,000 FTEs. On-campus parking for approximately 3,700 vehicles would also be provided on campus.

Hazardous Materials

Under Alternative 1, to the extent that new development under the *Campus Master Plan* includes research and/or laboratory facilities, an increase in the use of research chemicals, hazardous materials, and hazardous waste would occur. The potential for new research and/or laboratory facilities would be higher than No Action – Scenario B due to the increased amount of academic space under Alternative 1 which could result in the possibility of more research and/or laboratory space. However, risks to human health would not be anticipated to increase significantly with development as the UW Bothell and CC would continue to manage hazardous materials on campus in accordance with existing policies/standards established by the University's Environmental Health and Safety Department, as well as applicable local, state and federal standards/regulations/laws.

Noise

Potential noise impacts associated with Alternative 1 would primarily occur during the construction of individual development projects under the *Campus Master Plan*. During construction, localized sound levels would temporarily increase in the vicinity of the site and streets used by construction vehicles accessing the construction site. The increase in sound levels would depend upon the type of equipment being used, the duration of such use, and the proximity of the equipment to the property line. Sound levels within 50 feet of construction equipment often exceed the levels typically recommended for residential and institutional land uses.

Depending on the location of construction activity, construction noise would result in temporary annoyance and possible increased speech interference near the potential development sites. Such noise could impact existing academic uses on campus, particularly within Development Areas B and F, which contain the majority of existing academic development on campus. Development would be less likely to disturb existing student housing uses since no new development is assumed within or adjacent to Husky Village (Development Area D). Construction activities in Development Area C and in the western portion of Development Areas A and B would be located adjacent to off-campus residential areas would also result in temporary construction noise impacts to those adjacent residential uses.

Operational noise associated with development under Alternative 1 would primarily be related to building operational systems (e.g., mechanical systems, etc.) and traffic noise. Increased traffic volumes from new development would result in an increase in traffic-related noise on-campus and on surrounding roadways. However, the campus and surrounding area is a highly developed urban area with existing traffic-related noise and the incremental increase in traffic volumes associated with the *Campus Master Plan* is not anticipated to result in significant noise impacts. Operational building noise from new development in

Development Area C and within the western portion of Development Areas A and B could also affect adjacent off-campus residential uses.

Due to the nature of academic and student housing uses on campus, as well as the proximity of adjacent off-site residential uses along the western edge of the campus, it is anticipated that development under Alternative 1 would result in the potential for noise impacts associated with temporary construction and operation of new uses as part of the *Campus Master Plan*.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F. Approximately 907,300 gsf of net new building space would be provided on the campus, including a total of 600 student housing beds. Similar to Alternative 1, Alternative 2 assumes a campus student population of 10,000 FTEs and on-campus parking for approximately 3,700 vehicles.

Hazardous Materials

To the extent that new development under the *Campus Master Plan* includes research and/or laboratory facilities, an increase in the use of research chemicals, hazardous materials, and hazardous waste would occur. The potential for new research and/or laboratory facilities would be less than under Alternative 1 due to the lower amount of building space on campus. Risks to human health would not be anticipated to increase significantly with development as the UW Bothell and CC would continue to manage hazardous materials on campus in accordance with existing policies/standards.

Noise

Under Alternative 2, potential noise impacts would be primarily associated with construction of new development, operational noise associated with building systems and increased traffic levels. It is anticipated that these noise impacts would be lower than those described for Alternative 1 due to the lower amount of building development, including fewer student housing beds. Construction noise under Alternative 2 could temporarily impact existing academic uses on campus, particularly within Development Areas B and F. Development would be less likely to disturb existing student housing uses since no new development is assumed within or adjacent to Husky Village (Development Area D). Construction activities in Development Area C and in the western portion of Development Areas A and B would be located adjacent to off-campus residential areas and would also result in temporary construction noise impacts to those adjacent residential uses. These impacts to adjacent off-campus residential uses would be lower than under Alternative 1 due to the lower amount of development that would be located in proximity to the western boundary of campus.

Under Alternative 2, operational noise on campus would be less than under Alternative 1 due to the lower amount of building development. Operational building noise from new development in Development Area C and within the western portion of Development Areas A and B could also affect adjacent off-campus residential uses, but these potential impacts would be less than under Alternative 1 due to the lower amount of development located near the western campus boundary.

Due to the nature of instructional, research, and student housing uses on campus, as well as the proximity of adjacent off-site uses along the edges of the campus (residential and commercial uses), it is anticipated that development under Alternative 2 would have a potential for noise impacts associated with temporary construction and operation of new uses, but would be lower than under Alternative 1. However, under Alternative 2, the relocation of the existing on-campus transit center to a new on-campus location at NE 185th Street would also shift some existing on-campus noise associated with bus traffic to a new location that would be in closer proximity to existing off-campus single family residences.

Alternative 3 – Growth along Topography (Northward Growth)

Alternative 3 represents a focus of development that would follow the north/south topography of the campus, with the majority of development assumed for the northern portion of campus (Development Areas B, C, D, E and F). Approximately 907,300 gsf of net new building space including a total of 600 student housing would be provided on the campus. As part of the development under Alternative 3, Husky Hall and Husky Village would be demolished. Alternative 3 assumes the same campus student population as Alternatives 1 and 2 (10,000 FTEs) and parking with approximately 4,200 parking stalls.

Hazardous Materials

To the extent that new development under Alternative 3 includes research and/or laboratory facilities, an increase in the use of research chemicals, hazardous materials, and hazardous waste would occur. The potential for new research and/or laboratory facilities would be the same as under Alternative 1 due to the similar amount of academic building space on campus (approximately 816,500 gsf of net new building space). Risks to human health would not be anticipated to increase significantly with development as the UW Bothell and CC would continue to manage hazardous materials on campus in accordance with existing policies/standards.

Noise

Similar to Alternatives 1 and 2 potential noise impacts under Alternative 3 would be primarily associated with construction of new development, operational noise associated with building systems and increased traffic levels. It is anticipated that these noise impacts would be lower than those described for Alternative 1 due to the lower amount of building development, but

would be greater than Alternative 2 due to the demolition of Husky Village and Husky Hall, as well as the increased amount of new building construction. Construction noise under Alternative 3 could impact existing academic uses on campus, particularly within Development Areas B and F. Construction activities in Development Area C (including new building development and the new access from Beardslee Boulevard via a realigned 108th Avenue NE) and in the western portion of Development Area B would be located adjacent to off-campus residential areas and would result in temporary construction noise impacts to those adjacent residential uses. These temporary impacts to adjacent off-campus residential uses would be greater than under Alternatives 1 and 2 due to the increased amount of development that would be located in proximity to the western boundary of campus.

Under Alternative 3, operational building noise on campus would be less than under Alternative 1 due to the lower amount of building development. Operational building noise from new development in Development Area C and within the western portion of Development Area B could affect adjacent off-campus residential uses. The new campus access from Beardslee Boulevard (realigned 108th Avenue NE) would be located in proximity to the off-campus residential uses to the west and would result in additional operational noise from increased vehicle traffic. Relocation of the transit center to Beardslee Boulevard (adjacent to Development Area D) would also result in additional noise associated with bus traffic near off-campus uses.

Due to the nature of academic/student housing uses on campus and the realignment of 108th Avenue NE, as well as the proximity of adjacent off-site residential uses along the western edge of the campus, it is anticipated that development under Alternative 3 would have a greater potential for noise impacts to adjacent residential uses from temporary construction and operation of new uses than under Alternatives 1 and 2.

Potential Indirect/Cumulative Impacts

To the extent that construction activities associated with under Alternatives 1 – 3 and the No Action – Scenario B would occur in the vicinity of other construction projects, it could result in a temporary cumulative increase in noise in the surrounding campus area. Noise associated with increased traffic volumes from development on the campus would also result in a cumulative increase in traffic noise when combined with existing surrounding traffic.

3.5.3 Mitigation Measures

The following measures would be available for development under the *Campus Master Plan* to minimize potential environmental health impacts.

Hazardous Materials

- Future development projects under the *Campus Master Plan* would verify the presence, use and/or potential generation of hazardous materials on the project site prior to development.

- Hazardous materials generated and used on campus would continue to be managed in accordance with existing policies/standards established by the Environmental Health and Safety Department, as well as applicable local, state and federal standards/regulations.

Noise

- For each new development project, construction activities would comply with the City of Bothell Noise Ordinance requirements (BMC 8.26).

- The UW Bothell and CC also have additional conditions/considerations that project-specific campus contractors meet the following noise control criteria:

    - The sound pressure level of construction noise inside adjacent buildings and/or rooms cannot exceed 60 dBA (with windows closed) between the hours of 8 AM and 5 PM on week days. Barriers can be erected between construction activities and such interior areas, or equipment noise attenuators can be provided.
    - The use of electric equipment and machinery is preferred. If noise levels on any equipment or device cannot reasonably be reduced to criteria levels, either that equipment or device will not be allowed on the job or use times will have to be scheduled subject to approval.
    - The sound pressure level of each piece of equipment cannot be greater than 85 dBA at a distance of 50 feet. Rubber-tired equipment is to be used whenever possible instead of equipment with metal tracks. Mufflers for stationary engines are to be used in the hospital areas. Construction traffic should be routed through nearest campus exit.
    - Air compressors are to be equipped with silencing packages
    - Jack hammers and roto hammers may be used where no other alternative is available; core drilling and saw cutting equipment is preferred.

- Potential future development projects under the *Campus Master Plan* that are located in areas that are proximate to noise-sensitive uses (i.e., existing academic uses on campus or existing off-campus residential uses) would require project-specific coordination with adjacent noise-sensitive users to determine potential noise-related

issues associated with development on those sites and could require additional noise analysis and mitigation measures (if necessary).

3.5.4 Significant Unavoidable Adverse Impacts

In the event that research/laboratory uses are development on campus, it is also anticipated that an increase in hazardous materials storage and use would occur. During construction activities, some temporary noise impacts would occur adjacent to development sites. Operation noise on campus would also increase with new development and additional campus population. However, with the implementation of the mitigation measures identified above, no significant unavoidable adverse environmental health impacts are anticipated.

3.6 LAND AND SHORELINE USE

This section of the Draft EIS describes the existing land use conditions on the University of Washington Bothell (UW Bothell) and Cascadia College (CC) campus and vicinity, and evaluates the potential impacts that could occur as a result of the *Campus Master Plan*.

3.6.1 Affected Environment

Existing Campus

The UW Bothell/CC campus is located to the east of downtown Bothell and west of Interstate-405 (I-405). The UWB/CC campus includes approximately 135 acres of area. UW Bothell and CC jointly own approximately 128 acres of the campus and the UW Bothell owns/leases and additional approximately seven (7) acres (see **Figure 2-2** for map of the existing campus). The campus reflects a variety of uses, including buildings, roads, paved and unpaved walkways, parking areas and parking structures, athletic fields/courts, landscaping, undeveloped area, natural open space, and protected wetland/stream restoration and habitat areas.

The campus was originally developed in 1998 and development on the campus has occurred in phases as part of the original Campus Master Plan (CMP) and associated planned unit development (PUD) that was approved by the City of Bothell. Under the proposed CMP, building development would occur in the western portion of the campus and the eastern portion of campus would remain as the environmentally restored North Creek and its associated floodplain and wetland system, stream crossings, observation areas, and on-site trails/regional trail connections.

Due to the co-location of UW Bothell and CC on the campus, the UW Bothell and CC share six academic use buildings and two parking structures. The shared academic buildings comprise approximately 172,491 gross square feet (GSF) of building space on the campus. Within the campus boundaries, the UW Bothell owns 16 buildings, including 10 student housing buildings and six academic buildings; these buildings total an estimated 427,244 GSF. CC also owns three buildings on the campus which are primarily utilized for academic uses and include approximately 157,900 GSF of building space. **Table 3.6-1** provides a summary of existing building development on the campus for each institution.

Table 3.6-1
UW BOTHELL/CC EXISTING BUILDING DEVELOPMENT

	Shared Buildings	UW Bothell Buildings	CC Buildings	Total Development
Academic Use	6 Buildings 172,491 sq. ft.	6 Buildings 353,092 sq. ft.	3 Buildings 157,897 sq. ft.	15 Buildings 683,480 sq. ft.
Housing	None	10 Buildings 74,152 sq. ft.	None	10 Buildings 74,152 sq. ft.
Total	6 Buildings 172,491 sq. ft.	16 Buildings 427,244 sq. ft.	3 Buildings 157,897 sq. ft.	25 Buildings 757,632 sq. ft.

Source: UW Bothell and Cascadia College, 2017.
Note: The UW Bothell/CC Campus also includes two shared parking garage structures that total approximately 391,775 sq. ft.

As described above, the eastern portion of the UW Bothell/CC campus is comprised of North Creek and its associated restored areas, including wetlands, floodplains, habitat areas, observation areas, stream crossings and trails. This area was restored and enhanced as part of previous development of the campus and is not included as part of the potential campus development areas under the *Campus Master Plan* EIS Alternatives (see Section 3.3, **Wetlands/Plants and Animals**, for further details on North Creek and associated wetlands on the campus. The Sarah Simonds Green Conservatory is also located located in the northern portion of this area of campus and provides a greenhouse, classroom and support space for education, research and public outreach.

Campus Master Plan Development Areas

For descriptive and planning purposes as part of the *Campus Master Plan* EIS and for permitting purposes with the City of Bothell, the developable portion of the campus (those areas that are outside of the wetland and wetland buffer area), has been divided into seven (7) potential campus development areas, which are described further below (see **Figure 3.6-1** for an illustration of existing campus uses and existing surrounding land uses).

Source: Mahlum Architects and EA Engineering, 2017.

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

Figure 3.6-1
Existing Surrounding Land Use Map

Development Area A

Development Area A is located in the southwest corner of the campus and is generally bounded by NE 180th Street on the north, Campus Way NE and SR-522 on the south and east, and the campus boundary and adjacent off-campus residential development on the west. Land uses in this campus area include the South Parking Garage, the Physical Plant, and surface parking areas. The South Parking Garage provides space for approximately 774 parking stalls. The Physical Plant provides maintenance and facilities services for the UW Bothell/CC campus. The existing surface parking lot provides approximately 649 parking stalls and includes planter strips with landscaping and trees between the rows of parking. Vegetation and trees are also located along the western boundary of Development Area A which provides a buffer and visual screen between the existing campus parking and adjacent residential uses to the west.

Development Area B

Development Area B encompasses of the central area of campus and includes the majority of the existing buildings on the campus. Development Area B is generally bordered by 110th Avenue NE on the west, NE 180th Street on the south, Campus Way NE on the east, and the northern edge of Mobius Hall on the north. Land uses in this area generally reflect existing campus academic development, undeveloped space surrounding campus buildings, pedestrian pathways, a surface parking lot, and the Truly House.

Discovery Hall

In general, UW Bothell buildings are located in the south portion of Development Area B, CC buildings are located in the north portion and shared buildings are located in the middle. In the south portion of Development Area B, the UW Bothell's Founders Hall (UW1) is located adjacent to Campus Way NE, with Commons Halls (UW2) and Discovery Hall (DISC) located further to the west. The existing UW Bothell buildings provide academic spaces (classrooms, lecture halls, laboratories, etc.), faculty offices, meeting rooms and student support facilities (UW Bothell Commons – dining and gathering space).

The shared Library Building (LB1), Library Annex (LBA) and Library 2 (LB2) buildings are located in the central portion of Development Area B, adjacent to Campus Way NE, and provides services and areas for both UW Bothell and CC. The LB1, LBA and LB2 buildings include library collections, classrooms, student work stations/areas, and the bookstore.

The north portion of this area is comprised of Cascadia College buildings, including the CC1 and CC2 buildings which are located adjacent to Campus Way NE and the Mobius Hall (CC3) building which is located further to the west. The existing CC buildings provide academic spaces, faculty offices, and student support facilities.

CC1 and CC2 Buildings

The Truly House is also located on the western edge of Development Area B. It was originally constructed as a residence and is the single remaining structure from the Boone-Truly Ranch that was located on a portion of the campus in the 1920s. The building was formerly located in the Campus Core but was moved to its current location as part of campus development. The Truly House is currently used as an auxiliary faculty facility and Teaching and Learning Center for UW Bothell.

Development Area C

Development Area C encompasses the land adjacent to single family residences and includes Husky Hall and parcels referred to as the Marvin Parcel and the Development Reserve. Development Area C is generally bordered by 110th Avenue NE on the east, the campus boundary on portions of the west and south, 108th Avenue NE to the west and NE 185th Street to the north. This area of campus includes Husky Hall, campus-related outdoor maintenance equipment storage and surface parking, and vegetated areas and existing trees. Husky Hall serves as a welcome center for visitors to campus and also provides office and administrative space for the UW Bothell. An undeveloped area is also located in the northwest portion of Development Area C which provides a buffer and partial visual screen between existing campus uses and adjacent off-campus residential uses. Vegetation and trees that are located along the western boundary of existing maintence storage area and provide a buffer and partial visual screen between the existing campus use and the adjacent off-campus residential uses to the west.

Development Area D

Development Area D encompasses the northwest corner of the UW Bothell/CC campus, including Husky Village and surrounding roadways and vegetated area. This area is generally bounded by existing vegetated areas, the North Creek Trail and the North Parking Garage on the east, Beardslee Boulevard on the north and west, and NE 185th Street on the

North Entrance to Campus

south. Land uses within Development Area D reflect the residential uses associated with Husky Village, existing roadways (include 110th Avenue NE and NE 185th Street), surface parking areas, landscape areas, and vegetated areas. Husky Village is located along Beardslee Boulevard and provides on-campus student housing for UW Bothell students, including 10 buildings with approximately 240 student beds. 110th Avenue NE within Development Area D also serves as the northern entrance to the UW Bothell/CC campus and the intersection of 110th Avenue NE and Campus Way NE serves as a major transit stop within the campus.

Development Area E

Encompassing the eastern developable portion of campus, north of the pedestrian path leading to the wetlands, Development Area E is bordered by Campus Way NE on the west, wetland buffer and the North Creek Trail on the east, the wetlands viewing platform path on the south, and the north edge of the North Parking Garage on the north. This area encompasses the existing North Parking Garage, the North Creek Events Center building, sports fields (multipurpose baseball and soccer field), pedestrian walkways, and surrounding undeveloped space. The North Parking Garage serves as the primary parking area for the north portion of campus and contains approximately 448 parking stalls. The North Creek Event Center facility provides event and meeting space on-campus that is available for rental by students, faculty/employees and other individuals/organizations. The facility contains approximately 2,900 sq. ft. and can accommodate events for up to approximately 180 people. The existing sports field are utilized for UW Bothell/CC activities (including student sports and other recreational activities) and are also used for informal community use when they are not utilized by UW Bothell/CC.

Development Area F

Development Area F encompasses the eastern portion of campus, south of the pedestrian path leading to the wetlands, and is generally bordered by the pedestrian path to the wetlands on the north, the North Creek Trail on the east, Campus Way NE on the west, and NE 180th Street on the south. This area includes the Activities and Recreation Center (ARC) building, sports courts (tennis, basketball and volleyball courts), existing undeveloped areas, and pedestrian pathways south of the viewing platform path. The ARC building serves as a hub for UW Bothell and CC students on the campus and includes numerous student resources and amenities, including a fitness center, gaming areas, a student information desk, student leadership offices, meeting rooms, and multi-purpose event/gathering spaces.

Development Area G

Encompassing the southeast corner of campus, Development Area G is generally bordered by Campus Way NE on the west, NE 180th Street on the north, the North Creek Trail on the

east, and SR-522 on the south. Development Area G includes wetland buffers, the Chase House and associated driveways/surface parking areas, landscaped open space and undeveloped areas. The Chase House was constructed in the 1880s as part of the early pioneer settlement of Stringtown, which was the first residential development in Bothell. The residence was the home of renowed local doctor Reuben Chase and is listed on the National Register of Historic Places, as well as designated as a Bothell City Landmark. The Chase House is currently used as an office for the UW Bothell Commuter Services department.

Surrounding Area

The campus is located to the east of downtown Bothell and west of I-405. The area surrounding the campus contains a variety of land uses, including single family and multifamily residences, commercial/reatil uses, public facilities and a cemetary (see **Figure 3.6-1** for map of existing surrounding land uses).

The land use pattern of the area surrounding the campus is reflective of both natural and built features. The primary natural features in the area are North Creek which runs through the eastern portion of campus and the Sammammish River which is located to south of campus and also forms the southern boundary of downtown Bothell. North Creek connects with the Sammammish River to the southeast of the campus.

Prominent built features that influence the land use character of the area consist primarily of transportation routes, including I-405 and State Route 522 (SR-522). I-405 serves as the eastern boundary of the campus and is a major north/south vehicular travel corridor along the eastside of Lake Washington that connects the City of Lynnwood at the north end with the City of Renton to the south. SR-522 runs along the south boundary of the campus and is a major east/west vehicle travel corridor along the north shore of Lake Washington that connects the City of Seattle on the west with the City of Woodinville and the City of Monroe on the east.

Surrounding Areas to the North of Campus

The area to the north of the campus (adjacent to Development Area D), beyond Beardslee Boulevard, is primarily comprised of single family and multifamily residential uses and commercial/retail uses. A four-story commercial office building is located immediately north of campus at the intersection of Beardslee Boulevard/110th Avenue NE and provides space for off-campus UW Bothell offices, as well as other commercial office uses. Single family residences are also located along Beardslee Boulevard, as well as a three-story multifamily apartment building. A fire station for the Bothell Fire Department is also located in this area at the intersection of Beardslee Boulevard/NE 185th Street. Further to the north, along Beardslee Boulevard, are additional single family residences and a mixed-use development

which includes off-campus UW Bothell offices, commercial office space, retail and restaurant uses, professional services (dentist offices, etc.), and multifamily apartments.

Surrounding Areas to the East of Campus

I-405 is located along the eastern boundary of the campus and separates the campus from existing development to the east. Existing land uses beyond I-405 include a mix of commercial and industrial office park uses, recreation uses, commercial retail uses, hotels, churches, and vegetated areas. One- to three-story commercial and industrial office park buildings and associated surface parking lots are located adjacent to I-405; several multi-story hotels are also located in this area. Futher to the east are additional commercial and industrial office park uses, and the North Creek Sports Fields which include four separate sports field complexes that are used by the City of Bothell and other local recreation programs for soccer, baseball, softball and other activities.

Surrounding Areas to the South of Campus

Immediately south of the campus (Development Areas A and G) is SR-522 which provides access to Seattle, Woodinville and I-405. Beyond SR-522 is the Bracketts Landing single family residential neighborhood, Bracketts Landing Park[1] and the Sammamish River. The area further to the south, beyond the Sammamish River, is primarily comprised of single family residential uses, the Riverside Mobile Estates (mobile home park), a senior center, several senior living complexes and multifamily residential uses.

Surrounding Areas to the West of Campus

Off-Campus Residences West of Campus

The area adjacent to the western boundary of the campus (Development Areas A, B, C and D) is primarily comprised of single family residential neighborhoods and the Bothell Pioneer Cemetary. Further to the west are single family residences, multifamily apartment buildings and commercial/retail uses within downtown Bothell. The proximity of downtown Bothell to the UW Bothell/CC campus allows for students, faculty and staff associated with the campus to utilize downtown businesses and service providers.

[1] Bracketts Landing Park is owned by the City of Bothell and is a small pocket park of open space along the Sammamish River.

Existing Land Use Designations

UW Bothell/CC Campus

The City of Bothell Comprehensive Plan designation for the UW Bothell/CC campus is Campus District (C). The Campus District is included as part of the *Downtown Subarea Plan (adopted July 2009 and amended January 2011)*, which recognizes the potential for mutual benefit in safe and attractive pedestrian and bicycle connectivity between the downtown core and the campus and strengthening the downtown to better serve as a convenient and attractive campus town and residential district for students, faculty, and staff.

The zoning designation for the campus is also Campus District (C) and in accordance with the Bothell Municipal Code, development regulations for the Campus District are included in Section 12.64.108 of the *Downtown Subarea Plan (adopted July 2009 and amended January 2011)*. Development regulations for the Campus District include requirements for pedestrian and bicycle access; requirements relating to freeways; architectural requirements (building height, glare, compatibility, etc.); setback requirements; landscaping requirements; and, parking requirements. A portion of the campus, adjacent to North Creek, is also designated as areas that are within the jurisdiction of the City's Shoreline Master Program (SMP) area.

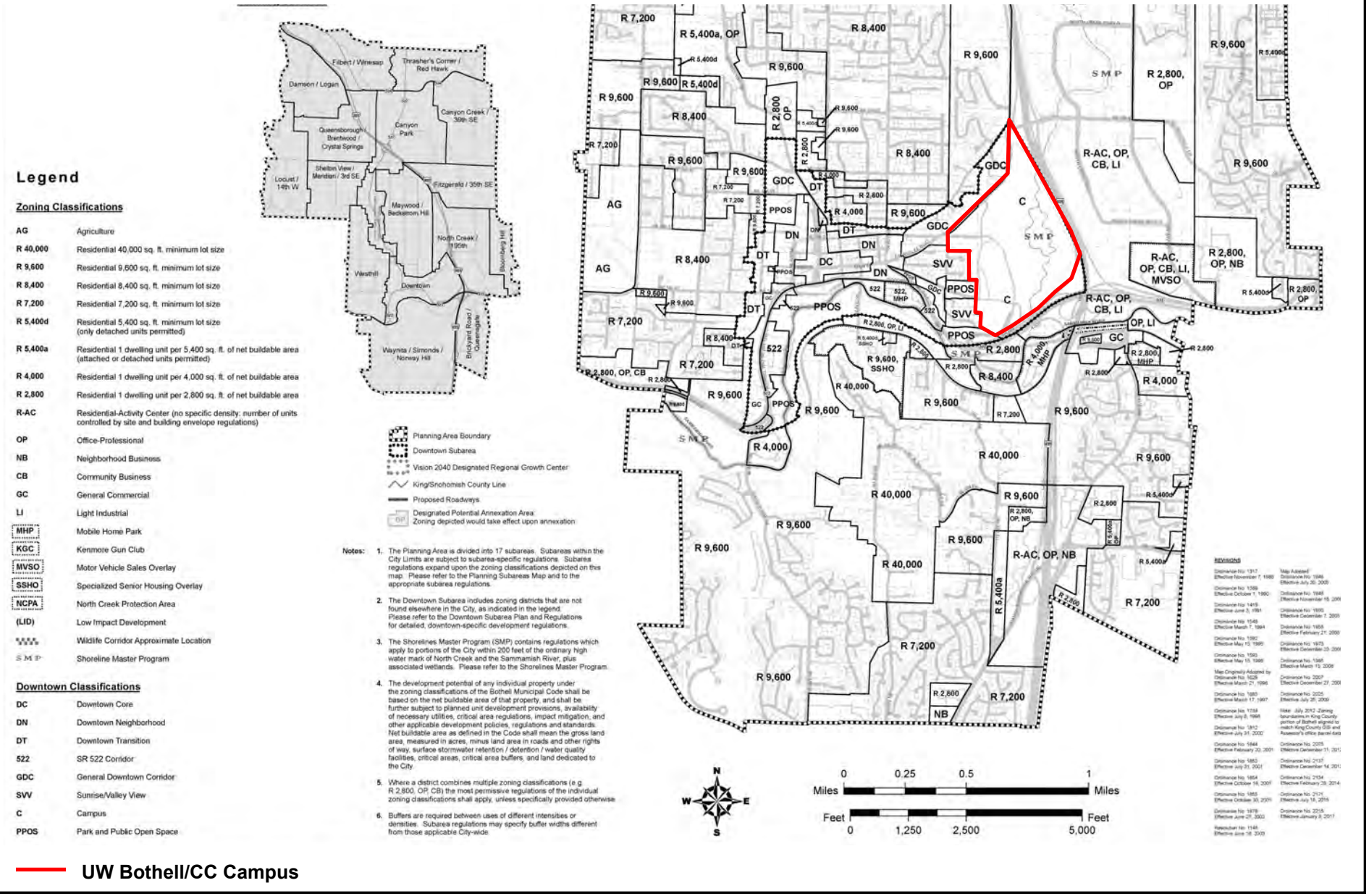
Surrounding Area

Comprehensive Plan designations in the vicinity of the campus include General Downtown Corridor (GDC) and Residential-9,600 (R-9,600) to the north; Sunrise Valley View (SVV), GDC, and Park and Public Open Space (PPOS) to the west; PPOS, Residential-2,800 (R-2,800), Residential-4,000/Mobile Home Park (R-4,000/MHP) and Residential-8,400 (R-8,400) to the south; and, Residential-Activity Center (R-AC), Office-Professional (OP), Community Business (CB), Light Industrial (LI), and Park (P) to the east.

Zoning designations in the vicinity of the campus generally coincide with the Comprehensive Plan designations and include GDC and R-9,600 to the north; SVV, GDC, and PPOS to the west; PPOS, RR-2,800, R-4,000/MHP and R-8,400 to the south; and, R-AC, OP, CB, and LI to the east, beyond I-405 (see **Figure 3.6-2** for a map of the existing zoning in the vicinity of campus).

3.6.2 Impacts

This section of the Draft EIS identifies the potential impacts on existing land uses on the UW Bothell/CC campus and in the surrounding areas that could occur with development under the EIS Alternatives. Development under the *Campus Master Plan* could result in direct, indirect and temporary construction-related land use impacts. Direct impacts relate to



Source: City of Bothell, 2017.

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Figure 3.6-2
Existing Zoning Map

increased density of development and increased intensity of land uses on the campus. Indirect land use impacts would relate to peripheral development and/or change in overall land use character of the area. Temporary construction-related impacts relate to the potential noise, vibrations, etc. that could result from construction activities.

Overall, implementation of development under the *Campus Master Plan* would result in an intensification of uses on campus; however, the overall mix and types of land uses on campus would not change under the *Campus Master Plan*. It is estimated that approximately 907,300 gsf to 1,072,300 gsf of net new building space and 600 to 1,200 total student housing beds will be needed over the 20-year planning horizon[2]. It is also proposed that the approximately 70,700 gsf of off-campus academic space located within 0.25 mile of the campus (located at two locations on Beardslee Boulevard) be relocated to the campus.

In order to conduct a comprehensive environmental review, three development alternatives (the Action Alternatives) and No Action Alternative have been developed for analysis in this EIS. The No Action Alternative is intended to reflect conditions on the campus if no new master plan is approved, and improvements to address increased campus student, faculty and staff populations are not implemented (two no action scenarios are analyzed). The Action Alternatives are formulated to create a range of potential development (without having detailed building plans) and allow for the analysis of probable significant environmental impacts under SEPA. The Action Alternatives include: **No Action Alternative** *(Scenario A - Baseline and Scenario B - Allowed in PUD)***; Alternative 1** – *Develop Institutional Identity (Southward Growth);* **Alternative 2** – *Develop the Core (Central Growth)*; and, **Alternative 3** – *Growth along Topography (Northward Growth).*

No Action Alternative

Scenario A – Baseline Condition

Under Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus. The current number of FTE students is assumed to remain at approximately 7,040. The current 683,500 gsf of academic space and 74,200 gsf of housing space on campus (total of 757,700 gsf on campus), along with the 70,700 gsf of off-site academic space within 0.25 mile of campus, would remain. No changes to the current vehicular or pedestrian circulation systems, or the amount of parking (current 2,272 spaces), would occur. The approximately 240 student beds associated with Husky Village would remain. Existing natural and recreational open spaces would remain. Since no new development would occur on campus and the number of FTE students would

[2] *Depending on the percentage of students housed on campus and strategy regarding retention of Husky Village units.*

remain the same it is anticipated that no significant land use impacts would occur under Scenario A.

Scenario B – Allowed in PUD

Under Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the PUD. Student enrollment of up to 10,000 FTEs on campus is assumed, consistent with the PUD. The approximately 240 student beds associated with Husky Village would remain, although no additional housing beds would be provided. The current vehicular and pedestrian circulation systems would remain. An on-campus parking supply totaling 4,200 to 6,000 spaces would be provided on campus.

Buildout of the remaining approximately 386,100 gsf of building space under the current PUD would represent approximately 36 percent of the anticipated demand for building space that is identified in the proposed *Campus Master Plan* and under Alternatives 1-3. The lower amount of development would result in fewer changes in land use on the campus under Scenario B when compared to Alternatives 1-3. Activity level impacts would be anticipated to similar or less than Alternatives 1-3 because Scenario B assumes the same level of campus student population as Alternatives 1-3, but with a reduced amount of new development on the campus to serve that increase in campus population (including no new student housing).

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 represents a level of development and improvements that would meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. This alternative reflects a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A and B (see **Figure 2-6** for a site plan of Alternative 1). Alternative 1 assumes a campus student population of 10,000 FTEs, and a total of 1,200 student housing beds (representing approximately 20 percent of the assumed UW Bothell student FTEs). Under Alternative 1 the existing north campus access from Beardslee Boulevard and existing south campus access would remain as under current conditions. Transportation improvements related to access from NE 185th Street, new parking, and internal vehicular and transit circulation would occur.

Construction Impacts

Development under Alternative 1 would result in site preparation and construction of new buildings and associated campus facilities and infrastructure. Temporary construction-related impacts could occur to adjacent land uses near development sites and could include: dust from clearing, grading, and excavation; emissions from construction vehicles and equipment; increased noise levels from construction activities; vibration from grading activity and heavy equipment use; and, increased traffic associated with construction vehicles and workers. Temporary construction-related impacts could affect existing campus uses that are adjacent to development (particularly in Development Areas A, B and F), as well as adjacent off-campus areas (areas to the west of Development Areas A and B). All construction impacts would be temporary and would cease following the completion of construction.

Direct Impacts

Under Alternative 1, proposed campus development under the *Campus Master Plan* would add new academic, student housing and parking structures on the campus which would be consistent with City of Bothell's Campus District designation of the campus, as well as the existing UW Bothell and CC land uses. While these land uses would be consistent with the existing land uses that are currently present on the campus, the new building development would increase the amount of building density. New development under Alternative 1 would generally replace existing surface parking and undeveloped areas of the campus with new buildings.

Approximately 1,072,300 gsf of net new building space would be provided on the campus and would generally be clustered in the central and south campus areas (Development Areas A, B, C and F). Academic space would primarily be located in Development Areas B and F, with additional buildings located immediately west of 110th Avenue NE (Development Area C) and south of NE 180th Street (Development Area A). New academic space would be located in proximity to existing UW Bothell and CC academic buildings on the campus.

Up to 960 new beds resulting in a total of 1,200 student beds on campus would be provided under Alternative 1 and these buildings would be generally located in the southwest portion of campus (Development Area A) and would replace existing surface parking lots in this area.

Additional parking facilities would also be provided through the development of new parking structures or would be incorporated into new academic or student housing buildings. Approximaltey 1,428 new parking stalls (for a total of approximately 3,700 stalls) would be provided under Alternative 1 with 50 percent of those stalls located in a new parking structure in Development Area A (south of the South Parking Garage) and an

addition to the North Parking Garage in Development Area E. The other 50 percent of new parking would be distributed in Development Areas C, E and F.

Increases in density that would occur with development in the central and south portions of campus (Development Areas A, B, C and F) under Alternative 1 would be minimized through the implementation of the proposed general policies and development standards for the campus (including those standards identified within the *Campus Master Plan)*. In addition, Alternative 1 assumes the retention of several existing open space areas (North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path), as well as the creation of new green, urban open spaces associated with new building development (primarily within Development Areas A and B) which would minimize potential impacts of increased density on the campus.

Relationship to Surrounding Uses

The relationship of campus development under Alternative 1 to surrounding land uses is primarily a function of the intensity of the new uses, the intensity of surrounding uses, the proximity of the new uses to surrounding uses, and the provisions for connections and/or buffers between the new uses and surrounding uses.

Activity levels (i.e., noise and vehicle/pedestrian traffic) on the campus are anticipated to increase with new development under Alternative 1 due to the increase in building density and campus population (students, faculty and staff). Proposed development under Alternative 1 is anticipated to support a student population of 10,000 FTE students (an increase from approximately 7,040 FTE students under the existing conditions). The pattern of activity associated with proposed new academic, student housing and parking development under the *Campus Master Plan* would be generally similar to the existing building uses on the campus and would generally be the highest during the day when most classes are in session. Increases in activity levels would be the highest around new building development under Alternative 1, including within Development Areas A, B, C and F. Proposed academic development and associated activity would be located in proximity to the existing academic buildings on campus (Development Areas B and F). Proposed student housing and associated activity levels would replace existing surface parking within Development Area A.

Under Alternative 1, campus development near the western campus boundary (western edges of Development Areas A, B and C) would be located in proximity to existing off-campus uses (primarily residential neighborhoods) and could result in some impacts due to increased activity levels (noise) in that portion of the campus. For example, student housing uses and mixed academic/parking buildings along the western edge of Development Area A would be located in close proximity to adjacent off-campus residential uses. Additionally, the parking structure and associated academic building in the southern portion of

Development Area C would be located in close proximity to adjacent off-campus residential uses. Student housing uses would have the greatest potential for increased activity levels due to the nature of the use with students residing in the buildings on a 24-hour basis compared with academic or parking uses which would only be utilized during the day and possibly early evening hours.

Building development in Development Areas B, E and F would be located further from the surrounding residential uses and would have a lower potential for land uses impacts. As identified under the Alternative 1 plan, the majority of the development within the Development Areas in proximity to adjacent residential uses would be setback from the western campus boundary edge by a landscape buffer and building setback area. The western and southern boundary of Development Area C adjacent to off-campus residential uses on NE 182nd Court and NE 183rd Court would have a 45-foot wide building setback (including a 30-foot wide landscape buffer), while the western boundary of Development Area A adjacent to off-campus residential uses on Valley View Road and Circle Drive would have a 60-foot wide building setback (including a 30-foot wide landscape buffer). In addition, the western edge of Development Area C (adjacent to 108th Avenue NE) would include a 30-foot wide building setback (see **Figure 2-5** for an illustration of landscape buffers and building setbacks). The provision of landscape buffers and building setbacks from the western campus boundary would minimize the potential for land use impacts from increased activitity levels on adjacent off-campus residences.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 represents a level of development and improvements on the UW Bothell/CC campus to meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. This alternative reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F (see **Figure 2-7** for a site plan under Alternative 2). Alternative 2 assumes a campus student population of 10,000 FTEs, and a total of 600 student housing beds (representing approximately 10 percent of the assumed University of Washington Bothell student FTEs). Under Alternative 2 the existing north campus access from Beardslee Boulevard and existing south campus access would remain as under current conditions. Transportation improvements related to access from NE 185th Street, new parking, and internal vehicular and transit circulation would occur.

Construction Impacts

Development under Alternative 2 would result in similar temporary construction-related impacts as described under Alternative 1. Temporary construction-related impacts could affect existing campus uses that are adjacent to new development (particularly in Development Areas B and F, as well as portions of Development Areas A, C and E). Adjacent

off-campus areas (areas to the west of Development Areas A, B and C) could also experience temporary impacts from construction-related activities. All construction impacts would be temporary and would cease and conditions would be restored following the completion of construction.

Direct Impacts

Similar to Alternative 1, campus development under Alternative 2 would add new academic, student housing and parking structures on the campus which would be consistent with City of Bothell's Campus District designation of the campus, as well as the existing UW Bothell and CC land uses. While these land uses would be consistent with the existing land uses that are currently present on the campus, the new building development would increase the amount of building density. New development under Alternative 2 would generally replace existing undeveloped areas of the campus with new buildings.

Approximately 907,300 gsf of net new building space would be provided on the campus under Alternative 2 and would generally be clustered in the central portion of campus (Development Area B) and west of existing UW Bothell and CC academic buildings. Academic development in Development Area B would generally be located on undeveloped areas or portions of surface parking lots. Some new academic uses would also be developed in portions of Development Areas A, C, E and F, and would remain proximate to the existing academic buildings. New academic uses in these areas would generally be located on undeveloped areas or portions of existing surface parking lots.

Up to 360 new beds (resulting in 600 total student beds on campus) would be provided under Alternative 2 and these buildings would be located in the central portion of campus (Development Area F), adjacent to Campus Way NE. Development of new student housing would be located on an existing undeveloped area of the campus.

Additional parking facilities would also be provided through the development of new parking structures or would be incorporated into new academic or student housing buildings. Approximaltey 1,428 new parking stalls (for a total of approximately 3,700 stalls) would be provided under Alternative 2 with 50 percent of those stalls located in a new parking structure within Development Area A (south of the South Parking Garage) and an addition to the North Parking Garage in Development Area E. The other 50 percent of new parking would be distributed in Development Areas B, C and F.

Increases in density that would occur with development in the central portion of campus (primarily Development Areas B, E and F) under Alternative 2 would be minimized through the implementation of the proposed general policies and development standards for the campus (including those standards identified within the *Campus Master Plan)*. In addition, Alternative 2 assumes the retention of several existing open space areas (North Creek

Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path), as well as the creation of new green, urban open spaces associated with new building development (primarily within Development Areas B, E and F) which would minimize potential impacts of increased density on the campus.

Relationship to Surrounding Uses

Similar to Alternative 1, activity levels (i.e., noise and vehicle/pedestrian traffic) on the campus are anticipated to increase with new development under Alternative 2 due to the increase in building density and campus population (students, faculty and staff). Proposed development under Alternative 2 is anticipated to support a student population of 10,000 FTE students (an increase from approximately 7,040 FTE students under the existing conditions). The pattern of activity associated with proposed new academic, student housing and parking development under the *Campus Master Plan* would be generally similar to the existing building uses on the campus and would generally be the highest during the day when most classes are in session. Increases in activity levels would be the highest around new building development under Alternative 2, and would primarily occur within Development Areas B, E and F. Proposed academic development and associated activity would be located in proximity to the existing academic buildings on campus (Development Areas B and F). Proposed student housing and associated activity levels would replace existing surface parking within Development Area A.

Under Alternative 2, campus development near the western campus boundary (western edges of Development Areas A and C) would be located in proximity to existing off-campus uses (primiarly residential neighborhoods) and could result in some impacts due to increased activity levels (i.e., noise) in that portion of the campus. However, compared with Alternative 1, Alternative 2 reflects a lower level of development in proximity to adjacent off-campus residential uses. Development under Alternative 2 that would be in proximity to adjacent off-campus residential uses is limited to an academic building along the western edge of Development Area A and an academic/parking building in the southern portion of Development Area C. Based on the types of proposed land uses, development in these areas adjacent to off-campus residential uses would be anticipated to have lower activity levels than Alternative 1.

The focus of development in Development Areas B, E and F is located further from the surrounding off-campus uses and would have less of a potential to impact surrounding uses than Alternative 1. As identified under the Alternative 2 plan, the majority of the development within Development Areas located adjacent to off-campus residential uses (Development Areas A and C) would be setback from the western campus boundary edge. A 45-foot wide building setback (including a 30-foot wide landscape buffer) would be provided along the western boundary of Development Areas A, B and C adjacent to off-

campus residential uses on NE 182nd Court, NE 183rd Court, Valley View Road and Circle Drive; the western edge of Development Area C (adjacent to 108th Avenue NE) would include a 20-foot building setback consistent with City of Bothell zoning regulations (see **Figure 2-5** for an illustration of landscape buffers and building setbacks). The provision of landscape buffers and building setbacks from the campus boundary would minimize the potential for land use impacts from increased activitity levels on adjacent off-campus residential neighborhoods.

Alternative 3 – Growth Along Topography (Northward Growth)

Alternative 3 reflects a level of development and improvements on the campus deemed sufficient to meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. Development under this alternative is assumed to follow the north/south topography of campus, with the majority of development assumed for the northern portion of campus in Development Areas B, C, D and E (see **Figure 2-8** for a site plan of Alternative 3). Alternative 3 assumes a campus student population of 10,000 FTEs, and a total of 600 student housing beds (representing approximately 10 percent of the assumed University of Washington Bothell student FTEs). Under Alternative 3 the existing north campus access from Beardslee Boulevard would remain and a second access to Beardslee Boulevard would be provided via a realigned 110th Avenue NE. The existing south campus access would remain as under current conditions. Transportation improvements related to access from Beardslee Boulevard and NE 185th Street, new parking, and internal vehicular and transit circulation would also occur.

Construction Impacts

Development under Alternative 3 would result in similar temporary construction-related impacts as Alternatives 1 and 2; however, Alternative 3 would also require demolition acitivites associated with the removal of Husky Hall and Husky Village which would result in additional noise, dust and other demolition-related impacts with Development Areas C and D). Temporary construction-related impacts could affect existing campus uses that are adjacent to proposed development (particularly in Development Areas B, C, D and F), as well as adjacent off-campus areas (areas to the north of Development Areas C and D). All construction impacts would be temporary and would cease following the completion of construction.

Direct Impacts

Similar to Alternatives 1 and 2, campus development under Alternative 3 would add new academic, student housing and parking structures on the campus which would be consistent with City of Bothell's Campus District designation of the campus, as well as the

existing UW Bothell and CC land uses. While these land uses would be consistent with the existing land uses that are currently present on the campus, the new building development would increase the amount of building density. New development under Alternative 3 would generally replace existing undeveloped areas of the campus and certain existing buildings (Husky Hall and Husky Village) with new buildings.

Approximately 907,300 gsf of new building space would be provided on the campus under Alternative 3 and would generally be distributed throughout the northern and central portion of campus (Development Areas B, C, D, E and F). Academic development in Development Areas B, E and F would generally be located on undeveloped areas of the campus while new academic uses in Development Areas C and D would be displace existing academic and student housing uses (Husky Hall and Husky Village).

Up to 600 net new student housing beds would be provided under Alternative 3. New student housing buildings would be on the site of the existing Husky Village (Development Area D), as well as east of Campus Way NE (Development Area F).

New parking facilities would also be provided on campus under Alternative 3 through the development of new parking structures or would be incorporated into new academic or student housing buildings. Approximaltey 1,928 new parking stalls (for a total of approximately 4,200 stalls) would be provided under Alternative 3, which represents an increase in parking when compared with Alternatives 1 and 2 (approximately 3,700 total parking stalls). New parking would be distributed throughout campus with approximately 38 percent in the Development Area A, approximately 37 percent Development Areas E and F, and approximately 25 percent in Development Areas C and D.

Increases in density that would occur with development in the central portion of campus (primarily Development Areas B, E and F) under Alternative 3 would be minimized through the implementation of the University's proposed general policies and development standards for the campus (including those standards identified within the *Campus Master Plan)*. In addition, Alternative 3 assumes the retention of several existing open space areas (North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path), as well as the creation of new green, urban open spaces as part of new building development (primarily within Development Areas B, C, D, E and F) which would help to minimize potential impacts of increased density on the campus.

Relationship to Surrounding Uses

Similar to Alternatives 1 and 2, activity levels (i.e., noise and vehicle/pedestrian traffic) on the campus are anticipated to increase with new development under Alternative 3 due to the increase in building density and campus population (students, faculty and staff). The

pattern of activity associated with proposed new academic, student housing and parking development under Alternative 3 would be generally similar to the existing building uses on the campus and would generally be the highest during the day when most classes are in session. Increases in activity levels would be the highest around new building development under Alternative 3, and would primarily occur within Development Areas B, C, D, E and F. Proposed academic development and associated activity would be located in the central portion of campus and in proximity to the existing academic buildings on campus (Development Areas B, E and F); however, some academic uses would be located in the northern portion of campus (Development Areas C and D) and would be connected to existing academic uses with new walkways. Proposed student housing and associated activity levels would replace existing student housing uses in Development Area D and undeveloped areas in Development Area F.

Under Alternative 3, campus development near the western campus boundary (western edges of Development Area C) would be located in proximity to existing off-campus uses (primiarly residential neighborhoods) and could result in some impacts due to increased activity levels (noise) in that portion of the campus. Building development adjacent to off-campus residential areas under Alternative 3 would be limited to Development Area C (two academic buildings and a parking structure), and the potential for impacts to adjacent off-campus residential uses would be similar to Alternative 2 and less than Alternative 1. As identified under the Alternative 3 plan, the majority of the development within Development Area C would be setback from the western campus boundary edge. A 45-foot wide building setback would be provided along the western boundary of Development Areas A, B and C adjacent to residential uses. Within that 45-foot building setback, a 30-foot wide landscape buffer would also be provided along the western boundary of Development Area A and the majority of the western and southern boundary of Development Area C. A portion of the western edge of Development Area C (adjacent to 108th Avenue NE) would contain a 30-foot wide building setback that includes a 10-foot wide landscape buffer (see **Figure 2-5** for an illustration of landscape buffers and building setbacks). The provision of building setbacks and landscape buffers would minimize the potential for land use impacts from increased activitity levels on adjacent off-campus residential neighborhoods.

In addition, Alternative 3 would include a second campus access roadway from Beardslee Boulevard at the current intersection with 108th Avenue NE. NE 185th Street[3] would be vacated as part of this alternative and a new roadway would be provided through Development Area C to connect Beardslee Boulevard with 110th Avenue NE within the campus. The provision of this new access roadway would result in an additional increase in activity levels (primarily noise from vehicle traffic) when compared with Alternatives 1 and 2 and could affect adjacent off-campus residential neighborhoods that are proximate to the

[3] NE 185th Street currently provides only local access between Beardslee Boulevard and 110th Avenue NE, and does not serve as a thru-street connection to other portions of the UW Bothell/CC campus.

roadway. However, this area is already located near Beardslee Boulevard, which is a heavily traveled roadway, and an increase in noise associated with the new access roadway would not be anticipated to be significant.

Potential Indirect/Cumulative Impacts

Development under Alternatives 1 – 3 (and to a lesser extent No Action – Scenario B) would result in student and employment growth on the campus. As a result, nearby surrounding businesses (particularly in downtown Bothell) could experience an increase in demand for goods and services as a result of increased campus population. To the extent that increased campus population and development under Alternatives 1 – 3 (and to a lesser extent No Action – Scenario B) increase demand for business uses in the campus vicinity (retail uses, restaurants etc.), campus growth could influence timing associated with redevelopment of properties in the vicinity.

3.6.3 Mitigation Measures

The following measures would minimize potential land use impacts that could occur with the implementation of the *Campus Master Plan*.

- Construction activities would comply with the City of Bothell Design and Construction Standards and Specifications Manual to minimize impacts from dust, emissions and construction-related stormwater, as well as the City of Bothell Noise Ordinance (BMC 8.26) regarding construction-related noise. See Section 3.2 **Air Quality**, Section 3.5 **Environmental Health**, and Section 3.11 **Public Services and Utilities** for further details.

- Existing open space areas (North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path) would be retained to minimize potential land use impacts.

- The provision of building setbacks (including landscape buffers) would be provided immediately adjacent to off-campus single family residential uses to the west of campus (Development Areas A, B and C) to minimize potential land use impacts to off-campus residences.

- Increases in density under the *Campus Master Plan* would be minimized through the implementation of the proposed general policies and development standards for the campus (including those standards identified within the *Campus Master Plan*).

- New opportunities for potential open space areas and landscapes would be provided as part of building development under Alternatives 1 – 3.

3.6.4 Significant Unavoidable Adverse Impacts

Under Alternatives 1 through 3 intensification in land uses on the campus would occur as a result of the increased density that would be provided under the *Campus Master Plan*. Increased density on the campus would also result in increases in activity levels on the campus. The greatest potential for increases in development would occur in Development Areas A, B and F under Alternative 1; Development Areas B, E and F under Alternative 2; and, Development Areas B, C, D, E and F under Alternatives 3. With implementation of the mitigation measures identified above, no significant unavoidable adverse land use impacts would be anticipated under the EIS Alternatives.

3.6.5 Relationship to Plans and Policies

This section identifies the existing plans and policies deemed the most relevant to the *Campus Master Plan*. The plans and policies analyzed in this section include the following:

- The Washington State Growth Management Act;
- City of Bothell Comprehensive Plan;
- City of Bothell Downtown Subarea Plan;
- City of Bothell Municipal Code; and,
- City of Bothell Shoreline Master Program

Washington State Growth Management Act (RCW 36.70A)

Summary: The Growth Management Act (GMA) was first enacted as ESHB 2929 by the 1990 Washington State Legislature and has been subsequently amended to contain a comprehensive framework for managing growth and coordinating land use planning with the provision of adequate infrastructure. Many provisions of GMA apply to the state's largest and fastest growing jurisdictions, including King County, Snohomish County and all of their cities; some provisions of GMA (such as requirements to identify and regulate critical areas) apply to all local jurisdictions. GMA is long and complex, and the following discussion provides a brief summary of key provisions of GMA that are relevant to the City of Bothell, the UW Bothell and CC.

Among other requirements, jurisdictions subject to GMA must prepare and adopt:

- Countywide planning policies for implementation of GMA;
- Comprehensive land use plans containing specific elements and embodying state-wide goals;
- Regulations consistent with those plans;
- Capital facilities plans (including financing elements) for utilities and transportation systems; and

- Programs designating and regulating critical/sensitive areas (including agricultural and forest lands, wetlands, steep slopes and critical habitat).

The general planning goals of GMA include: directing growth to urban areas; reducing sprawl; providing efficient transportation systems; promoting a range of residential densities and housing types; encouraging affordable housing; promoting economic development throughout the state; protecting private property rights; ensuring timely and fair processing of applications; maintaining and enhancing resource-based industries; encouraging retention of open space and habitat areas; protecting the environment; involving citizens in the planning process; ensuring the siting of essential public facilities (including state educational facilities); and identifing and encouraging the preservation of lands and structures with historical and archaeological significance.

Comprehensive Plans must contain elements dealing with land use, housing, capital facilities, utilities, rural lands, and transportation. Optional elements include conservation, solar energy and recreation, as well as other areas dealing with the physical environment. Sub-area plans (i.e., neighborhood and community plans) are also authorized.

GMA requires that early and continuous public participation be provided for comprehensive land use plans and development regulations implementing such plans.

Discussion: *The City of Bothell has prepared and adopted a Comprehensive Plan (most recently updated in 2015) to guide future development and fulfill the City's responsibilities under GMA. The goals and objectives of the GMA have been incorporated into the City's Comprehensive Plan. The proposed Campus Master Plan is consistent with the City's Comprehensive Plan (see the discussion on the City of Bothell Comprehensive Plan later in this section for further details).*

The Campus Master Plan is consistent with relevant planning goals of GMA. Efficient transportation systems would be encouraged through the continued implementation of a TMP and circulation system improvements. A range of housing densities and housing types would be enhanced with additional on-campus student housing facilities. The plan would promote economic development by fostering an educated workforce and providing additional staff and faculty employment opportunities. The Campus Master Plan would encourage the retention of open space and habitat areas by retaining existing open space and habitat areas (North Creek Wetland and Stream Area) and providing new open space as part of development. The Campus Master Plan also includes a process to ensure that campus areas and structures with historical significance are identified and preservation is encouraged, and the UW Bothell has already completed historic resource addendums for the existing historic structures on campus and those structures that could potentially be historic.

City of Bothell Comprehensive Plan

Summary: The City of Bothell Comprehensive Plan provides the overall goals and policies for the city, and identifies land use patterns for future development within the city. The *Imagine Bothell Comprehensive Plan* was most recently updated in July 2015 and consists of 12 major elements, including Land Use; Natural Environment; Shoreline Master Program; Housing and Human Services; Economic Development; Parks, Recreation and Open Space; Historic Preservation; Urban Design; Annexation; Utilities; Transportation; and, Capital Facilities. In addition to the major elements, the *Imagine Bothell Comprehensive Plan* contains 16 subarea plans for areas of the City, including the Downtown Subarea Plan which includes the UW Bothell/CC campus (discussed in further detail below).

While each element affects development on and adjacent to the UW Bothell and CC campus, the Land Use Element, Natural Environment Element, Economic Development Element, and Urban Design Element are the most relevant to the *Campus Master Plan*. The following goals and policies from the *Imagine Bothell Comprehensive Plan* are most relevant to the UW Bothell and CC.

Land Use Element

LU-G3 – To create a vibrant, sustainable, family-oriented community through the balanced allocation of land for housing, commerce, industry, recreation, transportation, open space, cultural resources and other uses.

LU-G6 – To accommodate the amount of population and employment growth forecasted by the State Office of Financial Management, King County and Snohomish County for the City of Bothell.

LU-G7 – To preserve open space corridors within and at or near the boundaries of the Bothell Planning Area in order to provide for the aesthetic needs of the citizens of Bothell, to protect critical areas, including flood prone lands, and to conserve fish and wildlife habitat.

LU-P4(20) – Comprehensive Plan Land Use Designations-Downtown Subarea Districts: Campus Designation (C). The co-located University of Washington Bothell and Cascadia College provides a landmark eastern presence for downtown Bothell. The Downtown Plan recognizes the potential for mutual benefit in strengthening safe and attractive pedestrian and bicycle connectivity between the downtown core and the campus, and strengthening the downtown to better serve as a convenient and attractive "campus town" and residential district for students, faculty and staff.

LU-P6 – Preserve the character of established neighborhoods and protect such neighborhoods from intrusion by incompatible uses. Infill development in established neighborhoods should be sensitive to and incorporate to the maximum extent possible

those features which impart to each neighborhood a unique identity and sense of coherence. Examples of such features include a particular scale or style of housing, commonality in building materials, predominant street pattern, prevailing lot size and width and similarities in landscaping.

LU-P9 – The City should consider options, when presented, to preserve passive or active open space.

LU-P10 – Pursue the establishment of a network of open space corridors within and on the boundaries of the Planning Area and especially along the Sammamish River and North Creek corridors through acquisition of property, reservation of easements or other means subject to the City's Parks, Recreation and Open Space Action Program Element.

Discussion: *The Campus Master Plan identifies a mix of academic use, student housing uses, parking and retained/new open spaces that are intended to accommodate student growth over the 20-year planning horizon. New student growth would include associated increases in employment (staff and faculty) that would help contribute to forecasted employment growth calculations for the City of Bothell. The provision of new on-campus student housing (600 to 1,200 total student beds under the EIS Alternatives) would also create additional opportunities for UW Bothell students reside on-campus and reduce the demand for off-campus housing associated with the increased student population.*

Development of the Campus Master Plan under EIS Alternatives 1 – 3 is intended to implement the guiding principles of the Campus Master Plan, including providing a cohesive campus character with regard to the campus and its relationship to adjacent areas, and integration with the City of Bothell. Development along the edges of campus would be intended to complement adjacent off-campus uses and connections between the campus and downtown Bothell would be strengthend under the Campus Master Plan to provide for the safe, efficient and effective movement of people.

Development of the Campus Master Plan under EIS Alternatives 1 – 3 would also include the retention of the 58-acre North Creek Stream and Wetland Area which includes critical areas/buffers, fish and wildlife habitat, and passive recreation/open space areas, as well as the retention of the approxiamtely 2.9-acre sports fields and courts. New green and urban open spaces would also be provided as part of new building development under EIS Alternatives 1 – 3.

Natural Environment Element

NE-G1 – To achieve a harmonious relationship between the built and natural environments.

NE-G3 – To preserve open space corridors to provide lands that are useful for recreation, wildlife habitat, trails and connections of critical areas.

NE-P1 – Encourage the concentration of urban land uses in areas with minimial environmental constraints in order to reduce the amount and/or rate of urban intrusion into natural areas.

NE-P8 – Preserve, protect, restore and enhance the Sammamish River, Swamp Creek and North Creek and their tributaries as fish and wildlife habitat by implementing the goals and policies as contained in this element, the Parks and Recreation Element, the Shoreline Master Program Element, the Land Use Element and best available science.

NE-P11 – Preserve and protect critical areas and buffers in as natural a state as possible, emphasizing avoidance of alterations to these areas. Identify and create a system of fish and wildlife habitat, including habitat for any species listed as threatened or endangered by the state or federal government, with connections between large blocks and open spaces. Minimize habitat fragmentation by linking wildlife habitats via corridors. Connect wildlife habitats with eacah other within the City and region to achieve a continuous network. Development proposals shall identify crictical areas and unique and significant wildlife habitat areas and habitat areas associated with any species listed as threatened or endangered by the state or federal government and ensure that buildings, roads and other improvements are located on less sensitive portions of the property.

NE-P14 – Protect, preserve and improve where possible water quality in the Sammamish River, North Creek, and Swamp Creek, and take actions to ensure no net increase in pollutant loads and water quality degradation as these water bodies pass through the City of Bothell. Ensure development complies with stormwater regulations such as those implemented to meet National Pollutant Discharge Elimination System (NPDES) Phase II Permit requirements.

NE-P21 – Public improvements and private developments shall implement surface water runoff best management practices and best available science to reduce the impact of development activities on natural drainage systems.

NE-P28 – Due to the environmental value of wetlands as well as their economic value in reducing the need for storm water facilities, ensure that development results in no net loss of wetland functions and values, and no net loss of wetland area except in limited circumstances where the lost wetland area provides minimal functions and the mitigation action results in equal or greater wetland hydrological and biological functions, including wetland habitat functions which provide equal or greater benefits to the functioning of the sub-basin, such as riparian wetland habitat restoration and enhancement, all as determined by a site-specific function assessment. Promote the long term increase and enhancement of wetlands.

NE-P35 – Encourage environmentally sensitive site design that respects existing topography, sensitive lands and critical areas, provides for retention of native vegetation, provides active and passive recreational open space and minimizes impervious surface coverage. The City

should create special design and building standards based upon best management practices to protect hillsides from impacts associated with development on slopes.

Discussion: *Under EIS Alternatives 1 – 3, development of the Campus Master Plan would concentrate new development within the upland areas of the campus (western portion) to allow for the retention of the existing 58-acre North Creek Stream and Wetland Area in the eastern portion of the campus. Retention of the existing North Creek Stream and Wetland Area would provide for the continued preservation of the existing critical areas and associated buffers within this area and allow for the continued use of this area as habitat for fish and wildlife.*

Under EIS Alternative 3, new development within portions of Development Area C could require the filling of Wetland 14, but the potential filling of Wetland 14 was analyzed under the original environmental review for the development of the campus and restoration of the potential fill of Wetland 14 was included as part of the North Creek Stream and Wetland Area restoration project.

Development of new buildings and the new campus access roadway from Beardslee Boulevared under EIS Alternative 3 are also anticipated to be located in proximity to additional wetlands located in Development Area C (near Husky Hall) and Development Area D (near Husky Village). In the event that a specific project would result in direct impacts to wetlands, a wetland delineation survey would be completed to facilitate a determination of the extent to which these wetlands were accounted for as part of the North Creek Stream and Wetland Restoration Project. Any direct impacts to wetlands or buffers in Development Areas C and D that were not accounted for under the North Creek Stream and Wetland Restoration Project would comply with the applicable critical areas and wetlands requirements of the City of Bothell (BMC 14.04 – Article XI: Wetlands).

New development projects under EIS Alternatives 1 – 3 would connect to the existing stormwater management system on campus. New development would be designed to be consistent with the applicable provisions of the City of Bothell Design and Construction Standards and Specifications - Surface Water Design Manual (January 2017) and significant stormwater impacts would not be anticipated to the North Creek Stream and Wetland Area.

Economic Development

ED-G1 – To develop and maintain a strong, diversified and sustainable economy, while respecting the natural and cultural environment and preserving or enhancing the quality of life for Bothell citizens.

ED-G8 – To promote a locally educated work force program that attracts new talent to jobs and businesses in Bothell.

ED-P1 – Partner with local businesses, educational institutions and business groups to improve Bothell's position as a regional force in job creation and business growth.

ED-P19 – Explore ways in which the UW Bothell / Cascadia College campus might be better linked to the downtown activity center to promote economic opportunity for downtown businesses and both a greater sense of community and better access to services for UWB/CC students, faculty and staff.

Discussion: *Development of the Campus Master Plan under EIS Alternatives 1 – 3 includes a mix of academic uses, student housing uses, parking and retained/new open spaces that are intended to accommodate student growth over the 20-year planning horizon. New development would provide increased local higher education opportunities for potential students within the City of Bothell, surrounding areas and beyond that could provide a locally educated work force.*

Development under EIS Alternatives 1 – 3 would also be intended to provide enhanced connections and opportunities for access between the campus and downtown Bothell. New student and employment growth on the campus could result in increased demand for goods and services at nearby surrounding businesses (particularly within downtown Bothell) which would promote economic development opportunities in the city of Bothell.

Historic Preservation

HP-G1 – To honor Bothell's past and provide a perspective for its future by preserving significant historic buildings and archaeological properties and other links to the City's past.

HP-P1 – Promote the preservation of buildings, site, objects and districts which have historic significance for the community through a combination of incentives, regulations and informational activities.

HP-P4 – Encourage exploration of alternatives to the demolition of buildings and objects found to be historically significant or otherwise deemed to be eligible for the local, state or national registers to accommodate private or public sector proposals.

Discussion: *Within the UW Bothell/CC campus, the Chase House is listed on the National Register of Historic Places (NRHP) and the Washington Heritage Register (WHR). Development under EIS Alternatives 1 – 3 would retain the Chase House in its current location and no direct impacts would occur.*

The Truly House is not individually listed on the NRHP and it is not designated as a local landmark (see Section 3.10, Historic and Cultural Resources for further details). Development under EIS Alternatives 1 and 3 would retain the Truly House in its current location and no direct impacts would occur. Under EIS Alternative 2, it is anticipated that the Truly House would be demolished or relocated to a new location on-campus or off-campus. In the event that the building is relocated, careful planning would be required to find a site with adequate context; however, moving the building again would not substantially alter the current historic integrity of the building since the historic integrity of the building was already lost with the original construction of the campus. Similarly, if the Truly House is

demolished it would not be anticipated to result in an impact to a historic resource since the building's historic integrity was already compromised and it is not listed on any historic registers.

Urban Design Element

UD-G1 – To achieve a sense of harmony among the built, natural and cultural environments through the application of design principles to individual buildings, residential, commercial, and industrial districts, and the City as a whole.

UD-G4 – To ensure that new development is of high quality, on a human scale, and compatible with its surroundings.

UD-P3 – Pedestrian linkages between major activity areas should be provided across built features that act as barriers to safe and easy access. For example, safe and accessible pedestrian linkage should be provided between the downtown / Main Street retail activity area, the riverfront activity area and the University of Washington Bothell / Cascadia College campus.

UD-P7 – Retain existing natural features such as steep slopes, wetlands, streams, and mature wooded areas as open space.

Discussion: *Under EIS Alternatives 1 – 3, development as part of the Campus Master Plan would intended to be consistent with the aesthetic character of the campus environment. To ensure consistency in design, development standards related to building height, building design and open space are identified in the Campus Master Plan. Maximum building heights would be 65-feet for the majority of the campus (Development Areas A, B, C, D and G) with a maximum building height of 100-feet for the portions of campus that are east of Campus Way NE (Development Areas E and F). As described previously, development under EIS Alternatives 1 – 3 would also be intended to provide enhanced connections and opportunities for access between the campus and downtown Bothell.*

Several existing open space areas (North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path) would be retained under EIS Alternatives 1 – 3. New green, urban open spaces would also be included as part of new building development under each of the alternatives which would help enhance the aesthetic character surrounding new buildings.

City of Bothell Downtown Subarea Plan

Summary: The *City of Bothell Downtown Subarea Plan and Regulations* were originally adopted in July 2009 and subsequently amended in January 2011. The intent of the plan is to orchestrate private and public investment activities in downtown Bothell and establish the primary means for regulating land uses and development on properties within the subarea. It also establishes the means for planning City actions and investments in support

of growth and continued revitalization of the greater downtown area. The plan designates areas within the Downtown Subarea as various districts or corridors based the the types of land uses that are envisioned for the future (i.e., Downtown Core District, Downtown Neighborhood District, SR-522 Corridor, etc.). The UW Bothell/CC campus is located within the Campus District, along the eastern boundary of the Downtown Subarea.

Section 12.64.108 of the *City of Bothell Downtown Subarea Plan and Regulations* includes requirements for development within the Campus District; however, it also notes that development on the campus is regulated by a Planned Unit Development (PUD) that has been adjusted in accordance with BMC 12.30. Campus District requirements include the following:

12.64.108(B)(1) – provisions for pedestrian and bicycle access in accordance with the adopted pedestrian and bicycle facilities plan within the Comprehensive Plan;

12.64.108(B)(2) – aesthetic requirements for development that is visible from I-405 and SR-522;

12.64.108(B)(3) – architectural design requirements, including building compatibility, glare, HVAC locational standards, and maximum building heights of 65 feet west of Campus Way NE and 113th Avenue NE and 100 feet east of Campus Way NE and 113th Avenue NE;

12.64.108(B)(4) – building setback requirements of 25 feet from public rights-of-way and 30 feet from residential uses per BMC 12.14.070D;

12.64.108(B)(5) – landscaping requirements, including requirements for parking, service and loading areas, and the use of shade trees along North Creek; and,

12.64.108(B)(6) – parking requirements pursuant to BMC 12.16.

Discussion: *As described previously, development of the Campus Master Plan under EIS Alternatives 1 – 3 would be intended to provide enhanced connections and opportunities for access between the campus and downtown Bothell, including pedestrian and bicycle connections.*

Development standards identified in the Campus Master Plan would be intended to ensure that new development is consistent and compatible with the existing campus environment and surrounding areas and meet the aesthetic requirements to address views from I-405 and SR-522. Building setback requirements and landscaping standards would also be addressed as part of the Campus Master Plan.

Maximum building heights would be 65-feet for the majority of the campus (Development Areas A, B, C, D and G) and 100-feet for the portions of campus that are east of Campus Way NE (Development Areas E and F), and would be consistent with the Downtown Subarea Plan and Regulations.

New parking would be provided on the campus under EIS Alternatives 1 – 3. Under Alternatives 1 and 2, approximately 3,700 total parking stalls would be provided on campus; Alternative 3 would include approximately 4,200 total parking stalls (see Section 3.12, ***Transportation****, for further details on parking)*

Since 1995, development on the campus has occurred under the provisions of the approved planned unit development (PUD) and associated campus master plan. The UW Bothell and CC are now proposing a new Campus Master Plan to build upon the previous planning efforts, extend the continuity of planning development, and provide a more efficient project review process over the 20-year planning horizon.

City of Bothell Municipal Code

Summary: The *City of Bothell Municipal Code* includes zoning requirements for development in the City of Bothell (BMC Chapter 12). As noted above, the UW Bothell/CC campus is located within the Downtown Subarea and per BMC 12.64.010, zoning regulations for the Downtown Subarea are organized in a different manner from other zoning regulations in BMC Chapter 12. Regulations for the Downtown Subarea are included as part of the *Downtown Subarea Plan and Regulations* document and are adopted by reference as part of BMC 12.64.010.

Discussion: *See the discussion above regarding the City of Bothell Downtown Subarea Plan and Regulations.*

City of Bothell Shoreline Master Program

Summary: The City of Bothell *Shoreline Master Program* (SMP) was updated in May 2012 to define the community's vision for the City's shorelines and provide guidance to the City when evaluating shoreline variances, conditional use permits, interpretations and future amendments to the SMP. The SMP provides goals and policies that guide development and uses of shorelines within the City of Bothell. The shoreline jurisdiction for the City of Bothell encompasses the Sammamish River, North Creek and Swamp Creek; land within 200 feet of the ordinary high water mark (OHWM) of these waterways and their floodways; 100-year floodplains and associated wetlands. Within the UW Bothell/CC campus, North Creek is designated within the shoreline jurisdictional area. All regulatory elements of the SMP are included as part of the City's development regulations within the Bothell Municipal Code (Chapter 13 – Shoreline Regulations). The shorelines of the City of Bothell are divided into six shoreline environment designations, including Aquatic, High Intensity, Marina, Natural, Shoreline Residential and Urban Conservancy.

Per City of Bothell Shoreline Regulations and BMC Figure 13.07.070-6, the eastern portion of the campus (generally comprised of the North Creek Stream and Wetland Area) is designated as Natural Environment. The purpose of the Natural Environment designation is

to protect shoreline areas that are relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use. These systems require that only very low-intensity uses be allowed in order to maintain ecological functions and ecosystem-wide processes.

Discussion: *Development of EIS Alternatives 1 – 3 under the Campus Master Plan would would concentrate new development within the upland areas of the campus (western portion) to allow for the retention of the existing 58-acre North Creek Stream and Wetland Area in the eastern portion of the campus. Retention of the existing North Creek Stream and Wetland Area would provide for the continued preservation of the existing critical areas and associated buffers within this area and allow for the continued use of this area as habitat for fish and wildlife. No development is anticipated to occur within the Natural Environment designated areas on the campus and these areas would continue to maintain their existing ecological functions.*

3.7 POPULATION AND HOUSING

This section of the Draft EIS describes the existing population and housing conditions on the University of Washington Bothell (UW Bothell) and Cascadia College (CC) campus and in the site vicinity and evaluates the potential impacts that could occur as a result of the *Campus Master Plan*.

3.7.1 Affected Environment

Population

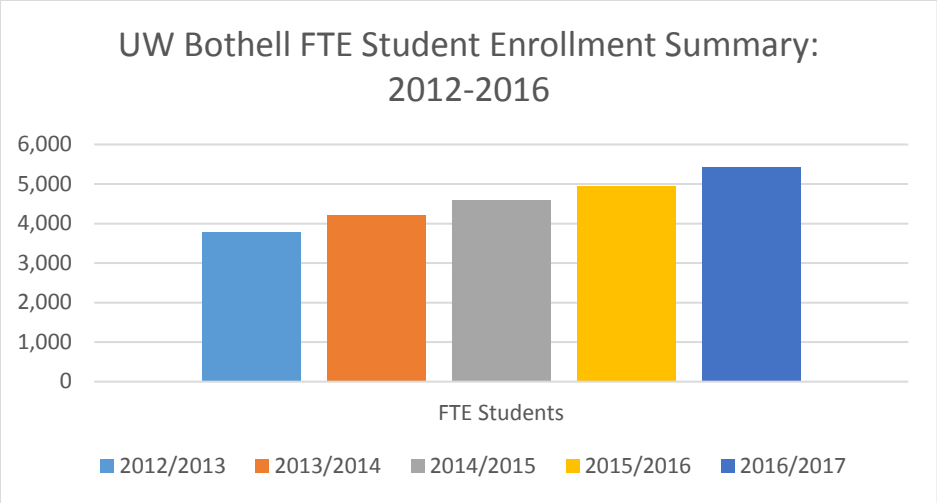
Existing Overall Campus

In the Fall of 2016, the total campus population (including students, faculty and staff) was approximately 9,014 FTE (full-time equivalent), comprised of a UW Bothell campus population of approximately 5,917 FTE and a CC campus population of approximately 3,097 FTE. The campus population is generally comprised of three major groups: students, faculty and staff. Over the past nine years, overall campus population has progressively increased; however, each group has somewhat different characteristics and factors, which are discussed below.

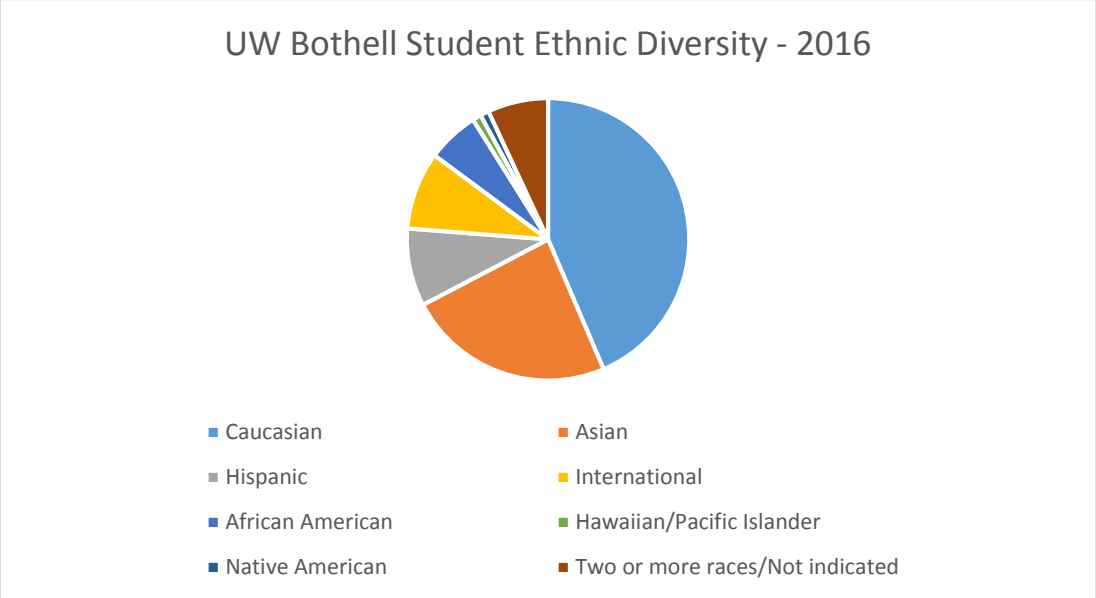
Students

Many factors influence the levels of student enrollment at the UW Bothell and CC. Changes to state and federal level financial aid programs can affect the quantity and demographic composition of students enrolling at the UW Bothell and CC. The Washington Student Achievement Council (WSAC) provides strategic planning, oversight, advocacy, and student success and retention programs, which can also affect enrollment. In addition, partnerships with community and technical colleges can influence student enrollment and demographics.

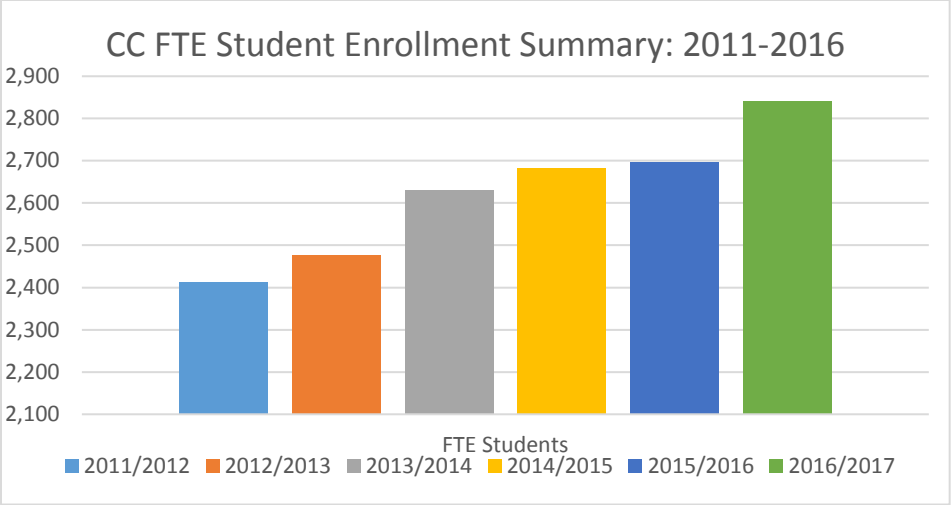
UW Bothell Student Population – Since the 2012/2013 school year, there has been an overall increasing trend in student enrollment population at the UW Bothell from approximately 3,788 FTE students to 5,375 FTE students in the 2016/2017 school year. See below for a summary of the UW Bothell student population since 2012/2013.



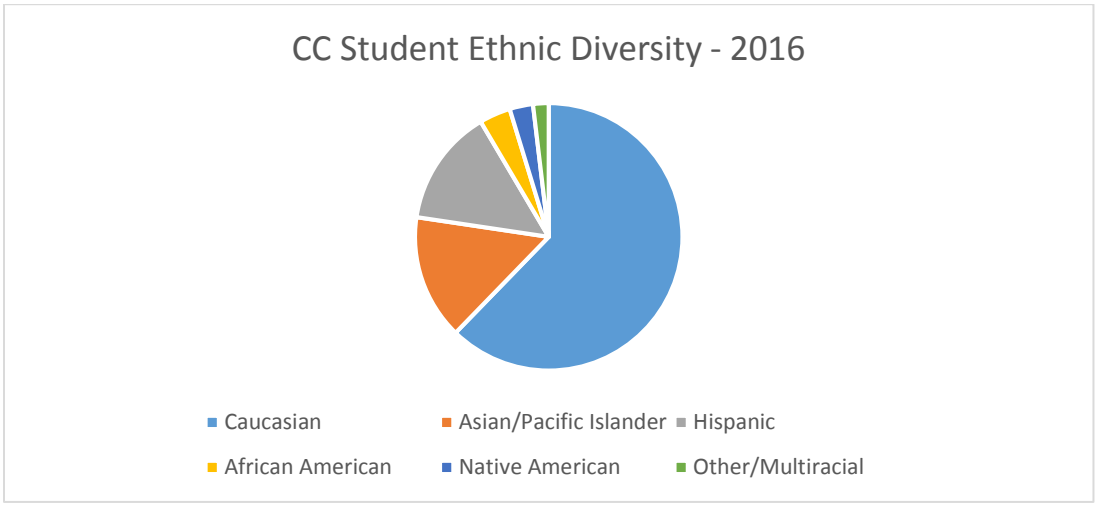
The UW Bothell also compiles statistics on the ethnicity of the student population. In Fall 2015, of the total student enrollment, approximately 44 percent were Caucasian, 24 percent were Asian, 9 percent were Hispanic, 9 percent were International, 6 percent were African American, 1 percent were Hawaiian/Pacific Islander, less than 1 percent were Native American, and 7 percent were classified as two or more races or not indicated. See below for a summary on the ethnicity of the student population.



CC Student Population – Since the 2011/2012 school year, there has been a gradual increase in student enrollment population at CC from approximately 2,412 FTE students to 2,842 FTE students in the 2016/2017 school year. See below for a summary of the CC student population since 2011/2012.



Based on student enrollment statistics from Fall 2016, of the total CC student enrollment, approximately 66 percent were Caucasian, 16 percent were Asian/Pacific Islander, 15 percent were Hispanic, 4 percent were African American, 3 percent were Native American, and 2 percent were classified as other/multiracial. See below for a summary on the ethnicity of the student population.



Faculty

Consistent with the increasing student population trend, the UW Bothell faculty population has steadily increased on campus from approximately 208 FTE faculty in 2012 to approximately 283 FTE faculty in 2016 (an approximately 36 percent increase). The CC faculty population as of Fall 2016 was approximately 139 FTE employees.

Staff

As student population has increased, overall staffing levels for the UW Bothell have also increased from approximately 220 FTE in 2012 to approximately 259 FTE in 2016 (an approximately 18 percent increase). The CC staff population as of Fall 2016 was approximately 116 FTE employees.

Surrounding Area

The UW Bothell/CC campus and surrounding area, and City of Bothell population is described below based on data from the US Census Bureau's *2015 American Community Survey*. For the purposes of this analysis, the campus surrounding area is defined as the census tract that includes the campus (Census Tract 218.04) as well as the immediately adjacent census tracts (Census Tracts 217, 218.03, 219.05 and 220.01). **Figure 3.7-1** shows the location and boundaries of the relevant Census Tracts that comprise the campus surrounding area.

According to the *2015 American Community Survey* the total population of the City of Bothell was approximately 41,200 people. The total population of the campus surrounding area was approximately 25,380, which represents approximately 62 percent of the total City of Bothell population.

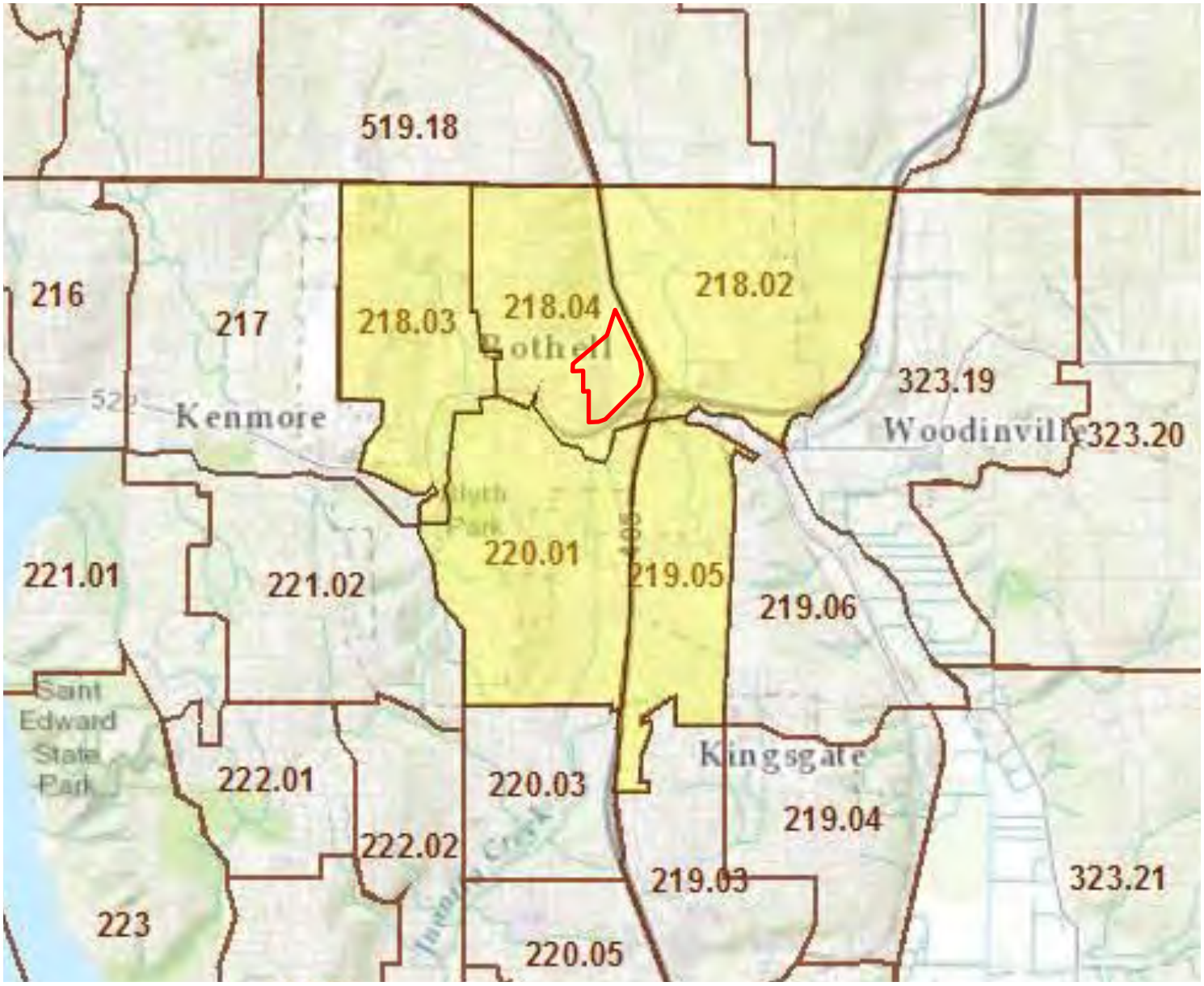
The racial makeup and income level characteristics of the campus surrounding area does not differ significantly from the greater City of Bothell. However, there are slight differences between the campus surrounding area and the greater City of Bothell as it relates to population age. The campus surrounding area has a slightly lower percentage of the population that is 20 years to 54 years old (49 percent versus 51 percent for the City of Bothell) and a higher percentage that is 55 years and older (26 percent versus 24 percent for the City of Bothell).

Table 3.7-1 though **Table 3.7-3** provides a summary of the area population by age, income level, and race, and compares those demographics for the area population to the greater City of Bothell.

Table 3.7-1
SUMMARY OF AREA POPULATION BY AGE

	19 years and under	20 years to 54 years	55 years and older
Campus Surrounding Area	6,276 (25%)	12,530 (49%)	6,577 (26%)
City of Bothell	10,212 (25%)	21,005 (51%)	9,990 (24%)

Source: US Census, 2015.



Source: US Census Bureau, 2017.

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

Figure 3.7-1
Census Tract Map

Table 3.7-2
SUMMARY OF AREA POPULATION BY INCOME LEVELS

	Median Household Income	Percent of Familes with Income Below the Poverty Level
Campus Surrounding Area	$79,681	5%
City of Bothell	$81,972	6%

Source: US Census, 2015.

Table 3.7-3
SUMMARY OF AREA POPULATION BY RACE

	White	African-American	American-Indian	Asian	Hawaiian/ Pacific Islander	Other	Two or More Races
Campus Surrounding Area	19,771 (78%)	522 (2%)	103 (<1%)	2,939 (12%)	87 (<1%)	750 (3%)	1,211 (5%)
City of Bothell	31,089 (75%)	649 (2%)	215 (<1%)	5,676 (14%)	95 (<1%)	1,266 (3%)	2,217 (5%)

Source: US Census, 2015.

Housing

Existing UW Bothell Housing Facilities

Husky Village

The UW Bothell provides on-campus student housing as part of Husky Village which is located in the north portion of campus (Development Area D), adjacent to Beardslee Boulevard. Husky Village is comprised of 10 buildings with approximately 74,150 square feet of building space and can accommodate approximately 240 students. Cascadia College does not provide on-campus student housing as part of their facilities. Based on the current FTE student population and the amount of existing student housing on the campus, the UW Bothell houses approximately four percent of the current UW Bothell student population; the overall campus has the capacity to house approximately three percent of the total campus student population (240 student housing beds divided by 8,217 FTE students).

Existing UW Bothell/CC Student, Faculty and Staff Housing Data

The UW Bothell and Cascadia College maintain data on the existing campus population[1] (students, faculty, and staff), including home address zip code data. Based on this data, estimates have been generated for the percentage of the campus population that lives in various areas surrounding the campus. For UW Bothell students, approximately 13 percent of those students live within the City of Bothell, 18 percent live within adjacent citys (Kenmore, Mill Creek, Lynnwood, Woodinville and Kirkland), 22 percent live in the City of Seattle and 47 percent of students live within other surrounding areas. Based on existing UW Bothell faculty and staff zip code data, approximately 20 percent live within the City of Bothell, 17 percent live within adjacent citys (Kenmore, Mill Creek, Lynnwood, Woodinville and Kirkland), 31 percent live in the City of Seattle and 32 percent of live within other surrounding areas.

For Cascadia College, approximately 34 percent of all students live within the City of Bothell, 30 percent live within adjacent citys (Kenmore, Mill Creek, Lynnwood, Woodinville and Kirkland), 4 percent live in the City of Seattle and 32 percent of students live within other surrounding areas. For existing faculty and staff, approximately 20 percent live within the City of Bothell, 13 percent live within adjacent citys (Kenmore, Mill Creek, Lynnwood, Woodinville and Kirkland), 30 percent live in the City of Seattle and 37 percent live within other surrounding areas.

Surrounding Area

According to the *2015 American Community Survey*, the City of Bothell contains approximately 16,751 housing units, of which approximately 95 percent are occupied and 5 percent are vacant (**Table 3.7-4** provides a summary of the existing housing stock in the City of Bothell, as well as the campus surrounding area). Of the occupied housing units in the City of Bothell, approximately 67 percent are owner-occupied and 33 percent are renter-occupied. The median home value for the Bothell area was approximately $355,100. For housing units that are rented, the median monthly rental price was approximately $1,402.

Table 3.7-4
SUMMARY OF EXISTING HOUSE STOCK IN THE SURROUNDING AREA

	City of Bothell	Campus and Surrounding Area[1]
Owner-Occupied Units	10,721	6,641
Renter-Occupied Units	5,252	3,530
Vacant Units	778	566
Total Housing Units	**16,751**	**10,737**

[1] UW Bothell and Cascadia College Fall 2016 enrollment and faculty/staff data.

Table 3.7-4 Continued

	City of Bothell	Campus and Surrounding Area[1]
Median Home Value	$355,100	$365,400
Median Rental Price	$1,402	$1,372

Source: US Census, 2015.

[1] Includes Census Tracts 218.02, 218.03, 218.04, 219.05 and 220.01.

The UW Bothell/CC campus and surrounding area (represented by Census Tracts 218.02, 218.03, 218.04, 219.05 and 220.01) contained approximately 10,737 housing units, of which, approximately 95 percent are occupied and 5 percent are vacant. Of the occupied units, approximately 65 percent are owner-occupied and 35 percent are renter-occupied. This distribution of owner-occupied units and renter-occupied units is similar to the overall City of Bothell and indicates the similar types of housing within the campus surrounding area. The median home values in the campus surrounding area were approximately $365,400 (slightly higher than the overall City of Bothell) and median rental prices were approximately $1,372 (slightly lower than the overall City of Bothell).

3.7.2 Impacts

This section of the Draft EIS identifies the potential impacts of the *Campus Master Plan* on existing population and housing on the UW Bothell/CC campus and in the surrounding areas that could occur with development under the EIS Alternatives.

The *Campus Master Plan* is intended to identify development to accommodate the continued anticipated growth of the UW Bothell and CC. It is estimated that approximately 907,300 gsf to 1,072,300 gsf of net new building space and 600 to 1,200 total student housing beds will be needed over the 20-year planning horizon[2]. The growth of the campus would include both an increase in the number of students, faculty, and staff, as well as additional student housing to accommodate some of the increase in new students.

No Action Alternative

Scenario A – Baseline Condition

Under No Action – Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus. The current number of FTE students is assumed to remain at approximately 7,040; associated faculty and staff populations are anticipated to also remain relatively the same. The current 683,500 gsf of academic space and 74,200 gsf of housing space on campus (total of 757,700 gsf on campus), along with the 70,700 gsf of off-site academic space within 0.25 mile of campus, would remain. The approximately 240 student beds associated with Husky Village would

[2] Depending on the percentage of students housed on campus and strategy regarding retention of Husky Village units.

remain. Under Scenario A, there would be no increases in student population or student housing and significant population and housing impacts would not be anticipated. Maintaining the current student population would also limit the UW Bothell and CC's ability to serve future population growth in the City of Bothell and surrounding areas.

Scenario B – Allowed in PUD

Under No Action – Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the current PUD. Student enrollment of up to 10,000 FTEs on campus is assumed, consistent with the current PUD. The approximately 240 student beds associated with Husky Village would remain, although no additional housing beds would be provided.

Under Scenario B, the total campus FTE student population is anticipated to increase by approximately 1,783 students when compared to the current conditions. Based on an existing student to faculty ratio of 20 to 1 and a student to staff ratio of 20 to 1, it is anticipated that the increase in students would also result in an associated increase of approximately 89 faculty members and 89 staff members on the campus. As a result, the total increase in campus population under Scenario B would be approximately 1,961 people (FTE students, faculty and staff).

Under Scenario B, no new student housing would be provided on the campus and it is anticipated that the increase in student population would reside in the City of Bothell, surrounding areas and beyond similar to the current trends discussed above; new faculty and staff would also be anticipated to reside in these areas similar to current trends (see the existing housing conditions discussion above for details).

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 represents a level of development and improvements that would meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. This alternative reflects a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A and B (see **Figure 2-6** for a site plan of Alternative 1). Alternative 1 assumes a campus student population of 10,000 FTEs, and a total of 1,200 student housing beds (representing approximately 20 percent of the assumed UW Bothell student FTEs). New student housing facilities are assumed to be located in the southern portion of campus (Development Area A) and the

existing student housing (Husky Village) would be retained in the north portion of campus (Development Area D).

Population

Under Alternative 1, the total campus FTE student population is anticipated to increase by approximately 1,783 students when compared to the current conditions (to a total of 10,000 FTE students under the *Campus Master Plan*). Based on an existing student to faculty ratio of 20 to 1 and a student to staff ratio of 20 to 1, it is anticipated that the increase in students would also result in an associated increase of approximately 89 faculty members and 89 staff members on the campus. As a result, the total increase in campus population under Alternative 1 would be approximately 1,961 people (FTE students, faculty and staff) over the planning period for the *Campus Master Plan*.

Housing

Alternative 1 identifies the potential future development of up to approximately 960 new student housing beds on campus for the UW Bothell as part of the *Campus Master Plan* (for a total of 1,200 student housing beds on campus). With the assumed new student housing on campus, it is anticipated that the UW Bothell would be able to house approximately 20 percent of their total FTE students under Alternative 1 (approximately 6,000 FTE students), which would represent an increase over the current conditions (current capacity to house approximately four percent of UW Bothell students). Assumed new student housing would be anticipated to be located in the south portion of campus (Development Area A) under Alternative 1 and the existing student housing facilities (Husky Village) would also remain in the north portion of campus (Development Area D).

As under the existing conditions, CC would not include any on-campus student housing facilities as part of Alternative 1.

Surrounding Areas

While new student housing on-campus would give the the UW Bothell the ability to house a larger percentage of students in on-campus facilities, the private off-campus housing market would continue to be a source of housing for a portion of UW Bothell and CC students, as well as faculty and staff, and would likely experience an increased demand from increased population growth on campus under the *Campus Master Plan*.

It is assumed that new students living off-campus would continue to reside in similar housing patterns as described under existing conditions above. UW Bothell students would be anticipated to reside in a more regional distribution pattern (approximately 30 percent in and adjacent to the City of Bothell and 70 percent in surrounding areas), while CC students would reside in a more local distribution pattern (approximately 65 percent in and adjacent to the City of Bothell and 35 percent in surrounding areas). Residences for new faculty and

staff would also be anticipated to be distributed similar to existing conditions, which exhibit a similar pattern for both UW Bothell and CC faculty/staff (approximately 35 percent in and adjacent to the City of Bothell and 65 percent in surrounding areas). Due to the wide distribution of students, faculty and staff living in surrounding areas, as well as the increase in available on-campus student housing when compared to the existing conditions, it is anticipated that significant housing impacts would not be anticipated.

Because Alternative 1 assumes the same amount of total student campus population as the No Action Alternative – Scenario B, but would provide new on-campus student housing to accommodate a portion of new students (a total of 1,200 student housing beds), it is anticipated that the demand for off-campus housing for students would be less under Alternative 1 than under No Action Alternative – Scenario B.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F (see **Figure 2-7** for a site plan under Alternative 2). Alternative 2 assumes a campus student population of 10,000 FTEs, and a total of 600 student housing beds (representing approximately 10 percent of the assumed UW Bothell student FTEs). New student housing facilities would be located in the eastern portion of campus (Development Area F) and existing student housing (Husky Village) would be retained in the north portion of campus (Development Area D).

Population

Alternative 2 assumes the same total campus student population as Alternative 1 and it is anticipated that the population impacts associated with Alternative 2 would also be the same as Alternative 1.

Housing

Alternative 2 identifies the potential future development of up to approximately 360 new student housing beds on campus for the UW Bothell as part of the *Campus Master Plan* (for a total of 600 student housing beds on campus). With the assumed new student housing on campus, it is anticipated that UW Bothell would be able to house approximately 10 percent of their total FTE students under Alternative 2 (approximately 6,000 FTE students), which would represent an increase over the current conditions (current capacity to house approximately four percent of UW Bothell students) but would be less than Alternative 1 (20 percent of UW Bothell students). Assumed new student housing would be anticipated to be located in the eastern portion of campus (Development Area F) under Alternative 2 and the existing student housing facilities (Husky Village) would also remain in the north portion of campus (Development Area D).

