

I-405, Downtown Bellevue Vicinity Express Toll Lanes Project (MP 11.9 to 14.6)

Environmental Assessment



DEDICATION

The I-405 Project Team dedicates this EA to Ross Fenton, P.E. Ross recently retired from the I-405 Program, and we thank him for the 22 years of engineering expertise, mentoring, and leadership that he provided as the lead project engineer for numerous successful projects associated with the I-405 Corridor Program. While he may no longer work on the I-405 Program, we carry all of the positive additions he brought to our team with us each day as we deliver these transportation projects for the state of Washington.

I-405, DOWNTOWN BELLEVUE VICINITY EXPRESS TOLL LANES PROJECT (MP 11.9 TO 14.6)

King County, Washington
Environmental Assessment

Submitted pursuant to Section 42 U.S.C 4332 (2) (c) and 23 CFR Part 771

By the U.S. Department of Transportation, Federal Highway Administration, Washington Division, and
the Washington State Department of Transportation

3/26/2018
(Date of Approval)

Megan White
Megan White, P.E.
Washington State Department of Transportation
Director, Environmental Services Office

3/26/2018
(Date of Approval)

Lindsey Handel
Lindsey L. Handel, P.E.
Federal Highway Administration
Urban Transportation Engineer

The following persons may be contacted for additional information concerning this document:

Lindsey L. Handel, P.E.
Federal Highway Administration
711 South Capitol Way, Suite 501
Olympia, WA 98501
(360) 753-9408

Allison Hanson, I-405 Project Team
Washington State Department of Transportation
600 108th Avenue NE, Suite 405
Bellevue, WA 98004
(425) 450-2703

In compliance with the National Environmental Policy Act, this environmental assessment describes the environmental consequences of the **I-405, Downtown Bellevue Vicinity Express Toll Lanes Project (MP 11.9 to 14.6) (the Project)** that proposes to make roadway, structural, trail, and transit improvements from just north of the I-90 interchange to north of the NE 6th Street interchange, along with widening the I-405 northbound off-ramp to SR 520 in Bellevue. The Project will add an additional lane in each direction by widening or restriping. This lane coupled with the existing high-occupancy vehicle lane will result in a dual express toll lane (ETL) system. When combined with other I-405 projects, the Project will result in a continuous ETL system from I-5 in Lynnwood to SR 167.

Copies of this document may be purchased for \$43.00, which does not exceed the cost of reproduction. Comments are requested by May 2, 2018, and should be returned to:

Allison Hanson, I-405 Program Team
Washington State Department of Transportation
600 108th Avenue NE, Suite 405
Bellevue, WA 98004

Or emailed to: I405comments@wsdot.wa.gov

A public hearing on this environmental assessment will be held on April 17, 2018, at the location and time:

Bellevue City Hall Concourse
450 110th Avenue NE
Bellevue, WA 98004
5:30 p.m. to 7:30 p.m.



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ATTACHMENTS

The following attachments are available by downloading from the project website (www.wsdot.wa.gov/projects/i405/rentontobellevue):

- Attachment A. Transportation Discipline Report
- Attachment B. Air Quality Discipline Report
- Attachment C. Noise Discipline Report
- Attachment D. Environmental Justice Discipline Report
- Attachment E. Geology and Soils Discipline Report
- Attachment F. Visual Impact Assessment Discipline Report
- Attachment G. Water Resources Discipline Report
- Attachment H. Hazardous Materials Technical Memorandum
- Attachment I. Cultural Resources Survey Discipline Report

The following attachments are included in this document:

- Attachment J. Glossary
- Attachment K. Acronyms and Abbreviations
- Attachment L. Agency and Tribal Correspondence
- Attachment M. Cross Reference of NEPA Elements
- Attachment N. Logical Termini

SUMMARY

This section introduces the Project and provides a summary of this Environmental Assessment (EA).

Where is the Project located?

The I-405, Downtown Bellevue Vicinity Express Toll Lanes Project (referred to in this document as “the Project”) is in Bellevue, Washington. It extends along Interstate 405 (I-405) approximately 2.7 miles from just north of the Interstate 90 (I-90) interchange (milepost [MP] 11.9) to north of the NE 6th Street interchange (MP 14.6), as shown on Exhibit 1.

Attachment N explains how the Project limits meet the Federal Highway Administration (FHWA) criteria for setting project limits (23 Code of Federal Regulations [CFR] 771.111(f)).

What is the Project?