As under the existing conditions, CC would not include any on-campus student housing facilities as part of Alternative 2.

Surrounding Areas

Under Alternative 2, the UW Bothell is assumed to provide approximately 600 total student housing beds on-campus, which would be a lower amount of student housing than under Alternative 1 (600 total student housing beds versus 1,200 total student housing beds, respectively). As a result it is anticipated that a larger percentage of students would reside in off-campus areas under Alternative 2 (90 percent of UW Bothell students versus 80 percent under Alternative 1). The overall distribution of students, as well faculty and staff, that are anticipated to reside in off-campus areas would be similar to those described under Alternative 1; however, there would be greater number of students living in those areas under Alternative 2. Due to the wide distribution of students, faculty and staff living in surrounding areas, as well as the increase in available on-campus student housing when compared to the existing conditions, it is anticipated that significant housing impacts would not be anticipated.

Because Alternative 2 assumes the same amount of total student campus population as the No Action Alternative – Scenario B, but would provide new on-campus student housing to accommodate a portion of new students (a total of 600 student housing beds), it is anticipated that the demand for off-campus housing for students would be less under Alternative 2 than under No Action Alternative – Scenario B.

Alternative 3 – Growth Along Topography (Northward Growth)

Alternative 3 represents a focus of development that would follow the north/south topography of the campus, with the majority of development assumed for the northern portion of campus in Development Areas B, C, D, E and F (see **Figure 2-8** for a site plan of Alternative 3). Alternative 3 assumes a campus student population of 10,000 FTEs, and a total of 600 student housing beds (representing approximately 10 percent of the assumed UW Bothell student FTEs). The existing Husky Village student housing buildings are assumed to be demolished in the northern portion of campus and new student housing facilities are assumed to developed within Development Area D; additional new student housing facilities would be located in the eastern portion of campus (Development Area F).

Population

Alternative 3 assumes the same total campus student population as Alternative 1 and it is anticipated that the population impacts associated with Alternative 3 would also be the same as Alternative 1.

Housing

Under Alternative 3, the existing student housing associated with Husky Village would be demolished and new student housing facilities are assumed to be developed within Development Area D. New student housing facilties are also assumed to be developed within Development Area F. Alternative 3 would provide the same amount of on-campus student housing as Alternative 2 (600 total student housing beds on campus) and it is anticipated that potential housing impacts would be the same as Alternative 2.

Surrounding Areas

Alternative 3 would provide the same amount of on-campus student housing as Alternative 2 (600 total student housing beds on campus) and it is anticipated that potential housing impacts to surrounding areas would be the same as Alternative 2.

Potential Indirect/Cumulative Impacts

The increase in population on the campus under Alternatives 1 – 3, as well as No Action Scenario B, would lead to an increased demand for energy, recreation and open space, transportation facilities and public services. Activity levels on campus and in the adjacent area would also increase with additional population. These population-induced impacts are discussed further in Section 3.4 - **Energy**, Section 3.6 - **Land Use**, Section 3.9 - **Recreation and Open Space**, Section 3.11 - **Public Services and Utilities** and Section 3.12 - **Transportation**. Indirect increased demands for commercial/retail uses and services could also be generated by increases in population on-campus. To the extent that increased on-campus population creates an increased demand for housing, additional pressure to develop new housing in the surrounding off-campus areas could occur.

3.7.3 Mitigation Measures

No direct population-related mitigations measures would be necessary. Mitigation associated with indirect population impacts identified above are discussed under their respective sections.

Alternatives 1 – 3 identify approximately 600 to 1,200 new student beds on-campus over the life of the plan that would allow the UW Bothell to house a higher percentage of students in on-campus facilities compared to existing conditions and minimize potential off-campus housing demand associated with new students. Additional growth in students, faculty and staff would not be anticipated to result in significant housing impacts to the private housing market in the surrounding areas and region, and no additional mitigation measures would be necessary.

3.7.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to population or housing are anticipated.

3.8 AESTHETICS/VIEWS

This section of the Draft EIS describes the existing aesthetic and view conditions on the University of Washington Bothell (UW Bothell) and Cascadia College (CC) campus and in the site vicinity and evaluates the potential impacts to aesthetics and views that could occur as a result of the *Campus Master Plan*.

3.8.1 Affected Environment

Existing On-Campus

The visual character of the UW Bothell/CC campus is varied and contains a variety of building types, developed areas, undeveloped areas and views. For example, the eastern portion of the campus is characterized by North Creek and its associated restored and enhanced areas (including wetlands, floodplains, habitat areas, observation areas and trails), while the western portion of campus is characterized by existing campus development (including academic buildings, student housing, parking structures, surface parking areas, roadways and pedestrian pathways). The campus setting and layout of buildings and undeveloped areas in the western portion of campus provides views of North Creek, Interstate 405 (I-405) and portions of east Bothell and Woodinville.

Campus Master Plan Development Areas

For descriptive and planning purposes as part of the *Campus Master Plan* EIS, the western portion of the UW Bothell/CC campus has been divided into seven (7) potential campus development areas. The aesthetic character and views from each development area are described below.

Development Area A

Aesthetic Character

The aesthetic character of Development Area A is generally comprised of existing parking facilities. The four-story South Parking Garage serves as a substantial visual feature for Development Area A; the garage includes trees and landscaping along the eastern façade which creates a partial visual screen of the building along Campus Way NE. The two-story Physical Plant building is located immediately west of the South Parking Garage. The

remainder of Development Area A is characterized by existing surface parking lots with associated landscaping and trees provided between the parking aisles. The western and southern campus boundary within Development Area A also include mature trees which act to provide a buffer and partial visual screen between the campus development and existing off-campus residential uses to the west.

Physical Plant Building

Views

From Development Area A, views of the North Creek Stream and Wetland Area, I-405 and portions of east Bothell and Woodinville are available from the upper levels of the South Parking Garage and along NE 180th Street looking east. Views of the Sammamish River are also available from certain areas within the south portion of Development Area A (i.e., within the surface parking lot and along Campus Way NE).

Development Area B

Aesthetic Character

The aesthetic character of Development Area B is comprised of existing campus buildings, undeveloped space surrounding buildings, pedestrian pathways, surface parking lots and roadways. In general, UW Bothell buildings are located in the south portion of Development Area B, CC buildings are located in the north portion and shared buildings are located in the middle. The south portion of Development Area B contains the UW Bothell's Founders Hall (UW1), Commons Halls (UW2), and Discovery Hall (DISC). The shared Library building (LB1), Library Annex (LBA), Library 2 (LB2) building and the Truly House are located in the central portion of Development Area B. The north portion of Development Area B is primarily comprised of Cascadia College buildings, including the CC1 and CC2 buildings which are located adjacent to Campus Way NE and the Mobius Hall (CC3/GLA) building.

Mobius Hall (CC3/GLA)

The existing buildings in Development Area B are generally three- to four-stories in height and are constructed with brick, glass and metal façades with the exception of the Truly House which is a two-story, former residence (currently used as a UWB auxiliary faculty facility) that was constructed in the craftsman-style with a primarily wood, brick and glass exterior.

Existing pedestrian pathways are located throughout Development Area B and provide connections between campus buildings and parking areas, including the Crescent Path that is immediately west of LB1. A surface parking area is located near the intersection of NE 180th Street and 110th Avenue NE. The remainder of Development Area B is comprised of undeveloped areas.

Views

Views of the North Creek Stream and Wetland Area, I-405 and portions of east Bothell and Woodinville are available from the upper levels of existing buildings, including UW1, LB1, LBA, LB2, CC1, CC2 and CC3. Existing roadways also provide views of these areas, including along NE 180th Street and portions of the north and south end of Campus Way NE within Development Area B.

Development Area C

Aesthetic Character

The aesthetic character of Development Area C is generally defined by the single-story Husky Hall in the northeast corner with existing undeveloped areas with some campus-related outdoor maintenance equipment storage and surface parking in the remainder of the area. Existing vegetation and trees are located along the western boundary of Development Area C and provide a buffer and partial visual screen between the existing campus uses and the adjacent off-campus residential uses to the west. NE 185th Street forms the north boundary of Development Area C.

Husky Hall

Views

Views from Development Area C are limited due to the presence of intervening existing trees and vegetation. However, views of the hillsides to the east (Bothell and Woodinville) are available near the east end of NE 185th Street.

Development Area D

Aesthetic Character

The aesthetic character of Development Area D is generally defined by the existing Husky Village buildings, surface parking areas and landscape areas. The existing Husky Village student housing is comprised of 10 three-story buildings that are comprised of primarily wood and glass façades; associated surface parking areas are located adjacent to the

Husky Village

buildings and Beardslee Boulevard. 110th Avenue NE within Development Area D also serves as the northern entrance to the campus and includes signage and landscaping to provide a welcome entrance. The intersection of 110th Avenue NE and Campus Way NE also serves as a major transit stop within the campus.

Views

Existing views from Development Area D are limited due to the presence of existing trees, vegetation and buildings adjacent to the area. However, views of the hillsides to the east (Bothell and Woodinville) are available near the southern portion of 110th Avenue NE and near the intersection of 110th Avenue NE and NE 185th Street.

Development Area E

Aesthetic Character

The aesthetic character of Development Area E is defined by the existing North Parking Garage, sports fields and the North Creek Events Center. The four-story North Parking Garage is primarily constructed of concrete and brick and includes some views to the eastern portion of campus. The sports fields to the south of the parking garage consist of field turf that can be utilized for soccer, baseball/softball, flag football or other recreation activities; a chain-link fence surrounds the field area. The North Creek Events Center is a two-story building that is elevated above the sports fields to provide views to the east from the building. The Events Center is primarily constructed of brick, metal and glass. Pedestrian pathways and vegetated areas are located within the area surrounding the Sports and Recreation Complex.

North Creek Events Center

Views

Views from Development Area E are primarily provided from within the North Creek Events Center. This building is elevated above the existing adjacent sports field and includes full-length window along the eastern façade to provides views of the North Creek Stream and Wetland Area, I-405 and the adjacent areas to the east (east Bothell and Woodinville). Due to its proximity, views of the North Creek Stream and Wetland Area are also available from several other locations within Development Area E, particularly from the sports fields and pedestrian paths surrounding the fields.

Development Area F

Aesthetic Character

ARC Building

The aesthetic character of Development Area F is defined by the existing Activities and Recreation Center (ARC) building, sports courts (tennis, basketball and volleyball courts), existing undeveloped areas, and pedestrian pathways leading to the wetlands. The ARC is a two- to three-story building and includes primarily concrete, glass, and metal façades; due to the height of the building views to the east are also available. The existing sports courts are located immediately east of the ARC and are connected to adjacent campus areas by several pedestrian pathways. Existing undeveloped areas and a portion of the North Creek Trail comprise the remainder of Development Area F.

Views

Views from Development Area F are primarily provided from within the ARC building. This building is elevated above the existing adjacent sports courts and provides views of the North Creek Stream and Wetland Area, I-405 and the adjacent areas to the east (east Bothell and Woodinville). Due to its proximity, views of the North Creek Stream and Wetland Area are also available from several locations within Development Area F (i.e., pedestrian pathways, the North Creek Trail, etc.).

Development Area G

Aesthetic Character

Chase House

The aesthetic character of Development Area G consists of Chase House and associated driveways/surface parking areas, landscaped open space and undeveloped areas. The two-story Chase House is a former residence that was part of the early settlement of the site area in the 1880s. The building is considered an example of pioneer-era residential architecture with primarily wood and glass on the existing façades. Existing surface parking areas are located to the east of the Chase House and landscaped/vegetated areas are located to the west (adjacent to Campus Way NE). Existing mature trees and vegetation are also located along the southern boundary of Development Area G which provide a buffer and partial visual screen between the campus and SR-522.

Views

Existing views within Development Area G are limited due to the presence of existing trees and vegetation that are adjacent to the area.

Surrounding Areas

North of Campus

Aesthetic Character

Beardslee Building

The aesthetic character of the area to the north of the campus (adjacent to Development Area D) is primarily defined by a mix of land uses and building types, including single family and multifamily residential uses and commercial/retail uses. A four-story commercial office building is located immediately north of campus at the intersection of Beardslee Boulevard/110th Avenue NE (Beardslee Building) and contains UW Bothell uses as well as other commercial uses. One- to two-story single family residences are also located along Beardslee Boulevard, as well as a three-story multifamily apartment building. A two- to three-story fire station for the Bothell Fire Department is also located in this area at the intersection of Beardslee Boulevard/NE 185th Street. Further to the north, along Beardslee Boulevard, are one- to two-story single family residences and a mixed-use development (Beardslee Crossing) which includes off-campus UW Bothell offices, commercial office space, retail and restaurant uses, professional services (dentist offices, etc.), and multifamily apartments.

Views

From the area to the north of the campus, the intersection of Beardslee Boulevard and 110th Avenue NE serves as the primary north entrance to the campus and includes signage, landscaping and vegetation to provide a welcome entrance for students, staff and visitors. Existing views of the campus are available from surrounding areas to the north and include existing development within Development Area D such as the Husky Village student housing buildings and associated surface parking. From Beardslee Boulevard, views of the existing development within a portion of Development Area B are also available, including CC1, CC2, and CC3.

East of Campus

Aesthetic Character

The aesthetic character of the area to the east of the campus is primarily defined by I-405 which is located along the eastern boundary of the campus and separates the campus from existing development to the east. Beyond I-405, the aesthetic character includes a mix of

commercial and industrial office park developments, recreation uses, commercial retail uses, hotels, churches, and vegetated areas. One- to three-story commercial and industrial office park buildings and associated surface parking lots are located adjacent to I-405, as well as a three-story hotel. Further to the east are additional commercial and industrial office park uses (primarily one- to three-story buildings), several hotels and the North Creek Sports Fields which include four separate sports field complexes.

Views

Existing views from the surrounding area to the east of the campus are available from northbound and southbound I-405 adjacent to the campus. Vehicles traveling on I-405 (as well as on existing overpasses such as NE 195th Street and the southbound ramp from SR-522 to I-405) have views of the North Creek Stream and Wetland Area, as well as views of the upper levels of existing buildings on the campus (i.e., CC1, CC2, CC3, the North Parking Garage, the North Creek Events Center, LB1, UW1, UW2, Discovery Hall and the South Parking Garage). Due to the nature of vehicles travelling on the roadways, these types of views are smaller and more limited (peek-a-boo views). Views of the campus from existing uses further to the east are generally obstructed by I-405 and existing mature trees.

South of Campus

Aesthetic Character

The aesthetic character of the area to south of the Campus (adjacent to Development Areas A and G) is primarily defined by SR-522 which provides access to Seattle, Woodinville and I-405. Beyond SR-522 is the Bracketts Landing single family residential neighborhood (primarily one- to two-story residences), Bracketts Landing Park[1] and the Sammamish River. The area further to the south, beyond the Sammamish River, is primarily comprised of one- to two-story single family residences, the Riverside Mobile Estates (mobile home park), a three-story senior center, several multistory senior living complexes, and two- to three-story multifamily residential uses.

Views

Existing views from the surrounding area to the south of the UWB/CC campus are available from a portion of westbound ramp that connects I-405 with SR-522. Views of the south portion of campus (Development Areas A, G and portions of Development Areas B, E and F) are visible from vehicles that are travelling west toward SR-522. Due to the nature of vehicles travelling on the roadways, these types of views are smaller and more limited (peek-a-boo views). Views towards the campus from existing residences further to the

[1] Bracketts Landing Park is a small pocket park of open space along the Sammamish River.

south are generally obstructed due to topography, existing trees/vegetation and the presence of SR-522.

West of Campus

Aesthetic Character

Residences to the West of Campus

The aesthetic character of the area adjacent to the western boundary of the campus (adjacent to Development Areas A, B, C and D) is primarily defined by single family residential neighborhoods and the Bothell Pioneer Cemetery. Residences in these neighborhoods are primarily one- to two-stories in height. Several of the neighborhoods are located around cul-de-sac or dead-end streets, including neighborhoods immediately adjacent to the west boundary of the campus. The Bothell Pioneer Cemetery to the immediate west of campus reflects a vegetated open space visual character. Further to the west are single family residences, multifamily apartment buildings and commercial/retail uses within downtown Bothell. Multifamily buildings are generally two-stories within this area. Commercial and retail uses in downtown Bothell are generally one- to two-stories and smaller commercial, retail/ restaurant, professional services or public facilities (Bothell City Hall).

Views

Existing views in the surrounding area to the west of the campus are limited due to the presence of existing development and mature trees/vegetation. Portions of the western edge of campus are visible from public areas such as NE 182nd Court and NE 183rd Court.

3.8.2 Impacts

This section of the Draft EIS identifies the potential impacts on existing aesthetic character and views on the campus and in the surrounding areas that could occur with development under the EIS Alternatives.

Under the *Campus Master Plan*, new development of up to approximately 907,300 gsf to 1,072,300 gsf of net new building space would result in increased building development within certain areas of the campus that could be visible from the surrounding area. Development standards would be included as part of the *Campus Master Plan* to ensure that new development would minimize visual impacts and be compatible with the existing aesthetic character of the campus. Under the Campus Master Plan, several existing open space areas (North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path) would be retained, and new green, urban open spaces would be included as part of new building development.

No Action Alternative

Scenario A – Baseline Condition

Under Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus and no aesthetic changes or changes in views would occur. The current 683,500 gsf of academic space and 74,200 gsf of housing space on campus (total of 757,700 gsf on campus), along with the 70,700 gsf of off-site academic space within 0.25 mile of campus, would remain. No changes to the current vehicular or pedestrian circulation systems, or the amount of parking (current 2,272 spaces), would occur. Existing natural and recreational open spaces would remain. Since no new development would occur on campus, no significant aesthetic impacts would occur under Scenario A.

Scenario B – Allowed in PUD

Under Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the PUD. The approximately 240 student beds associated with Husky Village would remain and no additional housing beds would be provided. The current vehicular and pedestrian circulation systems would remain. An on-campus parking supply totaling 4,200 to 6,000 spaces would be provided on campus.

Buildout under the current PUD would represent approximately 54 percent of the anticipated demand for building space that is identified in the proposed *Campus Master Plan* and under Alternatives 1-3. The lower amount of development would represent an increase in density over the existing conditions and would result in fewer aesthetic changes on the campus under Scenario B when compared to Alternatives 1-3. Development under the current PUD would also result in piece meal development of one building at a time without an overall plan for entire campus.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 represents a level of development and improvements that would meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. This alternative reflects a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A and B.

Aesthetic Character

Development under Alternative 1 would include approximately 1,072,300 gsf of net new building space that would generally be clustered in the central and south campus areas (Development Areas A, B and F), as well as up to 960 new student housing beds. Development under Alternative 1 would change the aesthetic character of the campus to reflect new building development and increased building density, particularly in the central and south portions of campus (Development Areas A, B and F).

The *Campus Master Plan* includes limitations on maximum building heights and setbacks for buildings from the property line. A 65-foot maximum building height would be established for the majority of campus (Development Areas A, B, C, D and G), with a 100-foot maximum height for a portion of campus east of Campus Way NE (Development Areas E and F). The western and southern boundary of Development Area C adjacent to off-campus residential uses on NE 182nd Court and NE 183rd Court would have a 45-foot wide building setback (including a 30-foot wide landscape buffer), while the western boundary of Development Area A adjacent to off-campus residential uses on Valley View Road and Circle Drive would have a 60-foot wide building setback (including a 30-foot wide landscape buffer). In addition, the western edge of Development Area C (adjacent to 108th Avenue NE) would include a 30-foot wide building setback (see **Figure 2-5** for an illustration of landscape buffers and building setbacks).

Several existing open space areas (North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path) would be retained. New green, urban open spaces would also be included as part of new building development which would help enhance the aesthetic character surrounding new buildings.

Development standards are identified in the *Campus Master Plan* and are intended to ensure that development would be consistent with the aesthetic character of the existing campus environment and minimize the potential impacts of increased density. Implementation of these development standards as part of the *Campus Master Plan* would minimize potential aesthetic impacts on the campus under Alternative 1 and significant aesthetic impacts would not be anticipated.

Views

Potential development under Alternative 1 would modify some existing views on the campus, particularly in the central and southern portions of the campus. Development adjacent to NE 180th Street (Development Areas A and B) would change the character of views to the east along this roadway to reflect new development adjacent to the corridor; however, views to the east toward the North Creek Stream and Wetland Area, I-405 and portions of east Bothell and Woodinville would remain. Development within Development

Area F would create new buildings with views to the east of the North Creek Stream and Wetland Area and I-405, but may obstruct a portion of views from the existing UW1 building. Pursuant to development standard provisions identified in the *Campus Master Plan*, new development would be intended to minimize visual impacts and preserve existing view corridors within the campus. As part of the analysis for this DEIS, visual simulations were prepared to illustrate how development under the EIS Alternatives could affect the visual character and views on campus, including views from surrounding areas.

Visual Simulations

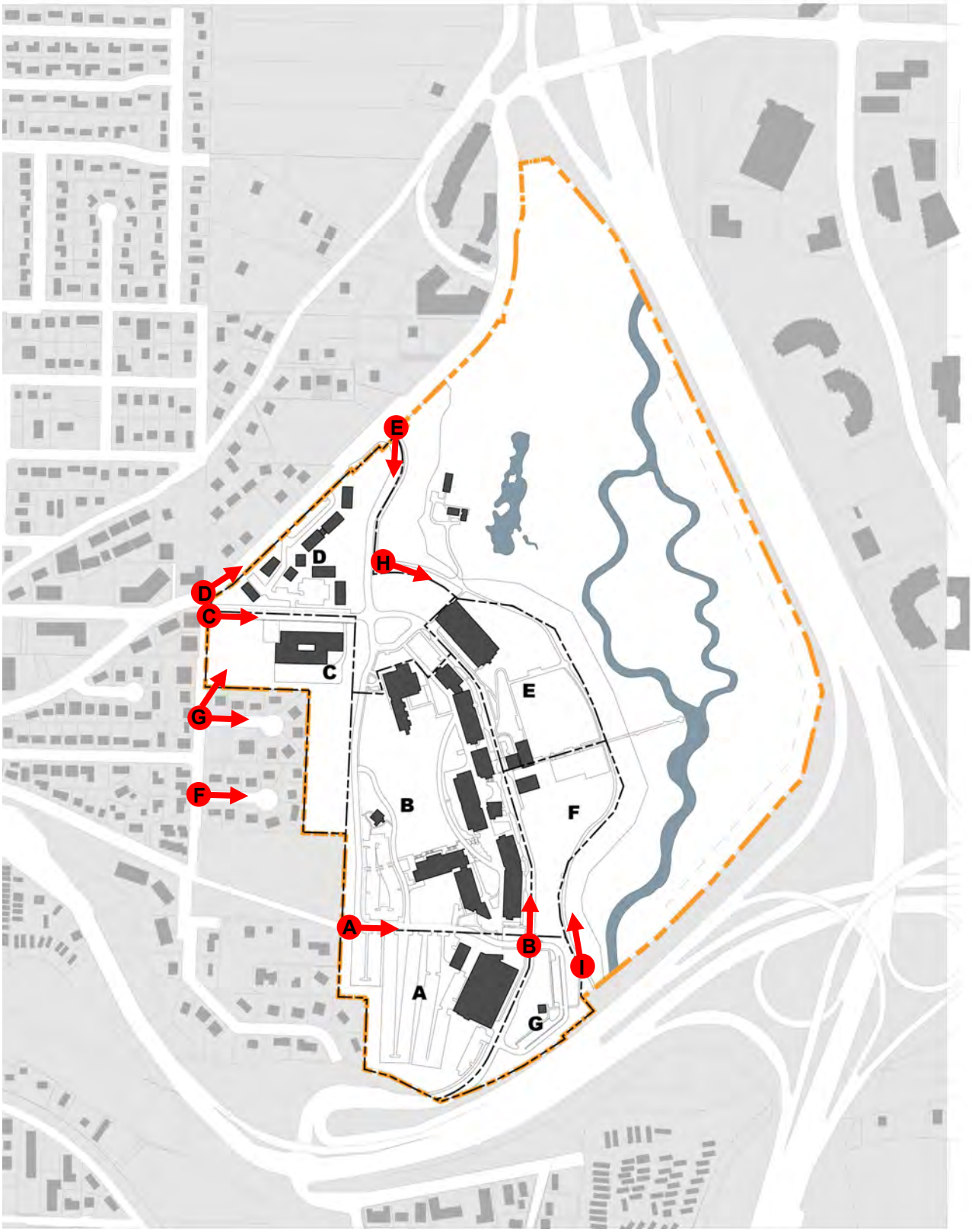
Visual massing simulations were prepared for this DEIS based on photographs of the site from selected viewpoints and photo simulations of potential development from these viewpoints[2]. The identification of viewpoints for the visual analysis considered several factors, including the primary viewer groups in the area and the potential for development to impacts views. Seven viewpoints were selected as being most representative of area viewpoints and/or were determined to have the greatest potential for potential development to change the character of the view. These viewpoints are listed in **Table 3.8-1** and shown on **Figure 3.8-1**.

Table 3.8-1
VIEWPOINT LOCATIONS

Viewpoint	Description
Viewpoint A	View from NE 180th Street/110th Avenue NE (looking east)
Viewpoint B	View from Campus Way NE/NE 180th Street (looking north)
Viewpoint C	View from NE 185th Street/Beardslee Boulevard (looking east)
Viewpoint D	View from Beardslee Boulevard/NE 185th Street (looking northeast)
Viewpoint E	View from 110th Avenue NE/Beardslee Boulevard (looking south)
Viewpoint F	View from 108th Avenue NE/NE 182nd Court (looking east)
Viewpoint G-1	View from 108th Avenue NE/NE 183rd Court (looking east)
Viewpoint G-2	View from 108th Avenue NE/NE 183rd Court (looking northeast)
Viewpoint H	View from 110th Avenue NE/North Creek Trail (looking southeast)
Viewpoint I	View from North Creek Trail in south campus (looking north)

Based on these viewpoints, photo simulations of campus development under the EIS Alternatives were prepared to represent building massing based on assumed building

[2] Simulations of potential development represent conceptual building massings and are not reflective of specific building designs.



Note: This figure is not to scale.

Source: Mahlum Architects and EA Engineering, 2017.

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Figure 3.8-1
Viewpoint Location Map

elevations, locations, and heights within a development area; the simulations do not reflect any potential building modulations or associated mature landscaping/vegetation and are intended to represent a reasonable, worst-case condition. The visual analysis presented in this DEIS includes figures that incorporate the following:

- Photographs illustrating the existing visual condition as viewed from the respective viewpoints, including views to campus from adjacent public areas, as well as internal campus views.
- Simulations of building massing envelopes representing the extent of building massing visible from the respective viewpoint, consistent with assumed total building square footage, setbacks, and maximum heights. The building massing envelopes are intended to represent the conceptual bulk and scale of potential development under each of the EIS Alternatives.

A description of the existing views to the site from the identified viewpoints are provided below, along with a description of the potential view from each location under Alternative 1.

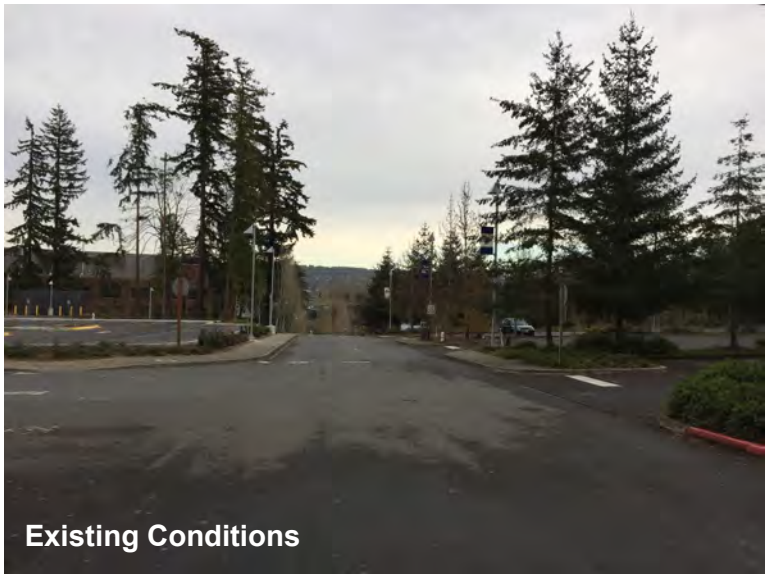
Viewpoint A – NE 180th Street/110th Avenue NE (looking east)

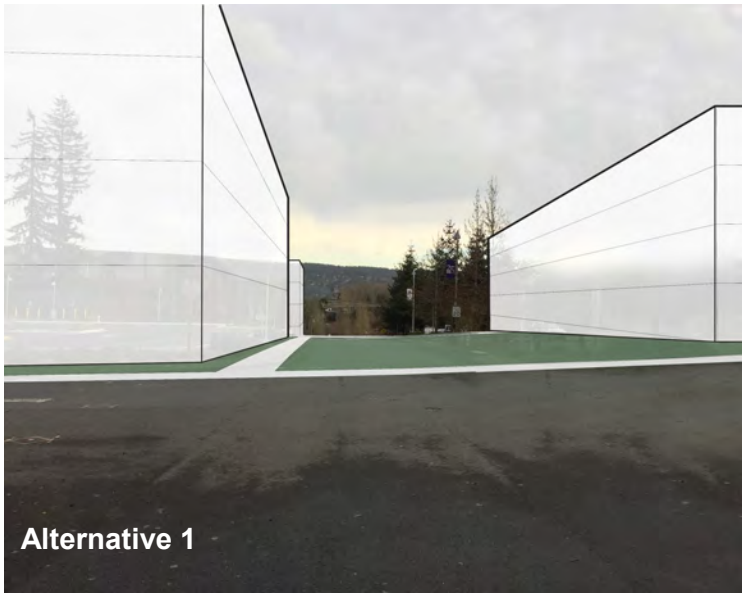
From Viewpoint A, which depicts a view from the western campus boundary looking toward campus, the existing view includes NE 180th Street and existing surface parking areas and associated landscaping on both sides of the roadway. A portion of the existing UW2 building is visible in the mid-ground view. Distant background views to the east of the North Creek Stream and Wetland Area, I-405 and portions of east Bothell and Woodinville are also available in the background (see **Figure 3.8-2** for the existing views from this location under Alternative 1).

Under Alternative 1, views from Viewpoint A would reflect a more developed character in the foreground view, although a view to the east down NE 180th Street would continue. Assumed building development would be located to the north and south of NE 180th Street and would frame the view to the east down the roadway. Existing background views to the east of the North Creek Stream and Wetland Area, I-405 and portions of east Bothell and Woodinville would remain from this location (see **Figure 3.8-2** for a conceptual massing simulation of the views from this location under Alternative 1).

Viewpoint B – Campus Way NE/NE 180th Street (looking north)

The existing internal campus view from Viewpoint B consists of Campus Way NE, the existing UW1 building and undeveloped area (existing trees and vegetation) to the east of Campus Way NE. Views of the North Creek Stream and Wetland Area are not available in this direction due to the presence of existing trees to the east of Campus Way NE (see **Figure 3.8-3** for the existing view from this location under Alternative 1).





Note: These images represent conceptual building massings and are not reflective of specific building design or landscaping design/buffers, which when mature would provide additional visual screening.

Source: Mahlum Architects and EA Engineering, 2017.

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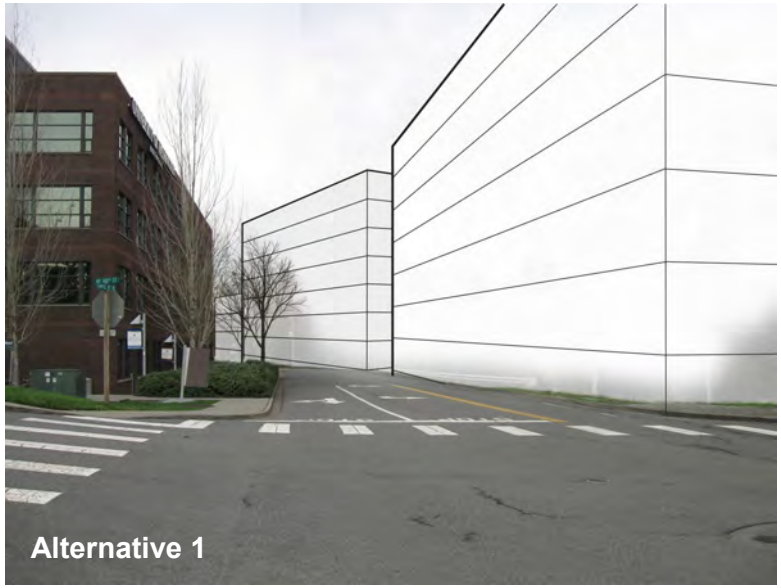
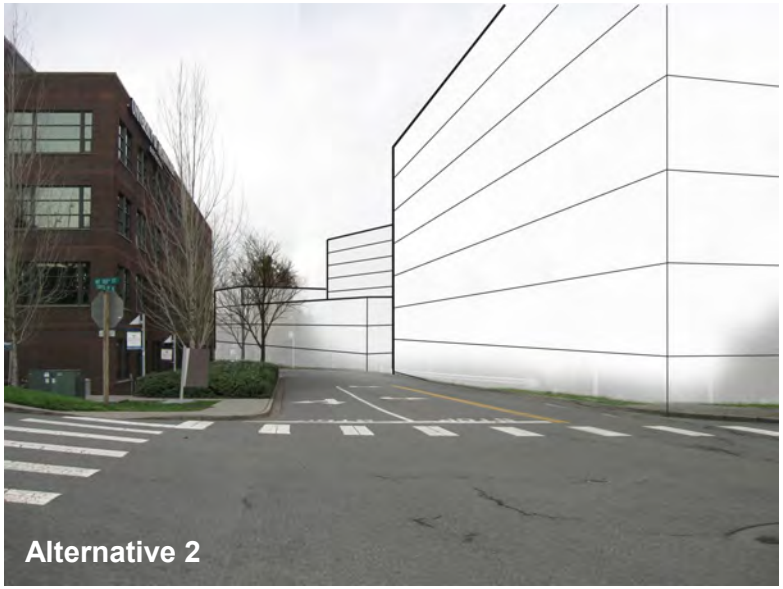
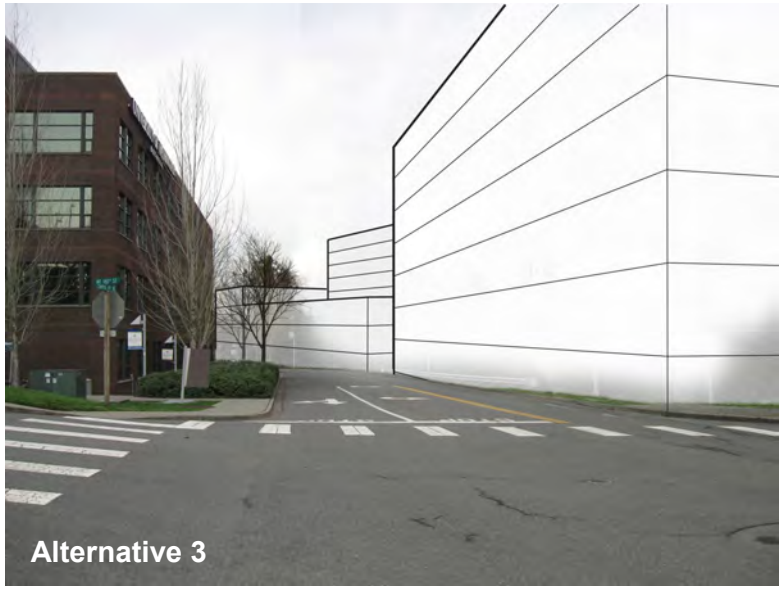
Figure 3.8-2
Viewpoint Location A







Note: These images represent conceptual building massings and are not reflective of specific building design or landscaping design/buffers, which when mature would provide additional visual screening.

Source: Mahlum Architects and EA Engineering, 2017.

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Figure 3.8-3
Viewpoint Location B

Views from Viewpoint B would include prominent views of new building development in Development Area F under Alternative 1. New development would frame the Campus Way NE corridor opposite the existing UW1 building and replace existing trees that are currently in this undeveloped area (see **Figure 3.8-3** for a conceptual massing simulation of the views from this location under Alternative 1).

Viewpoint C – NE 185th Street/Beardslee Boulevard (looking east)

The existing view from Viewpoint C is primarily comprised of NE 185th Street, existing undeveloped area to the south, and a portion of Husky Village to the north. Distant background views to the east of the North Creek Stream and Wetland Area and portions of east Bothell and Woodinville are available down the NE 185th Street viewshed (see **Figure 3.8-4** for a photo of the existing view from Viewpoint C).

Under Alternative 1, the view from Viewpoint C would remain the same as the existing conditions (see **Figure 3.8-4** for a conceptual massing simulation of the view from this location under Alternative 1).

Viewpoint D – Beardslee Boulevard/NE 185th Street (looking northeast)

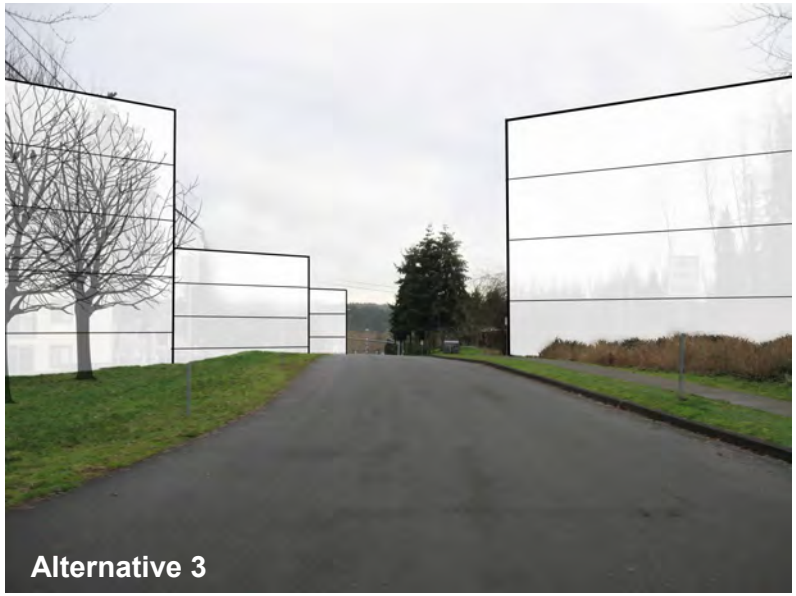
From Viewpoint D, the existing view includes Beardslee Boulevard, portions of the existing Husky Village buildings to the east and existing off-campus residential development to the north. Background views of residential areas to the north in the City of Bothell are available down the Beardslee Boulevard corridor (see **Figure 3.8-5** for a photo of the existing view from Viewpoint D).

Under Alternative 1, no new building development would be visible and the view from Viewpoint D would remain the same as the existing conditions (see **Figure 3.8-5** for a conceptual massing simulation of the view from Viewpoint D under Alternative 1).

Viewpoint E – 110th Avenue NE/Beardslee Boulevard (looking south)

The existing internal campus view from Viewpoint E reflects the northern campus entry and consists of 110th Avenue NE, associated sidewalk, landscaping and undeveloped areas, and the 110th Avenue NE/NE 185th Street intersection. The existing CC2 and CC3 (Mobius Hall) are visible in the background view, along with existing mature trees on the campus (see **Figure 3.8-6** for a photo of the existing view from Viewpoint 5).

Under Alternative 1, the foreground and mid-ground views from Viewpoint E would remain the same as the existing conditions. Background views would change with the addition of new development in Development Area B. New buildings in this development area would appear as a continuation of existing campus development in the background view from this location (see **Figure 3.8-6** for a conceptual massing simulation of the view from Viewpoint E under Alternative 1).



Note: These images represent conceptual building massings and are not reflective of specific building design or landscaping design/buffers, which when mature would provide additional visual screening.

Source: Mahlum Architects and EA Engineering, 2017.

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Figure 3.8-4
Viewpoint Location C

Note: These images represent conceptual building massings and are not reflective of specific building design or landscaping design/buffers, which when mature would provide additional visual screening.

Source: Mahlum Architects and EA Engineering, 2017.

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Figure 3.8-5
Viewpoint Location D

Note: These images represent conceptual building massings and are not reflective of specific building design or landscaping design/buffers, which when mature would provide additional visual screening.

Source: Mahlum Architects and EA Engineering, 2017.

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Figure 3.8-6
Viewpoint Location E

Viewpoint F – 108th Avenue NE/NE 182nd Court (looking east)

From Viewpoint F, which depicts a view from the adjacent residential neighborhood east toward campus, the existing view includes the off-campus residential neighborhood along NE 182nd Court. The existing campus is located in the background from this location but the view of the campus is generally limited to existing mature trees and vegetation that are located along the western campus boundary, with the visual character reflecting a single family residential neighborhood (see **Figure 3.8-7** for a photo of the existing view from Viewpoint F).

Under Alternative 1, no new building development would be visible and the view from Viewpoint F would remain the same as the existing conditions (see **Figure 3.8-7** for a conceptual massing simulation of the view from Viewpoint F under Alternative 1).

Viewpoint G-1 – 108th Avenue NE/NE 183rd Court (looking east)

The existing view from Viewpoint G-1, which depicts a view from the adjacent residential neighborhood east toward campus, consists of the off-campus residential neighborhood along NE 183rd Court. The existing campus is located in the background from this location but the view of the campus is generally limited to existing mature trees and vegetation that are located along the western campus boundary (see **Figure 3.8-8** for a photo of the existing view from Viewpoint G-1).

The view to the east from Viewpoint G-1 would continue to include the existing off-campus residential neighborhood along NE 183rd Court. Background views from this location would change to reflect a portion of Alternative 1 campus building development in Development Area C. Development in this area of campus would be partially visible in the background and would change the aesthetic character of this viewpoint to reflect additional development on campus compared to no view of campus development under current conditions (see **Figure 3.8-8** for a conceptual massing simulation of the view from Viewpoint G-1 under Alternative 1).

Viewpoint G-2 – 108th Avenue NE/NE 183rd Court (looking northeast)

The existing view from Viewpoint G-2, which depicts a view from the adjacent residential neighborhood east toward campus, consists of the off-campus residential neighborhood along NE 183rd Court, 108th Avenue NE and existing undeveloped areas on campus. Due to the existing topography from this location the existing residential neighborhood and 108th Avenue NE are located at a higher elevation than the undeveloped areas of campus (Development Area C) and the only visible portions of campus are existing mature trees (see **Figure 3.8-9** for a photo of the existing view from Viewpoint G-2).

Note: These images represent conceptual building massings and are not reflective of specific building design or landscaping design/buffers, which when mature would provide additional visual screening.

Source: Mahlum Architects and EA Engineering, 2017.

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Figure 3.8-7
Viewpoint Location F

Note: These images represent conceptual building massings and are not reflective of specific building design or landscaping design/buffers, which when mature would provide additional visual screening.

Source: Mahlum Architects and EA Engineering, 2017.

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Figure 3.8-8
Viewpoint Location G-1

Note: These images represent conceptual building massings and are not reflective of specific building design or landscaping design/buffers, which when mature would provide additional visual screening.

Source: Mahlum Architects and EA Engineering, 2017.

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Figure 3.8-9
Viewpoint Location G-2

Under Alternative 1, no Alternative 1 building development would be visible and the view from Viewpoint G-2 would remain the same as the existing conditions (see **Figure 3.8-9** for a conceptual massing simulation of the view from Viewpoint G-2 under Alternative 1).

Viewpoint H – 110th Avenue NE/North Creek Trail (looking southeast)

The existing view from Viewpoint H consists of the North Creek Trail, vegetated areas and the North Creek Stream and Wetland Area. The North Parking Garage is visible in the background, as well as additional areas within the North Creek Stream and Wetland Area (see **Figure 3.8-10** for a photo of the existing view from Viewpoint H).

The view to the east from Viewpoint H would continue to primarily reflect the North Creek Trail and North Creek Stream and Wetland Area. Background views from this location would change to reflect an addition to the North Parking Garage, a portion of which would be visible behind the existing garage structure (see **Figure 3.8-10** for a conceptual massing simulation of the view from Viewpoint H under Alternative 1).

Viewpoint I – North Creek Trail in South Campus (looking north)

The existing view from Viewpoint I consists of the North Creek Trail, undeveloped areas and the North Creek Stream and Wetland Area (see **Figure 3.8-11** for a photo of the existing view from Viewpoint I).

The view from Viewpoint I under Alternative 1 would change to reflect a more developed character with a new multi-story academic/residential building comprising a substantial portion of the field of view. Existing views of the North Creek Trail would remain in the foreground and the North Creek Stream and Wetland Area would continue to be visible to the east (see **Figure 3.8-11** for a conceptual massing simulation of the view from Viewpoint I under Alternative 1).

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 represents a level of development that would meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan* and reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F.

Aesthetic Character

Development under Alternative 2 would include approximately 907,300 gsf of net new building space, including up to 360 new beds. New development would be generally located in the central portion of campus (Development Areas B, E and F). Potential development under Alternative 2 would change the aesthetic character of the campus to reflect new

Note: These images represent conceptual building massings and are not reflective of specific building design or landscaping design/buffers, which when mature would provide additional visual screening.

Source: Mahlum Architects and EA Engineering, 2017.

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Figure 3.8-10
Viewpoint Location H

Note: These images represent conceptual building massings and are not reflective of specific building design or landscaping design/buffers, which when mature would provide additional visual screening.

Source: Mahlum Architects and EA Engineering, 2017.

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

Figure 3.8-11
Viewpoint Location I

building development and increased building density, particularly in the central portion of the campus (Development Areas B, E and F).

As described under Alternative 1, the *Campus Master Plan* includes limitations on maximum building heights and setbacks for buildings from the campus boundary. A 65-foot maximum building height would be established for the majority of campus (Development Areas A, B, C, D and G), with a 100-foot maximum height for a portion of campus east of Campus Way NE (Development Areas E and F). A landscape buffer and building setback area would be provided along the western boundary of Development Areas A, B and C adjacent to residential uses and would generally consist of a 45-foot wide building setback that includes a 30-foot wide landscape buffer; the western edge of Development Area C (adjacent to 108th Avenue NE) would include a 20-foot building setback consistent with City of Bothell zoning regulations (see **Figure 2-5** for an illustration of landscape buffers and building setbacks).

Several existing open space areas (North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path) would be retained. New green, urban open spaces would also be included as part of new building development which would help enhance the aesthetic character surrounding new buildings.

Development standards are identified in the *Campus Master Plan* and are intended to ensure that development would be consistent with the aesthetic character of the existing campus environment and minimize the potential impacts of increased density. Implementation of these development standards as part of the *Campus Master Plan* would minimize potential aesthetic impacts on the campus under Alternative 2 and significant aesthetic impacts would not be anticipated.

Views

Potential development under Alternative 2 would modify some existing views on the campus, particularly in the central portion of the campus. Development adjacent to NE 180th Street (Development Area B) would change the character of views to the east along this roadway to reflect new development adjacent to the corridor; however, views to the east toward the North Creek Stream and Wetland Area, I-405 and portions of east Bothell and Woodinville would remain. Potential new buildings within Development Area F would create new buildings with views to the east of the North Creek Stream and Wetland Area and I-405, but may obstruct a portion of views from the existing UW1 building. Pursuant to development standard provisions identified in the *Campus Master Plan*, new development would be intended to minimize visual impacts and preserve existing view corridors within the campus. As part of the analysis for this DEIS, visual simulations were prepared to illustrate how development under the EIS Alternatives could affect the visual character and views on campus, including views from surrounding areas.

Visual Simulations

Visual massing simulations were also prepared for Alternative 2 based on photographs of the site from selected viewpoints and photo simulations of potential development from these viewpoints (see **Table 3.8-1** for list of viewpoints and **Figure 3.8-1** for a map of viewpoint locations). The following provides a description of the potential view from each location under Alternative 2.

Viewpoint A – NE 180th Street/110th Avenue NE (looking east)

Under Alternative 2, views from Viewpoint A (which depicts a view from the western campus boundary toward campus) reflect a more developed campus character than under existing conditions, but a lesser development character than under Alternative 1. The current distant views to the east down NE 180th Street would remain. Assumed building development would be located to the north of NE 180th Street and would frame the view to the east down the roadway but compared to Alternative 1, no development would be located to the south of NE 180th Street. Existing background views to the east of North Creek Stream and Wetland Area, I-405 and portions of east Bothell and Woodinville would remain from this location (see **Figure 3.8-2** for a conceptual massing simulation of the views from this location under Alternative 2).

Viewpoint B – Campus Way NE/NE 180th Street (looking north)

Similar to Alternative 1, internal campus views from Viewpoint B would include prominent views of potential development in Development Area F under Alternative 2. New development would frame the Campus Way NE corridor opposite the existing UW1 building and replace existing trees that are currently located on this undeveloped area (see **Figure 3.8-3** for a conceptual massing simulation of the views from this location under Alternative 2).

Viewpoint C – Beardslee Boulevard/NE 185th Street (looking northeast)

The view from Viewpoint C under Alternative 2 would remain the same as the existing conditions (see **Figure 3.8-4** for a conceptual massing simulation of the view from this location under Alternative 2).

Viewpoint D – NE 185th Street/Beardslee Boulevard (looking north)

Similar to Alternative 1, the view from Viewpoint D under Alternative 2 would remain the same as the existing conditions (see **Figure 3.8-5** for a conceptual massing simulation of the view from Viewpoint D under Alternative 1).

Viewpoint E – 110th Avenue NE/Beardslee Boulevard (looking south)

Under Alternative 2, the foreground and mid-ground views from Viewpoint E would remain the same as the existing conditions (110th Avenue NE and adjacent sidewalks/landscaping). Background views would change with the addition of new development in Development Area B. New buildings in this development area would appear as a continuation of existing campus development (CC2 and CC3) in the background view from this location. The overall visual condition under Alternative 2 from this viewpoint would be similar to under Alternative 1 (see **Figure 3.8-6** for a conceptual massing simulation of the view from Viewpoint E under Alternative 2).

Viewpoint F – 108th Avenue NE/NE 182nd Court (looking east)

The foreground view to the east from Viewpoint F under Alternative 2 would continue to include the existing off-campus residential neighborhood along NE 182nd Court. Background views from this location would change to reflect a portion of Alternative 2 campus building development in Development Area C and would change the visual character of this area to reflect increased campus development compared to no view of campus development under current conditions. See **Figure 3.8-7** for a conceptual massing simulation of the view from Viewpoint F under Alternative 2.

Viewpoint G-1 – 108th Avenue NE/NE 183rd Court (looking east)

The view to the east from Viewpoint G-1 would continue to include the existing off-campus residential neighborhood along NE 183rd Court. Background views from this location would change to reflect a portion of Alternative 2 campus building development in Development Area C. Development in this area of campus would be partially visible in the background and would change the visual character of this area to reflect increased campus development compared to no view of campus development under current conditions; the amount of visible development under Alternative 2 would be less than under Alternative 1 (see **Figure 3.8-8** for a conceptual massing simulation of the view from Viewpoint G-1 under Alternative 2).

Viewpoint G-2 – 108th Avenue NE/NE 183rd Court (looking northeast)

Under Alternative 2, no new campus building development would be visible from this location and the view from Viewpoint G-2 would remain the same as the existing conditions (see **Figure 3.8-9** for a conceptual massing simulation of the view from Viewpoint G-2 under Alternative 2).

Viewpoint H – 110th Avenue NE/North Creek Trail (looking southeast)

Similar to Alternative 1, the view to the east from Viewpoint H would continue to primarily reflect the North Creek Trail and North Creek Stream and Wetland Area. Background views

from this location would change to reflect an addition to the North Parking Garage, a portion of which would be visible behind the existing garage structure (see **Figure 3.8-10** for a conceptual massing simulation of the view from Viewpoint H under Alternative 2).

Viewpoint I – North Creek Trail in South Campus (looking north)

Similar to Alternative 1, the view from Viewpoint I would change to reflect a more developed character with a new multi-story academic/residential building comprising a substantial portion of the field of view. Existing views of the North Creek Trail would remain in the foreground and the North Creek Stream and Wetland Area would continue to be visible to the east (see **Figure 3.8-11** for a conceptual massing simulation of the view from Viewpoint I under Alternative 2).

Alternative 3 – Growth along Topography (Northward Growth)

Alternative 3 represents a level of development that would meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan* and reflects a focus of development that is assumed to follow the north/south topography of the campus. The majority of development under Alternative 3 is assumed for the north portion of campus in Development Areas B, C, D, E and F.

Aesthetic Character

Under Alternative 3, assumed development on the campus would include approximately 907,300 gsf of net new building space, including up to a total of 600 student housing beds. New development would be primarily located in Development Areas B, C, D, E and F. Assumed development under Alternative 3 would change the aesthetic character of the campus to reflect new building development and increased building density, particularly in the northern and central portion of the campus (Development Areas B, C, D, E and F).

As described under Alternative 1, the *Campus Master Plan* includes limitations on maximum building heights and setbacks for buildings from uses. A 65-foot maximum building height would be established for the majority of campus (Development Areas A, B, C, D and G), with a 100-foot maximum height for a portion of campus east of Campus Way NE (Development Areas E and F). A 45-foot wide building setback area would be provided along the western boundary of Development Areas A, B and C adjacent to residential uses. Within that 45-foot building setback, a 30-foot wide landscape buffer would also be provided along the western boundary of Development Area A and the majority of the western and southern boundary of Development Area C. A portion of the western edge of Development Area C (adjacent to 108th Avenue NE) would contain a 30-foot wide building setback that includes a 10-foot wide landscape buffer (see **Figure 2-5** for an illustration of landscape buffers and building setbacks).

Several existing open space areas (North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path) would be retained. New green, urban open spaces would also be included as part of new building development which would help enhance the aesthetic character surrounding new buildings.

Development standards are identified in the *Campus Master Plan* and are intended to ensure that development would be consistent with the aesthetic character of the existing campus environment and minimize the potential impacts of increased density. Implementation of these development standards as part of the *Campus Master Plan* would minimize potential aesthetic impacts on the campus under Alternative 3 and significant aesthetic impacts would not be anticipated.

Views

Potential development under Alternative 3 would modify some existing views on the campus, particularly in the northern central portion of the campus. Development near to Beardslee Boulevard (Development Area C and D) would change the character of views of the campus adjacent to the roadway corridor. Potential new buildings within Development Area F would create new buildings with views to the east of the North Creek restoration area and I-405, but may obstruct a portion of views from the existing UW1 building. Pursuant to development standard provisions identified in the *Campus Master Plan*, new development would be intended to minimize visual impacts and preserve existing view corridors within the campus. As part of the analysis for this DEIS, visual simulations were prepared to illustrate how development under the EIS Alternatives could affect the visual character and views on campus, including views from surrounding areas.

Visual Simulations

Visual massing simulations were also prepared for Alternative 3 based on photographs of the site from selected viewpoints and photo simulations of potential development from these viewpoints (see **Table 3.8-1** for list of viewpoints and **Figure 3.8-1** for a map of viewpoint locations). The following provides a description of the potential view from each location under Alternative 3.

Viewpoint A – NE 180th Street/110th Avenue NE (looking east)

Under Alternative 3, no new building development would be visible and the view from Viewpoint A would remain the same as the existing conditions (see **Figure 3.8-2** for a conceptual massing simulation of the views from this location under Alternative 3).

Viewpoint B – Campus Way NE/NE 180th Street (looking north)

Similar to Alternatives 1 and 2, internal campus views from Viewpoint B would include prominent views of new development in Development Area F under Alternative 3. New development would frame the Campus Way NE corridor opposite the existing UW1 building and replace existing trees that are currently located on this undeveloped area (see **Figure 3.8-3** for a conceptual massing simulation of the views from this location under Alternative 3).

Viewpoint C – NE 185th Street/Beardslee Boulevard (looking east)

Under Alternative 3, the view from Viewpoint C would change to reflect the vacated NE 185th Street and assumed development in Development Areas C and D would be prominent in the field of view. Assumed new development would be located in the foreground and mid-ground view, and would change the aesthetic character of this viewpoint to reflect new campus buildings and a second roadway access from Beardslee Boulevard (Beardslee Boulevard/108th Avenue NE intersection). Distant background views to the east of North Creek Stream and Wetland Area and portions of east Bothell and Woodinville would no longer be available due to the vacation of NE 185th Street and establishment of new buildings (see **Figure 3.8-4** for a conceptual massing simulation of the view from this location under Alternative 3).

Viewpoint D – Beardslee Boulevard/NE 185th Street (looking northeast)

Under Alternative 3, the view from Viewpoint D would change to reflect assumed new development to the south of Beardslee Boulevard. Assumed new academic/student housing buildings would be visually prominent along Beardslee Boulevard and would be greater in height than existing single family residences on the north side of Beardslee Boulevard. Background views of residential areas to the north in the City of Bothell would remain available down the existing roadway corridor (see **Figure 3.8-5** for a conceptual massing simulation of the view from Viewpoint D under Alternative 3).

Viewpoint E – 110th Avenue NE/Beardslee Boulevard (looking south)

The view from Viewpoint E under Alternative 3 would change to reflect assumed new development in Development Areas B, C, D and E, as well as the realignment of 110th Avenue NE within the campus. In the foreground view, 110th Avenue NE would be realigned to provide direct access to the North Parking Garage. New academic buildings would be visible in the mid-ground view within Development Areas B and D and would be connected with new pedestrian pathways. Regraded areas associated with the realignment of 110th Avenue NE would also be visible. The aesthetic character from this viewpoint would change under Alternative 3 to reflect new campus building development and provide a more pronounced campus entry than under Alternatives 1 or 2. Existing mature trees within the

campus would remain visible in the background (see **Figure 3.8-6** for a conceptual massing simulation of the view from Viewpoint E under Alternative 2).

Viewpoint F – 108th Avenue NE/NE 182nd Court (looking east)

Under Alternative 3, no campus development would be visible from this location and the view from Viewpoint F would remain the same as the existing conditions (see **Figure 3.8-7** for a conceptual massing simulation of the view from Viewpoint F under Alternative 3).

Viewpoint G-1 – 108th Avenue NE/NE 183rd Court (looking east)

The view to the east from Viewpoint G-1 would continue to include the existing off-campus residential neighborhood along NE 183rd Court. Background views from this location would change to reflect a portion of Alternative 3 campus building development in Development Area C. Development in this area of campus would be partially visible in the background but a portion of the building would also be obstructed by existing residences; the amount of visible development from this location would be similar to Alternative 1 (see **Figure 3.8-8** for a conceptual massing simulation of the view from Viewpoint G-1 under Alternative 3).

Viewpoint G-2 – 108th Avenue NE/NE 183rd Court (looking northeast)

Under Alternative 2, no Alternative 3 campus building development would be visible from this location and the view from Viewpoint G-2 would remain the same as the existing conditions (see **Figure 3.8-9** for a conceptual massing simulation of the view from Viewpoint G-2 under Alternative 3).

Viewpoint H – 110th Avenue NE/North Creek Trail (looking southeast)

Similar to Alternatives 1 and 2, the view to the east from Viewpoint H would continue to primarily reflect the North Creek Trail and North Creek Stream and Wetland Area. Background views from this location would change to reflect an addition to the North Parking Garage, a portion of which would be visible behind the existing garage structure (see **Figure 3.8-10** for a conceptual massing simulation of the view from Viewpoint H under Alternative 3).

Viewpoint I – North Creek Trail in South Campus (looking north)

As under Alternative 1, the view from Viewpoint I would change to reflect a more developed character with a new multi-story academic/residential building comprising a substantial portion of the field of view. Existing views of the North Creek Trail would remain in the foreground and the North Creek Stream and Wetland Area would continue to be visible to the east (see **Figure 3.8-11** for a conceptual massing simulation of the view from Viewpoint I under Alternative 3).

Potential Indirect/Cumulative Impacts

To the extent that potential future development of the *Campus Master Plan* under Alternatives 1 – 3 (and to a lesser extent No Action – Scenario B) occur in the vicinity of other development projects in the site area (i.e. along Beardslee Boulevard, downtown Bothell, etc.), it could result in a cumulative change in the aesthetic character of the area. However, the existing campus and site vicinity are already highly developed, urban areas and significant cumulative aesthetic impacts would not be anticipated.

3.8.3 Mitigation Measures

The following measures would minimize potential aesthetic impacts that could occur with the implementation of the *Campus Master Plan*.

- Potential future development projects would be consistent with the proposed general policies and development standards for the campus (including those standards identified within the *Campus Master Plan*).

- The existing UW Bothell and CC design review processes for the campus (architectural, landscaping and environmental review) would continue to review all building projects on campus and consider views as part of individual projects, as necessary.

- Existing open space areas (i.e., North Creek Stream and Wetland Area, the existing sports fields, plazas associated with Discovery Hall and Mobius Hall, and the Crescent Path) would be retained, and new green, urban open spaces would also be included as part of new building development which would help enhance the aesthetic character surrounding new buildings.

- The provision of building setbacks (including landscape buffers) would be provided immediately adjacent to off-campus single family residential uses to the west of campus (Development Areas A, B and C) to minimize potential aesthetic impacts to off-campus residences.

3.8.4 Significant Unavoidable Adverse Impacts

Development under the *Campus Master Plan* would result in changes to the aesthetic character of the campus, including new building development and increased density. The aesthetic/visual changes that would result under Alternatives 1 – 3 could be perceived by some to be significant; however, perception regarding such changes would ultimately be based on the subjective opinion of the viewer. The implementation of general policies, development programs, and development standards in the *Campus Master Plan* are intended to mitigate the change in aesthetic character on the campus.

3.9 RECREATION AND OPEN SPACE

This section of the Draft SEIS describes the existing recreation uses and open spaces areas on the UW Bothell/CC campus and the surrounding off-campus area, and evaluates the potential impacts to recreation uses and open space areas that could occur with development under the *Campus Master Plan*.

3.9.1 Affected Environment

Existing Campus Uses

The UW Bothell/CC campus includes a diverse mix of open space features and recreational facilities on the campus. Open space areas are located throughout the campus and provide passive recreation space for informal gatherings.

Sports and Recreation Complex

The majority of the active recreation facilities on the campus are located east of Campus Way NE (within Development Areas E and F) and are generally restricted for student and staff use. The Sports and Recreation Complex is the primary outdoor recreational facility on the campus (Development Area E and F) and consists of a 2.9-acre multipurpose field-turf field, two tennis courts, a basketball court, and a sand volleyball court. The field and existing sports courts provide space for a variety of intramural sports leagues (soccer, flag football, softball, etc.) as well as drop-in student use on a space available basis. The Activities and Recreation Center (ARC) is located at the southwest corner of the Sports and Recreation Complex and includes indoor recreation amenities on campus, including a fitness center with treadmills, elliptical trainers, indoor cycling bikes, weight room, as well as a group-exercise fitness studio.

North Creek Stream and Wetlands Area

The approximately 58-acre North Creek Stream and Wetland area is located on the eastern portion of the campus and is a functioning floodplain with natural ecosystem system and improved habitat for salmon, birds, and other plants and animals. Although access to this area is regulated in order to protect the ecosystem of the wetland and stream area, the North Creek wetland serves as a "living laboratory" for K-12 classes, college students, and scientists. Students and the community can visit the wetland via a boardwalk

and viewing platform, accessed near the Sports and Recreation Complex.

A portion of the North Creek Trail (a paved regional trail) runs along the west side of the wetland area. This regional trail connects with the Sammamish River Trail to the south of campus and the Snohomish County Regional Interurban Trail in Everett, both of which are popular recreational and commuter trail[1]. Other pedestrian pathways are located throughout the campus, including the Crescent Path and other informal walkways/trails, and provide connections between existing buildings and areas of campus. Existing open space/gathering areas are also provided adjacent to existing buildings on campus, such as the Discovery Hall open space plaza and the Mobius Hall open space plaza (see **Figure 2-2** for map of existing campus uses).

Surrounding Areas

Recreational amenities in the site vicinity include the Sammamish River Trail (located immediately south of campus – beyond SR-522), the North Creek Sports Fields (located east of I-405 – approximately 0.2-miles from campus) and Brackett's Landing Park (located south of SR-522 – approximately 0.1-miles from campus). The Sammamish River Trail is an approximately 10.9-mile multi-use trail that connects Bothell to Marymoor Park in Redmond. The trail is popular with bicyclists, runners and walkers and connects with the North Creek Trail immediately south of the campus, as well as the Burke Gilman Trail to the west. The North Creek Sports Fields include four separate sports field complexes that are utilized by the City of Bothell, as well as other local sports/recreation programs, for soccer, baseball, softball and other recreation activities. Brackett's Landing Park is a small pocket park that is owned by the City of Bothell and offers a picnic area and access to the Sammamish River. The Park at Bothell Landing is located further to the west of campus (approximately 0.6-miles to the west), between SR-522 and the Sammamish River, and offers play structures, historical features, interpretive natural trails, and access to the Sammamish River Trail.

Sammamish River Trail

3.9.2 Impacts

This section of the Draft EIS identifies potential impacts to recreation and open space facilities on the campus and in the surrounding areas that could occur with development under the EIS Alternatives.

[1] Portions of the North Creek Trail to the north of campus are still under construction.

No Action Alternative

Scenario A – Baseline Condition

Under No Action – Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus. The current number of FTE students is assumed to remain at approximately 7,040; associated faculty and staff populations are anticipated to also remain relatively the same. The current 683,500 gsf of academic space and 74,200 gsf of housing space on campus (total of 757,700 gsf on campus), along with the 70,700 gsf of off-site academic space within 0.25 mile of campus, would remain. Under Scenario A, there would be no new development and no increase in student population and significant recreation and open space impacts would not be anticipated.

Scenario B – Allowed in PUD

Under No Action – Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the current PUD. Student enrollment of up to 10,000 FTEs on campus is assumed, consistent with the current PUD.

Existing recreation and open space areas on campus are assumed to be retained under No Action – Scenario B, including the Sports and Recreation Complex (existing fields and courts), the ARC building, the North Creek Stream and Wetland area (including the North Creek Trail), and various open spaces/gathering spaces adjacent to existing buildings on campus (including plazas associated with Discovery Hall and Mobius Hall, as well as the Crescent Path).

The anticipated increase in student enrollment under No Action – Scenario B would result in an increased demand for existing recreation and open space areas on the campus. New open spaces/gathering spaces would be provided in association with development under No Action – Scenario B and would create additional spaces for students to gather on the campus to fulfill some of the increased demand for recreation and open space areas. Increased student enrollment could also result in an increased demand for off-campus recreational facilities. The most likely facility that could experience increased use would be the Sammamish River Trail due to its proximity to campus, its connection with the on-campus North Creek Trail, and its use as a regional trail connection. Given the existing recreation and open space areas on campus and the provision of additional areas as part development under No Action – Scenario B, significant impacts to recreation and open space uses would not be anticipated.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 represents a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A and B. Approximately 1,072,300 gsf of net new building space, including up to 960 new student housing beds (total of 1,200 beds), would be provided on the campus. Similar to No Action – Scenario B, Alternative 1 assumes a total campus student population of 10,000 FTEs.

As described for No Action – Scenario B, existing recreation and open space areas on campus are assumed to be retained under Alternative 1, including the Sports and Recreation Complex (existing fields and courts), the ARC building, the 58-acre North Creek Stream and Wetland area (including the North Creek Trail), and various open spaces/gathering spaces adjacent to existing buildings on campus (including plazas associated with Discovery Hall and Mobius Hall, as well as the Crescent Path).

The anticipated increase in student enrollment would result in an increased demand for existing recreation and open space areas on the campus that would be similar to No Action – Scenario B. Alternative 1 would also include an increase in the number of students living on-campus when compared to No Action – Scenario B (approximately 960 new student housing beds) which would result in additional increased demand due to more students residing on campus and utilizing campus facilities. New green and urban open spaces would be provided in association with new campus buildings, with the majority of new open spaces located in the southwest portion of campus (Development Areas A and B) under Alternative 1. These new spaces would create additional areas for students to gather on the campus to fulfill some of the increased demand for recreation and open space areas and would be greater than No Action – Scenario B due to the increased amount of building development and associated urban opens spaces that would be provided under Alternative 1. An expansion of the existing ARC building could also be provided, as necessary and based on available funding.

Increased student enrollment and student housing could also result in an increased demand for off-campus recreational facilities. The most likely facility that could experience increased use would be the Sammamish River Trail due to its proximity to campus, its connection with the on-campus North Creek Trail, and its use as a regional trail connection. Given the existing recreation and open space areas on campus and the provision of additional areas as part development under Alternative 1, significant impacts to recreation and open space uses would not be anticipated.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F. Approximately 907,300 gsf of net new building space, including up to 360 new student housing beds (total of 600 beds) would be provided on the campus. Similar to the No Action – Scenario B and Alternative 1, Alternative 2 assumes a campus student population of 10,000 FTEs

Alternative 2 would include the retention of existing recreation and open space areas on campus as described under No Action – Scenario B and Alternative 1. Increased student enrollment would result in an increased demand for existing recreation and open space areas on the campus that would be similar to No Action – Scenario B and Alternative 1. Alternative 2 would include an increase in the number of students living on-campus which would result in additional increased demand but this additional demand would be less than Alternative 1 due to a lower amount of housing on-campus (approximately 360 new student housing beds compared to 960 new student housing beds under Alternative 1).

New green and urban open spaces would be provided in association with new campus buildings, with the majority of new open spaces located in the central portion of campus (Development Areas B, E and F) and additional open spaces in association with development in other areas of campus (Development Areas A, C and G). These new spaces would create additional areas for students to gather on the campus to fulfill some of the increased demand for recreation and open space areas and would be similar to Alternative 1. An expansion of the existing ARC building could also be provided, as necessary and based on available funding.

Increased student enrollment and student housing could also result in an increased demand for off-campus recreational facilities, similar to Alternative 1. Given the existing recreation and open space areas on campus and the provision of additional areas as part development under Alternative 2, significant impacts to recreation and open space uses would not be anticipated.

Alternative 3 – Growth along Topography (Northward Growth)

Alternative 3 represents a focus of development that would follow the north/south topography of the campus, with the majority of development assumed for the northern portion of campus (Development Areas B, C, D, E and F). Approximately 907,300 gsf of net new building space, including a total of 600 student housing beds, would be provided on the campus. Alternative 3 assumes the same campus student population as No Action – Scenario B, Alternative 1 and Alternative 2 (10,000 FTEs).

Alternative 3 would include the retention of existing recreation and open space areas on campus as described under No Action – Scenario B and Alternative 1. Increased student enrollment would result in an increased demand for existing recreation and open space areas on the campus that would be similar to No Action – Scenario B and Alternative 1. Increased on-campus housing would also result in additional demand similar to Alternative 2. New green and urban open spaces would be provided in association with new campus buildings, with the majority of new open spaces located in the northern portion of campus (Development Areas C and D), as well as open spaces associated with development in other areas of campus (Development Areas A, B, E, F and G). These new spaces would create additional areas for students to gather on the campus to fulfill some of the increased demand for recreation and open space areas and would be similar to Alternative 1. An expansion of the existing ARC building could also be provided, as necessary and based on available funding.

Increased student enrollment and on-campus housing could also result in an increased demand for off-campus recreational facilities, similar to Alternative 2. Given the existing recreation and open space areas on campus and the provision of additional areas as part development under Alternative 3, significant impacts to recreation and open space uses would not be anticipated.

Potential Indirect/Cumulative Impacts

Development under Alternatives 1 – 3 and No Action – Scenario B would contribute to the amount of overall campus population, in combination with future new development in the area, would contribute to demand for on-campus and off-campus open space and recreational uses. However, development under Alternatives 1 – 3 and No Action – Scenario B would include planned open space areas as part of new building development projects, many of which would be available for use by the general public. These new open space areas would potentially meet a portion of the demand for open space and passive recreational use area associated with cumulative growth on the campus and surrounding area.

3.9.3 Mitigation Measures

The following measures would minimize potential recreation and open space impacts that could occur with the implementation of the *Campus Master Plan*.

- The *Campus Master Plan* includes substantial open space and recreation areas that would be retained on the campus, including the Sports and Recreation Complex (existing fields and courts), the ARC building, the 58-acre North Creek Stream and Wetland area (including the North Creek Trail), and various open spaces/gathering

spaces adjacent to existing buildings on campus (including plazas associated with Discovery Hall and Mobius Hall, as well as the Crescent Path).

- New building development projects under the Campus Master Plan would include new green, urban open space areas as part of development to create spaces for passive recreation.
- Additional maintenance staff and acquisition of equipment for existing recreational facilities could be needed to effectively address the increase in use of active and passive recreational resources.

3.9.4 Significant Unavoidable Adverse Impacts

With proposed mitigation measures, significant unavoidable adverse impacts to recreational and open space resources are not expected to occur.

3.10 HISTORIC AND CULTURAL RESOURCES

This section of the Draft EIS describes the existing historic and cultural resources on the University of Washington Bothell (UW Bothell)/Cascadia College (CC) campus and in the site vicinity, and evaluates the potential impacts that could occur as a result of development under the *Campus Master Plan*.

3.10.1 Affected Environment

Background

The Sammamish River, located south of the UW Bothell/CC campus, has been a driving force behind settlement patterns for Native Americans, Euroamerican settlers, and present-day residents in the Bothell area. The area is within the former territory of the Sammamish Indian band, which is part of the Duwamish group. Descendants of this group may have been part of the Suquamish, Duwamish, Tulalip, Snoqualmie, and Muckleshoot tribes.

Euroamerican settlement in the City of Bothell occurred during the late 1800s as the area was settled by George Rutter Wilson and Columbus Greenleaf. Enabled by the Homestead Act of 1862, Wilson began acquiring land in 1870 and by his death in 1916 had amassed a 360-acre estate that sustained agriculture, livestock and logging. This area would later comprise a large portion of the present day UW Bothell/CC campus. Benjamin E. Boone acquired Wilson's farm in the early 1920's and developed the area as a cattle ranch. The Boone-Truly House (Truly House) was built in the 1920s to replace Wilson's House and a few years after Boone's death in 1960 his daughter Beverly Boone-Truly and Richard Truly purchased the homestead and continued to utilize the property for as a cattle ranch into the early 1990s.

Historic Photo of Stringtown

The original Stringtown area was developed by pioneer settlers as early as the 1870s. The area was historically a swampy wetland and was drained by the construction of a log-flume in the 1880s, enabling pioneers to build their homes along the Sammamish slough. Stringtown was regarded as the first residential development in Bothell. Stringtown comprises the southern portion of the present-day UW Bothell/CC campus.

The Washington State Legislature authorized the UW Bothell in 1989 and its doors first opened in 1990, with classes held in an office park that served as a temporary location. The campus site was chosen to be shared by the UW Bothell and CC in response to population forecasts, educational needs assessments, site/environmental evaluations, and a need for higher education and workforce training in a similar geographic area. The plan to collocate

the two institutions was initiated in 1993 as a directive from the Legislature. Construction for the new campus began in 1998, after the State of Washington purchased the land from the Truly family.

Historic Resources

Chase House

The City of Bothell's Historic Preservation Element (Imagine Bothell Comprehensive Plan, updated in 2015) identifies 19 historic register properties located throughout Bothell. The Chase House (located in Development Area G), included on this list, is located on the southeastern portion of the campus (17936 113th Ave NE). This building is included on the National Register of Historic Places (NRHP), the Washington Heritage Register (WHR) and is designated as a City of Bothell Landmark. The house was constructed in 1885 and became home to Bothell's first doctor, Dr. Reuben Chase, in 1889. The Chase House is the last remaining structure from the original Stringtown settlement. The structure was restored during original UW Bothell/CC campus development and is currently used by UW Bothell and CC (see **Appendix D** for further details on the Chase House).

Truly House

The Truly House is also located on the campus (in Development Area B) and is a ranch house that was originally built in 1888 to initially served as the homestead for an early Sammamish Valley settler. The home was designed in the bungalow/craftsman architectural style that was indicative of the 1910s and 1920s. In 1916, Benjamin Boone purchased the house, along with the land that currently houses the UW Bothell/CC campus. Members of the Boone/Truly family occupied the house for most of the 20th century, using it as the center point for the family's cattle ranching operations. After the State of Washington purchased the property in 1996, the house was moved to its current location on the western side of campus (18140 110th Avenue NE) where it serves as the Interdisciplinary Arts and Science Graduate Office. Several alterations to the building over the years, as well as the relocation of the building from its original site, have affected the historic integrity of the Truly House. The Truly House is not currently listed on any historic registers. While the building still retains some of its historic integrity, given that the building is out of context with its location and does not reflect significant historic architectural value, the building is not considered eligible for the NRHP (see **Appendix D** for further details on the Truly House).

Other nearby historic resources include the Bothell Pioneer Cemetery, which is listed on the NRHP and WHR. The cemetery is located immediately west of campus, at 108th Avenue NE and NE 180th Street. The Faust-Ryan House is located further to the northeast (approximately 0.25-miles to the northeast of campus) and is also listed on the NRHP.

Cultural Resources

Based on the Washington State Department of Archaeological and Historic Preservation's (DAHP) Washington Information System for Architectural and Archaeological Records Data (WISAARD) provides information on historic and cultural resources data for the State of Washington. WISAARD includes a predictive mapping model that provides general information on an areas potential for archaeological resources based on locations, soil types and other factors. The WISAARD predictive model indicates the majority of the developable areas of the campus are moderate risk (primarily Development Areas A, C, D and portions of B and G) to high (primarily Development Areas E and F, and portions of B and G) for encountering archaeological resources. Within these areas, archaeological surveys are recommended or highly advised, respectively. The eastern portion of the campus (North Creek Stream and Wetland Restoration Area) is considered a high risk to very high risk for archaeological resources and archaeological surveys are highly advised (a portion of very high risk area is located along the eastern portion of Development Areas E and F). See **Figure 3.10-1** for map of the WISAARD predictive model for the campus and surrounding area.

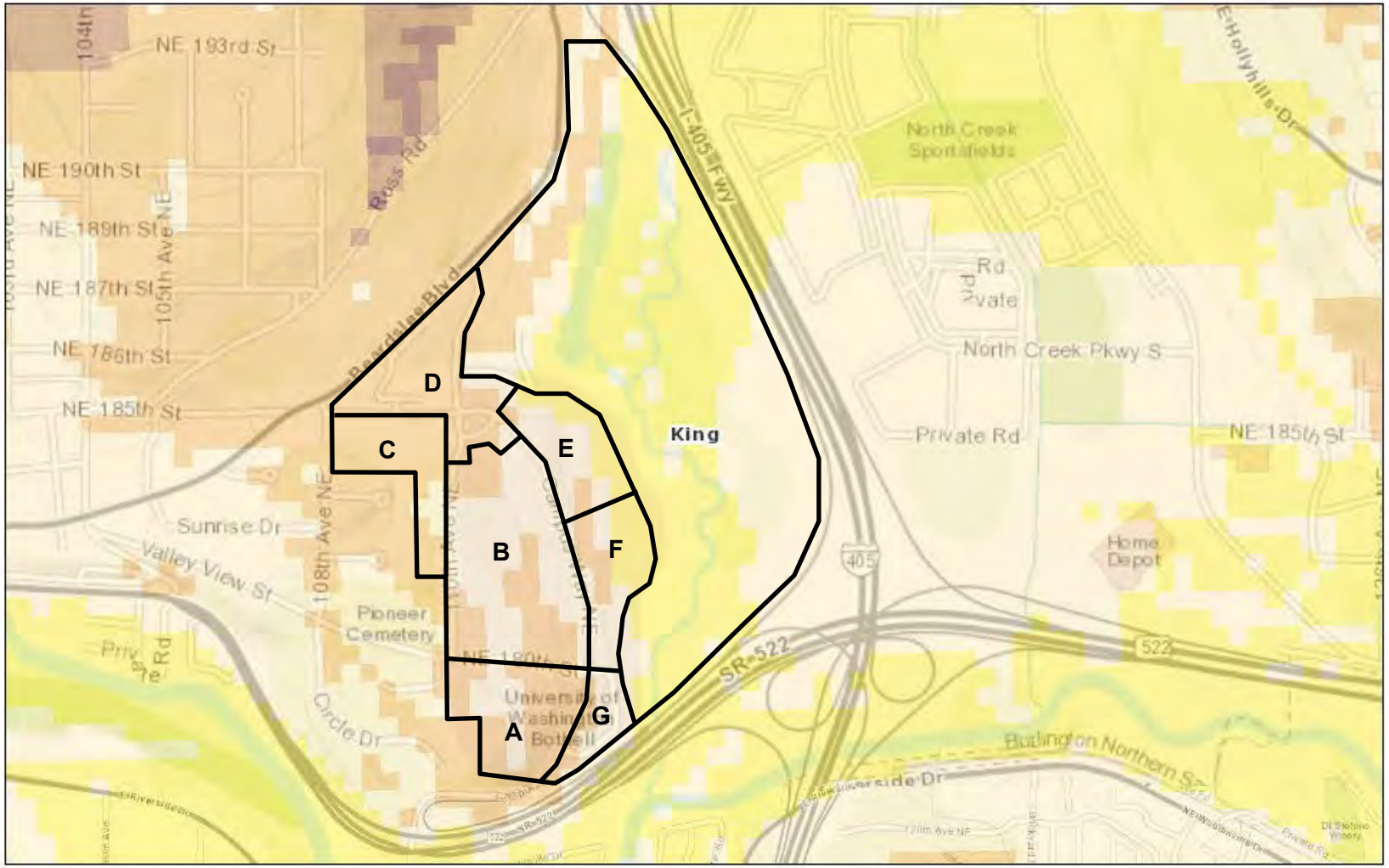
3.10.2 Impacts

This section of the Draft EIS identifies the potential impacts on historic and cultural resources on the campus and in the surrounding areas that could occur with development under the EIS Alternatives.

No Action Alternative

Scenario A – Baseline Condition

Under Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus and no construction would occur. Since no new development would occur on campus, no significant historic or cultural resources impacts would occur under Scenario A.



February 13, 2017

- County
- Survey Contingent Upon Project Parameters: Low Risk
- Survey Contingent Upon Project Parameters: Moderately Low Risk
- Survey Recommended: Moderate Risk
- Survey Highly Advised: High Risk
- Survey Highly Advised: Very High Risk

1:13,542

0 0.1 0.2 0.4 mi

0 0.175 0.35 0.7 km

Sources: Esri, HERE, DeLorme, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey,

Note: The Development Area boundaries on this map are approximate and do not show exact locations.

Source: DAHP and EA Engineering, 2017.

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

Figure 3.10-1
Archaeological Predictive Model Map

Scenario B – Allowed in PUD

The proposed *Campus Master Plan* would not be approved under Scenario B and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the PUD.

Historic Resources

Under Scenario B, it is assumed that the Truly House and Chase House would remain in their current locations and no direct impacts to those structures would be anticipated. To the extent that new development occurs in Development Areas A, B, C or G, it has the potential for indirect impacts to the Chase House (Development Area G) and the off-campus Bothell Pioneer Cemetery (adjacent to Development Area B and C). Construction activities would result in localized increases in dust, noise, vibration, disruption of pedestrian and bicycle circulation and loss of surface parking. With adherence to measures related to limiting dust, noise and vibration during construction, the potential for indirect impacts to the Chase House and Bothell Pioneer Cemetery is low (see **Appendix D**).

Cultural Resources

As described above, the majority of the developable areas of the campus are identified in DAHP's WISAARD program as a moderate risk to high risk for encountering archaeological resources. Development under No Action – Scenario B could impact cultural resources in the campus, if they are present in these areas. If a project is proposed in an area identified as having moderate risk to contain cultural resources, then the project would include the preparation of an inadvertent discovery plan (IDP). An IDP and archaeological monitoring during ground disturbance activities would be provided as a part of any project proposed in high risk areas. Potential development in very high risk areas in the eastern portion of campus would include the preparation of an archaeological survey.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 reflects a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A and B. Development under Alternative 1 would include approximately 1,072,300 gsf of net new building space that would generally be clustered in the central and south campus areas (Development Areas A, B and F).

Historic Resources

Under Alternative 1, the existing Truly House and Chase House would remain in their current locations and no direct impacts would occur to those structures. Assumed development under Alternative 1 could potentially result in indirect impacts to the off-campus Bothell Pioneer Cemetery during development when construction activities are located in proximity to these resources (i.e., construction in Development Areas A, B and C). Construction activities would result in localized increases in dust, noise, vibration, disruption of pedestrian and bicycle circulation and loss of surface parking. No development would be located within Development Area G adjacent to the Chase House. With adherence to measures related to limiting dust, noise and vibration during construction, the potential for indirect impacts to the Bothell Pioneer Cemetery and Chase House is low (see **Appendix D**).

Cultural Resources

As described above, the majority of the developable areas of the campus are identified in DAHP's WISAARD program as a moderate risk to high risk for encountering archaeological resources. Development under Alternative 1 could impact cultural resources in the campus, if they are present in these areas. Under Alternative 1, a substantial amount of assumed development would occur in Development Area A and the southern portion of Development Area B, which are areas identified as having a moderate risk for archaeological resources. If a project is proposed in an area identified as having moderate risk to high risk for containing cultural resources, then the project would include the preparation of an inadvertent discovery plan (IDP). An IDP and archaeological monitoring during ground disturbance activities would be provided as a part of any project proposed in high risk areas.

A portion of development in Development Areas E and F could encroach into very high risk areas and potential development in these areas would include the preparation of an archaeological survey.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 reflects a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F. Development under Alternative 2 would include approximately 907,300 gsf of net new building space, which would be generally located in the central portion of campus (Development Areas B, E and F).

Historic Resources

Development under Alternative 2 would focus of development in the central portion of campus, including within Development Area B. To accommodate assumed development in Development Area B, it is anticipated that the Truly House would be demolished or

relocated to a new location on-campus or a potential off-campus location. Given the lack of historic context and lack of historic architectural value, demolition of the Truly House would not be considered to result in an historic resources impact.

Prior to a determination for demolition of the Truly House, the potential to relocate the building to an on-campus or off-campus location would be explored. If relocated on-campus, relocation to a site in proximity to the Chase House is not recommended because relocation of the Truly House near the Chase House would result in juxtaposition creating a false sense of history for the Chase House and Stringtown. Relocation of the Truly House to a more isolated site on-campus or off-campus would be more appropriate for the Chase House (see **Appendix D** for further details).

Under Alternative 2, the existing Chase House would remain in its current location and no direct impacts would occur. Similar to Alternative 1, assumed development under Alternative 2 could also result in indirect impacts to the Chase House and the off-campus Bothell Pioneer Cemetery during development when construction activities are located in proximity to these resources (i.e., construction in Development Areas A, B and C). Construction activities would result in localized increases in dust, noise, vibration, disruption of pedestrian and bicycle circulation and loss of surface parking. With adherence to measures related to limiting dust, noise and vibration during construction, the potential for indirect impacts to the Chase House and Bothell Pioneer Cemetery is low. Considering that no new development is assumed to be located in Development Area G under Alternative 2, it is anticipated that there would be no operational impacts to the Chase House.

Cultural Resources

As described above, the majority of the developable areas of the campus are identified in DAHP's WISAARD program as a moderate risk to high risk for encountering archaeological resources. Development under Alternative 2 could impact cultural resources in the campus, if they are present in these areas. If a project is proposed in an area identified as having moderate risk to contain cultural resources, then the project would follow pertinent cultural resources regulations. Under Alternative 2, the focus of development would be in Development Areas E, F and the central portion of Development Area B, which are areas identified as high risk for encountering archaeological resources. In general, Alternative 2 would have a higher risk of encountering archaeological resources than Alternative 1. An IDP and archaeological monitoring during ground disturbance activities would be provided as a part of any project proposed in high risk areas. A portion of development in Development Areas E and F could encroach into very high risk areas and potential development in these areas would include the preparation of an archaeological survey.

Alternative 3 – Growth along Topography (Northward Growth)

Under Alternative 3, the focus of development that is assumed to follow the north/south topography of the campus. The majority of development under Alternative 3 is assumed for the north portion of campus in Development Areas B, C, D, E and F. Under Alternative 3, assumed development on the campus would include approximately 907,300 gsf of net new building space.

Historic Resources

Similar to Alternative 1, the existing Truly House and Chase House would remain in their current locations and no direct impacts would occur to those structures under Alternative 3. Assumed development under Alternative 3 could result in potential indirect impacts to the Chase House and the off-campus Bothell Pioneer Cemetery during development when construction activities are located in proximity to these resources (i.e., construction in Development Areas B, C and G). It is anticipated that indirect impacts to the Bothell Pioneer Cemetery would be less than Alternative 1 due to the amount of development assumed for Development Area B. Indirect impacts to the Chase House would be greater than Alternative 1 due to the assumed development within Development Area G. Construction activities would result in localized increases in dust, noise, vibration, disruption of pedestrian and bicycle circulation and loss of surface parking. With adherence to measures related to limiting dust, noise and vibration during construction, the potential for indirect impacts to the Chase House and Bothell Pioneer Cemetery is low (see **Appendix D**).

Cultural Resources

As described above, the majority of the developable areas of the campus are identified in DAHP's WISAARD program as a moderate risk to high risk for encountering archaeological resources. Development under Alternative 3 could impact cultural resources in the campus, if they are present in these areas. If a project is proposed in an area identified as having moderate risk to contain cultural resources, then the project would follow pertinent cultural resources regulations. Under Alternative 3, the focus of development would be in Development Areas C and D, the central portion of Development Area B, and portions of Development Areas E and F. Development Areas C and D are identified as moderate risks for archaeological resources, while Development areas E, F and a portion of B are identified as high risks. In general, development under Alternative 3 would have a similar risk for encountering archaeological resources as Alternative 2. An IDP and archaeological monitoring during ground disturbance activities would be provided as a part of any project proposed in high risk areas; an archaeologic survey would be conducted as a part of any project proposed in high risk areas.

Potential Indirect/Cumulative Impacts

Development under Alternatives 1 – 3 and No Action Scenario B would contribute to the amount of overall construction in the area and, in combination with potential future new development in the area, could contribute to indirect construction-related impacts to historic resources including short-term, localized traffic congestion, noise and dust. All construction activities in the area would be required to follow applicable regulations, and significant impacts would not be anticipated.

3.10.3 Mitigation Measures

The following measures would be available for development under the *Campus Master Plan*.

Historic Resources

- The UW Bothell and CC's existing internal design review processes would continue to review and authorize major building projects in terms of siting, scale, and the use of compatible materials relative to recognized historic structures.

- The UW Bothell and CC would continue to follow the Historic Resources Addendum (HRA) process for all proposed projects that include exterior alterations to buildings over 50 years old, or are located adjacent to buildings or features over 50 years old. The HRA is intended to insure that important elements of the campus, its historic character and value, environmental considerations and landscape context are valued.

- The potential for indirect impacts to on-campus and identified off-campus historic resources associated with construction noise, dust, and pedestrian/bicycle circulation distribution would be mitigated by the following the measures identified in Sections 3.2 (Air Quality), 3.5 (Environmental Health) and 3.13 (Transportation).

- Development under Alternative 2 would require the relocation or demolition of the existing Truly House. As part of the development process, the potential to relocate Truly House would be explored, including the consideration of a suitable new location on-campus or a potential off-campus location.

- If the Truly House were to be demolished as considered under Alternative 2, the building would be evaluated by a salvage contractor, and applicable building elements and materials would be salvaged and made available for reuse.

Cultural Resources

- If a project is proposed in an area identified as having moderate risk to contain cultural resources, then the project would follow pertinent cultural resources regulations, including the preparation of an IDP.
- If a project is located in an area identified as having a high risk for containing cultural resources, the project would follow pertinent cultural resources, including the preparation of an IDP and archaeological monitoring during ground disturbance activities.
- If a project is located in an area identified as having a very high risk for containing cultural resources, the project would follow pertinent cultural resources regulations, including an archaeological survey.
- Noticing and coordination with Native American tribes will take place on projects conducted by the UW Bothell or CC as the lead agency under the State Environmental Policy Act (SEPA) and/or Governor's Executive Order 05-05.

Inadvertent Discovery of Archaeological Resources

- In the event that archaeological deposits are inadvertently discovered during construction of a potential development site, ground-disturbing activities would be halted immediately, and the UW Bothell and/or CC would be notified. The UW Bothell and/or CC would then contact DAHP and the interested Tribes, as appropriate, and as described in the recommended inadvertent discovery plan.

Discovery of Human Remains

- Any human remains that are discovered during construction at a potential development site would be treated with dignity and respect.
    - If ground-disturbing activities encounter human skeletal remains during the course of construction, then all activity that may cause further disturbance to those remains must cease, and the area of the find must be secured and protected from further disturbance. In addition, the finding of human skeletal remains must be reported to the county coroner and local law enforcement in the most expeditious manner possible. The remains shall not be touched, moved, or further disturbed.
    - The county coroner will assume jurisdiction over the human skeletal remains, and make a determination of whether those remains are forensic or non-forensic. If the county coroner determines the remains are non-forensic, they

will report that finding to the DAHP. DAHP will then take jurisdiction over those remains and report them to the appropriate cemeteries and affected tribes. The State Physical Anthropologist will make a determination of whether the remains are Indian or non-Indian, and report that finding to any appropriate cemeteries and the affected tribes. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

3.10.4 Significant Unavoidable Adverse Impacts

Campus development under EIS Alternatives 1 – 3 and No Action – Scenario B would occur within the context of a campus with a historic building (Chase House) and potentially historic building (Truly House). Demolition or relocation of the Truly House under Alternative 2 would not be considered to result in a significant historic resources impact.

Development under the EIS Alternatives would also be located in portions of areas that could have a moderate to very high risk for encountering archaeological resources. With implementation of the identified mitigation measures, no significant adverse impacts are anticipated.

3.11 PUBLIC SERVICES AND UTILITIES

This section of the Draft EIS describes the existing public services (fire and police services) and utilities that serve the University of Washington Bothell (UW Bothell) and Cascadia College (CC) campus and the site vicinity, and evaluates the potential impacts to public services and utilities that could occur as a result of the *Campus Master Plan*.

3.11.1 Affected Environment

Fire and Emergency Services

Bothell Fire & EMS Station 42

City of Bothell Fire and Emergency Medical Services (Bothell Fire & EMS) provides fire prevention, education, fire suppression, medical services, and other related emergency and non-emergency services for the City of Bothell, including the UW Bothell/CC campus. Bothell Fire & EMS includes approximately 65 staff members, of which, approximately 50 staff members are part of the Response Operations divisions (i.e. firefighters, lieutenants, battalion chiefs and a deputy chief). Bothell Fire & EMS provides fire and emergency services from three fire stations, including Station 42 (Downtown Headquarters – 10726 Beardslee Boulevard), Station 44 (Queensborough Firehouse – 330 228th Street SW) and Station 45 (Canyon Park Firehouse – 1608 217th Place SE).

The UW Bothell/CC Campus is located in the service area of Station 42, which is located to the immediate northeast of the campus, on the north side of Beardslee Boulevard. Apparatus that are available at Station 42 include a Ladder Truck, a Fire Engine, an Aid Unit, a Shoreline Medic Unit, a Command Unit and a Reserve Fire Engine[1].

In 2015, Bothell Fire & EMS responded to approximately 6,200 total incidents. This represented an approximately 20 percent increase since 2012. The majority of the incidents that Bothell Fire & EMS responded to in 2015 were for EMS calls (approximately 74 percent of all incident calls); fire incidents represented only three percent of the total incidents for Bothell Fire & EMS [1]. Based on the total incidents in 2015 (approximately 6,200) and the City's population (approximately 41,200), Bothell Fire & EMS responds to approximately one incident per 6.65 people on an annual basis.

Bothell Fire & EMS has established operating guidelines for response times to fire and emergency medical service incidents, including:

[1] City of Bothell Fire and EMS. 2015 Annual Report.

- The first fire apparatus on location of a fire – 8 minutes
- The first apparatus on location of an emergency medical incident – 7 minutes
- Total system response time – 7 minutes 15 seconds

In 2015, Bothell Fire & EMS reported a response time for 90 percent of all calls as 8 minutes 31 seconds for the first fire apparatus at a fire incident; 7 minutes 42 seconds for an apparatus at an emergency medical incident; and, 8 minutes 6 seconds for a total average response time[1].

Most of the major buildings on the campus are equipped with a monitored fire alarm system and fire sprinklers. Existing campus buildings have historically been built with fire resistant materials that meet, and in some cases exceed, minimum code requirements. In the two-year period of 2015 and 2016, the UW Bothell reported a total of six fire service incidents, primarily related to oven/stove fires at student housing facilities (Husky Village) or Husky Hall. No injuries were reported in these incidents and estimated property damage generally ranged from $0 to $500[2] (one incident had damage estimated at approximately $5,000). Based on the existing student, faculty and staff campus population of 9,014 people, the UW Bothell/CC campus currently generates approximately 0.0007 annual fire and emergency service incidents (or one annual incident per 1,502 persons).

Police Services

The UW Bothell and CC maintain a Campus Safety Department that is intended to help create a safe and secure living, learning and working environment for students, faculty and staff on the campus. The Campus Safety Department is comprised of a Director, two Sergeants, nine Campus Safety Officers and four program assistants; a Campus Resource Officer from the Bothell Police Department (BPD) also serves as part of the campus safety team. The Campus Safety Department provides campus security and safety services 24 hours a day, 365 days a year and work closely with the BPD respond to any emergency needs or major incidents on campus. Campus Safety Officers utilize citizen's arrest powers to enforce all campus regulations and rules, applicable state and federals laws, and city and county ordinances on the campus. Criminal incidents are referred to the BPD, who have jurisdiction on the campus.

Based on security call records from the Campus Safety Department over the past two years[3], Campus Safety Officers operations and responses to calls are primarily regarding four general issues: area checks of campus, responses to locked/unlocked building calls, calls for safety escorts, and responses for lost and found property. Crime data for the campus since 2013 indicate that there are very few criminal offenses that have been

[2] University of Washington Campus Safety Department. 2016 Fire Incident Log http://www.uwb.edu/getattachment/safety/uw-bothell-fire-log-2016.pdf. Accessed 2017.

[3] University of Washington Bothell. Security Call Records – January 2015 through December 2016.

reported on the campus. The most frequent criminal offenses were burglary (an average of two offenses per year) and motor vehicle theft (an average of 1.3 offenses per year). The most frequent other violations on campus were regarding liquor law violations (an average of 27 violations per year) and drug abuse violations (an average of 22 violations per year). These violations primarily occurred within student housing facilities and were referred for disciplinary action on the campus[4].

Bothell Police Department

As described above, the BPD has law enforcement jurisdiction within the City of Bothell, including on the campus, and work in conjunction with the Campus Safety Department and Campus Safety Officers. BPD maintains a total staff of approximately 60 commissioned officers and 27 civilian employees (administrative, records, communications staff, etc.). The BPD communications center handles all incoming calls within the city for police, fire and emergency medical including non-emergency administrative calls, as well as 9-1-1 emergency calls. In 2015, the BPD communications center received a total of approximately 57,400 calls for the City of Bothell, 30 percent of which (approximately 17,200) were 9-1-1 emergency calls. Based on the total calls received in 2015 (approximately 57,400) and the City's population (approximately 41,200), the BPD receives approximately one call per 1.40 people on an annual basis.

2015 crime statistic trends for the BPD indicate that the greatest increase in crimes within the City were the result of residential burglaries, thefts and sex offenses, all of which were higher than the City's five-year averages in 2015. The BPD also noted that there was a substantial increase in traffic collisions city-wide in 2015 when compared to the five-year average[5].

Based on Campus Safety Department records, in 2015 the campus generated 12 emergency 9-1-1 calls on campus[6]. Based on the existing student, faculty and staff campus population of 9,014, the UW Bothell/CC campus currently generates approximately 0.0013 annual police service calls (or one annual call per 751 persons).

Utilities

Water Service

The existing water service for the campus is supplied by the City of Bothell. The domestic water service system consisting of 6-inch, 8-inch, and 12-inch diameter pipes. An 8-inch

[4] University of Washington Bothell. Annual Security and Fire Safety Report. 2016.
[5] City of Bothell Police Department. 2015 Annual Report.
[6] Campus Safety Department. 2015 Security Call Records.

water line was installed along West Campus Lane during the Discovery Hall project which completed a closed loop system between 110th Avenue NE and NE 180th Street. An 8-inch water line was also installed west of the library in the Crescent Walk during the Discovery Hall project which will allow for the Library Expansion project to not affect the existing water line to the west. Each building is served by an appropriately sized water meter for domestic water and a fire system connection. Fire hydrants are spaced throughout the campus to provide required fire coverage. The campus domestic water system adequately serves the campus and there are no reported capacity constraints.

Sewer Service

The existing sewer service for campus is also supplied by the City of Bothell. The existing sanitary sewer (gravity) system consists of 6-inch, 8-inch, and 12-inch pipes, manholes, and cleanouts. The northern portion of the campus discharges to the existing 60-inch diameter trunkline that bisects the campus. The southern portion of the campus discharges to the existing 24-inch diameter trunkline underneath SR-522. Each building is served by a side sewer that connects to a sanitary sewer main. The bottom floor of the Activities and Recreation Center (ARC) is served by a pump station that discharges into the 8-inch diameter gravity line in Campus Way NE (the existing sewer system is not deep enough along Campus Way NE to provide gravity sewer service to the bottom floor of the ARC). The campus sanitary sewer system adequately serves the campus and has no reported capacity constraints.

Stormwater

UW Bothell/CC campus includes a sustainable stormwater management system that is designed to reduce the discharge of pollutants and to protect the water quality of the surrounding area. Two independent conveyance systems account for the different treatment requirements for “clean water” (rooftop runoff, footing drains, and groundwater) and “dirty water” (road runoff, surface parking runoff, and hardscape runoff). Catch basins, swales, and closed pipe systems transport stormwater runoff through the various treatment, reclamation, and discharge systems. Stormwater detention is not required due to the site’s proximity to North Creek.

Three “clean water” collection systems on campus move water through reclamation systems for irrigation and landscaping or into drainage bioswales. The bioswales are located in the buffer zone between the developed upland part of campus and the lowland area, and discharge water into the wetlands adjacent to North Creek. This water does not require quality treatment prior to discharge.

Water runoff collected from impervious surfaces subject to vehicular use (“dirty water”) requires treatment before discharge into the wetlands downstream. There are four three-stage treatment facilities on campus, each consisting of a Coalescing Plate oil/water

Separator (CPS), a wet-vault, and a biofiltration facility. "Dirty water" from Discovery Hall is treated close to where it is collected in proprietary water quality devices and then conveyed to one of the three-stage water quality treatment systems discussed above. The "dirty water" from the surface parking lot adjacent to 110th Avenue NE is treated and detained onsite before discharging into one of the "clean water" systems discussed above.

The "clean water" and the treated "dirty water" is released into the wetlands associated with the North Creek Stream and Wetland area. This area provides the necessary recharge for the wetland habitat and eventually reaches the Sammamish River to the south of campus via North Creek.

3.11.2 Impacts

This section of the Draft EIS identifies the potential impacts of development on the UW Bothell/CC campus under the *Campus Master Plan* on public services and utilities that could occur under the EIS Alternatives.

No Action Alternative

Scenario A – Baseline Condition

Under No Action – Scenario A, the proposed *Campus Master Plan* would not be approved and no additional development would occur on campus. The current number of FTE students is assumed to remain at approximately 7,040; associated faculty and staff populations are anticipated to also remain relatively the same. Since there would be no new development or increase in campus population under Scenario A, it is anticipated that there would be no increase in demand for public services or utilities and significant impacts would not be anticipated.

Scenario B – Allowed in PUD

Under No Action – Scenario B, the proposed *Campus Master Plan* would not be approved, and a level of future campus development consistent with the remaining capacity under the original (Phase 1) and current PUD would occur. This scenario assumes buildout of the remaining approximately 386,100 gsf of campus building area, reaching the total of 1.14 million gsf of building space identified on campus under the current PUD; no new student housing would be provided on campus. Student enrollment of up to 10,000 FTEs on campus is assumed, consistent with the current PUD, which would result in an increase by approximately 1,783 FTE students when compared to the current conditions. Based on an existing student to faculty ratio of 20 to 1 and a student to staff ratio of 20 to 1, it is anticipated that the increase in students would also result in an associated increase of approximately 89 faculty members and 89 staff members on the campus. As a result, the

total increase in campus population under Scenario B would be approximately 1,961 people (FTE students, faculty and staff).

Fire and Emergency Services

Construction projects for new building development under Scenario B would require fire department review for applicable project development permits and inspection services prior to occupancy. All development projects on the campus would be constructed in accordance with applicable City of Bothell Fire Code requirements and would include fire alarms and fire suppression systems in accordance with applicable standards. During construction of specific development projects, vehicle access through and surrounding potential development sites could be affected and require the implementation of detour routes, which could affect emergency vehicle responses times in the vicinity of potential development sites.

The increase in population on the campus would be anticipated to lead to an increased demand for public services. Based on the UW Bothell/CC campus current ratio of incidents per person (approximately one incident per 1,502 people) and the anticipated increase in campus population under Scenario B, it is anticipated that development under the current PUD could generate approximately 1.3 additional incidents per year, or an approximately 22 percent increase in the number of incidents on campus per year. It should be noted that this analysis provides a conservative estimate of fire service incidents that could be generated by increased development and campus population since the historic number of incidents over the past two years is low (six incidents over a two-year period). As development occurs, it is anticipated that Bothell Fire & EMS would have adequate staffing to serve the campus and that any incremental increases in staffing could be provided as necessary through Bothell Fire & EMS's annual planning process.

Police Services

Similarly, based on the current ratio of emergency 9-1-1 calls per person to campus (approximately one call per 751 persons) and the anticipated increase in campus population, it is anticipated that development under Scenario B could generate approximately 2.6 additional calls per year, or an approximately 22 percent increase in the number of calls per year. It should be noted that this analysis provides a conservative estimate of police service calls that could be generated by increased development and campus population since UW Bothell and CC also maintain a Campus Safety Department that provides 24-hour campus security and safety services. As development occurs, it is anticipated that BPD would have adequate staffing to serve the campus and that any incremental increases in staffing could be provided as necessary through the BPD's annual planning process.

Utilities

Development under the No Action Alternative – Scenario B would result in an increased demand for water service and sewer service to serve the new buildings. As described above, there are no reported capacity constraints for the existing water service and sewer service system on campus and it is anticipated that new buildings would be connected to the existing water and sewer service systems.

Stormwater runoff is directly related to the amount of impervious surfaces in a given area. New development under Scenario B could result in an overall increase in impervious surfaces associated with buildings and paths/walkways and an associated increase in stormwater runoff from the campus. It is anticipated that new development projects would connect to the existing stormwater management system on campus. New development would be designed to be consistent with the applicable provisions of the City of Bothell Design and Construction Standards and Specifications - Surface Water Design Manual (January 2017) and significant stormwater impacts would not be anticipated.

Alternative 1 – Develop Institutional Identity (Southward Growth)

Alternative 1 represents a level of development and improvements that would meet the forecasted growth and goals over the 20-year planning horizon for the *Campus Master Plan*. This alternative reflects a focus of development in the southwest portion of the campus, with the majority of development assumed for Development Areas A and B. Alternative 1 assumes a campus student population of 10,000 FTEs plus additional associated faculty and staff, as well as a total of 1,200 student housing beds (representing approximately 20 percent of the assumed UW Bothell student FTEs).

Similar to No Action – Scenario B, student enrollment of up to 10,000 FTEs on campus is assumed for Alternative 1, which would result in an increase of approximately 1,783 FTE students when compared to the current conditions. Based on an existing student to faculty ratio of 20 to 1 and a student to staff ratio of 20 to 1, it is anticipated that the increase in students would also result in an associated increase of approximately 89 faculty members and 89 staff members on the campus. As a result, the total increase in campus population under Alternative 1 would be approximately 1,961 people (FTE students, faculty and staff). This increase in campus population is anticipated to result in an incremental increase in demand for public services and utilities on campus under the *Campus Master Plan*.

Fire and Emergency Services

Similar to No Action – Scenario B, potential future development under Alternative 1 would result in increased demand for fire and emergency services over the life of the plan. Construction projects for new building development would require fire department review

for applicable project development permits and inspection services prior to occupancy. All development projects on the campus would be constructed in accordance with applicable City of Bothell Fire Code requirements and would include fire alarms and fire suppression systems in accordance with applicable standards. During construction of specific development projects, vehicle access through and surrounding potential development sites could be affected and require the implementation of detour routes, which could affect emergency vehicle responses times in the vicinity of potential development sites.

Under Alternative 1, the increase in population on the campus would be anticipated to lead to an increased demand for public services, similar to No Action – Scenario B. Based on Bothell Fire & EMS's current ratio of incidents per person on the campus (approximately one incident per 1,502 people) and the anticipated increase in campus population, it is anticipated that development under Alternative 1 could generate approximately 1.3 additional calls per year, or an approximately 22 percent increase in the number of incidents per year. It should be noted that this analysis provides a conservative estimate of fire service incidents that could be generated by increased development and campus population since the historic number of incidents on campus over the past two years is low (six incidents over a two-year period, primarily within student housing facilities). Alternative 1 would include a greater number of student housing beds than No Action – Scenario B (1,200 beds compared with 240 bed), which could result in a slightly higher potential for fire and emergency service demand under Alternative 1 due to the increased student housing uses and past incident history on the campus.

As development occurs, it is anticipated that Bothell Fire & EMS would have adequate staffing to serve the campus and that any incremental increases in staffing could be provided as necessary through the Bothell Fire & EMS's annual planning process.

Police Services

Based on the current ratio of emergency 9-1-1 calls per person to campus (approximately one call per 751 persons) and the anticipated increase in campus population, it is anticipated that development under Alternative 1 could generate approximately 2.6 additional emergency 911 calls per year, or an approximately 22 percent increase in the number of calls per year. It should be noted that this analysis provides a conservative estimate of police service calls that could be generated by increased development and campus population since UW Bothell also maintains a Campus Safety Department that provides 24-hour campus security and safety services. Due to the increased amount of student housing under Alternative 1 (1,200 beds compared with 240 beds under No Action – Scenario B), it is anticipated that Alternative 1 could result in a slightly higher potential for police service demand than No Action – Scenario B due to the increased student housing uses and number of students residing on the campus.

As development occurs, it is anticipated that BPD would have adequate staffing to serve the campus and that any incremental increases in staffing could be provided as necessary through the BPD's annual planning process.

Utilities

Development under the Alternative 1 would result in an increased demand for water service and sewer service to serve the new buildings. As described above, there are no reported capacity constraints for the existing water service and sewer service system on campus and it is anticipated that new buildings would be connected to the existing water and sewer service systems.

New development under Alternative 1 could result in an overall increase in impervious surfaces associated with new buildings and paths/walkways and an associated increase in stormwater runoff from the campus; however, an increase in new buildings and paths/walkways could be offset by a reduction in surface parking areas on campus. It is anticipated that the increase in impervious surface and associated stormwater runoff would be greater than No Action – Scenario B due to the increased amount of development on the campus. New development projects would connect to the existing stormwater management system on campus and would be designed to be consistent with the applicable provisions of the City of Bothell Design and Construction Standards and Specifications - Surface Water Design Manual (January 2017). As a result, significant stormwater impacts would not be anticipated.

Alternative 2 – Develop the Core (Central Growth)

Alternative 2 represents a focus of development in the central portion of the campus, with the majority of development assumed for Development Areas B, E and F. Alternative 2 assumes the same level of campus student population as Alternative 1 (10,000 FTEs plus additional associated faculty and staff), but would include a lower amount of student housing on campus (a total of 600 student housing beds compared with 1,200 student housing beds under Alternative 1).

Fire and Emergency Services

Due to the similar amount of building development and campus population, it is anticipated that impacts to fire and emergency services provided by Bothell Fire & EMS would be similar to Alternative 1. New building development under Alternative 2 would include a lower amount of student housing on campus (600 student housing beds compared with 1,200 student housing beds under Alternative 1) which could result in a lower potential for fire and emergency service demand due to the reduced number of students living on campus.

Police Service

Under Alternative 2, it is anticipated that impacts to police services provided by the BPD would be similar to Alternative 1 due to the similar amount of development and on-campus population. New building development under Alternative 2 would include a lower amount of student housing on campus (600 student housing beds compared with 1,200 student housing beds under Alternative 1) which could result in a lower potential for police service demand due to the reduced number of students living on campus.

Utilities

Development under the Alternative 2 would result in an increased demand for water service and sewer service to serve the new buildings that would be similar to Alternative 1. As described above, there are no reported capacity constraints for the existing water service and sewer service system on campus and it is anticipated that new buildings would be connected to the existing water and sewer service systems.

Under Alternative 2, new development on campus could result in an overall increase in impervious surfaces associated with buildings and paths/walkways and an associated increase in stormwater runoff. It is anticipated that the increase in impervious surface and associated stormwater runoff would be similar to Alternative 1 due to the similar amount of development on the campus. New development projects would connect to the existing stormwater management system on campus and would be designed to be consistent with the applicable provisions of the City of Bothell Design and Construction Standards and Specifications - Surface Water Design Manual (January 2017). As a result, significant stormwater impacts would not be anticipated.

Alternative 3 – Growth along Topography (Northward Growth)

Under Alternative 3, the focus of development would follow the north/south topography of the campus, with the majority of development assumed for the northern portion of campus (Development Areas B, C, D, E and F). Alternative 3 assumes the same level of campus student population as Alternative 1 (10,000 FTEs plus additional associated faculty and staff), but would include a lower amount of student housing on campus (a total of 600 student housing beds compared with 1,200 student housing beds under Alternative 1).

Fire and Emergency Services

Due to the similar amount of building development and campus population under Alternative 3, it is anticipated that impacts to fire and emergency services provided by Bothell Fire & EMS would be similar to Alternative 1. New building development under

Alternative 3 would include a lower amount of student housing on campus (600 student housing beds compared with 1,200 student housing beds under Alternative 1) which could result in a lower potential for fire and emergency service demand due to the reduced number of students living on campus.

Police Service

Under Alternative 3, it is anticipated that impacts to police services provided by the BPD would be similar to Alternative 1 due to the similar amount of development and on-campus population. New building development under Alternative 3 would include a lower amount of student housing on campus (600 student housing beds compared with 1,200 student housing beds under Alternative 1) which could result in a lower potential for police service demand due to the reduced number of students living on campus.

Utilities

Development under the Alternative 3 would result in an increased demand for water service and sewer service to serve the new buildings that would be similar to Alternative 1. As described above, there are no reported capacity constraints for the existing water service and sewer service system on campus and it is anticipated that new buildings would be connected to the existing water and sewer service systems.

Under Alternative 3, new development on campus could result in an overall increase in impervious surfaces associated with buildings and paths/walkways and an associated increase in stormwater runoff. It is anticipated that the increase in impervious surface and associated stormwater runoff would be similar to Alternatives 1 and 2 due to the similar amount of development on the campus. New development projects would connect to the existing stormwater management system on campus and would be designed to be consistent with the applicable provisions of the City of Bothell Design and Construction Standards and Specifications - Surface Water Design Manual (January 2017). As a result, significant stormwater impacts would not be anticipated.

Potential Indirect/Cumulative Impacts

To the extent that potential future development of the *Campus Master Plan* under Alternatives 1 – 3 or under No Action – Scenario B occur in the vicinity of other development projects in the site area (i.e. downtown Bothell), it could result in a cumulative increase in demand for fire and emergency services from Bothell Fire & EMS. Fire service demand increases associated with growth in the City of Bothell would be considered through Bothell Fire & EMS's annual planning process.

Minor cumulative increases in demand for police services from the BPD could also occur, albeit at a lower level, due to provision of the Campus Safety Department that provides 24-hour campus security and safety services.

Campus development and increased campus population under the Alternatives 1 – 3 or No Action – Scenario B would contribute to overall utility demand and in combination with future development in the City would contribute to a cumulative increase in demand for utilities.

3.11.3 Mitigation Measures

The following measures would minimize potential public service and utility impacts that could occur with development under the *Campus Master Plan*.

- All potential future development under the *Campus Master Plan* would be constructed in accordance with applicable *City of Bothell Fire Code* requirements and would include fire alarms and fire suppression systems in accordance with applicable standards.
- During the construction process for potential future development, Bothell Fire & EMS would be notified of any major utility shutdowns or campus street closures/detours.
- In the case of an emergency, during the construction process for potential future development, the BPD could provide police escort services for fire and emergency service vehicles.
- The designs of specific development projects would be reviewed for potential life/safety and personnel security issues.
- The Campus Safety Department would increase its staff capacity and expand operations, as necessary, to meet the increased security needs associated with development and increased population under the *Campus Master Plan*.
- New campus development would be designed to be consistent with the applicable provisions of the *City of Bothell Design and Construction Standards and Specifications - Surface Water Design Manual*.
- As part of the UW Bothell and CC's commitment to environmental protection and sustainability, potential future development projects would continue to consider the use of sustainable features that would result in the efficient use of resources and minimize impacts on utilities.

3.11.4 Significant Unavoidable Adverse Impacts

Potential future development and the associated increase in campus population under the *Campus Master Plan* would result in an increase in demand for fire and emergency services, police services and utilities on the campus. With the implementation of mitigation measures identified above, significant unavoidable impacts to public services and utilities would not be anticipated.

3.12 TRANSPORTATION

This section of the Draft EIS describes the transportation system on the University of Washington Bothell (UW Bothell)/Cascadia College (CC) campus and in the campus vicinity and evaluates the potential impacts to the transportation system that could occur with the *Campus Master Plan*, through the 20-year planning horizon, as assumed under the Draft EIS Alternatives.

The *Draft Transportation Discipline Report* (Transpo Group, March 2017) includes data, methods, and analysis results to support this section of the EIS. The transportation system and analysis encompasses the various transportation modes utilized by campus population, including the students, faculty, staff, and visitors to the campus. This report is included as **Appendix E** of this EIS.

3.12.1 Affected Environment

Overview

This section describes the current transportation system that serves the campus. The existing transportation system including street system, pedestrian and bicycle transportation, transit service, traffic volumes, traffic operations, traffic safety and campus parking are described. **Figure 3.12-1** illustrates the transportation study area.

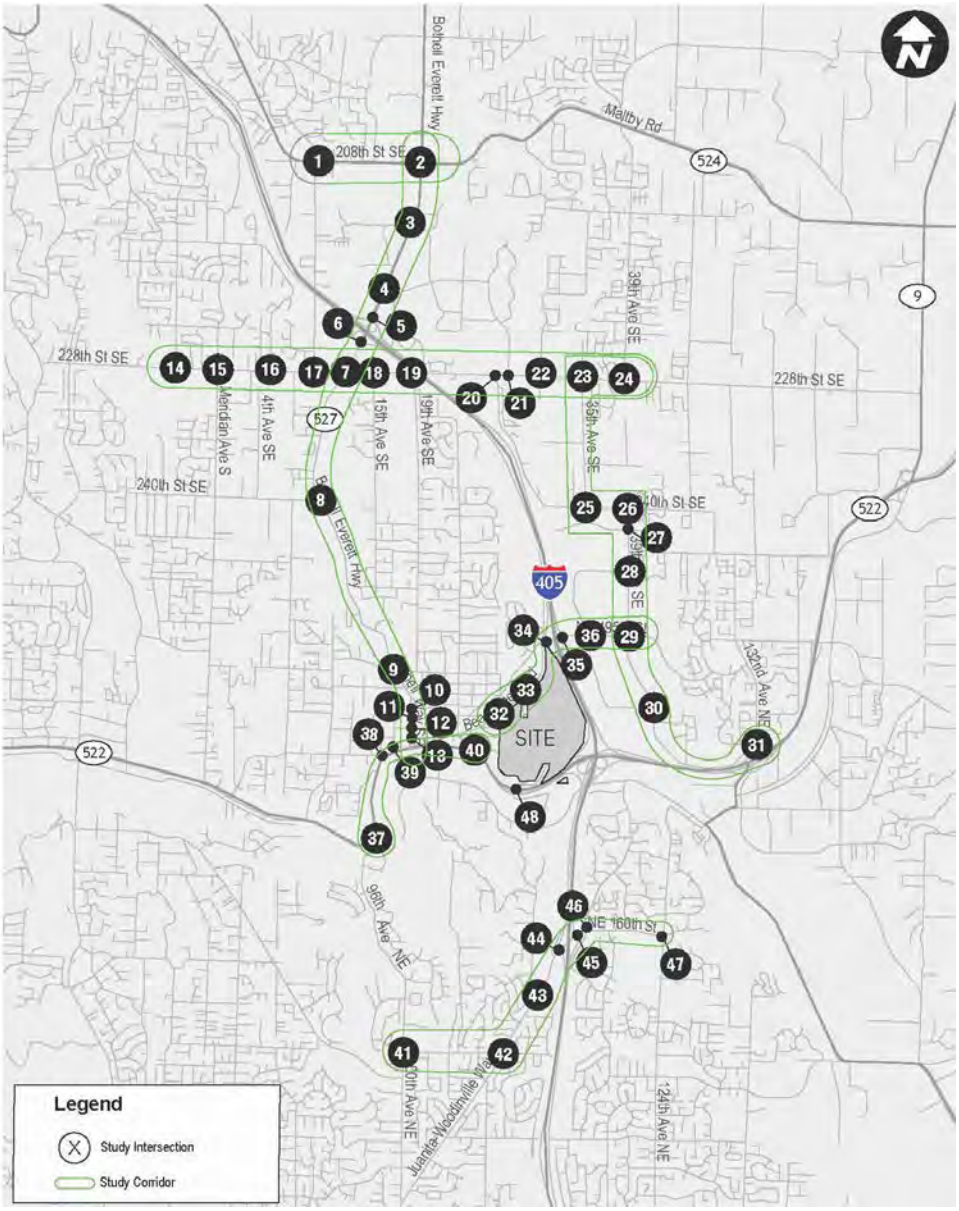
Street System

The Campus is bounded by Interstate 405 (I-405) to the east, SR 522 to the south, and residential neighborhoods to the west and Beardslee Boulevard to the north. It is served by Beardslee Boulevard, a minor arterial and SR 522, a principal arterial. Campus Way NE is the main roadway within the campus with signalized intersections with both Beardslee Boulevard and SR 522. Regional access to the campus is provided via the I-405 interchange at Beardslee Boulevard and SR 522/I-405 interchange that is accessed via Campus Way NE at the southern end of the campus.

Pedestrian and Bicycle Transportation

Sidewalks are provided throughout the campus and along the streets adjacent to the campus. On campus, several midblock crosswalks, with a rapid flashing beacons, connect the north and south garages to the academic buildings.

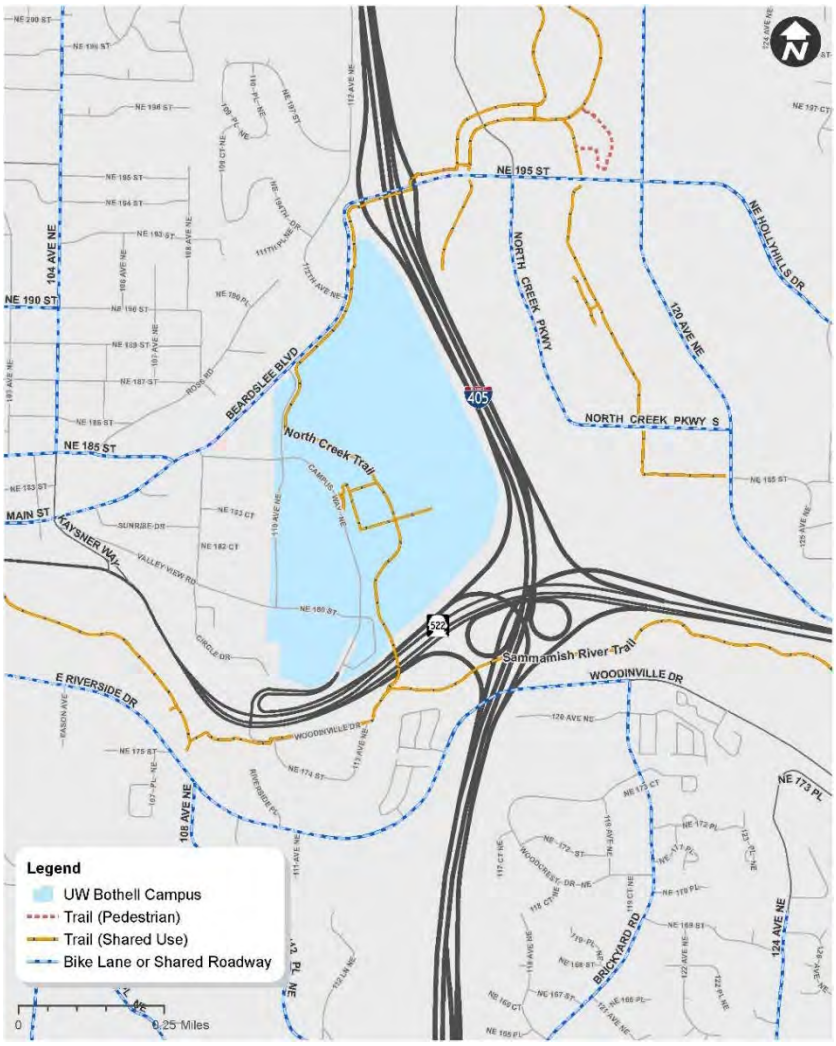
Figure 3.12-1 Study Area



Bicycle lanes are provided along Beardslee Boulevard between the I-405 Southbound Ramps and Main Street and east of the I-405 Northbound Ramps. There are no bicycle lanes or shoulders at the Beardslee Boulevard/NE 195th Street I-405 interchange so bicyclist must ride in-lane.

In addition, there are several regional trails located in the vicinity of the campus. This includes North Creek Trail, the Sammamish River Trail, and the Burke-Gilman Trail. An overview of the bicycle facilities is shown on **Figure 3.12-2**.

Figure 3.12-2 Existing Bicycle Facilities



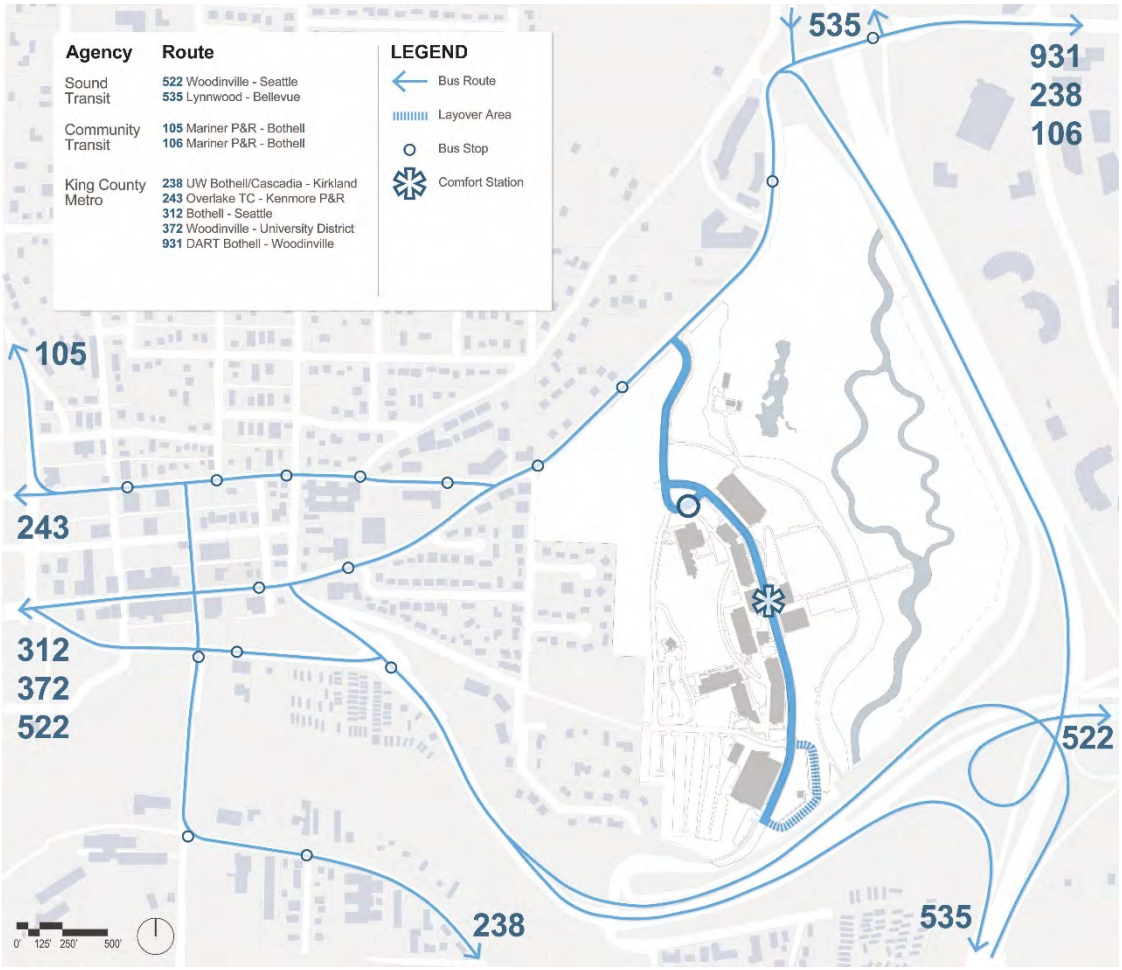
Transit Service

Transit service in the area is currently provided by King County Metro, Sound Transit, and Community Transit. There is a transit center on Campus located south of NE 185th Street along Campus Way NE. Transit to the campus serves both UW Bothell and CC. **Figure 3.12-3** illustrates the transit routes serving campus and the location of stops.

There are approximately 250 inbound and 250 outbound transit trips to and from the campus on weekdays with approximately 45 buses serving the campus during the morning and evening peaks. Observations at the existing transit center on-campus indicate that during peak periods the amount of space is inadequate and transit vehicles queue outside the transit center waiting to access the bus stops. Of the nine routes that serve the campus,

seven of them currently utilize the campus for layover as this represents the starting or ending points for the routes.

Figure 3.12-3 Existing Transit Routes



Traffic Volumes

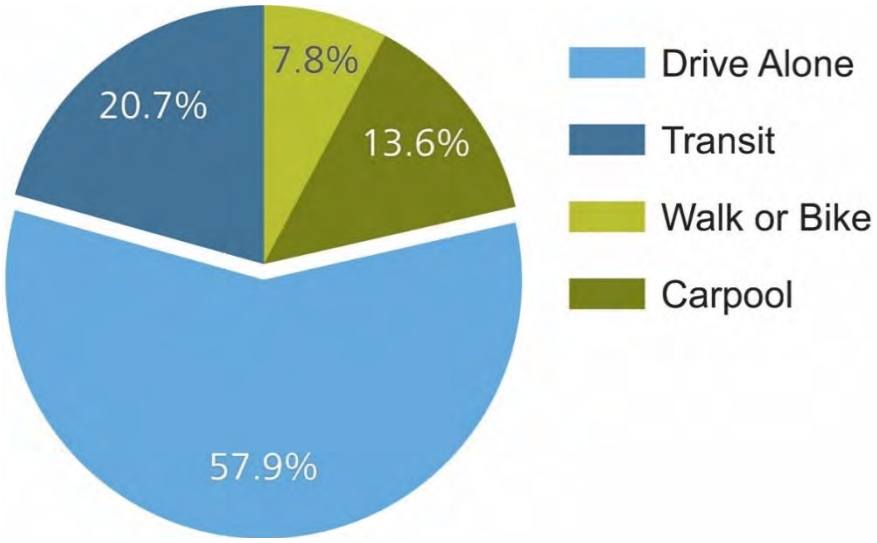
Based on the City concurrency requirements and the anticipated level of impact associated with the project, all concurrency corridors defined by the City of Bothell were evaluated.

Existing traffic counts at the study intersections were conducted in October 2016, November 2016 and January 2017. There are currently major roadway improvements underway in the Downtown area of Bothell; therefore, existing traffic counts were not conducted. Instead, existing traffic volumes for intersections within the Downtown were developed using the 2015 traffic counts included in the Comprehensive Plan and growing these volumes by 6 percent per year for 2-years. The growth rate of 6 percent is based on a comparison of 2015 and 2016 traffic counts for intersections just outside the Downtown

area. Traffic volumes for the corridors and intersections are included in the Transportation Discipline Report (**Appendix E**). Along Beardslee Boulevard, during the weekday peak hours, campus-related vehicle traffic represents approximately 19 to 23 percent of the traffic volume west of 110th Avenue NE and 33 percent of the traffic east of 110th Avenue NE.

Travel to campus occurs through personal vehicles, walking and biking, as well as transit. **Figure 3.12-4** indicates the existing mode splits for the campus as determined through intercept surveys conducted on-campus. As shown on the figure, the majority of travel to campus is currently via vehicle and mostly drive alone. However, there is a strong emphasis of the use of transit with approximately 21 percent of the respondents utilizing that travel mode for their commute.

Figure 3.12-4 Existing Campus Travel Mode Splits



Existing vehicle trips rates were calculated based on the October 2016 traffic volumes and supplemented by Fall 2015 data. Trip generation for the campus has two components: (1) commuter-related trips, inclusive of faculty, students, and staff, and (2) campus housing trips. Commuters and residents have different trip generating characteristics since on-campus residents typically drive less given that the campus is within walking distance.

Trip generation for use in transportation impact analyses are typically estimated based on students or beds for University/College uses. Based on previous experiences with similar University projects, total on-site student FTE provides the basis for estimating commuter trip generation and total beds is the basis for estimating residential trip generation. Determination of the existing commuter and residential trip rates for the campus is further described in Transportation Discipline Report (**Appendix E**) and summarized in **Table 3.12-1**.

Table 3.12-1
EXISTING WEEKDAY CAMPUS TRIP GENERATION SUMMARY

Time Period	Commuter[1]			Residential[2]		
	Trip Rate (per Student FTE)[3]	Trip Distribution		Trip Rate (per bed)[3]	Trip Distribution	
		In	Out		In	Out
Daily	2.12	50%	50%	1.37	50%	50%
AM Peak Hour	0.24	85%	15%	0.10	57%	43%
PM Peak Hour	0.25	40%	60%	0.17	43%	57%

Source: Transpo Group, 2017

1. Based on data collected in November and October 2016 and accounts for estimated off-campus parking.
2. Based on observations conducted Wednesday, October 28, 2015 and Thursday, October 29, 2015 at Husky Village housing.
3. FTE = full-time equivalent.

Traffic Operations

Corridor operations were reviewed in the study area consistent with the City of Bothell concurrency requirements. The corridor analysis method considers weekday PM peak hour level of service (LOS) at key intersections. Based on the level of impact associated with the continued student FTE growth on campus, the study area includes all concurrency corridors identified by the City. The corridor standard established by the City is LOS E. All the corridors currently operate at LOS D or better during the weekday PM peak hour.

The Beardslee Boulevard corridor LOS is currently LOS D during the weekday PM peak hour conditions; however, it is recognized that there are long queues within the corridor. The 95th-percentile vehicle queues were reviewed at the Beardslee Boulevard/110th Avenue NE and Beardslee Boulevard/108th Avenue NE intersections. The analysis shows that the eastbound queues back-up passed the existing Husky Village driveway located on the south side of Beardslee Boulevard during both the weekday AM and PM peak hours. The westbound weekday PM peak hour queues are approximately 500-feet during the weekday PM peak hour, which impedes access to the westbound left-turn pocket.

Traffic Safety

Collision records were reviewed within the study area to document any potential traffic safety issues. The most recent summary of collision data from WSDOT is for the three-year period between January 1, 2013 and December 31, 2015. The collision rate is representative of the number of collisions per one million entering vehicles (MEV) at each intersection. Intersections with a rate greater than 1.0 collision per MEV are typically flagged for further investigation to determine whether an adverse condition exists. Of the

four intersections identified for further investigation, improvements were completed recently at two to address safety issues.

Parking

The existing on-campus total parking supply includes 2,128 spaces for commuters1 and 144 residential parking spaces. An additional 172 stalls are provided at off-site leased locations. There is a total of 2,444 campus parking spaces considering both on- and off-site locations. On-campus and on-street parking utilization observations were completed on two mid-week weekdays during both mid-day (between 10 a.m. and 3 p.m.) and the evening (7 p.m.). It was assumed that all vehicles parked on-street during the peak period were associated with the campus. The peak parking rate was observed to occur at 12 p.m.

Based on the observations, an average peak parking demand for both residential and commuter students were calculated to determine the existing campus parking rate and is summarized in **Table 3.12-2**.

Table 3.12-2
EXISTING WEEKDAY CAMPUS PARKING DEMAND RATE SUMMARY

Population	Size[1]	Unit	Demand[2]	Rate
Commuter	7,605	Student FTE	2,327	0.31
Residential	241	Beds	103	0.43
Total Parking Demand			**2,430**	

Source: Transpo Group, 2017

1. FTE = full-time equivalent. Online and resident students are not included. The total on-campus commuter student FTE as of October 2016 was 7,605.
2. Parking demand based on data collection on October 11 and 19, 2016 with a 5 percent adjustment for commuter parking demand to capture parking that may be occurring off-campus on-street.

The parking rates were determined to be 0.31 vehicles per commuter student and 0.43 vehicles per residential student. The current peak campus parking demand rate was found to be 2,430 vehicles and observations confirmed that parking associated with the campus spills over onto adjacent streets.

3.12.2 Impacts

The scope of this DEIS transportation analysis has been based on information from the Autumn 2016 SEPA scoping period and coordination with City of Bothell staff. The following transportation elements are evaluated in this report:

[1] Inclusive of faculty, staff, visitors, and students.

- Street System
- Pedestrian and Bicycle Transportation
- Transit Service
- Traffic Volumes
- Traffic Operations
- Traffic Safety
- Parking

Alternatives 1 through 3 reflect development under the *Campus Master Plan* and impacts of Alternatives 1 through 3 are disclosed in terms of the comparison to the identified No Action Alternatives (2037) – Scenario A (Baseline) and Scenario B (Allowed in PUD). Changes in commuter population (student FTE), housing (beds), parking, campus access points, and the location of the transit center for the No Action Alternatives and Alternatives 1 through 3 are summarized in **Table 3.12-3.**

Table 3.12-3
EXISTING AND FUTURE CAMPUS CHARACTERISTICS

Metric	No Action Alternative Scenario A	No Action Alternative Scenario B	Alternative 1	Alternative 2	Alternative 3
Commuter Students (FTE)	7,605	9,759	8,800	9,400	9,400
Residential Students (Beds)	241	241	1,200	600	600
Parking Supply	2,500	4,200-6,600	3,700	3,700	4,200
Main Access Same as Existing?	Yes	Yes	Yes	Yes	No[3]
Transit Center Location	Existing	Existing	Existing	NE 185th St	Beardslee Blvd

Source: Transpo Group, 2017

1. Second access via Beardslee Boulevard would be provided.

Street System

The No Action Alternatives assume no change in campus vehicle access and circulation. A review of local and regional capital improvement programs and long-range transportation plans was conducted to determine planned funded and unfunded transportation projects that would impact the off-site study area. The review included, but was not limited to, the City of Bothell 2017 – 2022 Six Year Transportation Improvement Program (TIP) and Comprehensive Plan and transportation plans for Washington State Department of Transportation (WSDOT). All the major transportation improvements serving vehicles are anticipated to be completed by 2037; however, there are several that are currently not

funded. The unfunded transportation improvements are based on the City's 2035 Comprehensive Plan analysis and it is anticipated they would be evaluated for inclusion in the TIP as traffic demands increase and other planned projects are completed. Since the forecasted traffic reflects growth enabled by these improvements, the improvements themselves have also been included in the analysis of the intersection and corridors. The Transportation Discipline Report (**Appendix E**) provides a summary of the planned transportation improvements assumed as part of the traffic operations analysis.

Improvements along Beardslee Boulevard between NE 85th Street and 110th Avenue NE include a 5-lane cross-section (i.e., a second eastbound lane between NE 185th Street and 110th Avenue NE along the campus frontage) consistent with the Comprehensive Plan travel demand modelling. Improvements at the Beardslee Boulevard/NE 185th Street intersection do not assume realignment with the south leg of NE 185th Street and 108th Avenue NE; this is evaluated as part of Alternative 3. In addition, the Beardslee Boulevard/NE 185th Street intersection is assumed to have traffic signal control consistent with the Synchro model completed for the Comprehensive Plan analysis. Further analysis is being conducted by the City of Bothell and Sound Transit as part of Sound Transit 3 (ST3) where roundabout control is also being considered.

Pedestrian and Bicycle Transportation

The 2017 – 2022 TIP and Comprehensive Plan were reviewed to identify pedestrian and bicycle facility improvements within the off-site study area. Many of the planned street system improvements include sidewalk, bike lane, and ADA ramp improvements. Two specific improvements were identified in the study area including: (1) pedestrian crossing beacons at Beardslee Boulevard/ NE 185th Street and (2) a new trail along East Riverside Drive.

There are no on-campus pedestrian or bicycle improvements anticipated with the No Action Alternatives. Alternatives 1 through 3 identify traffic calming measures and improvements along Campus Way NE to reduce vehicle traffic and the resulting conflicts pedestrians and bicycles. Alternative 2 would facilitate Campus Way NE as the primary pedestrian and bicycle route on-campus by eliminating transit use along this street. Under Alternative 3, direct access from Beardless Boulevard to Campus Way NE would be eliminated by having the 110th Avenue NE access directly to the parking garage. Alternative 3 would also provide a primary pedestrian connection through the center of the campus connecting to the proposed transit center along Beardslee Boulevard.

Transit Service

As discussed previously, King County Metro, Sound Transit, and Community Transit all provide service to the campus. The 2017-2022 TIP, Comprehensive Plan, and Sound Transit, Community Transit, and King County Metro transit plans were reviewed to determine

potential transit improvements that may impact the campus by 2037. Key improvements in the immediate vicinity of the campus include transit along NE 185th Street and the I-405 Bus Rapid Transit (BRT) stop at the Beardslee Boulevard interchange. Specific transit service plans for the agencies serving the campus include:

- **King County Metro Connects.** This is a long-range vision adopted by King County. Service to the Campus would include a new RapidRide line providing 15-minutes headways all-day, additional service connecting to future Sound Transit LINK light rail, and all-day 15 to 30 minute headways. RapidRide is King County Metro's BRT service.
- **Community Transit Swift.** Swift is Community Transit's BRT. Community Transit plans to have Swift service to the campus by 2017. This service would provide 12 to 20 minute headways all-day.
- **Sound Transit BRT.** Sound Transit is planning BRT service to the campus. This service would be along NE 185th Street and transit enhancements would be provided along the corridor to facilitate service. It is anticipated this service would begin by 2024.

A review of existing conditions indicates that the existing transit center is inadequate to accommodate the current service; therefore, it is anticipated under the No Action Alternatives, without improvements, these facilities would continue to be inadequate and there would be additional buses queuing outside the transit center waiting to access the bus stops. The transit access and circulation, pedestrian accessibility, efficiency, and safety were reviewed for Alternatives 1 through 3.

Transit Access and Circulation

Alternatives 1 through 3 would increase the number of bays and layover space compared to the No Action Alternatives; however, Alternative 1 proposes up to four bays, which would be insufficient to accommodate existing and future increases in transit service.

Under Alternative 2, circulation along NE 185th Street would be two-way with buses entering and exiting the transit center via Beardslee Boulevard either at NE 185th Street or 110th Avenue NE depending on the bus route. This would be consistent with future transit plans to provide transit oriented improvements and BRT along the NE 185th Street corridor. With two-way circulation, intersection improvements would be needed at the Beardslee Boulevard/NE 185th Street/108th Avenue NE intersection to accommodate transit service. These improvements will be further considered as part of the Sound Transit NE 185th Street transit corridor evaluation under ST3. The Alternative 2 transit center with up to eight bays would accommodate existing transit service and likely be sufficient for planned increases in transit service to the Campus.

The proposed transit center along Beardslee Boulevard would be inconsistent with planned improvements for NE 185th Street as a transit corridor. Transit circulation along Beardslee

Boulevard would be two-way; however, given the proposed on-campus street system it would be difficult for buses terminating at the campus to turnaround. Turning around would need to be accomplished through the City's street network and would mostly require buses to either head towards Downtown or to the east side of the I-405 interchange. This routing could substantially increase travel times and delays for transit. The Alternative 3 transit center with up to six bays would accommodate existing transit service. The Alternative 3 transit center layover would likely not be sufficient to accommodate planned increases in transit service to the campus since it allows for only one additional bus compared to existing observations, which show 5 buses at one time.

Pedestrian Accessibility

Pedestrian access to the transit facilities across Alternatives 1 through 3 would vary slightly from No Action Alternatives. Comparing walk times from the southern end of the campus near the Campus Way NE/NE 180th Street intersection, Alternative 1 would have the same walk time as the No Action Alternatives while Alternatives 2 and 3 could increase walk times by approximately 2-minutes. The overall walk times for the Alternatives would be under 10-minutes, which would be reasonable to transit access.

Efficiency

Transit efficiency was reviewed in terms of the potential for excess circulation to or from the campus. The Alternative 1 efficiency of the transit circulation would be consistent with existing and No Action Alternative conditions. There would be no additional circulation required to access the campus transit facilities. Traffic calming is proposed along Campus Way NE; the specific improvements implemented would need to consider transit operations along the corridor with Alternative 1

Under Alternative 2, the location of the transit center on NE 185th Street would maintain consistency with long term City of Bothell plans to utilize NE 185th Street as a transit corridor. Without improvements at the Beardslee Boulevard/110th Avenue NE intersection, added delays from circulation could result in an adverse impact given the long queues anticipated under Alternative 2.

Alternative 3 would result in circuitous and inefficient routing for end of the line buses needing to layover or turnaround. In addition, traffic operations analysis shows that the Beardslee Boulevard/110th Avenue NE intersection would have vehicle queues extending into the transit center during the peak periods. Without improvements to this intersection, it is anticipated that transit operations would be adversely impacted.

Alternative 3 would improve layover operations for transit by incorporating this into one location. Transit would be able to park once rather than moving buses to layover.

Both Alternatives 2 and 3 would improve layover operations for transit by incorporating this into one location. Transit would be able to park once rather than moving buses to layover.

Safety

Pedestrian and vehicle conflicts along Campus Way NE with transit would remain under Alternative 1 but would be eliminated under Alternatives 2 and 3. Alternative 1 would likely see an increase in conflicts along Campus Way NE between modes compared to No Action Alternative – Scenario A given the increase in transit services as well as the anticipated increase in campus population. On-campus congestions due to transit layovers and on-campus routes would also be eliminated under Alternatives 2 and 3. However, Alternative 2 could result in pedestrian and transit conflicts for crossings along NE 185th Street between the Husky Hall and Husky Village areas and Alternative 3 would result in additional conflicts along Beardslee Boulevard between pedestrians, transit and general vehicular traffic. Pedestrian enhancements would be needed for all Alternatives to mitigate pedestrian conflicts along Campus Way NE, NE 185th Street and Beardless Boulevard as appropriate.

Traffic Volumes

Traffic forecasts for the Scenario A 2037 baseline conditions were determined based on annual growth rate of 2 percent from the adopted Bothell Comprehensive Plan. The Baseline 2037 forecasts were determined by applying the 2 percent per year growth rate to the existing traffic volumes. It is noted that forecasting method generally resulted in forecasts that were similar to or higher than the 2035 Comprehensive Plan forecasts that included campus growth. For the No Action Alternative – Scenario A conditions during the weekday peak hours, campus-related vehicle traffic would make up approximately 14 to 17 percent of the traffic volume along Beardslee Boulevard west of 110th Avenue NE and 25 percent of the traffic east of 110th Avenue NE.

The No Action Alternative – Scenario B, in addition to Alternatives 1 through 3, assumes increases of on-campus student FTE to a maximum of 10,000 on-campus student FTE population. **Table 3.12-3**, presented previously, denotes the anticipated student FTE for both commuter and residential populations. **Table 3.12-4** summarizes the estimated weekday daily, AM peak hour, and PM peak hour trip generation for the No Action Alternative – Scenario B and Alternatives 1 through 3. The No Action Alternative – Scenario A trip generation would be consistent with existing conditions since no growth is assumed.

Table 3.12-4
NO ACTION ALTERNATIVE – SCENARIO B AND ALTERNATIVES 1-3 ESTIMATED WEEKDAY DAILY AND PEAK HOUR VEHICLE TRIPS

Trip Type	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
No Action Alternative – Scenario B							
Future Commuter	20,690	1,991	351	2,342	976	1,464	2,440
Future Residential	330	14	10	24	18	23	41
Total Future Trips[1]	21,020	2,005	361	2,366	994	1,487	2,481
Net New Trips[2]	***4,590***	***456***	***75***	***531***	***224***	***344***	***568***
Alternative 1							
Future Commuter	18,660	1,795	317	2,112	880	1,320	2,200
Future Residential	1,640	68	52	120	88	116	204
Total Future Trips[1]	20,300	1,863	369	2,232	968	1,436	2,404
Net New Trips[2]	***3,870***	***314***	***83***	***397***	***198***	***293***	***491***
Alternative 2							
Future Commuter	19,930	1,918	338	2,256	940	1,410	2,350
Future Residential	820	34	26	60	44	58	102
Total Future Trips[1]	20,750	1,952	364	2,316	984	1,468	2,452
Net New Trips[2]	***4,320***	***403***	***78***	***481***	***214***	***325***	***539***
Alternative 3							
Future Commuter	19,930	1,918	338	2,256	940	1,410	2,350
Future Residential	820	34	26	60	44	58	102
Total Future Trips[1]	20,750	1,952	364	2,316	984	1,468	2,452
Net New Trips[2]	***4,320***	***403***	***78***	***481***	***214***	***325***	***539***

Source: Transpo Group, 2017

1. Future trips are based on existing trip generation rates.
2. Net New Trips are calculated by subtracting "Affected Environment" existing trips from future total trips.

As shown in the table, Alternatives 1 through 3 would all generate less net new trips than the No Action Alternative – Scenario B due to the provision of additional on-campus housing. The accommodation of student housing on-campus reduces the overall campus vehicle trips because residential students making fewer vehicle trips since they can walk or

bike to campus buildings. Alternative 1 would generate approximately 10-20 percent less trips compared to Alternatives 2 and 3 due to an additional 600 beds on-campus with Alternative 1. The proportion of campus-related traffic along Beardslee Boulevard during the weekday peak hours for Alternatives 1-2 would be 2 to 5 percent greater than the No Action Alternative – Scenario A and up to 2 percent less than No Action Alternative – Scenario B.

For Alternative 3, campus-related vehicle traffic during the weekday peak hours along Beardslee Bouelvard would make up a greater proportion of the traffic compared to No Action Alternative – Scenario A except west of 110th Avenue NE where traffic would decrease due to the second access point at 108th Avenue NE. The campus-related traffic for Alternative 3 compared to the No Action Alternative – Scenario B would be less.

Trip Distribution and Assignment

Net new trips for Scenario B and Alternatives 1, 2 and 3 were added to the Scenario A – Baseline conditions to forecast future 2037 conditions. Trips were distributed and assigned to the study area based on campus intercept surveys, zip code data for the campus population (i.e., students, faculty, and staff) as well as peak period traffic volumes at the Beardslee Boulevard and SR 522 access points. Outside the immediate study area, the project trip distribution was based on existing travel patterns and zip code data for the campus population.

The localized trip assignment to the north and south campus access points were determined through a capacity analysis at the north end of the campus and the allocation of on-site parking for each Alternative.

Traffic Operations

Corridor operations were evaluated based on the methods and assumptions described in Affected Environment. Signal timing was optimized for the No Action Alternatives and kept consistent for Alternatives 1, 2, and 3. The evaluation of all future scenarios also includes the improvements in the street system section and further in **Appendix E**. **Table 3.12-5** provides a summary of corridor LOS for all the Alternatives.

Table 3.12-5
NO ACTION ALTERNATIVE – SCENARIO B AND ALTERNATIVES 1-3 PM PEAK HOUR CORRIDOR LEVEL OF SERVICE SUMMARY

Corridor	No Action Alternative - Scenario A		No Action Alternative - Scenario B		Alternative 1		Alternative 2		Alternative 3	
	LOS[1]	Delay[2]	LOS[1]	Delay[2]	LOS[1]	Delay[2]	LOS[1]	Delay[2]	LOS[1]	Delay[2]
SR 524 (208th St SE/Maltby Rd) Corridor between 9th Ave SE and SR-527	E	56	E	58	E	57	E	58	E	58
SR 527/Bothell-Everett Hwy/Bothell Wy Corridor between SR-524 and SR-522	E	60	E	62	E	63	E	62	E	63
228th St SE Corridor between 4th Ave W and 39th Ave SE	E	69	E	70	E	71	E	70	E	67
39th/35th Ave SE/120th Ave NE/NE 180th St between 228th St SE and 132nd Ave NE	E	63	E	67	E	66	E	67	E	67
Beardslee Blvd/NE 195th St Corridor between NE 185th St and 120th Ave NE	E	75	E	78	E	77	E	78	E	78
SR 522 (NE Bothell Wy) Corridor between 96th Ave NE and Kaysner Wy	E	63	E	68	E	67	E	68	E	68
NE 145th St/Juanita-Woodinville Wy NE/NE 160th St between 100th Ave NE and 124th Ave NE	E	66	E	68	E	68	E	68	E	68

Source: Transpo Group, 2017

1. Level of service, based on 2010 Highway Capacity Manual methodology.
2. Average corridor delay in seconds (sec) per vehicle (veh) calculated by as a weighted average of intersections delays along the length of the corridor in seconds per vehicles.

As shown in the table, all the corridors would operate at LOS E under each analysis scenario and would meet the City's LOS E standard.

Although the LOS along Beardslee Boulevard shows LOS E conditions during the weekday PM peak hour for the Alternatives, it is recognized that there are long queues within the corridor. The 95th-percentile vehicle queues were reviewed at the Beardslee Boulevard/110th Avenue NE and Beardslee Boulevard/ 108th Avenue NE intersections to show how the Alternatives would impact queuing within the corridor. The No Action Alternatives and Alternatives 1 through 3 vehicle queues would impact access along Beardslee Boulevard on the south side of the corridor. Alternative 3 would also result in vehicles queues extending west of NE 185th Street. Further analysis is being conducted as part of ST3 at the Beardslee Boulevard/NE 185th Street intersection, which could lead to

alternate traffic control such as a roundabout and/or the identification of additional lanes to manage queues.

The campus access intersections of Beardslee Boulevard/ 110th Avenue NE and SR 522/Campus Way NE were also reviewed for the weekday AM and PM peak hours for the Alternatives. For Alternative 3 the proposed campus access at the Beardslee Boulevard/108th Avenue NE/NE 185th Street was also evaluated (see **Table 3.12-6**).

Table 3.12-6
ALTERNATIVES 1-3 ACCESS LEVEL OF SERVICE SUMMARY

Corridor	No Action Alternative Scenario A		No Action Alternative Scenario B		Alternative 1		Alternative 2		Alternative 3	
	LOS[1]	Delay[2]	LOS[1]	Delay[2]	LOS[1]	Delay[2]	LOS[1]	Delay[2]	LOS[1]	Delay[2]
AM Peak Hour										
Beardslee Boulevard/110th Avenue NE	B	17	C	21	B	20	C	21	B	19
SR 522/Campus Way NE	F	130	F	148	F	147	F	145	F	144
Beardslee Boulevard/108th Avenue NE[3]	-	-	-	-	-	-	-	-	C	22
PM Peak Hour										
Beardslee Boulevard/110th Avenue NE[3]	B	13	B	15	B	15	B	15	B	15
SR 522/Campus Way NE	D	45	F	82	E	77	F	80	F	80
Beardslee Boulevard/108th Avenue NE[3]	-	-	-	-	-	-	-	-	A	8

Source: Transpo Group, 2017

1. Level of service, based on 2010 Highway Capacity Manual methodology.
2. Average delay per vehicle in seconds

As shown in **Table 3.12-6**, delays at the campus access intersections under Alternatives 1, 2, and 3 would generally decrease when compared to the No Action Alternative – Scenario B and increase compared to No Action Alternative – Scenario A. Alternative 1 and 2 vehicle queues at the access intersections would be the same as or slightly less than conditions with No Action Alternative – Scenario B given that traffic volumes would be similar for these Alternatives. Compared to No Action Alternative – Scenario B, the Alternative 3 vehicle queues could be longer for some movements at the Beardslee Boulevard/110th Avenue NE intersection due to the additional access point along Beardslee Boulevard and the shifting traffic along Beardslee Boulevard with this new access point.

LOS F operations at the SR 522/Campus Way NE intersection are triggered due to the high traffic volumes along SR 522 during both the weekday AM and PM peak hours. The Action

Alternatives would result in less overall delay at this intersection compared to No Action Alternative - Scenario B.

Beardslee Boulevard Sensitivity Analysis

An analysis of conditions with and without the second eastbound lane along Beardslee Boulevard was conducted for all the Alternatives. The corridor operations and campus access intersection LOS would be similar with and without the second eastbound lane; however, eastbound vehicle queues along Beardslee Boulevard at 110th Avenue NE would nearly double. The vehicle queues would impact peak hour travel along the corridor and these conditions would occur with or without the *Campus Master Plan*.

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. Under Alternatives 1 through 3, traffic volumes are anticipated to be less than those of Scenario B, which could result in proportionally less potential vehicles conflicts. With previously noted planned improvements to intersection operations, non-motorized facilities, and roadway capacity, it is anticipated that safety issues would decrease within the study area.

Parking

Parking demand for Scenario A would be consistent with existing conditions since there is no change anticipated in on-campus population. The current peak parking demand is 2,430 vehicles and the campus parking supply of 2,444 spaces is at capacity. It is anticipated that under Scenario A during peak periods campus parking would continue to impact the adjacent street system consistent with current conditions and finding parking on-campus would be difficult.

Peak parking demands for No Action Alternative – Scenario B and Alternatives 1 through 3 were calculated based on the existing parking demand rates previously shown in **Table 3.12-2** and on the projected number of commuter and residential student FTEs shown in **Table 3.12-3**. Use of existing parking rates to project future demand represents a conservative analysis as transit service to the campus is expected to increase in frequency and modifications to the campus layout and transit access/circulation with the Action Alternatives would help the campus realize the full benefits of the increased service.

Table 3.12-7 provides a summary of the resulting peak parking demand and the recommended 85 percent utilization parking supply for each analysis alternative.

Table 3.12-7
FUTURE PEAK PARKING DEMAND BY ALTERNATIVE

Metric	Existing / No Action Alternative Scenario A	No Action Alternative Scenario B	Alternative 1	Alternative 2	Alternative 3
Commuter Demand	2,327 veh	3,030 veh	2,730 veh	2,910 veh	2,910 veh
Residential Demand	103 veh	100 veh	520 veh	260 veh	260 veh
Subtotal	2,430 veh	3,130 veh	3,250 veh	3,170 veh	3,170 veh
Recommended Supply[1]	2,800	3,600	3,740 stalls	3,650	3,650
Supply Increase Over Recommended Existing[2]	-	+800	+940	+850	+850

Source: Transpo Group, 2017

1. Recommended supply to attain 85 percent on-campus utilization.
2. Additional parking supply recommended as compared to the supply recommended to accommodate existing and No Action Alternative – Scenario A demand.

There are 2,128 parking spaces on-campus and an increase of 672 spaces (for a total of 2,800 spaces) is recommended to accommodate the current parking demand. An additional 800 to 940 spaces beyond what is needed to serve current demand would be recommended to accommodate the *Campus Master Plan*. As shown in **Table 3.12-7**, the recommended parking supplies are generally within the range of the proposed parking supply and it is anticipated that the parking demand would be fully accommodated on-campus.

Indirect/Cumulative Impacts

Indirect and cumulative impacts on area transportation system are included in the analysis of direct impacts. In addition, there is a potential for cumulative impacts due to the combined effects of traffic being generated by development of the *Campus Master Plan* and construction activities on campus and in the surrounding vicinity. This potential impact could be mitigated by scheduling construction activities such that arrival and departure of construction traffic occurs outside the peak hours.

3.12.3 Mitigation Measures

This section presents potential mitigation measures that would offset impacts of the Alternatives. Alternatives 1 through 3 result in less traffic to and from the campus and traffic operations that are generally better than the No Action Alternative – Scenario B (Allowed in PUD); therefore, on this comparative basis no mitigation would be required.

Proposed Transportation Management Program

With the goal of reducing reliance on single-occupancy vehicles (SOV) trips to the UW Bothell/Cascadia College campus, the Commuter Services Department currently provides transportation resources to students and faculty. Transportation impacts would continue to be mitigated through the implementation of the Transportation Management Program (TMP) to reduce overall SOV traffic and parking needs for the campus. Specific strategies would continue to be refined annually.

Other potential TMP strategies include, but are not limited to, maintenance or enhancements to programs related to:

- U-PASS
- Transit
- Parking Management
- Pedestrian and Bicycle Travel
- Telecommuting

Potential Roadway Improvements

The current PUD conditions with the City of Bothell require additional road right-of-way along the Beardslee Boulevard frontage (east of 110th Avenue NE) for future dedication sufficient to accommodate final road widening, as determined by the Director of Community Development and Public Works. In addition, a 10-foot wide utility easement is required adjacent to the new right-of-way on the campus side of Beardslee Boulevard. The agreement also notes that some of the additional right-of-way to be reserved is constrained by the wetland restoration which was required as part of the original campus development. Given the limits of the existing proposed *Campus Master Plan*, the right-of-way dedication could extend along the Husky Village frontage. Mitigation of project-related impacts along Beardslee Boulevard could include:

- Dedication of right-of-way for the City to provide improvements, or
- Payment of transportation impact fees (see discussion below)

Transportation Impact Fees

Development of the *Campus Master Plan* would require payment of the City of Bothell and Snohomish County transportation impact fee to mitigate potential off-site impacts of the proposal. Transportation impact fees are assessed based on increases in student FTE associated with the development of buildings on-campus. Impact fees would be calculated at the time of permitting for specific campus buildings.

3.12.4 Significant and Unavoidable Impacts

Development of the *Campus Master Plan* and increase in on-campus population to up to 10,000 student FTE by the year 2037 would result in increases in all travel modes – vehicles, transit, pedestrians, and bicycles. It is anticipated that with the proposed mitigation there would be no specific significant and unavoidable impacts related solely to campus growth.

The SR 522/Campus Way NE intersection would operate at LOS F under the No Action Alternative – Scenario B and Alternatives 1 through 3, and potential improvements at this location are limited due to right-of-way constraints. This is considered a cumulative significant and unavoidable adverse impact that would likely occur with or without the proposed *Campus Master Plan*.

As noted in the analysis of vehicle operations, the SR 522/Campus Way NE intersection is forecasted to operate at LOS F under all No Action Alternative conditions during the weekday AM peak hour. Congestion and poor intersection operations are largely due to growth along SR 522 as shown in the evaluation of the No Action Alternative – Scenario A conditions where campus growth is limited. On-going TMP measures implemented by the Campus would reduce overall campus trip generation and reduce related impacts at this intersection.

CHAPTER 4

Acronyms and References

CHAPTER 4
ACRONYMS

ARC	Activities and Recreation Center
BMC	Bothell Municipal Code
BMPs	Best management practices
BPD	Bothell Police Department
CACES	Chancellor's Advisory Committee on Environmental Sustainability
CB	Community Business
CC	Cascadia College
CC1	Cascadia College building 1
CC2	Cascadia College building 2
CC3	Mobius Hall
CIG	Climate Impacts Group
CMP	Campus Master Plan
CO	Carbon Monoxide
CO2	Carbon dioxide
CPS	Coalescing Plate oil/water Separator
dBA	Decibels
DAHP	Washington State Department of Archeological and Historic Preservation
DISC	UW Bothell's Discovery Hall
DEIS	Draft Environmental Impact Statement
DOH	Washington State Department of Health
EH&S	University of Washington Health and Safety
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
FTE	Full-time equivalent
IPCC	Intergovernmental Panel on Climate Change
GDC	General Downtown Corridor
GHG	Greenhouse gas
GMA	Growth Management Act
GSF	Gross square feet
HECB	Higher Education Coordinating Board
I-405	Interstate-405
IDP	Inadvertent discovery plan
kBtu	Kilo British Thermal Units
kWh	Kilowatt hour
LB1	Shared Library Building
LB2	Library 2
LBA	Library Annex
LEED	Leadership in Energy and Environmental Design
Leq	Equivalent sound level
LI	Light Industrial

LID	Low impact development
NO_2	Nitrogen dioxide
NRHP	National Register of Historic Places
$MTCO_2e$	Metric Ton Carbon Dioxide Equivalent
NAAQSs	National Ambient Air Quality Standards
NOx	Nitrogen oxides
OHWM	Ordinary high water mark
OP	Office-Professional
P	Park
PM2.5	Fine particulate matter
PM10	Course particulate matter
PPOS	Park and Public Open Space
PSE	Puget Sound Energy
PUD	Planned Unit Development
R-2,800	Residential-2,800
R-4,000/Mobile Home Park	Residential-4,000/MHP
R-8,400	Residential-8,400
R-9,600	Residential-9,600
R-AC	Residential-Activity Center
RCW	Revised Code of Washington
SB	Senate Bill
SBCTC	State Board of Community and Technical Colleges
SEPA	State Environmental Policy Act
SMP	Shoreline Master Program
SO_2	Sulfur dioxide
SR-522	State Route 522
SVV	Sunrise Valley View
TESC	Temporary Erosion and Sedimentation Control
TMP	Transportation Management Plan
EPA	United States Environmental Protection Agency
UW	University of Washington
UWB	University of Washington Bothell
UW1	Founders Hall
UW2	Commons Halls
VOC	Volatile organic compound
WAC	Washington Administrative Code
WCI	Western Climate Initiative
WHR	Washington Heritage Register
WISAARD	Washington Information System for Architectural and Archeological Records Data
WSAC	Washington Student Achievement Council
WSDOT	Washington Department of Transportation

REFERENCES

AGC of Washington Education Foundation and the Fugitive Dust Task Force. *Guide to Handling Fugitive Dust from Construction Projects*. February 2009.

ARCADIS U.S., Inc. *University of Washington / Cascadia College – Development Reserve Parcel.* April 13, 2015.

ARCADIS U.S., Inc. *University of Washington / Cascadia College – Development Reserve Parcel.* February 24, 2016.

Baum, Amy. *University of Washington Bothell – Wetlands Monitoring and Assessment Guide*. August 2010.

BOLA Architecture + Planning. *The Truly House & Chase Residence: Historic Resources Addendum*. October 13, 2016.

City of Bothell. *City of Bothell Municipal Code*. http://www.codepublishing.com/WA/Bothell/. Accessed 2017.

City of Bothell. *Design and Construction Standards and Specifications*. January 2017.

City of Bothell. *Downtown Subarea Plan and Regulations*. January 2011.

City of Bothell. *Imagine Bothell Comprehensive Plan.* July 2015.

City of Bothell. GIS Mapping System http://maps.bothellwa.gov/H5/index.html?viewer=COBMap. Accessed 2017.

City of Bothell. *Shoreline Master Program Update*. May 2012.

City of Bothell Fire and EMS. 2015 Annual Report. 2016.

City of Bothell Fire and EMS. City of Bothell Fire and EMS Website http://www.ci.bothell.wa.us/415/Fire-Emergency-Medical-Services-EMS. Accessed 2017.

City of Bothell Police Department. 2015 Annual Report. 2016.

City of Bothell Police Department. City of Bothell Police Department Website http://www.ci.bothell.wa.us/266/Police-Department. Accessed 2017.

Climate Impacts Group. *Climate Impacts in Brief. http://www.cses.washington.edu/cig/pnwc/ci.shtml.* Accessed February 7, 2008.

Gold, Warren. *UW Bothell Wetland Restoration Summary*.

Intergovernmental Panel on Climate Change (IPCC). *Fifth Assessment Report*. November 2014.

Intergovernmental Panel on Climate Change (IPCC). *Fifth Assessment Report - Summary for Policymakers*. November 2014.

King County. *SEPA Greenhouse Gas Emissions Worksheet*. http://www.kingcounty.gov/depts/permitting-environmental-review/info/SiteSpecific/ClimateChange.aspx. 2015.

Manning, Jay. *Ecology Memo RE: Climate Change – SEPA Environmental Review Proposals*. April 30, 2008.

Salmon-Safe Inc. *Report of the Evaluation regarding Salmon-Safe Certification of University of Washington Bothell/Cascadia Community College Bothell, Washington*. January 24, 2008.

Tree Solutions, Inc. *University of Washington, Bothell Campus – Level 1 Tree Assessment.* January 23, 2017.

University of Washington. *2010 Bothell Campus Master Plan*.

University of Washington Bothell. *Annual Security and Fire Safety Report*. 2016.

University of Washington Bothell. *Campus Safety Department Security Call Records*. January 2015 through December 2016.

University of Washington Bothell. U*W Bothell Fast Facts. https://www.uwb.edu/about/facts/archive*. Accessed 2017.

University of Washington Bothell. *Sustainability Dashboard. https://www.uwb.edu/sustainability/dashboard*. Accessed 2017.

University of Washington, Bothell & Cascadia Community College. UW-REN Capstone Field Trip - *North Creek Stream Channel & Floodplain Wetlands Restoration Project*. November 2006.

University of Washington Campus Safety Department. *2016 Fire Incident Log. http://www.uwb.edu/getattachment/safety/uw-bothell-fire-log-2016.pdf*. Accessed 2017.

U.S. Census Bureau. *2015 American Community Survey Data*. Accessed 2017.

U.S. Census Bureau. *2015 US Census Data*. Accessed 2017.

U.S. Environmental Protection Agency. 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Prepared by Bolt, Beranek and Newman (Contract 68-04-0047). December 31, 1971.

U.S. Environmental Protection Agency; Office of Noise Abatement & Control. *Noise Pollution*. 1972.

U.S. Environmental Protection Agency; Office of Noise Abatement & Control. *Noise: A Health Problem*. 1978.

U.S. Fish and Wildlife Service, *Endangered Species Act of 1973*. Accessed 2017.

Washington Higher Education Coordinating Board. *Cascadia Community College and University of Washington Bothell Draft EIS*. 1995.

Washington Higher Education Coordinating Board. *Cascadia Community College and University of Washington Bothell Final EIS*. 1995.

Washington, Office of the Governor. Executive Order No. 07-02. 2007.

Washington State Department of Archaeological and Historic Preservation. *WISAARD online GIS tool*. http://www.dahp.wa.gov/. Accessed 2017.

Washington Department of Ecology. Chapter 173-441 WAC – *Reporting of Emission of Greenhouse Gases*. 2010.

Washington State Legislature. *Maximum Environmental Noise Levels. Chapter 173-60 WAC.*

APPENDIX A

Distribution List

UW Bothell CMP Draft EIS Distribution List

Name
Neighborhood
Janet & John Bailey
Chris & Janis Newman
Susan Falley
Tony & Maki Dalzell
Amy Yarno
Steve & Parvin Pemberton
Norm Wright
Adrian & Rick Sowers
Tammy Urquhart
Jeanne Zornes
I kn
Shervin Churchill
Ann Aagaard
Sandy Guinn
Don & Becky Birch
Dyane & James White
Darren & Lilaine Leonardo
Mike Rue
Rosemary Sutton
Greg Smith
Jannelle Loewen
Robert and Gina Blum
Colby Sienkiewicz
Julia Edwards
Jen Hernandez-Hanson
Gordon Loewen
Christine & Doug Heric
Unnamed Email Address
Unnamed Email Address
Unnamed Email Address
Unnamed Email Address
Unnamed Email Address
Unnamed Email Address
Unnamed Email Address
Katherine Podany
Credit Consultants
Geoff & Lynn Lyons
Valley View Northwest, LLC

Sadie Rosenthal & R. Wright
Merrie Duryee
David Cogan & Jeanne Collet
Jagdeep Bhargava
Lynda Carey
Stacey Gaut
Elizabeth Bruno
Corry Rogers
Patricia Shaich
Richard Johnson
Karen Spence
Margaret Blanchard
Robert & Jena Deland
Travis Whetman
Rodney Currey
Bonita Brightwell
Marcia Remington
Adrienna Renner
Alex Givens
Gail Boyd
Sheila Hunter
Patrick & Mary Duggan
Kathleen Cody

Marilyn Lyness
Steven & Mary Tucker
Lawrence & Mary Campbell
Jeffrey & Barbara Boettcher
Minh Ho & Xu Klu
Jesus Perez & Alison McNee
Jon & Sarah McKinnon
Douglas & Cynthia Wiese
Peter & Leida Kaskes
Faye & Daniel Kaufmann
Brooks Bennett
Christopher & Sivyer Bain
Harvey & Diane Kelly
Janet Hingson
Timothy & Tessie Douglas
Mercury Holdings, LLC
Donald & Janice Ennis
Matthew & Sarah Albertson
David & Donna Cox
Malena Preston
Danielle Choppa
Corry Holme & Demico Rogers
Joshua Siegel

Ronald & Susan Runyon
Stephen & Nancy Reid
Dwight Hawkes
Gary Snell
Deborah Shield
Jim & Moureen Bruins
Steven & Mary Hendrickson
Joseph & Sandra Merceri
Glenn & Katherine Podany
Kevin Christenson
Roger Byron
Audrey Saksa
Bruce & Jeanne Zornes
EPC Holdings 561 LLC
TKM Corporation
Tocca Terra Investment Group LLC
Beardslee Heights Apts LLC
Beardslee Heights Apts LLC
Boriotti/Phillips LLC
Shu Weanling
Parkview Services
Tolbert & Michiko/Dede Rick
Richard Silcom & Al Blanding

Steven & Mary Towey
Jeffrey Stern
Scott Shafer
Cynthia Gyger & Carol E.
Debbie & David Wienckoski
Brian & Jody Williams
Mercury Holdings, LLC
Darren & Julie Davidson
Timothy & Sarah Lllewellyn
Lorraine & Kenneth Ott
FBN Funding Corporation
Adrian Cotiga
Nancy Russell
Smith Family Trust
Lisa Thomson Wortman
Jeremy Mseitif
Kristina & Genna Gustavsen
Kenneth Christiansen
Eric Schaffer
Alan & Karen Pelton
David Sylvester & Jin Jung
Daniel & Leticia Amador
Ron & Emily Austin

Robert Gordon
Dennis Behrens
Mary Ellen Green & Bi Dalziel
Jessica & Jamie Harvey
David Tall
William & Lisa Carswell
Charles Gaylord
Brookstone Development, Inc
Timothy Rogers
Michael Rue & Candance Gil
Bruce Boytler
Emmett Edward Maloof LLC
Samuel & Mei Tang
Erik Robson
Shawn O'Neill
Tolli & Joanna Lowell-Forker
Vandana & Stephen Whitney
Frances Cella
Jeffrey & Cheryln Stover
Ronald & Ouided Gompertz
Stacy Gregory
Zifu Wang
Justice Israel

Thomas & Anne Larsen
Mark Coles
Hugh & Jennifer Moag
Ronald & Kirsten Risden
Sandra Raymond
Mark Sigl & Denise Williams
Dennis & Victory Snyder
James & Marsha Hebert
Robert & Kathryn Richmond
Michael Rue& Austin
Nancy Pipinich
Erica & Velta Ernesons
Said & Mina Mahmood Asaidali
Gerald Alfred
Edwin Dahl
Greg & Jennifer O'Brien
Steven & Mary Conklin
Beryl Ingram & James Kathly
Gordon & Jannelle Lee
James Gorman
Curtis Cotant
Hyun Choi
Paul Weiden, MD

Campus View Apartments
Kim Miller & Sherri Lea
Mary Beth Davis
Dale Miller
Lin Yating
John Vilardi
Mark & Kristina Haight
Adam & Kyla Lewis
Dodd & Joana Willingham
Chad Bruttomesso
Lor Christopher
William & Deanna McCoy
Juli & Christopher Lorton
Bruce Collins
Alma Owens
David & Shawna Quigley
City of Bothell
David Boyd
City of Bothell - Planning
City of Bothell - Fire Chief
City of Bothell - Transportation
City of Bothell - Public Works
City of Bothell - Public Works

City of Bothell - Parks and Rec.
City of Bothell - Council Members
Andy Rheume
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Joshua Freed
Del Spivey
James McNeal
Tris Samberg
Tom Agnew
Agencies
SEPA Center Department of Natural Resources
Department of Ecology SEPA Unit Environmental Review Section
Office of EPA Enivornmental Protection Agency
Patty Hayes Director Seattle & King County-Public Health
James Irish Environmental Planner Sound Transit Link
Russell Holter Project Compliance Reviewer Dept. of Archeology & Historic Preservation
Executive Director Puget Sound Clean Air Agency
Isabel Tinoco Fisheries Director Muckleshoot Tribe
Puget Sound Energy
Libraries
Shingeko Podgorny Reference Division UW Suzzalo Library
Carla Rickerson NW Collection UW Suzzallo Library
City of Bothell - Library
UWB/CC Library
Staff
Kelly Snyder
Meagan Walker
Sara Gomez
Sally J. Clark
Julie Blakeslee
Kristine Kenney

Amy Van Dyke
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Valery Richardson
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Charles Kennedy Associate Vice President Facilities Services
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John Chapman Director Facilities Services
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Jeanette Henderson Director Real Estate Office
Aaron Hoard Deputy Director Regional & Community Relations
Alan Nygaard Director of Business Services CPD
Eric McArthur Project Manager CPD
Quentin Yerxa Associate Attorney General
Rob Lubin Housing & Food Services/SEPA Advisory Committee
Doug Gallucci Environmental Programs Office/ SEPA Advisory Committee
David Ogrodnik Environmental SEPA Advisory Committee
Frieda Taub Aquatic & Fisheries Sciences/SEPA Advisory Committee
Jane Koenig Environmental Health/SEPA Advisory Committee
Betsey McLaughlin Transportation Services/ SEPA Advisory Committee
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Todd Timberlake Chief Real Estate Officer, UWRE CPD
Christine Lavelle
Ruth Johnston
Eric Murray, President, Cascadia College
Terence Hsiao-Vice President, Cascadia College
Mike Kelly
Nancee Hofmeister
Janet McDaniel
Julie Miller, PhD
Sabine Thomas, PhD
Rosemary Sutton, PhD
Patricia Hutcherson, PhD
Dede Gonzales
Newspapers
Seattle Times
UW Today
UW Daily
Daily Journal of Commerce

Everett Herald

APPENDIX B

GHG Emissions Worksheets

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.

UW Bothell and CC Campus Master Plan - No Action Scenario B

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO2e)			**Lifespan Emissions (MTCO2e)**
			Embodied	Energy	Transportation	
Single-Family Home	0		98	672	792	**0**
Multi-Family Unit in Large Building	0		33	357	766	**0**
Multi-Family Unit in Small Building	0		54	681	766	**0**
Mobile Home	0		41	475	709	**0**
Education		386.1	39	646	361	**403660**
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		0.0	39	1,278	257	**0**
Vacant		0.0	39	162	47	**0**

Section II: Pavement

Pavement		0.00				**0**

Total Project Emissions: **403660**

UW Bothell and CC Campus Master Plan - Alternative 1

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO2e)			**Lifespan Emissions (MTCO2e)**
			Embodied	Energy	Transportation	
Single-Family Home	0		98	672	792	**0**
Multi-Family Unit in Large Building			33	357	766	**0**
Multi-Family Unit in Small Building	0		54	681	766	**0**
Mobile Home	0		41	475	709	**0**
Education		1,072.3	39	646	361	**1121069**
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		0.0	39	1,278	257	**0**
Vacant		0.0	39	162	47	**0**

Section II: Pavement

Pavement		0.00				**0**

Total Project Emissions: **1121069**

UW Bothell and CC Campus Master Plan - Alternative 2 and 3

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO2e)			**Lifespan Emissions (MTCO2e)**
			Embodied	Energy	Transportation	
Single-Family Home	0		98	672	792	**0**
Multi-Family Unit in Large Building	0		33	357	766	**0**
Multi-Family Unit in Small Building	0		54	681	766	**0**
Mobile Home	0		41	475	709	**0**
Education		907.3	39	646	361	**948564**
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		0.0	39	1,278	257	**0**
Vacant		0.0	39	162	47	**0**

Section II: Pavement

Pavement		0.00				**0**

Total Project Emissions: **948564**

Version 1.7 12/26/07

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

APPENDIX C

Wetland Technical Memorandums

Raedeke Associates, Inc.

Wetland & Aquatic Sciences
Wildlife Ecology
Landscape Architecture

TECHNICAL MEMORANDUM

March 6, 2017

To:	Mr. Rich Schipanski EA Engineering, Science, and Technology, Inc.
From:	Will Hohman, BS, PWS, Wetland Ecologist Emmett Pritchard, BS, Principal / Wetland Ecologist Annamaria Clark, BS, Wetland Technician Raedeke Associates, Inc.
RE:	UW Bothell Husky Hall & Husky Village Wetland, Streams, and Habitat Reconnaissance Summary (RAI Project No. 2016-087-001)

Per your request, this technical memorandum summarizes the site reconnaissance work performed to identify the presence and/or absence of wetlands, streams, and Washington Department of Fish and Wildlife (WDFW) designated Priority Habitats or Species (PHS) at the Husky Hall and Husky Village project sites (Project Location). The purpose of this memorandum is to provide preliminary planning, recommendations, and guidance regarding the approximate location of wetlands, streams, WDFW PHS, and/or critical area buffers on the project sites per Title 13 Shoreline Management and Title 14 Environment of the City of Bothell (2017) Municipal Code in accordance with the methods described below.

PROJECT LOCATION (EXTENT OF RECONNAISSANCE SERVICES)

For purposes of this analysis, the project consists of two study areas and is located on the University of Washington Bothell & Cascadia College campus within the City of Bothell, King County, Washington. Raedeke Associates, Inc. performed this site reconnaissance on two study areas totaling approximately 8.79 acres (Project) of the approximate 135-acre college campus. Specifically, the Husky Hall study area is made up of three parcels (Parcel Nos. 0826059095, 0826059300, and 0826059078) consisting of approximately 4.42 acres of a commercial building with associated parking and surrounding mixed growth scrub-shrub and forested areas. The Husky Hall study area is bound to the north by 185th street NE and Husky Village apartments, the east by 110th Avenue NE, the south by single family residential homes and a portion of the college campus parcel no.

0526059057, and to the west by 108th Avenue NE. The approximate 4.37-acre Husky Village study area (Parcel No. 0526059175) is made up of several apartment buildings, paved parking, landscaped areas, and a stormwater wet pond facility. It is bound to the north and west by Beardslee Boulevard, the east by the college campus Parcel No. 0526059057 and 110th Avenue NE, and the south by 185th street NE and Husky Hall site parcels. This analysis focuses on the two study areas known as the Husky Hall and Husky Village (Figure 1).

PROJECT DESCRIPTION

Per discussions via email and telephone with EA Engineering, Science, and Technology, Inc. (Mr. Rich Schipanski) on December 16, 2016 (Husky Hall site), February 22, 2017 (Husky Village site), the University of Washington is evaluating various development and re-development alternatives as part of a Draft Environmental Impact Statement being prepared to support the University of Washington Bothell (UW Bothell)/Cascadia College (CC) Campus Master Plan. The work performed herein describes results of the site reconnaissance work, preliminary wetland ratings for consideration during planning phases, estimated critical area buffers, and general regulatory requirements if critical areas, wetlands, and/or stream impacts are unavoidable at the project location.

METHODS

Raedeke Associates, Inc. (RAI) performed a site reconnaissance for the presence and/or absence of wetlands, streams, and WDFW PHS at the Husky Hall and Husky Village study areas. RAI did not delineate the natural areas nor were areas professionally surveyed during this work. Therefore, the locations and sizes of wetlands, streams, and buffers described herein should be considered approximate until otherwise verified, flagged, and professionally surveyed. The following describes the methods used to identify wetlands, streams, critical area buffers, and WDFW PHS areas at the project location.

Wetlands

The U.S. Army Corps of Engineers (COE) wetland definition was used to determine if any portions of the project area could be classified as wetland. A wetland is defined as an area “inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Federal Register 1986:41251).

We based our investigation upon the guidelines of the U. S. Army Corps of Engineers (COE) Wetlands Delineation Manual (Environmental Laboratory 1987) and subsequent amendments and clarifications provided by the COE (1991a, 1991b, 1992, 1994), as updated for this area by the regional supplement to the COE wetland delineation manual for the Western Mountains, Valleys, and Coast Region (COE 2010). The COE wetlands manual is required by state law (WAC 173-22-035, as revised) for all local jurisdictions, including the City of Bothell. As outlined in the COE wetland delineation manual, wetlands are distinguished by the presence of three diagnostic characteristics: hydrophytic vegetation (wetland plants), hydric soil (wetland soil), and wetland hydrology.

Streams

We based our investigation for the presence of streams within the project area on the definition of streams from the City of Bothell (2017) Municipal Code and Washington Administrative Code (WAC) 220-110-020.

Background Review

In preparation for our site investigation, we collected and analyzed background information available for the site prior to the on-site investigation. We collected maps and information from the U.S.D.A Natural Resources Conservation Service (NRCS 2017) Web Soil Survey and U.S. Fish and Wildlife Service (USFWS 2017) National Wetland Inventory on-line mapper, the Washington State Department of Natural Resources (WDNR 2017) on-line water types map. We also we accessed the online priority habitats and species (PHS) database maintained by Washington Department of Fish and Wildlife (WDFW 2016) to search for the occurrence or habitat of species of concern. Figures 2 and 3 depict soils and City of Bothell wetland inventory respectively. Additional information regarding the background information we reviewed is discussed in the results section of this report.

Field Sampling Procedures & Data Analysis

Raedeke Associates, Inc. staff visited the Husky Hall study area on December 21, 2016 and the Husky Village study area on February 24, 2017. We visually examined vegetation, soils, and hydrology in representative portions of the study area according to the procedures described in the Regional Supplement (COE 2010). Plant communities were characterized generally within the roadside right-of-way ditches, and soil, hydrology and vegetation data was collected at one sample plot.

We estimated the percent coverage of each species. Plant identifications were made according to standard taxonomic procedures described in Hitchcock and Cronquist (1976), with nomenclature as updated by the U.S. Army Corps of Engineers National Wetland Plant List (Lichvar, et. al. 2016). Wetland classification follows the USFWS

wetland classification system (Cowardin et al. 1992). We determined the presence of a hydrophytic vegetation community using the procedure described in the Regional Supplement (COE 2010), which requires the use of the dominance test, unless positive indicators of hydric soils and wetland hydrology are also present, in which case the prevalence index or the use of other indicators of a hydrophytic vegetation community as described in the Regional Supplement (COE 2010) may also be required.

We excavated pits to at least 18 inches below the soil surface in order to describe the soil and hydrologic conditions throughout the study area. We sampled soil at locations that corresponded with vegetation sampling areas and potential wetland areas. Soil colors were determined using the Munsell Soil Color Chart (Munsell Color 2009). We used the indicators described in the Regional Supplement (COE 2010) to determine the presence of hydric soils and wetland hydrology.

Critical area wetland buffer widths were evaluated based on the City of Bothell (2017) Municipal Code Title 14 Chapter 14.04 Critical Area Regulations (2017). Raedeke Associates, Inc. prepared a preliminary wetland rating for the wetlands observed during the two site visits per the 2014 Updates to the Washington Department of Ecology (WDOE 2014) Wetland Ratings Systems. Scores were converted utilizing WDOE's tables for converting category and function scores described on WDOE's website to date.

Off-site Evaluation

We reviewed recent aerial photos (Google Earth 2016) of the study areas and vicinity in conjunction with the background resource inventory maps provided by the King County, City of Bothell, and U.S. Fish and Wildlife Service (USFWS 2017) National Wetland Inventory on-line databases to determine whether off-site wetlands were located within 100 feet of the project study areas. In addition, we walked roads and other public access areas and campus property in the vicinity of the project location to verify the presence of any off-site wetland areas that had been identified during our background review and to determine whether other wetland areas were present that may not have been identified by the resource inventory maps and aerial photos.

RESULTS

During our visit of the Husky Hall site, we identified a small depressional wetland area located along the eastern boundary of the study area. The wetland is a closed depression located along the eastern property boundary in the southeast corner between the Husky Hall parking lot and 110th Ave NE. Based on property boundary markings we observed, this area appears to be within the right of way for 110th Ave NE and located just off site. The attached Figure 4 presents a sketch map showing the approximate location of the wetland. The wetland was not field flagged, professionally surveyed, nor has it been

reviewed by regulatory agencies. Figures 4 and 5, for the two project sites, are preliminary sketches for orientation purposes and to assist with initial preliminary site planning. Our preliminary analysis indicated that this wetland area (Husky Hall Wetland) meets the criteria to be classified as a Category III depressional wetland with 17 points per WDOE 2014 ratings and City of Bothell (2017) Municipal code. The required standard wetland buffer, based on wetland category and habitat score, would be 100 feet. It should be noted that the size and location of the wetlands described herein are approximate as shown on Figures 4 and 5. Figure 2 maps the entire site as Alderwood gravelly sandy loam, which is typically not a hydric "wetland" soil. However, in the location of the Husky Hall wetland hydric soil conditions were observed in the form of depletions (redoxomorphic features found in wetland soils) below a dark surface and saturated to the surface. Vegetation consisted of dominant herbaceous hydrophytes (wetland plants). Based on the soil, hydrology (saturated soils), and vegetation data collected within this depression, the area meets the criteria of a wetland per Environmental Laboratory 1987 and the COE 2010 regional supplement

During our site visit of the Husky Village study area, we identified a sloped wetland area that appeared to be located just off the site property and within campus property Parcel no. 0526059057. A stormwater pond was located within the Husky Village study area just west of the eastern property boundary. The stormwater pond was inaccessible at the time of our visit since it was completely enclosed in a fence with a locked gate. Signage clearly indicated its use as a stormwater facility associated with the Husky Village apartment complex.

The approximate location of the observed emergent scrub-shrub wetland located downstream of the stormwater pond along the eastern property boundary of the Husky Village study area is depicted on Figure 5. This wetland area is primarily seasonally fed by the stormwater pond's principal outfall pipe and another stormwater pipe associated with catch basins collecting stormwater from NE 185th street. It also does appear to have some groundwater influences and drains into a pipe that crosses 110th Avenue NE that discharges east of the roadway. Upon preliminary review, this wetland area (Husky Village) meets the criteria to be classified as a Category III sloped wetland with 16 points per WDOE 2104 ratings and City of Bothell (2017) Municipal Code. The required standard buffer, based on wetland category and habitat score, would be 100 feet for this wetland. Soils at the site are primarily mapped as Alderwood gravelly silt loam which is not a hydric soil except under certain circumstances. Figure 2 also maps soils within the vicinity of the wetland and stormwater areas on the eastern side of the study area as Seattle Muck which is a hydric "wetland" soil. Soils observed during the site reconnaissance exhibited thick dark surface soils overlaying depleted redoxomorphic soil features consistent with hydric soil conditions. Furthermore, soils were saturated to the surface. Dominant shrubs and herbaceous plant species consisted of hydrophytes (wetland plants). Based on the soil, hydrology, and vegetation data collected within this

sloped area, the area meets the criteria of a wetland per Environmental Laboratory 1987 and the COE 2010 regional supplement.

For both project areas, national wetland inventory maps do not show any wetlands within the Husky Hall study area, but it does show the stormwater pond on the Husky Village study area. City of Bothell and King County iMap online mapping programs do show the Husky Village wetland area described above. All three online wetland inventory maps do show wetlands on the eastern side of 110th Avenue NE. PHS maps also show wetlands to the east of the project study areas. No other priority habitat species were listed in the PHS search.

Based on the data we collected during this site reconnaissance, we did not observe or identify any wetlands, streams, or indications of wildlife use by any species of concern on either of the project study area's site parcels. Field flagging and professional survey of parcel lot lines and wetland areas discussed herein, would confirm the presence or absence of wetlands on the project parcels.

Off-site areas of concern that were separated by impervious uses such as roadways and not immediately adjacent to the project study areas consisted of a large wetland area and the North Creek stream located across 110th Avenue NE and east of the project study areas. Figure 3 depicts wetlands adjacent to North Creek. North Creek and any adjacent wetlands are considered to be under Shoreline Jurisdiction.

These results should be considered preliminary findings and the wetlands will need to be delineated, professionally surveyed, and rated for buffers prior to finalizing proposed work on or around the project study areas. The following section presents a brief summary of potential regulatory requirements to consider if proposed work will have unavoidable impacts to the wetlands or buffer areas described herein.

REGULATORY CONSIDERATIONS

Wetlands and streams are protected by Section 404 of the Federal Clean Water Act and other state and local policies and ordinances including the City of Bothell (2017) Municipal code. Regulatory considerations pertinent to wetlands identified within the study area are discussed below; however, this discussion should not be considered comprehensive. Additional information may be obtained from agencies with jurisdictional responsibility for, or interest in, the site. A brief review of federal and state regulations and local policy, relative to wetlands, is presented below.

If proposed project work cannot avoid or minimize impacts to buffers or wetlands described herein and unavoidable impacts are anticipated, the following presents a list of regulatory considerations to anticipate during project planning.

As an isolated wetland depression, The Husky Hall depressional wetland area is likely not federally regulated by the Army Corps of Engineers (ACOE). The Husky Village sloped wetland area may be regulated by the ACOE. However, the Husky Village wetland area would need to be further examined for connectivity to regulated waters and wetlands and additional information collected beyond the scope of services provided herein. Both wetland areas would be regulated at the Washington Department of Ecology (WDOE) and City of Bothell and would require permits from these agencies if impacts are unavoidable. City of Bothell online mapping indicates that the Husky Village wetland area is not part of Shoreline Jurisdiction. However, the pipe that drains the sloped Husky Village wetland under 110th Avenue NE would need to be further examined with the City of Bothell to determine if WDOE Shoreline Management Act Jurisdiction would apply in this situation. Supplemental information such as the pipe inverts, dimensions, lengths, sizes of contributory drainage areas, and the location of the nearest downstream wetland edge would assist the City in making a determination of WDOE Shoreline and ACOE jurisdiction over the Husky Village wetland area.

It is important to note that the decision as to whether or not the Corps or WDOE would take jurisdiction over these wetland areas ultimately lies with their jurisdictional authority and is based on the applicable regulations to date. Typically, WDOE requires information from the ACOE indicating whether or not a wetland area is federally regulated under ACOE jurisdiction. Generally, this is handled one of two ways and depending on the proposed project work, schedule, and timing:

- Apply for an approved jurisdictional determination (AJD) from the ACOE that has a 6+ months turnaround time from application submittal to receiving the AJD documentation, OR

- Assume that the wetland is federally regulated, apply for a preliminary jurisdictional determination (PJD), and apply for your applicable permit (3-6 months from application submittal, sometimes less). The amount/size of proposed impact(s) will determine if the project falls under a nationwide permit (which may or may not require submittal of an application) or an individual permit.

In any case, impacts to regulated wetlands would require applying for a permit with WDOE (3-6 month turnaround time from the time the application is submitted) and for State 401 Certification for water quality and coastal zone consistency for water quality

and work within a coastal county, respectively. If the wetlands are not federally regulated, then coastal zone consistency and 401 water quality would not be involved.

Any impacts to these wetlands and/or buffer, would have to go through the City's critical areas review process for buffer concurrence, reduction, and be appropriately mitigated through buffer averaging or buffer enhancements, as appropriate

Bothell has the final authority to determine ratings, buffers, and allowed uses of wetlands, their buffers, and other sensitive areas that are under their critical areas jurisdiction. During the development/re-development process, Bothell will need to evaluate and approve the projects impacts to critical areas such as wetland buffers. Impacts will need to be appropriately mitigated for per Bothell code. For Category III wetlands there is a 2:1 replacement:alteration ratio if project impacts are unavoidable.

The stormwater management area located on the Husky Village project site would need to be managed, maintained and operated per the stormwater management requirements for the City of Bothell and King County. Work in and around the outfall pipe that discharges into the adjacent wetland would need to be evaluated for and may require federal, state, and local wetlands permitting.

LIMITATIONS

We have prepared this report for the exclusive use of the University of Washington, EA Engineering, Science, and Technology, Inc., and their consultants. No other person or agency may rely upon the information, analysis, or conclusions contained herein without permission from the University of Washington or EA Engineering, Science, and Technology, Inc..

The determination of ecological system classifications, functions, values, and boundaries is an inexact science, and different individuals and agencies may reach different conclusions. With regard to wetlands, the final determination of their boundaries for regulatory purposes is the responsibility of the various agencies that regulate development activities in wetlands. We cannot guarantee the outcome of such agency determinations. Therefore, the conclusions of this report should be reviewed by the appropriate regulatory agencies prior to any detailed site planning or construction activities. This summary does not address other potential permitting necessary to perform work in these project areas.

We warrant that the work performed conforms to standards generally accepted in our field, and has been prepared substantially in accordance with then-current technical guidelines and criteria. The conclusions of this report represent the results of our analysis

of the information provided by the project proponent and their consultants, together with information gathered in the course of the study. No other warranty, expressed or implied, is made.

If you have any questions or comments, or wish to discuss this issue further, please contact myself or Mr. Emmett Pritchard at (206) 525-8122 or at whohman@raedeke.com and epritchard@raedeke.com.