The Project extends along I-405 approximately 2.7 miles from just north of the I-90 interchange (MP 11.9) to north of the NE 6th Street interchange (MP 14.6). The Project proposes the following improvements by milepost, as shown in Chapter 3, Project Description, Exhibit 3-1, sheets 1 and 2.

- **Northbound I-405, I-90 to NE 6th Street (MP 11.9 to 13.7)** – Develop approximately 1.6 miles of new lane in the northbound direction by widening or restriping I-405 from MP 11.9 to 13.5. In this same section of I-405, convert the existing high-occupancy vehicle (HOV) lane to an express toll lane (ETL) system. The new lane coupled with the existing HOV lane would create a dual ETL. Between MP 13.5 and 13.7, convert the existing HOV lane to an ETL. The ETL would connect to the existing ETLs from downtown Bellevue to Lynnwood. Westward expansion of I-405 is proposed south of SE 8th Street, and eastward expansion is proposed north of SE 8th Street.

Exhibit 1. Project Area



- **Southbound I-405, I-90 to NE 6th Street (MP 11.9 to 13.7)** – From MP 11.9 to 12.5, reconfigure the existing outside HOV lane to the inner roadway and convert both of the existing HOV lanes to ETLs. From MP 12.5 to 13.5, develop a new lane by widening or restriping. This new lane coupled with the existing HOV lane would result in a dual ETL south of NE 4th Street. Between MP 13.5 and 13.7, convert the existing HOV lane to an ETL. The ETL would connect to the existing ETLs from downtown Bellevue to Lynnwood. Where new pavement is needed, eastward expansion is proposed.
- **I-405 Eastside Rail Corridor Overpass (MP 12.4)** – Build a new northbound I-405 bridge structure adjacent to the existing I-405 structure over the Eastside Rail Corridor Regional Trail. The new structure would carry the two ETLs and the general purpose (GP) lanes would remain on the existing structure.
- **Eastside Rail Corridor Regional Trail (MP 12.09 to 12.49)** – Construct a new bridge for nonmotorized travel over southbound I-405 near MP 12.15. Build a section of nonmotorized trail to connect with the Eastside Rail Corridor Regional Trail.
- **SE 8th Street Interchange (MP 12.78)** – Widen the northbound I-405 overpass over SE 8th Street.
- **Main Street Overpass (MP 13.31)** – Reconstruct the Main Street bridge (photo on right) over I-405.
- **Northbound I-405 to SR 520 Ramp (MP 14.6)** – Widen the existing northbound off-ramp to State Route 520 (SR 520) from two lanes to three lanes for approximately 600 feet beginning where the NE 10th Street on-ramp merges onto the I-405 ramp.



Existing Main Street Overpass

Other improvements that would be made as part of the Project include stormwater facility expansion, pavement markings, drainage improvements, signing, illumination, intelligent transportation systems, barriers, and tolling gantries. Some partial property acquisitions would be needed from five commercial and public properties. A detailed project description is provided in Chapter 3, Project Description.

What is the purpose of the Project?

WSDOT's purpose for the Project is to:

- Provide a reliable trip choice for I-405 users
- Increase vehicle capacity and person throughput
- Improve reliability for transit
- Reduce Project-wide congestion
- Improve safety performance

Why is the Project needed?

Our region needs the Project to improve mobility and reduce traffic congestion in ways that are reliable and improve safety performance. I-405 is one of the most congested routes in the state, particularly during peak travel times.

What are express toll lanes?

ETLs are express travel lanes that are managed through a variable user fee to regulate their use and thereby maintain reliable express travel speeds. ETLs preserve trip reliability for transit and HOV users, and provide a new option for other motorists to pay a toll to receive an express trip when lane capacity is available.

Who can use express toll lanes and how much would it cost?

Operating parameters for the toll lanes have not been determined; however, based on the tolling parameters for the existing ETLs on I-405 between Bellevue and Lynnwood, this analysis assumes the following:

- The ETL system would operate from 5 a.m. to 7 p.m. on weekdays. At all other times and major holidays, the lanes would be free and open to all without a *Good To Go!* pass.
- Transit vehicles, motorcycles, and carpools with three or more persons (HOV 3+) would be able to use the ETLs for free with a *Good To Go!* pass.
- HOVs with two or more people (HOV2+) would travel for free from 9 a.m. to 3 p.m. with a *Good To Go!* pass. From 5 a.m. to 9 a.m. and 3 p.m. to 7 p.m. HOV2+

What is person throughput?