ATTACHMENTS:

Figure 1: "Project Site Parcel Locations" RAI # 2016-087-001 (Raedeke Associates Inc.) Prepared February 28, 2017
Figure 2: "Hydric Rating by Map Unit" Natural Resources Conservation Services Web Soil Survey 2/28/2017
Figure 3: "City of Bothell Wetland Inventory" prepared February 28, 2017
Figure 4: "Sketch Map – Approximate Location of Husky Hall Wetland" prepared 02/24/2017
Figure 5: "Sketch Map – Approximate Location of Husky Village Wetland" prepared 02/24/2017

LITERATURE CITED

Bothell, City of. 2017 Title 14, Chapter 14.04 Critical Areas Regulations. Current through 2218, passed February 7, 2017. Accessed online at http://www.codepublishing.com/WA/Bothell/ on February 28, 2017.

Cowardin L., V. Carter, F. Golet, and E. LaRoe. 1992. Classification of wetlands and deepwater habitats of the United States. USDI Fish and Wildlife Service Publication. FWS/OBS-79/31. 131 pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, US Army Engineers Waterways Experiment Station, Vicksburg, Mississippi. 100 pp.

Federal Register. 1986. 40 CFR Parts 320 through 330: Regulatory programs of the Corps of Engineers; final rule. Vol. 51. No. 219. pp. 41206-41260, U.S. Government Printing Office, Washington, D.C.

Google Earth. 2016. Image for 47.761947 N, - 122.194049 E in City of Bothell, Washington © 2016 Google. Accessed February 28, 2017.

Hitchcock and Cronquist. 1976. Flora of the Pacific Northwest. Univ. of Washington Press, Seattle, Washington.

King County. 2017. iMap. Interactive Mapping Tool. http://gismaps.kingcounty.gov/iMap/. Accessed February 28, 2017.

Lichvar, Robert W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. U.S. Army Corps of Engineers, State of Washington 2016 Wetland Plant List.. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.

Munsell Color. 2009. Munsell soil color charts. Munsell Color, Grand Rapids, MI.

U.S. Army Corps of Engineers. 1991a. Special notice. Subject: Use of the 1987 wetland delineation manual. U.S. Army Corps of Engineers, Seattle District. August 30, 1991.

U.S. Army Corps of Engineers. 1991b. Memorandum. Subject: Questions and answers on the 1987 manual. U.S. Army Corps of Engineers, Washington D.C. October 7, 1991. 7 pp. including cover letter by John P. Studt, Chief, Regulatory Branch.

U.S. Army Corps of Engineers. 1992. Memorandum. Subject: Clarification and interpretation of the 1987 methodology. U.S. Army Corps of Engineers, Washington D.C., March 26, 1992. 4 pp. Arthur E. Williams, Major General, U.S.A. Directorate of Civil Works.

U.S. Army Corps of Engineers. 1994. Public Notice. Subject: Washington regional guidance on the 1987 wetland delineation manual. May 23, 1994, Seattle District. 8 pp.

U.S. Army Corps of Engineers. 2010. Regional supplement to the Corps of Engineers wetland delineation manual: western mountains, valleys, and coast region (Version 2.0). Wakeley, J.S., R.W. Lichvar, and C.V. Noble, eds. May 2010. ERDC/EL TR-10-3. U.S. Army Engineer Research and Development Center, Vicksburg, MS.

U.S. Army Corps of Engineers. 2012. Special Public Notice. Final Regional Conditions, 401 Water Quality Conditions, Coastal Zone Management Consistency Responses, for Nationwide Permits for the Seattle District Corps of Engineers for the State of Washington. U.S. Army Corps of Engineers, Seattle District. March 19, 2012.

U.S.D.A. Natural Resources Conservation Service. 2017. On-line Web Soil Survey. http://websoilsurvey.nrcs.usda.gov . Accessed February 28, 2017.

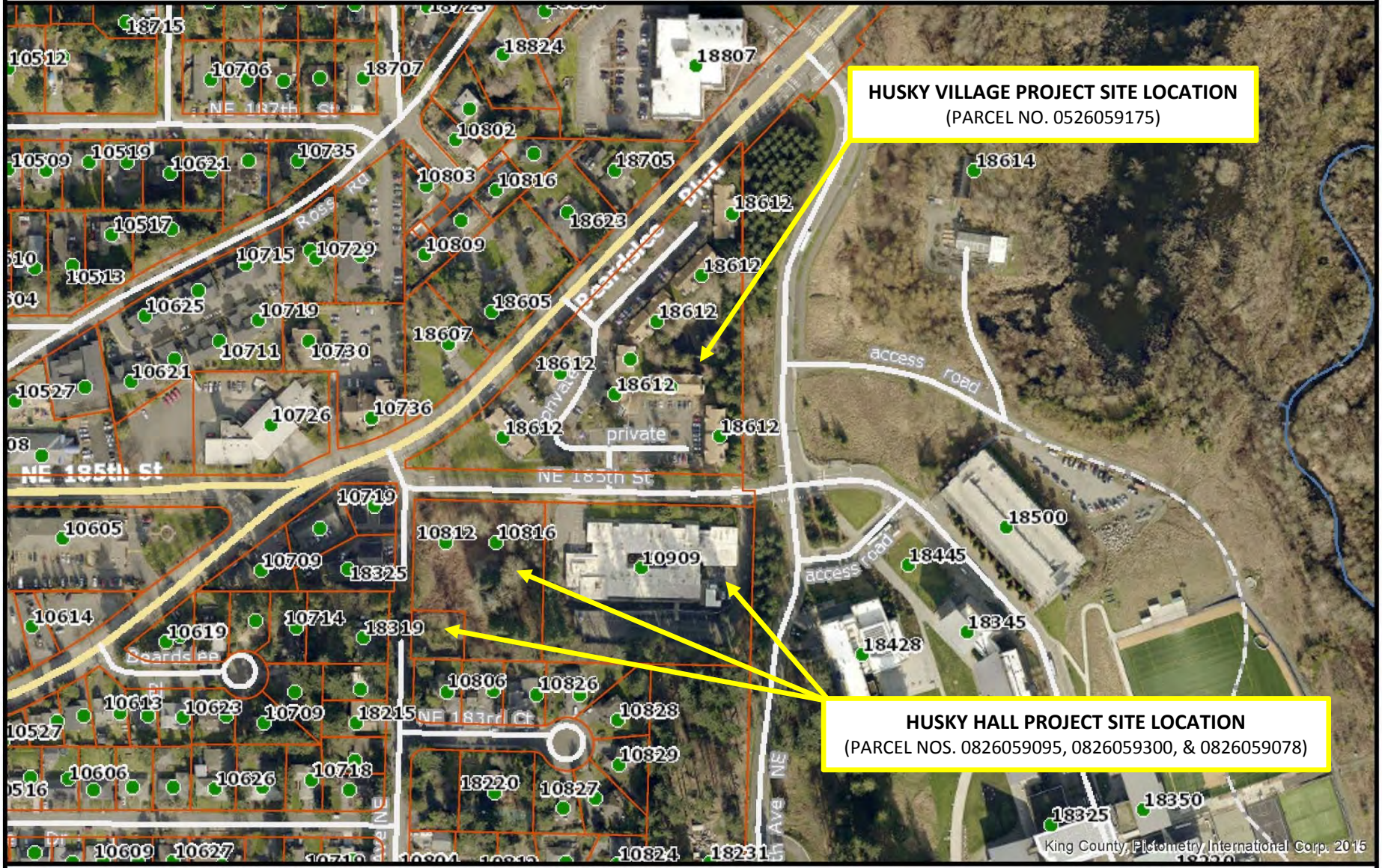
U.S. Fish and Wildlife Service National Wetland Inventory Wetland Mapper. 2017. https://www.fws.gov/wetlands/data/mapper.HTML

Washington State Department of Ecology. Washington State Wetland Rating System for Western Washington 2014 Update (Effective January 2015). Publication Number 14-06-029. October 2014.

Washington Department of Fish and Wildlife. 2016. Priority Habitat Species on the web. Available at: http://wdfw.wa.gov/mapping/phs/. Last accessed December 15, 2016.

Washington Department of Natural Resources Forest Practices Application Mapping Tool. 2017. https://fortress.wa.gov/dnr/protectiongis/fpamt/

King County iMap - Project Parcel Locations



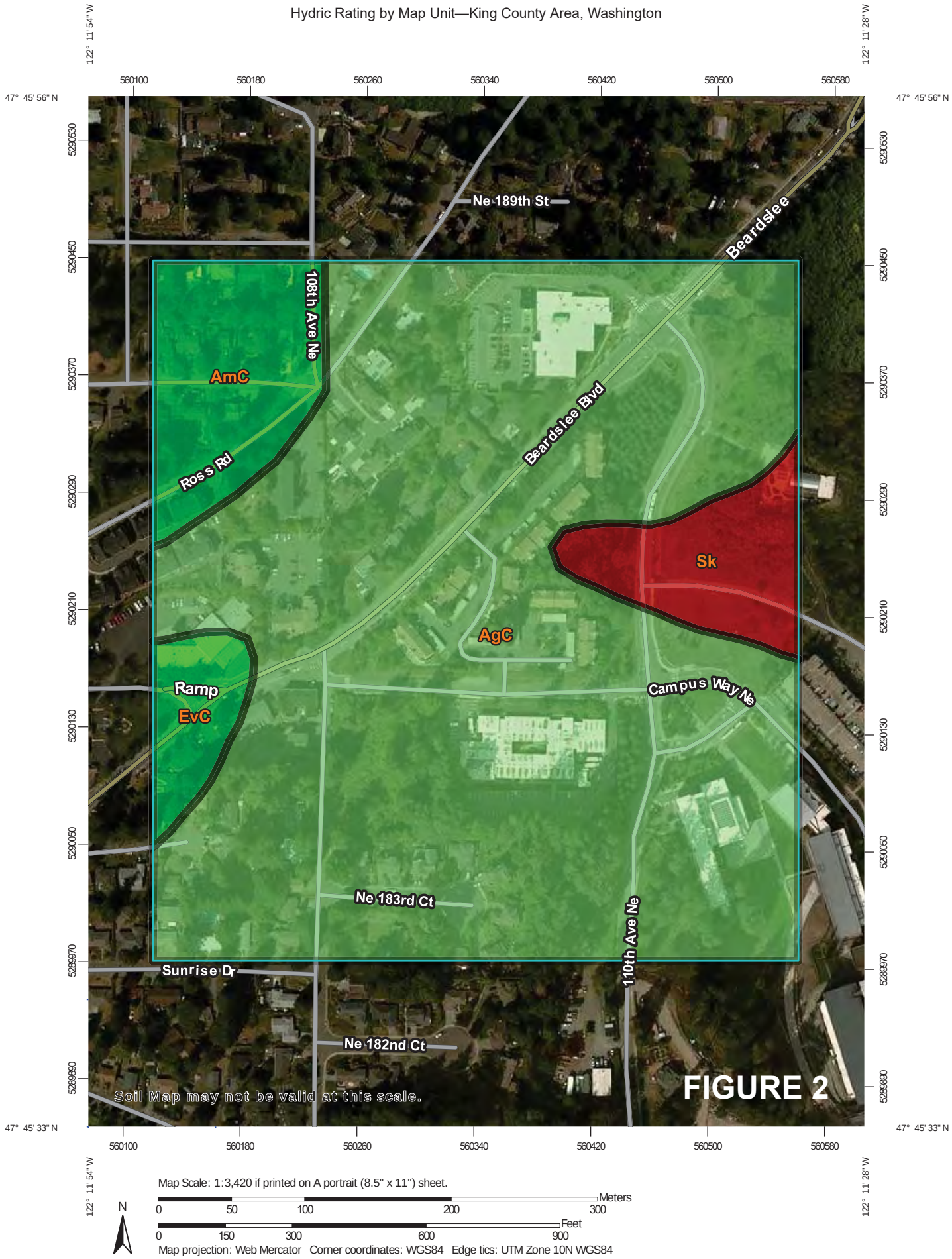
Date: 2/28/2017 Notes:

N

King County GIS Center

FIGURE 1 – PROJECT SITE PARCEL LOCATION

RAI PROJECT REFERENCE NO. 2016-087-001


122° 11' 54" W
122° 11' 28" W
47° 45' 56" N
47° 45' 33" N
560100
560180
560260
560340
560420
560500
560580
5290530
5290450
5290370
5290290
5290210
5290130
5290050
5289970
5289890
Ne 189th St
Beardslee
108th Ave Ne
AmC
Ross Rd
Beardslee Blvd
Sk
AgC
Ramp
EvC
Campus Way Ne
Ne 183rd Ct
110th Ave Ne
Sunrise Dr
Ne 182nd Ct
Soil Map may not be valid at this scale.
FIGURE 2
Map Scale: 1:3,420 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 50 100 200 300
Feet
0 150 300 600 900
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: King County Area, Washington
Survey Area Data: Version 12, Sep 8, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 31, 2013—Jul 8, 2014

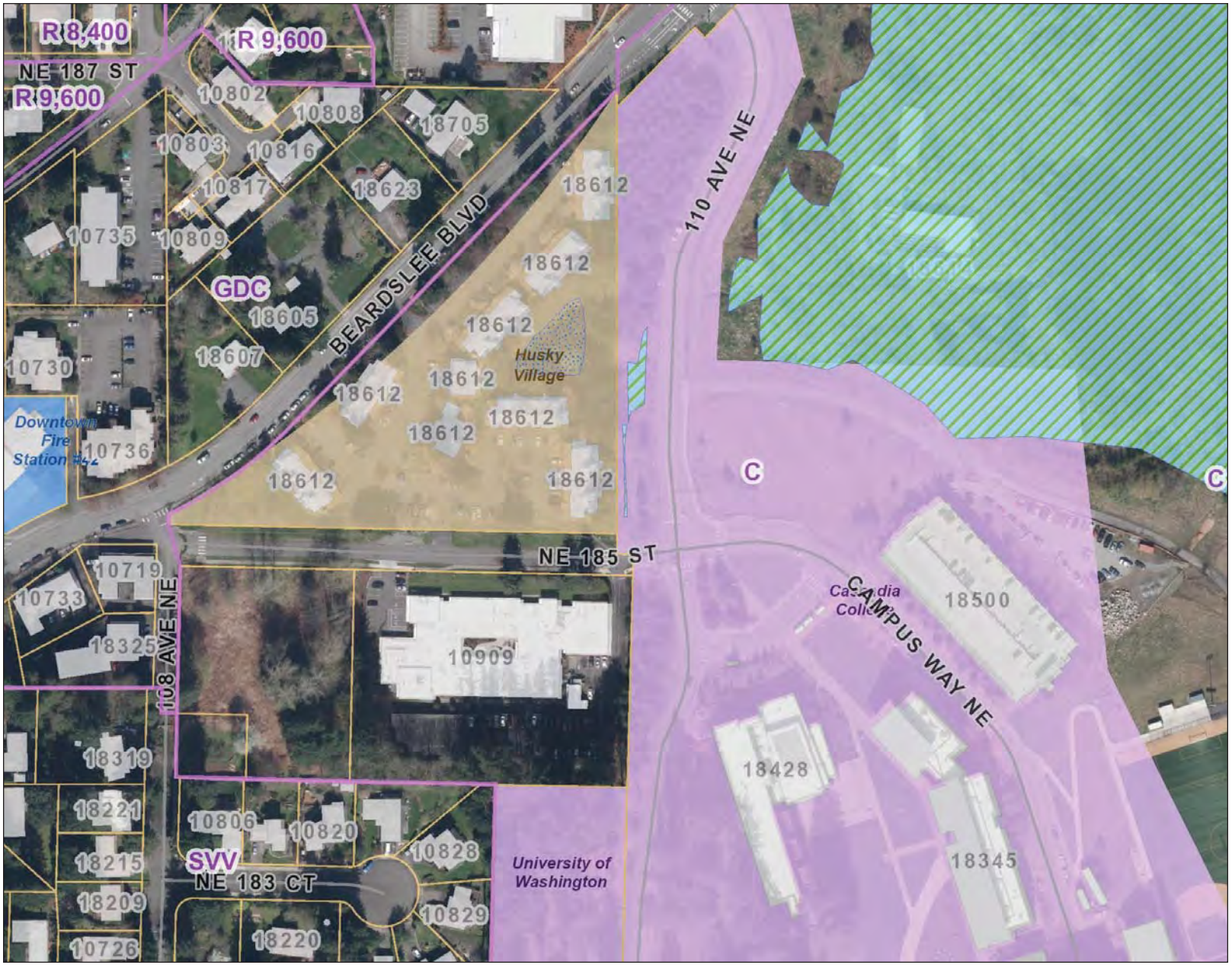
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — King County Area, Washington (WA633)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
AgC	Alderwood gravelly sandy loam, 8 to 15 percent slopes	5	43.0	82.1%
AmC	Arents, Alderwood material, 6 to 15 percent slopes	0	4.5	8.6%
EvC	Everett very gravelly sandy loam, 8 to 15 percent slopes	0	1.7	3.2%
Sk	Seattle muck	100	3.2	6.1%
Totals for Area of Interest			**52.3**	**100.0%**

City of Bothell COBMap

City of Bothell Map- Environmental



414 0 207 414
Feet

1: 2,482

The City of Bothell delivers this data (map) in an AS-IS condition. GIS data (maps) are produced by the City of Bothell for internal purposes. No representation or guarantee is made concerning the accuracy, currency, or completeness of the information provided.

Legend

- Planning Area Boundary
- Zoning
- Rivers or Streams
  - Open Stream
  - Piped Stream
- River or Stream Buffer
- Sammamish River
- Wetland
- Wetland Buffer
- Water Body
  - Lake
  - Pond
- Buildings
- Bothell City Limits
- Local Government
- Public Services
- Public School
- Mobile/Multi-Family
- Golf Course
- 2015-Mar Ortho (Bothell)

Notes

FIGURE 3:
CITY OF BOTHELL WETLAND INVENTORY

NE 58th Street, King County, Bothell, WA 98011 (Parcel No.'s: 0826059095, 0826059300, and 0826059078)

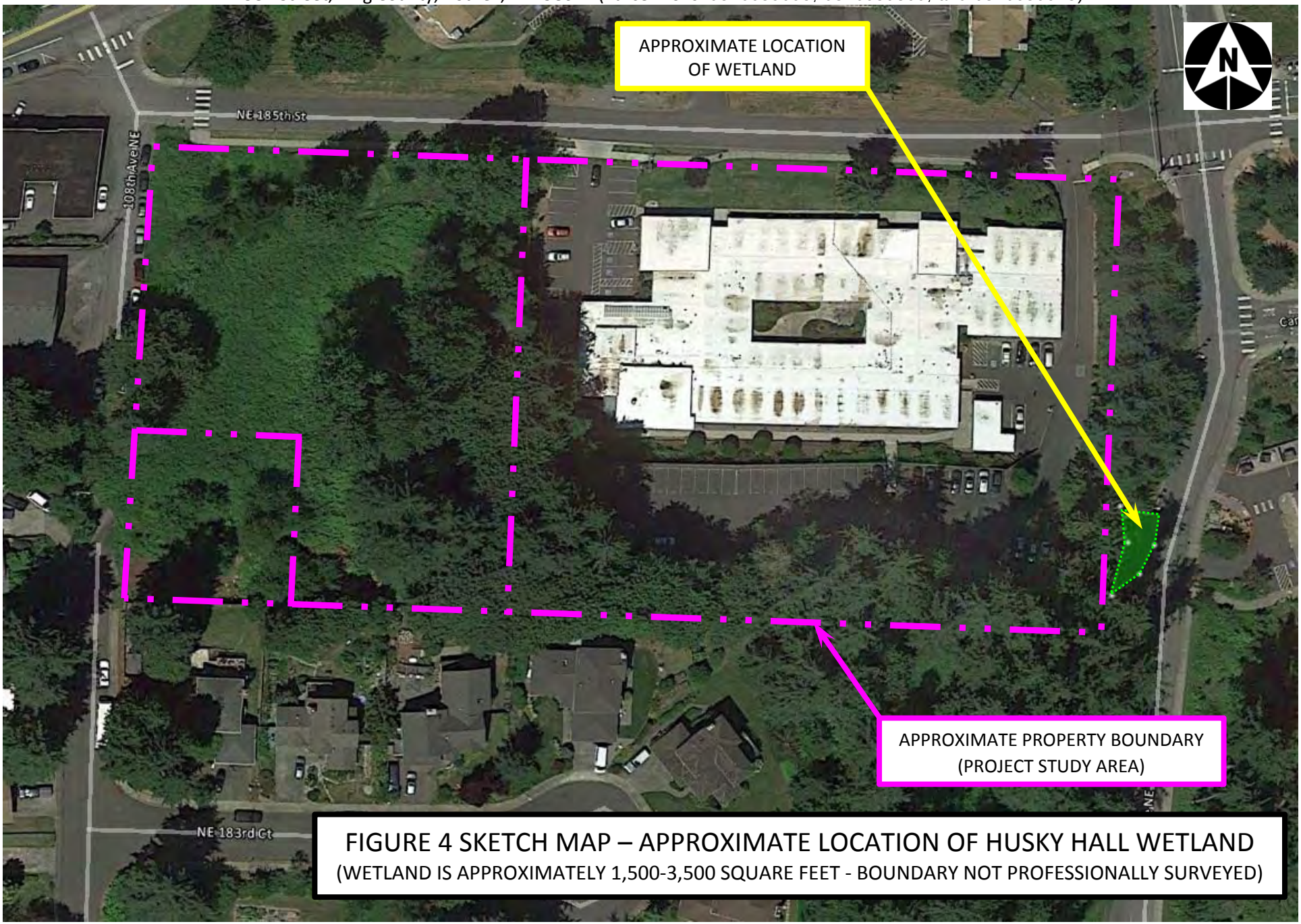


FIGURE 4 SKETCH MAP – APPROXIMATE LOCATION OF HUSKY HALL WETLAND
(WETLAND IS APPROXIMATELY 1,500-3,500 SQUARE FEET - BOUNDARY NOT PROFESSIONALLY SURVEYED)

Image Source: Google Earth, Image Date: 6/27/2016

Sketch Prepared: 02/24/2017

18612 Beardslee Blvd, King County, Bothell, WA 98011 (Parcel No.: 0526059175)

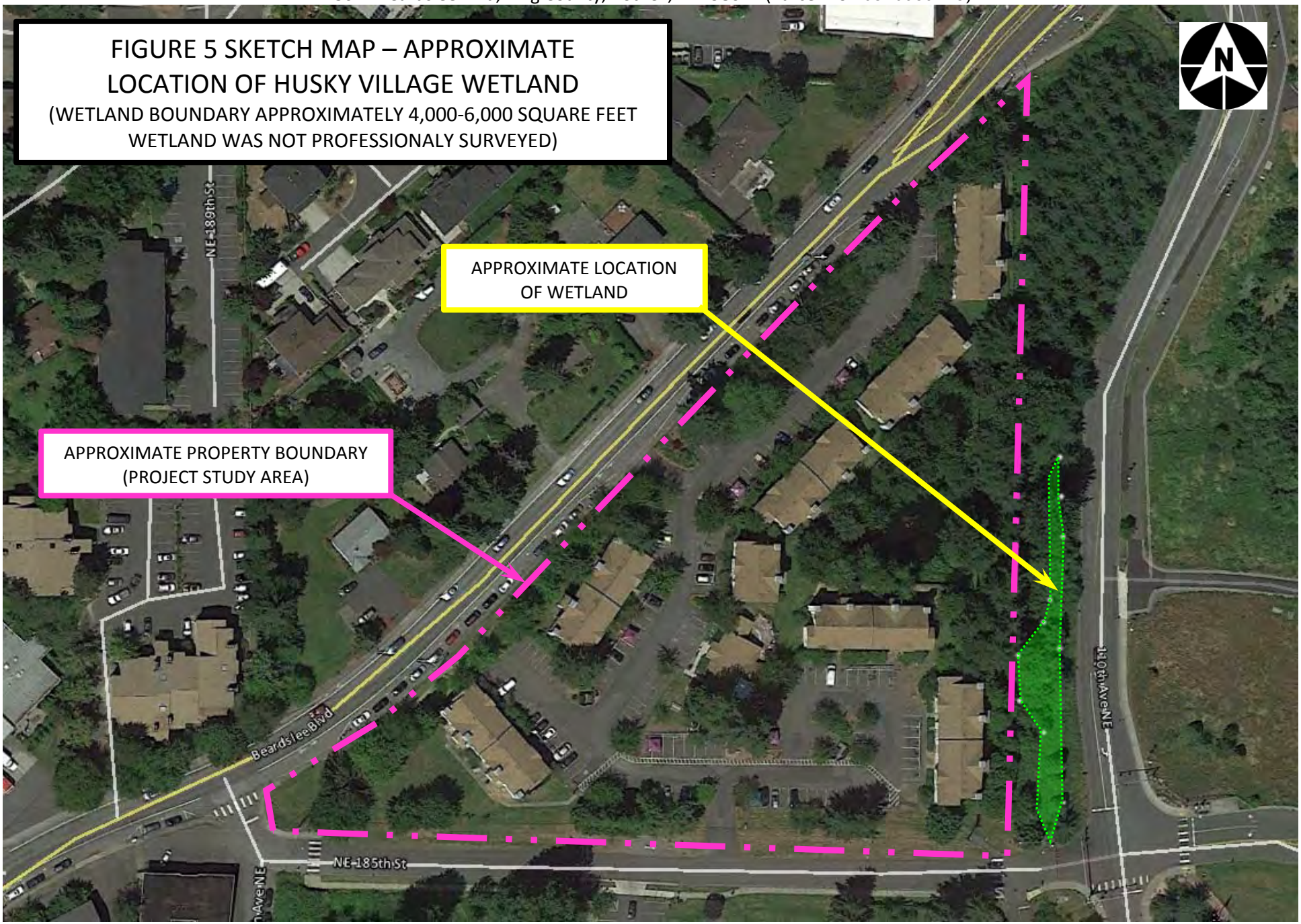


Image Source: Google Earth, Image Date: 6/27/2016

Sketch Map Prepared: 02/24/2017

ARCADIS U.S., Inc.
1100 Olive Way, Suite 800
Seattle, Washington 98101
Tel 206 325 5254
Fax 206 325 8218
www.arcadis-us.com

Amy Van Dyke
Director of Physical Planning & Space Management
University of Washington, Bothell
Box 358500
18115 Campus Way NE
Bothell, WA 98011

ENVIRONMENT

Subject:
University of Washington / Cascadia College – Development Reserve Parcel

Date:
April 13, 2015

Contact:
Douglas Partridge

Phone:
203.489.3008

Email:
Doug.Partridge@
Arcadis-us.com

Our ref:
B00023350.0003.

Dear Ms. Van Dyke:

This letter report has been prepared by ARCADIS U.S., Inc. at the request of the University of Washington, Bothell (UWB) and Cascadia College (CC) campus in support of planning and permitting associated with potential jurisdictional wetlands within the campus Planned Unit Development (PUD) boundary. More specifically, this letter report discusses a previously delineated isolated wetland along the western property boundary of the UWB/CC campus (i.e., immediately west of 110th Avenue NE). This report is necessary because previous permitting associated with campus development (Phase 1 PUD) mitigated for impacts to this isolated wetland; however, site activities never filled the wetland as anticipated during planning and permitting. While current wetland conditions were observed in February 2014 by an ARCADIS wetland ecologist (resume submitted as Attachment A), ARCADIS maintains that mitigation performed as part of the North Creek Riverine Ecosystem Restoration project (hereafter restoration project) more than compensates for impacts to this wetland. UWB/CC contends that they should not be required to provide mitigation for impacts to this wetland twice.

ARCADIS has prepared this short letter report to provide historical information pertaining to original wetland impacts on the campus, a summary of the regulatory framework and existing conditions of this wetland of interest, a discussion of recent functional assessment performed in the restored wetlands, and conclusions.

Phase 1 PUD Waters/Wetlands Impacts and Associated Mitigation

Federal, state, and City of Bothell permits associated with unavoidable impacts to waters and wetlands on the campus property were supported by the *Final Mitigation and Monitoring Plan* (LCLA 1996) and the *Addendum to the Final Mitigation and*

Monitoring Plan (LCLA 1998). The former represented a plan based upon the 75% design level, and the latter based upon the 100% design. The final accounting for impacts to waters and wetlands as a result of campus construction was 6.1 acres (LCLA 1998). To compensate for these impacts, the project restored 31.3 acres of waters and wetlands, enhanced 19 acres of waters and wetlands, and restored 2.4 acres of transitional uplands (ARCADIS 2011). Included in this project is the re-construction of approximately 4,000 feet of valuable salmonid stream habitat.

Exhibit D of the *Final Mitigation and Monitoring Plan* illustrates the waters and wetlands to be impacted during Phase 1 PUD, and differentiates between impacts as a result of construction (i.e., campus development) or "restoration" (Attachment B). Please note that consistent with current day terminology within the field of restoration science, this latter group would be identified as those wetland areas to be "enhanced" as a result of the proposed project and are reflected as such in the restored or enhanced area estimates provided above.

Wetland 14 is a wetland that has remained unfilled since original campus development, and is located within the development reserve parcel west of 110th Avenue NE. The original wetland delineation determined the wetland to be 4,609 square feet (sf) or 0.11 acres. It is an isolated depressional wetland that has no hydrologic connection to the restoration project. Strangely, Exhibit D maps impacts to this wetland as a result of "restoration." Given ARCADIS staff historical involvement with the project (i.e., dating back to the planning and permitting phase of the restoration project), it is our professional opinion that the map identifies impacts as a result of "restoration" in error. This wetland does not occur anywhere near the restoration project, nor would it provide any functional value to this project. While recognizing this mapping error, ARCADIS does believe that impacts to this wetland were accounted for under the original permit package.

Jurisdiction of Wetland 14 and Existing Site Conditions

Specific to federal and state jurisdiction of waters and wetlands, ARCADIS has determined Wetland 14 to be isolated from navigable waters and therefore not jurisdictional under Section 404 and 401 of the Clean Water Act. However, ARCADIS does recognize the jurisdiction of the isolated wetlands under the City of Bothell Critical Areas Ordinance (Chapter 14.04).

A site investigation was performed on February 14th, 2014 to review existing site conditions. The technical criteria for wetlands as defined by the 1987 *Corps of Engineers Wetland Delineation Manual* and the 2010 *Regional Supplement to the*

Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) were determined to be met. Suitable wetland hydrology, hydric soils, and hydrophytic vegetation were present within the previously delineated wetland, and the geographic extent of the wetland was estimated to be comparable to the previous mapping. In addition, ARCADIS believes this wetland meets the characteristics of a Category 4 wetland as defined by the State of Washington.

The wetland can be best characterized as an isolated depressional wetland with no outlet. It occurs immediately proximate to (i.e., north of) a lay down area currently used by campus Facilities Services. Common wetland vegetation species included: red alder (*Alnus rubra*), salmonberry (*Rubus spectabilis*), Indian plum (*Oemleria cerasiformis*), creeping buttercup (*Ranunculus repens*), reed canary grass (*Phalaris arundinacea*), Himalayan blackberry (*Rubus discolor*), cutleaf blackberry (*Rubus laciniatus*), and sword fern (*Polystichum munitum*). Surrounding upland forest is dominated by: Douglas' fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), big leaf maple *(Acer macrophyllum*), and scattered red alder. Minimal understory vegetation exists, but scattered sword fern and Himalayan blackberry were observed. Photographs of the wetland from February 2014 are included as Attachment C.

Functional Assessment of North Creek Ecosystem Restoration Project

To support the construction of the Sarah Simonds Green Wetland Conservatory, ARCADIS recently performed a functional assessment on the existing restoration project to demonstrate overall project success. Consistent with the original permit conditions, ARCADIS relied upon *the Draft Guidebook to Functional Assessments of Depressional Wetlands of the Pacific Northwest/Puget Sound Lowlands Region* (Puget Sound Lowlands Guidebook) (LCLA 1995a) with support from the *Guidebook for Application of Hydrogeomorphic Assessments to Riverine Wetlands* (Riverine HGM Model) (Brinson et al. 1995). While recognizing that City of Bothell ordinances currently require wetland assessments utilizing the Washington State Wetland Rating System for Western Washington (revised), ARCADIS contended that the historical nature of this project and the fact that this site was originally permitted based upon these original protocols warranted use of these previously used models. Consistency with the past permitting and associated protocols allows a more effective comparison to pre-restoration conditions as well as provides consistency with communications between the multiple regulatory agencies (i.e., USACE, Washington Department of Ecology, and City of Bothell). This approach was accepted by the City of Bothell.

A summary table for scaling of all variables (i.e., pre-project, 2006, and 2009) including the scaling rationales is included in Attachment D. Scaling was performed based upon knowledge of on-site conditions, 2009 monitoring results, and assumed continued use of the nursery area. A summary table for resulting functional indices is also included in Attachment D. The results of this 2011 assessment indicate that restoration activities continue to increase functional indices in fourteen of the fifteen (93%) ecosystem functions assessed. The only function excluded was subsurface water storage, which was not enhanced by this project due to the fact that it met the reference standard condition prior to implementation of the project.

The results of the 2011 functional assessment continue to show success of the restoration project. Relative to the future development of the development reserve parcel, unavoidable impacts to Wetland 14 will not adversely affect the overall functioning of the North Creek riverine ecosystem.

Conclusions

ARCADIS believes that permanent impacts to Wetlands 14 were originally accounted for under environmental permitting for original campus development which includes the Phase 1 PUD. Regardless of this fact, it has to be recognized that the State of Washington went far beyond what was required by federal, state or City regulatory agencies by restoring the entire North Creek riverine ecosystem and exceeding any mitigation ratio that would have been, or currently would be, required by the pertinent regulatory agencies. Unfortunately for future campus planning, this wetland was never filled during initial campus development as was envisioned during the planning and permitting process.

ARCADIS believes that suitable mitigation for impacts to Wetland 14 have already been achieved through the successful implementation of the North Creek Ecosystem Restoration Project. While impacts to this wetland have been delayed due to phasing of campus development, the mitigation project has since been determined to be successfully implemented and has met all success criteria as outlined in the *Final Mitigation and Monitoring Plan* (LCLA 1996, 1998). In addition, the filling of Wetland 14 will not adversely affect the functioning of the greater North Creek riverine ecosystem. Given the isolated geomorphic position, this potential environmental impact would only be realized at this small upgradient position along the western boundary of the campus that is already impacted by anthropogenic disturbances and surrounded by development.

UWB/CC hopes the continued support of the restoration project demonstrate their commitment to preserving the North Creek riverine ecosystem within the campus property. Wetland 14 was previously accounted for in past mitigation accounting, but unfortunately anticipated construction never occurred in this area of the campus. Taking all this into consideration, UWB/CC does not believe they should be required to provide mitigation for impacts to this wetland twice. In conclusion, consistent with overall goals of the City of Bothell Critical Areas regulation, the future build out the development reserve parcel:

1. Includes only a small area of permanent impacts to wetlands which were accounted for in initial Phase 1 PUD permitting.

2. The future construction will not have a direct effect on the adjacent wetland ecosystem or adjacent wetland buffer areas.

3. There are no cumulative adverse environmental impacts to water quality, wetlands, and fish and wildlife habitat that will result from future development.

If there are any questions, comments or concerns regarding the letter, please do not hesitate to contact me at 203.489.3008 or doug.partridge@arcadis-us.com.

Sincerely,

ARCADIS U.S., Inc.

Douglas Partridge, PWS, CE
Principal Ecologist

References

ARCADIS 2011. Letter to U.S. Army Corps of Engineers, on behalf of the University of Washington, Bothell and Cascadia Community College. Dated September 7, 2011.

Brinson, M.M., F.R. Hauer, L.C. Lee, W.L. Nutter, R.D. Rheinhardt, R.D. Smith, and D. Whigham. 1995. The Guidebook for Application of Hydrogeomorphic Assessments to Riverine Wetlands (Riverine HGM Model). Technical Report WRP-DE-11, U.S. Army Engineer Waterways and Experimental Station, Vicksburg, MC. NTIS No. AD A308 365.

L.C. Lee & Associates, Inc. 1995. Draft Guidebook to Functional Assessments of Depressional Wetlands of the Pacific Northwest/Puget Sound Lowlands Region (Puget Sound Lowlands Guidebook)

L.C. Lee & Associates, Inc. 1996. Final Mitigation and Monitoring Plan: University of Washington – Bothell, Cascadia Community College Co-located Campus. Prepared for the State of Washington Higher Education Coordinating Board. June 28, 1996.

L.C. Lee & Associates, Inc. 1998. Addendum to the Final Mitigation and Monitoring Plan: University of Washington – Bothell, Cascadia Community College Co-located Campus. Prepared for the State of Washington Higher Education Coordinating Board. May1998.

ATTACHMENT A

Resume – Douglas Partridge

ARCADIS

Education
MS, Plant Ecology, University of Michigan, 2000
BA, Biology and Philosophy, Kenyon College, 1997

Years of Experience
With ARCADIS Since 2004

Professional Registrations
Ecological Society of America - Certified Ecologist
Society of Wetland Scientists - Professional Wetland Scientist

Douglas Partridge, MS, PWS, CE
Principal Ecologist

Mr. Partridge has over 15 years of professional experience focused on ecosystem restoration and large-scale land reclamation projects through revegetation. His project experiences have spanned the United States for a wide range of clients related to the energy sector, mining, utilities, oil and gas, private institutions, and local and state governments. Most recently his project experiences have focused on regulatory site closures under voluntary actions, the Resource Conservation and Recovery Act (RCRA), or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Areas of expertise include revegetation designs for wetland and floodplain restoration projects as well as large scale land reclamation projects, constructed wetland and phytoremediation designs, environmental compliance focused on permitting, special status species surveys and conservation plans, wetland delineations, construction oversight, and adaptive management strategies for noxious weeds. Mr. Partridge frequently begins a project during the initial design stages, and throughout the life of a project managed implementation of pilot studies, restoration design, regulatory compliance and permitting, large scale construction implementation, and monitoring and adaptive management.

Selected Experience

Remediation Projects

Picatinny Arsenal Associated with Landfill Cap
U.S. Army, Rockaway, New Jersey
Preparation of mitigation plan and associated permitting in support of landfill cap to close burning grounds within Picatinny Arsenal. Worked with client to locate suitable mitigation location within Arsenal, and prepare a plan to enhance 12 acres of existing wetlands. Oversaw all restoration implementation.

Mt. Erie Pipeline Release Project
Confidential Client, Mt. Erie, Illinois
Preparation of forested wetland restoration design and associated permits associated with Natural Resource Damages activities associated with an oil pipeline release. Provided senior ecological support throughout the Natural Resource Damages consultation process, and

oversight of restoration. Restoration included 21 acres of onsite impacts and adjacent agricultural fields, in addition to 3 acres of bioremediation within emergent wetland habitat.

Conceptual Restoration Design for Swan Pond Embayments
Tennessee Valley Authority (TVA) Fly Ash Response. Kingston, Tennessee
Preparation of a conceptual restoration design report to assist with a response to an ash dike failure at TVA's Kingston Fossil Plant in Roane County, Tennessee. Specifically, the restoration plan provided an evaluation of site concepts for restoration of the Swan Pond Embayment and associated riparian habitat that was filled with ash following the dike failure.

Lower Neches Estuarine Marsh Complex and Coastal Wet Prairie Restoration Project
Confidential Client, Lower Neches Wildlife Management Area. Orange County, Texas
Ecological support of Natural Resource Damages project involving the restoration of 115 acres of estuarine wetland habitat in the Chenier Plain of the Texas Gulf Coast on Texas Parks & Wildlife Department property. Project included restoration of mounds, terraces, and mudflat habitats through the beneficial re-use of historic and fresh dredge materials.

Restoration Design for Constructed Wetlands Associated with Landfill Cap
Confidential Client, Port Arthur, Texas
Ecological support of Natural Resource Damages project involving the creation of over 100 acres of estuarine and freshwater wetland habitat over a constructed landfill cap. Project specifically targets the restoration of Mottled duck (*Anas fulvigula*) habitat in the Chenier Plain of the Texas Gulf Coast.

Wetland Evaluation for Treatment of Mine Leachate
Confidential Client. Saskatchewan, Canada.
Preparation of an evaluation for using wetlands to treat leachate anticipated to be collected as a result of a future diamond mine. The evaluation reviewed six constituents of concern that were expected to exceed federal and/or state water quality standards. The evaluation included modeling of loading for the identified heavy metals of concern, and calculation of treatment areas required for the mine life.

Constructed Treatment Wetlands Design and Construction
State of Kentucky Division of Waste Management and Finance and Administration
Preparation of design for a four-cell, one acre constructed treatment wetland to treat leachate generated by the Winchester Municipal Utilities/Clark County Landfills near Lexington, Kentucky. This wetland treatment system was designed to reduce suspended solids (TSS) and nitrogen concentrations through sorption, biotransformation, plant uptake process and denitrification so that the effluent achieves NPDES stream discharge standards.

Constructed Wetland Conceptual Design
Confidential Client, Ravensdale, Washington
Preparation of a constructed wetland conceptual design report to assist with managing leachate seeps on an existing mining property. The leachate was highly alkaline with elevated metals (including arsenic, lead, and potassium) and associated high total dissolved solids and conductivity.

Evaluation of Tree Preservation Measures for Soil Remediation within Protected Root Zones of Trees. Confidential Client. Middleport, New York
Evaluation of tree preservation measures that might be employed in the course of remediation of potential constituents of concern (primarily arsenic) in soil located within the protected root zones of trees found within affected residential neighborhoods in Middleport, New York. The report was developed as part of an effort to maintain the environmental character of affected neighborhoods. Conclusions are to be considered during development of a final remedial action work plan.

Soil Amendment Pilot Study
Confidential Client. Hurley, New Mexico.
Preparation of design work plan and monitoring of a soil amendment pilot study designed to evaluate possible remediation options to address elevated copper concentrations and depressed pH in surface soils near a copper mining facility. The study is testing longevity of pH stabilization (after lime amendments), copper sequestration ability, vegetative re-colonization, and constructability.

Remediation Cap Restoration
Confidential Client, Caribou-Targhee National Forest, Idaho
Evaluation of suitable borrow soils to support remedial cap at old phosphate mine location in southeastern Idaho. Subsequently assisted with restoration plan for re-vegetation of cap.

Manufactured Gas Plant Remediation
Confidential Client, Lakewood and Cape May, New Jersey
Ecological support relative to planning and permitting associated with remediation of former manufactured gas plant facilities in Lakewood Township and Cape May, New Jersey. Permitting included the preparation of restoration plan for impacts to wetlands and riparian woodlands.

Restoration Projects

Wetland Mitigation Project
Confidential Client, Rockaway Township, New Jersey
Completed environmental planning and permitting associated with landfill cap across approximately 6 acres, immediately proximate to a New Jersey Category 1 waters. Mitigation plan approved that adequately compensated for impacts to both freshwater wetlands, flood

hazard areas, and riparian zones. Restoration included 12 acres of freshwater wetlands and associated floodplain habitats.

Riverine Steep Bank Restoration
Confidential Client, Milford, New Jersey
Completion of all planning and permitting associated with failed bank within a remedial site in western New Jersey. Restoration of steep bank included bio-engineering techniques, and mosaic of native plant communities. Managed implementation of restoration, and currently in monitoring and adaptive management phase.

Forested Wetland Restoration
Confidential Client, Bordentown, New Jersey
Completed planning and permitting associated with remedial excavation at former industrial site in southern New Jersey. Restoration included approximately 1 acre of forested and scrub-shrub wetland restoration. Currently managing all monitoring and adaptive management.

Wetland Mitigation Project
CN Rail, Lansing, Michigan
Assumed management of wetland mitigation project in central Michigan after initial design was determined to be inadequate to meeting State of Michigan requirements. Re-designed and implemented mitigation project to increase wetland area across approximate 5 acre site. Wetland area determined to significantly increase, and meet state requirements. Manage monitoring and adaptive management of site.

North Creek Riparian Ecosystem Restoration Project
University of Washington, Bothell/Cascadia Community College, Bothell, Washington
Environmental planning and permitting, construction supervision, oversight of native plant nursery, and adaptive management and compliance monitoring for 58-acre stream and floodplain ecosystem restoration project. First project in Pacific Northwest which was permitted using a functional assessment approach. Work included permitting associated with four salmonid species. Subsequently, assisted client with application of “excess” mitigation credits using a functional assessment approach to future projects occurring on the campus property.

Newskah Creek Riparian Ecosystem Restoration Project
Washington Department of Corrections, Aberdeen, Washington
Long-term management and compliance monitoring of 10-acre tidally-influenced stream ecosystem restoration project adjacent to Grays Harbor. Newskah Creek is a salmonid producing stream, primarily supporting Chinook (*Oncorhynchus tshawytscha*) and Coho (*O. kisutch*) salmon. Project was permitted and subsequently monitored based upon the application of the HGM functional assessment to riverine wetlands.

Calera and San Pedro Creeks Flood Control, Restoration, and Fish Habitat Projects
City of Pacifica, California
Environmental planning and permitting, grant procurement, restoration design, endangered species issues including fish passage, construction observation, and compliance monitoring for multiple projects along both Calera and San Pedro Creek in the City of Pacifica. Endangered species included the California red legged frog, San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), and Central California Coast Steelhead (*Oncorhunchus mykiss*). Project was permitted based upon the application of the HGM functional assessment to riverine wetlands.

Biological Species and Habitat Survey and Restoration Plan
Confidential Client, Casmalia, California
Preparation of a Biological Species and Habitat Report intended to synthesize results of previously conducted field surveys focused on determining the presence or absence of 39 known or potentially occurring sensitive species within or proximate to the site. Work culminated in the restoration design of wetland habitat to support the California red-legged frog (*Rana aurora draytonii*).

Raritan River Natural Resource Restoration Project
Confidential Client, Kin Buc Landfill. Edison, New Jersey
Compliance monitoring and adaptive management of a wetland and upland restoration project along the Raritan River in Edison, New Jersey. Restoration project included 30 acre tidal wetland restoration, 4 acre freshwater wetland enhancement, and 60 acre upland habitat enhancement.

Site Planning

Waters/Wetlands Delineation
Former Hercules Kenvil Works Facility. Kenvil, New Jersey
Completed comprehensive habitat mapping, as well as delineation of waters/wetlands across the 1,200 facility. Currently assist with planning and permitting relative to both site remediation and re-development. Current work includes stream restoration project, as well as formal consultation associated with bog turtle.

Waters/Wetlands Delineation and Regulatory Assistance
Former Hercules Facility, Louisiana, Missouri
Assisted with planning and permitting associated with closure of ash ponds immediately proximate to the Mississippi River. Assisted planning stages, and prepared environmental permits associated with finalized closure plan. Included both waters/wetlands delineation, as well as formal consultation and Phase 1 surveys associated with Indiana Bat.

Waters/Wetland Delineation and Regulatory Assistance
Confidential Client, Windham, Vermont

Assist with all planning and permitting associated with former talc mine in southern Vermont. Work has included full waters/wetlands delineation, management of beaver abatement program, and permitting associated with demolition and any remedial activities.

Waters/Wetlands Delineation and Site Wide Planning
Confidential Client, Carteret, New Jersey
Delineate waters/wetlands on 104 acre property, and assist client with site wide planning and permitting.

Waters/Wetlands Delineation
San Diego Gas and Electric Company, Southern California
Delineation of the geographic extent of waters of the U.S., including wetlands, as well as California waters of the state along the proposed Sunrise Powerlink^{SM} (SRPL) project area. The entire project traversed approximately 170 miles between the El Centro area of Imperial County and northwestern San Diego County. As part of the project, ARCADIS evaluated the impacts to waters/wetlands that were expected to result from the construction and operation of the proposed project.

Waters/Wetlands Delineation and Rare Plant Surveys
Confidential Client, San Jose, California
Work included delineation of waters of the U.S., including wetlands, as well as California waters of the state over approximately 3,500 acres of the site to assist site planning and permitting associated with remediation as well as site redevelopment. Conducted surveys for rare plant species across 5,000 acres of the site. Site surveys occur across a range of plant communities including chaparral, scrub-shrub, serpentine grasslands, exotic grasslands, and riparian and oak woodland.

Waters/Wetlands Delineation and Stormwater Management Planning
California Department of Parks and Recreation, Sacramento, California
Delineate waters/wetlands over approximately 1000 acres, and preparation of planning documents to control sediment and erosion control as well as stormwater within an off-road vehicle park.

Development of Sarah Simonds Green Wetland Conservatory
University of Washington, Bothell, Washington.
Completed all environmental permitting associated with development of the Sarah Simonds Green Wetland Conservatory. Responsibilities included preparation of wetland mitigation plan, and endangered species compliance.

Waters/Wetlands Delineation and Biological Assessment
San Francisco Public Utilities Commission, San Francisco, California
Delineate waters/wetlands, and prepare biological assessment to assist with planning and permitting associated with a new treated water reservoir development project.

Rare Plant Survey and Monitoring
Napa County Flood Control and Water Conservation District, Napa County, California
Conducted rare plant survey in the lower Napa River ecosystem for the Napa River/Napa Creek flood control project.

Suisun Thistle Survey
Solano County Water Agency, Solano County, California
Conducted survey for the federally endangered Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*) in the upper Suisun Marsh of Rush Ranch.

Wetland Functional Assessments

HGM Guidebook Development
California Regional Water Quality Control Board (RWQCB), California
Development of the Guidebook to Hydrogeomorphic Functional Assessment of Riverine Waters/Wetlands in the Santa Margarita Watershed. Project completed in cooperation with USEPA Region IX, the California Coastal Conservancy, and the California RWQCB.

HGM Guidebook Development
Santa Barbara County Water Agency, Santa Barbara County, California
Development and training of the Draft Guidebook for Referenced Based Assessment of the Functions of Riverine Waters/Wetlands Ecosystems in the South Coast Region. Project completed in cooperation with Santa Barbara Water Agency and U.S. Environmental Protection Agency (USEPA) Region IX.

Selected Publications

Partridge, D., S. Mondziel, G. Markiewicz and J. Olsen. Restoration of a Gulf of Mexico Coastal Salt Marsh Ecosystem Through Beneficial Use of Dredge Sediments: Successes, Challenges and Lessons Learned from Four Years of Monitoring and Adaptive Management. Presented at the 2012 National Society of Wetland Scientist Conference, Orlando, Florida.

Partridge, D., J.K. Shisler and C. Tuttle. 2011. Restoration of a Tidal Salt Marsh along the Raritan River Using Intensive Adaptive Management. Presented at the National Conference for Ecological Restoration, July, Baltimore, Maryland.

Partridge, D. 2010. Restoration of a Pacific Northwest Stream Ecosystem in an Urban Environment: Successes, Challenges and Lessons Learned from Seven Years of Monitoring and Adaptive Management. Poster presented at Society of Wetland Scientist Conference, June, Salt Lake City, Utah.

Peggy L. Fiedler, Megan Keever, Brenda J. Grewell, and Douglas J. Partridge. 2007. Rare Plants in the Golden Gate Estuary (California): The Relationship between Scale and Understanding. Australian Journal of Botany.

Partridge, D., and L. C. Lee. 2005. Application of the hydrogeomorphic approach to restoration, monitoring, and adaptive management to the lower North Creek ecosystem, Bothell, Washington. Presentation at Association of State Wetland Managers conference on Integrated Restoration of Riverine Wetlands, Streams, Riparian Areas, and Floodplains in Watershed Context. Amherst, Massachusetts. November 2005.

Partridge, D., P.L. Fiedler, and M. Keever. 2003. "Monitoring of a Metapopulation, Lilaeopsis masonii, in the Lower Napa River Ecosystem." Poster presented at the State of the Estuary Conference, September.

Keever, M., P.L. Fiedler, and D. Partridge. 2003. "Geographic Distribution and Population Parameters of the Endangered Suisun Thistle (Cirsium hydrophilum var. hydrophilum) at Rush Ranch." Poster presented at the State of the Estuary Conference, September.

Partridge, D. 2001. "Remote Functional Assessment Protocol for Riverine Ecosystems in the South Coast Region of Santa Barbara County, California." Presentation at the Society of Wetland Scientists, May, Chicago, Illinois.

ATTACHMENT B

Exhibit D of the Final Mitigation and Monitoring Plan

Exhibit D
Impacts to Waters/ Wetlands from Proposed Campus and Wetland Mitgation
U.S. Army Corps of Engineers Permit 95-4-01737

SCALE: 1"=100'

LEGEND

- IMPACTED BY CONSTRUCTION
- IMPACTED BY RESTORATION

Designed by LCL	Date	Revision
Drawn by MJB/LRE		
Checked by LCL		
Date SEPTEMBER 15, 1995		
SCALE 1"=100'		

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University of Washington - Bothell and Cascadia Community College
COLLOCATED CAMPUS AT THE TRULY FARM SITE

Proposed: To construct college campus **Purpose:** To Provide a Collocated Campus for University of Washington-Bothell/Cascadia Community College **Datum:** City of Bothell Datum **Adjacent Property Owners:** See Block 24	**Application by:** Washington State Higher Education Coordinating Board **Location:** I-405 and SR 522, Bothell, King County, Washington **Sheet:** 4 of 9 9/15/95

Exhibit D
Impacts to Waters/ Wetlands from Proposed Campus and Wetland Mitgation
U.S. Army Corps of Engineers Permit 95-4-01737

ATTACHMENT C

February 2014 Site Photographs

Photograph 1. Looking to west through Wetland 14.

Photograph 2. Looking southwest.

Figure 3. Looking east.

Figure 4. Looking south.

ATTACHMENT D

Wetland Functional Assessment Summary Tables

Table 1. Riverine Waters/Wetlands Functions Addressed by the North Creek Restoration Project

Functional Group		Definition
	Function	
Hydrology	Dynamic surface water storage	Capacity of a wetland to detain water from overbank flow for a short duration when flow is out of the channel.
	Long term surface water storage	Capacity of a wetland to temporarily store (detain) surface water for long durations; associated with standing water not moving over the surface.
	Energy dissipation	Allocation of the energy of water to other forms as it moves through, into, or out of the wetland as a result of roughness associated with large woody debris,
	Subsurface water storage	Availability of water storage beneath the wetland surface. Storage capacity becomes available as periodic draw down of water table or reduction in soil
	Moderation of groundwater flow and	Capacity of a wetland to moderate the rate of groundwater flow or discharge from upgradient sources.
Biogeochemistry	Nutrient cycling	Abiotic and biotic processes that convert nutrients and other elements from valence to another; primarily recycling processes.
	Removal of elements and compounds	Removal of imported nutrients, contaminants, and other elements and compounds.
	Retention of particulates	Deposition and retention of inorganic and organic particulates (>0.45 μm) from the water column, primarily through physical processes.
	Organic carbon export	Export of dissolved and particulate organic carbon from a wetland. Mechanisms include leaching, flushing, displacement, and erosion.
Plant Community	Plant community	Species composition and physical characteristics of living plant biomass.
	Detrital biomass	Production, accumulation, and dispersal of dead plant biomass of all sizes.
Faunal Support/Habitat	Spatial structure and habitat	Capacity of a wetland to support animal populations and guilds by providing heterogeneous habitats.
	Interspersion and connectivity of habitat	Capacity of a wetland to permit aquatic organisms to enter and leave the wetland via permanent or ephemeral surface channels, overbank flow, or unconfined
	Distribution and abundance of	Capacity of a wetland to maintain characteristic density and spatial distribution of aquatic, semi-aquatic, and terrestrial invertebrates.
	Distribution and abundance of	Capacity of a wetland to maintain characteristic density and spatial distribution of aquatic, semi-aquatic, and terrestrial vertebrates.

Table 2. Summary of Variable, Reference Standards, Data, Score, and Rationale

Variable	Variable Name	Reference Standard	1996 Pre-Project Score	2005 Post Project (Year 3) Score	Data/Scaling Rationale (2005)	2011 Post Project Score	Data/Scaling Rationale (2011)
V_{BEAV}	Beaver Abundance	Surrogate measure (e.g., recent aerial photos, presence of active and abandoned lodges and dams, cut and chewed plants, scat, trails) similar to reference standard.	0.5	1.0	Active beaver dam construction in main North Creek Channel	1.0	Continued active beaver activity throughout the main and secondary channels.
V_{BIRD}	Distribution and Abundance of Resident and Migratory Birds	Presence of great horned owls, dippers, pileated woodpeckers, belted kingfishers, wrens, marsh hawks, eagles, etc.	0.5	0.5	Presence of Bald eagles, Kingfishers, Red-tail hawks, Osprey, etc. Absence of other bird species more representative of a structurally mature/complex riverine ecosystem.	0.5	Limited additional data available. Similar species as noted in 2006 continue to be observed throughout the site.
V_{BTREE}	Tree Basal Area	Greater than or equal to 100 ft^2/acre	0.1	0.5	Average tree basal area was 20ft^2/acre (n=15)	0.5	No additional data available. Tree cover and basal area continue to increase throughout the restoration site. Conservatively assumed that current condition was less than 100 ft2/acre. No decrease from 2006 condition has occurred, consistent with 2009 Monitoring Report and on site observations.
V_{NATIVE}	Species Composition for Tree, Shrub, and Ground Cover Strata	Greater than or equal to 75%	0.0	0.5	Average percent native individuals was 69%.	1.0	2009 Monitoring Report data demonstrated >75% of identified species were native in 50 sample locations.
V_{CONTIG}	Contiguous Vegetation Cover	Recent aerial photographs during leaf season show abundant vegetation and vegetated corridors connecting mosaics of habitat types similar to reference standard conditions	0.1	0.1	See Appendix D	0.1	Conditions off property are consistent with 2006 results.
V_{CWD}	Coarse Woody Debris	Average diameter = 3.5 in. Average length = 4 ft. Average CWD cover = 15%	0.1	0.5	Average diameter = 12 in. Average length = 20 ft Average CWD cover = <1%	0.5	Limited additional data available. Beaver activity has increased throughout the site, and helps facilitate CWD inputs to floodplain. Also flooding brings additional inputs. Conservatively assumed 2006 condition without additional data.
V_{DURAT}	Duration of Overbank Flow	Average duration of connection between channel and floodplain = 2 days	0.1	1.0	Observed evidence of flow and persistent water on the floodplain for greater than 1 day.	1.0	Continued duration of connection between channel and floodplain equal or great than 2 days.
V_{FISH}	Distribution and abundance of resident and migratory fish	On-site evidence of salmonids and cutthroat	1.0	1.0	On-site evidence of salmonids and cutthroat.	1.0	On-site evidence of salmonids and cutthroat.

Table 2. Summary of Variable, Reference Standards, Data, Score, and Rationale

Variable	Variable Name	Reference Standard	1996 Pre-Project Score	2005 Post Project (Year 3) Score	Data/Scaling Rationale (2005)	2011 Post Project Score	Data/Scaling Rationale (2011)
V_{FWD}	Fine Woody Debris	Cover greater than 50%	0.1	1.0	An average percent litter cover of 64%.	1.0	Litter data fluctuates with flood frequency and durations. But continued inputs observed throughout restoration site, and developing O horizon.
V_{FREQ}	Frequency of overbank flow	Frequency of overbank flooding event = return period 1.2 years AND/OR Presence of stratified O horizon/C horizon	0.5	1.0	Direct and indirect observation of floodplain engagement during flow levels that exceed the design bankfull flow.	1.0	Direct and indirect observation of floodplain engagement during flow levels that exceed the design bankfull flow.
V_{GAPS}	Gaps in forest	Average gap cover 15% of assessment site.	0.0	0.0	No gaps in tree canopy observed.	0.5	Gaps in forest have developed throughout the floodplain as a result of beaver activities and felled trees by other natural events (i.e., weather, flooding). Conservatively assumed a condition slightly less than reference standard conditions.
V_{HERB}	Herbaceous plant cover	*Forest community:* Less than or equal to 20% *Scrub-shrub community: Less than* or equal to 20% *Emergent community:* Greater than or equal to 85%	0.5	0.5	The average herbaceous was 89% (n=50). Specific to community types, average herbaceous cover in palustrine forest, palustrine scrub-shrub, and emergent wetland communities was 88%, 87%, and 88% respectively.	0.5	While the herbaceous cover continues to decrease in forest and scrub shrub communities, it has likely not hit the reference standard condition.
V_{HERP}	Distribution and abundance of Herptiles	Presence of Pacific salamanders and Pacific spotted frogs	0.5	0.5	Absence of both species identified in reference standard condition, but more common herptiles (e.g., Pacific treefrog, Red-legged frogs, Garter snakes) widespread and abundant across site.	0.5	Limited data. Both species identified in reference standard condition have not been identified. Similar observations to 2006 condition.
V_{INUND}	Average depth of inundation	Average flood depth 0.5 ft	0.5	1.0	Direct and indirect evidence of depth of flow on the floodplain during flows that exceed the design bankfull flow.	1.0	Direct and indirect evidence of depth of flow on the floodplain during flows that exceed the design bankfull flow.
V_{DECOMP}	Logs in several stages of decomposition	Greater than or equal to 3 decomposition classes	0.5	0.1	Average of one decomposition class.	0.5	Conservatively assumed equal to 2 decomposition classes throughout the restoration site. Significant CWD throughout the site in various states of decomposition.
V_{MACRO}	Macrotopographic Relief	Average surface of floodplain in: Backwater sloughs = 7% Secondary channels = 17% Off-channel ponds = 3%.	0.0	0.5	Percentages of site: Primary channel = 6% Secondary channel = 2% Backwater Slough = <1% Off Channel Ponds =18%	0.5	Consistent with 2006 conditions.
V_{MAMM}	Distribution and abundance of permanent and seasonally resident mammals	Presence of black bear, otters, beaver, mountain beaver, deer, etc.	0.5	0.5	Absence of bears and cougars. Presence of deer, coyote, beaver, and otter.	0.5	Consistent with 2006 conditions.

Table 2. Summary of Variable, Reference Standards, Data, Score, and Rationale

Variable	Variable Name	Reference Standard	1996 Pre-Project Score	2005 Post Project (Year 3) Score	Data/Scaling Rationale (2005)	2011 Post Project Score	Data/Scaling Rationale (2011)
V_{MICRO}	Microtopographic Complexity	Average microtopographic relief = 1 ft.	0.1	1.0	Average depth of microtopographic variation on the floodplain = 1.0 ft +/- 25%.	1.0	Based upon 2009 Monitoring Report, conditions consistent with 2006.
V_{ORGAN}	Organic matter in wetland	Organic material in upper profile (12 inches) 4% Average woody debris cover 30% Average litter depth 1 inch Average litter cover 65%	0.1	0.5	The average percent litter cover across the 50 vegetation plots in 2005 was 64%. This is an insignificant decrease from 66% in 2004, but significantly higher than 26% in 2003. We anticipate a further increase of litter detritus over the 10-year monitoring interval.	0.5	Conservatively assumed conditions consistent with 2006 due to limited data. However, the depth of the O horizon continues to develop throughout the site. Litter cover fluctuates based upon flood frequency and duration.
V_{PATCH}	Vegetation patchiness	Average of three plant communities within 100 feet of the centerline of the North Creek channel.	0.1	1.0	Average of 6 plant communities along 200-ft transect centered on the channel.	1.0	Conditions consistent with 2006.
V_{PORE}	Soil Pore Space	Average depth to perching layer and/or abrupt textural change = 12 inches Texture range = fine sand to silty sand	1.0	1.0	Texture ranges fall within reference standard conditions	1.0	Conditions consistent with 2006.
V_{REDVEL}	Reduction in flow velocity	Presence of stratified 0 horizon/C horizon AND/OR Presence of directionally oriented "stacked" wrack covering 15% of wetland	0.0	0.5	"Stacked" wrack observed on floodplain covering less than 5% of wetland.	0.5	Conditions consistent with 2006; stacked wrack does not cover 15% of wetland.
V_{REGEN}	Presence of seedling/saplings	Not provided.	0.0	0.5	Average density of seedlings/saplings was 1,150 stems/acre. Patchy recruitment across restoration site.	1.0	Recruitment of native species increasing throughout the restoration site. Diversity increased since 2006 based upon this continued recruitment throughout the site.
V_{SEDIM}	Retained sediments	Presence of stratified o horizon/C horizons AND/OR Presence of layered silts and sands AND/OR Presence of sediment accretion behind wrack or woody debris.	0.1	0.5	Silt or sediment layering at 25 to 75% of reference standard.	1.0	Sediment accretion behind wrack or woody debris.
V_{SHRUB}	Shrub density or canopy coverage	*Forest community:* Greater than or equal to 20% and less than 75% *Scrub-shrub community:* Greater than or equal to 85% *Emergent community:* 0%	0.1	0.5	Average shrub canopy cover was 45% (n=50). Specific to community types, average shrub canopy cover in forest, scrub-shrub, and emergent wetland communities was 27%, 62%, and 17% respectively.	0.5	Conditions consistent with 2006
V_{SNAGS}	Basal area of standing dead trees (Snags)	Greater than or equal to 20 ft^2/acre	0.0	0.0	Average basal area of snags equal to 0 ft^2/acre.	0.5	Conditions consistent with 2006.

Table 2. Summary of Variable, Reference Standards, Data, Score, and Rationale

Variable	Variable Name	Reference Standard	1996 Pre-Project Score	2005 Post Project (Year 3) Score	Data/Scaling Rationale (2005)	2011 Post Project Score	Data/Scaling Rationale (2011)
V_{SORPT}	Sorptive properties of soils		0.5	0.5	Low chroma and gley in matrix. Accumulation of organic matter	0.5	Conditions consistent with 2006.
V_{STRATA}	Number and attributes of vertical strata of vegetation	Greater than or equal to 3 vegetative strata	0.1	0.5	Average of two vegetative strata.	0.5	2009 Monitoring Results demonstrate an average of 2 vegetative strata.
V_{SUBIN}	Subsurface flow into wetland	Evidence of hyporheic flow – local piezometric surface above wetland surface or upwelling channel gravels AND/OR Evidence of riparian transport/return flow – surface seepage at toeslope to alluvium transition.	0.1	1.0	Local piezometric surface above wetland surface in wet season.	1.0	Conditions consistent with 2006.
V_{SUBOUT}	Subsurface flow from wetland to aquifer or baseflow	Sandy soils without underlying impeding layer OR Permeable underlying stratigraphy	1.0	1.0	Restoration activities did not impact overall soil stratigraphy.	1.0	Conditions consistent with 2006.
$V_{SURFCON}$	Surface hydraulic connections	Presence of secondary channels AND/OR Frequency of overbank flooding event = Return Interval 1.2 years	0.0	1.0	Secondary channel present.	1.0	Conditions consistent with 2006.
V_{SURWAT}	Surface Water Presence	Observed presence of surface water for 7 days or longer AND/OR Presence of microtopographic lows containing hydric soils and hydrophytic vegetation	0.0	1.0	Direct observation of ponded water on the floodplain for more than 7 days in microtopographic lows.	1.0	Conditions consistent with 2006.
V_{TREE}	Tree density or canopy coverage	*Forest community:* Greater than or equal to 55% *Scrub-shrub community*: Greater than or equal to 40% and less than 75% *Emergent community:* 0%	0.1	0.5	Average tree canopy cover was 47% (n=50). Average canopy cover within sample plots located in forest communities (n= 28) was 47%, in scrub-shrub communities (n=17) was 9%, and in emergent wetland (n=5) was 19%.	1.0	2009 Monitoring Results demonstrate meeting reference standard conditions.
V_{WTF}	Fluctuation of Water Table	Water table fluctuates rapidly between at least 30 cm depth to soil surface	1.0	1.0	Water table fluctuates to a depth of at least 30 inches to above the soil surface.	1.0	Conditions consistent with 2006.

Table 3. Summary of HGM Functional Assessment for the UWB/CCC North Creek Ecosystem Restoration Project

Function	Function Definition	Pre-Project (1996) Condition	Year 3 (2005) Condition	Change In Functional Index (2005)	Year 9 (2011) Condition	Overall Change In Functional Index (2011)
Hydrology						
Dynamic surface water storage	Capacity of a wetland to detain water from overbank flow for a short duration when flow is out of the channel.	0.3	0.8	+0.5	0.9	+0.6
Long term surface water storage	Capacity of a wetland to temporarily store (detain) surface water for long durations; associated with standing water not moving over the surface.	0.0	0.8	+0.8	0.8	+0.8
Energy dissipation	Allocation of the energy of water to other forms as it moves through, into, or out of the wetland as a result of roughness associated with large woody debris, vegetation structure, micro- and macro-topography, and other obstructions.	0.0	0.7	+0.7	0.7	+0.7
Subsurface water storage	Availability of water storage beneath the wetland surface. Storage capacity becomes available as periodic draw down of water table or reduction in soil saturation occurs.	1.0	1.0	0.0	1.0	0.0
Moderation of groundwater flow and discharge	Capacity of a wetland to moderate the rate of groundwater flow or discharge from upgradient sources.	0.6	1.0	+0.4	1.0	+0.4

Table 3. Summary of HGM Functional Assessment for the UWB/CCC North Creek Ecosystem Restoration Project

Function	Function Definition	Pre-Project (1996) Condition	Year 3 (2005) Condition	Change In Functional Index (2005)	Year 9 (2011) Condition	Overall Change In Functional Index (2011)
Biogeochemistry						
Nutrient cycling	Abiotic and biotic processes that convert nutrients and other elements from valence to	0.1	0.5	+0.4	0.7	+0.6
Removal of elements and	Removal of imported nutrients, contaminants, and other elements and compounds.	0.2	0.8	+0.6	0.8	+0.6
Retention of particulates	Deposition and retention of inorganic and organic particulates (>0.45 μm) from the water	0.2	0.8	+0.6	0.8	+0.6
Organic carbon export	Export of dissolved and particulate organic carbon from a wetland. Mechanisms include	0.1	0.6	+0.5	0.6	+0.5
Plant Community						
Plant community	Species composition and physical characteristics of living plant biomass.	0.1	0.5	+0.4	0.9	+0.8
Detrital biomass	Production, accumulation, and dispersal of dead plant biomass of all sizes.	0.1	0.1	0.0	0.5	+0.4
Faunal Support/Habitat						
Spatial structure and habitat	Capacity of a wetland to support animal populations and guilds by providing heterogeneous habitats.	0.1	0.4	+0.3	0.6	+0.5

Table 3. Summary of HGM Functional Assessment for the UWB/CCC North Creek Ecosystem Restoration Project

Function	Function Definition	Pre-Project (1996) Condition	Year 3 (2005) Condition	Change In Functional Index (2005)	Year 9 (2011) Condition	Overall Change In Functional Index (2011)
Interspersion and connectivity of habitat	Capacity of a wetland to permit aquatic organisms to enter and leave the wetland via permanent or ephemeral surface channels, overbank flow, or unconfined hyporheic gravel aquifers.	0.2	0.8	+0.6	0.8	+0.6
Distribution and abundance of invertebrates	Capacity of a wetland to maintain characteristic density and spatial distribution of aquatic, semi-aquatic, and terrestrial invertebrates.	0.2	0.8	+0.6	0.8	+0.6
Distribution and abundance of vertebrates	Capacity of a wetland to maintain characteristic density and spatial distribution of aquatic, semi-aquatic, and terrestrial vertebrates.	0.6	0.7	+0.1	0.7	+0.1

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ENVIRONMENT

Subject:
University of Washington / Cascadia College – Development Reserve Parcel

Date:
February 24, 2016

Contact:
Douglas Partridge

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Our ref:
B0023350.

Dear Ms. Karaman,

This letter report has been prepared by Arcadis U.S., Inc. (Arcadis) at the request of the University of Washington Bothell and Cascadia College (UWB/CC) in support of planning and permitting associated with potential jurisdictional wetlands which may occur within the campus Planned Unit Development (PUD) boundary. More specifically, this letter report discusses potential jurisdictional wetlands along the southern boundary of the Development Reserve Parcel. Please note that a discussion of regulated wetland areas in the northern portion of the Development Reserve Parcel is done under separate cover in a letter dated April 13, 2015. To support this letter report, a Development Reserve Parcel map included as Figure 1.

This report is necessary because previous permitting associated with campus development under the Phase 1 PUD mitigated for impacts to jurisdictional waters and wetlands throughout the campus property based upon an anticipated build out scenario (Attachment 1). Wetland areas previously mapped within and immediately proximate to the Development Reserve Parcel were accounted for in site-wide mitigation planning; however, some were never filled at the time of initial campus development (Arcadis 2015). While wetlands were not historically mapped along this southern property boundary of the Development Reserve Parcel, neighboring property owners have recently voiced concerns over the extent of ponding observed along this property boundary.

The objectives of this letter report are as follows:

- Provide historical site background information as it pertains to waters and wetlands as regulated by federal, state, and City of Bothell regulations.
- Describe site conditions and preliminary data collection from field work performed during week of February 1, 2016.
- Provide a regulatory framework as it pertains to waters and wetlands on the Development Reserve Parcel.
- Outline recommended action items.

Regulatory Background

Federal, state, and City of Bothell environmental permits associated with unavoidable impacts to waters and wetlands on the campus property were supported by the *Final Mitigation and Monitoring Plan* (L.C. Lee & Associates [LCLA] 1996) and the *Addendum to the Final Mitigation and Monitoring Plan* (LCLA 1998). The former represented a plan based upon the 75% design level, and the latter based upon the 100% design. The final accounting for impacts to waters and wetlands as a result of campus construction was 6.1 acres (LCLA 1998). To compensate for these impacts, the project restored 31.3 acres of waters and wetlands, enhanced 19 acres of waters and wetlands, and restored 2.4 acres of transitional uplands (ARCADIS 2011). Included in this project is the re-construction of approximately 4,000 feet of valuable salmonid stream habitat.

Exhibit D of the *Final Mitigation and Monitoring Plan*, included as Attachment 1, illustrates the waters and wetlands to be impacted during Phase 1 PUD, and differentiates between impacts as a result of construction (i.e., campus development) or "restoration." Please note that consistent with current day terminology within the field of restoration science, this latter group would be identified as those wetland areas to be "enhanced" as a result of the proposed project and are reflected as such in the restored or enhanced area estimates provided above.

Two wetland areas occur on or immediately adjacent to the Development Reserve Parcel. Wetland 14 occurs in the northern portion of the parcel, and is addressed separately in the letter report dated April 13, 2015. Wetland 19 is a small (i.e., 201 square feet [sf]) wetland located immediately southeast, and downgradient, from the southeastern corner of the Development Reserve Parcel. This wetland feature appears to represent a fragmented drainage feature that historically connected to Wetlands 92 and 93. Its location appears to be approximately within the footprint of 110th Avenue NE; and thus was impacted during initial campus development.

Site Background

During the week of February 1st, 2016, Arcadis Principal Ecologist, Douglas Partridge, visited the site to review existing site conditions as well as to meet with pertinent parties that could provide more site background relative to historical conditions and land uses. Specifically, Mr. Partridge met with Jeff Truly, currently on UWB/CC Facilities staff, who lived on the property prior to purchase by the State of

Washington; as well he met with Nico Vanderhorst of OTAK who was been part of the campus engineering team since initial campus development.

While no wetlands were originally mapped along the southern boundary of this parcel, a site drainage feature was constructed which pre-dates the purchase of this parcel by the State of Washington (as per communications with Jeff Truly). Specifically, a linear, man-made ditch was historically constructed along the property boundary and which still exists today. Site photographs are included as Attachment 2. Mr. Truly noted that the Development Reserve Parcel was historically well drained, but that the ditch was constructed to manage water that historically ponded immediately south of the property line and on the City of Bothell property.

A review of the original campus design drawings show a planned road side swale (or ditch) which should run parallel to 110th Avenue NE and immediately to the east and southeast of the Development Reserve Parcel (Attachment 3). A swale with a minimum 2 percent slope was intended to convey surface and shallow surface water to a 24" inch culvert that runs below 110th Avenue NE. Based upon communication with Mr. Vanderhorst, the swale was intended to capture surface water draining from areas north of 110th Avenue NE and prevent any backwatering or impoundment of water that could occur as a result of road construction.

Site Observations

Mr. Partridge observed that the stormwater swale running parallel to, and west of, 110th Avenue NE was no longer functioning and had been filled with sediment as well as an accumulation, and subsequent decomposition of, organic matter. Site photographs of the culvert and areas immediately proximate to it are included as Attachment 2. At the time of the site survey, the culvert was only draining less than 1 inch depth of water that appeared to be primarily captured shallow subsurface water. Observations of staining and/or rack accumulation within and proximate to the culvert did not demonstrate signs of the culvert capturing larger flows than which were observed during the site visit.

As a result of this unmaintained swale that was no longer functioning, significant water was observed to be impounded west of 110th Avenue NE and extending to the western most property boundary. The central portion of this impounded area was the historic, man-made ditch that was observed to have stagnant water with depths ranging from 6 to 16 inches. The extent of ponding at the time of the site visit was far greater than had been previously observed in this portion of the property based upon historic site knowledge of Arcadis, OTAK, and Jeff Truly. A map of surface water ponding as observed during the week of February 2016 site visit is included as Figure 1. These water levels appear to have been exaggerated for potentially at least one year as a result of the un-maintained drainage system and subsequent water impoundment.

Regulatory Framework

The historic ditch that has existed in this portion of the property was not included of the original waters and wetlands site-wide delineation, as performed by L.C. Lee & Associates, Inc. The potential explanation for its exclusion is the feature is an isolated, man-made ditch. Areas to the south within the Development Reserve Parcel never likely met the definition of a regulated wetland. This is confirmed by Mr. Truly's knowledge that these areas were well drained and the man-made ditch effectively conveyed water down-slope. The extent of ponding as observed during the site visit was clearly exaggerated due to long-term impoundment of water in this portion of the property.

The observed feature would not likely be currently regulated under Section 404 and 401 of the Clean Water Act as it is an isolated feature with no hydrologic connection to a "navigable waters". However, portions of the waters/wetlands complex may currently be regulated as a critical area (i.e., wetland) under the City of Bothell Municipal Code (BMC; Section 14.04 Critical Areas Regulation). The man-made ditch is potentially an artificial watercourse as defined by BMC. However, areas proximate to this ditch both north and south potentially now meet the definition of a wetland as defined by U.S. Army Corps of Engineers' *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010).

A number of preliminary sampling plots were established along five transects which extended from the southern property line (i.e., fence-line) into the Development Reserve Parcel and ending at the existing silt fence along the southern boundary of existing lay-down pad. Hydrophytic vegetation parameters were observed in the majority of sample plots along this portion of the property. However it is recognized that significant clearing of Himalayan blackberry (*Rubus armeniacus*), a facultative upland species[1], has occurred in recent past. In addition, restoration plantings with a number of wetland tree and shrub species (i.e., dogwoods, willows) has also occurred in this area. Wetland hydrology indicators were observed; but it is recognized that water has been impounded for a minimum of one year. Finally, hydric soils were observed in certain locations (i.e., depleted below dark surface) immediately proximate to the man-made ditch. However, soil plots were difficult to effectively characterize due to the extent of ponding at the time of the site survey. The soils didn't maintain structural integrity in deeper, more saturated portions of the soil plots; and Mr. Partridge recognized that redox concentrations may be difficult to see under these conditions without significant drying of the soils. A formal wetland line was not established at the time of the survey due to the difficult site conditions. It is recommended that repairs are made to the original drainage swales/ditches along 110th NE Avenue, and then the site revisited later this spring to re-evaluate the soil borings and more effectively delineate any potential regulatory boundary.

Finally, the waters/wetlands complex was evaluated based upon protocols of the Washington State Wetland Rating System for Western Washington (revised October 2014), Department of Ecology publication #0406029. The applicable data sheets are included as Attachment 4. The complex was scored as a Category IV wetland, which is has the lowest level of wetland functioning. These are

[1] Facultative upland is defined as "usually occur in non-wetlands (estimated probability 67% – 99%), but occasionally found in wetlands (estimated probability 1% – 33%)."

wetlands “that should be able to be replaced, and in some cases be able to be improved”. The standard buffer width associated with a Category IV wetland is 50 feet, and a minimum width of 37.5 feet. The later minimum width may only be sought in combination with extensive wetland and buffer enhancements as provided for within Bothell Municipal Code (BMC) 14.04.540 (C)(3) and (F)(2)(a).

Recommended Action Items

The following action items are recommended in chronological order based upon site observations and subsequent discussions with UWB/CC staff.

1. Restore functioning to the designed drainage swale which runs parallel to, and west of 110th Avenue NE. These repairs should be covered under an exempt activity as defined at BMC 14.04.120, and specifically the operation, maintenance, or repair. Specifically, the code states, “Operation, maintenance, or repair of existing structures, infrastructure improvements, utilities, public or private roads, dikes, levees, or drainage systems, that do not require construction permits, if the activity does not further alter or increase the impact to, or encroach further within, the critical area or buffer and there is no increased risk to life or property as a result of the proposed operation, maintenance, or repair.” The applicability of the intended repairs as an exempt activity under BMC could be coordinated with City of Bothell staff.

   It should be stressed that repair is necessary to prevent future impacts to the UWB/CC campus property and/or adjacent land owners from to the water impoundment. Based upon site observations, repairs to the drainage swale will **not** (1) increase the impact to the critical areas; (2) expand further into the critical area or associated buffer; or (3) directly impact an endangered or threatened species.

   Arcadis recommends that OTAK is brought into the discussion for best path forward to ensure that the repairs are made consistent with the original construction drawings and any necessary sediment and erosion control.

2. Upon returning the site conditions to pre-existing conditions through repairs to the drainage swale, it is recommended that Arcadis re-visit the site to more formally delineate any potential wetland regulatory boundary. Arcadis will look to incorporate a professional soil scientist in this site visit.

3. Currently planning activities can conservatively measure the wetland buffer from the mapped extent of water at the time of survey (Figure 1). This boundary will be further refined based upon results of a spring site visit; however it provides a conservative measure to further evaluate site development planning.

If there are any questions, comments or concerns regarding the letter, please do not hesitate to contact me at 203.489.3008 or doug.partridge@arcadis-us.com.

Sincerely,

Arcadis U.S., Inc.

Douglas Partridge, PWS
Principal Ecologist

Copies:
Anthony Guerrero, UWB
Christine Lavelle, UWB
Amy Van Dyke, UWB
Chad Weiser, OTAK
Nico Vanderhorst, OTAK

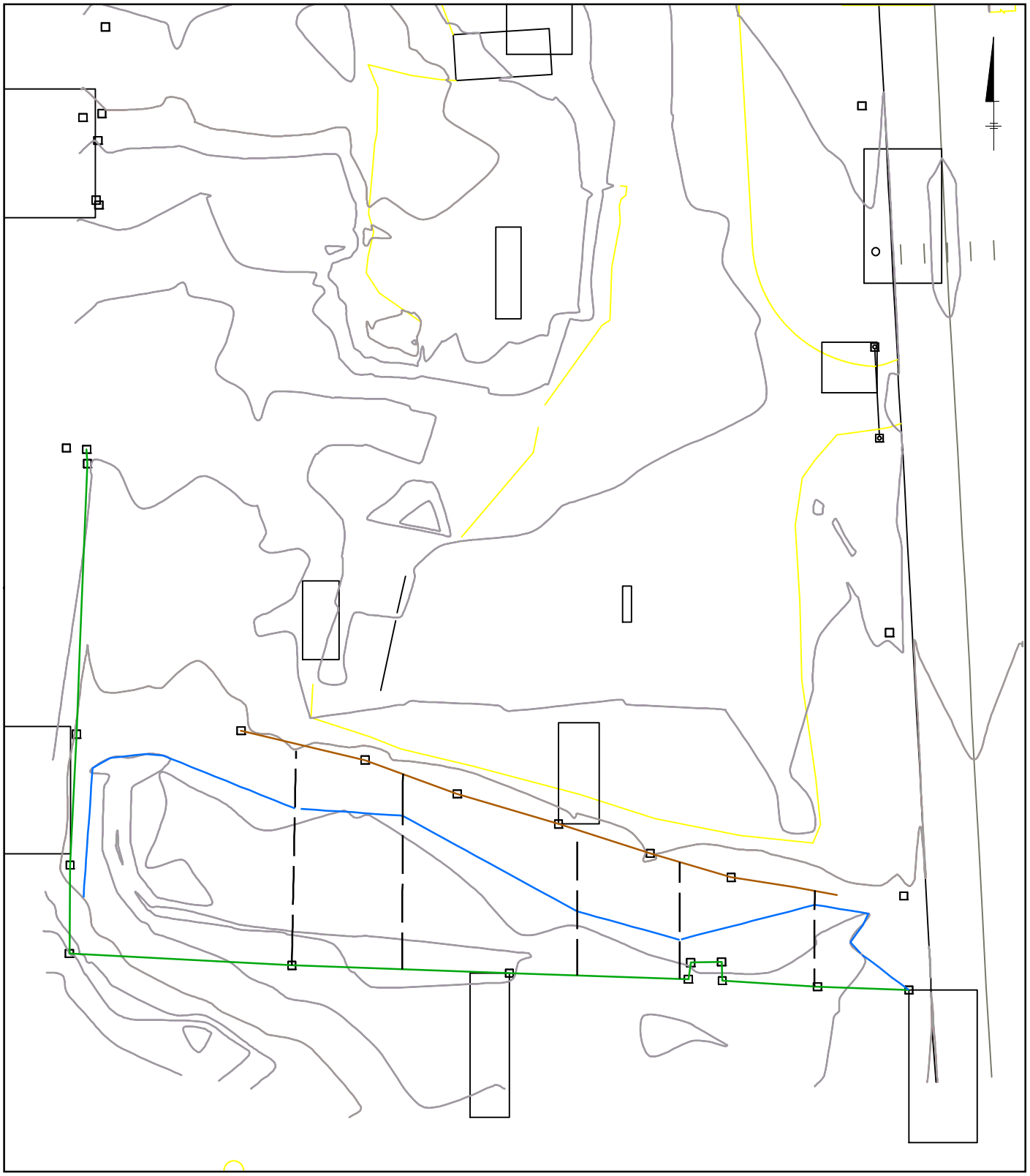
Enclosures:

Figures

1 Development Reserve Parcel Map

Attachments

1 Historic Wetland Map
2 Site Photographs
3 Historic Engineering Site Design Figure
4 Wetland Rating Data Sheet



Legend

- 2016 Field Transects
- Approximate Water Line Feb 2016
- Silt Fence
- Existing Fence Line
- Contours

UNIVERSITY OF WASHINGTON BOTHELL
CASCADIA COLLEGE
BOTHELL, WASHINGTON

DEVELOPMENT RESERVE PARCEL

SITE MAP - 2016 FIELD EFFORT

ARCADIS

FIGURE
1

ATTACHMENT 1

Historic Wetland Map

Exhibit D
Impacts to Waters/ Wetlands from Proposed Campus and Wetland Mitgation
U.S. Army Corps of Engineers Permit 95-4-01737

SCALE: 1"=100'

LEGEND

- IMPACTED BY CONSTRUCTION
- IMPACTED BY RESTORATION

Designed by LCL	Date	Revision
Drawn by MJB/LRE		
Checked by LCL		
Date SEPTEMBER 15, 1995		
SCALE 1"=100'		

CONSULTANT TEAM
NBBJ
Peter Walker William Johnson & Partners
L.C. Lee & Associates
OTAK
Weinstein Copeland Architects
Geoengineers
Aquatic Resource Consultants
Robert Bernstein, Inc./David Kline & Assoc.

L.C. LEE & ASSOCIATES, INC.
221 1st Avenue West, Suite 415 • Seattle, Washington 98119 -
206-283-0673 (Business) • 206-283-0627 (FAX)

University of Washington - Bothell and Cascadia Community College
COLLOCATED CAMPUS AT THE TRULY FARM SITE

Proposed: To construct college campus **Purpose:** To Provide a Collocated Campus for University of Washington-Bothell/Cascadia Community College **Datum:** City of Bothell Datum **Adjacent Property Owners:** See Block 24	**Application by:** Washington State Higher Education Coordinating Board **Location:** I-405 and SR 522, Bothell, King County, Washington **Sheet:** 4 of 9 9/15/95

Exhibit D
Impacts to Waters/ Wetlands from Proposed Campus and Wetland Mitgation
U.S. Army Corps of Engineers Permit 95-4-01737

ATTACHMENT 2

Site Photographs

Project Photolog

University of Washington, Bothell and Cascadia College – Development Reserve Parcel

Photo: 1

Date:
2016

Description:
Man-made ditch along southern property boundary of Development Reserve Parcel

Photo: 2

Date:
2016

Description:
Man-made ditch along southern property boundary of Development Reserve Parcel

Project Photolog

University of Washington, Bothell and Cascadia College – Development Reserve Parcel

Photo: 3

Date:
2016

Description:
Un-maintained drainage swale to 24” culvert. Proximate to 110 Avenue NE. Note no water is flowing to culvert.

Photo: 4

Date:
2016

Description:
Impounded water upstream of 24” culvert. Photo taken looking towards culvert. Water is not allowed to flow to culvert due to sediment and debris accumulation.

Project Photolog

University of Washington, Bothell and Cascadia College – Development Reserve Parcel

Photo: 5

Date:
20146

Description:
24” culvert below 110th Avenue NE. Note limited lack of staining in culvert, as well as minimal amount of debris accumulation.

Photo: 6

Date:
2015

Description:
North

Location:
Un-maintained swale with now water flowing to 24” culvert.

Project Photolog

University of Washington, Bothell and Cascadia College – Development Reserve Parcel

Photo: 7

Date:
2016

Description:
Water ponding, due to impoundment downstream, to north of man-made ditch.

Photo: 8

Date:
2016

Description:
Ponded water along western property boundary of Development Reserve Parcel.

ATTACHMENT 3

Historic Engineering Site Design Figure

MAY 1999

DRAINAGE STRUCTURE TABLE

STRUCTURE				PIPE		GRATE*	
I.D.	TYPE	NORTH.	EAST.	IE (FT.)	DESC.	TYPE	ELEV. (FT.)
CB600	TYPE 1	3780.75	5773.61	117.78	N,S,W	V	121.19
CB610	TYPE 1	3751.21	5765.68	118.40	N,SW	V	121.92
AD601	TYPE A	3784.36	5751.82	118.22	E	A-A	121.60
AD611	TYPE A	3733.01	5741.70	119.00	NE	A-A	122.31

LIMITS OF PHASE 2A ONSITE WORK; CONTINUATION OF WORK PER PHASE 1 OFF-SITE PACKAGE

DEVELOPMENT RESERVE PARCEL

CEMETERY

N 3700 N 3800 N 3900 N 4000 N 4100 N 4200

IE=123.00
N 3706.52
E 5651.68

46 269LF 6"SD S=2.35%

3:1 (TO STA. 16+00)

12 325 LF S=2.0% MIN.

CONNECT 24"x6" WYE IE=116.6± (TYP. EA.)

IE=117.00
N 3977.98
E 5647.74

12 87 LF S=2.0% MIN.

46 288LF 6"SD S=0.50%

SWALE OF INTEREST

2' (TYP)

CB581 CB571 CB561

CB580 CB570 CB550 CB560

26 LF 12"SD S=13.85%

122 LF 12"SD S=3.85%

60 LF 12"SD S=3.05%

39 LF 24"SD S=4.54%

81 LF 12"SD S=1.50%

57 LF 6"SD S=10.7%

TRANSITION TO INTERIM GRADING AROUND TRULY HOUSE

SIDEWALK CAMPUS AS AN 1+87

12 70 LF S=2.0% MIN.

AD611 AD601 CB610 CB600

30 LF 8"SD S=2.00%

22LF 8"SD S=2.00%

31 LF 8"SD S=2.00%

51 LF 8"SD S=2.00%

IE=114.78
N 3953.37
E 5712.31

IE=116.76
N 3826.95
E 5795.11

12 75 LF S=2.0% MIN.

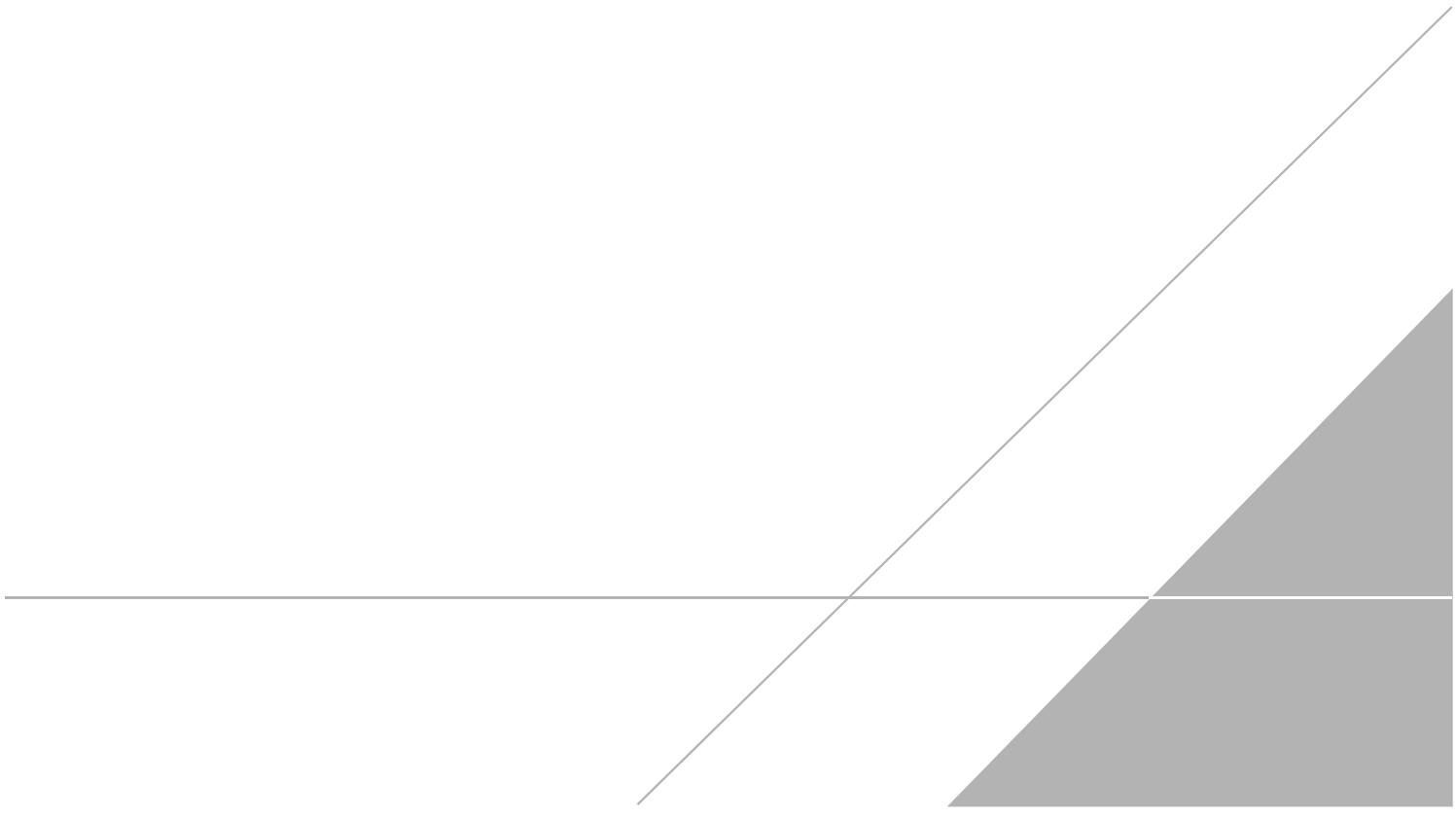
12 335 LF S=2.0% MIN.

12 300 LF S=2.0% MIN.

6' (TYP.)

ATTACHMENT 4

Wetland Rating Data Sheet



Wetland name or number _____

RATING SUMMARY – Western Washington

Name of wetland (or ID #): UWB/CC DEVELOPMENT RESERVE Date of site visit: FEB 3, 2016

Rated by DOUGLAS PARTRIDGE, PWS Trained by Ecology?__ Yes _X_No Date of training_____

HGM Class used for rating DEPRESSION Wetland has multiple HGM classes?_X_Y ____N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map GOOGLE EARTH

OVERALL WETLAND CATEGORY IV (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

_____**Category III** – Total score = 16 - 19

14 **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	H M (L)	H (M) L	
Landscape Potential	H (M) L	H (M) L	H M (L)	
Value	H (M) L	H M (L)	H M (L)	**TOTAL**
Score Based on Ratings	6	4	4	14

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	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	

Wetland name or number _____

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). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
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 points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area 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 points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Scored based upon anticipated/historic condition.	0
Total for D 1 Add the points in the boxes above	7

Rating of Site Potential If score is: ___ **12-16 = H** X **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** X **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	0
Total for D 3 Add the points in the boxes above	1

Rating of Value If score is: ___ **2-4 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number _____

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	2
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	5

Rating of Site Potential If score is: ___**12-16 = H** ___**6-11 = M** X **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	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** X **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** X **0 = L** *Record the rating on the first page*

*Conservatively assumed based upon location of road and lay down pad.

Wetland name or number _____

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	4 structures or more: points = 4
____	Emergent	3 structures: points = 2
__X__	Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
__X__	Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

__X__ 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	4 or more types present: points = 3
__X__	Seasonally flooded or inundated	3 types present: points = 2
____	Occasionally flooded or inundated	2 types present: points = 1
__X__	Saturated only	1 type 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.

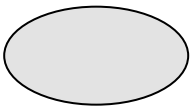
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

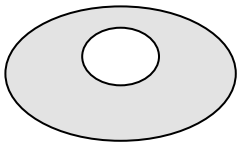
1

H 1.4. Interspersion of habitats

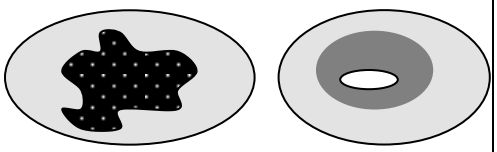
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

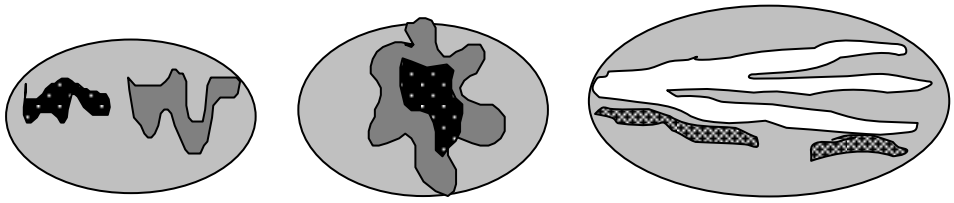


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



2

Wetland name or number _____

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.* _X_ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). _X_ 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)* _X_ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	9

Rating of Site Potential If score is:___**15-18 = H** _X_**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 functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ **+** [(% moderate and 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:* % undisturbed habitat___ **+** [(% moderate and low intensity land uses)/2]___ **=** _____% 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	0
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 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-2

Rating of Landscape Potential If score is**:**___**4-6 = H** ___**1-3 = M** _X_**< 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) within 100 m points = 1 Site does not meet any of the criteria above points = 0	0

Rating of Value If score is:___**2 = H** ___**1 = M** _X_**0 = L** *Record the rating on the first page*

APPENDIX D

Historic Resources Addendum

The Truly House & Chase Residence
University of Washington Bothell/Cascadia College Campus
Historic Resources Addendum

BOLA Architecture + Planning
Revised March 9, 2017

1. INTRODUCTION

Background

The University of Washington Bothell is situated on the site of a wetland along the Sammamish River, near the interchange of highways 405 and 522. The 128-acre campus is located about one mile west of the commercial core of Bothell, Washington. Planned in 1995, in accordance with an initial master plan by NBBJ Architects of Seattle, it was built in phases over the past 18 years. The campus site was made up by a small, early 20th century agricultural property, identified as the George Wilson Homestead and the Boone-Truly Ranch, along with a collection of late 19th and early 20th century residences in a community known originally as Stringtown. Among these was the residence of Dr. Reuben Chase, the first medical doctor in the city of Bothell.