Person throughput is the number of persons moving through various freeway sections, which accounts for the occupancy of the different vehicles using the system.

What is congestion?

Traffic congestion is a condition on road networks that occurs as use increases, and is characterized by slower speeds, longer trip times, and increased vehicular queueing.

would pay a toll to use the ETLs with or without a *Good To Go!* pass.

- Single-occupant vehicles (SOVs) would be charged a toll to use the ETLs from 5 a.m. to 7 p.m. on weekdays (except for major holidays). SOVs could use the ETLs for free at all other times.
- Large vehicles over 10,000 pounds gross vehicle weight would not be able to use the ETLs at any time.

Toll rates would be based on speeds and traffic volumes in the ETLs, and consider volumes in the GP lanes. As more vehicles enter or exit the lanes at designated access points, toll rates would adjust so that traffic moves at least 45 miles per hour (mph) in the ETLs.

What is the purpose of this Environmental Assessment?

The purpose of this EA is to inform the public about environmental effects anticipated from the Project. This EA compares two alternatives: the Project as the Build Alternative and a No Build Alternative (i.e., status quo).

This document fulfills WSDOT's obligation under the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA) to disclose project effects and mitigation.

What are the differences between freeway lane types on I-405?

General purpose (GP) lanes are available to all traffic and are free at all times.

High-occupancy vehicle (HOV) lanes are available to buses, motorcycles, vanpools, and vehicles carrying a specified number of occupants.

High-occupancy toll (HOT) lanes and *express toll lanes (ETLs)* are available for use by eligible HOV users without a toll and *single-occupant vehicles (SOV)* users who choose to pay a variable toll. HOT lanes and ETLs are similar, though they have different operating parameters depending on where they are located. Currently, WSDOT operates HOT lanes on SR 167 and ETLs on I-405 between Bellevue and Lynnwood. Both systems allow SOVs to choose to pay a toll to use the lanes or remain in the GP lanes.

What environmental resources did we study?

We studied the potential effects of the Project on the built and natural environment for the following environmental resources (with some examples shown in photos to right):

- Transportation
- Air quality
- Noise
- Socioeconomics and environmental justice
- Geology and soils
- Visual quality
- Water resources
- Ecosystems
- Hazardous materials
- Energy and greenhouse gases
- Historic, cultural, and archaeological resources
- Section 4(f) and Section 6(f) resources
- Public services and utilities

Our analysis of these resource areas determined that the Project would have no substantial effects on the environment. Listed below are some of the benefits the Project would provide:

- Managing congestion in the Bellevue area
- Expanding recreational opportunities by creating a new section of regional trail across I-405

WSDOT would also avoid environmental effects through collaborative efforts between the environmental and design teams, resulting in low overall effects. In addition, we will implement avoidance and mitigation measures to limit effects of the Project, including:

- Implementing Context Sensitive Solutions (CSS) design principles to maintain character aesthetics
- Treating runoff from new impervious surfaces, as well as additional retrofit runoff treatment where feasible, to improve water quality



Mercer Slough



Wilburton Hill



International School



Woodridge Neighborhood

- Providing on-site and off-site mitigation for wetlands affected by the Project

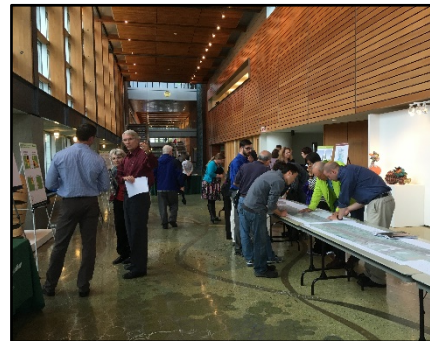
The design and construction contract would include provisions to protect the environment and ensure compliance with NEPA/ SEPA, the Endangered Species Act (ESA), and Section 106 commitments and project-specific permit conditions and commitments.

When would construction begin and how long would it take?

Project construction would begin in 2019 and would be completed in 2024.

Has the public provided input on the Project?

Public involvement for this Project began in August 2015, and has continued through publication of this EA. During this time, WSDOT has held numerous neighborhood and public open house meetings (photo on right). In addition, WSDOT has sent out materials to the public and worked closely with the public; elected officials, local, state, and federal agencies; and tribes. We will continue to meet with those groups as we move toward the construction phase of the Project.



Public Open House in Bellevue

What are the next steps for the Project?

Next steps for the Project include a 30-day comment period to obtain public input and comments on the proposed Project. WSDOT will continue to provide the public with opportunities to comment on the Project and interact with members of our project team. We will hold a formal public hearing on this EA on the following date and at the following time and location:

- April 17, 2018
- 5:30 p.m. to 7:30 p.m.
- Bellevue City Hall Concourse
450 110th Avenue NE
Bellevue, WA 98004

The hearing will provide the Public with an opportunity to learn more about the Project and submit formal comments on this EA.

How is this Environmental Assessment organized?

This EA document is organized under the following chapters:

- Summary – Summarizes the information contained in the EA document.
- Chapter 1, Project Purpose and Need – Explains why the Project is needed.
- Chapter 2, Alternatives Considered – Provides background into the alternatives considered as part of the I-405 Corridor Program.
- Chapter 3, Project Description – Describes what the Project would build.
- Chapter 4, Project Effects – Discusses the affected environment and potential effects by individual topics.
- Chapter 5, Cumulative Effects – Discusses cumulative effects from the Project in combination with other planned projects in the area.
- Chapter 6, Measures to Avoid or Minimize Effects – Presents the measures for avoiding or minimizing effects.
- Chapter 7, List of Preparers – Lists the people involved in preparing this EA.
- Chapter 8, References – Provides the source references for the analysis.

In addition, this document contains several attachments that contributed technical information to this EA.

CHAPTER 1 PROJECT PURPOSE AND NEED

This chapter describes the Project’s history and purpose and explains why it is needed.

Where is the Project located?

The I-405, Downtown Bellevue Vicinity Express Toll Lanes Project (referred to in this document as “the Project”) is located in Bellevue. It extends along Interstate 405 (I-405) approximately 2.7 miles from just north of the Interstate 90 (I-90) interchange at milepost (MP) 11.9 to north of the NE 6th Street interchange at MP 14.6.

The Project limits meet the Federal Highway Administration (FHWA) criteria identified in 23 Code of Federal Regulations (CFR) 771.111(f) for establishing the Project limits. The Project limits meet these criteria because they connect to, but are independent of, other improvements proposed on the I-405 corridor. Furthermore, the Project limits allow for full consideration of the Project’s direct, indirect, and cumulative effects. Attachment N, Logical Termini, provides a detailed explanation of how the Project limits meet the FHWA criteria.

What is the purpose of the Project?

WSDOT’s purpose for this Project is to:

- Provide a reliable trip choice for I-405 users
- Increase vehicle capacity and person throughput
- Improve reliability for transit
- Reduce project-wide congestion
- Improve safety performance

Why do we need the Project?

Our region needs this Project to improve mobility and reduce traffic congestion in ways that are reliable and improve safety performance. I-405 is one of the most congested routes in the state, particularly during peak travel times. On an average weekday morning, motorists and transit users currently experience northbound traffic congestion between 6 a.m. and 9 a.m. Likewise, on a typical weekday afternoon, motorists



Traffic on I-405 in Downtown Bellevue

What is traffic congestion?

Traffic congestion is a condition on road networks that occurs as use increases, and is characterized by slower speeds, longer trip times, and increased vehicular queuing.

and transit users experience traffic congestion heading southbound beginning as early as 3 p.m. and lasting until 7 p.m. Traffic continues to increase in the corridor. Between 2014 and 2016, the average weekday vehicle delay on I-405 increased by 8 percent, and transit travel times have increased by 12 minutes during the morning commute (WSDOT 2017a). Capacity and operational improvements are needed on I-405 today to improve reliability for general purpose (GP) and high-occupancy vehicle (HOV) traffic.

What would happen if WSDOT did not build this Project?

I-405 experiences congestion many hours of the day in both the GP and HOV lanes due to high regional traffic demand. We expect these traffic conditions to worsen and travel times to increase if the Project is not built.

For example, in 2016, the section of I-405 between I-90 and SE 8th Street carried 206,000 vehicles per weekday (i.e., the total vehicles in both directions and all lane types). In 2025, traffic on I-405 approaching downtown Bellevue between I-90 and SE 8th Street is projected to carry 255,000 vehicles per day, an increase of 24 percent over 2016 conditions.

In the future, we anticipate most of the daily traffic volume growth to occur outside the peak travel periods. This could potentially cause freeway drivers to seek alternative routes on the limited number of local and regional roadways, leading to increased bypass traffic that would cause additional congestion on those routes. Many study area intersections already operate under congested conditions during the AM and PM peak hours today.