Initial planning and construction of the new campus in the mid- to late-1990s involved restoration of wetlands on the site and demolition of all but one of buildings and structures that remained on the ranch site. It later involved relocation of the Truly House from its original location on what would become the center of the campus to a new site at a higher elevation level near its west side. The Truly House presently serves as the Teaching & Learning Center and auxiliary faculty workspace for UW Bothell.

Historic Research

Research for this report and a site visit to review current conditions were undertaken in late July and early August 2016. The HRA report was drafted and reviewed in late August and September, and completed in early October 2016. In late February and early 2017 additional research was undertaken, and the report was revised following the development of options for the campus master plan.

In developing the report BOLA personnel undertook research to provide historical context and factual data about the development of the Cascadia College and UW Bothell campus and the rehabilitations of the two buildings. Research sources included drawings, maps, and studies provided by the University of Washington and those available from its Facilities Records Archives, reviews of digital photo collections of the UW Libraries Special Collections (UWLSC), Museum of History and Industry (MOHAI), and Bothell Historical Museum (BHM), as well as historic inventories and National Register nomination documents available through the DAHP website, and the 1997 Historic American Building Survey (HABS) report on the Boone-Truly Ranch, which is available from the Library of Congress.

This report was developed by principal Susan Boyle, AIA, and Preservation Planning Intern Julia Grey, with assistance from Associate Sonja Molchany of BOLA Architecture + Planning, UW Project Manager Julie Blakeslee, and UW Bothell Director of Physical Planning and Space Management, Amy Van Dyke.

Regulatory Framework for Historic Preservation

The University of Washington established historic preservation policies over a dozen years ago, which are cited in the "University of Washington Master Plan—Seattle Campus" of January 2003 (Campus Master Plan). As noted in this plan, the University has required historic and urban design information for any project that makes exterior alterations to a building over 50 years old, or is adjacent to a building or a significant campus feature older than 50 years. The information, along with an evaluation of the project's impacts and mitigation recommendations, are provided in a document, such as this one, known as a Historic Resources Addendum (HRA).

The University's HRA format has been used to develop this report. The information it contains is intended to help guiding future planning on the UW Bothell campus. It also will contribute to environmental reviews of the proposed campus master plan in compliance with the State Environmental Policy Act (SEPA), and in reviews by the University with interested parties and individuals, the City of Bothell, and the Washington State Department of Archaeology and Historic Preservation (DAHP).

2. CAMPUS PLANNING

The Setting

According to King County i-Map, the University of Washington/Cascadia College Campus is located at 18225 NE Campus Parkway, Bothell 98011, and the parcel number is 052605-9057. The legal description cites the following: LOT A BOTHELL BLA #BLA2003-00008 REC #20040825900002 SD BLA BEING POR SE 5-26-5 LY SWLY OF ST HWY & SELY OF BEARDSLEY BLVD TGW POR NE 8-26-5 LY NWLY OF ST HWY TGW POR SE 1/4 OF SD NE 1/4 LY SELY OF ST HWY & NLY OF SAMMAMISH RIVER TGW LOT 36 QUADRANT BUSINESS PARK - BOTHELL LESS POR FOR HWY PER REC# 20061204000292.

The campus covers nearly 130 acres, made up by a partially sloping site, with forested edges and a wetland. It is bordered by Beardslee Boulevard, North Creek Heights residential neighborhood, and the Sunrise/Valley View neighborhood to the north and west. Interstate 405 is to the east and State Route 522 to the south.

Development of the Campus Site

UW Bothell was established in 1990 as part of a Washington Higher Education Coordinating Board proposal (Warner, n.p.). The establishment of the campus followed a 1987 identification of inadequate higher level education within the state of Washington, and a 1989 legislative authorization to add two "branch" campuses to the University of Washington (CMP 1995, p. 4). These two branches became UW Bothell and UW Tacoma. UW Bothell held classes for about 10 years in an office park while plans were made to relocate its facilities to an adequate campus (Van Dyke).

The current site was chosen to be shared by UW Bothell and Cascadia College in response to population forecasts, educational needs assessments, site/environmental evaluations, and a need for both higher education and work force training in a similar geographic area (Pennucci, p. 16; CMP 1995, p. 4). This general area of Bothell was targeted due to an anticipated population increase in recent years, accompanied by a lack of community colleges accessible to those preparing to enter the workforce.

The plan to collocate the two institutions was initiated in 1993 as a directive from the Legislature. The proposal for a higher education institution was a response to a reported need for increased post-secondary

education and work training for residents of King and Snohomish Counties. The initial master plan sought to summarize the needs identified in several studies leading up to the founding of the colleges and involved a cooperative endeavor between community representatives, public servants, and university constituents (CMP 1995, p. 1). After approval of the Truly Farms/Stringtown site, a series of documents were produced along with the initial Campus Master Plan, including draft and final environmental statements and a Planned Unit Development document for the City of Bothell (CMP 1995, p. 3). Classes began on the new campus site in 2000.

The college and university, in keeping with their mission to provide opportunities for higher education within the state of Washington, continue to maintain a high in-state enrollment rate (approximately 80%). For the 2015 academic year, the combined enrollment was 5,279, with 4,402 undergraduates and 530 graduate students.

Design and Construction on the Campus

Construction of the campus has taken place in several phases as legislation and funding have allowed. Designs have been approved in seven Planned Unit Developments (PUDs) to date. The following chart cites continuing construction phases and their corresponding dates:

PUD	Project	Approved Date	Construction Completed
1	Phase 1	1998	2000
2	Phase 2a	1999	2001
3	Cascadia College 3 (GLA)	2008	2010
4	UWB3 (Discovery Hall)	2011	2014
5	Sportsfield/Conservatory	2012	2013
6	Student Activities Center	2014	2015
7	Surface Parking Lot	2015	2016

(Information sources: UW Engineering Records 1998-2016; UW Bothell website; Amy Van Dyke, Director of Physical Planning and Space Management, UW Bothell.)

The first step (Phase 1) called for preparation of the site and involved conducting environmental restoration and enhancement (CMP 1995, p. 78). Phase 1 also involved construction of the library and two other campus buildings, partial completion of pedestrian promenade, establishment of parking areas and garages, and informal paths linking parking to buildings (CMP 1995, p. 78). A major goal of Phase 1 construction was to restore the wetlands to their previous state, which was done in large part by re-routing the bend in North Creek. By the end of Phase 1, three campus buildings had been constructed: the main building and library (shared by UW Bothell and Cascadia College), CC1 (classrooms and offices for Cascadia College) and UW1 (classrooms and offices for UW Bothell).

Phase 2a included construction of an auxiliary library building and bookstore, and two new buildings – CC2 (classrooms and offices for Cascadia College) and UW2 (classrooms and offices for UW Bothell) – and the addition of access by the creation of a pedestrian connection to downtown Bothell and extending the pedestrian boardwalk from the center of campus to the wetlands.

In 2008-2010, the South Entrance access point, via State Route 522, was constructed. During this time, Cascadia College 3 or the Global Learning & the Arts building for Cascadia College was also completed. This was followed by plans for a multi-purpose sports field, which were developed in 2011. The sports

field was completed in 2013, along with construction of a greenhouse conservatory that serves as a research center for the surrounding wetlands.

In 2014, UW Bothell Phase 3, later identified as Discovery Hall, was the first major building to be constructed on the campus in over a decade. The new, 74,000 square foot, four-story building, situated adjacent to the earlier Commons Hall, was designed to accommodate the growing student population and expend STEM academic disciplines. The new building featured a flat roof mass with brick cladding and large windows, affirming the general architectural design that has characterized the campus. Later, in 2015, the Activities and Recreation Center, a student-initiated project, was completed.

Left, a view of Discovery Hall, the newest major building on the campus. This view, looking southwest from the Library shows the main area of the campus. The Truly House is situated at the upper level to the northwest (photo courtesy of Glumac).

In 2016 a 143-stall surface parking lot was built on an open space along 110th Avenue NE near the eastern edge of campus in close proximity to the relocated Truly House. The new lot resulted in a total of over 2,500 parking spaces on the campus, serving commuting students, faculty and staff.

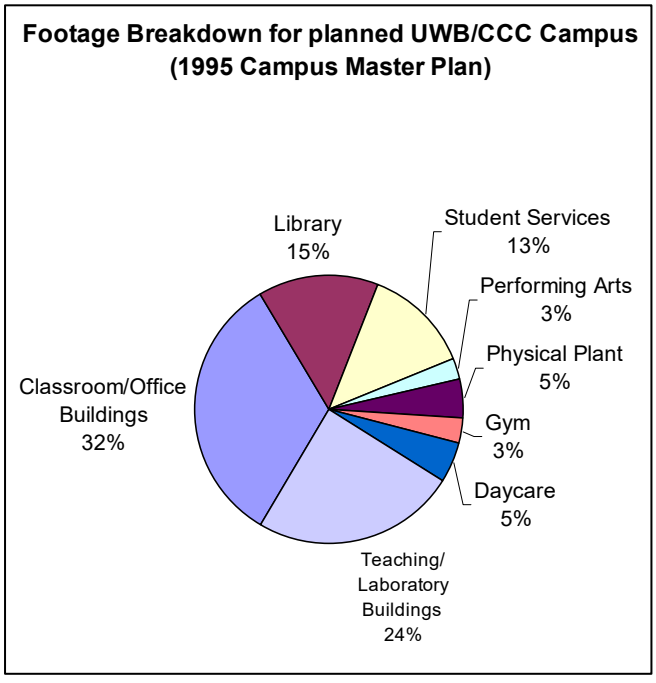
Left, a site plan of the new parking lot in proximity of the relocated Truly House. The western portion of Discovery Hall is shown also on this plan. (North is oriented to the right.) Below, aerial view of the lot, looking west, with the house partially visible to the right (north) (University of Washington Bothell News, April 2016).

Campus Master Plans

The land makes up 128 acres (approximately 5,532,120 square feet). Of this, 55% is protected and/or undevelopable due to its ecological fragility, and 18% has already been developed. The remaining 27%, or 34 acres, is available for future development.

The University of Washington Bothell has updated its initial 1995 campus master plan in 2003, 2006, and 2010 with a 2011 amendment. Recurring themes of the master plan include integration with and retention of the natural environment, simplicity and accessibility of the campus, and assimilation with the community of Bothell. The unique setting of the campus has, in a general sense, dictated the site and construction planning. To that end, the UW Bothell/Cascadia College planning components have sought opportunities to create a "*functional campus* developed in an *environmentally sensitive* manner" (CMP 1995, p. 2).

Objectives of the First Campus Master Plan, involved formulating the mission statements of the respective institutions, allocation of space and a site plan, and beginning a phasing structure for construction, revolving around routine Regulatory Reviews and Approvals (CMP 1995, p. 5-6). While meeting the education needs of the greater community was paramount to the Master Plan, the committee recognized the multi-faceted use of the developed site: "the State recognizes the importance of addressing multiple public policy goals at the Truly Farm-Stringtown site: expanded educational access, *environmental enhancement and preservation*, and public use" (emphasis added, CMP 1995, p. 5). In addition, the plan acknowledged the importance of the existing cultural resources on the chosen site, and pledged to "reflect and respect historical aspects of the built environment, both on- and off-site (e.g. the cemetery, Stringtown)" (CMP 1995, p. 11).



Goals of the original Master Plan were centered on the community, environment, and campus facilities. Community goals of included a desire to "complement the 'hometown' feel of downtown Bothell" and "promote formal economic development connections with the business community" (CMP 1995, p. 10). Environmental goals included balancing "environmental protection and public access to stream and wetlands ecosystem." Campus Facilities Goals emphasized a "flexible," building forms, while keeping the library the focal point of the physical campus (CMP 1995, p. 11-12).

Left, an illustration of the proposed allocation of facility resources based on the 1995 Master Plan, which anticipated an eventual maximum of 10,000 full-time equivalent student and equal number of faculty, and a projected capacity of 7,400 individuals on campus at any one time (CMP 1995, p. 16).

Plans call for the construction of architecturally prominent campus buildings, exemplified by recently constructed Cascadia College's Global Learning & the Arts building (2010), Sarah Simonds Green Conservatory (2013), and Discovery Hall (2014). In addition, the campus plans promote a long-term effort to restore the environmental flood plain. The campus has met the federal Clean Water Act Section

404 permit requirements for monitoring. Long-term maintenance includes ongoing weed and pest control, cleanup of trash, trail maintenance and possible thinning.

Access and transportation have been at the forefront of campus planning. The targeted UW Bothell or Cascadia College student, and much of the staff and faculty, often commuter to campus and may not be on campus for the full day. As a result ease of access, on-site parking, and connection to transit systems have been a priority in developing the campus layout. This has resulted in recent construction of additional parking lots on the campus.

Above, a current campus map showing existing conditions, including building, recreational and parking facilities and the wetlands, along with student housing. The historic Chase House is identified in the lower left and the Truly House in the center top. North is oriented to the right (UW Bothell Campus Map Update, April 2016).

The current, ongoing master planning effort has identified three potential options for future development. These are illustrated in preliminary presentation documents as cited as "Grow along Topography," "Develop the Core," and "Institutional Identity." The "cohesive character" of the buildings is one of the conceptual principles adopted to guide the Campus Master Plan.

3. HISTORIC CONTEXT

Historical Overview

Prior to the presence of European-Americans, the area along the Sammamish River and the north end of Lake Washington was settled by Duwamish people known as "willow people" or "people of the Lake." Other Native American tribes in the area included the Suquamish, Duwamish, and Snoqualmie tribes, who were connected with the Sammamish. Bothell was founded in 1889, but the area was settled nearly 20 years prior to this date by George Rutter Wilson and Columbus Greenleaf (Warner, p. 6). Enabled by the Homestead Act of 1862, Wilson began acquiring land in 1870. By his death in 1916, he had amassed a 360 acre estate, which sustained the activities of agriculture, livestock pasturing, and logging. Benjamin E. Boone, a Seattle businessman, acquired Wilson's farm in the early 1920s and developed the area, primarily as a cattle ranch.

Above, a historic photo of the Stringtown area. This view shows the road and houses, which may include the Chase Residence in the late 19th century (photo courtesy of Bothell Historical Museum).

The Boone –Truly House was built in the 1920s to replace Wilson's house and accommodate Boone's hunting activities (Warner, p. 7). A few years after Boone's death in 1960, his daughter Beverly Boone-Truly and her husband, Richard Truly, purchased the homestead. They continued to operate it along with their children and other friends as family members as a cattle ranch. Activities on the site included an annual community gathering during a three-day summer round-up and branding activities (Freidberg, ca. 2013).

In contrast to the largely 20th century development of the Boone-Truly ranch, the original Stringtown area was developed by pioneer settlers as early as the 1870s (CMP 2006, p. 7). Stringtown received its name from the series of houses arranged in a linear manner during settlement. The area, historically a swampy wetland, was drained by the construction of a log flume in the 1880s, enabling pioneers to build their homes along the Sammamish slough (HABS WA-217, p. 3). Stringtown was regarded as the first residential development in Bothell (Wilma, HistoryLink.org, n.p.) This area is located on the southern portion of the present-day campus site, southeast of downtown Bothell. The Chase Residence, home of

the area's earliest doctor Reuben Chase, is a remnant of this residential settlement, and it is associated with the development of nearby Bothell. This town was incorporated in 1909. At that time, it contained an area of approximately 450 acres with a population of about 500. Its subsequent development was based on logging and agriculture with products shipping by boat along the river to Lake Washington and from there to settlements along the shoreline and Seattle. There were few local roads by this period, and passengers traveling to and from Bothell arrived on boats.

In 1917, Lake Washington was lowered upon completion of the Ship Canal and Government Locks, and water transport on the river and lake largely ended. The economy of the city continued to rely largely on the trade and shipping of agricultural products from nearby farms (Wilma, HistoryLink.org, n.p.). Roads through the city developed, linking it with the cities of Maltby and Edmonds, and later with Seattle.

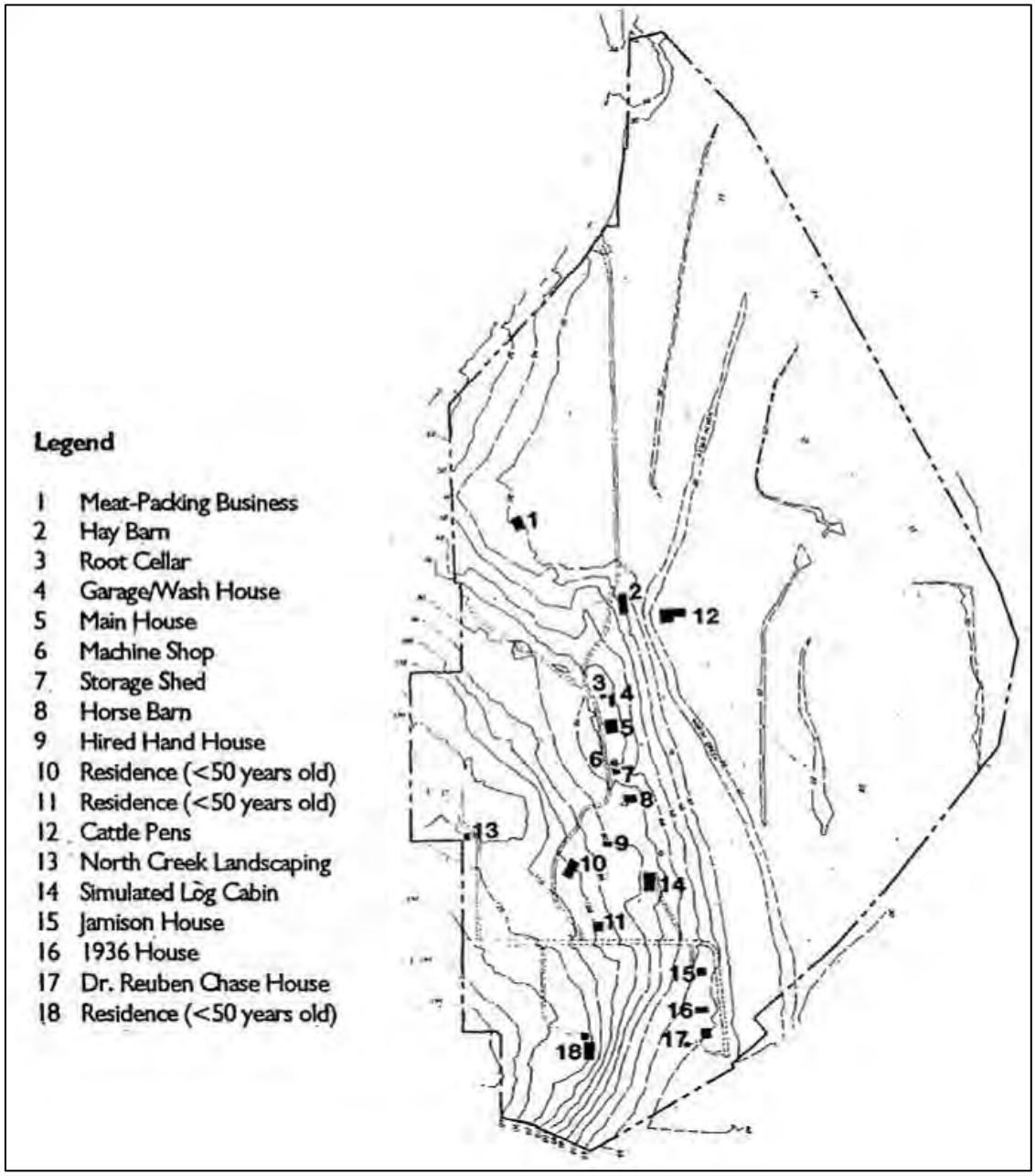
The Bothell-Everett Road, built initially State Highway No. 1, was paved by 1926, long before the Seattle-Everett section of Highway 99. It linked Bothell to Everett and Bellingham and beyond to northwest Washington communities and Canada. These connections helped to spur local commercial and residential growth. Bothell grew slowly through the 1930, reaching a population of fewer than 800 residents by 1940. By this time, it served largely as a bedroom community for Seattle and Everett. During the post-war period of economic expansion, the city grew from its original 450 acres to its present area of 8,732 acres (13.7 square miles), with numerous annexations between 1950 and 2014.

Left, a 1936 aerial view of campus area showing the locations of the Truly House and Chase Residence at that date (King County i-Map with added notations by BOLA). (North is oriented up.)

4. THE TRULY HOUSE

Historic Significance

The Richard H. Truly House is presently addressed at 18140 110th Avenue NE, but before the campus was built it was at 11119 NE 185th Street. As part of the preliminary assessment for the site of the UW Bothell and Cascadia College, the Boone-Truly Ranch was included in a historic resource assessment in 1995 by HRA Consulting and was documented in a Historic American Building Survey (HABS) report, WA-218, in 1997 by Boyle Wagoner Architects. The map below, which cites all of the constructed components of the ranch and surrounding buildings, was part of this report. It identifies the Truly House as No. 5, and the Chase House as No. 17.



A historic property inventory form was developed for the Truly House in 1995 and updated in 2008. (DAHP has not reviewed the property and has not made a determination of its eligibility for listing in the National Register of Historic Places.)

After white pioneers arrived in the area, the site was settled by George Wilson and William Bramwell Bishop, who staked respective claims on the unsurveyed land in the early 1870s (Boyle, WA-218, p. 2). George Wilson was primarily responsible for developing the homestead, using the surrounding timber to establish a logging operation on his territory. He built a house on the property in 1888, accompanied by several outbuildings (Boyle Wagoner, p. 3). Wilson owned the property (which he had augmented by buying several surrounding lots), until his death in 1916.

The homestead was subsequently sold to Benjamin Ewing Boone (a relative of early pioneer Daniel Boone). Boone was born in 1876 in Arkansas, and moved with his family several times—to Texas and Montana—before he set off on his own to pan gold in Cripple Creek, Colorado. From there, he joined the Klondike Gold Rush in 1897, and met with a good measure of success, such that his family came to join him and assist with the mining operation. In 1908, following his years mining gold in Alaska, Boone moved to Seattle, relocated to New York briefly to obtain business training, and then moved back to the Pacific Northwest, establishing automobile dealerships in Portland, Seattle, and Vancouver, B.C. Eventually he settled in Seattle, married his second wife and raised his family (Boyle Wagoner, p. 4).

Boone originally used the Wilson property as a second residence for duck hunting, but moved his family there around 1920, a few years after Lake Washington was lowered due to the construction of the Montlake Ship Canal. The drainage of Boone's property provided him with a more pastoral landscape, which worked well for developing his cattle ranching operation. In addition to breeding and selling cattle, the Boone family was instrumental in bringing the Texas rodeo culture to the Northwest (Boyle Wagoner, p. 6; Ott, n.p.).

The presence of a cattle ranch was unique in the area, and it continued to operate until Boone's death in 1960. His daughter, Beverly Boone-Truly, and her husband Richard Truly, bought the property and resumed cattle ranching operation two years later, maintaining it into the early 1990s.

The Truly House was built in 1924 to replace an earlier pioneer era structure, which had served as the residence of homesteader George Wilson and dated from his occupancy in the 1880s. Some elements that remained in the kitchen in the mid-1990s, when the house was still at its original location, indicated that there may have been some historic fabric from Wilson's home used in the later, craftsman style residence (Boyle Wagoner, p. 4). At that time, prior to the development of the campus, the Boone-Truly Ranch consisted of nineteen buildings and structures, including a hay barn, root cellar, garage, wash house, machine shop, horse barn and hired hand house, along with the main house and non-historic cattle pens, storage shed and meat processing structure. The historic inventory of the property in 1995, when it remained intact, noted the surveyor's preliminary evaluation that , "several buildings and one structure of what is now the Truly Farm are eligible for listing in the National Register as an historical district … significant for long-term history in the agricultural land use of the Bothell area" (Warner, executive summary, n.p.). The Truly House is presently the only building remaining from the historic Boone-Truly Ranch.

Above, the UW Bothell/Cascadia College campus and surrounding area, with indications of the original and present locations of the Truly House, as well as the location of the Chase Residence (King County i-Map, ca. 2013, with added notation by BOLA).

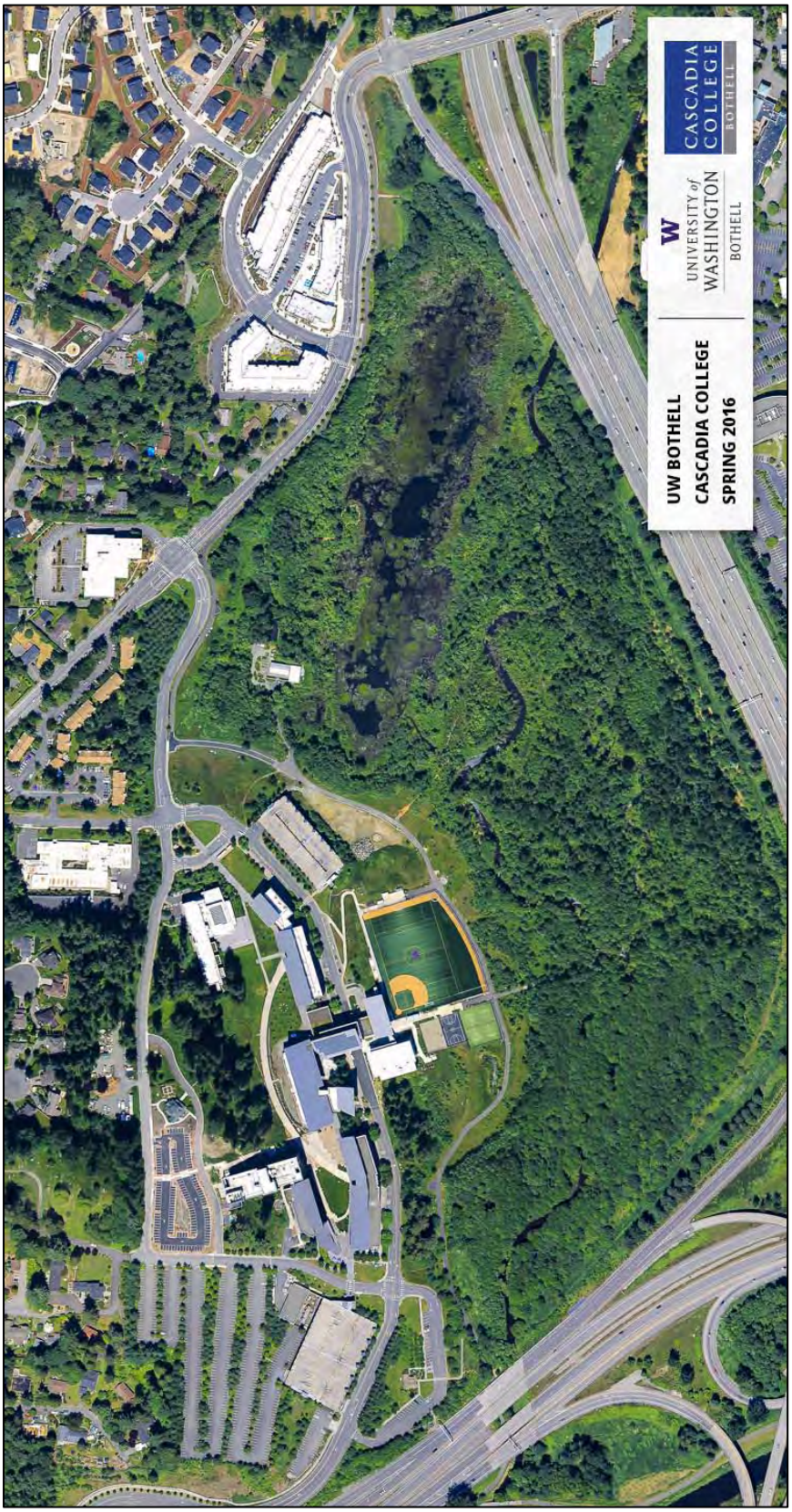
Above, the HABS photo of the west elevation in 1997 (Photographer: John Stamets).

Above, the Truly House in its present location (Historic Property Inventory Form, ca. 2002 update, DAHP WISAARD database). The main entrance to the house, which originally faced west, presently faces northwest.

In addition to the main residence, the Boone-Truly Ranch included a wash house, wood shed/garage, root cellar, machine shop, storage shed, hired hand house, horse barn, cattle pens, and hay barn. These buildings were demolished to make way for the new campus, and the ranch house was relocated to a site southwest of its original location around 1998.

The house continued to be accessible to Richard Truly until his death on January 2, 2009. It is presently used as an auxiliary faculty facility and Teaching & Learning Center for UW Bothell.

Above, an aerial view from 2013 of the central part of the campus (King County i-map) during construction of Discovery Hall and prior to construction of the parking lot to the south of the Truly House. The house, visible in the center left section of the photo, was then somewhat isolated from other campus buildings. The street to the left (west) is 110th Avenue NE. A parking lot was recently constructed to the south of the house.



Left, a current aerial view of the campus. (North is oriented up). The Truly House is visible in the center left section of the photo and in the larger-scale view above, along with an associated garden with geometric pattern to the north of it and the newer parking lot to the south.

Architectural Features

The Truly House was designed in the bungalow/craftsman style indicative of the 1910s and 1920s, when the Sears and Roebuck catalogue and availability of standardized lumber sizes made it possible for the self-made homebuilder to construct planned buildings following common schematic drawings. The building's historical function as a ranch house is not clearly apparent from an onlooker's perspective; however, certain features, such as the wraparound porch, rustic details on the supporting porch columns, and the interior staircase give the impression of a humble country residence. The rose garden located on the northern elevation is a new addition, a memorial tribute to the rose garden of the original land owner, George Wilson, and to Beverly Boone-Truly's love of roses.

Changes to the House

Aside from some original spaces, such as the interior staircase and downstairs kitchen, the interior of the Truly House has been rehabilitated to serve the academic and office use of the building. The basic floor plan remains intact, but some changes made:

- The house was originally situated into a hillock, which made the north entry accessible from ground level, while the east elevation was raised up, exposing part of the cellar level. The present grade change is less severe in the new siting; the north (now NE) entrance accessible by a low-grade ramp from the southeast and new stairs that approach the door directly.
- Orientation changed, with the main entrance presently facing northwest. The current front year area contains a developed garden rather than restrained turf and shrubs; a meadow-like landscape is situated to west. A curvilinear concrete sidewalk leads up to the main entry steps. The romantic style of some of the current landscape is an amenity, but it appears inconsistent with the simpler vernacular design of the original ranch setting.
- A wide, paved pedestrian walkway (emergency vehicle access route) was built along the building's east side.
- The larger of two chimneys has been altered; some brick has been removed, exposing the lining.
- The main porch and stairs leading to it are more elevated; railings have been raised also.
- Address numbers and banners have been affixed to the entrance portico. .
- An original low fence, used to flank the steps to the main entry porch, is no longer extant. (The fence was wooden post and board to the south side of the house, and post and wire to the north.)
- In 2011-2012, the Truly House was modified for access control (wiring). Other minor alterations include repainting of the exterior cladding and trim. Flashing and gutters have been upgraded, and the roof was replaced
- In 2016 the site context was changed with the construction of the large paved parking lot to the south.

Historical Integrity

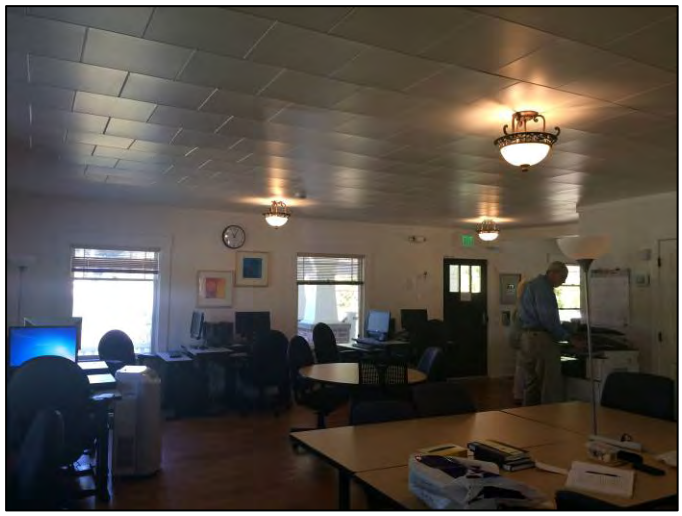
The Secretary of the U.S. Department of the Interior has established criteria for evaluating the integrity of a historic resource. Its integrity may be defined by the following seven aspects: location, design, setting, materials, workmanship, feeling, and association. Using these criteria, it appears that the Truly House retains some aspects of integrity in relation to materials and workmanship, but that these elements along, without the context of the original site, cannot convey its original significance as an early agricultural property. The location and setting of the house have been changed radically. As a result, the setting, feeling and association of place have been lost. Use of the land has changed also, and the landscape and environment have been altered with the re-establishment of a wetland reflecting a natural state prior to the establishment of the Wilson Homestead and Boone-Truly Ranch. With the return of the wetlands

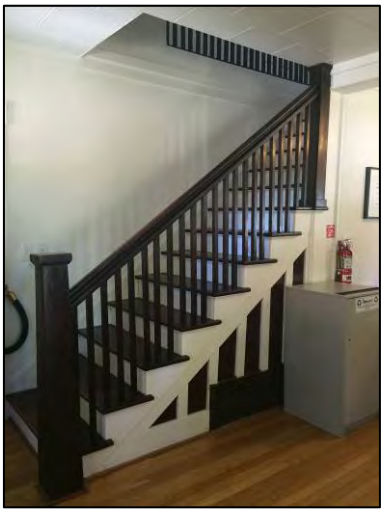
and increased construction of new campus buildings and facilities – and in particular the nearby paved parking lot and roadbeds -- the ranch house feels anachronous. The "legacy" rose garden, while an attractive amenity, is a gestural reference to history without adequate basis for interpretation.
The present Truly House does not appear to convey its significance in connection to the agricultural past, and does not appear to meet the listing criteria of the National Register of Historic Places.

Benjamin Boone and Richard Truly well regarded people in the community. Boone's reputation as a Seattle businessman preceded his acquisition of the ranch, but he and Richard Truly and Beverly Boone-Truly were equally active in upholding ranch traditions and local rodeo culture for many years, and several of their family members remain in the area. Because of these associations, the University made efforts to retain the house by relocating and adapting it in the 1990s. It also recognized Richard Truly's legacy presence on the campus after he bequeathed scholarship funds upon his death in 2009.

Left, a photograph of north façade in its original location (Boone Truly Ranch HABS report, John Stamets, photographer, 1997). Below, a similar current photo of the corresponding elevation in the present location (BOLA, July 29, 2016).

Above, current context views of the Truly House, the nearby parking lot, and the campus facility services storage yard, across the street on the west side of 110th Avenue NE (BOLA, July 29, 2016).





Above, detail views of the front porch and interior of the Truly House.

Left, a view of the house from a newer campus building (BOLA, July 29, 2016, all photos).

5. THE CHASE RESIDENCE

Historic Significance

The Chase Residence is presently addressed at 17936 113th Avenue NE, although before the UW Bothell campus was built, the address was 17819 113th Avenue NE. The house was built in ca. 1885, and was one of the first houses in a small settlement of roughly six dwellings that made up the community of Stringtown. In 1990, over a century later, two other houses remained from the original settlement. One of these, the neighboring Jamison house, was documented in a 1997 Historic American Buildings Survey, after the property had been acquired by the University. The Jamison house was subsequently demolished. Of the original Stringtown settlement, the Chase Residence is the only remaining structure.

The historic owner of the property, Dr. Reuben Chase, came to the Pacific Northwest in 1889 after earning his medical degree in Cincinnati and practicing for several years. Born in Vermont, he served in the Civil War. He relocated to the Seattle area for health reasons, and was sent specifically to Bothell in order to respond to a localized typhoid epidemic that plagued the area. Chase lived and practiced out of the Stringtown house for about six years, building up a successful rapport. He made some modifications to the house, mainly with the addition of bay windows; the modifications were compatible with the building, and representative of the character of the settlement. During its period of historical significance, "The house served both as office, the community's first hospital, and Chase's residence" (Garwood, NR Nomination, n.p.).

The house has been further modified since Chase's occupancy; the porch was enclosed, and a shed-roof addition was constructed on the first level of the rear facade. Prior to the university's acquisition the house was owned and occupied by Susie and Jim Quinan. The Quinans purchased the property in the 1980s and had undertaken sensitive repairs. It was during their ownership that the City of Bothell prepared a National Register nomination for the property. The Chase Residence, at 17819 113th Avenue NE, was listed on the National Register of Historic Places on August 27, 1990 (Listing No. 900001246). In addition to its listing on the National Register, the house was designated a Bothell City Landmark.

Changes to the Property

According to the National Register nomination for the house, the gable-and-wing, frame construction was a good example of "pioneer era residential architecture" (NR Nomination, n.p.). The building features a T-shaped plan and one and half story, gable, post and beam construction with wood cladding and wood framed windows. The original site was a small parcel with garden landscaping. It was one of several small dwellings situated on a straight country road.

At one point there was consideration given to relocating the Chase Residence. However it has remained at its original location, where it has been provided with a new foundation. After the University acquired the property, the house was renovated and its interior changed to accommodate public access and office use. In 2001, the building received a new roof with asphalt roofing shingles and custom windows, new flooring and finishes, ADA compliant plumbing fixtures, HVAC components, lighting, electrical and security systems, and paint, along with lead abatement (University's facility records). The building is presently used as an office by Commuter Services.

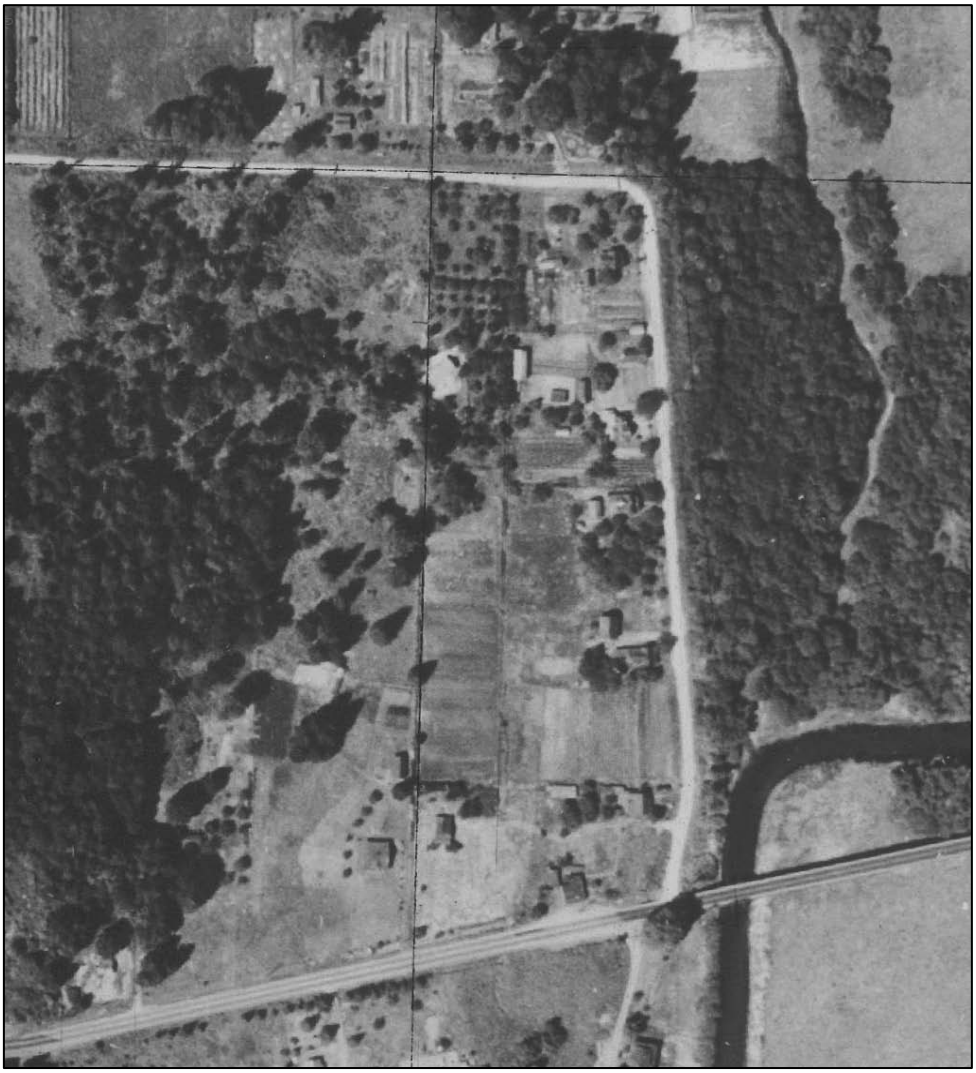
The setting and site context were changed by the establishment of a new curved campus road, and grading. A large berm, landscape with trees, is situated to the west (to the back of the house), where it recalls the original hillside and serves to enclose and visually separate the house from larger, contemporary structures to the west. A non-original orchard has been established to the north. While this landscape may not be authentic, it may help interpret the historic setting of Stringtown.

Historical and Architectural Integrity

The Chase Residence retains integrity in terms of location, design, and materials, workmanship and association. However, it is lacks the integrity of its setting, as the context has been changed drastically since the small residential block of houses that made up Stringtown in the late 19th century. The house, set in close proximity to a paved and striped parking lot, appears to have lost a sense of its historic setting and feeling.

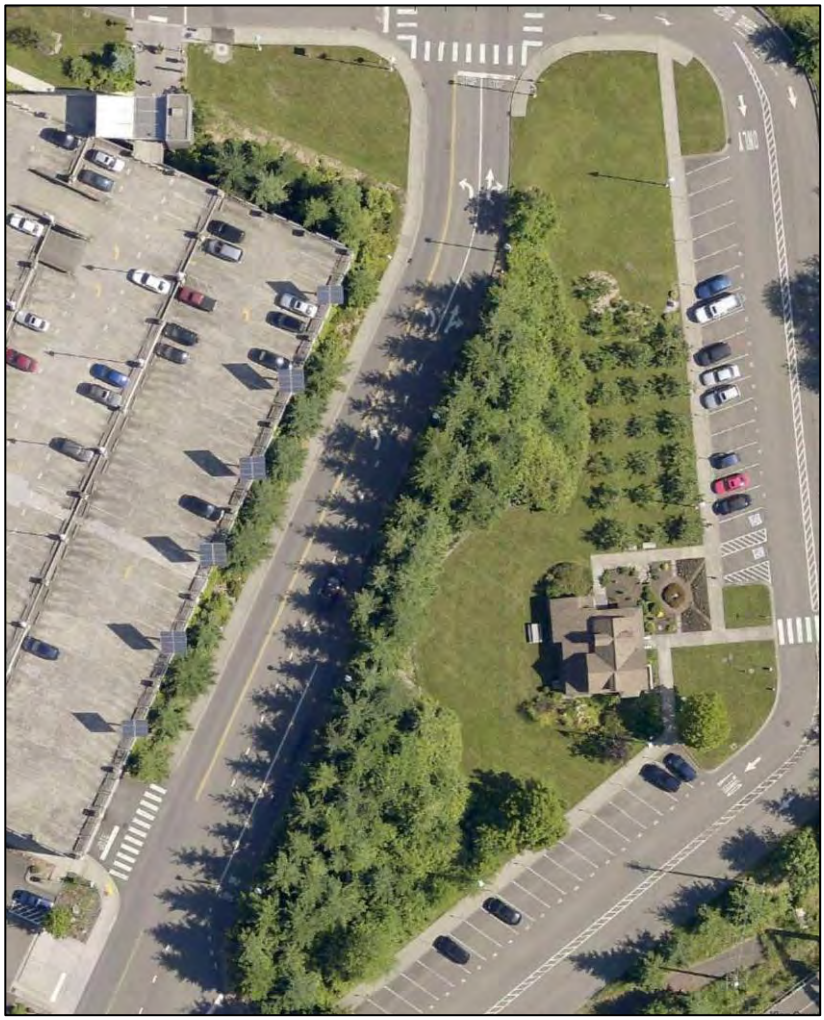
Above, an undated historic view of the Chase Residence (image courtesy of Bothell Historical Museum, "Bothell Then and Now").

Below, the present day Chase Residence, view looking west (BOLA, July 29, 2016).



Above left, historic portrait photo of Reuben Chase in his Civil war uniform. Above right, Chase and his second wife, Alice, circa 1905 (images courtesy of the Bothell Historical Museum).

Left, an aerial view of the Chase Residence and other houses in the Stringtown area in 1936. This area is presently the southern part of on the UW Bothell/Cascadia College campus (King County i-map).



Left, an aerial view from 2013 of the Chase Residence and surrounding area near the southeast edge of the campus (King County i-map). The landscaped berm to the west serves to buffer the building visually from newer structures. Below, current view of the building's exterior and the orchard, which was planted nearby to indicate the original rural setting.

6. RECOMMENDATIONS

Impacts of Potential Demolition

Several options in the proposed Campus Master Plan call for removal of the Truly House to allow for future expansion of campus facilities and new construction on its site.

The house is not individually listed on the National Register, and it is not a designated local landmark. As a single building it is insufficient to constitute a National Register Historic District. With the loss of integrity that has accompanied the relocation and changes in its setting, the present building cannot convey its historical significance and it does not appear eligible for the National Register of Historic Places. The National Register criteria strongly discourage inclusion of buildings that have been moved from their original locations unless they are "significant primarily for architectural value" or where the building is "the surviving structure most importantly associated with a historic person or event" (National Register Bulletin 15, p. 2). The Truly House was significant as part of an agricultural assembly, and thus does not appear to meet this exception. As a result, potential demolition does not appear to impact an historic resource.

As part of the original acquisition of the Truly Ranch property and development of the campus, the University addressed impacts on the historic ranch property. The July 7, 1997 HABS report was prepared "in response to a Memorandum of Agreement (MOA), regarding the construction of the University of Washington, Bothell/Cascadia Community College Campus, Bothell, King County, WA (Permit No. 35-4-01737), which was signed by representatives of the Seattle District Army Corps of Engineers, and the Washington State Office of Archaeology and Historic preservation, with concurrence of the Washington Higher Education Coordinating Board, [and] which was accepted by the Federal Advisory Council on Historic Preservation on June 28, 1996. The MOA was prepared because the construction of the campus will or may have an effect upon the National Register eligible Boone Farm Historic District." The HABS report served to mitigate these impacts by providing "historic documentation of the nine buildings and one structure on the site and as an appendix, several written family histories, which describe the life of Benjamin Ewing Boone and his family, which were written by his daughter, Lila Ellen Boone Michael" (Boyle Wagoner, July 7, 1997, p. 17)].

Additional Recommendations

Given the University's past efforts to retain the Truly House, its relocation should be considered as an alternative to demolition. The building is a sound. It appears to have value and it embodies energy. Should the adopted Campus Master Plan and future development involve new construction on its present site, the University should consider the following actions.

- Relocate the building to another location on the campus if an appropriate site can be identified. Analyze available new sites that provide sufficient space for the building and visual buffering from other campus building.

- Relocation of the Truly House near or next to the historic Chase Residence has been suggested. This is not recommended. Such a placement would create a false sense of history, not just about Truly House, but also of Stringtown. This small community, of which the Chase Residence is the only remaining building, was once a collection of individual dwellings along an established road. In contrast, the Truly House, as part of a family ranch, was isolated from its neighbors on a separate agricultural property. Stringtown was the home to pioneer families associated the early logging industry, and its architectural legacy is represented by in the Chase Residence. The two

houses are of different styles and date from different eras. Grouping them together would be an inauthentic representation of the past.

- Relocate the Truly House off-campus by undertaking outreach efforts to identify interest by individuals or local parties in moving the building. To assist in this action the University could undertake a feasibility study to identify potential receiving sites, the technical design and construction issues, and estimated costs. The University should consider offering the building to a new owner with the demonstrated ability to relocate and retain it, and provide financial assistance equivalent to the cost of demolition.

- If relocating the building is infeasible and if there is inadequate interest by other parties, the building should be carefully evaluated by an experienced salvage contractor. The building elements and materials should be salvaged and made available for reuse.

- The University should continue to recognize the legacy of Bothell's agricultural past with educational programs that explore this history in the University's curriculum, such as oral history programs or cultural resource studies, and develop additional educational events for the university community and public that raise awareness of this history.

Reinforce the History of the Chase Residence

The Chase Residence is a recognized local landmark and National Register property, and it contributes to the historic legacy of the campus. Despite its reuse and changes to the surroundings, the building retains its ability to convey its historical significance and aspects of orignal design, materials, workmanship, feeling and association, in addition to its location. integrity of setting. The proposed Campus Master Plan retains the building in its present location, and the options cited in the plan do not appear to impact this historic resource.

Efforts to preserve and reinforce the historic character of the Chase Residence should continue. Recommendations include the following:

- The setting for the residence has been changed in ways that are inconsistent with the original site. Nearby parking should be reconfigured to move striped paving and curbs away from the front of the building. The revised design should be based on documentation of the original site setbacks.

- As interior changes are made, provide new finishes, such as wood flooring and trim, consistent with domestic buildings of the late 19th and early 20th century.

- Provide occupants with historic information about the house to encourage their stewardship.

- Celebrate the legacy of the original owner, Dr. Reuben Chase, through publications and public programs on the emergence of medicine in the pioneer era. Consider alternative future use of the Chase Residence for campus-related functions related to healing, medical treatment, and counseling.

7. BIBLIOGRAPHY AND SOURCES

Bevier, Charles, "Bothell home receives historic honor," *Bothell Citizen*, January 2, 1991, p. A2.

Bothell Historical Museum, email correspondence between volunteer Pat Pierce and Julia Grey, August 2016.

Bothell Landmark Preservation Board, *Bothell Then & Now, 1909-2009*. Bothell, Washington, n.d.

Boyle/Wagoner Architects, and John Stamets, photographer. HABS WA-218. "Boone/Truly Ranch 1119 Northeast 185th Street, Bothell, King County, WA 98011." Survey (Photographs, Written Historical and Descriptive Data), Historical Architectural Building Survey, National Park Service, U.S. Department of the Interior, July 7, 1997.

City of Bothell (email correspondence between Sarah Church, Landmarks, and Julia Grey, August 2016).

Freidberg, Jill, "UW Bothell Community Voices Digital Oral History Collection" http://www.jillfreidberg.com/uw-bothell.html (oral history with Jeff Truly), ca. 2013.

Garwood, Robert D. and the City of Bothell, "Dr. Reuben Chase House, National Register Nomination," July 9, 1990 (available from the DAHP website, WISAARD database).

Glumac, wwwglumac.com (Discovery Hall photograph) (accessed March 8, 2017).

King County Assessor, i-Map (property records for 18140 110th Avenue NE, Bothell, WA 98011, and aerial photographs), http://gismaps.kingcounty.gov/iMap (accessed March 8, 2017).

Ott, Jennifer. "Due to construction of Lake Washington Ship Canal…Black River Disappears." October 01, 2012. HistoryLink.org, http://www.historylink.org/index.cfm?DisplayPage=output.cfm&file_id=686 (accessed August 8, 2016).

National Register of Historic Places, "Bulletin 15, How to Apply the National Register Criteria for Evaluation," 2002.

Pennucci, Annie. *Higher Education Branch Campuses in Washington State: Interim Report*. Washington State Institute for Public Policy, Olympia, December, 2002.

Roloff, Oscar, "Daughter of pioneer Bothell doctor recalls his practice," *Bothell Citizen*, September 3, 1975, p. A-9.

Seattle Times (Seattle Times Archives database, available from the Seattle Public Library database).
"Turning a Farm into a Campus – UW, Cascadia Combining on New Kind of School," August 24, 1994, p. B3.
"UW Campus a Model of Sharing – 1st Phase of Unique Project to Open in '98," October 3, 1995, p. B1.
"Graveyard offers life stories – Exploring the Eastside," October 28, 2004, p. B3.
"UW Bothell/Cascadia Community College wetland trails - Walkabout," May 31, 2007, p.G6.

Stickney, Amy Eunice and Lucie McDonald, *Squak Slough, 1870-1920* (corrected copy, available at the Bothell Historical Museum). Bothell: Friends of the Bothell Library, 1977.

University of Washington Bothell and Cascadia College.
"Long-Range Physical Development Plan," Seattle 2003.
"2006 Campus Facilities Master Plan," Seattle 2006.
"2010 Master Plan (Revised 2011)," Seattle 2011.
"Quick Facts," n.d., https://www.uwb.edu/getattachment/admin/publications/uwb-quick-facts.pdf (accessed March 8, 2017).
"Points of Interest, Truly House – The Truly House – The Boon Family Ranch House."
"About UW Bothell – History," n/.d.
"On Campus – Things to Do On Campus," n.d.
UW Bothell E-News
"Passages, Longtime UW Bothell friend Richard H. 'Dick' Truly," January 2009.
"New parking lot adds 143 spaces on campus," April 2016.

University of Washington.
"University of Washington Master Plan – Seattle Campus." January 2003.
Libraries. Manuscripts and Special Collections. Digital Photo Collections, http://content.lib.washington.edu/all-collections.html (accessed April 28 and June 7-8, 2016).

Van Dyke, Amy, Director of Physical Planning and Space Management, UW Bothell, email correspondence with Susan Boyle, BOLA. July – August, 2016.

Warner, John P. "Historical Resources Assessment of the University of Washington, Bothell Branch and Cascadia Community College Collocation Project at the Truly Farms/Stringtown Site, Bothell Washington." Historical Research Associates: August 18, 1995.

Washington Higher Education Coordinating Board. "Final Environmental Impact Statement for the Development of the Collocated Campus of Cascadia Community College & the University of Washington – Bothell at Truly Farms – Stringtown." Olympia, September 1995.

Washington Higher Education Coordinating Board in Association with NBBJ. "Campus Master Plan: Cascadia Community College & The University of Washington – Bothell at Truly Farms – Stringtown." September 1995.

Wilma, David. "Bothell—Thumbnail History." June 12, 2003. HistoryLink.org. http://www.historylink.org/index.cfm?DisplayPage=output.cfm&file_id=4190 (accessed August 1, 2016).

APPENDIX E

Transportation Report

Draft Transportation Discipline Report

UNIVERSITY OF WASHINGTON BOTHELL / CASCADIA COLLEGE CAMPUS MASTER PLAN EIS

Prepared for:
University of Washington Bothell

March 9, 2017

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Chapter 1. Introduction

This document provides technical analysis in support of the transportation element of the Draft Environmental Impact Statement (DEIS) prepared for the proposed University of Washington Bothell (UW Bothell)/Cascadia College (CC) Campus Master Plan. The following provides an overview of the project description and analysis approach. Further details are provided in subsequent sections that are specific to key transportation elements.

Alternatives Evaluated

Three Campus Master Plan Alternatives and two No Action Alternatives are identified for evaluation in the DEIS. Currently, the Campus leases off-site facilities to accommodate the demand. The Campus Master Plan Alternatives are developed with the intent to accommodate all campus functions on-site. The Alternatives evaluated in this study are defined as follows:

- **No Action Alternatives**
    - Scenario A - Baseline – Transportation impacts of the Campus Master Plan Alternatives are being compared to a future 2037 baseline condition assuming no growth in Campus population to identify and disclose SEPA related impacts.
    - Scenario B – Allowed in PUD – This alternative considers the campus population buildout numbers under the original (Phase 1) and current PUD as identified and evaluated in the 1995 EIS. This alternative considers build out of the remaining 1,143,800 gross square feet (gsf) in the PUD (approximately 464,300 gsf) of campus building area as compared to the existing conditions, student enrollment up to 10,000 on-campus student full-time equivalent (FTE), with no change to the campus access and circulation patterns. An on-campus parking supply of 4,200 – 6,600 stalls were identified in that analysis. The range is a result of changes assumed in the mode split assumptions for the on-campus population.
- **Alternative 1 - Develop Institutional Identity (Southward Growth)** – This alternative includes an increase of approximately 816,500 gsf of academic and 255,800 gsf of housing compared to existing conditions resulting in a total campus building area of 1,830,000 gsf. Consistent with the No Action Alternative, student enrollment is assumed up to 10,000 on-campus student FTE. On-campus housing is proposed in the southern portion of the campus and would include a net increase of 959 beds for a total of 1,200 beds. The existing housing (Husky Village) would remain. Existing access points to the campus are assumed to remain unchanged except for the emergency access gate on NE 185th Street, which is proposed to be relocated west. This would require vehicular access to Husky Hall and Husky Village from the internal campus roadways. Campus circulation patterns may change from existing conditions due to the distribution of parking on campus. Up to 3,700 parking stalls are proposed, representing an increase of approximately 1,400 stalls compared to existing conditions. The existing transit center is proposed to remain in its current location; however, the capacity would be expanded by 2 bays, resulting in a total of 4 bays. Transit layover areas, consistent with today's operations would remain on-site.
- **Alternative 2 - Develop the Core (Central Growth)** – This alternative includes an increase of approximately 816,500 gsf of academic use and 90,800 gsf of housing resulting in a total campus building area of 1,665,000 gsf. Consistent with the No Action Alternative, enrollment was assumed up to 10,000 on-campus student FTE. On-campus housing is proposed in the eastern portion of the campus, on the east side of campus way. A net increase of 359 beds is proposed for a total of 600 beds. The existing housing (Husky Village) would remain. Existing access points to the campus are assumed to remain unchanged. Campus circulation patterns may change from existing conditions due to the distribution of parking on campus. Up to

3,700 parking stalls are proposed, representing an increase of approximately 1,400 stalls. The existing transit center is proposed to be relocated to NE 185th Street between Beardslee Boulevard and the existing campus boundary. Inbound buses from the west would access the transit center via the NE 185th Street/Beardslee Boulevard intersection. Buses would exit via the traffic signal at 110th Avenue NE/Beardslee Boulevard. Inbound buses from the east would access the campus via the traffic signal at 110th Avenue NE/Beardslee Boulevard and exit via the NE 185th Street/Beardslee Boulevard intersection. Layover space would be provided on-campus or along NE 185th Street depending on the routes utilizing the space.

- **Alternative 3 - Growth Along Topography (Northward Growth)** – This alternative includes an increase of approximately 848,300 gsf of academic use (due to demolition of Husky Hall—31,800 gsf) and 165,000 gsf of housing (due to demolition of Husky Village—74,200 gsf) resulting in a total campus building area of 1,665,000 gsf. Consistent with the No Action Alternative, enrollment was assumed up to 10,000 on-campus student FTE. Existing student housing in the north areas of campus would be redeveloped resulting in a total of 600 beds. An additional access point would be created through realignment of 110th Ave NE westward at the north end of campus (through the Husky Hall site and western Husky Village). The eastern 110th Ave NE/Beardslee Boulevard intersection would remain. No modification to the southern access point is proposed. Campus circulation patterns may change from existing conditions due to the distribution of parking on campus. Up to 4,200 parking stalls are proposed, representing an increase of approximately 1,900 stalls. The existing transit center is proposed to be relocated to NE Beardslee Boulevard along the campus frontage, west of the 110th Avenue NE intersection. No transit layover space would be provided on campus.

The proposed Campus Master Plan has a 20-year planning horizon. All of the Campus Master Plan Alternatives consider up to 10,000 student FTE on-campus while the Baseline Alternative assumes no growth in on-campus student FTE.

Study Approach and Area

The scope of the transportation analysis conducted for the DEIS has been based on information from the Autumn 2016 SEPA scoping period and coordination with City of Bothell staff. The following transportation elements are evaluated in this report:

- Street System
- Pedestrians and Bicycle Transportation
- Transit Service
- Traffic Volumes
- Traffic Operations
- Traffic Safety
- Parking

The transportation analysis evaluates a planning horizon year of 2037 for the alternatives identified and described above. Transportation impacts are identified by comparing the 2037 Baseline Alternative conditions, assuming no growth in on-campus student FTE, to the four Campus Master Plan Alternatives.

The scope of this transportation analysis meets the concurrency requirements outlined within the City of Bothell Municipal Code (BMC 17.03) and in the Transportation Element of the *City of Bothell 2015 Period Plan and Code Update Imagine Bothell…Comprehensive Plan* (herein referred to as Comprehensive Plan) adopted by the City Council July 7, 2015. To comply with City of Bothell concurrency requirements, an analysis is required for all concurrency corridors impacted by 10 or more weekday PM peak hour trips. Based on the estimated trip generation and distribution (see Chapters 3-6), the following corridors are anticipated to be impacted by 10 or more peak hour trips and are evaluated as part of this analysis:

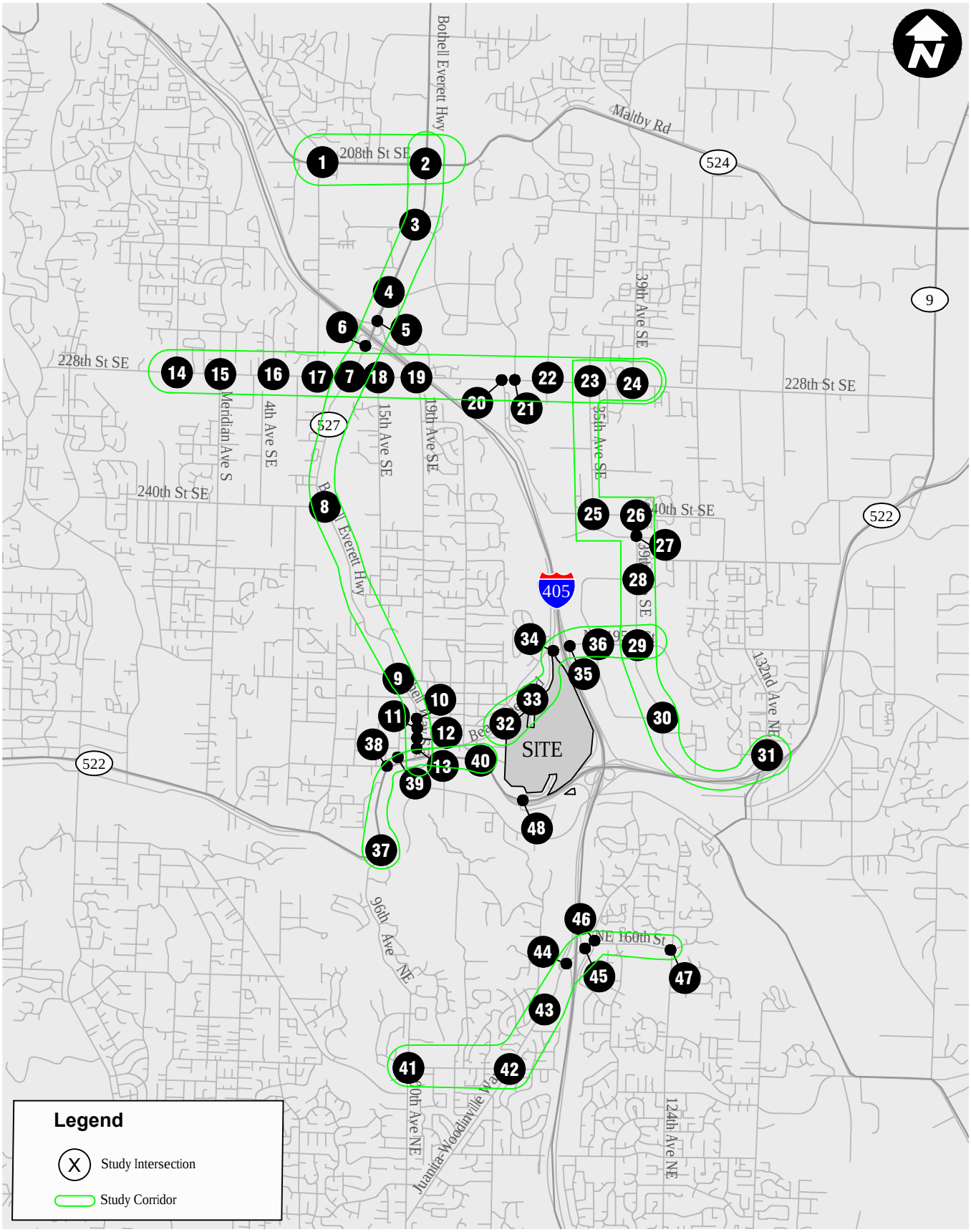
- SR 524 (208th Street SE/Maltby Road) Corridor between 9th Avenue SE and SR 527
- SR 527/Bothell-Everett Highway/Bothell Way Corridor between SR 524 and SR 522
- 228th Street SE Corridor between 4th Avenue W and 39th Avenue SE
- 39th/35th Avenue SE/120th Avenue NE/NE 180th Street between 228th Street SE and 132nd Avenue NE
- Beardslee Boulevard/NE 195th Street Corridor between NE 185th Street and 120th Avenue NE
- SR 522 (NE Bothell Way) Corridor between 96th Avenue NE and Kaysner Way
- NE 145th Street/Juanita-Woodinville Way NE/NE 160th Street between 100th Avenue NE and 124th Avenue NE

In addition to the corridors listed above, the proposed site access points along Beardslee Boulevard and SR 522 are evaluated with respect to traffic operations. The study area including study intersections and corridors are shown on Figure 1.

Report Organization

This report is organized into the following sections:

- **Chapter 1 Introduction** – This section outlines project background, description of alternatives, and overall approach and scope to the transportation analysis completed for the project.
- **Chapter 2 Affected Environment** – This section documents the existing transportation conditions focusing on the transportation elements noted above.
- **Chapter 3 Impacts of No Action Alternatives** – This chapter describes the No Action transportation conditions for the elements noted above under both Scenario A (Baseline) and Scenario B (Allowed in PUD) conditions.
- **Chapter 4-6 Impacts of Action Alternatives 1, 2 and 3** – The impacts of the Campus Master Plan Action Alternatives on the transportation elements identified are described in three chapters. Transportation impacts are identified through a comparison of Alternatives 1-3 to the No Action Alternatives Scenarios A and B.
- **Chapter 7 Mitigation** – This section describes the potential transportation mitigation measures to mitigate Alternative-related impacts.
- **Chapter 8 Secondary and Cumulative Impacts** – This chapter describes secondary and cumulative impacts that could occur with development of the Campus Master Plan.
- **Chapter 9 Significant and Unavoidable Adverse Impacts** – This section documents adverse transportation-related impacts that could not be fully mitigated with the Campus Master Plan Alternatives.



Site Vicinity & Study Intersections

FIGURE 1

UW Bothell / Cascadia College Campus Master Plan

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Chapter 2. Affected Environment

This section provides an overview of the existing within the defined study area. The existing transportation system including street system, pedestrian and bicycle transportation, transit service, traffic volumes, traffic operations, traffic safety and campus parking are described.

Street System

The Campus is bounded by Interstate 405 (I-405) to the east, SR 522 to the south, and residential neighborhoods to the west and Beardslee Boulevard to the north. It is served by Beardslee Boulevard, a minor arterial and SR 522, a principal arterial. Campus Way NE is the main roadway within the campus with signalized intersections with both Beardslee Boulevard and SR 522. Regional access to the campus is provided via the I-405 interchange at Beardslee Boulevard and SR 522/I-405 interchange that is accessed via Campus Way NE at the southern end of the campus. Table 1 provides an inventory of the streets serving the Campus and the primary concurrency corridors.

Table 1. Roadway Network Existing Conditions Summary

Roadway	Roadway Classification[1]	Speed Limit[2]	# Lanes	Pedestrian Facilities	Bicycle Facilities	Parking
208th St SE	Principal Arterial	35 mph	5	Yes	Bike Lanes	No
Bothell Everett Hwy	Principal Arterial	45 mph	6	Yes	Bike Lanes	No
Bothell Way NE	Principal Arterial	30 mph	5	Yes	None	No
240th St SE	Minor Arterial	30 mph	2	Intermittent	None	No
228th St SE	Minor Arterial	35 mph	3	Intermittent	Bike Lanes	No
35th Ave SE	Minor Arterial	35 mph	2	Yes[4]	None	No
39th Ave SE	Minor Arterial	35 mph	5	Yes	None	No
NE 195th St	Minor Arterial	30 mph	4 – 5	Yes	Bike Lanes	No
120th Ave NE	Minor Arterial	35 mph	4 – 5	Yes	None	No
NE 180th St	Minor Arterial	35 mph	5	Yes[5]	Bike Lanes	No
SR 522	Principal Arterial/ Limited Access Hwy[3]	35 mph/ 60 mph	4	Yes[6]	None	No
NE 145th St	Local Street	25 mph	2	No	Sharrows	No
Juanita Woodinville Way	Minor Arterial	35 mph	2	No	Bike Lanes[8]	No
NE 160th St	Minor Arterial	35 mph	3-5	Yes	None	No
Interstate 405	Limited Access Hwy	60 mph	6	None	None	No
Beardslee Boulevard	Minor Arterial	30 mph	2	Yes	Bike Lanes	Yes[7]

1. Per Roadway Functional Classification Figure TR-1 of the City of Bothell 2015 Periodic Plan and Code Update July 7, 2015
2. Identified near study intersections and not necessarily along the entire length of the roadway.
3. SR 522 is a principal arterial west of the Campus and a limited access highway east of the campus.
4. Sidewalk provided on east side of roadway only.
5. Sidewalk provided on north side of roadway only.
6. Sidewalk provided on north side of roadway west of Campus Way NE only.
7. Parking is provided along the south side of the roadway.

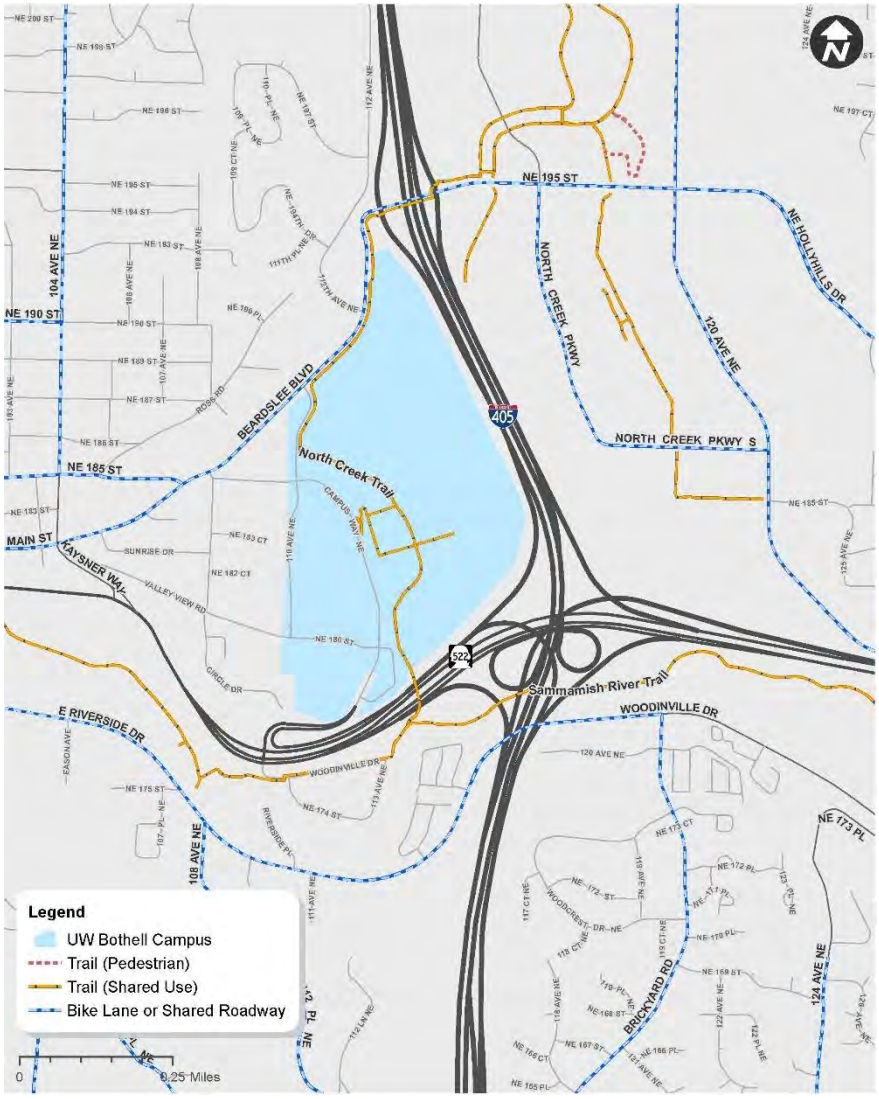
Pedestrian and Bicycle Transportation

Sidewalks are provided throughout the Campus and along the streets adjacent to the campus. All the on-campus intersections and off-site access points have crosswalks on at least one leg. Along NE 180th Street west of Campus Way NE on the campus there is a midblock crosswalk, with a rapid flashing beacon, connecting the south parking garage to campus academic buildings to the north. Along Campus Way NE there is a pedestrian overpass in the center of the Campus, an at-grade crosswalk just south of the north parking garage and another at-grade crosswalk south of the WB2 Building.

Bicycle lanes are provided along Beardslee Boulevard between the I-405 Southbound Ramps and Main Street and east of the I-405 Northbound Ramps. There are no bicycle lanes or shoulders at the Beardslee Boulevard/NE 195th Street I-405 interchange so bicyclist must ride in-lane.

In addition, there are several regional trails located in the vicinity of the campus. This includes the North Creek Trail, the Sammamish River Trail, and the Burke-Gilman Trail. The North Creek Trail runs along the east side of the Campus and connects between Beardslee Boulevard and the Sammamish River Trail. The North Creek Trail is a separated multi-use path that links the Cities of Bothell, Mill Creek, and Everett. The Sammamish River Trail runs along the south side of the Campus, south of SR 522, and can be accessed via the North Creek Trail. The Sammamish River Trail is also a separated multi-use path that links the Cities of Bothell, Woodinville, and Redmond. The Sammamish River Trail connects to the Burke-Gilman Trail. The Burke-Gilman Trail is a separated multi-use path which connects Bothell to many neighborhoods, including the University District, Wallingford, and Fremont, in Seattle and terminates in the Ballard neighborhood of Seattle. An overview of the bicycle facilities is shown on Figure 2.

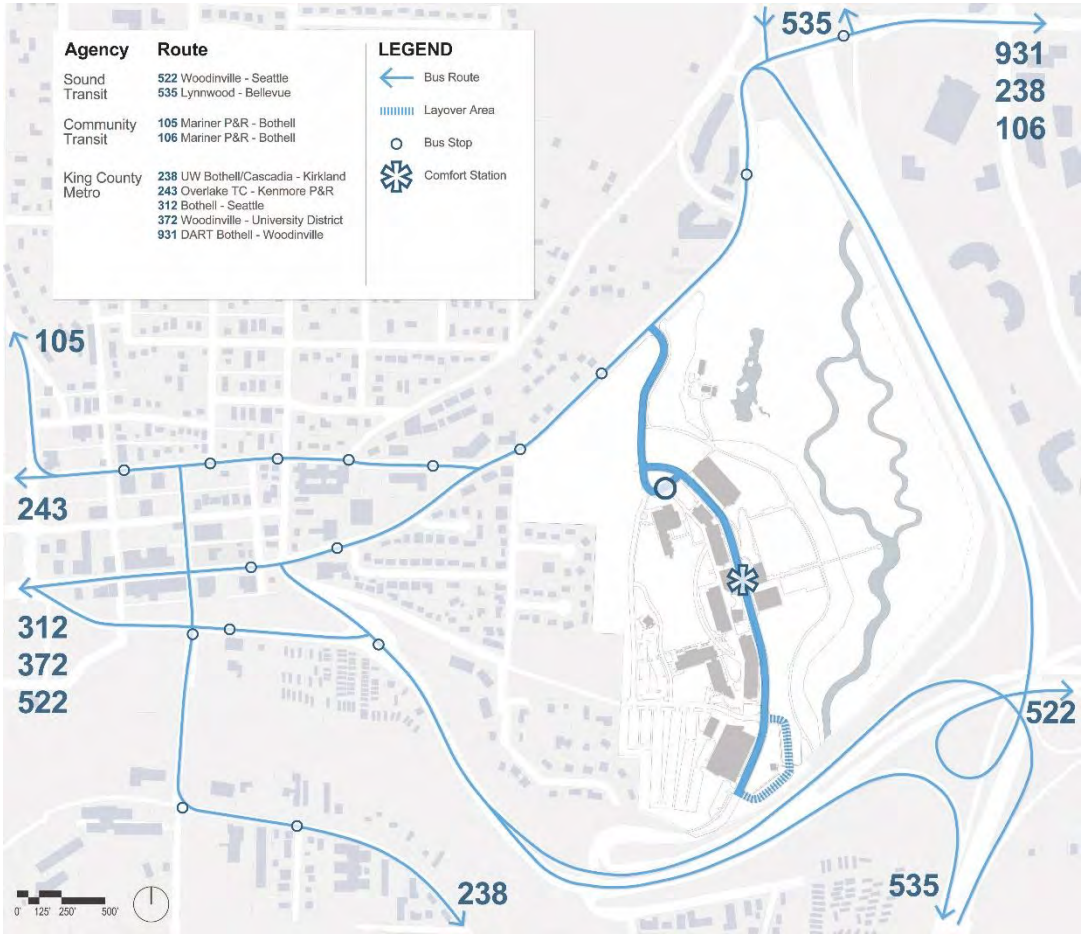
Figure 2. Existing Bicycle Facilities



Transit Service

Transit service in the area is currently provided by King County Metro, Sound Transit, and Community Transit. There is a transit center on Campus located south of NE 185th Street along Campus Way NE. Figure 3 illustrates the transit routes serving campus and the location of stops.

Figure 3. Existing Transit Routes



As illustrated in the figure, 9 routes provide transit service to the Campus and there is one stop on-site located south of NE 185th Street, connecting 110th Avenue NE and Campus Way NE. The Campus serves as the end point for 5 of the routes serving the campus and has a comfort station for transit drivers in the center of the campus and layover space at the southern end of the campus. Layover times vary from a few minutes to up to approximately 20 minutes. Current observations indicate that during the weekday PM commute period there are a maximum of approximately 5 buses using layover spaces on-campus at one time.

There are approximately 250 inbound and 250 outbound transit trips to and from the campus on weekdays. These trips serve both UW Bothell and Cascadia College. Figure 4 illustrates the weekday service to the Campus between 6 a.m. and 7 p.m. The figure shows that during the peak morning and evening hours there are approximately 45 buses serving the campus. Observations at the existing transit center on-campus indicate that during peak periods the amount of space is inadequate and transit vehicles queue outside the transit center waiting to access the bus stops. Additional detail on specific routes is summarized in Table 2.

Figure 4. Weekday Transit Service to Campus

Table 2. Summary of Existing Transit Service

Route	Agency[1]	Hours of Operation at Campus	Weekday AM Peak Hour Headway	Weekday PM Peak Hour Headways	Starts/ Terminates at Campus
105 (Bothell to Mariner P&R)	Community Transit	Mon – Fri: 5:31 a.m. to 9:53 p.m. Sat: 6:43 a.m. to 9:43 p.m. Sun: 7:20 a.m. to 8:20 p.m.	30 Minutes	30 Minutes	Yes
106 (Bothell to Mariner P&R)	Community Transit	Mon – Fri: 6:23 a.m. to 8:32 a.m. 5:32 p.m. to 7:23 p.m.	30 Minutes	30 Minutes	Yes
535 (Bellevue to Lynnwood to Everett)	Community Transit	Mon – Fri: 6:15 a.m. to 10:44 p.m. Sat: 8:41 a.m. to 10:40 p.m.	30 Minutes	30 Minutes	No
238 (Woodinville P&R to UW Bothell/CC to Kirkland)	King County Metro	Mon – Fri: 5:23am to 6:51pm Sat: 7:55 a.m. to 6:50 p.m. Sun: 8:50 a.m. to 4:48 p.m.	30 Minutes	30 Minutes	No
243 (Overlake TC to Kenmore P&R)	King County Metro	Mon – Fri: 6:08 a.m. to 7:33 a.m. to Kenmore Mon – Fri: 5:32 p.m. to 7:00 p.m. to Overlake TC	30 Minutes	30 Minutes	No
312 (UW Bothell/CC to Downtown Seattle)	King County Metro	Mon – Fri: 4:33 a.m. to 8:48 a.m. to Downtown Seattle Mon – Fri: 3:34 p.m. to 8:06 p.m. to UW Bothell/CC Campus	10 Minutes	10 Minutes	Yes
372 (Bothell to University District)	King County Metro	Mon – Fri: 5:11 a.m. to 11:53 p.m.	15 Minutes	15 Minutes	Yes
522 (Woodinville to Seattle)	Sound Transit	Mon – Fri: 6:14 a.m. to 12:12 a.m. Sat: 7:13 a.m. to 12:16 a.m. Sun: 7:13 a.m. to 12:16 a.m.	30 Minutes	15 Minutes	No
Dart 931 (UW Bothell/CC to Redmond TC)	King County Metro	Mon – Fri: 6:16 a.m. to 9:17 p.m. 3:17 p.m. to 7:16 p.m.	30 Minutes	30 Minutes	Yes

1. Schedule based on King County Metro, Community Transit, and Sound Transit, December 2016.

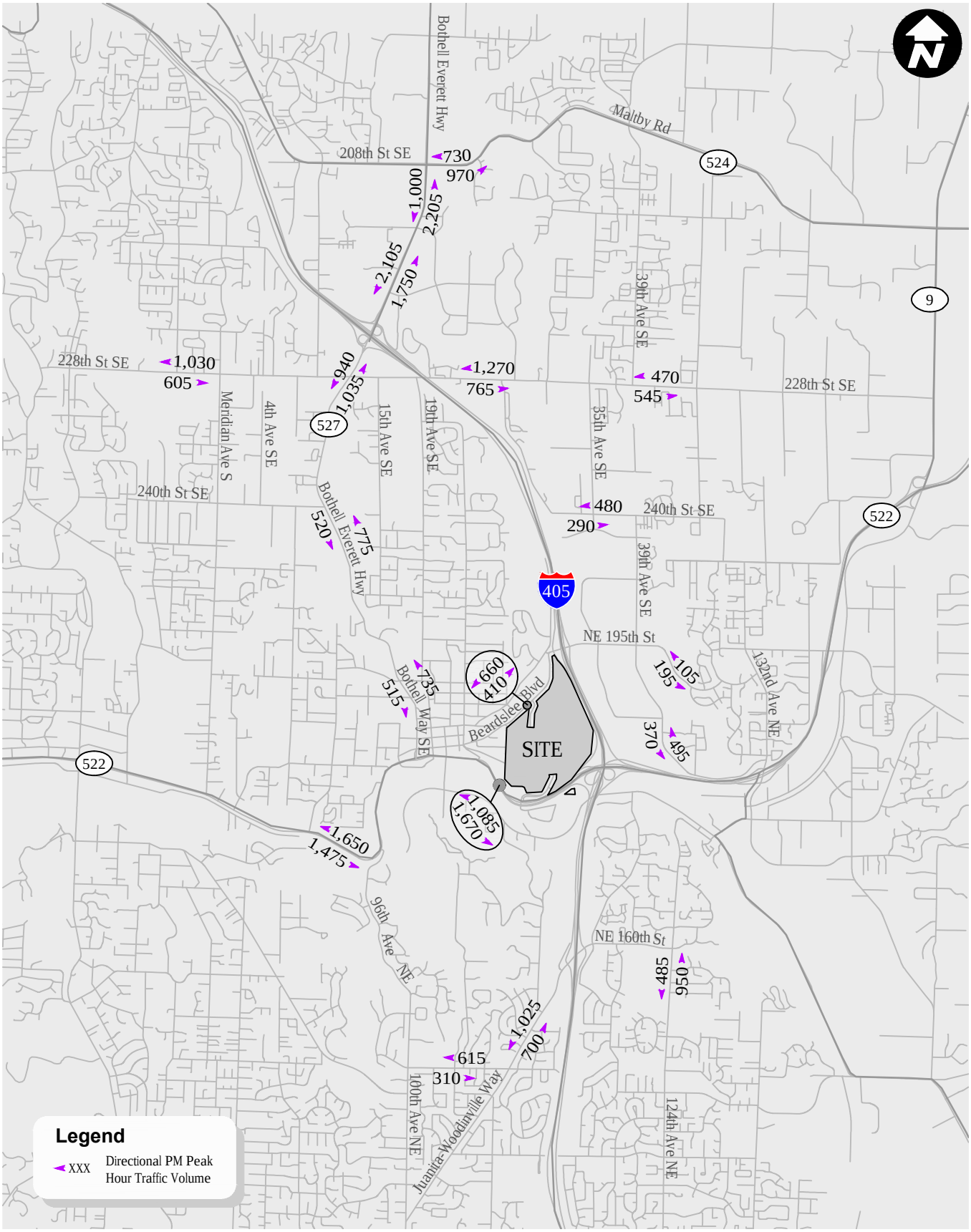
Traffic Volumes

The following describes traffic volumes off-site (see Figure 1 for study area) and trip generation generated by the existing campus.

Off-Site

Existing traffic counts at the study intersections were conducted in October 2016, November 2016 and January 2017. Downtown Bothell is currently under construction with major roadway improvements; therefore, existing traffic volumes for intersections within the Downtown were developed using the 2015 traffic counts included in the Comprehensive Plan and growing these volumes by 6 percent per year for 2-years. The growth rate of 6 percent is based on a comparison of 2015 and 2016 traffic counts for intersections just outside the Downtown area. Figure 5 shows existing weekday PM peak hour traffic volumes along the study corridors rounded to the nearest five vehicles to account for daily fluctuations. Existing turning movements for each study intersection are provided in Appendix A.

Along Beardslee Boulevard, during the weekday peak hours, campus-related vehicle traffic represents approximately 19 to 23 percent of the traffic volume west of 110th Avenue NE and 33 percent of the traffic east of 110th Avenue NE.



Existing (2017) Weekday PM Peak Hour Traffic Volumes

FIGURE 5

UW Bothell / Cascadia College Campus Master Plan

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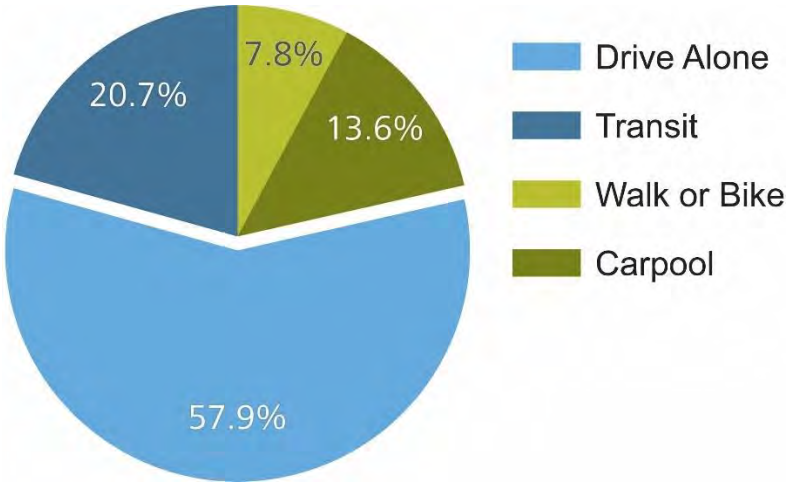
Campus

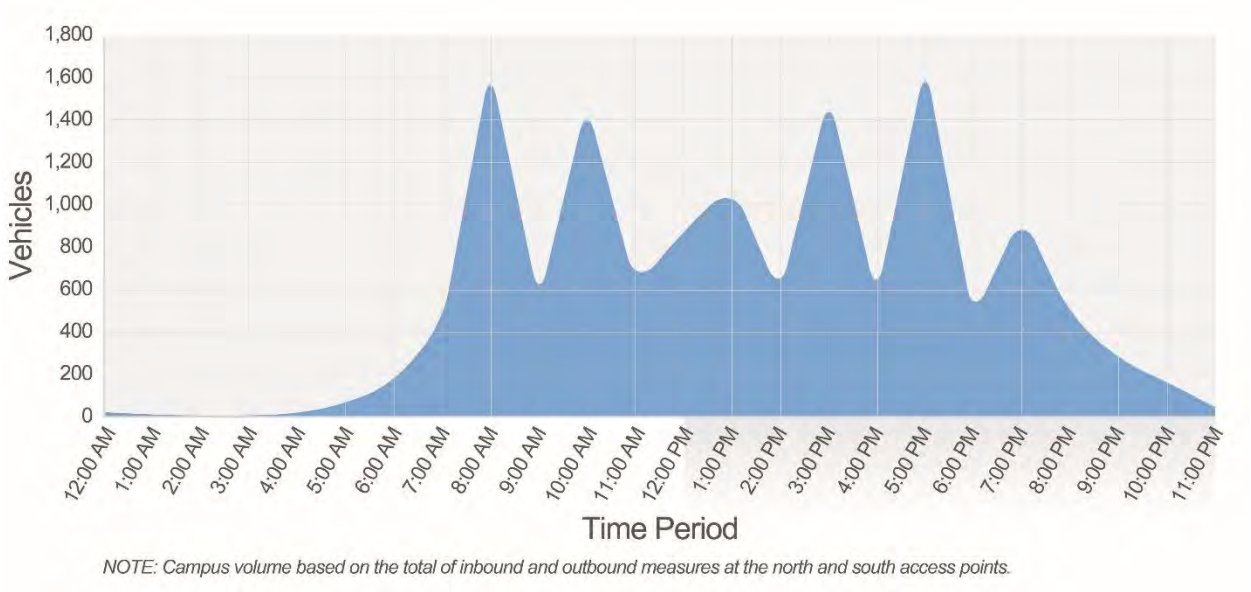
Travel to campus occurs through personal vehicles, walking and biking, as well as transit. Intercept surveys were conducted on October 11 and 12, 2016 between 10 a.m. and 1:30 p.m. to identify how students, faculty, and staff travel to and from campus and the routes travelled. Figure 6 indicates the existing mode splits for the campus. As shown on the figure, the majority of travel to campus is currently via vehicle and mostly drive alone.

Figure 6. Existing Campus Travel Mode Splits



Traffic volumes were also collected for two-days in October 2016 along Campus Way NE (on-campus) to identify the vehicle activity levels on-campus. Figure 7 illustrates the average daily traffic volumes for the campus. As shown in the figure, peak activity occurs during the morning and evening commuter periods; however, the late morning and early afternoon volumes are comparable.

Figure 7. Weekday Two-Day Average Campus Way NE Traffic Volumes



NOTE: Campus volume based on the total of inbound and outbound measures at the north and south access points.

Existing vehicle trips rates were calculated based on the October 2016 traffic volumes described above and supplemented by Fall 2015 data. Trip generation for the campus has two components: (1) commuter-related trips and (2) campus housing trips. Commuters and residents have different trip generating characteristics since on-campus residents typically drive less given that the campus is within walking distance.

Trip generation for use in transportation impact analyses are typically estimated based on students or beds for University/College uses. Based on previous experiences with similar University projects, total on-site student FTE provides the basis for estimating commuter trip generation and total beds is the basis for estimating residential trip generation. While the Institute of Transportation Engineers' *Trip Generation Manual*, 9th Edition contains information on University/College uses, trip generation estimates based on students, local model splits and travel characteristics is recommended. The existing commuter and residential trip rates for the campus are described below.

The commuter trip rate is based on trips per student FTE and the housing trip rate is trips per bed. The existing student FTE for the campus includes 2,842 Cascadia College student FTE and 5,375 University of Washington Bothell student FTE for a total of 8,217 student FTE. This population includes 371 online students; therefore, the total on-campus population is 7,846 student FTE. There are 241 occupied beds at the existing Husky Village campus housing. Therefore, the total commuter student FTE is 7,605.

Commuter Trip Rate. Due to the number of leased facilities and the use of on-street parking, several elements were included in the calculation of the existing trip rate. Key data used to determine the commuter trip rate include:

- **Campus Traffic Counts**: Data was collected for 3-days between October 25 and 27, 2016 along 110th Avenue NE south of Beardslee Boulevard and along Campus Way NE north of SR 522 to determine the midweek average daily and peak hour traffic volumes to and from the campus.
- **Professional Building and The Village at Beardslee Crossing Traffic Counts**: Data was collected on November 17, 2016 to identify the weekday AM and PM peak hour traffic to and from the dedicated UW parking areas for the Professional Building and The Village at Beardslee Crossing.
- **NE 185th Street Intersection Counts**: Data was collected on October 19, 2016 to identify the weekday AM and PM peak hour traffic to and from Husky Hall.
- **Review of On-Street Parking:** On-street parking data in the vicinity of the campus was collected on October 11 and 19, 2016 between 10 a.m. and 3 p.m. This data was used to estimate the potential trips associated within the campus that may be parking on-street within the immediate vicinity of the campus or in Downtown Bothell. Based on a review of the available on-street parking data, approximately 65 vehicles parked on-street during the peak hour. For purposes of estimating trip generation and to accommodate for persons that may be parking outside of the corridors adjacent to campus such as in Downtown, the total existing trips were increased 5 percent.

Based on the data outlined above, weekday daily, AM peak hour, and PM peak hour trip rates were determined for commuter students. A summary of the data and the calculated trip generation rates for commuter students is provided in Appendix B. Table 3 provides a summary of the existing commuter total trips and the associated trip rate per commuter student FTE.

Table 3. Existing Weekday Commuter Trip Generation

Time Period	Total Commuter Trips[1]			Trip Rate (per Student FTE)[2]	Trip Distribution	
	In	Out	Total		In	Out
Daily	8,090	8,010	16,100	2.12	50%	50%
AM Peak Hour	1,536	276	1,812	0.24	85%	15%
PM Peak Hour	754	1,120	1,873	0.25	40%	60%

1. Based on data collected in November and October 2016 and accounts for estimated off-campus parking.
2. FTE = full-time equivalent. Online and resident students are not included. The total campus commuter student FTE as of October 2016 was 7,605.

As shown in the table, the campus commuters currently generate approximately 16,100 vehicles per day with 1,812 occurring during the AM peak hour and 1,873 occurring during the PM peak hour.

Residential Trip Rate. Student housing for the campus is currently provided by Husky Village, which has a total of 241 beds. Data was collected on October 28 and 29, 2015 to identify the average trip generation for Husky Village. A summary of the data and the calculated trip generation rates for residential students is provided in Appendix B. Table 4 provides a summary of the existing residential total trips and the associated trip rate per bed.

Table 4. Existing Weekday Residential Trip Generation

Time Period	Total Residential Trips[1,2]			Trip Rate (per bed)[3]	Trip Distribution	
	In	Out	Total		In	Out
Daily[4]	165	165	330	1.37	50%	50%
AM Peak Hour	13	10	23	0.10	57%	43%
PM Peak Hour	17	23	40	0.17	43%	57%

1. Based on observations conducted Wednesday, October 28, 2015 and Thursday, October 29, 2015 at Husky Village housing.
2. Cars observed utilizing paid parking in Husky Village were subtracted from the trip generation counts.
3. There are 241 occupied beds.
4. Daily trips estimated assuming the weekday PM peak hour traffic is 12 percent of the total daily traffic based on a review of the midweek average counts from October 2016.

As shown in the table, the campus residents currently generate approximately 330 vehicles per day with 23 occurring during the AM peak hour and 40 occurring during the PM peak hour.

Traffic Operations

Corridor operations were reviewed in the study area consistent with the City of Bothell concurrency requirements. The corridor analysis method considers weekday PM peak hour level of service (LOS) at key intersections; the study area includes all the concurrency corridors identified by the City. The corridors were analyzed using Synchro 9. This software program provides an analysis based on methodologies presented in the *Highway Capacity Manual* (HCM).

Corridor LOS is determined as a weighted average of intersection delays and total traffic volumes along the length of each potentially impacted concurrency corridor. This method is described in the Transportation Element of the City of Bothell's Comprehensive Plan (TR-12) and is consistent with City of Bothell concurrency standards (BMC 17.03.007). The corridor standard established by the City is LOS E.

LOS is measured in average control delay per vehicle at signalized intersections and average delay on the worst-movement or approach of unsignalized intersection. Traffic operations and average vehicle delay for an intersection can be described qualitatively with a range of levels of service (LOS A through LOS F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix C contains a detailed explanation of LOS criteria and definitions.

For existing conditions, signal timing settings were provided by the City of Bothell. A detailed intersection LOS summary and worksheets for the study intersections are included in Appendix D. The corridor LOS results are summarized in Table 5 for the existing conditions.

Table 5. Existing and Baseline Weekday PM Peak Hour Corridor LOS Summary

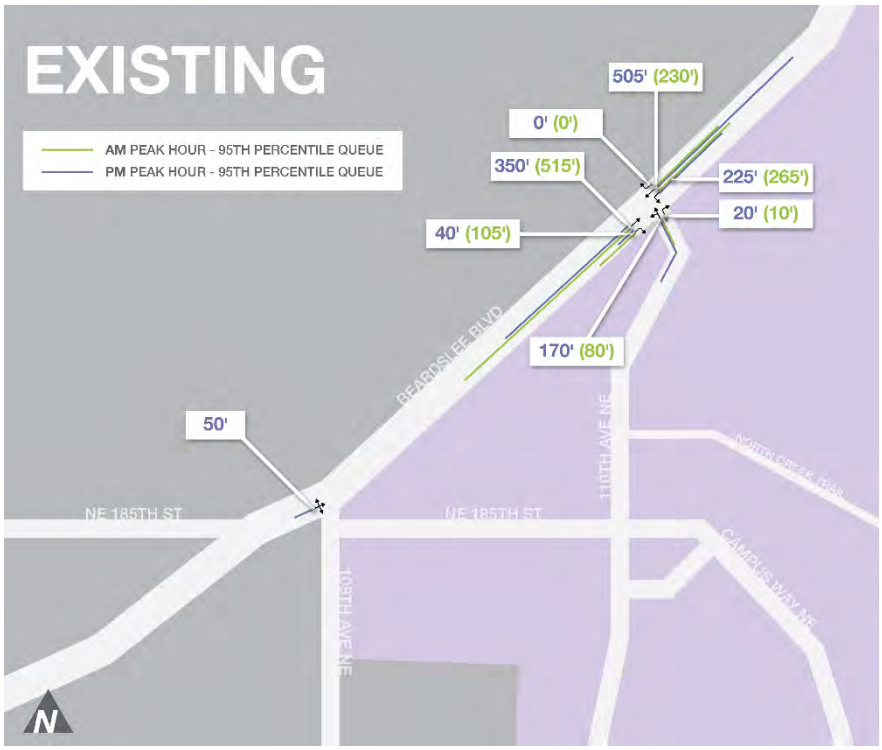
Corridor	LOS[1]	Corridor Delay (sec/veh)[2]
SR 524 (208th St SE/Maltby Rd) Corridor between 9th Ave SE and SR-527	D	39
SR 527/Bothell-Everett Hwy/Bothell Wy Corridor between SR-524 and SR-522	D	37
228th St SE Corridor between 4th Ave W and 39th Ave SE	C	26
39th/35th Ave SE/120th Ave NE/NE 180th St between 228th St SE and 132nd Ave NE	C	29
Beardslee Blvd/NE 195th St Corridor between NE 185th St and 120th Ave NE	D	43
SR 522 (NE Bothell Wy) Corridor between 96th Ave NE and Kaysner Wy	C	26
NE 145th St/Juanita-Woodinville Wy NE/NE 160th St between 100th Ave NE and 124th Ave NE	C	32

1. Level of service, based on 2010 *Highway Capacity Manual* methodology.
2. Average corridor delay in seconds (sec) per vehicle (veh) calculated by as a weighted average of intersections delays along the length of the corridor in seconds per vehicles.

The City of Bothell has a LOS E standard for the corridors. As shown in Table 5, all the corridors currently operate at LOS D or better during the weekday PM peak hour.

Although the LOS along Beardslee Boulevard shows LOS D conditions during the weekday PM peak hour under existing conditions, it is recognized that there are long queues within the corridor. The 95th-percentile vehicle queues were reviewed at the Beardslee Boulevard/110th Avenue NE and Beardslee Boulevard/108th Avenue NE intersections. The 95th-percentile vehicle queue is the queue length that would only be exceeded 5 percent of the time. Figure 8 illustrates the Beardslee Boulevard 95th-percentile vehicle queues.

Figure 8. Existing Weekday Peak Hour Vehicle Queues



As shown on Figure 8, there are currently long queues in the eastbound direction along Beardslee Boulevard during both the weekday AM and PM peak hours. The eastbound queues back-up passed access to Husky Village located on the south side of Beardslee Boulevard.

Traffic Safety

Collision records were reviewed within the study area to document any potential traffic safety issues. The most recent summary of collision data from WSDOT is for the three-year period between January 1, 2013 and December 31, 2015.

A summary of the total and average annual number of reported collisions as well as the collisions rate at each study intersection was reviewed and provided in Appendix E. The collision rate is representative of the number of collisions per one million entering vehicles (MEV) at each intersection. Intersections with a rate greater than 1.0 collision per MEV are typically flagged for further investigation to determine whether an adverse condition exists. Intersections with an average over 10 collisions per year or an MEV over 1.0 are summarized in Table 6.

Table 6. Collision Data Summary (2013-2015)

Intersection	Collisions per prior Year			Annual Average	Collisions Per MEV[1]
	2013	2014	2015		
9th Ave SE / SR 524 / Filbert Dr	9	9	8	9	1.07
SR 527 / SR 524	24	23	27	25	1.38
SR 527 / 220th St SE	19	16	18	18	1.14
SR 527 / 228th St SE	32	36	34	34	1.89

1. MEV = Million Entering Vehicles calculated with the assumption that weekday PM peak hour traffic volumes are approximately 10 percent of weekday daily traffic volumes.

As shown in the table, 4 study intersection have collision rates over 1.0 and 3 have more than 10 collisions per year. The year-by-year comparison at the individual intersections shows that the number of collisions per year at these four intersections has been similar for the last 3-years, which typically indicates a consistent issue. A more detailed review of the collisions at each of the intersections shown in Table 6 is presented below.

- **9th Avenue SE/SR 524/Filbert Drive** – The collisions at this intersection are rear-end or left-turn related. Rear-end collision are common along congested corridors where stop-and-go conditions exist such as along SR 524. Left-turn related collisions are common at signalized intersections with high traffic volumes and permitted left-turn signal phasing.
- **SR 527/SR 524, SR 527/220th Street SE, and SR 527/228th Street SE** – Most collisions at these intersections are rear-end. As described above, rear-end collisions are common at congested signalized intersections where stop-and-go conditions exist. Improvements were completed at the SR 527/SR 524 and SR 527/228th Street SE intersections in July 2016 to address safety issues. The historical collision rates presented is reflective of older conditions and does not consider these improvements.

As traffic volumes increase, traffic safety issues could increase proportionally. Chapter 3 Impacts of No Action Alternatives Table 8) describes planned and future potential improvements within the study area including corridor, intersection, and adaptive signal improvements at these locations. With increased capacity and improved corridor and intersection operations, it is anticipated that safety issues would decrease within the study area.

Parking

The existing on-campus total parking supply includes 2,128 spaces for commuters[1] and 144 residential parking spaces. An additional 172 stalls are provided at off-site leased locations. The combined on-campus and off-site parking spaces total 2,444 stalls. Data was collected within the on-campus, off-site, and adjacent street parking to determine Campus parking demand for commuters and residential students.

A campus-wide parking utilization study was conducted on October 11 and 19, 2016 between 10 a.m. and 3 p.m. and at 7 p.m. Observations included the campus north and south garages and surface lots as well as Husky Hall, Husky Village commuter parking, and UW assigned parking at The Village at Beardslee and the Professional Building. On-street parking counts were also collected along Beardslee Boulevard between 104th Avenue NE and 110th Avenue NW and NE 185th Street between 104th Avenue NW and Beardslee Boulevard. It was assumed that all the vehicles parked on-street during the peak period were associated with the campus. Parking counts indicates that peak parking demand for commuters occurred at 12 p.m. An average peak parking demand based on the two days of data was used to determine the existing campus parking rate. In addition, the overall peak parking demand was increased by 5 percent to accommodate for commuters that may be parking in areas, such as Downtown, not captured by the parking surveys.

Residential parking counts were collected at Husky Village during the same periods as commute parking data. Although residential parking demands typically peak in the evening hours, data was collected midday to provide a campus-wide peak parking demand.

Table 7 provides a summary of the peak parking demand and calculate rates for commuter and residential students.

Table 7. Existing Weekday Peak Campus Parking Demand

Population	Size[1]	Unit	Demand[2]	Rate
Commuter	7,605	Student FTE	2,327	0.31
Residential	241	Beds	103	0.43
Total Parking Demand			**2,430**	

1. FTE = full-time equivalent. Online and resident students are not included. The total on-campus commuter student FTE as of October 2016 was 7,605.
2. Parking demand based on data collection on October 11 and 19, 2016 with a 5 percent adjustment for commuter parking demand to capture parking that may be occurring off-campus on-street.

As shown in the table, the peak campus parking demand is 2,430 vehicles. Consistent with field observations, parking on-campus is full and there is some spillover that occurs onto adjacent streets.

[1] Inclusive of faculty, staff, visitors, and students.

Chapter 3. Impacts of No Action Alternatives

This section describes the future transportation conditions for the 2037 horizon year considering the No Action Alternatives – Scenario A (Baseline) and Scenario B (Allowed in PUD). The No Action Alternatives are the metric by which impacts of the Action Alternatives are be measured against.

Both No Action Alternatives reflect no changes in the on-campus vehicular and pedestrian circulation system as well as no change in campus housing (i.e., 241 student beds would remain). Scenario A considers a baseline condition with no additional development and growth in on-campus population i.e., continuation of current conditions with 7,846 student FTE. No new campus parking would be provided under Scenario A. Under Scenario B, the proposed Campus Master Plan would not be approved and the future campus development would be consistent with the current PUD including a student enrollment of up to 10,000 on-campus student FTE. There would be an on-campus parking supply of 4,200 to 6,600 stalls under Scenario B.

Street System

The No Action Alternatives assumes no change in campus vehicle access and circulation. A review of local and regional capital improvement programs and long-range transportation plans was conducted to determine planned funded and unfunded transportation projects that would impact the off-site study area. The review included, but was not limited to, the City of Bothell 2017 – 2022 *Six Year Transportation Improvement Program* (TIP) and Comprehensive Plan and transportation plans for Washington State Department of Transportation (WSDOT). Table 8 provides a summary of key future street system transportation projects in the study area. The table also outlines how these transportation projects were incorporated into the 2037 Baseline analysis. All the major transportation improvements serving vehicles are anticipated to be completed by 2037; however, there are several that are currently not funded. The unfunded transportation improvements are based on the City's 2035 Comprehensive Plan analysis and it is anticipated they would be evaluated for inclusion in the TIP as traffic demands increase and other planned projects are completed. Since the forecasted traffic reflects growth enabled by these improvements, the improvements themselves have also been included in the analysis of the intersection and corridors.

Table 8. Key Street System Planned Transportation Projects

Project Description	Responsible Agency	Expected Completion Date	Funded?[1]	Assumed in Traffic Operations Analysis?[2]
228th St SE from 35th to 39th Ave SE Widening (TIP #15): Widen 228th Street SE to 4-lanes between 39th Avenue SE and west of 35th Avenue SE approximately 300-feet. Install bike lanes and sidewalks on both side and landscaping and drainage improvements. Improve the intersections of 228th Street SE with 35th and 39th Avenues SE with ADA ramps. Provide an eastbound right-turn pocket at the 228th Street SE/35th Avenue SE intersection.	City of Bothell	2022	Yes	✓
228th St SE & 29th Dr SE Traffic & Intersection Improvements (TIP #9): Install a traffic signal and improve channelization and ADA ramps at the 228th St SE/29th Dr SE intersection.	City of Bothell	2017	Yes	✓
Beardslee Blvd Widening (Campus to I-405) (TIP #14): Add an eastbound lane along Beardslee Blvd between 110th Ave NE to I-405.	City of Bothell	2019	Yes	✓

Project Description	Responsible Agency	Expected Completion Date	Funded?[1]	Assumed in Traffic Operations Analysis?[2]
Beardslee Blvd Widening (NE 185th St to 110th Ave NE): Widen to 4- to 5-lanes and add a northbound left-turn lane at 110th Ave NE. Rechannelize the southbound right-turn lane on 110th Ave NE to provide a through/right-turn lane on Beardslee Blvd.[3]	City of Bothell	2035	No	✓
Beardslee Blvd & NE 185th St Intersection Improvements (TIP #13): Provide a roundabout or a signal at this intersection with curb ramps and crosswalks.[3]	City of Bothell	2019	Yes	✓
NE 185th St Reconstruction Beardslee Blvd to Bothell Wy & Transit Center (TIP #16): Widen and improve drainage, sidewalks, curb and gutter and landscaping along NE 185th Street between Beardslee Blvd and Bothell Way including urban elements to provide a transit oriented street. Potential intersection improvements including traffic signal at the intersections with 104th and 102th Ave NE.	City of Bothell	2022	Yes	✓
SR 522, Stage 2B Improvements (TIP #17): Continuation of the SR 522 Stage 1 Project to connect to the limits of the Bothell Crossroads project at NE 180th St. The project will improve traffic mobility, transit mobility, vehicular and pedestrian safety and improve business access. Elements of the project include installation of a business access and transit (BAT) lane westbound, sidewalks, curb and gutters and a raised median to enhance traffic safety through access management. Other potential elements include street illumination and landscaping.	WSDOT	2022	Yes	✓
SR 522, Stage 3 Improvements (TIP #7): Continuation of the SR 522 Stages 1 and 2. Roadway and BAT lanes from the end of Stage 1 and 2 improvements to 83rd Pl NE. Elements include widening general purpose lanes, adding BAT lanes in each direction (including the missing EB direction of the BAT lanes from 91st Ave NE to approximately 800-feet west of the 96th Ave NE), access management, center medians, interconnection of signals, sidewalk, curb and gutters, retaining walls, street illumination, drainage, landscaping; and utility undergrounding. The total project length is approximately 4,000 linear feet.	WSDOT	2022	Yes	✓
SR 522 Stage 4 Improvements (83rd Pl NE to Wayne Curve): Install sidewalks, access management, signal prioritization and non-motorized connections.	WSDOT	2035	No	✓
SR 527/Bothell-Everett Hwy / Bothell Way Corridor Study from SR 524 to SR 522 (TIP #20): This project will study the SR 527/Bothell-Everett Hwy/Bothell Way corridor from SR 524 to SR 522 to develop a long-range plan to address capacity and congestion. This corridor contains some of the most congested intersections in Bothell. However, to develop optimum solutions, each intersection should not be addressed individually but rather with an understanding of how the entire corridor is interrelated. This study will involve alternative analyses and public involvement.	WSDOT	2017	Yes	
SR 527 (SR 524 to I-405): Widen roadway from 2 to 3-lanes southbound from SR 524 to 220th St SE.	WSDOT	2035	No	✓
SR 527 (211th St SE to north of SR 524): Add third northbound through lane between 211th St E and north of SR 524. Add a southbound-left lane at intersection of SR 524/SR 527.	WSDOT	2035	No	✓
220th St SE/SR 527 Intersection: Add an eastbound left turn lane at this intersection.	City of Bothell	2035	No	✓

Project Description	Responsible Agency	Expected Completion Date	Funded?[1]	Assumed in Traffic Operations Analysis?[2]
214th St SE/SR 527 Intersection: Re-channelize the westbound approach to provide a through/left and through/right turn lanes.	City of Bothell	2035	No	✓
Bothell Way NE Widening (Reder Way to 204th St SE): Widen to 4 or 5-lanes and provide bike lanes, curb, gutter and sidewalk improvements.	City of Bothell	2035	No	✓
Adaptive Signal Control System, Phase 1 (TIP #8): Installation of an adaptive signal control system at 9 locations in Bothell including: 4 along SR 527 from SR 524 to 228th St SE, 4 along 228th St SE near Bothell-Everett Hwy/228th St.	City of Bothell Snohomish County Everett WSDOT	2017	Yes	✓
Adaptive Signal Control System, Phase 2 (TIP #12): Install adaptive signal control system at 13 intersections in Bothell along Bothell Wy between NE 191st St and SR 522 and along SR 522 between 96th Ave NE and Campus Wy NENE.	City of Bothell Snohomish County Everett WSDOT	2018	Yes	✓
Multiway Boulevard, Phase 2 (TIP #5): Construct phase 2 of the Multiway Boulevard linking the east and west sides of Downtown Bothell across Bothell Wy from SR 522 to Reder Wy. The Multiway Boulevard consists of 4 travel lanes, a left-turn lane, 2 side medians, 2 side lanes with parking, and wide sidewalks.	City of Bothell	2018	Yes	✓
Main Street Extension (Bothell Way to 98th Ave NE): Extends the current Main Street creating an east-west connection across Bothell Way.	City of Bothell	2035	No	✓
35th Ave SE (240th St SE to 228th St SE): Widen to 3 lanes.	City of Bothell	2035	No	✓
228th Street SE Corridor Safety Improvements (SR 527 to 19th Ave SE): Install safety improvements along 228th St SE including traffic islands, channelization, and traffic signal modifications.	City of Bothell	2035	No	✓
112th Ave NE/Juanita-Woodinville Wy NE Intersection: Add southbound right-turn pocket on Juanita-Woodinville Wy.	City of Bothell	2035	No	✓
NE 160th St/124th Ave NE Intersection: Add southbound right-turn pocket	City of Bothell	2035	No	✓
240th St SE/35th Ave SE Intersection: Install a traffic signal and widen the intersection to provide left turn pockets on the eastbound and southbound approaches OR Construct a roundabout. Provide left and right turn pockets on the westbound approach.	City of Bothell	2035	No	✓
240th St SE/39th Ave SE Intersection: Install a traffic signal and add an eastbound right turn pocket OR construct a roundabout.	City of Bothell	2035	No	✓
SR 527/228th St SE Intersection: Add an eastbound left turn lanes and northbound left turn lane.	City of Bothell WSDOT	2035	No	✓
228th St SE/Fitzgerald Rd Intersection: Add an eastbound right turn pocket	City of Bothell	2035	No	✓
228th St SE/29th Drive SE Intersection: Install traffic signal and add a westbound right turn pocket	City of Bothell	2035	No	✓
228th St SE/31st Ave SE Intersection: Add a westbound right turn pocket	City of Bothell	2035	No	✓

Project Description	Responsible Agency	Expected Completion Date	Funded?[1]	Assumed in Traffic Operations Analysis?[2]
SR 524/9th Ave SE Intersection: Add a northbound left turn lane	City of Bothell WSDOT	2035	No	✓

1. "Yes" means the project is fully funded for construction, "partial" means the project has some, but not complete funding for construction, and "no" means the project does not have any construction funding.
2. A check indicates that the project was assumed in the 2037 traffic operations analysis of corridors and intersections.
3. This analysis assumes a 5-lane cross-section including a second eastbound through lane along the Beardslee Boulevard Campus frontage between NE 185th Street and 110th Avenue NE consistent with the Comprehensive Plan forecasting.
4. The analysis assumes a traffic signal at the Beardslee Boulevard/NE 185th Street intersection. It does not assume any realignment of this intersection with NE 185th Street/108th Avenue NE. Sound Transit is completing a transit corridor study for NE 185th Street, which will evaluate improvements at this location including potential realignment.

It is noted that improvements along Beardslee Boulevard between NE 85th Street and 110th Avenue NE include a 5-lane cross-section (i.e., a second eastbound lane between NE 185th Street and 110th Avenue NE along the Campus frontage) consistent with the Comprehensive Plan travel demand modelling. Improvements at the Beardslee Boulevard/NE 185th Street intersection do not assume realignment with the south leg of NE 185th Street and 108th Avenue NE; this is evaluated as part of the Campus Master Plan Alternative 3. In addition, the Beardslee Boulevard/NE 185th Street intersection is assumed to have traffic signal control consistent with the Synchro model completed for the Comprehensive Plan analysis. Further analysis is being conducted by the City of Bothell and Sound Transit as part of Sound Transit 3 (ST3) where roundabout control is also being considered.

Pedestrian and Bicycle Transportation

There are no on-campus pedestrian or bicycle improvements anticipated with the No Action Alternatives. The 2017 – 2022 TIP and Comprehensive Plan were reviewed to identify pedestrian and bicycle facility improvements within the off-site study area. Many of the improvements noted in Table 8 for the street system include sidewalk, bike lane, and ADA ramp improvements. Additional pedestrian and bicycle improvements in the immediate vicinity of the Campus that are not described in Table 8 are summarized in Table 9. The East Riverside Drive Trail improvement would need to be coordinated with King County and no funding if identified in the City's 2017-2022 TIP.

Table 9. Key Pedestrian and Bicycle Planned Transportation Projects

Project Description	Responsible Agency	Expected Completion Date	Funded?[1]
Pedestrian Crossing Beacons at Beardslee Blvd & NE 185th St (TIP #11): Construct a pedestrian signal, ADA ramps, and illumination in the vicinity of Beardslee Blvd and NE 185th St.	City of Bothell	2018	Yes
East Riverside Drive Trail (102nd Avenue NE to City Limits) (TIP #42): Construct a 12-foot-wide multi-use trail along the north side of East Riverside Dr within the old railroad right-of-way for approximately 8,000-feet.	City of Bothell King County	Unknown	No

1. "Yes" means the project is fully funded for construction, "partial" means the project has some, but not complete funding for construction, and "no" means the project does not have any construction funding.

Transit Service

Transit facilities on-campus are not anticipated to change because of the No Action Alternatives. As discussed previously, King County Metro, Sound Transit, and Community Transit all provide service to the campus. All the transit agencies have plans for increased service and frequency to campus. A review of

existing conditions indicates that the existing transit center is inadequate to accommodate the current service; therefore, it is anticipated under the No Action Alternatives, without improvements, these facilities would continue to be inadequate and there would be additional buses queuing outside the transit center waiting to access the bus stops.

The 2017-2022 TIP, Comprehensive Plan, and Sound Transit, King County Metro, and Community Transit plans were reviewed to determine potential transit improvements that may impact the Campus by 2037. Table 10 highlights the key transit improvements effecting the Campus and the study area.

Table 10. Key Transit Projects

Project Description	Responsible Agency	Expected Completion Date	Funded?[1]
NE 185th St Reconstruction (Beardslee Blvd to Bothell Wy) & Transit Center (TIP #16): Provide transit oriented improvements along NE 185th St (see also Table 8).	City of Bothell	2022	Yes
Transit Park and Ride (TIP #18): Site and build a 300-parking stall park and ride.	City of Bothell King County Metro	2022	Yes
I-405 Bus Rapid Transit (BRT): Establish BRT operating in the I-405 express toll system between the Cities of Lynnwood and Renton and in the I-405 high-occupancy vehicle (HOV) lanes between Renton and Tukwila. From Tukwila to Burien, BRT would operate in bus-only lanes on SR 518. BRT stations would be provided near NE 195th Street using outside flyer stops on NE 195th Street ramps and improvements would include signage, lighting, shelters and benches, off-board fare payment, and real-time bus arrival. The BRT would provide 10-minute headways and the connection to the campus would be improved.	Sound Transit	2024	Yes
145th and SR 522 BRT: Implementation of BRT along NE 145th St/SR 523 from the Link station at Interstate 5 (I-5) to SR 522, with BRT treatments continuing on SR 522 to the Campus, and with connecting service at lower frequencies to Woodinville. On NE 145th St, this project includes transit priority spot treatments, with two stations. On SR 522, the majority of the corridor through Lake Forest Park, Kenmore, and Bothell will feature Business Access Transit (BAT) lanes to downtown Bothell, and transit priority treatments on arterials to the Campus. Project elements also include an expanded transit center on the UW Bothell/CC Campus, a 300-space parking garage in Bothell, peak and off-peak headways from NE 145th St to Campus of 10 minutes, and peak and off-peak headways between the Campus and Woodinville of 20 minutes.	Sound Transit (ST3)	2024	Yes

1. "Yes" means the project is fully funded for construction, "partial" means the project has some, but not complete funding for construction, and "no" means the project does not have any construction funding.

As shown in the table, there are planned improvements to provide transit along NE 185th Street; however, the No Action Alternatives assume the transit center in its current location. Thus, while service levels may increase the No Action Alternative analysis assumes the current transit access patterns would continue.

In addition to the specific projects highlighted above, the transit agencies have indicated plans for expanded service to the Campus. These service improvements include:

- **King County Metro Connects.** This is a long-range vision adopted by King County. Service to the Campus would include a new RapidRide line providing 15-minutes headways all-day, additional service connecting to future Sound Transit LINK light rail, and all-day 15 to 30 minute headways. RapidRide is King County Metro's bus rapid transit (BRT) service.

- **Community Transit Swift.** Swift is Community Transit's BRT. Community Transit plans to have Swift service to the Campus by 2025. This service would provide 12 to 20 minute headways all-day.
- **Sound Transit BRT.** As noted in Table 10, Sound Transit is planning BRT service to the Campus. This service would be along NE 185th Street and transit enhancements would be provided along the corridor to facilitate service. It is anticipated this service would begin by 2024.

Traffic Volumes

The components of the future traffic volumes include both background traffic growth and growth related to the campus.

Background Forecasts

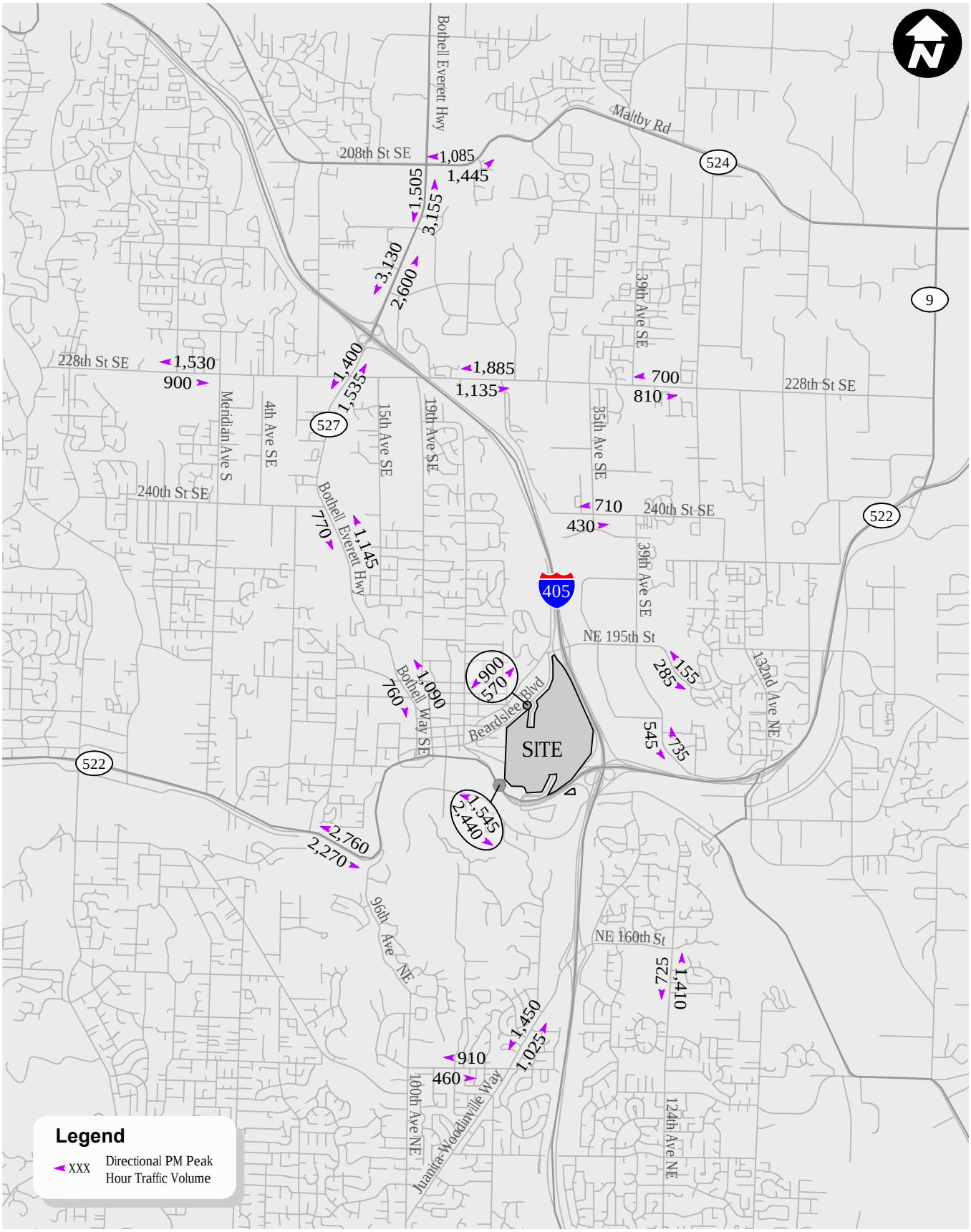
Traffic forecasts for the Scenario A 2037 baseline conditions were determined based on annual growth rates from the adopted Bothell Comprehensive Plan. A comparison of the Comprehensive Plan 2015 and 2035 intersection traffic volumes show a weighted average growth of 2 percent per year within the City[2]. The Baseline 2037 forecasts were determined by applying a 2 percent per year growth rate to the existing traffic volumes. It is noted that forecasting method generally resulted in forecasts that were similar to or higher than the 2035 Comprehensive Plan forecasts that included Campus growth. The Scenario A 2037 weekday PM peak hour traffic volumes along the study corridors are shown on Figure 9. No Action Alternative – Scenario A turning movements for each study intersection are provided in Appendix A.

Along Beardslee Boulevard, under No Action Alternative – Scenario A conditions during the weekday peak hours, campus-related vehicle traffic would make up approximately 14 to 17 percent of the traffic volume west of 110th Avenue NE and 25 percent of the traffic east of 110th Avenue NE. These No Action Alternative – Scenario A forecasts formed the basis of the background conditions for No Action Alternative – Scenario B.

Campus Traffic

Scenario B assumes an increase in on-campus student FTE of up to 10,000 and no change in campus housing. Weekday daily, AM peak hour, and PM peak hour campus trip generation associated with Scenario B was estimated based on existing campus trip generation characteristics (see Chapter 2 Affected Environment) and expected increases in campus population. Table 11 summarizes the Scenario B estimated weekday trip generation.

[2] The City's model assumed growth in traffic from the campus; thus, the application of the growth rate provides a conservative estimate of future traffic volumes.



No Action Alternative - Scenario A 2037 Weekday PM Peak Hour Traffic Volumes

FIGURE 9

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Table 11. No Action Alternative – Scenario B Estimated Weekday Trip Generation

	Population[1]	Trip Rate[3]	In	Out	Total
Daily					
Future					
Commuter	9,759 students FTE	2.12	10,345	10,345	20,690
Residential	241 beds[2]	1.37	165	165	330
Subtotal			*10,510*	*10,510*	*21,020*
Existing Trips			8,255	8,175	16,430
Net New Trips			***2,255***	***2,335***	***4,590***
AM Peak Hour					
Future					
Commuter	9,759 students FTE	0.24	1,991	351	2,342
Residential	241 beds[2]	0.10	14	10	24
Subtotal			*2,005*	*361*	*2,366*
Existing Trips			1,549	286	1,835
Net New Trips			***456***	***75***	***531***
PM Peak Hour					
Future					
Commuter	9,759 students FTE	0.25	976	1,464	2,440
Residential	241 beds[2]	0.17	18	23	41
Subtotal			*994*	*1,487*	*2,481*
Existing Trips			771	1,143	1,913
Net New Trips			***224***	***344***	***568***

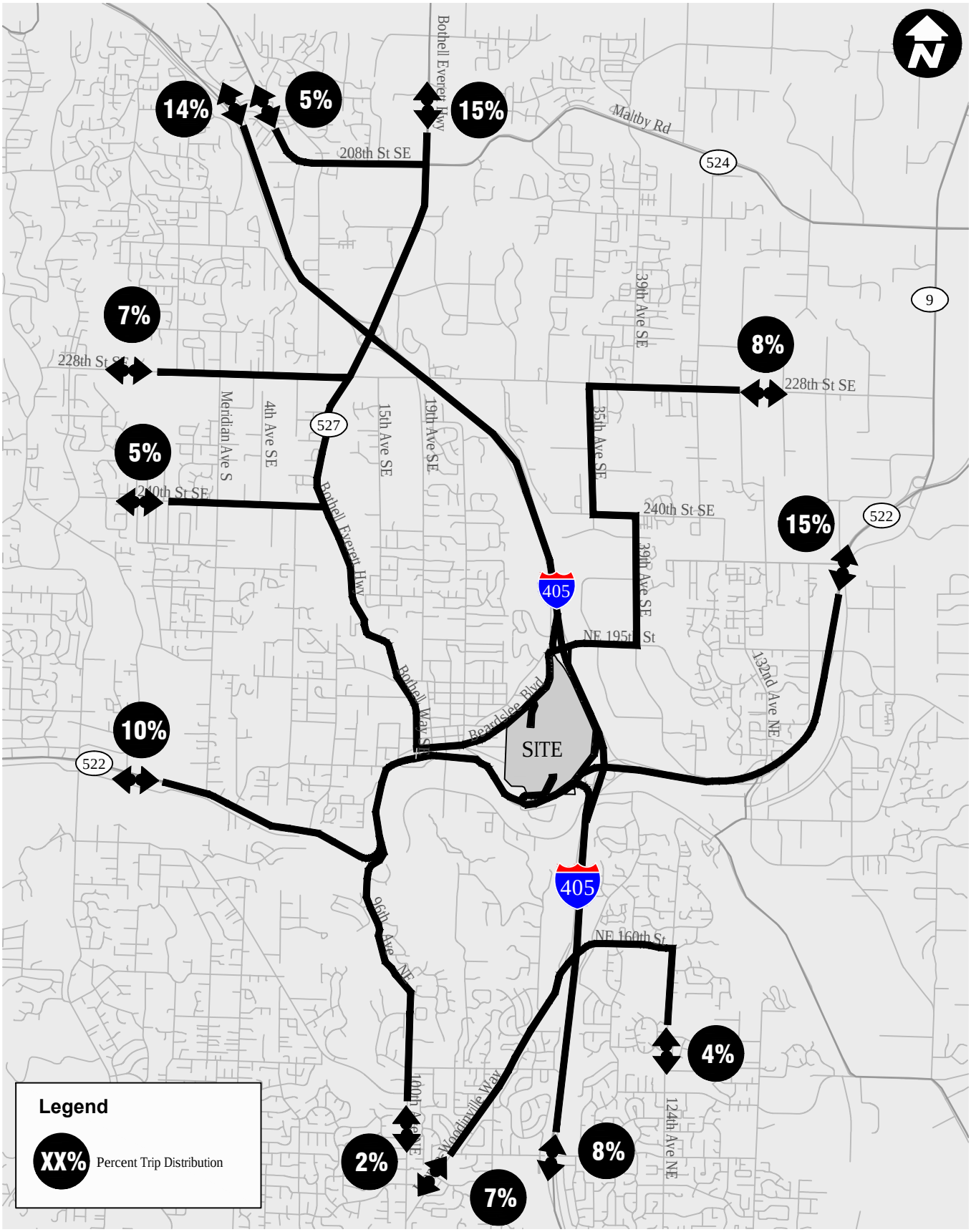
1. Represents on-campus population. Online students would not generate trips to the campus and are not included.
2. The number of beds is equivalent to one residential student.
3. Based on existing trip generation rates and accounts for all existing trips generated by the student FTEs including those that are currently occurring off-site.

Existing mode split assumptions is assumed to continue in the future. As shown in the table, the Scenario B would generate approximately 4,590 net new daily trips with 531 occurring during the weekday AM peak hour and 568 occurring during the weekday PM peak hour.

Campus Trip Distribution and Assignment

Scenario B net new trips were added to the Scenario A – Baseline conditions to forecast the future 2037 No Action Alternative – Scenario B conditions. Trips were distributed and assigned to the study area based on campus intercept surveys conducted on October 11 and 12, 2016 between 10 a.m. and 1:30 p.m., zip code data for the campus population (i.e., students, faculty, and staff) as well as peak period traffic volumes at the Beardslee Boulevard and SR 522 access points. Outside the immediate study area, the project trip distribution was based on existing travel patterns and zip code data for the campus population. Figure 10 shows anticipated project trip distribution within the study area. The localized trip assignment to the north and south campus access points were determined through a capacity analysis at the north end of the campus and the allocation of on-site parking. Appendix A provides the study intersection trip assignment. Figure 11 illustrates the resulting weekday PM peak hour traffic volumes. No Action Alternative – Scenario B turning movements the study intersections are provided in Appendix A.

Along Beardslee Boulevard, under No Action Alternative – Scenario B conditions during the weekday peak hours, campus-related vehicle traffic would make up a greater proportion of the traffic compared to Scenario A given the anticipated campus growth with Scenario B. The proportion of campus-related traffic would increase to approximately 19 to 22 percent of the traffic volume west of 110th Avenue NE and 25 to 28 percent of the traffic east of 110th Avenue NE, which would be up to a 5 percent increase.



Note: Local assignment with respect to the north and south campus access was determined through a capacity analysis at the north end of the campus and the allocation of on-site parking for each Alternative.

Campus Master Plan Alternative Trip Distribution

FIGURE
10

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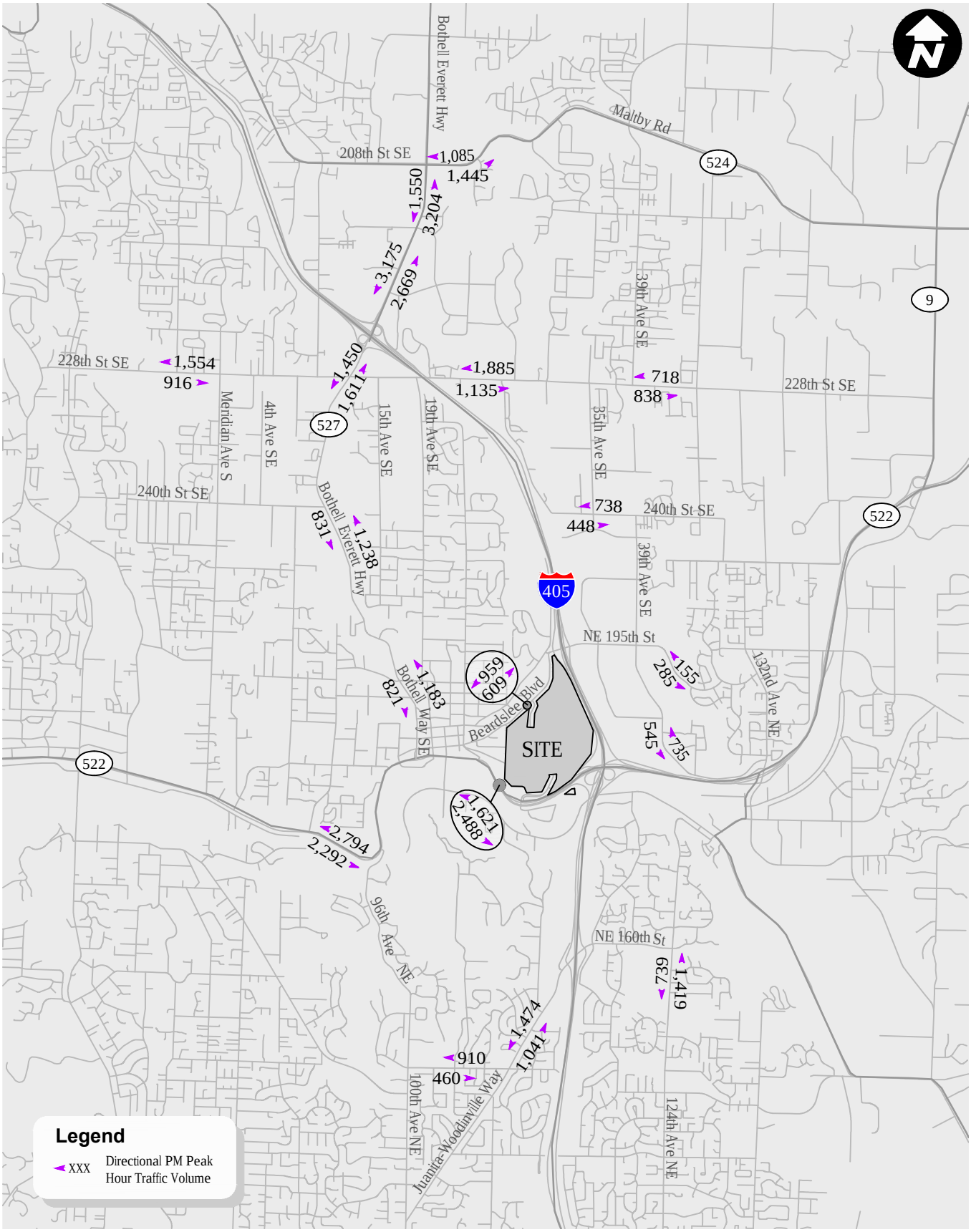

No Action Alternative - Scenario B 2037 Weekday PM Peak Hour Traffic Volumes

FIGURE 11

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Traffic Operations

Corridor operations were evaluated based on the methods and assumptions described in Chapter 2 Affected Environment. Signal timing was optimized and the evaluation includes the improvements described in Table 8. A detailed intersection LOS summary and worksheets for the study intersections are included in Appendix D. Table 12 provides a summary of the No Action Alternative corridor LOS.

Table 12. No Action Alternative 2037 Weekday PM Peak Hour Corridor LOS Summary

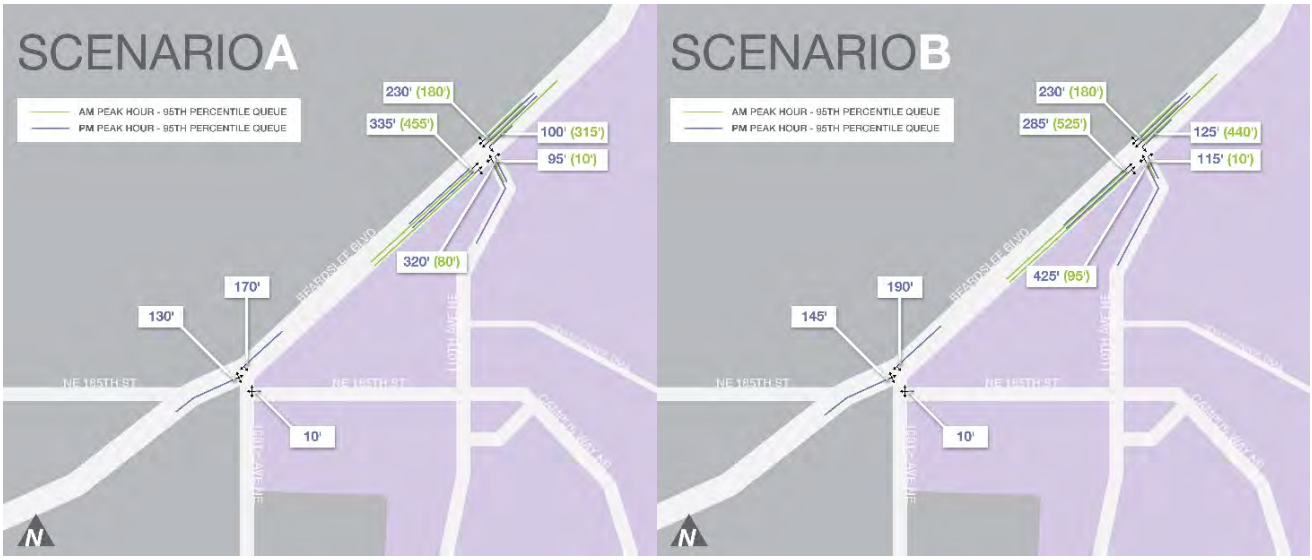
	Scenario A (Baseline)		Scenario B (Allowed in PUD)	
Corridor	**LOS[1]**	**Corridor Delay (sec/veh)[2]**	**LOS[1]**	**Corridor Delay (sec/veh)[2]**
SR 524 (208th St SE/Maltby Rd) Corridor between 9th Ave SE and SR-527	E	56	E	58
SR 527/Bothell-Everett Hwy/Bothell Wy Corridor between SR-524 and SR-522	E	60	E	62
228th St SE Corridor between 4th Ave W and 39th Ave SE	E	69	E	70
39th/35th Ave SE/120th Ave NE/NE 180th St between 228th St SE and 132nd Ave NE	E	63	E	67
Beardslee Blvd/NE 195th St Corridor between NE 185th St and 120th Ave NE[3]	E	74	E	78
SR 522 (NE Bothell Wy) Corridor between 96th Ave NE and Kaysner Wy	E	63	E	68
NE 145th St/Juanita-Woodinville Wy NE/NE 160th St between 100th Ave NE and 124th Ave NE	E	66	E	68

1. Level of service, based on 2010 *Highway Capacity Manual* methodology.
2. Average corridor delay in seconds (sec) per vehicle (veh) calculated by as a weighted average of intersections delays along the length of the corridor in seconds per vehicles.
3. Excludes a second eastbound lane between NE 185th Street and 110th Avenue NE.

As shown in Table 12, all the corridors would operate at LOS E under both Scenarios A and B meeting the City's LOS E standard.

Although the LOS along Beardslee Boulevard shows LOS E conditions during the weekday PM peak hour for the No Action Alternatives, it is recognized that there are long queues within the corridor. Consistent with existing conditions, the 95th-percentile vehicles queues were reviewed at the Beardslee Boulevard/110th Avenue NE and Beardslee Boulevard/108th Avenue NE intersections to show how the Alternatives would impact queuing within the corridor. Figure 12 illustrates a comparison of the Beardslee Boulevard campus access 95th-percentile vehicle queues.

Figure 12. No Action Alternatives 2037 Weekday Peak Hour Vehicle Queues



As shown on Figure 12, the No Action Alternative – Scenario B vehicle queues would be longer than the Scenario A queues due to campus growth. The analysis assumes the second eastbound lane along Beardslee Boulevard between NE 185th Street and 110th Avenue NE, which results in a decrease in anticipated 95th-percentile queues eastbound and minimize potential queuing impacts to adjacent intersections.

The future weekday peak hour vehicle queues under all Alternatives would impact the existing Husky Village driveway on the south side of Beardslee Boulevard. This is consistent with current peak period conditions.

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. Table 8, presented previously, highlights planned and future potential improvements within the study area including corridor, intersection, and adaptive signal improvements at these locations. With increased capacity and improved corridor and intersection operations, it is anticipated that safety issues would decrease within the study area.

Parking

Parking demand for Scenario A would be consistent with existing conditions since there is no change anticipated in on-campus population. The current peak parking demand is 2,430 vehicles and the parking supply considering both on-campus and off-campus leased parking supply is 2,444 stalls and is at capacity. It is anticipated that under Scenario A during peak conditions parking would continue to impact the adjacent street system consistent with current conditions and finding parking on-campus would be difficult. A parking supply of 2,800 spaces would be recommended to accommodate the current parking demand to achieve an 85 percent utilization. There are 2,128 parking stalls on-campus; therefore, to accommodate all parking on-campus and achieve an 85 percent utilization an additional 672 parking spaces would be needed.

Scenario B parking demand was determined based on the existing parking rates and projected number of commuter and residential student FTEs. Table 13 provides a summary of the resulting peak parking demand. Scenario B would provide 4,200 to 6,600 parking spaces on-campus.

Table 13. Summary of Peak Parking Demand – No Action Alternative Scenario B

	Population	Parking Rate[3]	Parking Demand
Commuter Demand	9,759 students FTE[1]	0.31	3,030 vehicles
Residential Demand	241 beds[2]	0.43	100 vehicles
Subtotal			3,130 vehicles
Recommended Supply (at 85% Utilization)			*3,600 spaces*

1. Represents on-campus population. Online students would not generate trips to the campus and are not included.
2. The number of beds is equivalent to one residential student.
3. Based on existing parking rates and accounts for all campus parking including those that are currently occurring off-site.

The analysis assumes existing mode split assumptions continue in the future. This represents a conservative analysis as transit service to the campus is expected to increase in frequency. However, as noted in the previous sections, modifications to the campus layout and transit access/circulation would be required to realize the full benefits of the increased service.

As shown in Table 13, a parking supply of 3,600 spaces would be recommended under the No Action Alternative – Scenario B to achieve an 85 percent parking utilization on-campus. This parking supply would be 800 additional parking spaces beyond what would be needed to accommodate the current campus parking demand. With the proposed parking supply of 4,200 to 6,600 spaces, it is anticipated that the parking demand would be fully accommodated on-campus and the peak parking utilization would be approximately 48 to 75 percent. Parking utilization over 90 percent is typically considered full because it becomes more difficult to find parking; therefore, with the proposed parking supply there would be a surplus of parking on-campus.

Chapter 4. Impacts of Alternative 1

This section describes the future transportation conditions for the 2037 horizon year considering Alternative 1 – Develop Institutional Identity (Southward Growth). Alternative 1 is compared to the No Action Alternative to determine transportation impacts.

Consistent with No Action Alternative – Scenario B, Alternative 1 includes up to 10,000 on-campus student FTE. In addition, on-campus housing would be increased by 959 beds for a total of 1,200 on-campus beds. Existing access points to the campus are assumed to remain unchanged except for the emergency access gate on NE 185th Street, which is proposed to be relocated west. Up to 3,700 parking stalls are proposed. The existing transit center is proposed to remain in its current location. Figure 13 illustrates the Alternative 1 preliminary Campus Master Plan concept.

Street System

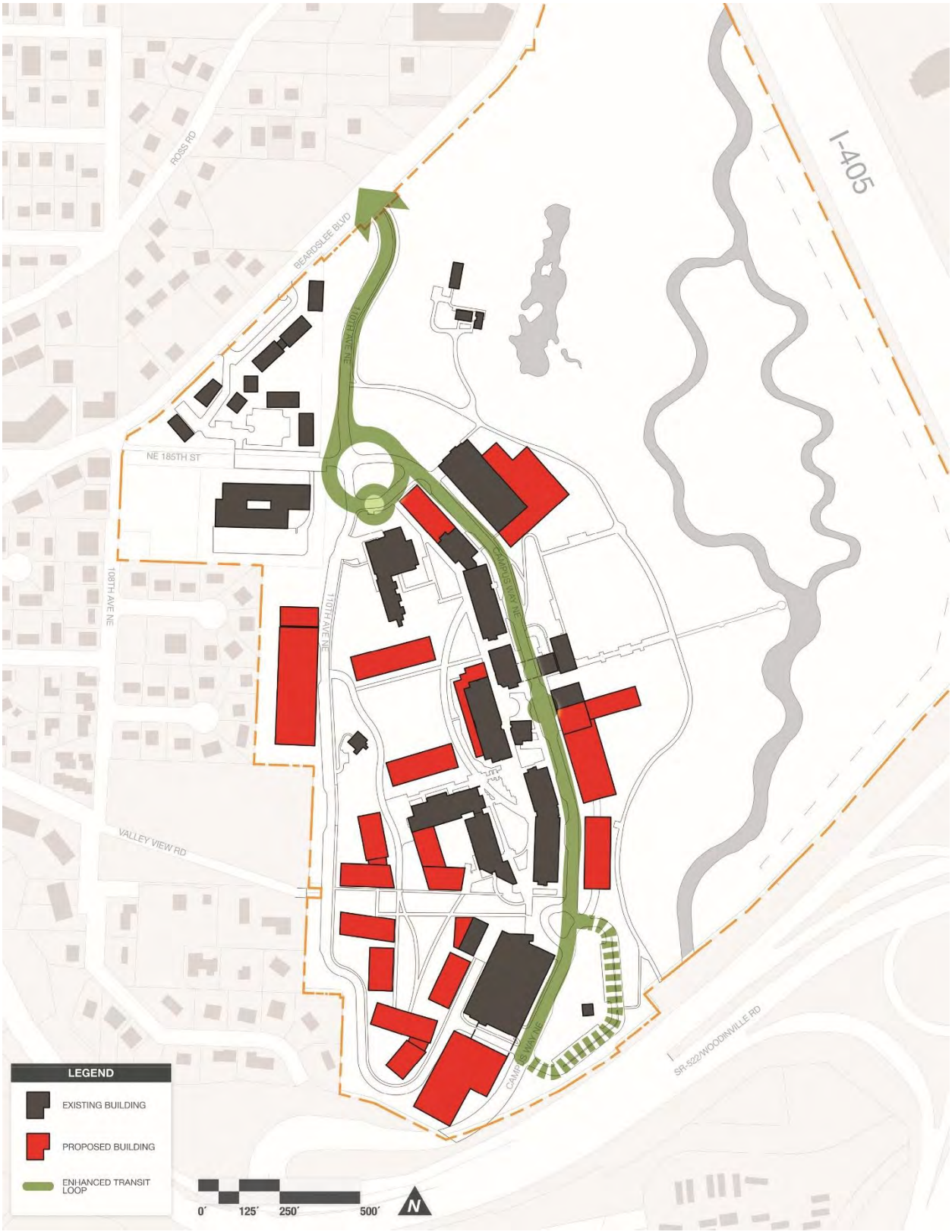
Off-site street system improvements within the study area would be consistent with the No Action Alternatives. The existing north access to campus from Beardslee Boulevard and south access to campus from SR 522 are assumed to remain unchanged under Alternative 1. The existing emergency access gate on NE 185th Street would be relocated to the west, which would result in access to the Husky Hall to be provided from the internal campus roadway system. Access between Husky Village and NE 185th Street would be closed to prevent the potential for cut-through traffic. Within the southern portion of the Campus, NE 180th Street would be realigned further south to accommodate building development and traffic calming features would be added to Campus Way NE. Campus Way NE would continue to be the main travel way through the Campus; however, the traffic calming features would encourage vehicle traffic to enter the Campus via the access closest to where they anticipate parking rather than traversing Campus Way NE from either the north or south.

The internal street system and overall vehicular circulation for the reminder of the campus would be consistent with existing conditions and the No Action Alternatives. The evaluation of Alternative 1 assumes a 4-lane section along Beardslee Boulevard between NE 185th Street and 110th Avenue NE consistent with the Comprehensive Plan analysis with an evaluation of the second eastbound lane as part of the campus access intersection review. Improvements at the Beardslee Boulevard/NE 185th Street intersection do not assume realignment with the south leg of NE 185th Street and 108th Avenue NE with Alternative 1.

Pedestrian and Bicycle Transportation

Off-site pedestrian and bicycle improvements within the study area would be consistent with the No Action Alternatives. In addition, campus pedestrian and bicycle access and internal circulation would be consistent with existing conditions and the No Action Alternatives. There would continue to be conflicts along Campus Way NE with vehicle traffic and pedestrian/ bicycle modes. Traffic calming features along Campus Way NE would help to slow down as well as discourage vehicle traffic from using this street to traverse the campus. Sidewalks and pedestrian paths would be provided between existing and proposed buildings and campus bicycle parking facilities as well as paths would be provided.

Figure 13. Alternative 1 Preliminary Campus Master Plan



Transit Service

Future transit service to the campus under Alternative 1 would be consistent with the discussion presented in Chapter 3 for the No Action Alternatives. There would be increased frequency and additional service to the Campus, which would need to be accommodated on-site. The transit center would remain in its existing location near the intersection of Campus Way NE and 110th Avenue NE under Alternative 1. The capacity of the transit center would be expanded from the existing 2 bays to 4 bays to accommodate future service. Roadway design and alignment changes at the intersection of 110th Ave NE and NE 185th St would improve bus and auto circulation near the transit center. The existing layover and comfort station would also remain on-campus with Alternative 1.

A transit facilities analysis was conducted to evaluate Alternative 1 transit access and circulation, pedestrian accessibility, efficiency, and safety.

Transit Access and Circulation

The access and circulation for transit would be consistent with current conditions; however, the capacity for the transit center would be increased. Existing observations indicated a transit center demand of up to five buses; the accommodation of 4 bays with Alternative 1 would likely be insufficient given the planned increases in transit service to the Campus.

Pedestrian Accessibility

Pedestrian access to the transit facilities under Alternative 1 would be consistent with current and No Alternative conditions. From the southern end of the campus near the Campus Way NE/NE 180th Street intersection, the walk to the transit center would be approximately 6- to 8-minutes.

Efficiency

The Alternative 1 efficiency of the transit circulation would be consistent with existing and No Action Alternative conditions. There would be no additional circulation required to access the Campus transit facilities. Traffic calming is proposed along Campus Way NE; the specific improvements implemented would need to consider transit operations along the corridor with Alternative 1.

Safety

Pedestrian and vehicle conflicts with transit would be consistent with existing and No Action Alternative conditions. There would continue to be conflicts along Campus Way NE with transit accessing the layover areas at the south end of the campus. Potential conflicts between modes would increase under Alternative 1 compared to No Action Scenario A given the increase in transit services as well as the anticipated increase in campus population. No Action Scenario B would have a similar population and transit circulation to Alternative 1 resulting in the same potential conflicts between modes.

Traffic Volumes

Alternative 1 assumes an increase in students on-campus of up to 10,000 student FTE with 1,200 additional on-campus beds. Weekday daily, AM peak hour, and PM peak hour campus trip generation associated with Alternative 1 was estimated based on existing campus trip generation characteristics (see Chapter 2 Affected Environment) and expected increases in campus population. Table 14 summarizes the Alternative 1 estimated weekday trip generation.

Table 14. Alternative 1 Estimated Weekday Trip Generation

	Population[1]	Trip Rate[3]	In	Out	Total
Daily					
Future					
Commuter	8,800 students FTE	2.12	9,330	9,330	18,660
Residential	1,200 beds[2]	1.37	820	820	1,640
Subtotal			*10,150*	*10,150*	*20,300*
Existing Trips			8,255	8,175	16,430
Net New Trips			***1,895***	***1,975***	***3,870***
AM Peak Hour					
Future					
Commuter	8,800 students FTE	0.24	1,795	317	2,112
Residential	1,200 beds[2]	0.10	68	52	120
Subtotal			*1,863*	*369*	*2,232*
Existing Trips			1,549	286	1,835
Net New Trips			***314***	***83***	***397***
PM Peak Hour					
Future					
Commuter	8,800 students FTE	0.25	880	1,320	2,200
Residential	1,200 beds[2]	0.17	88	116	204
Subtotal			*968*	*1,436*	*2,404*
Existing Trips			771	1,143	1,913
Net New Trips			***198***	***293***	***491***

1. Represents on-campus population. Online students would not generate trips to the campus and are not included.
2. The number of beds is equivalent to one residential student.
3. Based on existing trip generation rates and accounts for all existing trips generated by the student FTEs including those that are currently occurring off-site.

Existing mode split assumptions is assumed to continue in the future. As shown in the table, the Alternative 1 would generate approximately 3,870 net new daily trips with 397 occurring during the weekday AM peak hour and 491 occurring during the weekday PM peak hour.

The No Action Alternative – Scenario A assumes no growth in on-campus population resulting in no anticipated increase in vehicle trips. Scenario B anticipates up to 10,000 on-campus student FTE, which would increase vehicle trips to and from the campus. Table 15 provides a comparison between the No Action Alternative – Scenario B and Alternative 1 estimated weekday net new vehicle trips.

Table 15. Comparison of Scenario B and Alternative 1 Net New Weekday Trip Generation

	No Action – Scenario B[1]			Alternative 1[1]		
	In	Out	Total	In	Out	Total
Daily	2,255	2,335	4,590	1,895	1,975	3,870
AM Peak Hour	456	75	531	314	83	397
PM Peak Hour	224	344	568	198	293	491

1. Net new trips based on existing trip generation rates and accounts for all existing trips generated by the student FTEs including those that are currently occurring off-site.

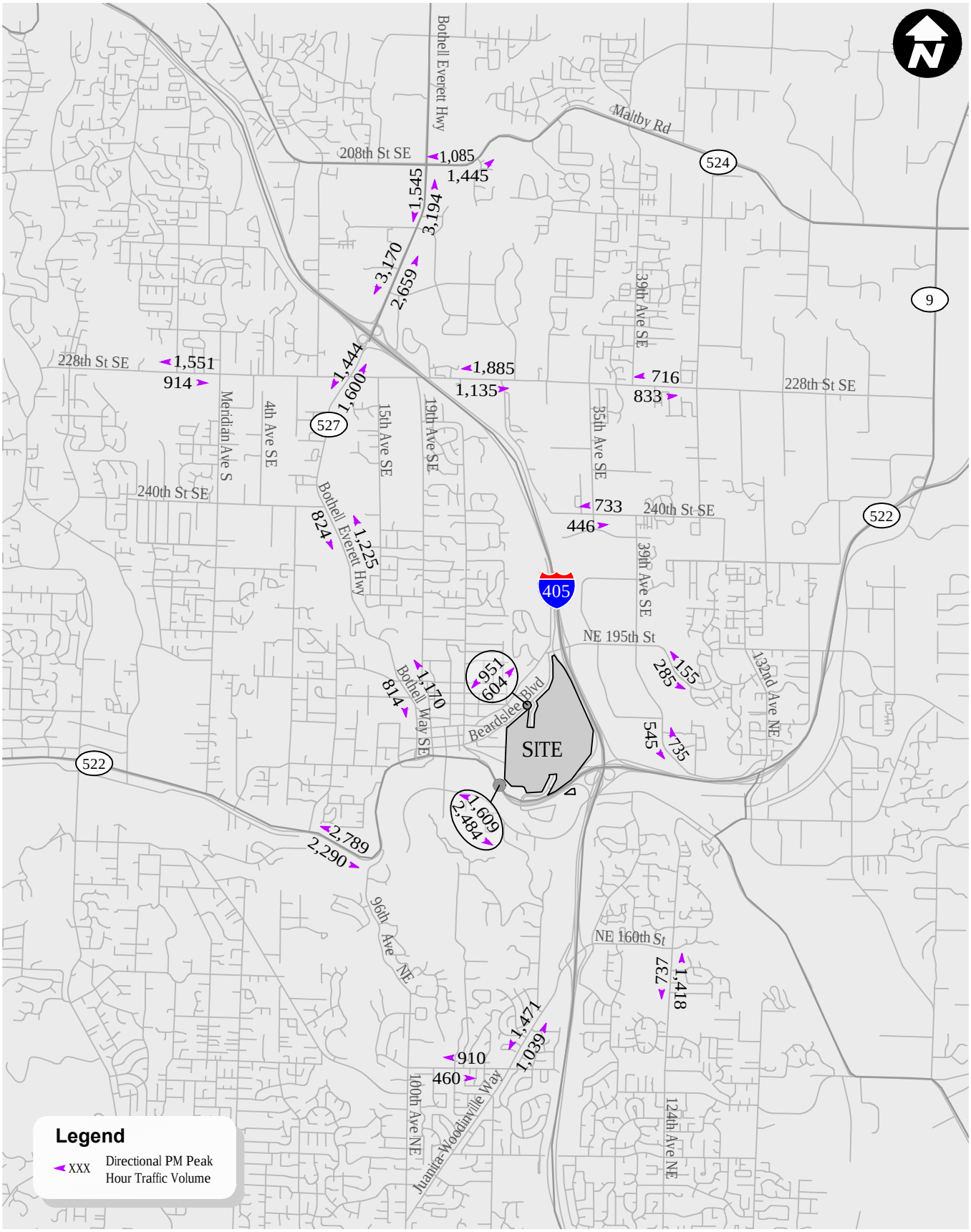
As shown in Table 15, Alternative 1 would generate less net new trips than Scenario B. Both Alternatives would allow for up to 10,000 student FTE on-campus; however, Alternative 1 would accommodate 1,200

beds. The accommodation of student housing on-campus reduces the overall campus vehicle trips because residential students making fewer vehicle trips since they can walk or bike to Campus buildings.

Trip Distribution and Assignment

Alternative 1 net new trips were added to the Scenario A – Baseline conditions to forecast the future 2037 Alternative 1 conditions. Trips were distributed to the study area consistent with the overall travel patterns identified for the No Action Alternative Scenario B shown on Figure 10 in Chapter 3. The localized trip assignment to the north and south campus access points were determined through a capacity analysis at the north end of the campus and the allocation of on-site parking. Approximately 50 percent of the new parking stalls under Alternative 1 would be located within structures in the southwestern portion of campus, which is assumed to be accessed via Campus Way NE at SR 522 on the south. The remaining approximately 50 percent of the new parking would be distributed near the existing north parking garage, the area south of NE 185th Street, and the west of Campus Way NE south of the existing sports fields. This parking would generally be accessed via the Beardslee Boulevard/110th Avenue NE intersection except for parking provided south of the sports fields, which depending on the specific location could be closer to the southern campus access. Trip assignment for each study intersection is provided in Appendix A. Figure 14 illustrates the resulting weekday PM peak hour traffic volumes along the study corridors. Alternative 1 2037 turning movements for each study intersection are provided in Appendix A.

Along Beardslee Boulevard, under Alternative 1 conditions during the weekday peak hours, campus-related vehicle traffic would make up a greater proportion of the traffic compared to No Action Alternative – Scenario A but a lesser proportion compared to Scenario B. The proportion of campus-related traffic for Alternative 1 would be approximately 18 to 21 percent of the traffic volume west of 110th Avenue NE and 27 to 28 percent of the traffic east of 110th Avenue NE, which would be up to 3 percent less than with No Action Alternative – Scenario B.



Alternative 1 2037 Weekday PM Peak Hour Traffic Volumes

FIGURE
14

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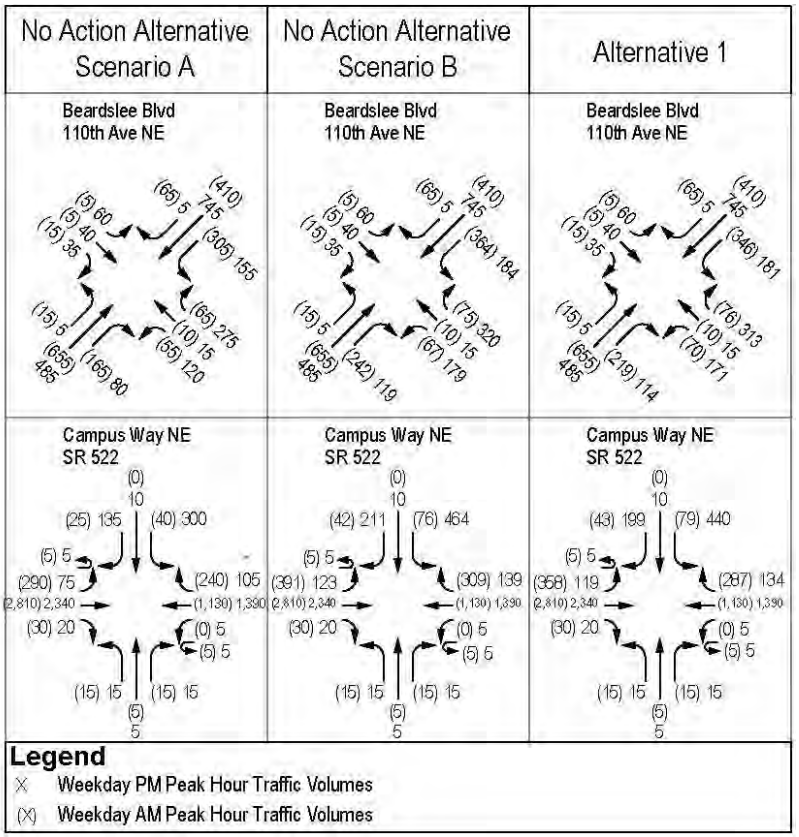
In addition to corridor analysis, the Campus site access points were also reviewed to evaluate the ability to accommodate traffic anticipated with Alternative 1. Figure 15 shows a comparison of the No Action Alternatives and Alternative 1 site access turning movements for the weekday peak hours. As shown in the figure, the No Action Alternative – Scenario B and Alternative 1 would have similar traffic to and from the campus.

Figure 15. No Action Alternatives and Alternative 1 2037 Weekday Peak Hour Site Access Traffic Volumes



Traffic Operations

The evaluation of traffic operations for the Campus Master Plan Alternatives considers both off-site corridors and the campus access.

Corridors

Corridor operations were evaluated based on the methods and assumptions described in Chapter 2 Affected Environment. Signal timing was assumed consistent with the No Action Alternative and the evaluation includes the improvements described in Table 8. A detailed intersection LOS summary and worksheets for the study intersections are included in Appendix D. Table 16 provides a summary of the Alternative 1 corridor LOS and comparison to the No Action Alternatives.

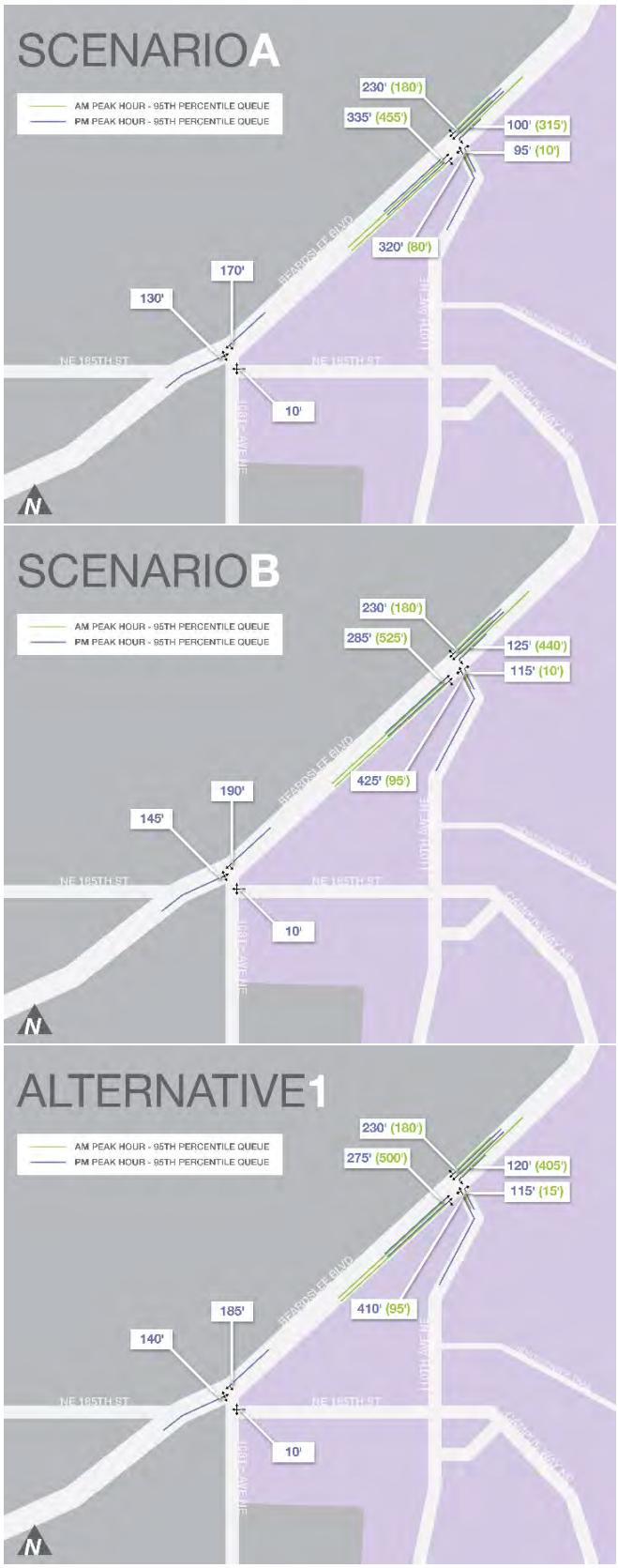
Table 16. No Action and Alternative 1 2037 Weekday PM Peak Hour Corridor LOS Summary

Corridor	Scenario A (Baseline)		Scenario B (Allowed in PUD)		Alternative 1	
	LOS[1]	Corridor Delay (sec/veh)[2]	LOS[1]	Corridor Delay (sec/veh)[2]	LOS[1]	Corridor Delay (sec/veh)[2]
SR-524 (208th St SE/Maltby Rd) Corridor between 9th Ave SE and SR-527	E	56	E	58	E	57
SR-527/Bothell-Everett Hwy/Bothell Wy Corridor between SR-524 and SR-522	E	60	E	62	E	63
228th St SE Corridor between 4th Ave W and 39th Ave SE	E	69	E	70	E	71
39th/35th Ave SE/120th Ave NE/NE 180th St between 228th St SE and 132nd Ave NE	E	63	E	67	E	66
Beardslee Blvd/NE 195th St Corridor between NE 185th St and 120th Ave NE[3]	E	74	E	78	E	77
SR-522 (NE Bothell Wy) Corridor between 96th Ave NE and Kaysner Wy	E	63	E	68	E	67
NE 145th St/Juanita-Woodinville Wy NE/NE 160th St between 100th Ave NE and 124th Ave NE	E	66	E	68	E	68

1. Level of service, based on 2010 *Highway Capacity Manual* methodology.
2. Average corridor delay in seconds (sec) per vehicle (veh) calculated by as a weighted average of intersections delays along the length of the corridor in seconds per vehicles.
3. Excludes a second eastbound lane between NE 185th Street and 110th Avenue NE.

As shown in Table 16, all the corridors would operate at LOS E and meet the City's LOS standard under Alternative 1 2037 conditions.

Figure 16. Comparison of No Action Alternative and Alternative 1 2037 Beardslee Blvd Vehicle Queues



Although the LOS along Beardslee Boulevard shows LOS E conditions during the weekday PM peak hour for the Alternatives, it is recognized that there are long queues within the corridor. The 95th-percentile vehicles queues were reviewed at the Beardslee Boulevard/110th Avenue NE and Beardslee Boulevard/108th Avenue NE intersections to show how the Alternatives would impact queuing within the corridor. Figure 16 illustrates a comparison of the Beardslee Boulevard campus access 95th-percentile vehicle queues.

As shown on Figure 16, Alternative 1 would result in increased vehicles queues compared to No Action Alternative – Scenario A; however, Alternative 1 vehicles queues would be similar to or less than No Action Alternative – Scenario B. The decrease in vehicle queues with Alternative 1 is due to additional residential provided on-campus, which reduces the weekday peak hour vehicles trips to and from Campus.

The future weekday peak hour vehicle queues under all Alternatives would impact the existing Husky Village driveway on the south side of Beardslee Boulevard. This is consistent with current peak period conditions and it is likely with Alternative 1 access to this parcel would be reconfigured. It is not anticipated that weekday peak hour vehicle queues would impact adjacent City intersections with the planned additional eastbound travel lane along Beardslee Boulevard.

Campus Access

In addition to corridor LOS and Beardslee Boulevard queues, traffic operations for the campus access intersections were also reviewed for the weekday AM and PM peak hours. Table 17 provides a summary of the weekday AM and PM peak hour intersection LOS.

Table 17. No Action and Alternative 1 2037 Weekday Peak Hour Access LOS Summary

Access Intersection	Scenario A (Baseline)		Scenario B (Allowed in PUD)		Alternative 1	
	LOS[1]	Delay (sec/veh)[2]	LOS[1]	Delay (sec/veh)[2]	LOS[1]	Delay (sec/veh)[2]
AM Peak Hour						
Beardslee Boulevard/110th Avenue NE[3]	B	15	B	19	B	17
SR 522/Campus Way NE	F	130	F	148	F	147
PM Peak Hour						
Beardslee Boulevard/110th Avenue NE[3]	B	11	B	13	B	12
SR 522/Campus Way NE	D	45	F	82	E	77

1. Level of service, based on 2010 *Highway Capacity Manual* methodology.
2. Average delay per vehicle in seconds.
3. Excludes a second eastbound lane between NE 185th Street and 110th Avenue NE.

As shown in the Table 17, Alternative 1 would increase delays at the site access intersections compared to Scenario A. A comparison of Alternative 1 to the No Action Alternative - Scenario B shows that delays would generally decrease. In addition, Alternative 1 anticipated vehicle queues at the access intersections would be the same as or slightly less than conditions with No Action Alternative – Scenario B given that traffic volumes would be similar for these Alternatives.

LOS F operations at the SR 522/Campus Way NE intersection are triggered due to the high traffic volumes along SR 522 during both the weekday AM and PM peak hours. Alternative 1 would result in less overall delay at this intersection compared to No Action Alternative – Scenario B.

Beardslee Boulevard Improvement Sensitivity Analysis

As describe previously, the analysis assumes a second eastbound travel lane along Beardslee Boulevard between NE 185th Street and 110th Avenue NE consistent with the Comprehensive Plan. Construction of this lane would require the Campus to dedicate right-of-way along the frontage. The following provides a sensitivity analysis showing traffic operations of Alternative 1 with and without the additional eastbound lane.

- **Corridor Operations**. The overall corridor operations would continue to be LOS E during the weekday PM peak hour even without the additional eastbound travel lane. The minimal change in operations is due to the weighted average delay calculation, which is influenced by the intersections along NE 195th Street that have higher traffic volumes and delay.
- **Campus Access LOS**. Without the additional eastbound travel lane, Beardslee Boulevard/110th Avenue NE overall intersection delays would increase by 2 to 3 seconds. The intersection would remain LOS B during both the weekday AM and PM peak hours.
- **Vehicle Queues**. Figure 17 illustrates the vehicles queues with and without the additional eastbound lane. As shown in the figures, vehicle queues in the eastbound direction would be approximately double without the additional eastbound travel lane and it likely that the queues would spillback to NE 185th Street. These queues would impact travel along the corridor. It is noted that the evaluation shows similar conclusions for the No Action Alternative and these conditions would occur with or without the Campus Master Plan.

Figure 17. Comparison of Alternative 1 2037 Beardslee Boulevard Vehicle Queues – With and Without Additional Eastbound Lane

With Additional Eastbound Lane

Without Additional Eastbound Lane

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. Alternative 1 traffic volumes are anticipated to be less than No Action Alternative - Scenario B, which could result in proportionally less potentially vehicles conflicts. Table 8, presented in Chapter 3, highlights planned and future potential improvements within the study area including corridor, intersection, and adaptive signal improvements at these locations. With increased capacity and improved corridor and intersection operations, it is anticipated that safety issues would decrease within the study area.

Parking

Alternative 1 parking demand was determined based on the existing parking rates and projected commuter and residential students. Table 18 provides a summary of the resulting peak parking demand. Alternative 1 would provide up to 3,700 parking spaces on-campus.

Table 18. Summary of Peak Parking Demand – Alternative 1

	Population	Parking Rate[3]	Parking Demand
Commuter Demand	8,800 students FTE[1]	0.31	2,730
Residential Demand	1,200 beds[2]	0.43	520
Subtotal			3,250
Recommended Supply (at 85% Utilization)			*3,740 spaces*

1. Represents on-campus population. Online students would not generate trips to the campus and are not included.
2. The number of beds is equivalent to one residential student.
3. Based on existing parking rates and accounts for all campus parking including those that are currently occurring off-site.

The analysis assumes existing mode split assumptions continue in the future. This represents a conservative analysis as transit service to the campus is expected to increase in frequency. In addition, Alternative 1 would modify the campus layout and transit access/circulation to accommodate the increased service. Compared to the No Action Alternatives, Alternative 1 parking demand would be 820

vehicles more than No Action Alternative - Scenario A and 120 vehicles more than No Action Alternative - Scenario B.

As shown in Table 18, a parking supply of approximately 3,740 spaces would be recommended under Alternative 1 to achieve an 85 percent parking utilization on-campus. With the proposed parking supply of approximately 3,700 spaces, it is anticipated that the parking demand would be fully accommodated on-campus and the peak parking utilization would be approximately 88 percent. As discussed previously, parking utilization over 90 percent is typically considered full because it becomes more difficult to find parking; therefore, with the proposed parking supply there would be a surplus of parking on-campus.

As described in Chapter 3 Impacts of the No Action Alternatives, an additional 672 stalls are recommended on-campus to accommodate current conditions. Therefore, with Alternative 1,940 additional stalls would be needed to accommodate just the increase in parking demand due to the future growth with this alternative. The analysis assumes existing mode splits; therefore, overall parking needs could decrease with shifts in travel behavior away from drive alone.

Chapter 5. Impacts of Alternative 2

This section describes the future transportation conditions for the 2037 horizon year considering Alternative 2 – Develop the Core (Central Growth). Alternative 2 is compared to the No Action Alternatives to determine transportation impacts.

Consistent with No Action Alternative – Scenario B, Alternative 2 includes up to 10,000 on-campus student FTE. In addition, on-campus housing would be increased by 359 beds for a total of 600 on-campus beds. Existing access points to the campus are assumed to remain unchanged and transportation improvements would be made to NE 185th Street including relocation of the transit center to this corridor. Up to 3,700 parking stalls are proposed. Figure 18 illustrates the Alternative 2 preliminary Campus Master Plan concept.

Street System

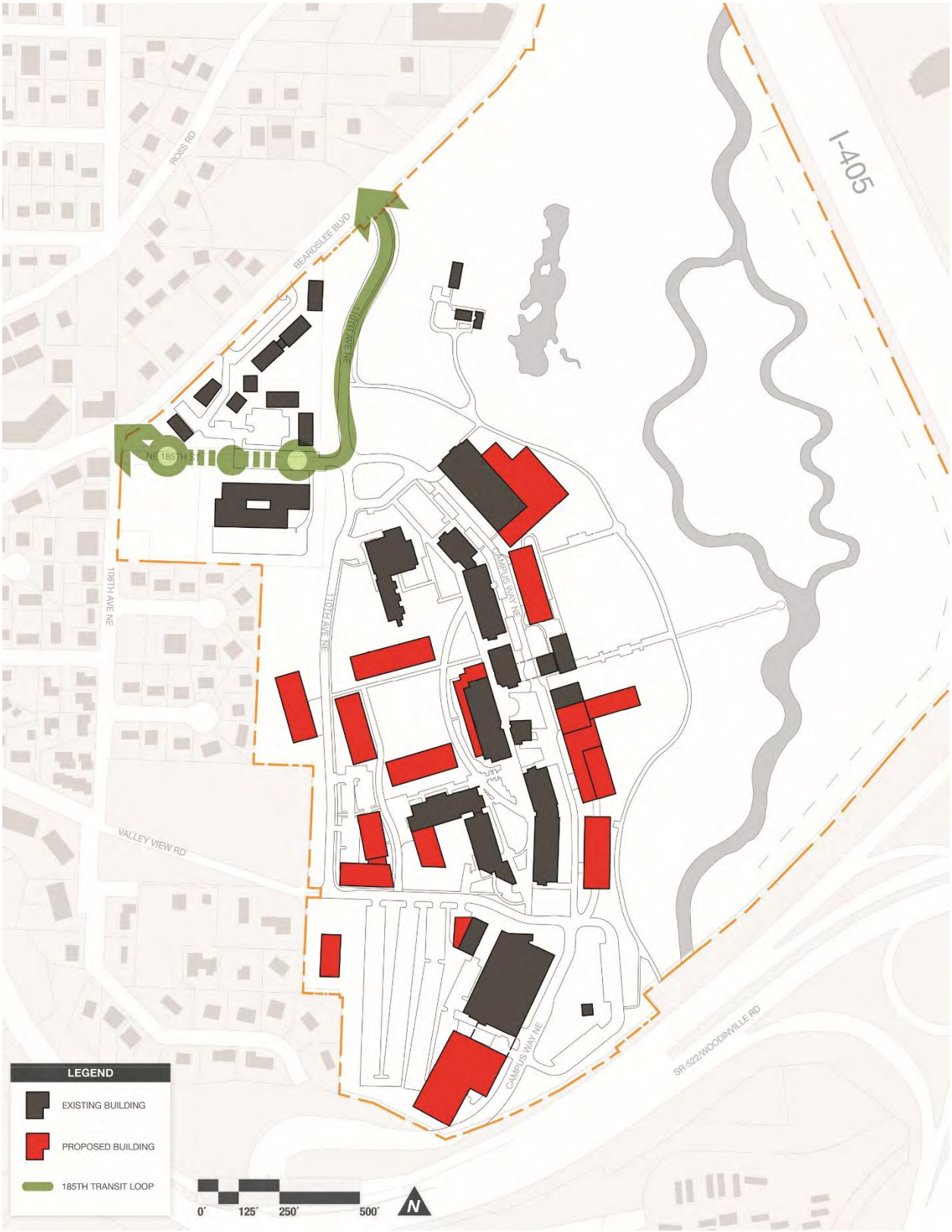
Off-site street system improvements within the study area would be consistent with the No Action Alternatives. The existing north access to campus from Beardslee Boulevard and south access to campus from SR 522 are assumed to remain unchanged under Alternative 2. NE 185th Street would be opened between Beardslee Boulevard and 110th Avenue NE to allow direct transit access to campus. Traffic calming measures would be provided on Campus Way NE, with Campus Way NE being a primary pedestrian and bicycle route on-campus. Vehicular traffic on campus would primarily utilize NE 180th Street and 110th Avenue NE. The transit center would be relocated from the current location to NE 185th Street on-campus.

The evaluation of Alternative 2 assumes a 4-lane section along Beardslee Boulevard between NE 185th Street and 110th Avenue NE consistent with the Comprehensive Plan analysis with an evaluation of the second eastbound lane as part of the campus access intersection review. Improvements at the Beardslee Boulevard/NE 185th Street intersection do not assume realignment with the south leg of NE 185th Street and 108th Avenue NE with Alternative 2; however, depending on the configuration of the transit center along with the City's TIP project at Beardslee Boulevard/NE 185th Street intersection improvements would likely be needed at the Beardslee Boulevard/NE 185th Street/108th Avenue NE intersection.

Pedestrian and Bicycle Transportation

Off-site pedestrian and bicycle improvements within the study area would be consistent with the No Action Alternatives. Campus Way NE would become the primary pedestrian and bicycle route on-campus and traffic calming measures would be provided in an effort to reduce vehicular use of this street. The reduced vehicle traffic including elimination of transit along Campus Way NE would decrease conflicts between pedestrian/bicycle and vehicle modes within this corridor. Sidewalks and pedestrian paths would be provided between existing and proposed buildings and campus bicycle parking facilities as well as paths would be provided.

Figure 18. Alternative 2 Preliminary Campus Master Plan

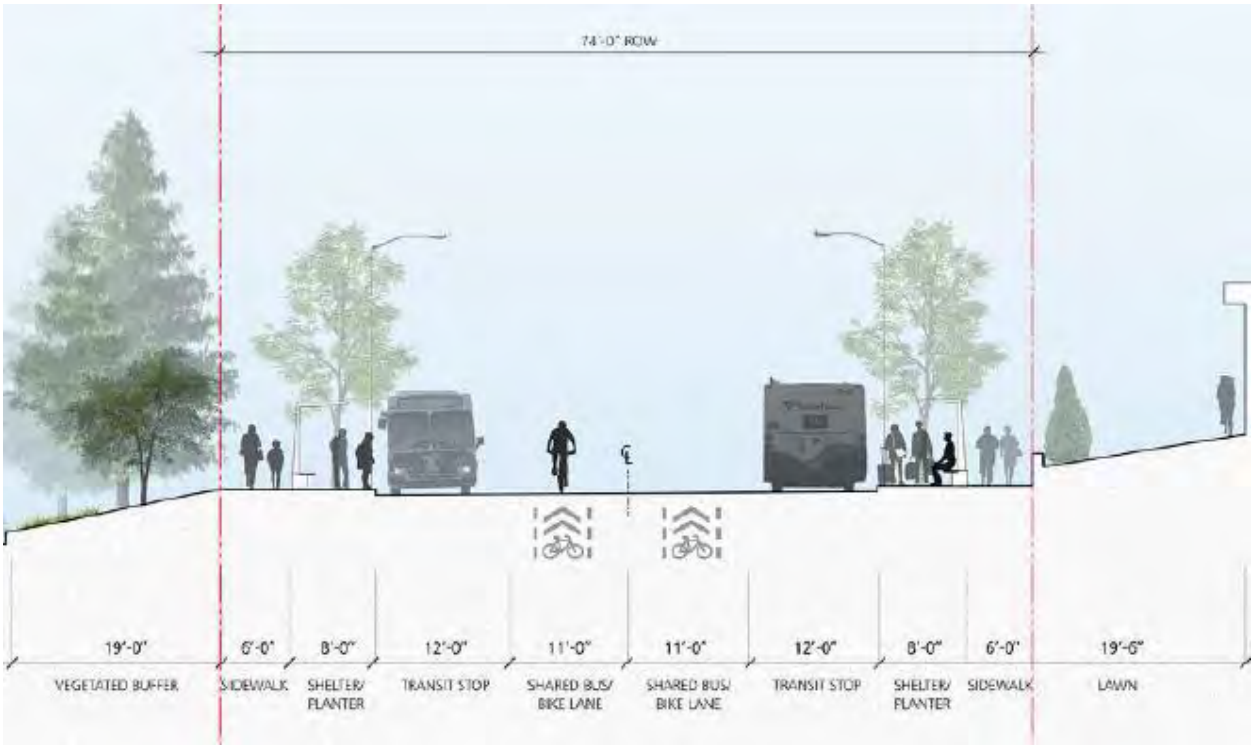


Transit Service

Future transit service to the campus would be consistent for the No Action Alternatives and Alternative 2. There would be increased frequency and additional service to the Campus, which would need to be accommodated on-site. Alternative 2 would move the transit center to NE 185th St between Beardslee Boulevard and 110th Avenue NE. Figure 19 illustrates the preliminary cross-section for the NE 185th Street transit center. Drop-off, pick-up, and layover would all occur in this one location and the existing comfort station would be relocated to this transit center. The capacity of the transit center would increase from the current 2 bays to up to 8 bays to accommodate the projected transit demand.

Similar to Alternative 1, a transit facilities analysis was conducted to evaluate Alternative 2 transit access and circulation, pedestrian accessibility, efficiency, and safety.

Figure 19. Preliminary NE 185th Street Transit Center Cross-Section



Transit Access and Circulation

Circulation along NE 185th Street would be two-way with buses entering and exiting the transit center via Beardslee Boulevard either at NE 185th Street or 110th Avenue NE depending on the bus route. This would be consistent with future transit plans to provide transit oriented improvements and BRT along the NE 185th Street corridor. With two-way circulation, intersection improvements would be needed at the Beardslee Boulevard/NE 185th Street/108th Avenue NE intersection to accommodate transit service. These improvements will be further considered as part of the Sound Transit NE 185th Street transit corridor evaluation under ST3.

The Alternative 2 transit center with up to 8 bays would accommodate existing transit service and likely be sufficient for planned increases in transit service to the Campus.

Pedestrian Accessibility

Pedestrian access to the transit facilities would be closer to development occurring on the west side of the campus but would result in slightly higher walking times for development along Campus Way NE and to the south compared to the No Action Alternatives. From the southern end of the campus near the Campus Way NE/NE 180th Street intersection, the walk to the transit center would be approximately 8- to 10-minutes, which is approximately 2 minutes longer than the No Action Alternatives and Alternative 1.

Efficiency

As discussed above, Alternative 2 would provide transit circulation consistent with the long-term City of Bothell plans to utilize NE 185th Street as a transit corridor. For transit coming to and from the east, there would be some additional travel time and delays associated with circulating from Beardslee Boulevard to 110th Avenue to NE 185th Street and then travelling through an additional intersection by exiting at the Beardslee Boulevard/NE 185th Street intersection rather than at Beardslee Boulevard/110th Avenue NE intersection consistent with current conditions. During peak periods, if improvements do not occur at the Beardslee Boulevard/110th Avenue NE intersection this added delay could result in an adverse impact given the long queues anticipated under Alternative 2.

Alternative 2 would improve layover operations for transit by incorporating this into one location. Transit would be able to park once rather than moving buses to layover.

Safety

Pedestrian and vehicle conflicts with transit would be eliminated along Campus Way NE with Alternative 2. In addition, on-campus congestion that occurs with transit using layover spaces and traveling through campus would be eliminated. Pedestrian conflicts with transit could arise crossing NE 185th Street between the Husky Hall and Husky Village areas. Along with enhancements to Campus Way NE, enhancements and crosswalks along NE 185th Street to connect Husky Village to the campus would be needed.

Traffic Volumes

Alternative 2 assumes an increase in students on-campus of up to 10,000 student FTE with on-campus beds. Weekday daily, AM peak hour, and PM peak hour campus trip generation associated with Alternative 2 was estimated based on existing campus trip generation characteristics (see Chapter 2 Affected Environment) and expected increases in campus population. Table 19 summarizes the Alternative 2 estimated weekday trip generation.

Table 19. Alternative 2 Estimated Weekday Trip Generation

	Population[1]	Trip Rate[3]	In	Out	Total
Daily					
Future					
Commuter	9,400 students FTE	2.12	9,965	9,965	19,930
Residential	600 beds[2]	1.37	410	410	820
Subtotal			*10,375*	*10,375*	*20,750*
Existing Trips			8,255	8,175	16,430
Net New Trips			***2,120***	***2,200***	***4,320***
AM Peak Hour					
Future					
Commuter	9,400 students FTE	0.24	1,918	338	2,256
Residential	600 beds[2]	0.10	34	26	60
Subtotal			*1,952*	*364*	*2,316*
Existing Trips			1,549	286	1,835
Net New Trips			***403***	***78***	***481***
PM Peak Hour					
Future					
Commuter	9,400 students FTE	0.25	940	1,410	2,350
Residential	600 beds[2]	0.17	44	58	102
Subtotal			*984*	*1,468*	*2,452*
Existing Trips			771	1,143	1,913
Net New Trips			***214***	***325***	***539***

1. Represents on-campus population. Online students would not generate trips to the campus and are not included.
2. The number of beds is equivalent to one residential student.
3. Based on existing trip generation rates and accounts for all existing trips generated by the student FTEs including those that are currently occurring off-site.

Existing mode split assumptions is assumed to continue in the future. As shown in the table, Alternative 2 would generate approximately 4,320 net new daily trips with 481 occurring during the weekday AM peak hour and 539 occurring during the weekday PM peak hour.

The No Action Alternative – Scenario A assumes no growth in on-campus population resulting in no anticipated increase in vehicle trips. No Action Alternative - Scenario B anticipates up to 10,000 on-campus student FTE, which would increase vehicle trips to and from the campus. Table 20 provides a comparison between the Scenario B and Alternative 2 estimated weekday net new vehicle trips.

Table 20. Comparison of Scenario B and Alternative 2 Net New Weekday Trip Generation

	No Action – Scenario B[1]			Alternative 2[1]2[1]		
	In	Out	Total	In	Out	Total
Daily	2,255	2,335	4,590	2,120	2,200	4,320
AM Peak Hour	456	75	531	403	78	481
PM Peak Hour	224	344	568	214	325	539

1. Net new trips based on existing trip generation rates and accounts for all existing trips generated by the student FTEs including those that are currently occurring off-site.

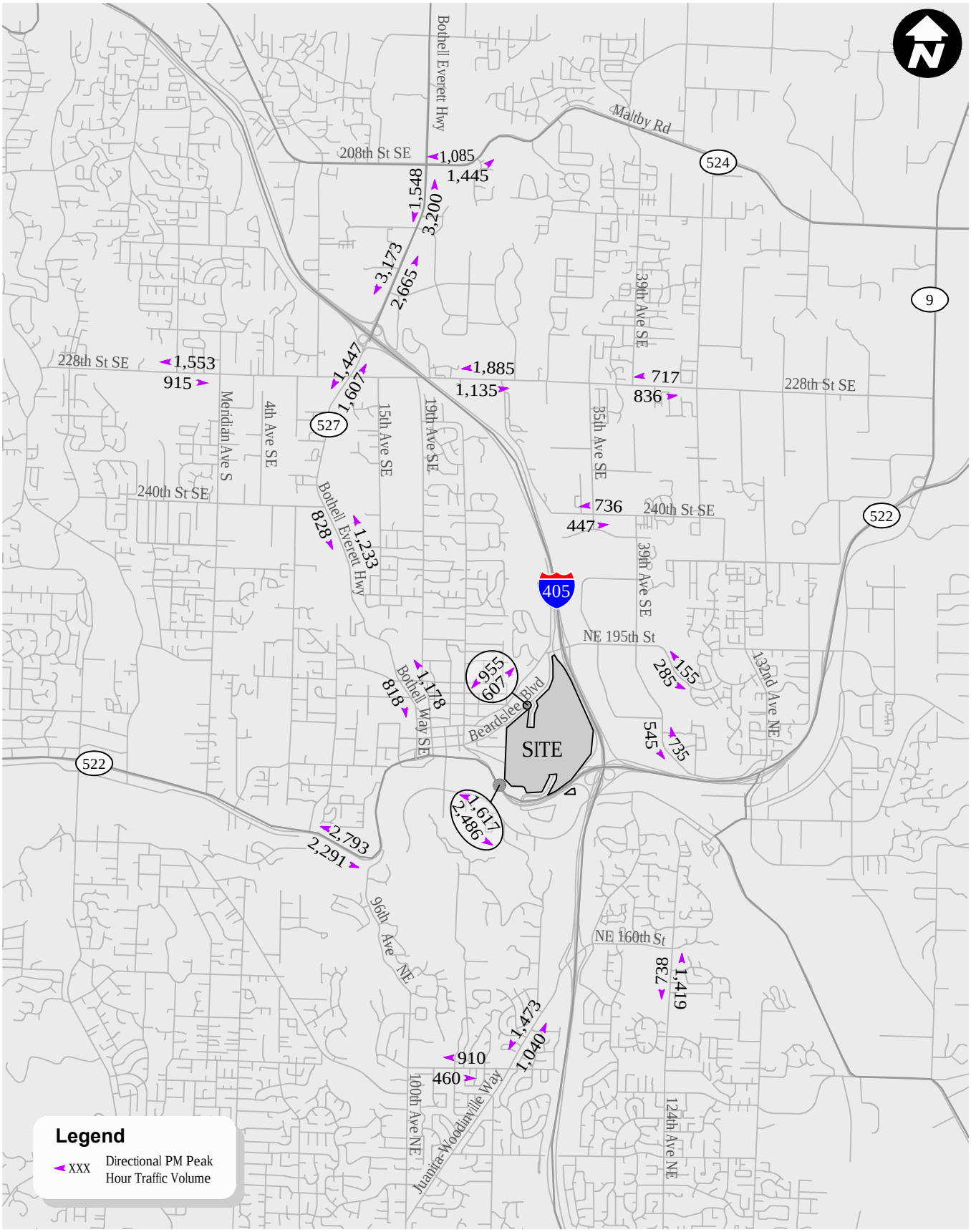
As shown in Table 20, Alternative 2 would generate less net new trips than No Action Alternative - Scenario B. Both Alternatives would allow for up to 10,000 student FTE on-campus; however, Alternative 2 would accommodate 600 beds. The accommodation of student housing on-campus reduces the overall

campus vehicle trips because residential students making fewer vehicle trips since they can walk or bike to Campus buildings. It is noted that Alternative 1 would generate approximately 10 to 20 percent less trips than Alternative 2 due to the provision of an additional 600 beds on-campus.

Trip Distribution and Assignment

Alternative 2 net new trips were added to the No Action Alternative - Scenario A – Baseline conditions to forecast the future 2037 Alternative 2 conditions. Trips were distributed to the study area consistent with the overall travel patterns identified for the No Action Alternative - Scenario B shown on Figure 10 in Chapter 3. The localized trip assignment to the north and south campus access points were determined through a capacity analysis at the north end of the campus and the allocation of on-site parking. Approximately 50 percent of the new parking stalls under Alternative 2 would be a standalone parking structure located south of the existing south parking garage as well as an addition to the north parking garage. The remaining approximately 50 percent of the new parking would be distributed south of NE 185th Street, east of Campus Way NE in the central campus and west of Campus Way NE south of the existing sports fields. It is anticipated that approximately 40 to 50 percent of the parking would be accessed via the Beardslee Boulevard/110th Avenue NE intersection and the remaining would be access via Campus Way NE. Trip assignment for each study intersection is provided in Appendix A. Figure 20 illustrates the resulting weekday PM peak hour traffic volumes. Alternative 2 2037 turning movements for each study intersection are provided in Appendix A.

Along Beardslee Boulevard, under Alternative 2 conditions during the weekday peak hours, campus-related vehicle traffic would make up a greater proportion of the traffic compared to No Action Alternative – Scenario A but would be similar to conditions with Scenario B. The proportion of campus-related traffic for Alternative 1 would be approximately 19 to 22 percent of the traffic volume west of 110th Avenue NE and 28 percent of the traffic east of 110th Avenue NE.