Furthermore, the HOV lanes are already over capacity and experience congestion in the peak travel direction, and congestion is expected to increase in the future. The HOV lanes regularly do not meet WSDOT's performance guideline of maintaining a speed of 45 miles per hour (mph) or greater at least 90 percent of the time during the morning and afternoon rush hour. Transit vehicles also have reduced reliability and greater travel time variability due to this congestion.

Lastly, increased congestion over time would increase the number of congestion-related crashes in the study area.

What are the differences between freeway lane types on I-405?

General purpose (GP) lanes are available to all traffic and are free at all times.

High-occupancy vehicle (HOV) lanes are available to buses, motorcycles, vanpools, and vehicles carrying a specified number of occupants.

High-occupancy toll (HOT) lanes and *express toll lanes (ETLs)* are available for use by eligible HOV users without a toll and *single-occupant vehicles (SOV)* users who choose to pay a variable toll. HOT lanes and ETLs are similar, though they have different operating parameters depending on where they are located.

Currently, WSDOT operates HOT lanes on SR 167 and ETLs on I-405 between Bellevue and Lynnwood. Both systems allow SOVs to choose to pay a toll to use the lanes or remain in the GP lanes.

What is the history of this Project?

In 1998, WSDOT joined with FHWA, Federal Transit Administration, Central Puget Sound Regional Transit Authority (Sound Transit), King County, and local governments to develop strategies for reducing traffic congestion and improving mobility in the I-405 corridor. In fall of 2002, the combined efforts of these entities culminated in the *I-405 Corridor Program Final Environmental Impact Statement (EIS)* and a Record of Decision (ROD).

The I-405 Corridor Program purpose as described in the EIS is to help create an efficient, integrated, and multimodal system of transportation solutions that would:

- Maintain and enhance livability for communities within the corridor
- Maintain and improve air quality, protect or enhance fish-bearing streams, and promote regional environmental values
- Support a vigorous state and regional economy by responding to existing and future travel needs
- Accommodate planned regional growth

The ROD identified a Selected Alternative that would widen I-405 by up to two lanes in each direction for 30 miles. The ultimate configuration of the Selected Alternative includes a buffer separating the GP lanes and the HOV lane to improve safety performance and provide more reliable HOV and transit operations. The Selected Alternative presented in the ROD allowed for the future consideration of managed lane operations on I-405, including managing up to two lanes in each direction, as well as provisioning for high-capacity transit. The EIS and ROD did not specify how the lanes would be managed.

In January 2010, WSDOT completed the *I-405/SR 167 Eastside Corridor Tolling Study*, which proposed a tolling strategy for managed lanes in the I-405/State Route 167 (SR 167) corridor. The I-405/SR 167 Executive Advisory Group composed of elected officials and transportation agencies from the corridor,

How do regional policies support tolling on I-405?

The *Puget Sound Regional Council's (PSRC) Transportation 2040*, published in 2010 supports regional tolling. Similarly, King County's long-range plans call for policies that support urban growth areas by calling for congestion pricing such as *high-occupancy toll (HOT)* lanes, *express toll lanes (ETLs)*, corridor tolling, system-wide tolling, and charges for *vehicle miles traveled (VMT)*.

endorsed a 40-mile express toll lane (ETL) system between Auburn and Lynnwood based on that study.

The Project is one of several projects now being advanced as part of a phased implementation of the Selected Alternative. The 2015 Connecting Washington funding package passed by the state legislature provides funding for constructing the Project.

What other improvements are being considered south of the Project on I-405?

The I-405 Corridor Program is a broad term for more than 150 unique, coordinated projects to relieve congestion and improve mobility for motorists, transit users, and freight users along the 30-mile, I-405 corridor. Additional funded improvements south of the Project going through environmental review include the I-405, Tukwila to I-90 Vicinity Express Toll Lanes Project (MP 0.0 to 11.9), which extends from the I-5/I-405 interchange in Tukwila to just north of the I-90/ I-405 interchange in Bellevue. The I-405, Tukwila to I-90 Vicinity Express Toll Lanes Project (MP 0.0 to 11.9) and this Project would be constructed at the same time. When completed, both projects would connect to other ETLs on the north and south to create a 40-mile ETL system on SR 167 and I-405 between Auburn and Lynnwood as shown in the map to the right.

Exhibit 1-1. I-405 ETL Projects – Funded, Completed and in Progress



CHAPTER 2 ALTERNATIVES CONSIDERED

This chapter explains how the Project was developed and the alternatives considered in this EA.

How did WSDOT develop the Project?

WSDOT developed the Project to meet the purpose and need listed in Chapter 1 and considered how best to accomplish the following:

- Improve the worst congestion choke points along I-405
- Improve system and safety performance
- Increase travel speeds during peak commute hours
- Reduce congestion and improve reliability, particularly in the HOV lanes

The Project was developed using current design practices and by engaging the public, agencies, and tribes. WSDOT conducted outreach to stakeholders, such as Washington State Patrol, WSDOT Maintenance, Sound Transit, and local agencies to understand the needs of each group and incorporate lessons learned from previous projects. Throughout the planning process we reviewed and evaluated methods to avoid or minimize potential effects and incorporated them into the Project design as appropriate.

As part of the preliminary design, WSDOT has taken steps to incorporate practical solutions as required for all WSDOT projects. Practical solutions are a performance-based approach to transportation decision-making. The goal of the practical solutions approach is to optimize each project to deliver needed improvements while minimizing impacts on the environment, traveling public, and corridor neighbors.

How has input from the public and agencies shaped the Project to date?

WSDOT has been incorporating Context Sensitive Solutions (CSS) and practical solutions into the design process on I-405. We have encouraged local input in this CSS process to ensure that community issues are addressed. WSDOT formed the Bellevue Advisory Committee (BAC) to review Bellevue-area issues such as interchange locations/designs, noise wall locations/treatments, traffic, safety, structures, lighting, and

landscape. Several BAC members also served on the corridor-wide CSS Aesthetics Committee, which focused on corridor-wide issues. The Aesthetics Committee, combined with the BAC, have determined an I-405 theme of “Culture, Nature, and Progress,” that carried into local Bellevue-area and corridor-wide I 405 designs (diagram on right).



WSDOT established a memorandum of understanding with the City of Bellevue that committed to continued interaction and review by the BAC and Aesthetics Committee throughout the design process. The CSS Urban Design Criteria, incorporating BAC design preferences, will be coordinated with the construction contract documents for the Project.

Context Sensitive Solutions incorporate “Design Inspired by Nature”

In addition, as part of the preliminary design for the Project, we have taken steps to optimize the study area to deliver the needed improvements, while minimizing impacts on the environment, traveling public, and corridor neighbors.

What alternatives did WSDOT study?

WSDOT evaluated two alternatives in this EA: the Build Alternative (i.e., the proposed Project), and the No Build Alternative (i.e., status quo).

Build Alternative

The Build Alternative would make roadway, structural, trail, and transit improvements in the I-405 corridor from just north of the I-90 interchange (MP 11.9) to north of the NE 6th Street interchange (MP 14.6), along with widening the I-405 northbound off-ramp to SR 520 in Bellevue. Specifically, the Build Alternative would add one new lane in each direction (except between MP 13.5 north to tie-in with the existing ETL system) and convert the one existing HOV lane to create a dual ETL system. When combined with other I-405 projects, the Project would create a continuous ETL system from I-5 in Lynnwood to SR 167 in Renton. Chapter 3, Project Description, presents a detailed description of the Build Alternative.

No Build Alternative

We evaluated a No Build Alternative to compare the effects of maintaining the status quo to the effects of the Build Alternative. With the No Build Alternative, only routine activities such as road maintenance, repair, and safety

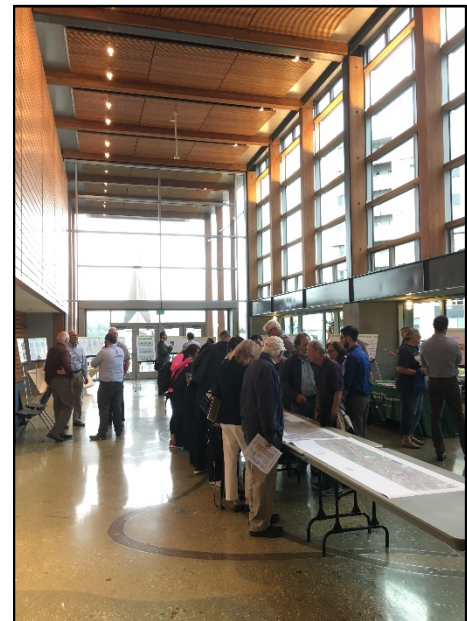
performance improvements would take place over the next 20 years. The No Build Alternative does not include improvements that would increase vehicle capacity and person throughput, improve reliability for transit, reduce project-wide congestion, or improve safety performance.