Alternative 2 2037 Weekday PM Peak Hour Traffic Volumes

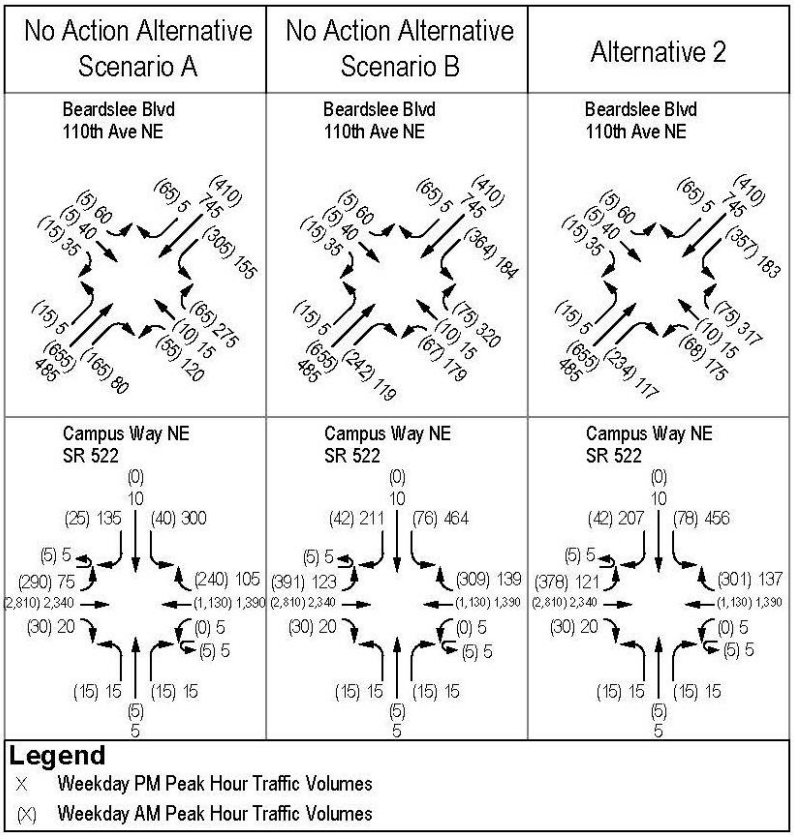
FIGURE **20**

UW Bothell / Cascadia College Campus Master Plan

transpogroup
WHAT TRANSPORTATION CAN BE.

In addition to corridor analysis, the Campus site access points were also reviewed to evaluate the ability to accommodate traffic anticipated with Alternative 2. Figure 21 shows a comparison of the No Action Alternatives and Alternative 2 site access turning movements for the weekday peak hours. As shown in the figure, the No Action Alternative – Scenario B and Alternative 2 would have similar traffic to and from the campus.

Figure 21. No Action Alternatives and Alternative 2 2037 Weekday Peak Hour Site Access Traffic Volumes



Traffic Operations

The evaluation of traffic operations for the Campus Master Plan Alternatives considers both off-site corridors and the campus access.

Corridor

Corridors operations were evaluated based on the methods and assumptions described in Chapter 2 Affected Environment. Signal timing was assumed consistent with the No Action Alternative and the evaluation includes the improvements described in Table 8. A detailed intersection LOS summary and worksheets for the study intersections are included in Appendix D. Table 21 provides a summary of the Alternative 2 corridor LOS and comparison to the No Action Alternatives.

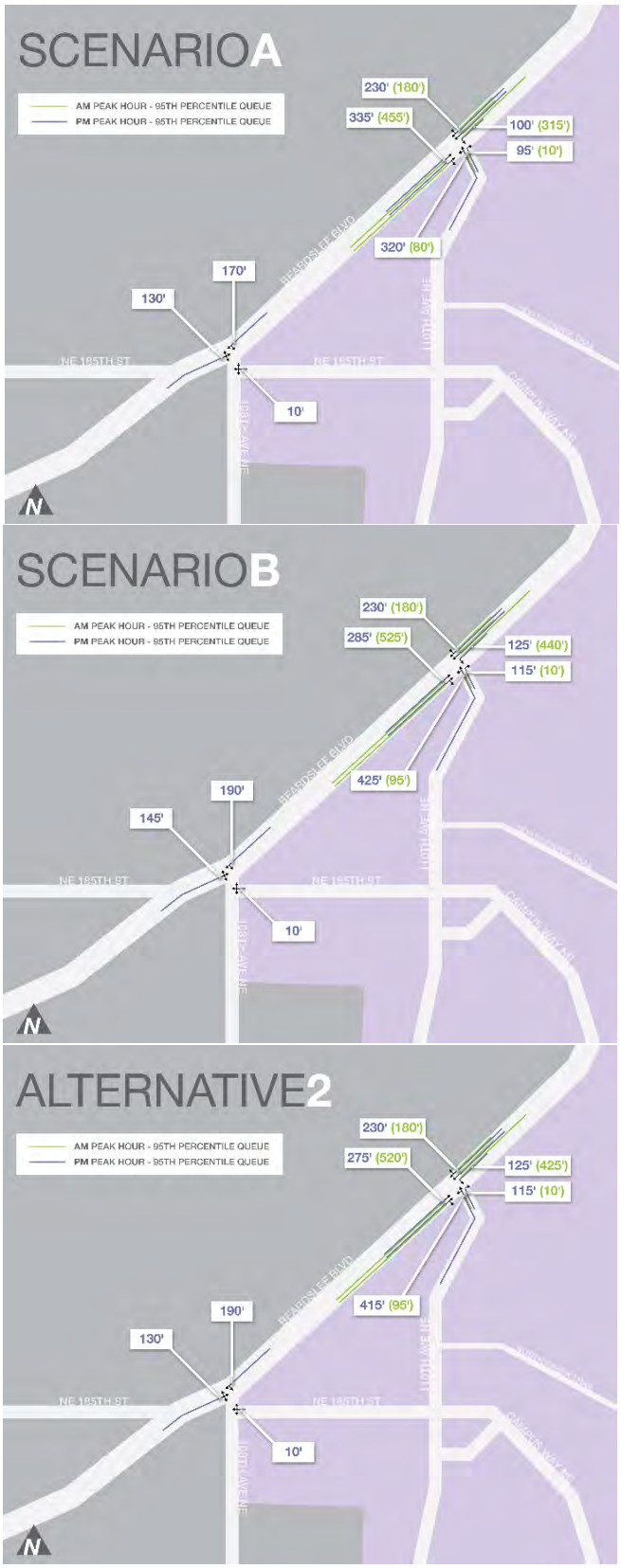
Table 21. No Action and Alternative 2 2037 Weekday PM Peak Hour Corridor LOS Summary

Corridor	Scenario A (Baseline)		Scenario B (Allowed in PUD)		Alternative 2	
	LOS[1]	Corridor Delay (sec/veh)[2]	LOS[1]	Corridor Delay (sec/veh)[2]	LOS[1]	Corridor Delay (sec/veh)[2]
SR-524 (208th St SE/Maltby Rd) Corridor between 9th Ave SE and SR-527	E	56	E	58	E	58
SR-527/Bothell-Everett Hwy/Bothell Wy Corridor between SR-524 and SR-522	E	60	E	62	E	62
228th St SE Corridor between 4th Ave W and 39th Ave SE	E	69	E	70	E	70
39th/35th Ave SE/120th Ave NE/NE 180th St between 228th St SE and 132nd Ave NE	E	63	E	67	E	67
Beardslee Blvd/NE 195th St Corridor between NE 185th St and 120th Ave NE[3]	E	74	E	78	E	77
SR-522 (NE Bothell Wy) Corridor between 96th Ave NE and Kaysner Wy	E	63	E	68	E	68
NE 145th St/Juanita-Woodinville Wy NE/NE 160th St between 100th Ave NE and 124th Ave NE	E	66	E	68	E	68

1. Level of service, based on 2010 *Highway Capacity Manual* methodology.
2. Average corridor delay in seconds (sec) per vehicle (veh) calculated by as a weighted average of intersections delays along the length of the corridor in seconds per vehicles.
3. Excludes a second eastbound lane between NE 185th Street and 110th Avenue NE.

As shown in Table 21, all the corridors would operate at LOS E and meet the City's LOS standard under Alternative 2 2037 conditions.

Figure 22. Comparison of No Action Alternative and Alternative 2 2037 Beardslee Blvd Vehicle Queues



Although the LOS along Beardslee Boulevard shows LOS E conditions during the weekday PM peak hour for the Alternatives, it is recognized that there are long queues within the corridor. The 95th-percentile vehicle queues were reviewed at the Beardslee Boulevard/110th Avenue NE and Beardslee Boulevard/ 108th Avenue NE intersections to show how the Alternatives would impact queuing within the corridor. Figure 22 illustrates a comparison of the Beardslee Boulevard 95th-percentile vehicle queues.

As shown on Figure 22, Alternative 2 would result in increased vehicles queues compared to No Action Alternative – Scenario A; however, Alternative 2 vehicle queues would be similar to or less than No Action Alternative – Scenario B. The decrease in vehicle queues with Alternative 2 is due to additional residential provided on-campus, which reduces the weekday peak hour vehicles trips to and from Campus.

The future weekday peak hour vehicle queues under all Alternatives would impact the existing Husky Village driveway on the south side of Beardslee Boulevard. This is consistent with current peak period conditions and it is likely with Alternative 2 access to this parcel would be reconfigured. It is not anticipated that weekday peak hour vehicle queues would impact adjacent City intersections with the planned additional eastbound travel lane along Beardslee Boulevard.

Campus Access

In addition to corridor LOS, traffic operations for the campus access intersections were also reviewed for the weekday AM and PM peak hours. Table 22 provides a summary of the weekday peak hour LOS.

Table 22. No Action and Alternative 2 2037 Weekday Peak Hour Access LOS Summary

Access Intersection	Scenario A (Baseline)		Scenario B (Allowed in PUD)		Alternative 2	
	LOS[1]	Delay (sec/veh)[2]	LOS[1]	Delay (sec/veh)[2]	LOS[1]	Delay (sec/veh)[2]
AM Peak Hour						
Beardslee Boulevard/110th Avenue NE[3]	B	15	B	19	B	18
SR 522/Campus Way NE	F	130	F	148	F	145
PM Peak Hour						
Beardslee Boulevard/110th Avenue NE[3]	B	11	B	13	B	12
SR 522/Campus Way NE	D	45	F	82	F	80

1. Level of service, based on 2010 *Highway Capacity Manual* methodology.
2. Average delay per vehicle in seconds.
3. Excludes a second eastbound lane between NE 185th Street and 110th Avenue NE.

As shown in the Table 22, Alternative 2 would increase delays at the site access intersections compared to No Action Alternative - Scenario A. A comparison of Alternative 2 to the No Action Alternative - Scenario B shows that delays would generally decrease. In addition, Alternative 2 anticipated vehicle queues at the access intersections would be the same as or slightly less than conditions with No Action Alternative – Scenario B given that traffic volumes would be similar for these Alternatives.

LOS F operations at the SR 522/Campus Way NE intersection are triggered due to the high traffic volumes along SR 522 during both the weekday AM and PM peak hours. Alternative 2 would result in less overall delay at this intersection compared to Scenario B.

Beardslee Boulevard Sensitivity Analysis

The analysis of Alternative 2 conditions with and without the additional eastbound lane along Beardslee Boulevard is consistent with Alternative 1. The corridor operations and campus access intersection LOS would have minimal change; however, eastbound vehicles queues would nearly double. The vehicle queues would impact peak hour travel along the corridor and these conditions would occur with or without the Campus Master Plan.

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. Alternative 2 traffic volumes are anticipated to be less than No Action Alternative - Scenario B, which could result in proportionally less potentially vehicles conflicts. Table 8, presented in Chapter 3, highlights planned and future potential improvements within the study area including corridor, intersection, and adaptive signal improvements at these locations. With increased capacity and improved corridor and intersection operations, it is anticipated that safety issues would decrease within the study area.

Parking

Alternative 2 parking demand was determined based on the existing parking rates and projected commuter and residential students. Table 23 provides a summary of the resulting peak parking demand. Alternative 2 would provide up to 3,700 parking spaces on-campus.

Table 23. Summary of Peak Parking Demand – Alternative 2

	Population	Parking Rate[3]	Parking Demand
Commuter Demand	9,400 students FTE[1]	0.31	2,910
Residential Demand	600 beds[2]	0.43	260
Subtotal			3,170
Recommended Supply (at 85% Utilization)			*3,650 spaces*

1. Represents on-campus population. Online students would not generate trips to the campus and are not included.
2. The number of beds is equivalent to one residential student.
3. Based on existing parking rates and accounts for all campus parking including those that are currently occurring off-site.

The analysis assumes existing mode split assumptions continue in the future. This represents a conservative analysis as transit service to the campus is expected to increase in frequency. Alternative 2 would modify the campus layout and transit access/circulation to accommodate the increased service. Compared to the No Action Alternatives, Alternative 2 parking demand would be 740 vehicles more than Scenario A and 40 vehicles more than No Action Alternative - Scenario B.

As shown in Table 23, a parking supply of approximately 3,650 spaces would be recommended under Alternative 2 to achieve an 85 percent parking utilization on-campus. With the proposed parking supply of approximately 3,700 spaces, it is anticipated that the parking demand would be fully accommodated on-campus.

As described in Chapter 3 *Impacts of the No Action Alternatives*, an additional 672 stalls are recommended on-campus to accommodate current conditions. Therefore, with Alternative 2, 850 additional stalls would be needed to accommodate just the increase in parking demand due to the future growth with this alternative. The analysis assumes existing mode splits; therefore, overall parking needs could decrease with shifts in travel behavior away from drive alone.

Chapter 6. Impacts of Alternative 3

This section describes the future transportation conditions for the 2037 horizon year considering Alternative 3 – Growth along Topography (Northward Growth). Alternative 3 is compared to the No Action Alternative to determine transportation impacts.

Consistent with No Action Alternative – Scenario B, Alternative 3 includes up to 10,000 on-campus student FTE. In addition, on-campus housing would be increased by 359 beds for a total of 600 on-campus beds. Existing access points to the campus are assumed to remain unchanged and a second access via Beardslee Boulevard would be provided via a realigned 108th Avenue NE. Up to 4,200 parking stalls are proposed. Figure 23 illustrates the Alternative 3 preliminary Campus Master Plan concept.

Street System

Off-site street system improvements within the study area would be consistent with the No Action Alternatives. The existing north access to campus from Beardslee Boulevard and south access to campus from SR 522 are assumed to remain unchanged under Alternative 3. A new access point would be provided via a realigned 108th Avenue NE/NE 185th Street/Beardslee Boulevard intersection. The existing NE 185th Street between 108th Avenue NE and 110th Avenue NE would be vacated and converted to campus building and open space use. In addition, Alternative 3 would realign the southern end of 110th Avenue NE eastward to enter directly into the north parking garage. The transit center would also be relocated off-campus to Beardslee Boulevard.

The evaluation of Alternative 3 assumes a 4-lane section along Beardslee Boulevard between NE 185th Street and 110th Avenue NE consistent with the Comprehensive Plan analysis with an evaluation of the second eastbound lane as part of the campus access intersection review. In addition, improvements at the Beardslee Boulevard/NE 185th Street intersection assume realignment with the south leg of NE 185th Street and 108th Avenue NE as part of Alternative 3.

Pedestrian and Bicycle Transportation

Off-site pedestrian and bicycle improvements within the study area would be consistent with the No Action Alternatives. A primary pedestrian connection would be provided through the center of the campus connecting to the transit center. Pedestrian and bicycle conflicts vehicles would be reduced along Campus Way NE by eliminating the direct access via 110th Avenue NE and providing most parking away from the campus core. On-campus pedestrian and bicycle conflicts with transit would also be eliminated by providing the transit center along Beardslee Boulevard. Sidewalks and pedestrian paths would be provided between existing and proposed buildings and campus bicycle parking facilities as well as paths would be provided.

Transit Service

Future transit service to the campus would be consistent for the No Action Alternatives and Alternative 3. There would be increased frequency and additional service to the Campus, which would need to be accommodated on-site. Alternative 3 would move the transit center Beardslee Boulevard between 108th and 110th Avenues NE. Figure 24 illustrates a preliminary cross-section of the Beardslee Boulevard transit center. Drop-off, pick-up, and layover would all occur in this one location and the existing comfort station would be relocated to this transit center. The capacity of the transit center would increase from the current 2 bays to up to 6 bays to accommodate the projected transit demand.

Similar to the other Action Alternatives, a transit facilities analysis was conducted to evaluate Alternative 3 transit access and circulation, pedestrian accessibility, efficiency, and safety.

Figure 23. Alternative 3 Preliminary Campus Master Plan

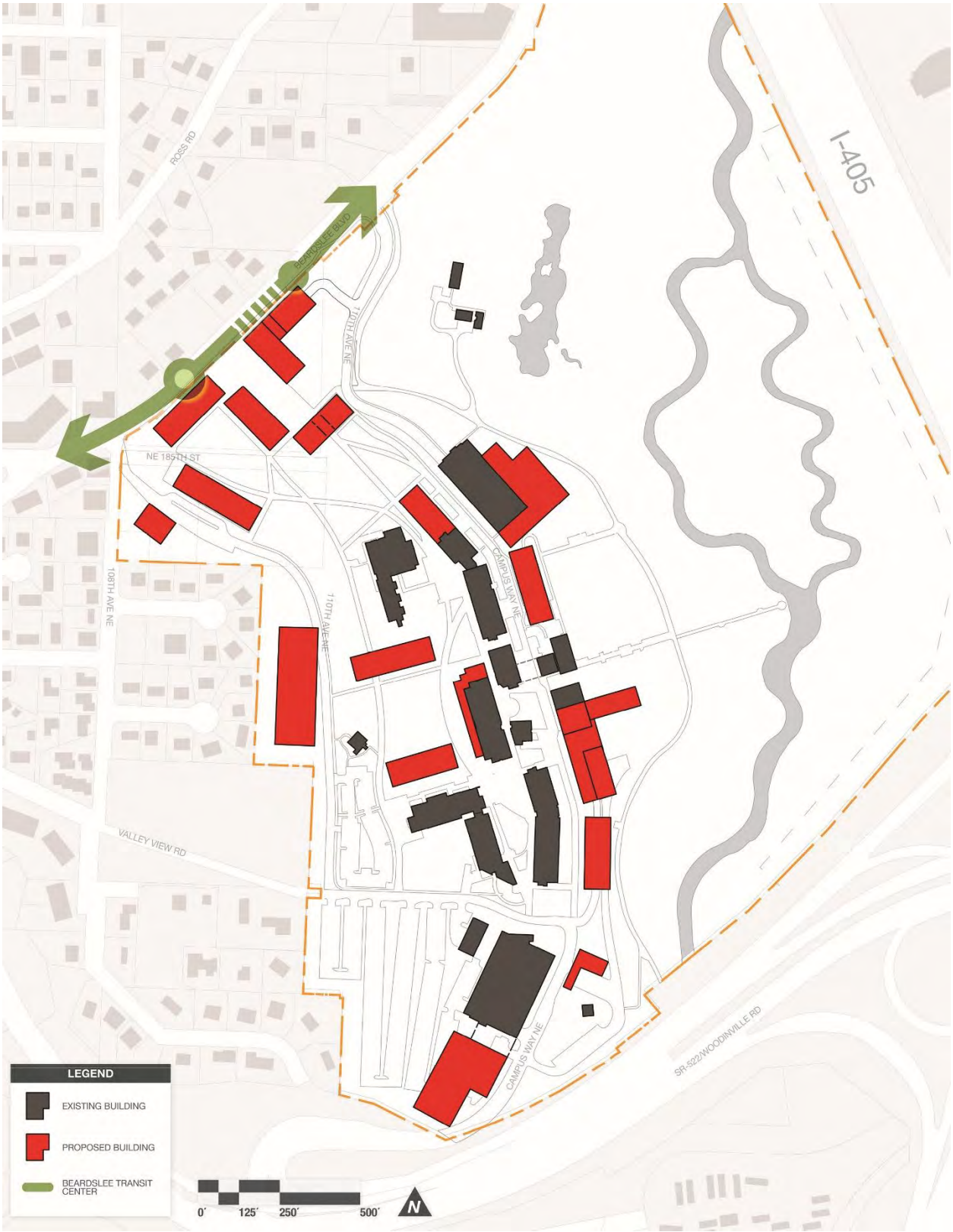
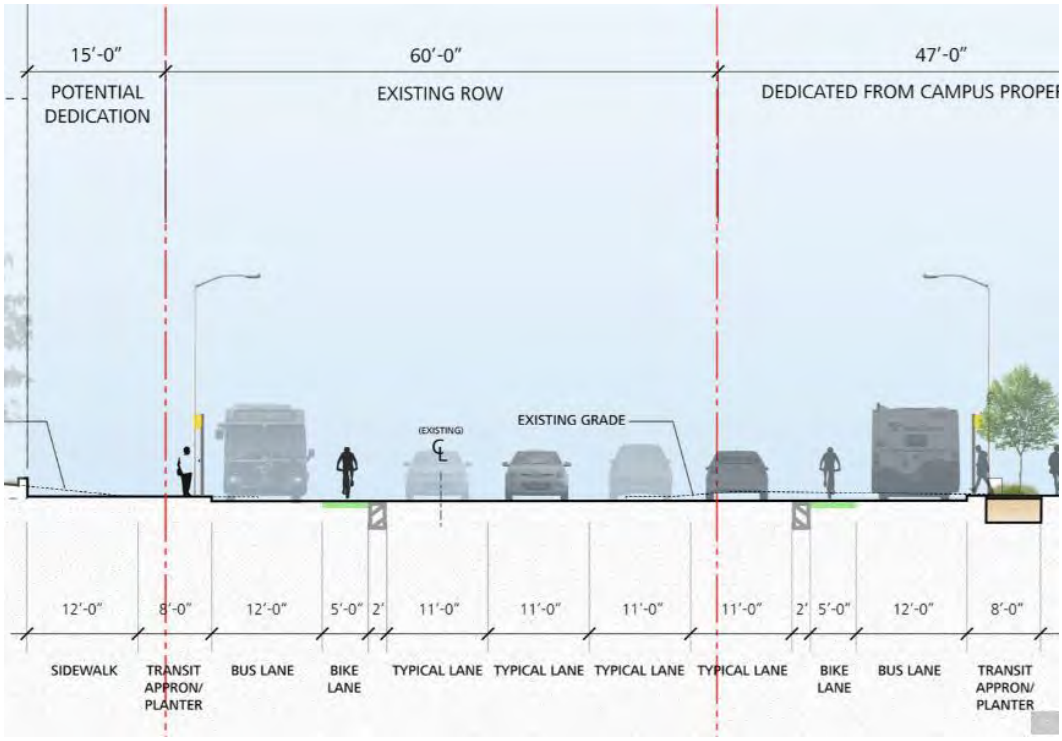


Figure 24. Preliminary Beardslee Boulevard Transit Center Cross-Section



Transit Access and Circulation

The proposed transit center along Beardslee Boulevard would be inconsistent with planned improvements for NE 185th Street as a transit corridor. Transit circulation along Beardslee Boulevard would be two-way; however, given the proposed on-campus street system it would be difficult for buses terminating at the Campus to turnaround. Turning around on-campus would likely not be an option since 110th Avenue NE would be realigned into the north parking garage and 108th Avenue NE would terminate at Campus Way NE, which would not connect to Beardslee Boulevard. With this on-campus circulation, turning around would need to be accomplished through the City's street network and would mostly require buses to either head towards Downtown or to the east side of the I-405 interchange. This routing could substantially increase travel times and delays for transit.

The Alternative 3 transit center with up to 6 bays would accommodate existing transit service. There is a potential that the Alternative 3 transit center proposal would not be sufficient to accommodate planned increases in transit service to the Campus since it allows for only one additional bus compared to existing observations, which show 5 buses at one time.

Pedestrian Accessibility

Alternative 3 would increase campus density along Beardslee Boulevard to facilitate increased activity in this area. The center of the campus would start to spread north resulting in more academic spaces closer to this corridor. A primary pedestrian connection would also be provided through the center of the campus connecting to the transit center. From the southern end of the campus near the Campus Way NE/NE 180th Street intersection, the walk to the transit center would be approximately 8- to 10-minutes, which is approximately 2 minutes longer than the No Action Alternatives and Alternative 1.

Efficiency

As discussed above, Alternative 3 would result in circuitous and inefficient routing for end of the line buses needing to layover or turnaround. In addition, traffic operations analysis shows that the Beardslee Boulevard/110th Avenue NE intersection would have vehicle queues extending into the transit center during the peak periods. Without improvements to this intersection, it is anticipated that transit operations would be adversely impacted.

Alternative 3 would improve layover operations for transit by incorporating this into one location. Transit would be able to park once rather than moving buses to layover. However, the layover capacity may not be sufficient since only 6 bays would be accommodated.

Safety

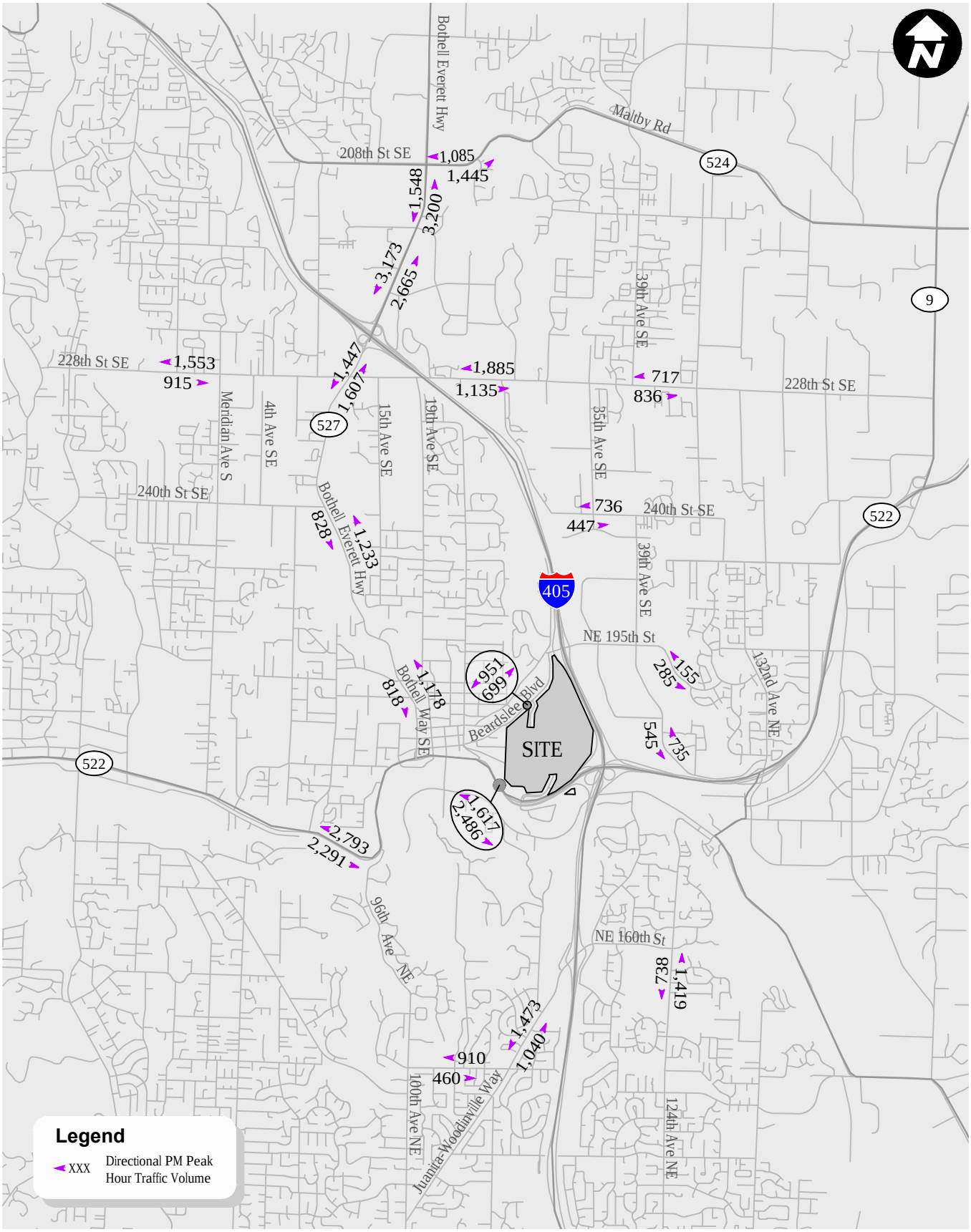
Pedestrian and vehicle conflicts with transit would be eliminated along Campus Way NE with Alternative 3. With transit moving off-campus and a centralized pedestrian corridor being created. In addition, on-campus congestion that occurs with transit using layover spaces and traveling through campus would be eliminated. Additional pedestrian conflicts could occur off-campus along Beardslee Boulevard with both transit and general vehicular traffic. Pedestrian enhancements and designated crossings along Beardslee Boulevard would be needed.

Traffic Volumes

The weekday net new trips associated with Alternative 3 would be consistent with Alternative 2 since the on-campus student FTEs and proposed additional on-campus beds is the same. Alternatives 2 and 3 would generate approximately 4,320 net new daily trips with 481 occurring during the weekday AM peak hour and 539 occurring during the weekday PM peak hour. Trip generation would be less than the No Action Alternative – Scenario B due to the additional housing proposed.

Alternative 3 future forecasts at the study intersections would also be consistent with Alternative 2 except in the immediate vicinity of the campus where the allocation of parking on-campus would influence localized travel patterns. Approximately 38 percent of the new parking stalls under Alternative 3 would be in the southwest portion of campus, approximately 37 percent would be in the central portion of campus east and west of Campus Way NE, and approximately 25 percent of the parking would be in the northwest portion of the campus. Parking in the southwest portion of the campus would be accessed via Campus Way NE while parking in the northwest portion would be access via 108th Avenue NE. The central parking would be access via 110th Avenue NE and Campus Way NE. This analysis assumes access to parking as 25 percent each at 108th and 110th Avenues NE and the 50 percent via Campus Way NE. Trip assignment for each study intersection is provided in Appendix A. Figure 25 illustrates the resulting weekday PM peak hour 2037 traffic volumes and intersection turning movements are provided in Appendix A. Along Beardslee Boulevard, under Alternative 3 conditions during the weekday peak hours, campus-related vehicle traffic would make up a greater proportion of the traffic compared to No Action Alternative – Scenario A except with the second access point provided at Beardslee Boulevard and 108th Avenue NE the concentration of campus-related traffic immediately west of 110th Avenue NE would decrease. In addition, campus-related traffic for Alternative 3 compared to the No Action Alternative – Scenario B would be less. The proportion of campus-related traffic for Alternative 3 would be approximately 8 to 13 percent of the traffic volume west of 110th Avenue NE and 14 percent of the traffic east of 110th Avenue NE, which would be up to half of what would be anticipated with No Action Alternative – Scenario B.

In addition to corridor analysis, the Campus site access points were also reviewed to evaluate the ability to accommodate traffic anticipated with Alternative 3. Figure 26 shows a comparison of the No Action Alternatives and Alternative 3 site access turning movements for the weekday peak hours. As shown in the figure, the addition of the new site access point at 108th Avenue NE would with Alternative 3 would reduce the traffic volumes to and from the Campus at the 110th Avenue NE access compared to the No Action Alternative – Scenario B.



Alternative 3 2037 Weekday PM Peak Hour Traffic Volumes

FIGURE
25

UW Bothell / Cascadia College Campus Master Plan

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WHAT TRANSPORTATION CAN BE.

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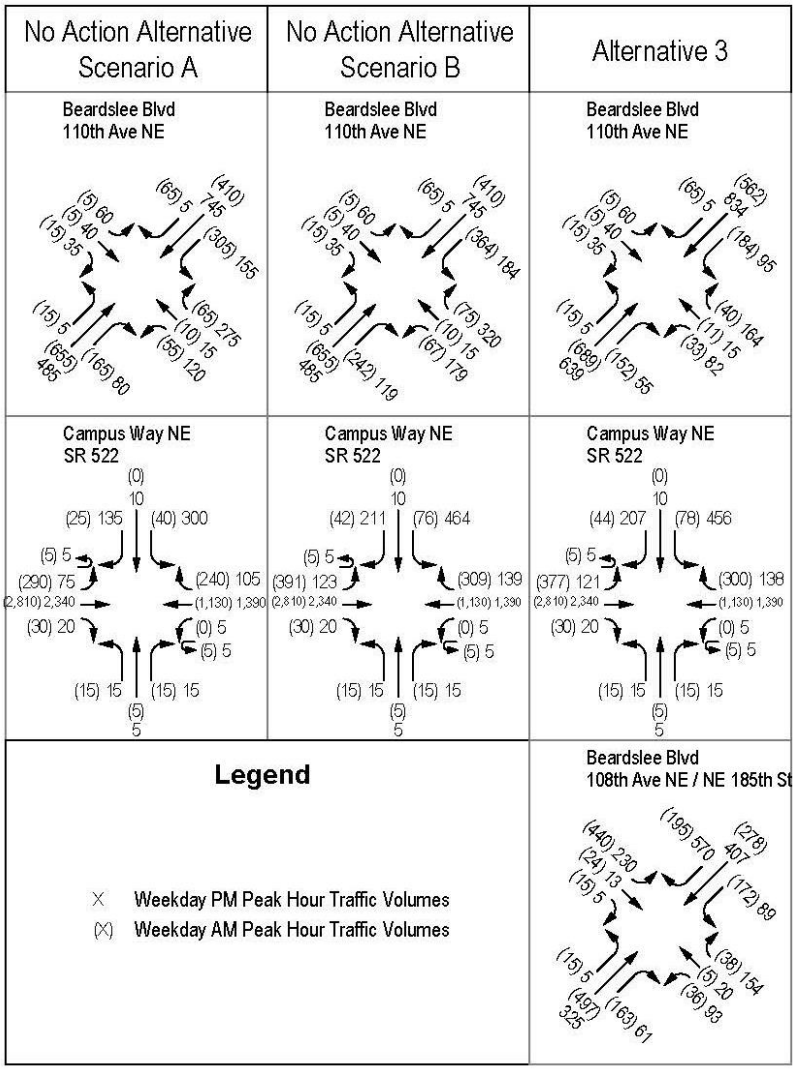
Figure 26. No Action Alternatives and Alternative 3 2037 Weekday Peak Hour Site Access Traffic Volumes



Traffic Operations

The evaluation of traffic operations for the Campus Master Plan Alternatives considers both off-site corridors and the campus access.

Corridor

Corridor operations were evaluated based on the methods and assumptions described in Chapter 2 Affected Environment. Signal timing was assumed consistent with the No Action Alternative and the evaluation includes the improvements described in Table 8. A detailed intersection LOS summary and worksheets for the study intersections are included in Appendix D. Table 24 provides a summary of the Alternative 3 corridor LOS and comparison to the No Action Alternatives.

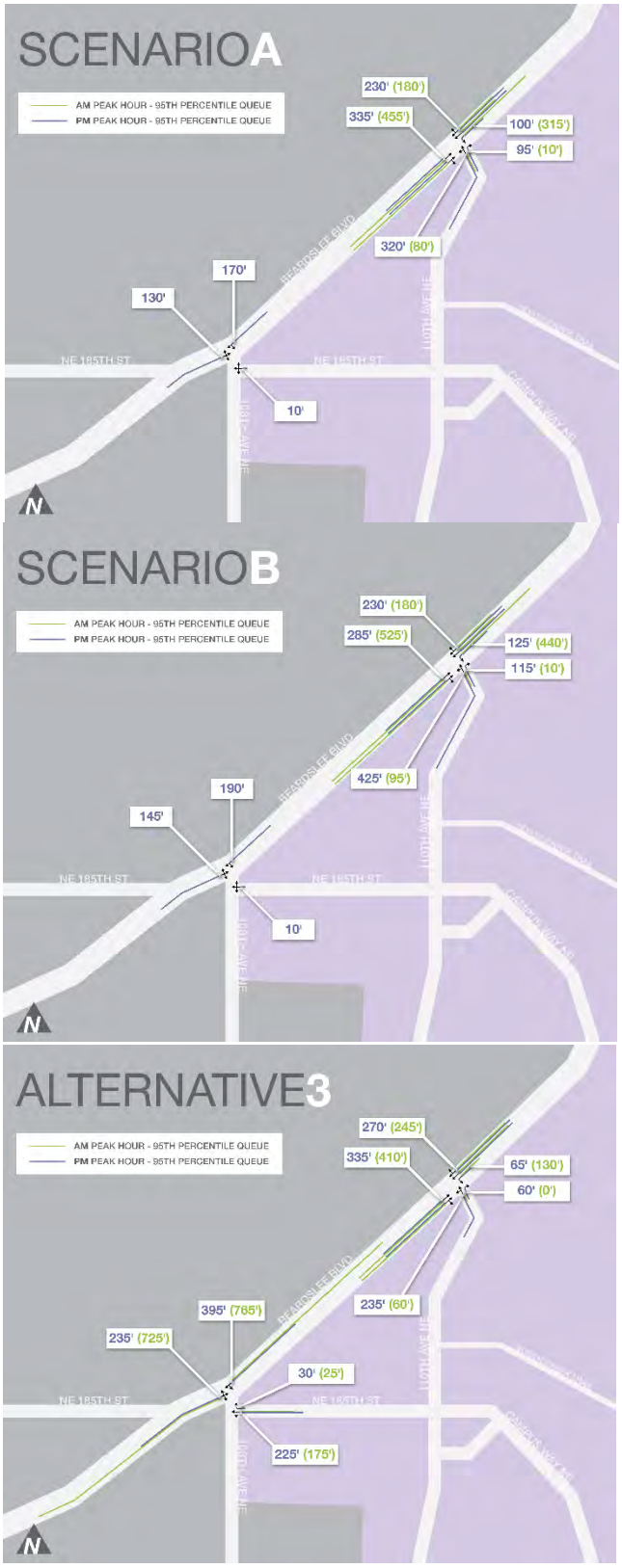
Table 24. No Action and Alternative 3 2037 Weekday PM Peak Hour Corridor LOS Summary

Corridor	Scenario A (Baseline)		Scenario B (Allowed in PUD)		Alternative 3	
	LOS[1]	Corridor Delay (sec/veh)[2]	LOS[1]	Corridor Delay (sec/veh)[2]	LOS[1]	Corridor Delay (sec/veh)[2]
SR 524 (208th St SE/Maltby Rd) Corridor between 9th Ave SE and SR-527	E	56	E	58	E	58
SR 527/Bothell-Everett Hwy/Bothell Wy Corridor between SR-524 and SR-522	E	60	E	62	E	63
228th St SE Corridor between 4th Ave W and 39th Ave SE	E	69	E	70	E	67
39th/35th Ave SE/120th Ave NE/NE 180th St between 228th St SE and 132nd Ave NE	E	63	E	67	E	67
Beardslee Blvd/NE 195th St Corridor between NE 185th St and 120th Ave NE[3]	E	75	E	78	E	77
SR 522 (NE Bothell Wy) Corridor between 96th Ave NE and Kaysner Wy	E	63	E	68	E	68
NE 145th St/Juanita-Woodinville Wy NE/NE 160th St between 100th Ave NE and 124th Ave NE	E	66	E	68	E	68

1. Level of service, based on 2010 *Highway Capacity Manual* methodology.
2. Average corridor delay in seconds (sec) per vehicle (veh) calculated by as a weighted average of intersections delays along the length of the corridor in seconds per vehicles.
3. Excludes a second eastbound lane between NE 185th Street and 110th Avenue NE.

As shown in the table, all the corridors would operate at LOS E and meet the City's LOS standard under Alternative 3 2037 conditions.

Figure 27. Comparison of No Action Alternative and Alternative 3 2037 Beardslee Blvd Vehicle Queues



Although the LOS along Beardslee Boulevard shows LOS E conditions during the weekday PM peak hour for the Alternatives, it is recognized that there are long queues within the corridor. The 95th-percentile vehicle queues were reviewed at the Beardslee Boulevard/110th Avenue NE and Beardslee Boulevard/ 108th Avenue NE intersections to show how the Alternatives would impact queuing within the corridor. Figure 27 illustrates a comparison of the Beardslee Boulevard campus access 95th-percentile vehicle queues.

As shown on Figure 27, Alternative 3 would increase weekday peak hour vehicle queues, compared to the No Action Alternatives, at the Beardslee Boulevard/108th Avenue NE intersection with the proposed campus access reconfiguration such that this intersection would become a primary access point. Alternative 3 weekday peak hour vehicle queues would decrease in the eastbound and northbound directions at the Beardslee Boulevard/110th Avenue NE intersection compared to the No Action Alternatives. Access between NE 185th Street and 110th Avenue NE along Beardslee Boulevard on both the north and south sides would be impacted by vehicle during the weekday AM peak hour with Alternative 3. In addition, vehicle queues would extend beyond NE 185th Street during the weekday AM and PM peak hours.

As discussed in Chapter 3 *Impacts of the No Action Alternatives*, further analysis is being conducted as part of ST3 at the Beardslee Boulevard/NE 185th Street intersection, which could lead to alternate traffic control such as a roundabout and/or the identification of additional lanes to manage queues.

Campus Access

In addition to corridor LOS, traffic operations for the campus access intersections were also reviewed for the weekday AM and PM peak hours. Table 25 provides a summary of the weekday PM peak hour intersection LOS.

Table 25. No Action and Alternative 3 2037 Weekday Peak Hour Access LOS Summary

	Scenario A (Baseline)		Scenario B (Allowed in PUD)		Alternative 3	
Access Intersection	**LOS[1]**	**Delay[2]**	**LOS[1]**	**Delay[2]**	**LOS[1]**	**Delay[2]**
AM Peak Hour						
Beardslee Boulevard/108th Avenue NE[3]	-	-	-	-	C	23
Beardslee Boulevard/110th Avenue NE[4]	B	15	B	19	B	12
SR 522/Campus Way NE	F	130	F	148	F	145
PM Peak Hour						
Beardslee Boulevard/108th Avenue NE[3]	-	-	-	-	A	7
Beardslee Boulevard/110th Avenue NE[4]	B	11	B	13	B	11
SR 522/Campus Way NE	D	45	F	82	F	80

1. Level of service, based on 2010 *Highway Capacity Manual* methodology.
2. Average delay per vehicle in seconds.
3. Alternative 3 would realign 108th Avenue NE and create a new site access intersection.
4. Excludes a second eastbound lane between NE 185th Street and 110th Avenue NE.

As shown in the Table 25, Alternative 3 would increase delays at the site access intersections compared to No Action Alternative - Scenario A. A comparison of Alternative 3 to the No Action Alternative - Scenario B shows that delays would decrease.

Compared to No Action Alternative – Scenario B, Alternative 3 vehicle queues could be longer for some movements at the Beardslee Boulevard/110th Avenue NE intersection due to the additional access point along Beardslee Boulevard and the shifting of Campus traffic to this new access point.

LOS F operations at the SR 522/Campus Way NE intersection are triggered due to the high traffic volumes along SR 522 during both the weekday AM and PM peak hours. Alternative 3 would result in less overall delay at this intersection compared to No Action Alternative - Scenario B.

Beardslee Boulevard Sensitivity Analysis

The analysis of Alternative 3 conditions with and without the additional eastbound lane along Beardslee Boulevard is consistent with Alternative 1. The corridor operations and campus access intersection LOS would have minimal change; however, eastbound vehicle queues along Beardslee Boulevard at 110th Avenue NE would nearly double. The vehicle queues would impact peak hour travel along the corridor and these conditions would occur with or without the Campus Master Plan.

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. Alternative 3 traffic volumes are anticipated to be less than No Action Alternative - Scenario B, which could result in proportionally less potentially vehicles conflicts. Table 8, presented in Chapter 3, highlights planned and future potential improvements within the study area including corridor, intersection, and adaptive signal improvements at these locations. With increased capacity and improved corridor and intersection operations, it is anticipated that safety issues would decrease within the study area.

Parking

Alternative 3 parking demand would be the same as Alternative 2; however, additional parking is proposed with up to 4,200 spaces. Table 26 provides a summary of the resulting peak parking demand.

Table 26. Summary of Peak Parking Demand – Alternative 3

	Population	Parking Rate[3]	Parking Demand
Commuter Demand	9,400 students FTE[1]	0.31	2,910
Residential Demand	600 beds[2]	0.43	260
Subtotal			3,170
Recommended Supply (at 85% Utilization)			*3,650 spaces*

1. Represents on-campus population. Online students would not generate trips to the campus and are not included.
2. The number of beds is equivalent to one residential student.
3. Based on existing parking rates and accounts for all campus parking including those that are currently occurring off-site.

The analysis assumes existing mode split assumptions continue in the future. This represents a conservative analysis as transit service to the campus is expected to increase in frequency. Alternative3 would modify the campus layout and transit access/circulation to accommodate the increased service. Compared to the No Action Alternatives, Alternative 3 parking demand would be 740 vehicles more than Scenario A and 40 vehicles more than Scenario B.

As shown in Table 26, a parking supply of approximately 3,650 spaces would be recommended under Alternative 2 to achieve an 85 percent parking utilization on-campus. With the proposed parking supply of approximately 4,200 spaces, it is anticipated that the parking demand would be fully accommodated on-campus. The peak parking utilization with 4,200 spaces would be 75 percent.

As described in Chapter 3 Impacts of the No Action Alternatives, an additional 672 stalls are recommended on-campus to accommodate current conditions. Therefore, with Alternative 3, 850 additional stalls would be needed to accommodate just the increase in parking demand due to the future growth with this alternative. The analysis assumes existing mode splits; therefore, overall parking needs could decrease with shifts in travel behavior away from drive alone.

Chapter 7. Mitigation

This section presents potential mitigation measures that would offset impacts of the Alternatives. The Action Alternatives result in less traffic to and from the campus and traffic operations that are generally better than the No Action Alternative – Scenario B (Allowed in PUD); therefore, on this comparative basis no mitigation would be required.

Proposed Transportation Management Program

Commuter Services provides transportation resources including providing of parking permits, disability parking assistance, bicycle and pedestrian access, bus route information, U-Car use and carpool support. The goal is to reduce single-occupancy vehicle (SOV) trips to the UW Bothell/Cascadia College campus. Transportation impacts would continue to be mitigated through the implementation of the Transportation Management Program (TMP) to reduce overall SOV traffic and parking needs for the campus. Specific strategies would continue to be refined annually.

Transit would continue to be a key component to reducing vehicle traffic to the campus. The UW provides U-PASS, which is a subsidized transit pass for students, faculty, and staff. As described previously, transit service and frequency to the Campus will be increased. This increase in transit service coupled with subsidized transit passes would encourage travel via transit and reduce overall campus SOV.

Other potential TMP strategies included in the Plan presently include, but are not limited to, maintenance or enhancements to programs related to:

- U-PASS – This program was developed to provide a range of commute options for the UW population with the goal of decreasing the number of vehicles that travel to and from the campus.
- Transit – The U-PASS program subsidizes transit passes for UW; however, consideration could be given to partnering with agencies to help increase service to/from the campus and/or providing additional amenities on-campus and at the transit center to enhance transit use.
- Parking Management – These strategies could include increasing pricing parking consistent with market rates and enhancing the real-time parking information for drivers such as providing real-time and predictive information on phone apps or websites to direct vehicles to available parking prior to arriving to campus.
- Pedestrian and Bicycle Travel – Enhancing pedestrian and bicycle facilities and connections to and from the Campus as the Master Plan is developed.
- Telecommuting – Additional opportunities could be provided for working remotely where reasonable.

Potential Roadway Improvements

The current PUD conditions with the City of Bothell require additional road right-of-way along the Beardslee Boulevard frontage (east of 110th Avenue NE) for future dedication sufficient to accommodate final road widening, as determined by the Director of Community Development and Public Works. In addition, a 10-foot wide utility easement is required adjacent to the new right-of-way on the Campus side of Beardslee Boulevard. The agreement also notes that some of the additional right-of-way to be reserved is constrained by the wetland restoration which was required as part of the original campus development. Given the limits of the proposed Campus Master Plan, the ROW dedication could extend along the Husky Village frontage. Mitigation of project-related impacts along Beardslee Boulevard could include:

- Dedication of right-of-way for the City to provide improvements, or
- Payment of transportation impact fees (see discussion below)

Transportation Impact Fees

Development of the Campus Master Plan would require payment of the City of Bothell and Snohomish County transportation impact fee to mitigate potential off-site impacts of the proposal. Transportation fees are assessed based on increases in student FTE associated with the development of buildings on-campus. Impact fees would be calculated at the time of permitting for specific campus buildings.

Chapter 8. Secondary and Cumulative Impacts

Secondary and cumulative impacts on area transportation system are included in the analysis of direct impacts. In addition, there is a potential for cumulative impacts due to the combined effects of traffic being generated by development of the Campus Master Plan and construction activities on campus and in the surrounding vicinity. This potential impact could be mitigated by scheduling construction activities such that arrival and departure of construction traffic occurs outside the peak hours.

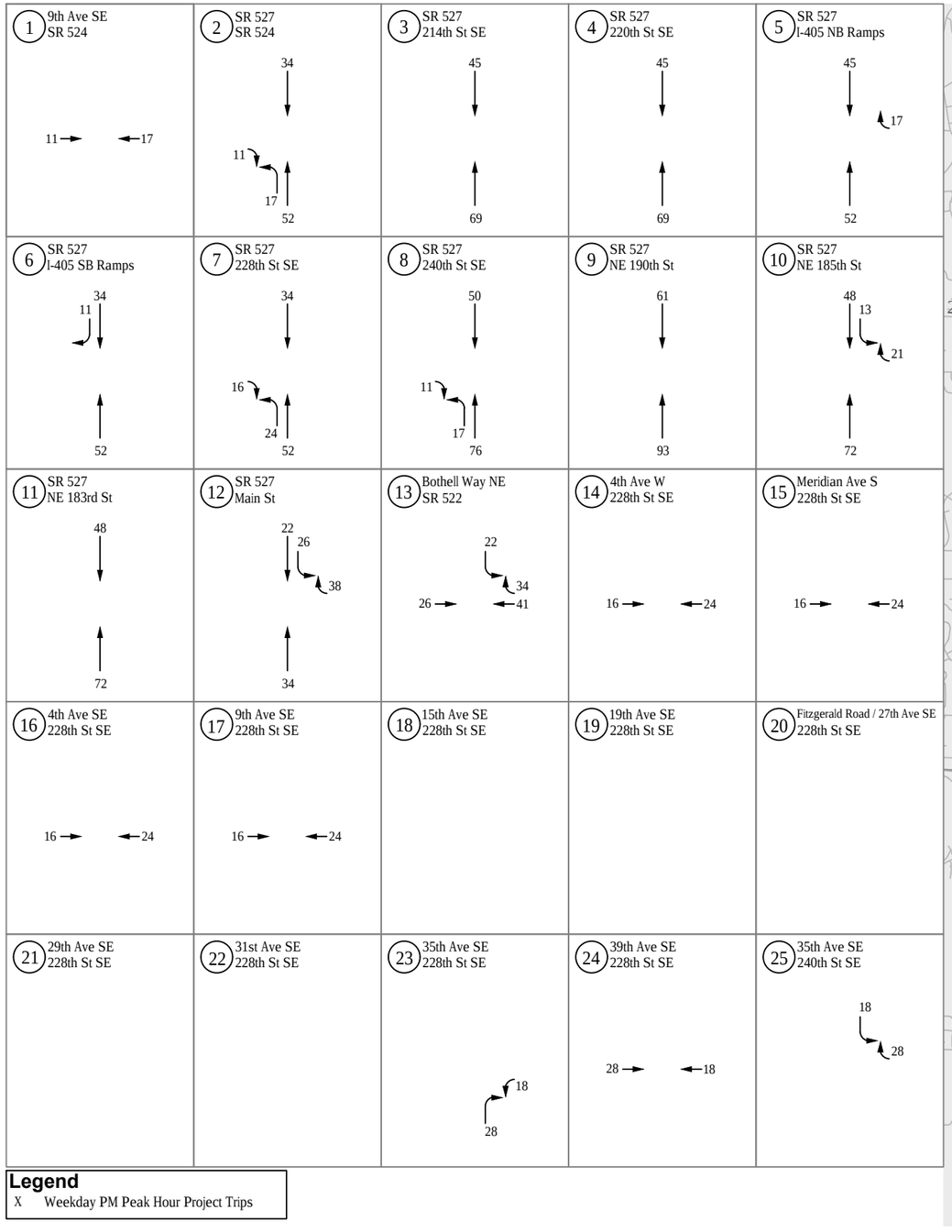
Chapter 9. Significant and Unavoidable Adverse Impacts

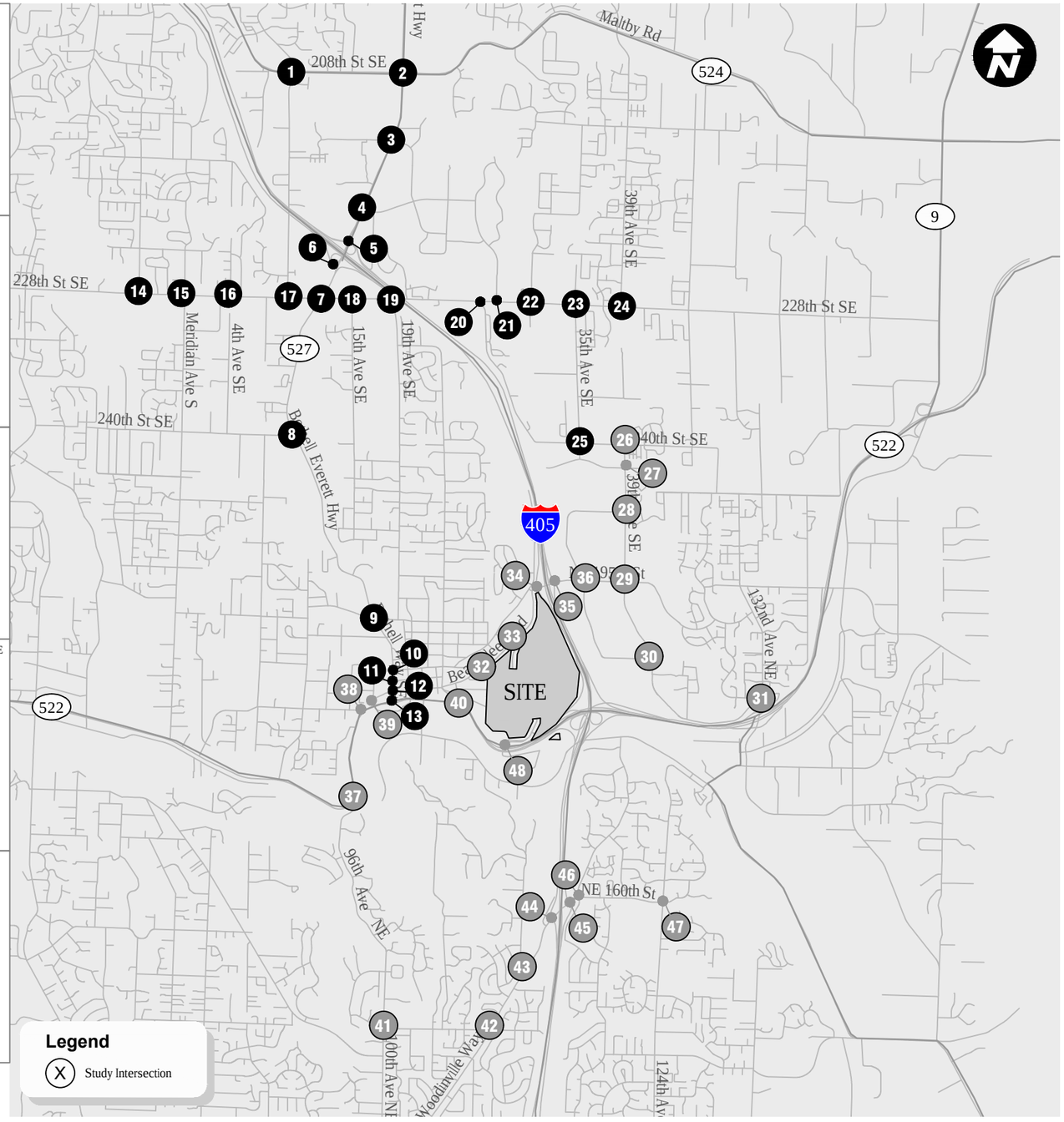
Development of the Campus Master Plan and increase in on-campus population to up to 10,000 student FTE by the year 2037 would result in increases in all travel modes – vehicles, transit, pedestrians, and bicycles. It is anticipated that with the proposed mitigation there would be no specific significant and unavoidable impacts related solely to campus growth.

The SR 522/Campus Way NE intersection would operate at LOS F under the No Action Alternative – Scenario B and the proposed Action Alternatives 1, 2, and 3 and potential improvements at this location are limited due to right-of-way constraints. This is considered a cumulative significant and unavoidable adverse impact that would likely occur with or without the proposed Campus Master Plan.

As noted in the analysis of vehicle operations, the SR 522/Campus Way NE intersection is forecasted to operate at LOS F under all No Action Alternative conditions during the weekday AM peak hour. Congestion and poor intersection operations are largely due to growth along SR 522 as shown in the evaluation of the No Action Alternative – Scenario A conditions where campus growth is limited. On-going TMP measures implemented by the Campus would reduce overall campus trip generation and reduce related impacts at this intersection.

Appendix A: Project Trip Assignment & Intersection Turning Movements





2037 No Action Scenario B Weekday PM Peak Hour Project Trips

UW Bothell / Cascadia College Campus Master Plan

APPENDIX **A-1**

transpogroup WHAT TRANSPORTATION CAN BE.

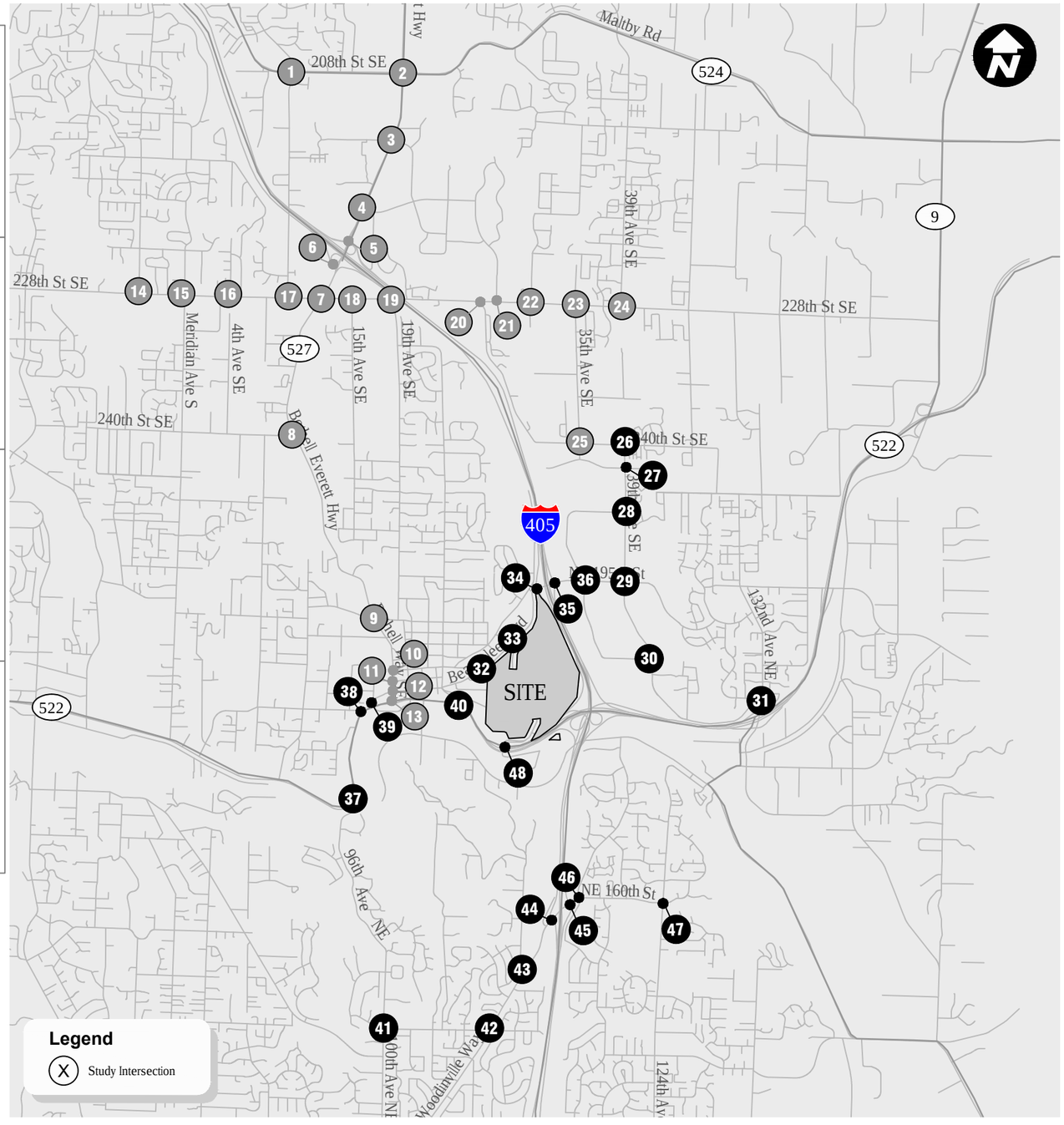
26 39th Ave SE 240th St SE 18 18 28	27 39th Ave SE Monte Villa Parkway 18 18 28	28 39th Ave SE North Creek Parkway 18 18 28	29 120th Ave NE NE 195th St 18 28	30 120th Ave NE North Creek Parkway
31 132nd Ave NE NE 180th St	32 Beardslee Blvd NE 185th St 13 21 38 26	33 Beardslee Blvd 110th Ave NE (59) 29 (10) 45 (12) 59 (77) 39	34 SB 405 Ramps Beardslee Blvd 11 45 18	35 NB 405 Ramps Beardslee Blvd 17 28 18
36 North Creek Parkway Beardslee Blvd 28 18	37 96th Ave NE SR 522 22 34 7 4	38 NE 180th St SR 522 41 26	39 98th Ave NE / Glenwood Ave SR 522 26 41	40 Kaysner Way SR 522 48 75
41 100th Ave NE NE 145th St	42 Juanita Woodinville Way NE 145th St 24 16	43 Juanita Woodinville Way 112th Ave NE 24 16	44 Juanita Woodinville Way SB 405 Ramps 24 14 16	45 Juanita Woodinville Way NB 405 Ramps 16 14 9
46 Juanita Woodinville Way NE 160th St 14 9	47 124th Ave NE NE 160th St 14 9	48 Campus Way NE SR 522 (17) 76 (36) 164 (101) 48 (69) 34		

Note: Weekday AM peak hour traffic volumes only studied at site access intersections.

Legend

X Weekday PM Peak Hour Project Trips

(X) Weekday AM Peak Hour Project Trips



2037 No Action Scenario B Weekday Peak Hour Project Trips

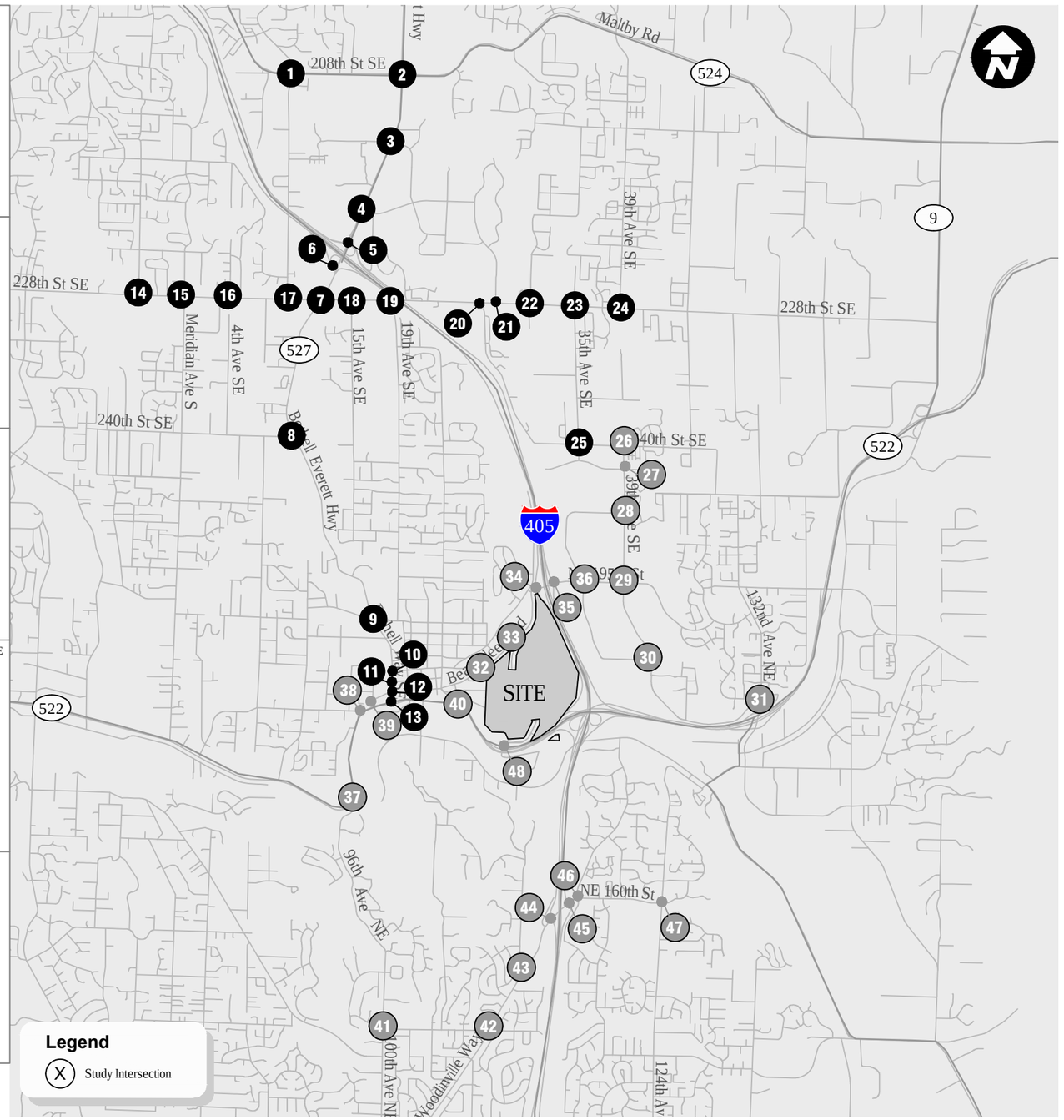
UW Bothell / Cascadia College Campus Master Plan

APPENDIX **A-2**

transpogroup WHAT TRANSPORTATION CAN BE.

1 9th Ave SE SR 524 10 → ← 15	2 SR 527 SR 524 30 ↓ 10 ↱ ↑ 15 ↑ 44	3 SR 527 214th St SE 40 ↓ 59	4 SR 527 220th St SE 40 ↓ 59	5 SR 527 I-405 NB Ramps 40 ↓ 15 ↱ 44
6 SR 527 I-405 SB Ramps 30 ↓ 10 ↰ 44	7 SR 527 228th St SE 30 ↓ 14 ↰ ↑ 21 ↑ 44	8 SR 527 240th St SE 44 ↓ 10 ↰ ↑ 15 ↑ 65	9 SR 527 NE 190th St 54 ↓ 80	10 SR 527 NE 185th St 42 ↓ 12 ↱ 18 62
11 SR 527 NE 183rd St 42 ↓ 62	12 SR 527 Main St 20 ↓ 22 ↱ 33 29	13 Bothell Way NE SR 522 20 ↓ 29 ↱ 24 → ← 35	14 4th Ave W 228th St SE 14 → ← 21	15 Meridian Ave S 228th St SE 14 → ← 21
16 4th Ave SE 228th St SE 14 → ← 21	17 9th Ave SE 228th St SE 14 → ← 21	18 15th Ave SE 228th St SE	19 19th Ave SE 228th St SE	20 Fitzgerald Road / 27th Ave SE 228th St SE
21 29th Ave SE 228th St SE	22 31st Ave SE 228th St SE	23 35th Ave SE 228th St SE 16 ↱ 23	24 39th Ave SE 228th St SE 23 → ← 16	25 35th Ave SE 240th St SE 16 ↱ 23

Legend
X Weekday PM Peak Hour Project Trips



Alternative 1 Weekday PM Peak Hour Project Trips

UW Bothell / Cascadia College Campus Master Plan

APPENDIX
A-3

transpogroup
WHAT TRANSPORTATION CAN BE.

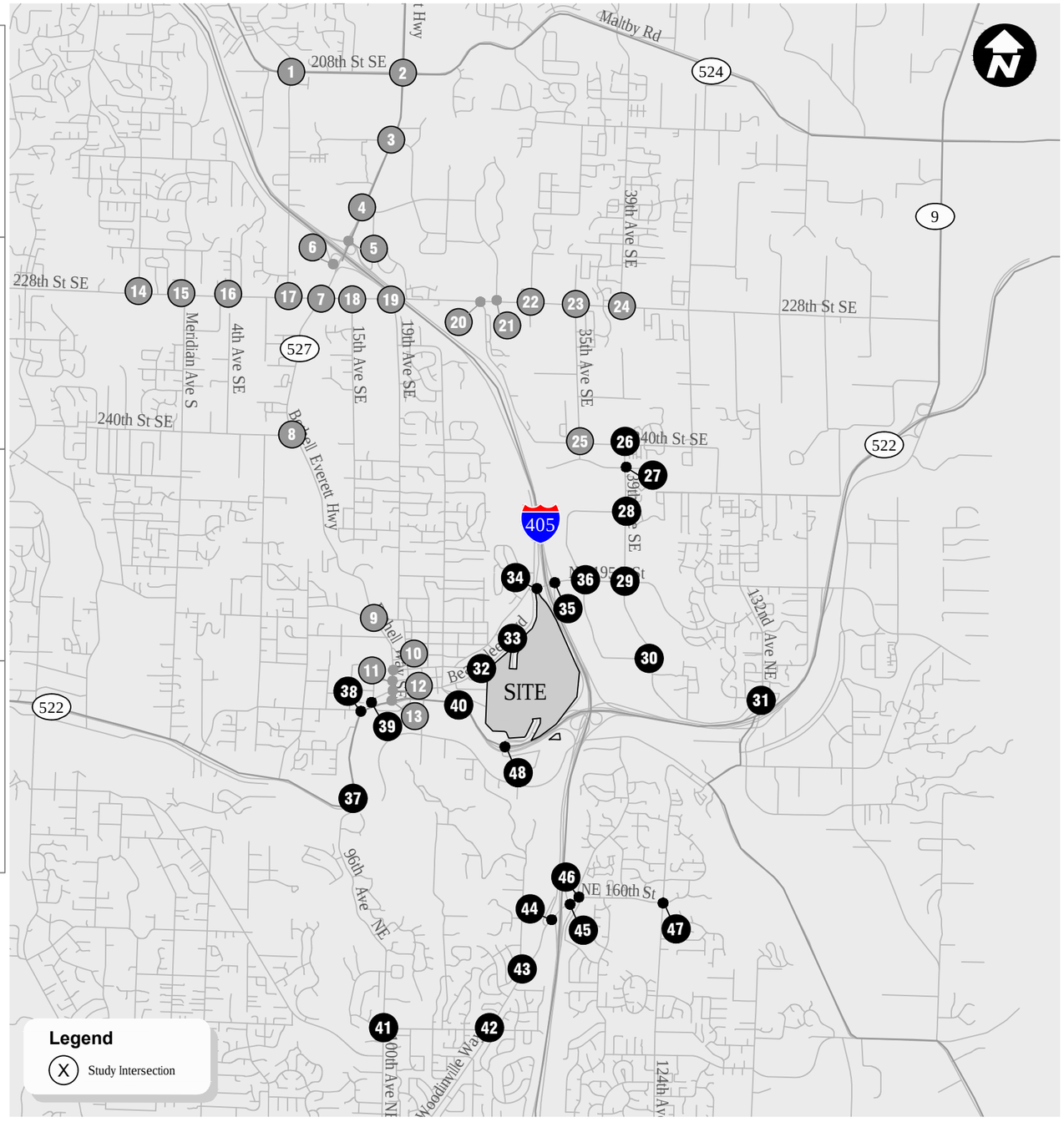
26 39th Ave SE 240th St SE 16 16 23	27 39th Ave SE Monte Villa Parkway 16 23 23	28 39th Ave SE North Creek Parkway 16 23 23	29 120th Ave NE NE 195th St 16 23	30 120th Ave NE North Creek Parkway
31 132nd Ave NE NE 180th St	32 Beardslee Blvd NE 185th St 12 18 33 22	33 Beardslee Blvd 110th Ave NE (41) 26 (11) 38 (15) 51 (54) 34	34 SB 405 Ramps Beardslee Blvd 10 38 → ←16	35 NB 405 Ramps Beardslee Blvd 15 23 → ←16
36 North Creek Parkway Beardslee Blvd 23 → ←16	37 96th Ave NE SR 522 20 → ←29 6 4	38 NE 180th St SR 522 35 24	39 98th Ave NE / Glenwood Ave SR 522 24 → ←35	40 Kaysner Way SR 522 44 → ←64
41 100th Ave NE NE 145th St	42 Juanita Woodinville Way NE 145th St 21 14	43 Juanita Woodinville Way 112th Ave NE 21 14	44 Juanita Woodinville Way SB 405 Ramps 21 12 14 →	45 Juanita Woodinville Way NB 405 Ramps 14 12 → 8
46 Juanita Woodinville Way NE 160th St 12 → ←8	47 124th Ave NE NE 160th St 12 8	48 Campus Way NE SR 522 (18) 64 (39) 140 (68) 44 (47) 29		

Note: Weekday AM peak hour traffic volumes only studied at site access intersections.

Legend

X Weekday PM Peak Hour Project Trips

(X) Weekday AM Peak Hour Project Trips

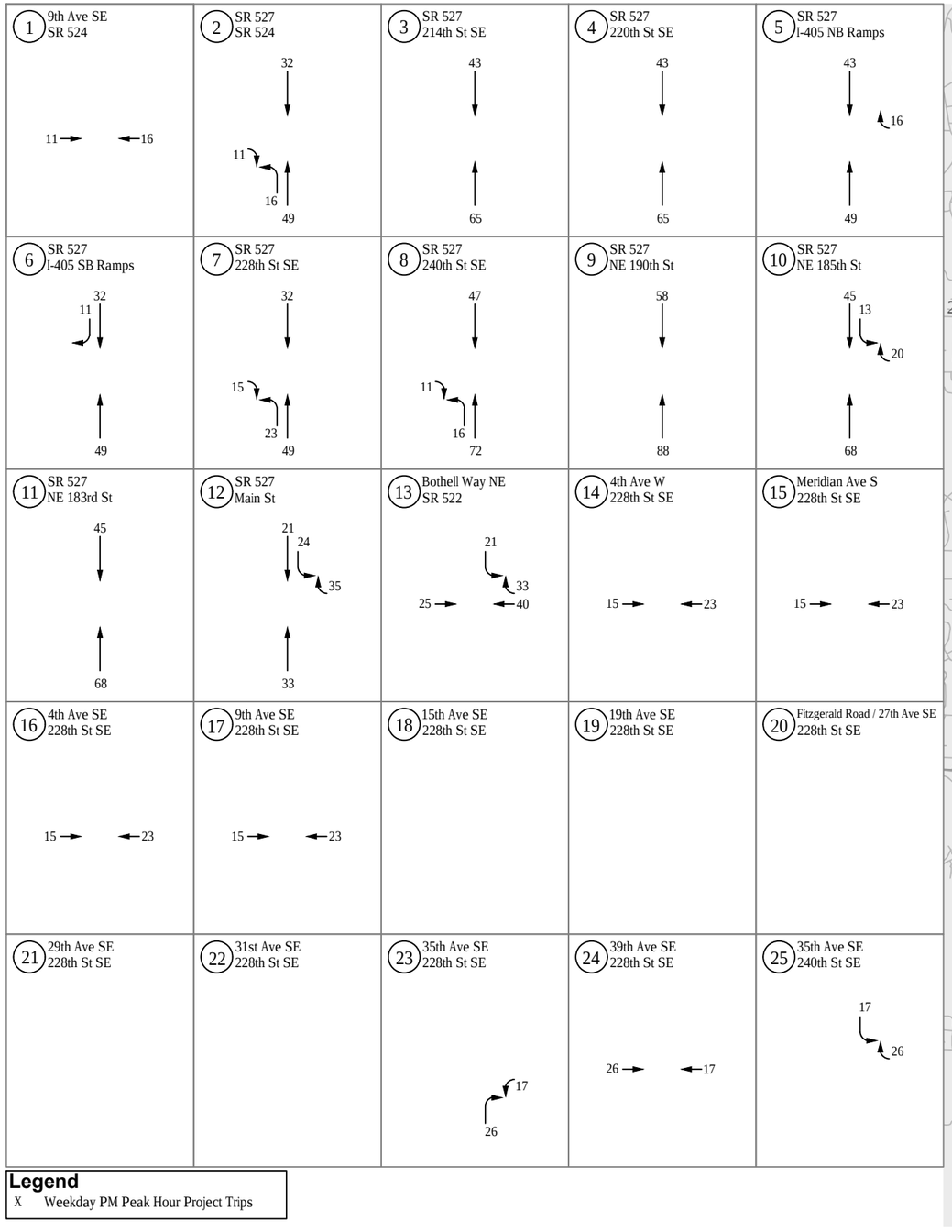


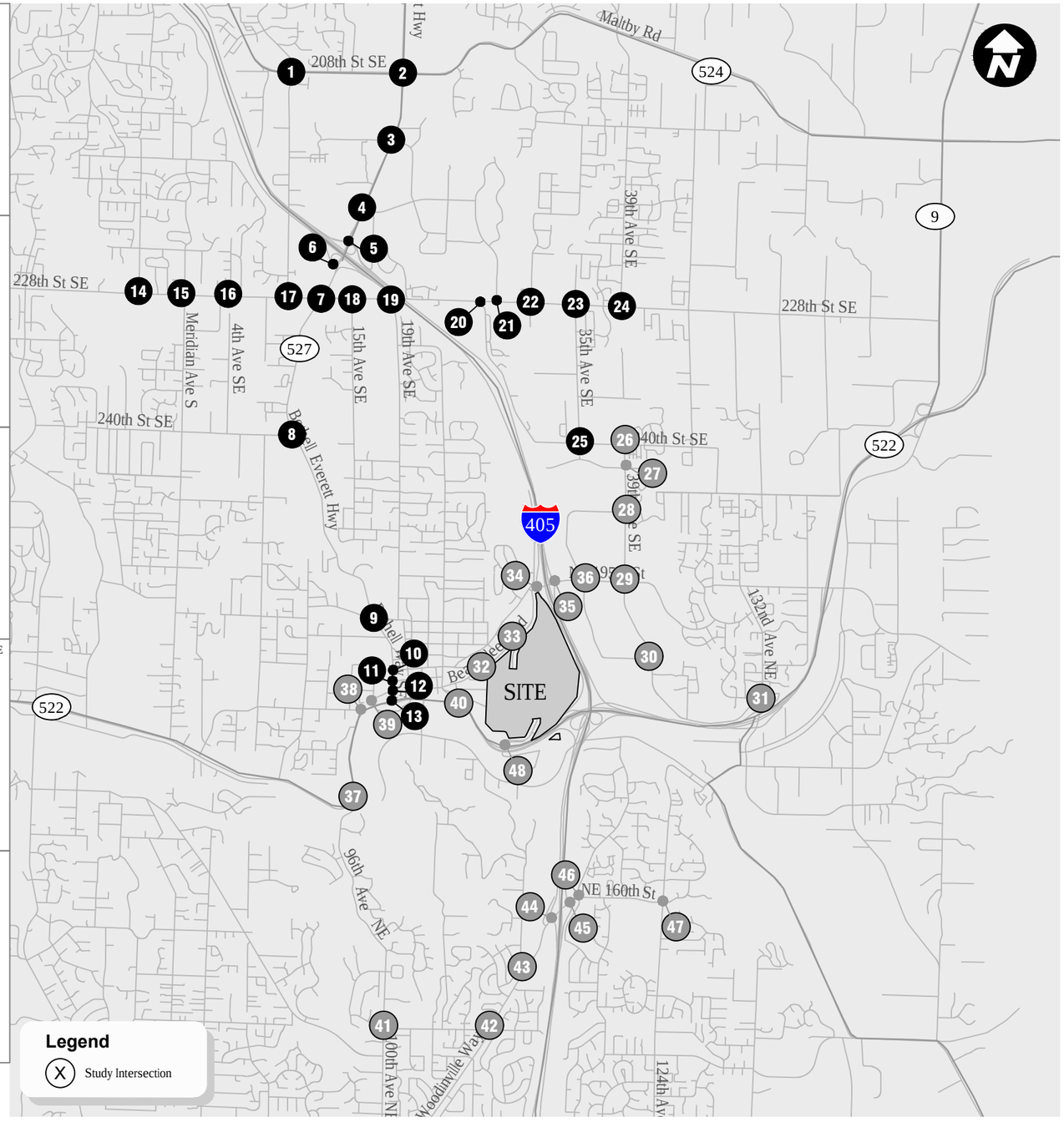
Alternative 1 Weekday Peak Hour Project Trips

UW Bothell / Cascadia College Campus Master Plan

APPENDIX **A-4**

transpogroup WHAT TRANSPORTATION CAN BE.





Alternative 2 Weekday PM Peak Hour Project Trips

UW Bothell / Cascadia College Campus Master Plan

APPENDIX
A-5

transpogroup
WHAT TRANSPORTATION CAN BE.

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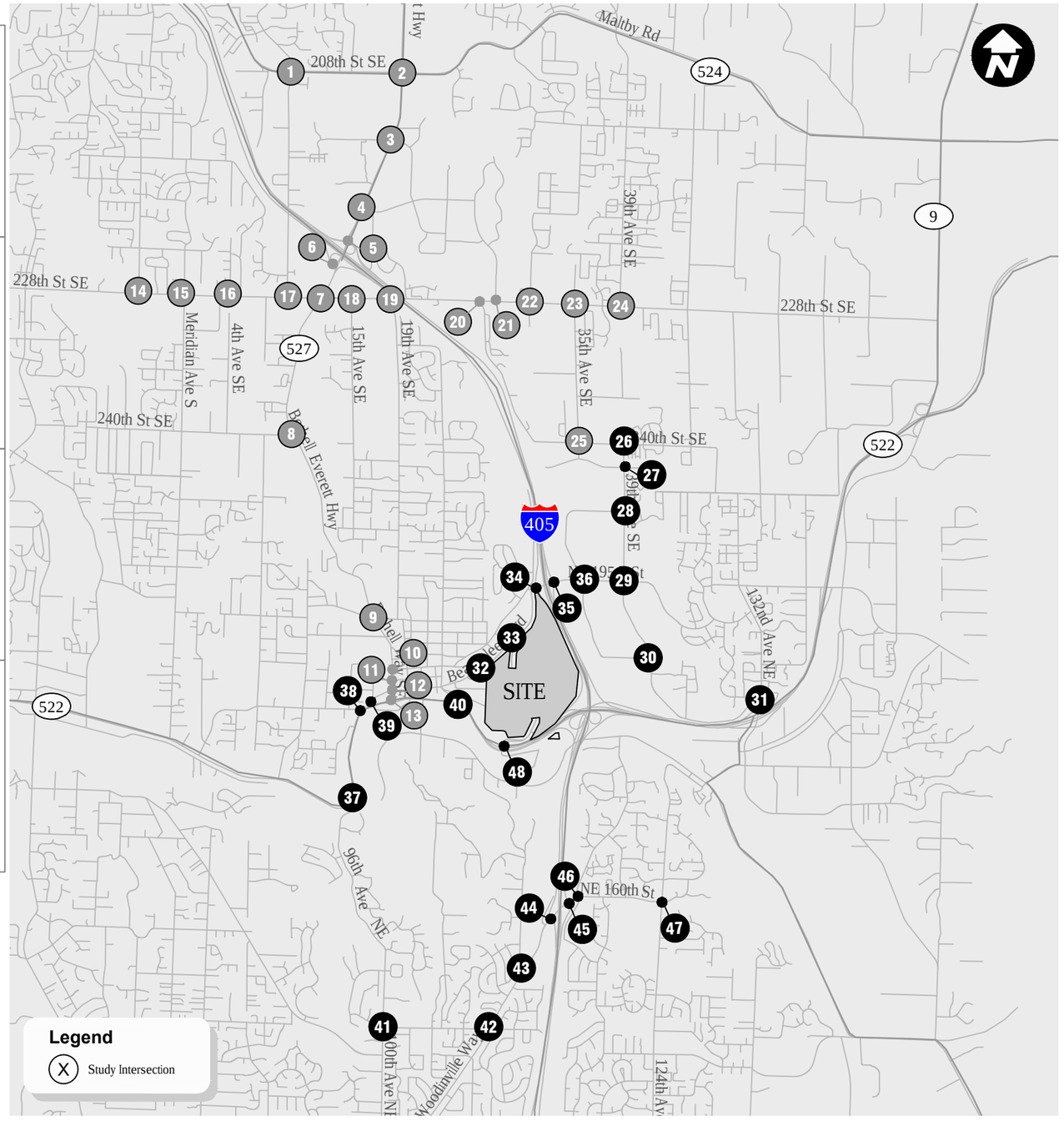
31 132nd Ave NE NE 180th St	32 Beardslee Blvd NE 185th St 13 / 20 / 35 / 24	33 Beardslee Blvd 110th Ave NE (52) 28 / (10) 42 / (13) 55 / (69) 37	34 SB 405 Ramps Beardslee Blvd 11 / 42 / 17	35 NB 405 Ramps Beardslee Blvd 16 / 26 / 17
36 North Creek Parkway Beardslee Blvd 26 / 17	37 96th Ave NE SR 522 21 / 33 / 7 / 4	38 NE 180th St SR 522 40 / 25	39 98th Ave NE / Glenwood Ave SR 522 25 / 40	40 Kaysner Way SR 522 46 / 73
41 100th Ave NE NE 145th St	42 Juanita Woodinville Way NE 145th St 23 / 15	43 Juanita Woodinville Way 112th Ave NE 23 / 15	44 Juanita Woodinville Way SB 405 Ramps 23 / 13 / 15	45 Juanita Woodinville Way NB 405 Ramps 15 / 13 / 9
46 Juanita Woodinville Way NE 160th St 13 / 9	47 124th Ave NE NE 160th St 13 / 9	48 Campus Way NE SR 522 (17) 72 / (38) 156 / (88) 46 / (61) 32		

Note: Weekday AM peak hour traffic volumes only studied at site access intersections.

Legend

X Weekday PM Peak Hour Project Trips

(X) Weekday AM Peak Hour Project Trips

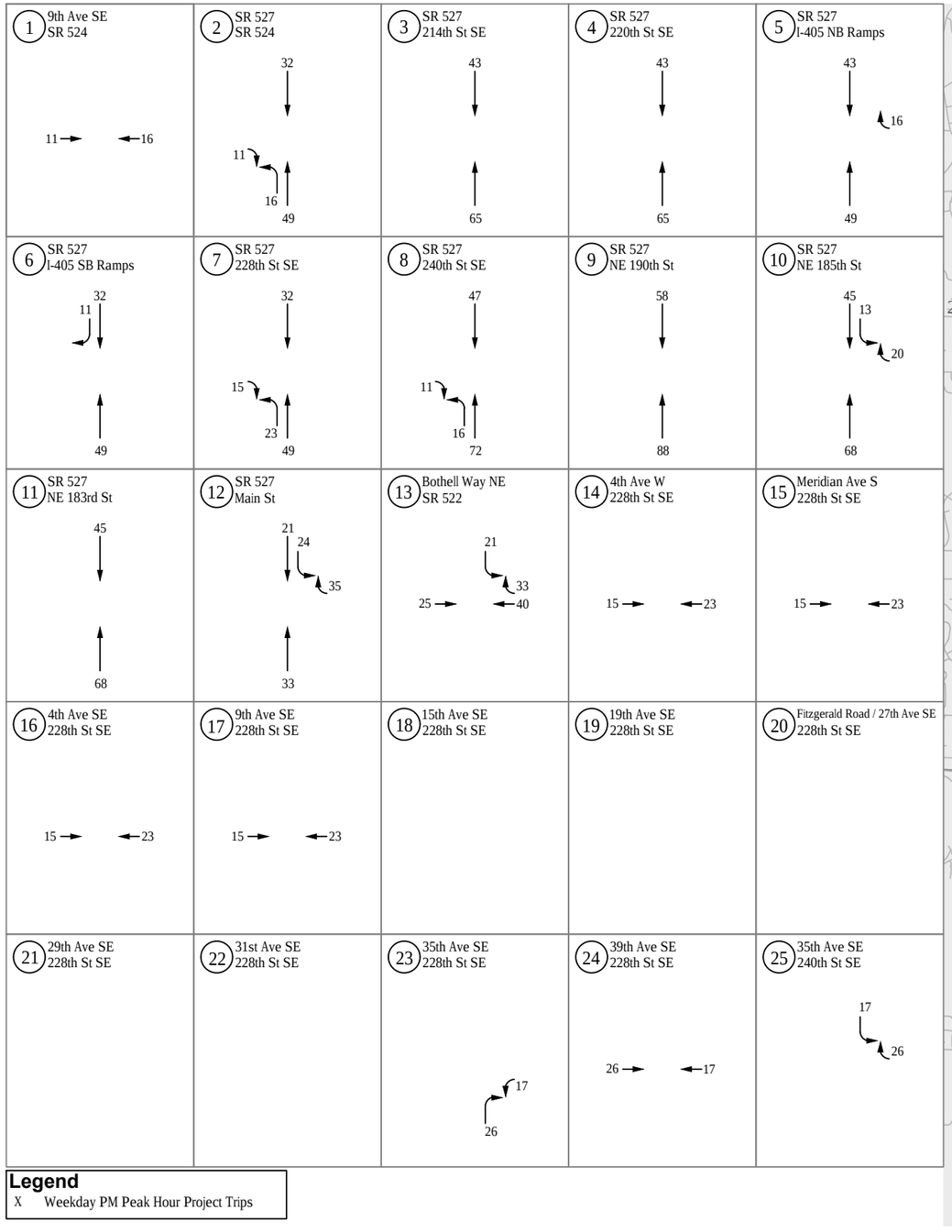


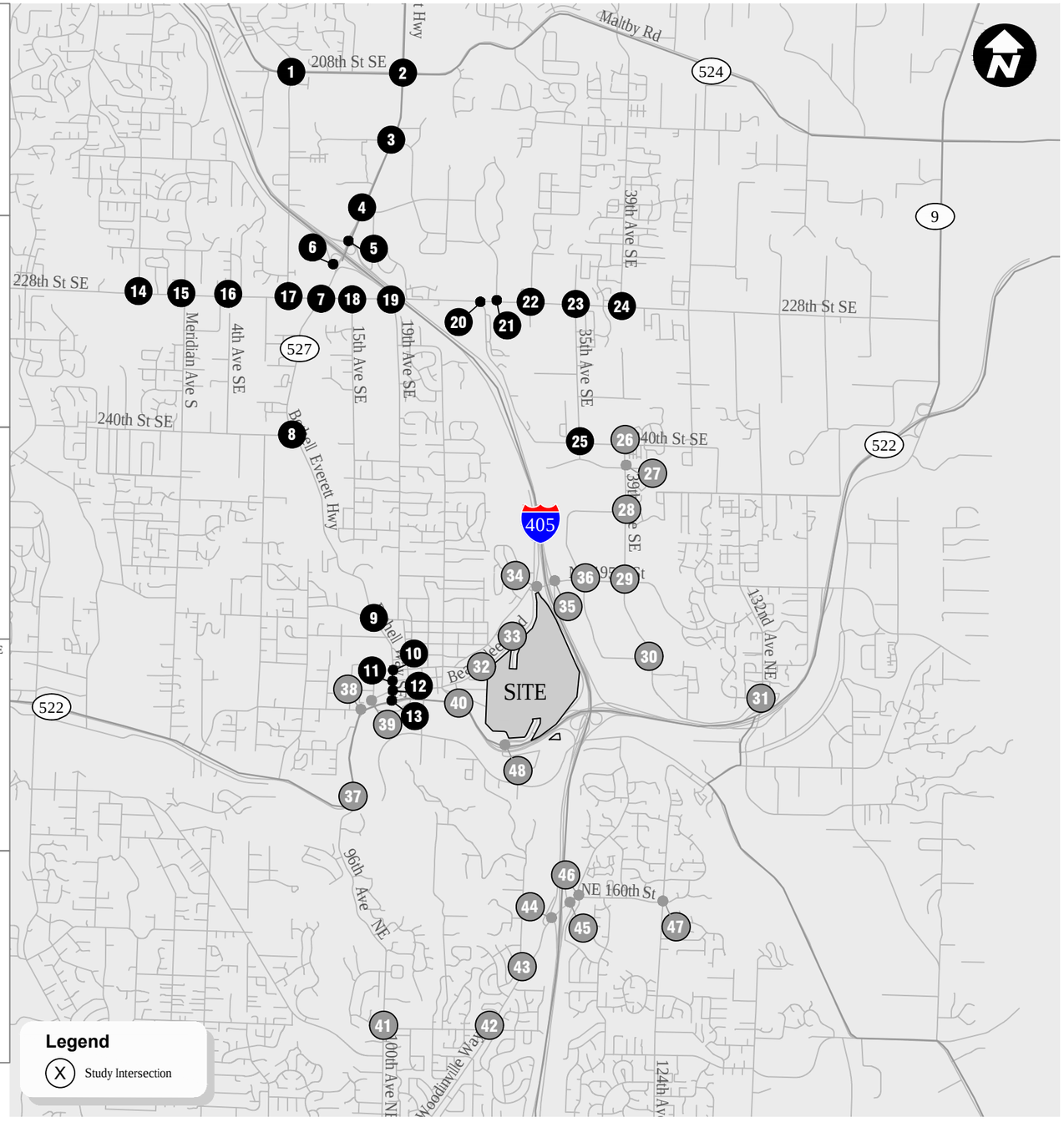
Alternative 2 Weekday Peak Hour Project Trips

UW Bothell / Cascadia College Campus Master Plan

APPENDIX **A-6**

transpogroup WHAT TRANSPORTATION CAN BE.





Alternative 3 Weekday PM Peak Hour Project Trips

UW Bothell / Cascadia College Campus Master Plan

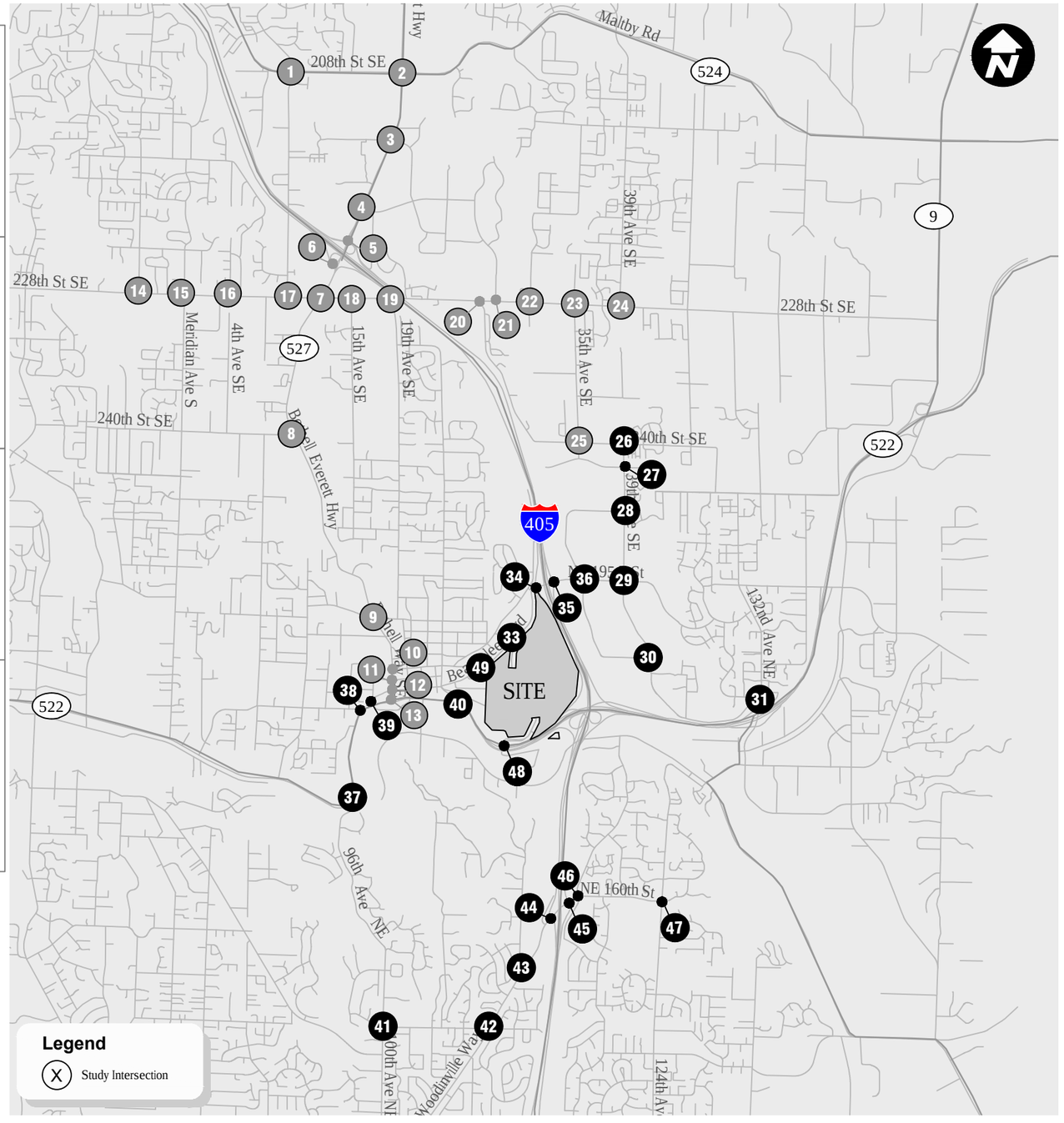
APPENDIX
A-7

transpogroup
WHAT TRANSPORTATION CAN BE.