How has the public been involved?

Members of the public have had an opportunity to review and provide input, starting in 1998, when WSDOT, FHWA, King County Metro Transit, and local jurisdictions came together to address congestion and improve mobility in the I-405 corridor. Extensive public involvement with communities along the I-405 corridor continues today.

Outreach activities specific to the proposed improvements are listed below:

- Held two public open houses about the Project in Bellevue (photo on right) in both August 2015 and September 2016:
 - Mailed approximately 4,600 postcards announcing the public open houses that occurred in both Bellevue and Renton.
 - Published display advertisements in area papers and online publications, in languages other than English, announcing the open houses.
 - Hung posters and distributed postcards to community gathering places, such as libraries, throughout the corridor announcing the open houses.
 - Emailed notices of the open houses to WSDOT project listservs and other agency or community group lists.
 - Sent press releases announcing the open houses to local and regional media outlets.
- Briefed community groups and councils, such as the Bellevue Downtown Association, Bellevue Chamber of Commerce, Bellevue Sunrise Rotary, and Bellevue City Councils.



Public Open House in Bellevue

- Hosted targeted meetings regarding noise and project design with neighborhoods along the Project alignment, including the Woodridge neighborhood in Bellevue.
- Responded to area residents' and commuters' questions and comments through telephone, email, and in-person conversations. Major topics of interest have included preliminary Project designs, ETL operations, property acquisition, noise walls, landscaping and clarifications regarding the funded Project versus Master Plan improvements.
- Provided a project website with information such as project benefits, finances, timeline, and public involvement opportunities.

From 2014 to the present, WSDOT has been conducting public involvement throughout the I-405 corridor regarding ETLs. This includes the following:

- Holding over 200 briefings with community and neighborhood organizations, local jurisdictions (staff and elected officials), and other interested groups.
- Staffing booths at 10 fairs and festivals in the corridor, including the Bellevue Strawberry Festival.

To supplement these efforts, WSDOT conducted additional outreach focused on engaging environmental justice populations in the summer and fall of 2016. As part of this effort, WSDOT contacted 38 organizations and ultimately conducted seven interviews with social service providers who serve environmental justice populations, including:

- City of Bellevue Human Services Division
- City of Burien Department of Human Services
- City of Redmond Human Services
- City of Renton Department of Human Services
- Coal Creek YMCA
- Hopelink
- Youth Eastside Services

The purpose of these interviews was to share information—including information on ETLs—and gather insight on how environmental justice populations may experience effects

How does WSDOT communicate with the public?

Speaker's Bureau: Formal presentations by WSDOT personnel to community organizations.

Environmental Outreach: Field studies put I-405 environmental team members in touch with neighbors in the corridor.

Project Website:
www.wsdot.wa/projects/I-405 was designed as a resource for the public and has been updated regularly.

Newsletters/Project Updates:
Newsletter mailings and email updates offer an ideal opportunity to inform the public on project progress.

(positive or negative) because of the Project. Most questions and concerns raised in these interviews were about how ETLs might affect environmental justice populations and may be a barrier.

In addition, WSDOT reached out to the limited English proficient communities by contacting the following organizations; however, these communities either declined or did not respond:

- Ukrainian Community Center of Washington
- El Centro de la Raza
- Eastside Latino Leadership Forum
- Eastside Refugee and Immigrant Coalition
- Organization of Chinese Americans, Greater Seattle Chapter
- Japanese American Citizens League, Lake Washington Chapter
- East African Community Services

From the meetings with the agencies in the summer and fall of 2016, the following themes emerged:

- General concerns about equity and tolling effects on environmental justice populations
- Complaints about \$10 tolls
- Concerns about the system being confusing (signage, access points, how pricing works, *Good To Go!* passes needed)
- Lack of awareness, i.e., awareness of ETLs between Bellevue and Lynnwood is fairly good, but there is not a lot of awareness about the upcoming Renton to Bellevue section
- Lack of awareness that there is a free GP lane option
- Concerns that commute times could increase for those who stay in the GP lanes
- Desire to explore low-income subsidies for tolls and *Good To Go!* passes
- Desire to explore outreach to encourage transit use

- Desire to create better ways to match people for carpools
- Optimism that ETLs could improve transit travel times
- Concerns about system-wide impacts during Renton to Bellevue construction
- Desire for robust communication about construction closures/tolling system in many languages, formats (in-person meetings, email, advertising)

WSDOT received recommendations from the interviews in summer and fall of 2016 about how to stay connected with organizations that serve environmental justice populations through email and printed materials about project updates. The Project team has developed a listserv of other organizations to include in outreach based on these interviews.