26 39th Ave SE 240th St SE 17 17 26	27 39th Ave SE Monte Villa Parkway 17 26	28 39th Ave SE North Creek Parkway 17 26	29 120th Ave NE NE 195th St 17 26	30 120th Ave NE North Creek Parkway
31 132nd Ave NE NE 180th St	Replaced by new intersection #49	33 Beardslee Blvd 110th Ave NE (152) 69 (-120) -60 (-27) -111 (34) 154 (-93) -25 (-22) -38	34 SB 405 Ramps Beardslee Blvd 11 42 17	35 NB 405 Ramps Beardslee Blvd 16 26 17
36 North Creek Parkway Beardslee Blvd 26 17	37 96th Ave NE SR 522 21 33 7 4	38 NE 180th St SR 522 40 25	39 98th Ave NE / Glenwood Ave SR 522 25 40	40 Kaysner Way SR 522 46 73
41 100th Ave NE NE 145th St	42 Juanita Woodinville Way NE 145th St 23 15	43 Juanita Woodinville Way 112th Ave NE 23 15	44 Juanita Woodinville Way SB 405 Ramps 23 13 15	45 Juanita Woodinville Way NB 405 Ramps 15 13 9
46 Juanita Woodinville Way NE 160th St 13 9	47 124th Ave NE NE 160th St 13 9	48 Campus Way NE SR 522 (17) 72 (38) 156 (88) 46 (61) 33	49 Beardslee Blvd 108th Ave NE / NE 185th St (-22) -38 (24) 13 (172) 89 (38) 154 (5) 20 (36) 93 (-99) -25 (163) 61	Note: Weekday AM peak hour traffic volumes only studied at site access intersections.

Legend

X	Weekday PM Peak Hour Project Trips
(X)	Weekday AM Peak Hour Project Trips

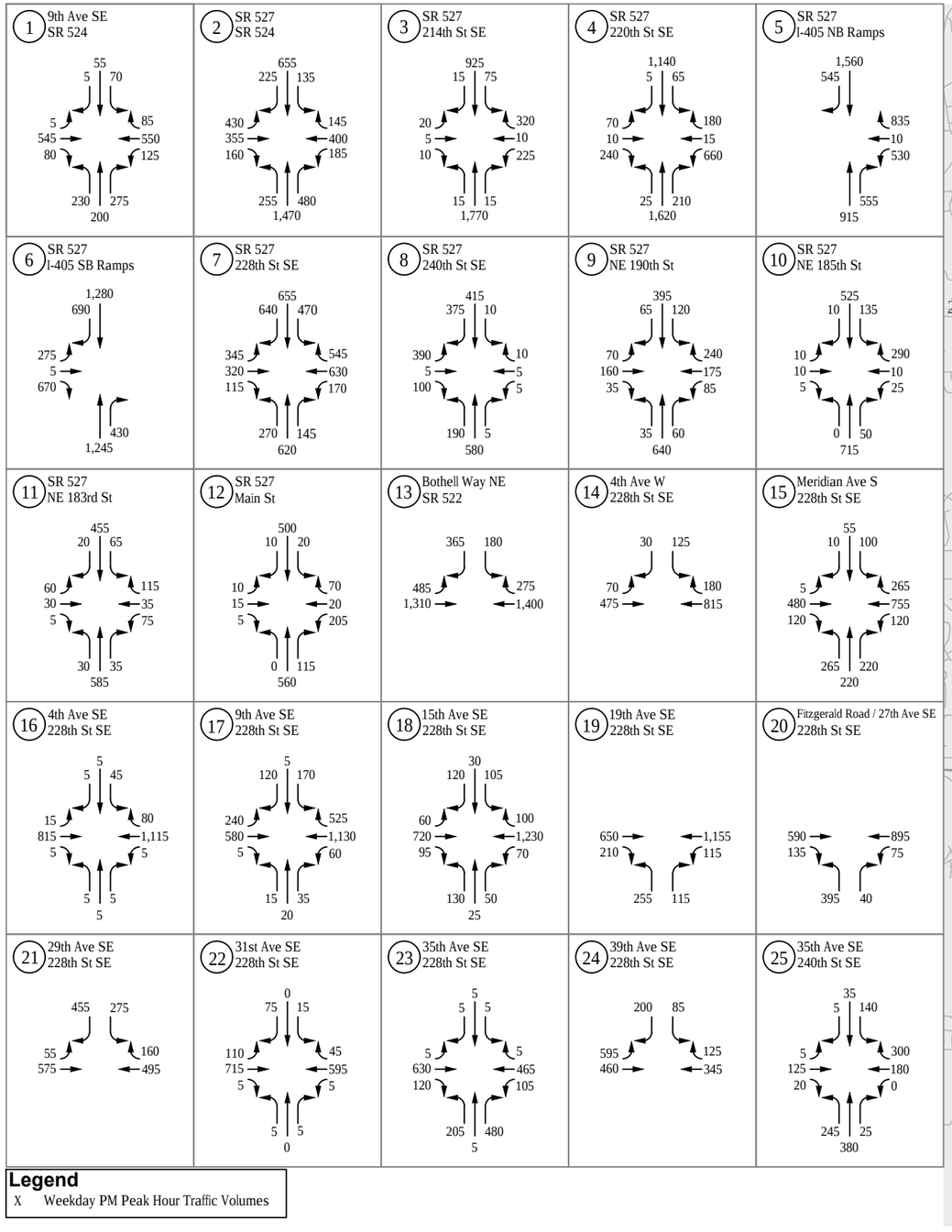


Alternative 3 Weekday Peak Hour Project Trips

UW Bothell / Cascadia College Campus Master Plan

APPENDIX
A-8

transpogroup
WHAT TRANSPORTATION CAN BE.

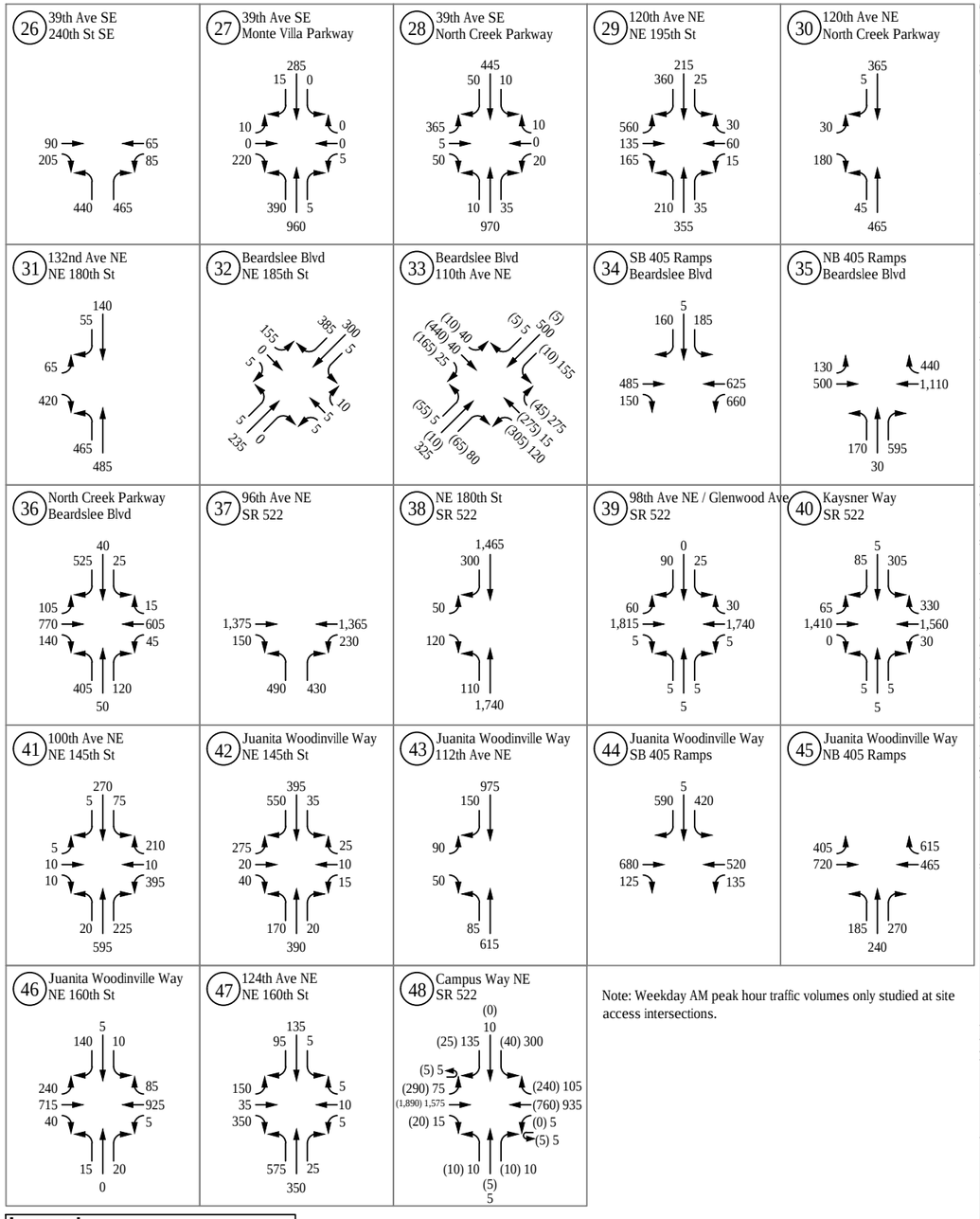


Existing Weekday PM Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

FIGURE **B-1**

transpogroup WHAT TRANSPORTATION CAN BE.



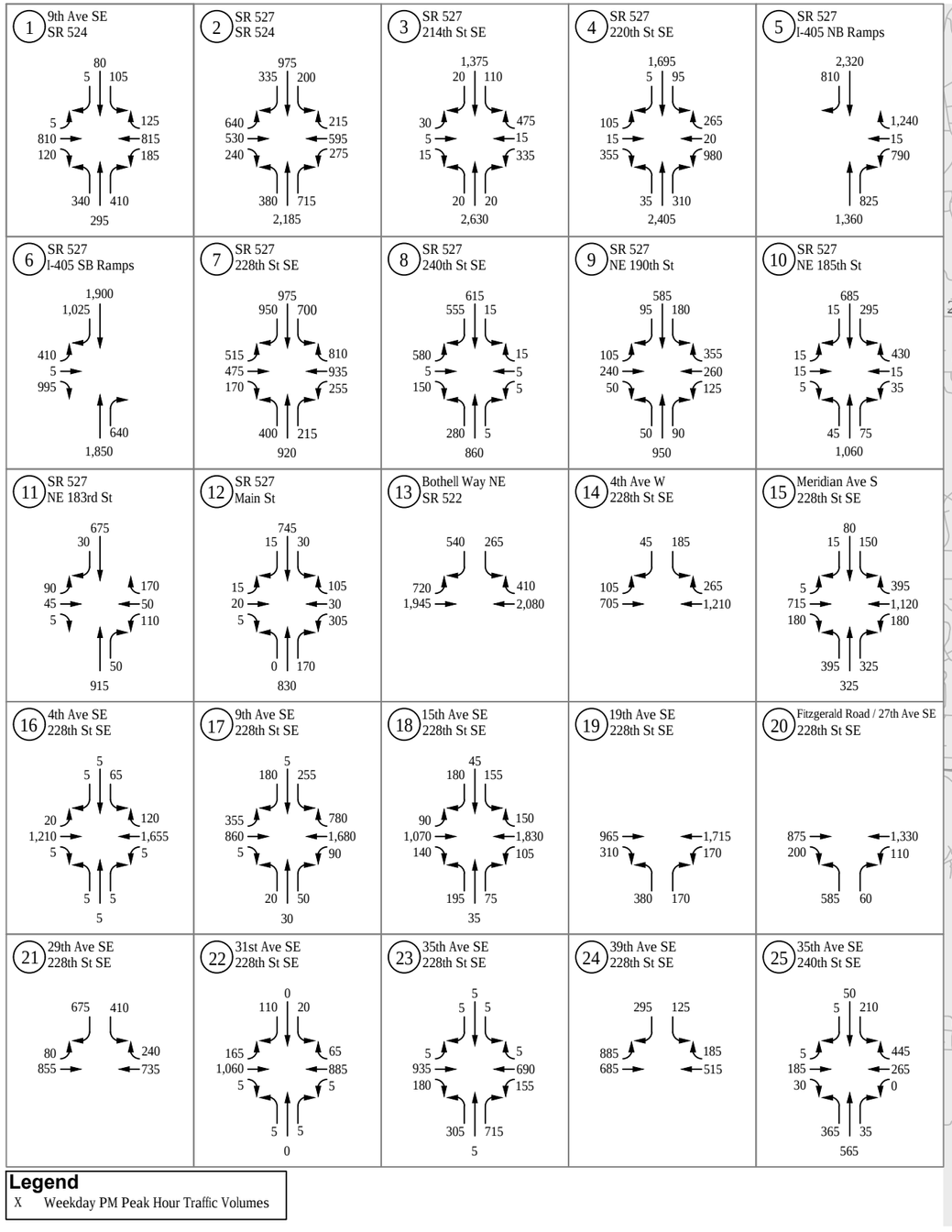
Existing Weekday Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

FIGURE **B-2**

transpogroup
WHAT TRANSPORTATION CAN BE.

Mar 06, 2017 - 3:27pm DARWINL M:\16\16320.00 - UW Bothell Campus Master Plan Update\Graphics\UWB-GRAPHICS-GIS - kll.dwg Layout: Appendix-Existing2

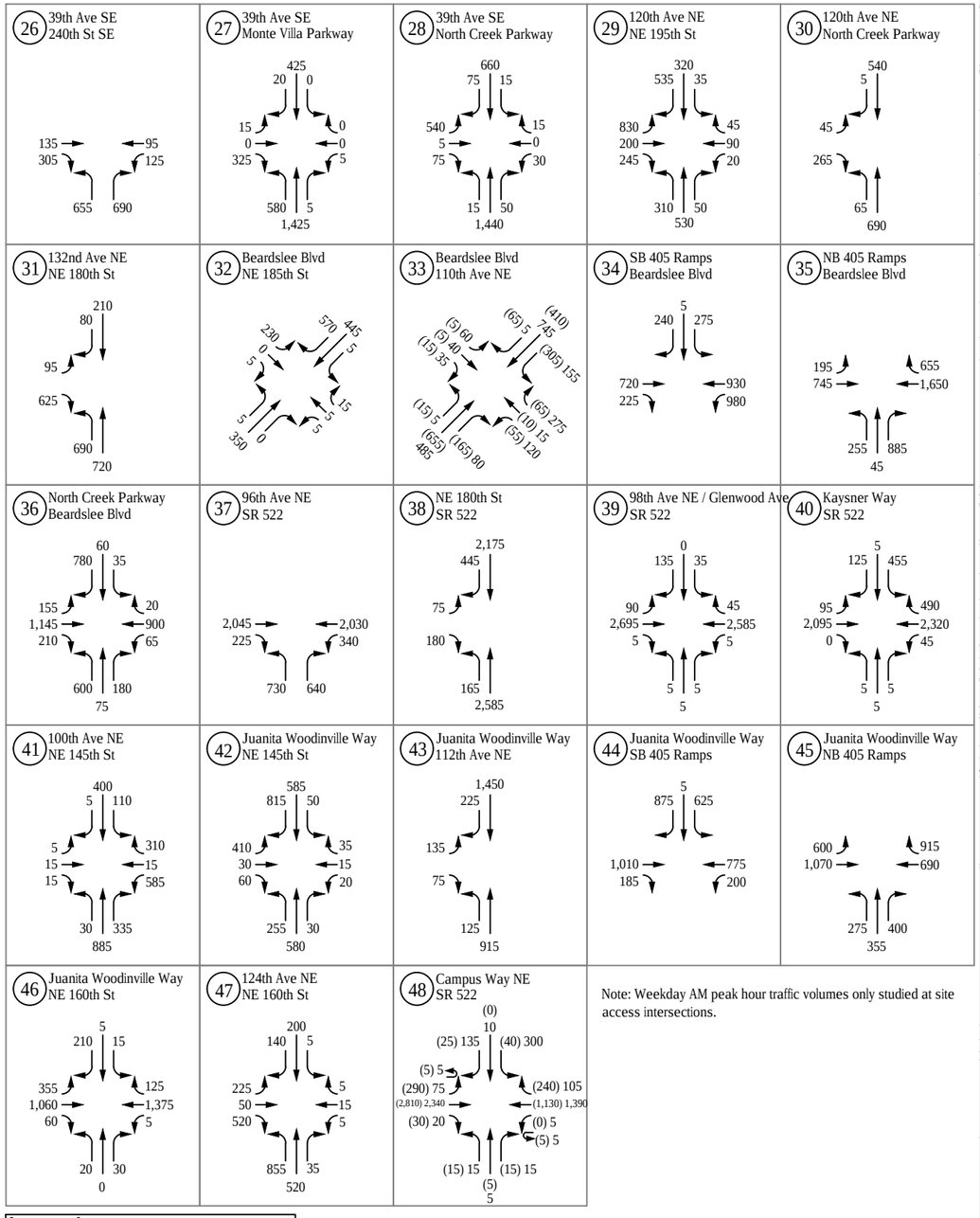


2037 No Action Scenario A Weekday PM Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

FIGURE **B-3**

transpogroup
WHAT TRANSPORTATION CAN BE.

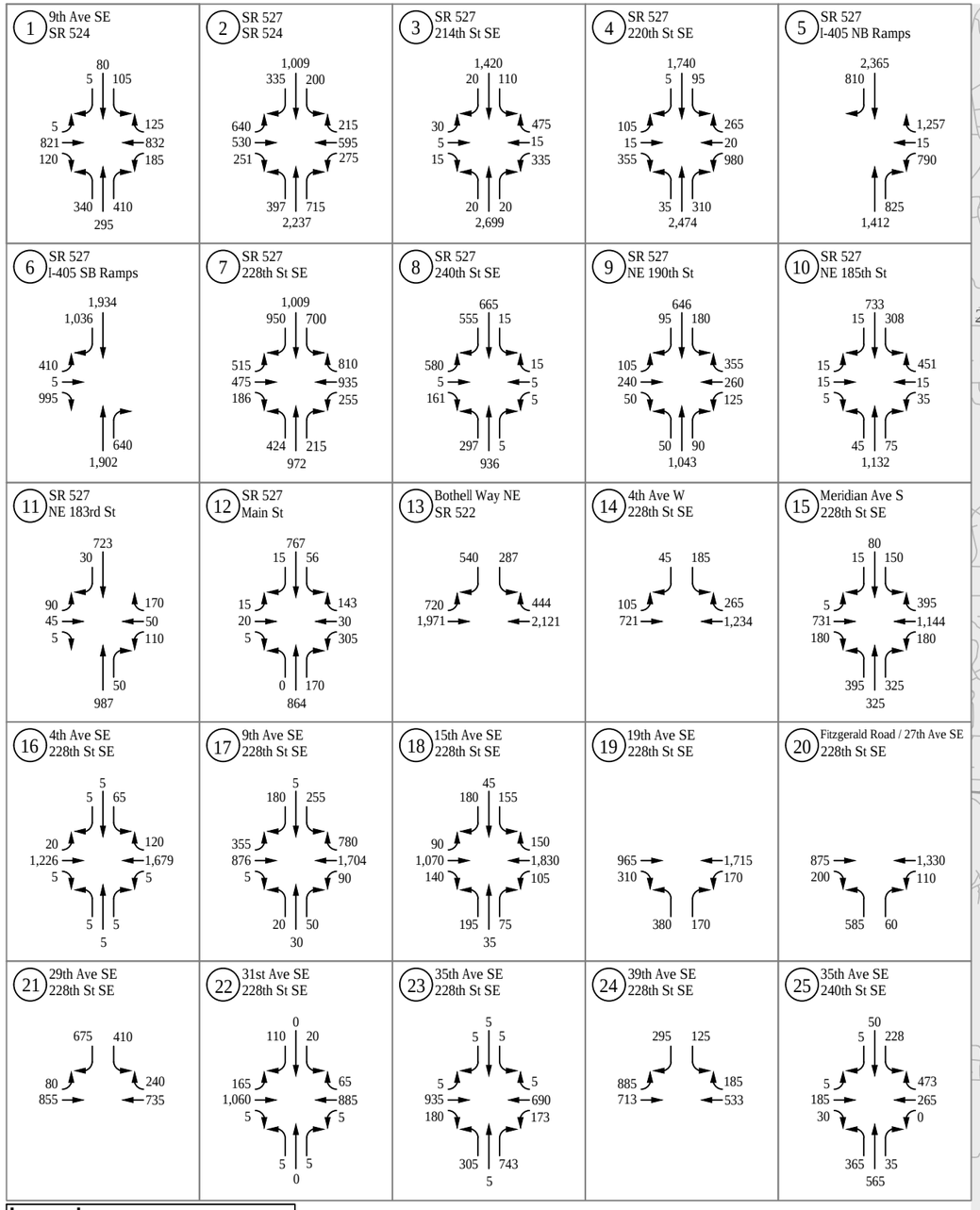


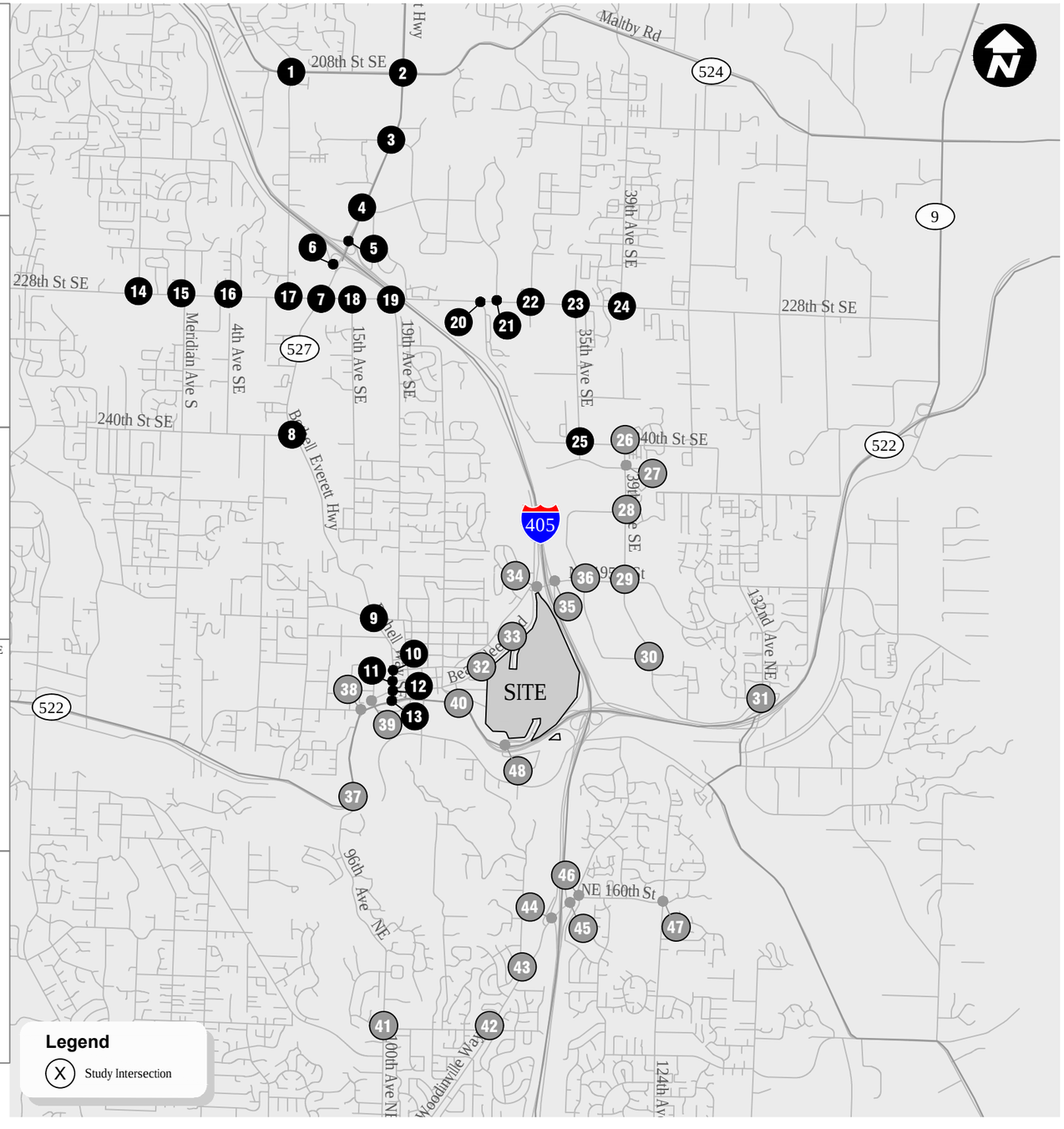
2037 No Action Scenario A Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

FIGURE **B-4**

transpogroup
WHAT TRANSPORTATION CAN BE.



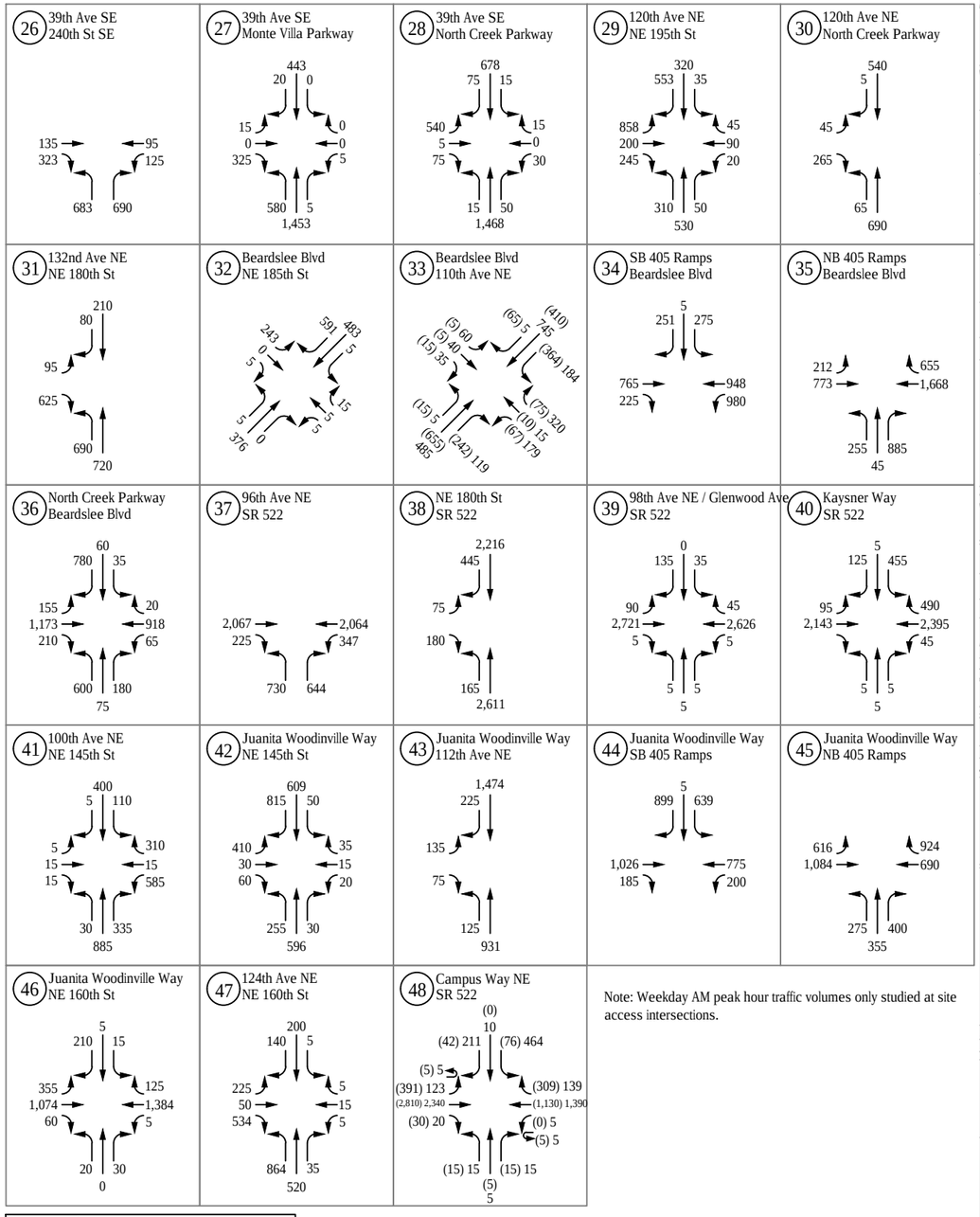


2037 No Action Scenario B Weekday PM Peak Hour Traffic Volumes

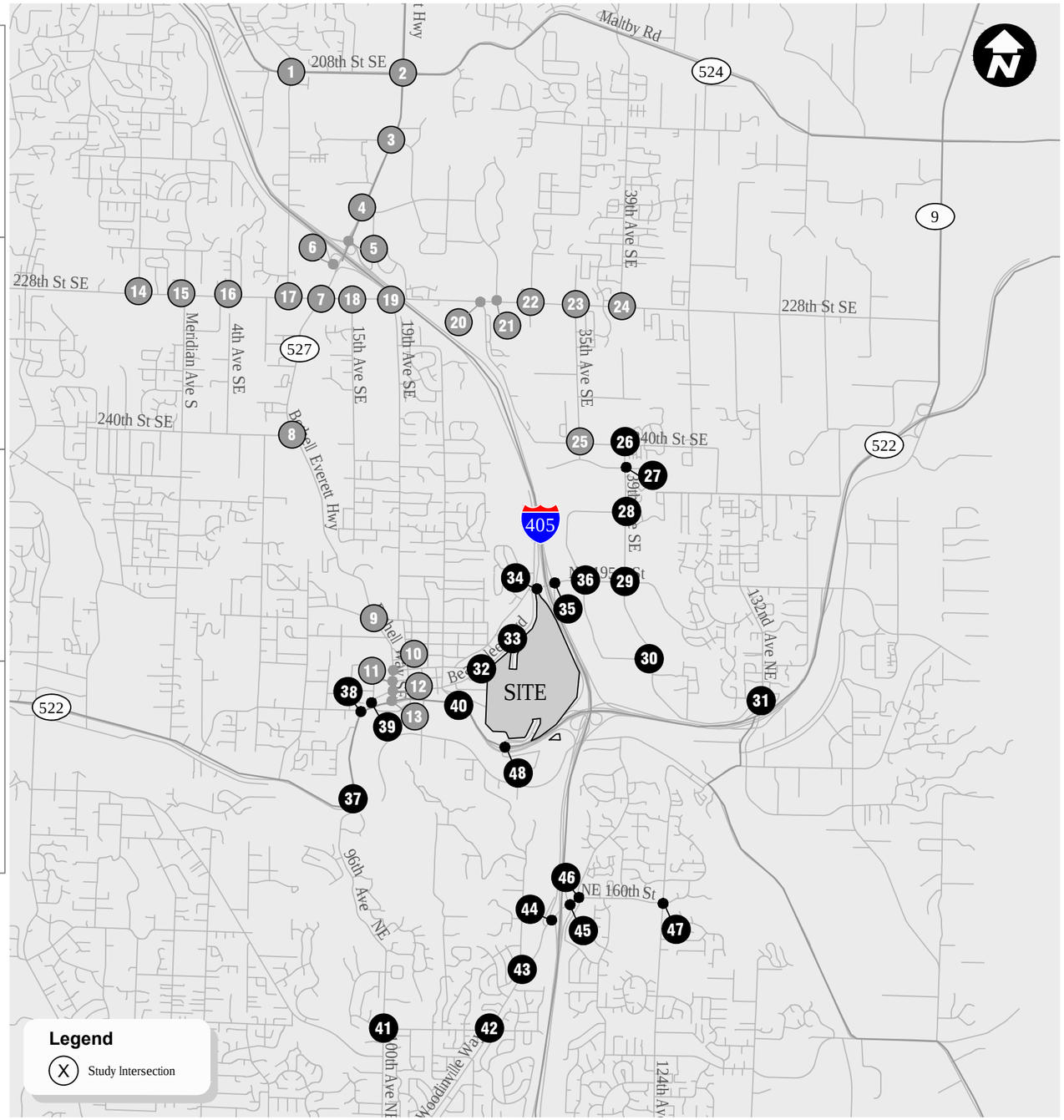
UW Bothell / Cascadia College Campus Master Plan

FIGURE **B-5**

transpogroup
WHAT TRANSPORTATION CAN BE.



Note: Weekday AM peak hour traffic volumes only studied at site access intersections.

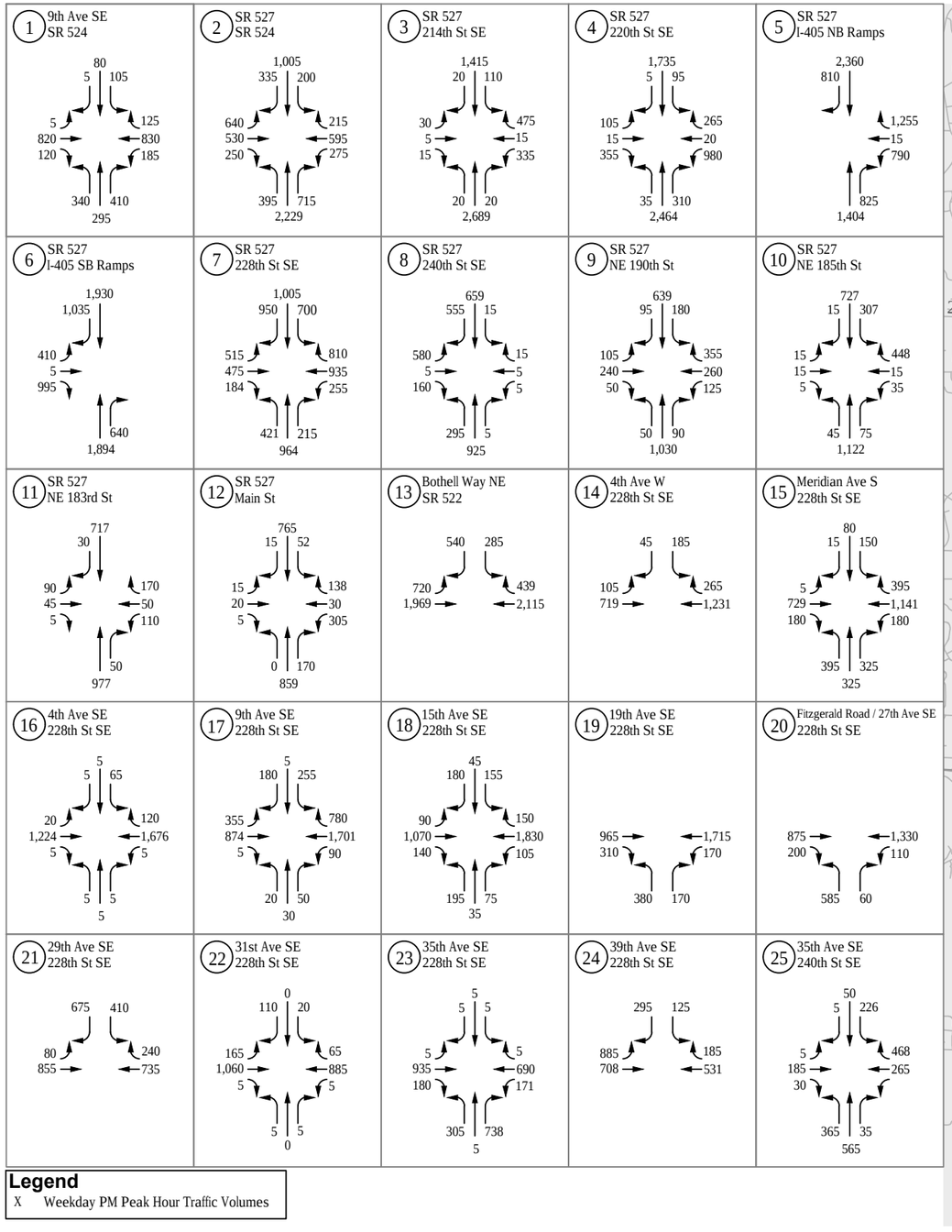


2037 No Action Scenario B Weekday Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

FIGURE **B-6**

transpogroup
WHAT TRANSPORTATION CAN BE.



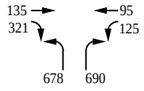
2037 Alternative 1 Weekday PM Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

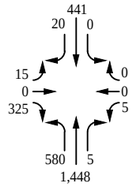
FIGURE **B-7**

transpogroup
WHAT TRANSPORTATION CAN BE.

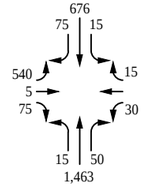
26 39th Ave SE / 240th St SE



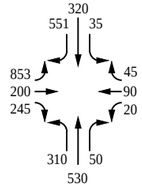
27 39th Ave SE / Monte Villa Parkway



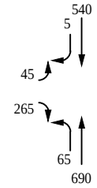
28 39th Ave SE / North Creek Parkway



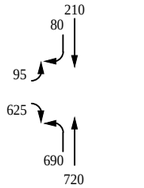
29 120th Ave NE / NE 195th St



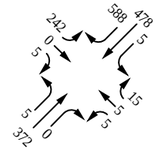
30 120th Ave NE / North Creek Parkway



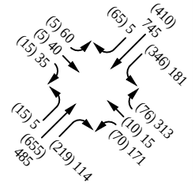
31 132nd Ave NE / NE 180th St



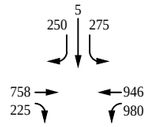
32 Beardslee Blvd / NE 185th St



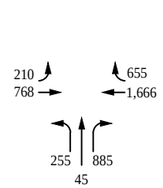
33 Beardslee Blvd / 110th Ave NE



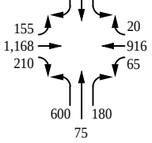
34 SB 405 Ramps / Beardslee Blvd



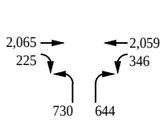
35 NB 405 Ramps / Beardslee Blvd



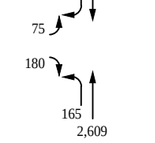
36 North Creek Parkway / Beardslee Blvd



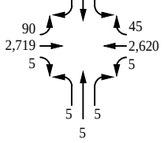
37 96th Ave NE / SR 522



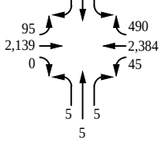
38 NE 180th St / SR 522



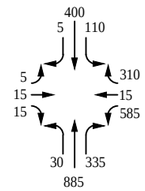
39 98th Ave NE / Glenwood Ave / SR 522



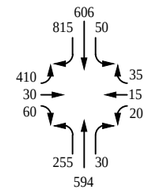
40 Kaysner Way / SR 522



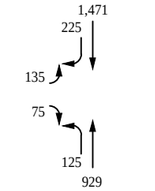
41 100th Ave NE / NE 145th St



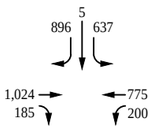
42 Juanita Woodinville Way / NE 145th St



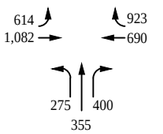
43 Juanita Woodinville Way / 112th Ave NE



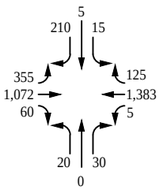
44 Juanita Woodinville Way / SB 405 Ramps



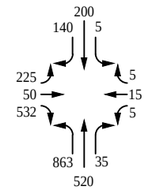
45 Juanita Woodinville Way / NB 405 Ramps



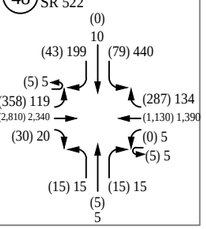
46 Juanita Woodinville Way / NE 160th St



47 124th Ave NE / NE 160th St



48 Campus Way NE / SR 522

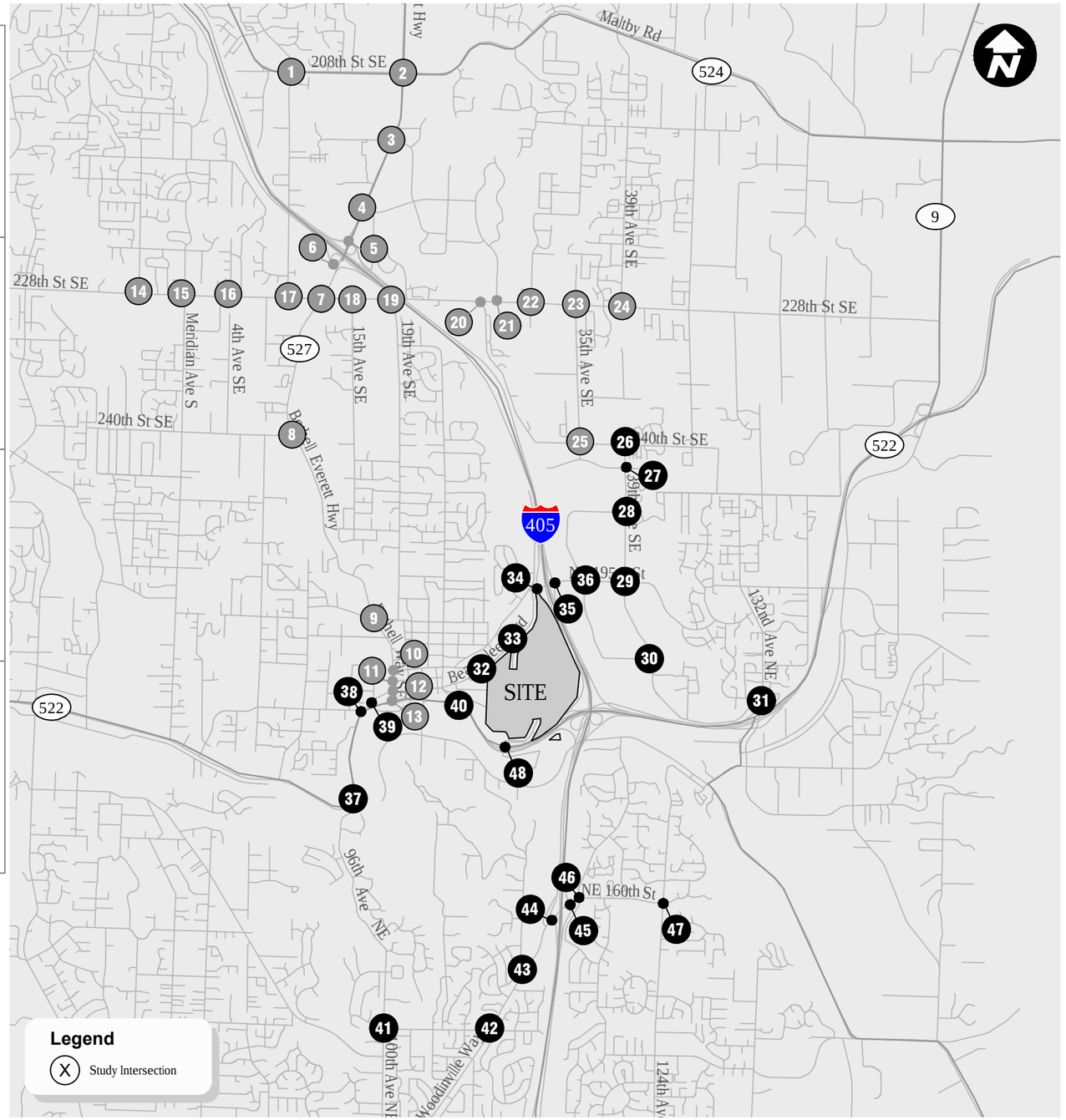


Note: Weekday AM peak hour traffic volumes only studied at site access intersections.

Legend

X Weekday PM Peak Hour Traffic Volumes

(X) Weekday AM Peak Hour Traffic Volumes

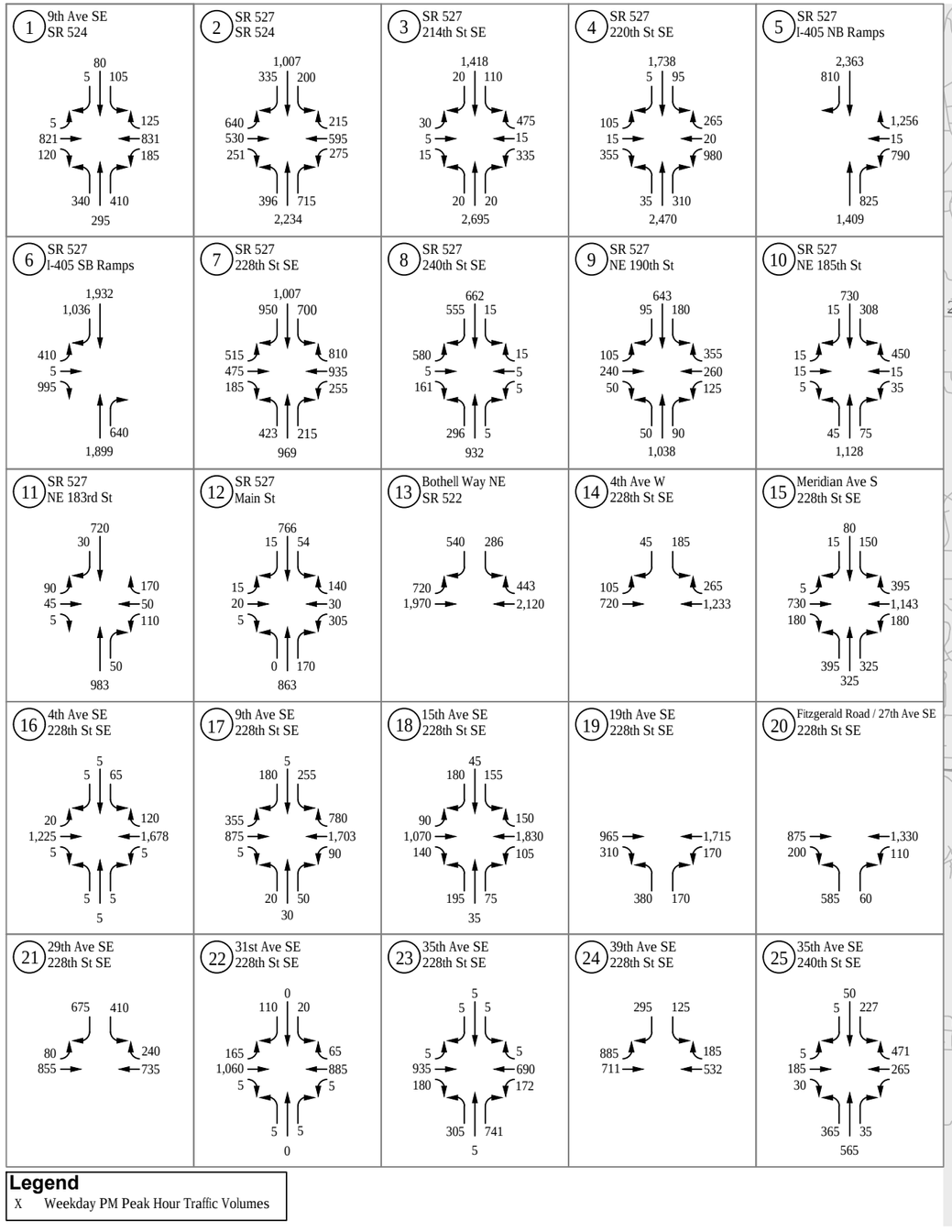


2037 Alternative 1 Weekday Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

FIGURE **B-8**

transpogroup
WHAT TRANSPORTATION CAN BE.



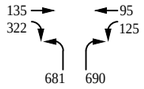
2037 Alternative 2 Weekday PM Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

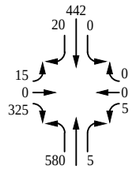
FIGURE **B-9**

transpogroup
WHAT TRANSPORTATION CAN BE.

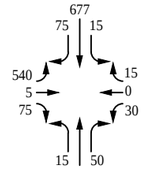
26 39th Ave SE / 240th St SE



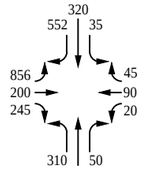
27 39th Ave SE / Monte Villa Parkway



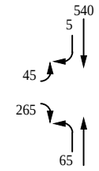
28 39th Ave SE / North Creek Parkway



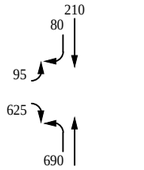
29 120th Ave NE / NE 195th St



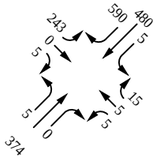
30 120th Ave NE / North Creek Parkway



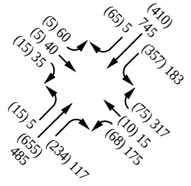
31 132nd Ave NE / NE 180th St



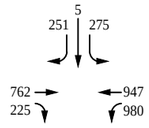
32 Beardslee Blvd / NE 185th St



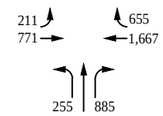
33 Beardslee Blvd / 110th Ave NE



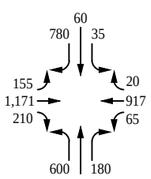
34 SB 405 Ramps / Beardslee Blvd



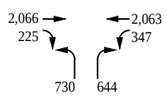
35 NB 405 Ramps / Beardslee Blvd



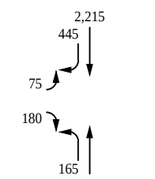
36 North Creek Parkway / Beardslee Blvd



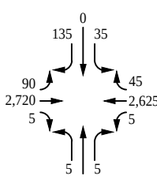
37 96th Ave NE / SR 522



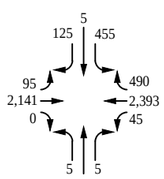
38 NE 180th St / SR 522



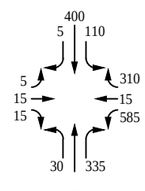
39 98th Ave NE / Glenwood Ave / SR 522



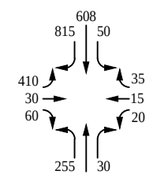
40 Kaysner Way / SR 522



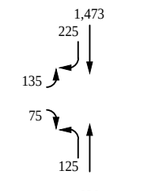
41 100th Ave NE / NE 145th St



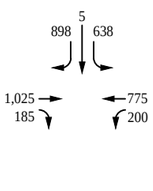
42 Juanita Woodinville Way / NE 145th St



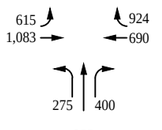
43 Juanita Woodinville Way / 112th Ave NE



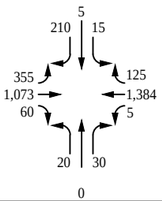
44 Juanita Woodinville Way / SB 405 Ramps



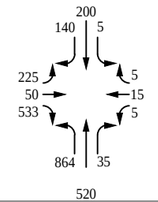
45 Juanita Woodinville Way / NB 405 Ramps



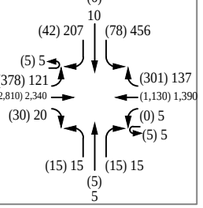
46 Juanita Woodinville Way / NE 160th St



47 124th Ave NE / NE 160th St



48 Campus Way NE / SR 522

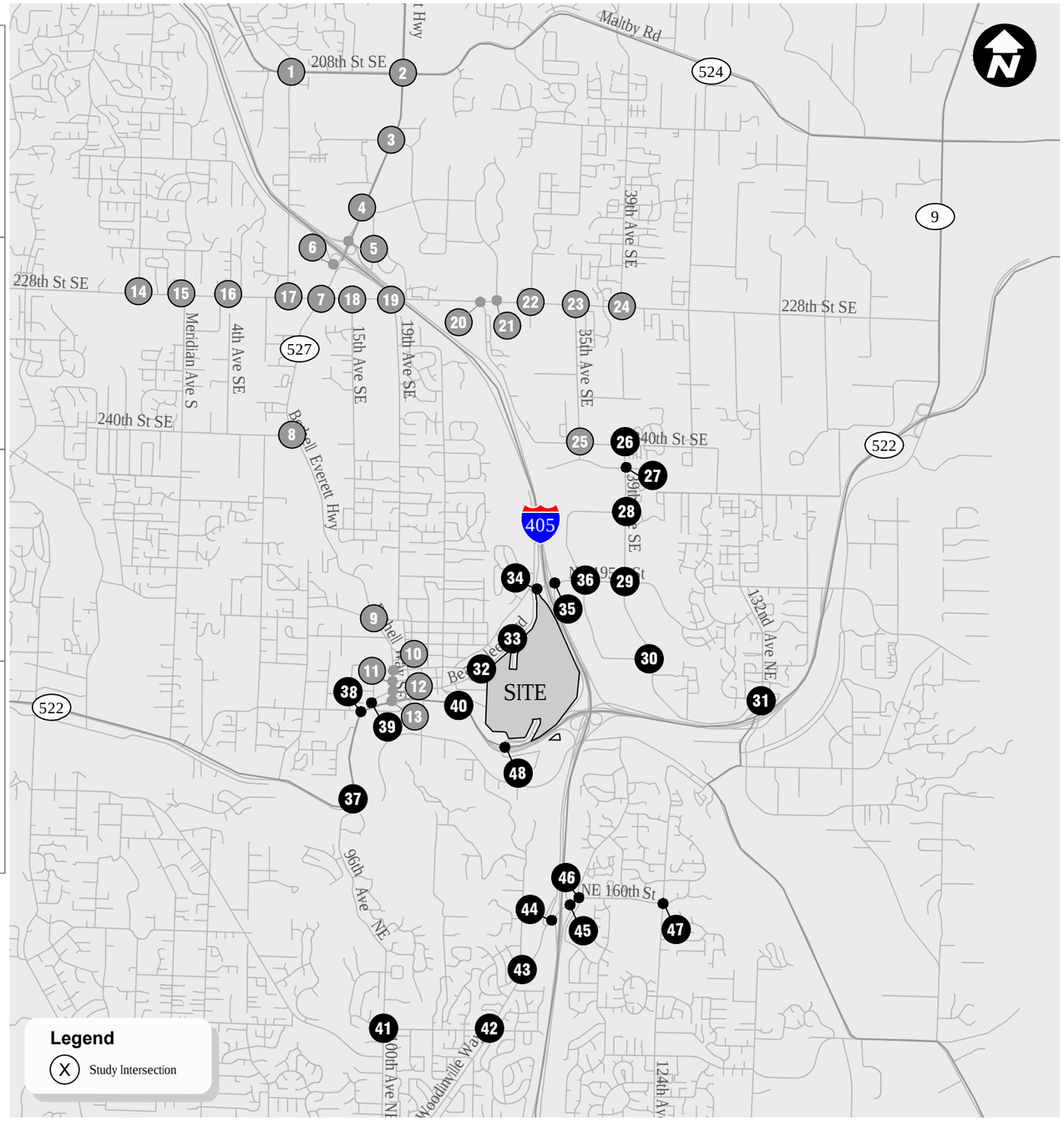


Note: Weekday AM peak hour traffic volumes only studied at site access intersections.

Legend

X Weekday PM Peak Hour Traffic Volumes

(X) Weekday AM Peak Hour Traffic Volumes

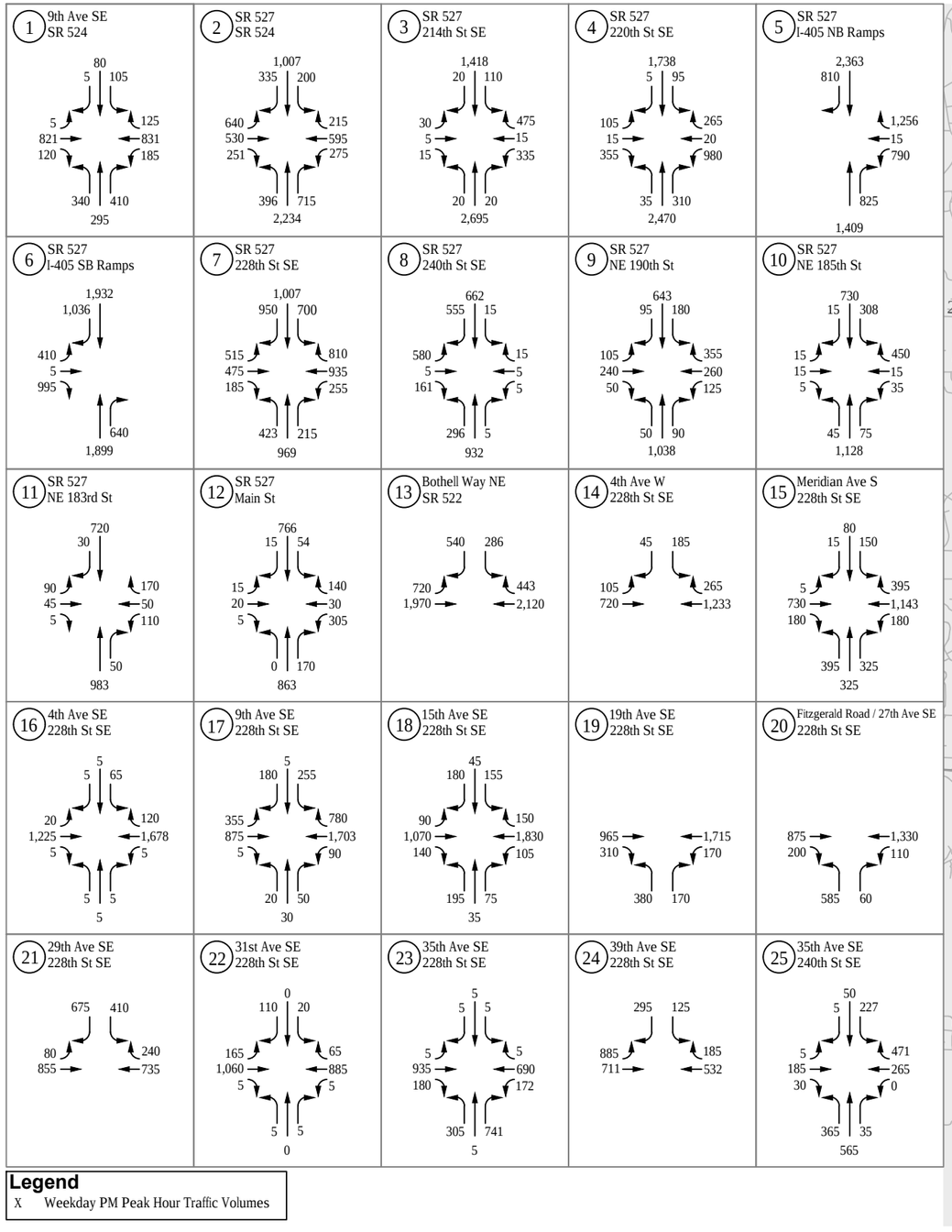


2037 Alternative 2 Weekday Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

FIGURE **B-10**

transpogroup
WHAT TRANSPORTATION CAN BE.

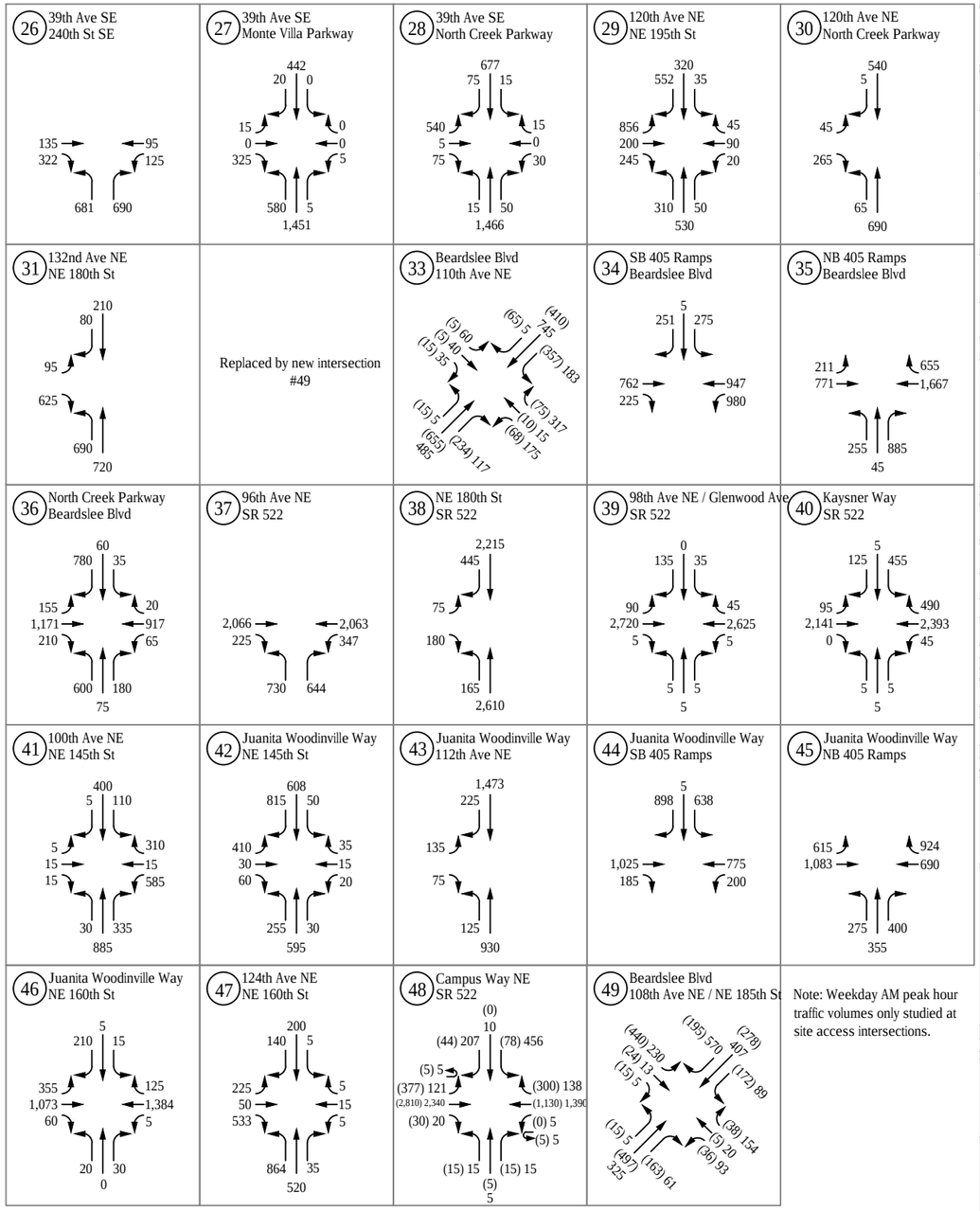


2037 Alternative 3 Weekday PM Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

FIGURE **B-11**

transpogroup
WHAT TRANSPORTATION CAN BE.



2037 Alternative 3 Weekday Peak Hour Traffic Volumes

UW Bothell / Cascadia College Campus Master Plan

FIGURE **B-12**

transpogroup
WHAT TRANSPORTATION CAN BE.

Mar 06, 2017 - 4:14pm DARWINL M:\16\16320.00 - UW Bothell Campus Master Plan Update\Graphics\UWB-GRAPHICS-GIS - kll.dwg Layout: Appendix-Alt3(2)

Appendix B: Campus Trip Generation

Mid-Week Average Traffic Volumes from Tube Counts

	15-Minute Volumes			Hourly Volumes		
Time	In	Out	Total	In	Out	Total
12:00 AM	2	10	12			
12:15 AM	3	5	7			
12:30 AM	0	1	1			
12:45 AM	2	1	3	6	17	23
1:00 AM	0	2	2	5	9	14
1:15 AM	1	1	2	3	5	8
1:30 AM	2	2	4	5	6	11
1:45 AM	1	1	2	4	6	10
2:00 AM	1	1	1	5	5	10
2:15 AM	1	1	1	4	5	9
2:30 AM	1	1	2	3	4	7
2:45 AM	1	1	2	3	3	6
3:00 AM	0	1	2	3	4	7
3:15 AM	1	0	1	3	3	6
3:30 AM	2	1	2	4	3	7
3:45 AM	1	2	3	4	4	8
4:00 AM	1	1	2	5	3	8
4:15 AM	2	1	3	6	4	10
4:30 AM	4	1	5	8	5	13
4:45 AM	4	2	6	11	6	17
5:00 AM	7	5	12	17	10	27
5:15 AM	9	6	15	24	15	39
5:30 AM	9	7	16	30	20	50
5:45 AM	11	7	19	37	25	62
6:00 AM	16	10	26	46	30	76
6:15 AM	15	12	28	52	36	88
6:30 AM	31	15	46	74	44	118
6:45 AM	37	21	58	100	58	158
7:00 AM	39	20	58	122	68	190
7:15 AM	66	22	88	173	77	250
7:30 AM	88	25	113	230	88	318
7:45 AM	152	31	183	345	98	443
8:00 AM	248	44	292	555	122	677
8:15 AM	411	58	469	899	158	1057
8:30 AM	431	86	517	1242	219	1461
8:45 AM	**234**	**56**	**290**	**1324**	**244**	**1568**
9:00 AM	130	48	177	1206	247	1453
9:15 AM	109	35	144	904	225	1129
9:30 AM	107	41	148	580	179	759
9:45 AM	118	36	154	463	160	623
10:00 AM	148	58	206	481	170	651
10:15 AM	201	68	269	574	203	777
10:30 AM	270	117	387	736	279	1015
10:45 AM	247	288	536	866	532	1398
11:00 AM	101	171	272	819	644	1463
11:15 AM	79	62	141	696	639	1335
11:30 AM	62	65	127	489	586	1075
11:45 AM	87	67	154	328	365	693

Tube Count Data

	15-Minute Volumes			Hourly Volumes		
Time	**In**	**Out**	**Total**	**In**	**Out**	**Total**
12:00 PM	83	66	150	311	260	571
12:15 PM	96	71	167	328	269	597
12:30 PM	126	105	231	393	310	703
12:45 PM	183	143	325	488	385	873
1:00 PM	189	331	520	594	650	1244
1:15 PM	89	166	255	587	744	1331
1:30 PM	67	72	140	528	712	1240
1:45 PM	55	48	104	401	617	1018
2:00 PM	60	61	121	271	348	619
2:15 PM	68	78	146	250	260	510
2:30 PM	77	88	165	260	276	536
2:45 PM	119	102	221	324	329	653
3:00 PM	182	192	374	446	460	906
3:15 PM	218	350	567	596	732	1328
3:30 PM	123	217	340	641	861	1502
3:45 PM	72	87	158	594	846	1440
4:00 PM	54	95	149	466	748	1214
4:15 PM	61	79	140	309	478	787
4:30 PM	77	101	178	264	361	625
4:45 PM	73	105	178	265	379	644
5:00 PM	108	139	247	319	424	743
5:15 PM	181	214	395	439	559	998
5:30 PM	222	390	612	584	848	1432
5:45 PM	**127**	**200**	**327**	**638**	**943**	**1581**
6:00 PM	75	112	188	605	917	1522
6:15 PM	48	77	124	472	779	1251
6:30 PM	47	74	121	297	463	760
6:45 PM	38	73	111	208	336	544
7:00 PM	38	93	131	171	316	487
7:15 PM	47	98	144	170	337	507
7:30 PM	57	170	228	180	434	614
7:45 PM	80	300	381	222	661	883
8:00 PM	41	175	216	225	744	969
8:15 PM	23	73	95	201	719	920
8:30 PM	23	84	107	167	632	799
8:45 PM	16	47	64	103	379	482
9:00 PM	13	54	67	75	257	332
9:15 PM	14	40	54	67	224	291
9:30 PM	11	47	57	54	187	241
9:45 PM	20	74	94	58	214	272
10:00 PM	15	78	94	60	239	299
10:15 PM	7	30	37	52	230	282
10:30 PM	5	17	22	47	200	247
10:45 PM	3	10	13	31	136	167
11:00 PM	6	11	17	21	68	89
11:15 PM	5	5	10	19	43	62
11:30 PM	2	4	6	16	30	46
11:45 PM	4	9	13	17	29	46
Total Daily	***6,841***	***6,771***	***13,613***			

Notes: Data collected October 25-27, 2016.

Printed On: 2/16/2017

Additional Off-Campus Surveys

Date 17-Nov-16

Observer:		DS		FL	
Location		Beardslee Building		Beardslee Apartment	
		Capacity	45	Capacity	62
		Initial occupancy	1	Initial occupancy	3
From	To	In	Out	In	Out
7:01	7:05	0	0	0	1
7:06	7:10	0	0	0	0
7:11	7:15	0	0	0	1
7:16	7:20	0	0	0	0
7:21	7:25	0	0	0	0
7:26	7:30	0	0	1	0
7:31	7:35	1	0	0	1
7:36	7:40	0	0	0	0
7:41	7:45	0	0	1	0
7:46	7:50	0	0	0	0
7:51	7:55	0	0	2	0
7:56	8:00	1	0	1	1
8:01	8:05	1	0	1	0
8:06	8:10	0	0	1	1
8:11	8:15	1	0	1	0
8:16	8:20	2	0	2	0
8:21	8:25	4	0	0	0
8:26	8:30	4	0	1	1
8:31	8:35	6	0	1	0
8:36	8:40	3	0	1	0
8:41	8:45	4	0	2	0
8:46	8:50	4	0	0	0
8:51	8:55	4	0	1	0
8:56	9:00	3	0	1	0

Observer:		DS		DL	
		Initial occupancy	39	Initial occupancy	27
From	To	In	Out	In	Out
16:01	16:05	2	0	0	1
16:06	16:10	0	0	0	1
16:11	16:15	0	0	0	1
16:16	16:20	0	0	0	3
16:21	16:25	0	0	0	0
16:26	16:30	0	0	0	1
16:31	16:35	0	0	0	0
16:36	16:40	0	0	0	0
16:41	16:45	0	0	0	1
16:46	16:50	0	0	0	1
16:51	16:55	0	1	2	0
16:56	17:00	0	1	0	2
17:01	17:05	0	3	2	1
17:06	17:10	1	4	3	0
17:11	17:15	1	0	0	1
17:16	17:20	3	2	2	0
17:21	17:25	3	2	2	0
17:26	17:30	1	4	0	1
17:31	17:35	3	6	1	1
17:36	17:40	2	4	0	2
17:41	17:45	3	1	0	1
17:46	17:50	0	2	1	1
17:51	17:55	2	1	2	1
17:56	18:00	0	0	1	2
		21	31	16	22

Printed On: 2/16/2017

Summary of Peak Hour Traffic Counts

	Beardslee Building		Beardslee Apartment	
	In	Out	In	Out
AM Peak 8 - 9 AM	36	0	12	2
PM Peak 5 - 6 PM	19	29	14	11

Husky Village - Day 1

	Entrance 1		Entrance 2		Entrance 3		Paid Parking Stalls (Removed)		Cumulative - Day 1			
Time Period	**Inbound**	**Outbound**	**Inbound**	**Outbound**	**Inbound**	**Outbound**	**Inbound**	**Outbound**	**Inbound**	**Outbound**	**Total**	**Rolling 1 Hour**
AM Peak Hour												
7:00 - 7:15 AM	0	0	0	2	0	0	0	0	0	2	2	
7:15 - 7:30 AM	1	0	0	0	0	1	0	0	1	1	2	
7:30 - 7:45 AM	2	0	0	2	0	0	0	0	2	2	4	
7:45 - 8:00 AM	0	0	2	1	0	1	1	0	1	2	3	11
8:00 - 8:15 AM	1	0	1	0	0	1	2	0	0	1	1	10
8:15 - 8:30 AM	0	0	1	0	2	1	3	0	0	1	1	9
8:30 - 8:45 AM	0	2	3	1	2	0	2	0	3	3	6	11
8:45 - 9:00 AM	0	1	1	0	3	0	0	0	4	1	5	13
PM Peak Hour												
4:00 - 4:15 PM	0	1	1	3	0	0	0	1	1	3	4	
4:15 - 4:30 PM	0	0	3	2	0	1	1	3	2	0	2	
4:30 - 4:45 PM	1	3	2	4	0	0	0	3	3	4	7	
4:45 - 5:00 PM	0	1	2	2	1	0	0	1	3	2	5	18
5:00 - 5:15 PM	1	0	3	3	2	6	0	2	6	7	13	27
5:15 - 5:30 PM	2	0	0	2	1	1	0	1	3	2	5	30
5:30 - 5:45 PM	0	1	0	8	1	3	1	3	0	9	9	32
5:45 - 6:00 PM	2	0	0	1	3	2	1	2	4	1	5	32

Husky Village - Day 2

	Entrance 1		Entrance 2		Entrance 3		I Parking Stalls (Remo		Cumulative - Day 2			
Time Period	**Inbound**	**Outbound**	**Inbound**	**Outbound**	**Inbound**	**Outbound**	**Inbound**	**Outbound**	**Inbound**	**Outbound**	**Total**	**Rolling 1 Hour**
AM Peak Hour							0	0				
7:00 - 7:15 AM	0	0	0	1	0	0	0	0	0	1	1	
7:15 - 7:30 AM	0	0	0	1	0	0	0	0	0	1	1	
7:30 - 7:45 AM	1	0	0	0	1	0	2	0	0	0	0	
7:45 - 8:00 AM	0	0	1	1	1	0	1	0	1	1	2	4
8:00 - 8:15 AM	1	1	4	1	1	2	0	1	6	3	9	12
8:15 - 8:30 AM	0	1	1	0	0	0	0	0	1	1	2	13
8:30 - 8:45 AM	2	1	5	2	3	1	4	0	6	4	10	23
8:45 - 9:00 AM	0	1	2	2	4	1	2	0	4	4	8	29
PM Peak Hour												
4:00 - 4:15 PM	0	0	4	1	2	4	0	2	6	3	9	
4:15 - 4:30 PM	1	0	1	3	0	2	2	2	0	3	3	
4:30 - 4:45 PM	0	2	4	5	0	1	0	2	4	6	10	
4:45 - 5:00 PM	0	1	1	2	1	1	0	0	2	4	6	28
5:00 - 5:15 PM	3	1	2	2	4	4	1	1	8	6	14	33
5:15 - 5:30 PM	1	0	1	6	0	5	0	1	2	10	12	42
5:30 - 5:45 PM	1	2	2	2	2	4	1	4	4	4	8	40
5:45 - 6:00 PM	2	0	4	3	0	2	0	1	6	4	10	44

	Two-Day Average			Hourly		
Time Period	**Inbound**	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
AM Peak Hour						
7:00 - 7:15 AM	0	2	2			
7:15 - 7:30 AM	1	1	2			
7:30 - 7:45 AM	1	1	2			
7:45 - 8:00 AM	1	2	3	3	6	9
8:00 - 8:15 AM	3	2	5	6	6	12
8:15 - 8:30 AM	1	1	2	6	6	12
8:30 - 8:45 AM	5	4	9	10	9	19
8:45 - 9:00 AM	4	3	7	13	10	23
Total	16	16	32	57%	43%	
PM Peak Hour						
4:00 - 4:15 PM	4	3	7			
4:15 - 4:30 PM	1	2	3			
4:30 - 4:45 PM	4	5	9			
4:45 - 5:00 PM	3	3	6	12	13	25
5:00 - 5:15 PM	7	7	14	15	17	32
5:15 - 5:30 PM	3	6	9	17	21	38
5:30 - 5:45 PM	2	7	9	15	23	38
5:45 - 6:00 PM	5	3	8	17	23	40
Total	29	36	65	43%	57%	

UW Bothell Campus Housing Trip Generation Study - Husky Village			
	UW Bothell Campus Housing - Occupied Beds		
			Total Occupied Beds
			241
Trip Generation Rate	Inbound	Outbound	Average Trip Rate[1 2 3]
AM Peak Hour	57%	43%	0.10
PM Peak Hour	43%	57%	0.17

1. Based on observations conducted Wednesday, October 28, 2015 and Thursday, October 29, 2015 at Husky Village housing.
2. Cars observed utilizing paid parking in Husky Village were subtracted from the trip generation counts.

Existing Population

Campus Total

	Total Enrolled[1]	Online[2]	Total On-Campus[2]	Units
Cascadia College	2,842	371	2,471	student FTE
UW Bothell	5,375	NA	5,375	student FTE
Total[1]	8,217	371	7,846	student FTE

Notes:

1. Total enrolled includes online students. Data provided by Cascadia College and University of Washington Bothell November 2016.

2. Data provided by Cascadia College and UW Bothell November 2016. Cascadia College online student based on actual count and UW Bothell enrollment .

3. Population on-campus does not include online students but does include students in campus housing.

Student Housing

Husky Village (Traditional)	241	beds

Summary of On-Campus Students

Commuter Students	7,605	student FTE
Residential Students	241	student FTE
Total[1]	7,846	student FTE

Notes:

1. Population includes on-campus residents but not online students.

Existing Commuter Trip Generation

Daily

Data Source	In	Out	Total
Tube Count Data	6,840	6,770	13,610
Off-Campus Lots[1]	305	305	610
185th Counts[1]	205	205	410
On-Street/Downtown Demand[2]	740	730	1,470
Total	**8,090**	**8,010**	**16,100**

Notes:
1. Estimated assuming the weekday PM peak hour traffic is 12 percent of the total daily traffic based on a review of the midweek average counts from October 2016.

2. Assumes on-street and downtown parking demand represents 10% of what was captured for the campus based on a review of on-street parking counts.

AM Peak Hour (8-9 a.m.)

Data Source	In	Out	Total
Tube Count Data	1,324	244	1,568
Off-Campus Lots	48	2	50
185th Counts	24	5	29
On-Street/Downtown Demand[1]	140	25	165
Total	**1,536**	**276**	**1,812**

Notes:

1. Assumes on-street and downtown parking demand represents 10 percent of what was captured for the campus based on a review of on-street parking counts.

PM Peak Hour (5-6 p.m.)

Data Source	In	Out	Total
Tube Count Data	638	943	1,581
Off-Campus Lots	33	40	73
185th Counts	14	35	49
On-Street/Downtown Demand[1]	69	102	170
Total	**754**	**1,120**	**1,873**

Notes:
1. Assumes on-street and downtown parking demand represents 10 percent of what was captured for the campus based on a review of on-street parking counts.

Weekday Commuter Trip Rates

		Trip Distribution	
	Rates	In	Out
Daily	2.12	50%	50%
AM Peak Hour	0.24	85%	15%
PM Peak Hour	0.25	40%	60%

Existing Residential Trip Generation

Husky Village

	Trips[1,2,3]		
	In	**Out**	**Total**
Daily	165	165	330
AM Peak Hour	13	10	23
PM Peak Hour	17	23	40

Notes:

1. Based on observations conducted Wednesday, October 28, 2015 and Thursday, October 29, 2015 at Husky Village housing.

2. Daily trips estimated assuming the weekday PM peak hour traffic is 12 percent of the total daily traffic based on a review of the midweek average counts from October 2016.

3. Cars observed utilizing paid parking in Husky Village were subtracted from the trip generation counts.

Weekday Residential Trip Rates

Size:	**Traditional Housing 243 occupied beds**		
		Trip Distribution	
	Rates	**In**	**Out**
Daily	1.37	50%	50%
AM Peak Hour	0.10	57%	43%
PM Peak Hour	0.17	43%	57%

Alternative Trip Generation

	Trip Rate[1]	No Action Alternative - Scenario B - Allowed in PUD				Alternative 1				Alternatives 2 & 3			
		Size	Trips In	Trips Out	Trips Total	Size	Trips In	Trips Out	Trips Total	Size	Trips In	Trips Out	Trips Total
Daily													
Future													
Commuter	2.12	9,759 student FTE	10,345	10,345	20,690	8,800 student FTE	9,330	9,330	18,660	9,400 student FTE	9,965	9,965	19,930
Residential	1.37	241 beds	165	165	330	1,200 beds	820	820	1,640	600 beds	410	410	820
Subtotal			*10,510*	*10,510*	*21,020*		*10,150*	*10,150*	*20,300*		*10,375*	*10,375*	*20,750*
Existing Trips[2]			8,255	8,175	16,430		8,255	8,175	16,430		8,255	8,175	16,430
Net New Trips			***2,255***	***2,335***	***4,590***		***1,895***	***1,975***	***3,870***		***2,120***	***2,200***	***4,320***
AM Peak Hour													
Future													
Commuter	0.24	9,759 student FTE	1,991	351	2,342	8,800 student FTE	1,795	317	2,112	9,400 student FTE	1,918	338	2,256
Residential	0.10	241 beds	14	10	24	1,200 beds	68	52	120	600 beds	34	26	60
Subtotal			*2,005*	*361*	*2,366*		*1,863*	*369*	*2,232*		*1,952*	*364*	*2,316*
Existing Trips[2]			1,549	286	1,835		1,549	286	1,835		1,549	286	1,835
Net New Trips			***456***	***75***	***531***		***314***	***83***	***397***		***403***	***78***	***481***
PM Peak Hour													
Future													
Commuter	0.25	9,759 student FTE	976	1,464	2,440	8,800 student FTE	880	1,320	2,200	9,400 student FTE	940	1,410	2,350
Residential	0.17	241 beds	18	23	41	1,200 beds	88	116	204	600 beds	44	58	102
Subtotal			*994*	*1,487*	*2,481*		*968*	*1,436*	*2,404*		*984*	*1,468*	*2,452*
Existing Trips[2]			771	1,143	1,913		771	1,143	1,913		771	1,143	1,913
Net New Trips			***224***	***344***	***568***		***198***	***293***	***491***		***214***	***325***	***539***

Notes:

1. Based data collected in October 2015 for the residential trip rate and October and November 2016 for the commuter trip rate.

2. Based on data collected in October 2015 and November 2016. This accounts for trips generated at existing off-site locations, which would be reassigned the campus for the evaluation of future conditions.

Appendix C: LOS Definitions

Highway Capacity Manual 2010

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F[1]	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F[1]	>50

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Highway Capacity Manual, 2000

Signalized intersection level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Appendix D: LOS Summary & Worksheets*

*Detailed LOS worksheets are available upon request.

AM Peak Hour Operations Summary													
		Existing		No Action Scenario A		No Action Scenario B		Alt 1		Alt 2		Alt 3	
Int	Description	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
33	110th/Beardslee	B	13.9	B	14.7	B	18.5	B	17.2	B	18.1	B	11.9
48	Campus Way/522	C	28.9	F	130.1	F	148.2	F	146.8	F	145.1	F	144.9
49	108th/Beardslee											C	23.2

PM Peak Hour Operations Summary

Corridor	INT ID	Description	Existing			No Action Scenario A			No Action Scenario B			Alt 1			Alt 2 (Core)			Alt 3 (Growth)		
			LOS	Delay	TEV	LOS	Delay	TEV	LOS	Delay	TEV	LOS	Delay	TEV	LOS	Delay	TEV	LOS	Delay	TEV
SR 524	1	9th Ave SE / SR 524 / Filbert Dr	D	39.2	2,225	D	41.6	3,295	D	42.1	3,323	D	42.1	3,320	D	42.1	3,322	D	42.1	3,322
	2	SR 527 / SR 524	D	39	4,895	E	63	7,285	E	64.4	7,399	E	64.2	7,384	E	64.4	7,393	E	64.4	7,393
SR 527	2	SR 527 / SR 524	D	39	4,895	E	63	7,285	E	64.4	7,399	E	64.2	7,384	E	64.4	7,393	E	64.4	7,393
	3	SR 527 / 214th St SE	D	40.6	3,405	C	30.2	5,050	C	31.3	5,164	C	31.4	5,149	C	31.4	5,158	C	31.4	5,158
	4	SR 527 / 220th St SE	E[1]	73.2	4,240	F[1]	101.3	6,285	F[1]	102.8	6,399	F[1]	102.3	6,384	F[1]	102.7	6,393	F[1]	102.7	6,393
	5	SR 527 / I-405 NB Ramps	D	35.9	4,950	F	110.9	7,360	F	118.1	7,474	F	122.3	7,459	F	117.9	7,468	F	122.6	7,468
	6	SR 527 / I-405 SB Ramps	A	7.8	4,595	A	6.9	6,825	A	6.8	6,922	B	10.6	6,909	A	6.8	6,917	B	10.7	6,917
	7	SR 527 / 228th St SE	E[1]	76.8	4,925	F	96.2	7,320	F	93.4	7,446	F	97.6	7,429	F	91.7	7,439	F	98	7,439
	8	SR 527 / 240th St SE	C	34.1	2,090	D	49.9	3,090	D	50.6	3,244	D	50.5	3,224	D	50.5	3,236	D	50.5	3,236
	9	SR 527 / NE 190th St	C[1]	23	2,080	D	49.6	3,085	D	49.8	3,239	D	49.8	3,219	D	49.8	3,231	D	49.8	3,231
	10	SR 527 / NE 185th St	B	14.7	1,785	C	24.4	2,690	C	34.1	2,844	C	32.3	2,824	C	33.4	2,836	C	33.4	2,836
	11	SR 527 / NE 183rd St	B[1]	12	1,510	A	6.6	2,140	A	6.4	2,260	A	6.4	2,244	A	6.4	2,253	A	6.4	2,253
	12	SR 527 / Main St	B	10.8	1,530	B	15.9	2,270	B	10.2	2,390	A	9.9	2,374	A	9.9	2,383	A	9.9	2,383
	13	SR 527 / SR 522	C[1]	29.9	4,015	E[1]	55.8	5,960	E[1]	62.5	6,083	E[1]	61.7	6,068	E[1]	62.3	6,079	E[1]	62.2	6,079
228th St SE	14	228TH ST SE / 4TH AVE W	A	3.5	1,695	B	12.9	2,515	C	26.7	2,555	C	26.8	2,550	C	26.7	2,553	C	26.7	2,553
	15	228TH ST SE / MERIDIAN AVE S	B	16.9	2,615	C	30.2	3,885	C	31.1	3,925	C	30.9	3,920	C	31	3,923	C	31	3,923
	16	228TH ST SE / 4TH AVE SE	A[1]	5.8	2,105	A	7.8	3,105	A	7.8	3,145	A	7.8	3,140	A	7.8	3,143	A	7.8	3,143
	17	228TH ST SE / 9TH AVE SE	C	21.8	2,905	F	120.7	4,310	F	123.4	4,350	F	123.1	4,345	F	123.3	4,348	F	123.3	4,348
	7	SR 527 / 228th St SE	E[1]	76.8	4,925	F	96.2	7,320	F	93.4	7,446	F	97.6	7,429	F	91.7	7,439	F	98	7,439
	18	228TH ST SE / 15TH AVE SE	B	17.6	2,735	E	80.4	4,070	F	80.2	4,070	F	80.2	4,070	F	80.2	4,070	D	37.2	4,070
	19	228TH ST SE / 19TH AVE SE	B[1]	18.5	2,500	E[1]	78.8	3,710	E[1]	78.8	3,710	E[1]	78.8	3,710	E[1]	78.8	3,710	E[1]	78.8	3,710
	20	228TH ST SE / FITZGERALD RD	C	20.7	2,130	E[1]	72	3,160	E[1]	72.1	3,160	E[1]	72.1	3,160	E[1]	72.1	3,160	E[1]	72.1	3,160
	21	228TH ST SE / 29TH AVE SE	B	19.8	2,015	E	58.5	2,995	E	58.5	2,995	E	58.5	2,995	E	58.5	2,995	E	58.5	2,995
	22	228TH ST SE / 31ST AVE SE	A[1]	9.2	1,575	B	17.5	2,325	B	17.5	2,325	B	17.5	2,325	B	17.5	2,325	B	17.5	2,325
	23	228TH ST SE / 35TH AVE SE	C[1]	25.1	2,035	E	78.9	3,010	F	85.5	3,056	F	85	3,049	F	84.7	3,053	F	84.7	3,053
	24	228TH ST SE / 39TH AVE SE	C[1]	21.1	1,810	F	101.3	2,690	F	103.4	2,736	F	103.3	2,729	F	103.3	2,733	F	103.3	2,733
35th Ave SE / 39th Ave SE / 120th Ave NE	23	228TH ST SE / 35TH AVE SE	C[1]	25.1	2,035	E	78.9	3,010	F	85.5	3,056	F	85	3,049	F	84.7	3,053	F	84.7	3,053
	24	228TH ST SE / 39TH AVE SE	B[1]	21.1	1,810	F	101.3	2,690	F	103.4	2,736	F	103.3	2,729	F	103.3	2,733	F	103.3	2,733
	25	35TH AVE SE/ 240TH ST SE	D	31	1,460	C	26.9	2,160	C	32.4	2,206	C	31.4	2,199	C	32	2,203	C	31.8	2,203
	26	39TH AVE SE / 240TH ST SE	C	22.2	1,350	B	12.7	2,005	B	13.5	2,051	B	13.4	2,044	B	13.5	2,048	B	13.4	2,048
	27	39TH AVE SE / MONTE VILLA PARKWAY	A	4.1	1,890	B	15.9	2,800	B	15.7	2,846	B	15.8	2,839	B	15.7	2,843	B	15.7	2,843
	28	39TH AVE SE / N CREEK PARKWAY	B	15.1	1,970	C	31.4	2,920	C	32.1	2,966	C	31.7	2,959	C	31.7	2,963	C	31.7	2,963
	29	120TH AVE NE / NE 195TH ST	F	95.5	2,165	F	171.3	3,210	F	184.2	3,256	F	182	3,249	F	183.5	3,253	F	183.5	3,253
	30	120TH AVE NE / N CREEK PARKWAY S	A	2.9	1,090	A	4.3	1,610	A	4.3	1,610	A	4.3	1,610	A	4.3	1,610	A	4.3	1,610
	31	NE 180TH ST / 132ND AVE NE	C[1]	23.4	1,630	E[1]	65.5	2,420	E[1]	64.6	2,420	E[1]	64.6	2,420	E[1]	64.6	2,420	E[1]	64.6	2,420
Beardslee Boulevard	32	NE 185TH ST / BEARDSLEE BLVD	A	5.5	1,110	B	11.4	1,635	B	11.8	1,733	B	11.7	1,720	B	11.8	1,727	A	7.1	1,972
	33	110TH AVE NE / BEARDSLEE BLVD	C	29.9	1,585	B	11.2	2,020	B	12.5	2,192	B	12.2	2,169	B	12.4	2,182	B	10.7	2,029
	34	NE 195TH ST / SB 405 RAMPS	C	24.7	2,270	D	35.9	3,375	D	38	3,449	D	37.8	3,439	D	38	3,445	D	38	3,445
	35	NE 195TH ST / NB 405 RAMPS	C	27	2,975	F	82.5	4,430	F	87	4,493	F	86.7	4,484	F	86.8	4,489	F	86.8	4,489
	36	NE 195TH ST / N CREEK PARKWAY N	D	39	2,845	E	76.9	4,225	E	78.6	4,271	E	78.2	4,264	E	78.4	4,268	E	78.4	4,268
	29	120TH AVE NE / NE 195TH ST	F	95.5	2,165	F	171.3	3,210	F	184.2	3,256	F	182	3,249	F	183.5	3,253	F	183.5	3,253
SR 522	37	SR 522 / 96TH AVE NE	C	29.9	4,040	E[1]	74.4	6,010	E[1]	77	6,077	E[1]	76.8	6,069	E[1]	76.9	6,075	E[1]	76.9	6,075
	38	SR 522 / NE 180TH ST	B[1]	14.5	3,785	E	68.6	5,625	E	72.8	5,692	E	72.2	5,684	E	72.7	5,690	E	72.7	5,690
	39	SR 522 / 98TH AVE NE / GLENWOOD	B	10.5	3,785	B	14.9	5,610	B	16.3	5,677	B	16.1	5,669	B	16.3	5,675	B	16.3	5,675
	13	SR 527 / SR 522	C[1]	29.9	4,015	E[1]	55.8	5,960	E[1]	62.5	6,083	E[1]	61.7	6,068	E[1]	62.3	6,079	E[1]	62.2	6,079

PM Peak Hour Operations Summary

Corridor	INT ID	Description	Existing			No Action Scenario A			No Action Scenario B			Alt 1			Alt 2 (Core)			Alt 3 (Growth)		
			LOS	Delay	TEV	LOS	Delay	TEV	LOS	Delay	TEV	LOS	Delay	TEV	LOS	Delay	TEV	LOS	Delay	TEV
	40	SR 522 / KAYSNER WAY	D	41.9	3,805	F	100.9	5,645	F	109.2	5,768	F	107.9	5,753	F	109	5,764	F	109	5,764
NE 145th St / NE 160th St	41	NE 145TH ST / 100TH AVE NE	D	46.1	1,830	E	69.4	2,710	E	69.4	2,710	E	69.4	2,710	E	69.4	2,710	E	69.4	2,710
	42	NE 145TH ST / JUANITA WOODINVILLE WAY	C	31.8	1,945	E	109.4	2,885	F	116.6	2,925	F	116.6	2,920	F	116.6	2,923	F	116.6	2,923
	43	JUANITA WOODINVILLE WAY / 112TH AVE NE	C[1]	24.8	1,965	E[1]	55.9	2,925	E[1]	58.6	2,965	E[1]	58	2,960	E[1]	58.5	2,963	E[1]	58.5	2,963
	44	SB 405 RAMPS / JUANITA WOODINVILLE WAY	E	61.6	2,475	E	62.1	3,675	E	66.2	3,729	E	65.6	3,722	E	66	3,726	E	66	3,726
	45	NB 405 RAMPS / JUANITA WOODINVILLE WAY	C	23.4	2,900	E	55.5	4,305	E	57.3	4,344	E	55.6	4,339	E	55.8	4,342	E	55.8	4,342
	46	NE 160TH ST / 116TH AVE NE / JUANITA WOOD WAY	A	7.1	2,200	F	53.9	3,260	F	53.7	3,283	F	53.7	3,280	F	53.7	3,282	F	53.7	3,282
	47	NE 160TH ST / 124TH AVE NE	C	26.8	1,740	E	59	2,575	E	62.7	2,598	E	62.2	2,595	E	62.4	2,597	E	62.4	2,597
	48	SR 522 / Campus Way NE	C	20.8		D	44.5		F	82.4		E	77.1		F	80.4		F	80.4	
	49	New Access / Beardslee																A	7.1	

Operations were based on HCM 2010 Methodology unless noted. For two-way stop controlled intersections, the average delay per vehicle was reported rather than the worst approach/movement consistent with previous work in the City of Bothell.

1. Analyzed with HCM 2000 methodology due to incompatible configuration or signal timing parameters with HCM 2010.
2. In Alternative 3, intersection 32 would be reconfigured to be a four leg intersection with 108th Avenue NE and become intersection #49.

Appendix E: Collision Summary

Collision Summary

Int No.	Description	2013	2014	2015	Total	Average	Annual Volume (vehicles)	Collisions Per MEV
1	9th Ave SE / SR 524 / Filbert Dr	9	9	8	26	8.7	8,121,250	1.07
2	SR 527 / SR 524	24	23	27	74	24.7	17,866,750	1.38
3	SR 527 / 214th St SE	10	4	10	24	8.0	12,428,250	0.64
4	SR 527 / 220th St SE	19	16	18	53	17.7	15,476,000	1.14
5	SR 527 / I-405 NB Ramps	3	7	5	15	5.0	18,067,500	0.28
6	SR 527 / I-405 SB Ramps	7	9	7	23	7.7	16,771,750	0.46
7	SR 527 / 228th St SE	32	36	34	102	34.0	17,976,250	1.89
8	SR 527 / 240th St SE	6	2	4	12	4.0	7,628,500	0.52
9	SR 527 / NE 190th St	3	3	3	9	3.0	7,592,000	0.40
10	SR 527 / NE 185th St	0	1	3	4	1.3	6,515,250	0.20
11	SR 527 / NE 183rd St	5	4	5	14	4.7	5,511,500	0.85
12	SR 527 / Main St	0	2	1	3	1.0	5,584,500	0.18
13	SR 527 / SR 522	2	3	2	7	2.3	14,654,750	0.16
14	228TH ST SE / 4TH AVE W	1	2	2	5	1.7	6,186,750	0.27
15	228TH ST SE / MERIDIAN AVE S	10	2	5	17	5.7	9,544,750	0.59
16	228TH ST SE / 4TH AVE SE	3	1	3	7	2.3	7,683,250	0.30
17	228TH ST SE / 9TH AVE SE	4	8	8	20	6.7	10,603,250	0.63
18	228TH ST SE / 15TH AVE SE	4	5	9	18	6.0	9,982,750	0.60
19	228TH ST SE / 19TH AVE SE	3	2	3	8	2.7	9,125,000	0.29
20	228TH ST SE / FITZGERALD RD / 27th ave	2	1	1	4	1.3	7,774,500	0.17
21	228TH ST SE / 29TH AVE SE	0	0	1	1	0.3	7,354,750	0.05
22	228TH ST SE / 31ST AVE SE	1	0	3	4	1.3	5,748,750	0.23
23	228TH ST SE / 35TH AVE SE	0	1	1	2	0.7	7,427,750	0.09
24	228TH ST SE / 39TH AVE SE	1	1	1	3	1.0	6,606,500	0.15
25	35TH AVE SE/ 240TH ST SE	1	0	2	3	1.0	5,329,000	0.19
26	39TH AVE SE / 240TH ST SE	2	0	0	2	0.7	4,927,500	0.14
27	39TH AVE SE / MONTE VILLA PARKWAY	1	0	0	1	0.3	6,898,500	0.05
28	39TH AVE SE / N CREEK PARKWAY	0	1	0	1	0.3	7,190,500	0.05
29	120TH AVE NE / NE 195TH ST	2	1	2	5	1.7	7,902,250	0.21
30	120TH AVE NE / N CREEK PARKWAY S	0	0	0	0	0.0	3,978,500	0.00
31	NE 180TH ST / 132ND AVE NE	3	0	6	9	3.0	5,949,500	0.50

Collision Summary

Int No.	Description	2013	2014	2015	Total	Average	Annual Volume (vehicles)	Collisions Per MEV
32	NE 185TH ST / BEARDSLEE BLVD	0	3	2	5	1.7	4,051,500	0.41
33	110TH AVE NE / BEARDSLEE BLVD	0	4	4	8	2.7	5,785,250	0.46
34	NE 195TH ST / SB 405 RAMPS	2	5	6	13	4.3	8,285,500	0.52
35	NE 195TH ST / NB 405 RAMPS	10	5	5	20	6.7	10,858,750	0.61
36	NE 195TH ST / N CREEK PARKWAY N	2	4	5	11	3.7	10,384,250	0.35
37	SR 522 / 96TH AVE NE	5	5	12	22	7.3	14,735,050	0.50
38	SR 522 / NE 180TH ST	0	0	3	3	1.0	13,829,850	0.07
39	SR 522 / 98TH AVE NE / GLENWOOD	5	2	3	10	3.3	13,793,350	0.24
40	SR 522 / KAYSNER WAY	5	4	5	14	4.7	13,851,750	0.34
41	NE 145TH ST / 100TH AVE NE	3	4	5	12	4.0	6,679,500	0.60
42	NE 145TH ST / JUANITA WOODINVILLE WAY	6	5	5	16	5.3	7,099,250	0.75
43	JUANITA WOODINVILLE WAY / 112TH AVE NE	0	1	2	3	1.0	7,172,250	0.14
44	SB 405 RAMPS / JUANITA WOODINVILLE WAY	2	1	4	7	2.3	9,033,750	0.26
45	NB 405 RAMPS / JUANITA WOODINVILLE WAY	8	9	11	28	9.3	10,585,000	0.88
46	NE 160TH ST / 116TH AVE NE / JUANITA WOOD WAY	8	5	3	16	5.3	8,030,000	0.66
47	NE 160TH ST / 124TH AVE NE	3	1	0	4	1.3	6,351,000	0.21