In addition, the display ads for the two 2015 and 2016 open houses in Bellevue and were translated and placed in the following publications: *La Raza*, *Seattle Viet Times*, *The Korea Daily*, and the *Seattle Chinese News*.

The I-405 Downtown Bellevue Vicinity Express Toll Lanes EA display ads for the EA hearing were also translated into Spanish, Korean, Chinese, and Vietnamese, and the postcards included a Spanish translation.

How did we involve agencies?

Governmental agencies have played major roles in the development of the I-405 Corridor Program EIS. Specific to the Project, WSDOT has involved numerous local, state, and federal agencies. WSDOT holds regular meetings with various jurisdictions in the study area, such as the City of Bellevue and King County. In addition, WSDOT works with federal, state, and local governments to obtain the permits and approvals needed to construct the Project. Specifically, WSDOT has worked with the Washington State Department of Archaeology and Historic Preservation (DAHP), U.S. Army Corps of Engineers (USACE), National Marine Fisheries Service (NMFS), U. S. Fish and Wildlife Service (USFWS), Washington State Department of Ecology (Ecology), Washington Department of Fish and Wildlife (WDFW), and other local agencies. Input from these key stakeholders was

incorporated into the new bridge that will be built over I-405 for the Eastside Rail Corridor Regional Trail.

How did we involve tribal governments?

WSDOT participated in government-to-government consultation with the following four federally recognized tribes since the beginning of the I-405 Corridor Program: Muckleshoot Indian Tribe, Snoqualmie Tribe, Tulalip Tribes, and the Confederated Tribes and Bands of the Yakama Nation. WSDOT also consulted with the Duwamish Tribe (non-federally recognized) as an interested party.

Consultation with tribes continues, as WSDOT involves tribal governments in each stage of the environmental analysis. Tribal representatives have been given opportunities to review and comment on the Area of Potential Effects (APE) and draft survey reports for cultural resources, and participate in meetings with WSDOT to discuss any concerns of tribal members, particularly cultural and natural resource elements such as fish passage.

How can the public stay involved in the Project?

Public engagement is ongoing in the corridor. WSDOT will continue meeting with affected agencies and tribes to get their input on the Project. People can stay involved by doing the following:

- Review and submit formal comments on the EA or attend the EA public hearing.
- Attending coordination meetings with city council, businesses, neighborhood associations, and community groups as the Project advances toward construction.
- Checking project progress on WSDOT's website located at www.wsdot.wa.gov/projects/i405/RentontoBellevue
- Requesting to be added to the email list to receive project updates by sending an email to broacha@consultant.wsdot.wa.gov

CHAPTER 3 PROJECT DESCRIPTION

What improvements are proposed with the Project?

The Project would extend along I-405 approximately 2.7 miles from just north of the I-90 interchange (MP 11.9) to north of the NE 6th Street interchange (MP 14.6). The Project proposes the following improvements by mile posts, as shown in Exhibit 3-1, sheets 1 and 2:

- **Northbound I-405, I-90 to NE 6th Street (MP 11.9 to 13.7)** – Develop approximately 1.6 miles of new lane in the northbound direction by widening or restriping I-405 from MP 11.9 to 13.5. In this same section of I-405, convert the existing HOV lane to an ETL. The new lane coupled with the existing HOV lane would create a dual ETL. Between MP 13.5 and 13.7, convert the existing HOV lane to an ETL. The ETL would connect to the existing ETLs from downtown Bellevue to Lynnwood. Westward expansion of I-405 is proposed south of SE 8th Street, and eastward expansion is proposed north of SE 8th Street.
- **Southbound I-405, I-90 to NE 6th Street (MP 11.9 to 13.7)** – From MP 11.9 to 12.5, reconfigure the existing outside HOV lane to the inner roadway and convert both of the existing HOV lanes to ETLs. From MP 12.5 to 13.5, develop a new lane by widening or restriping. This new lane coupled with the existing HOV lane would result in a dual ETL south of NE 4th Street. Between MP 13.5 and 13.7, convert the existing HOV lane to an ETL. The ETL would connect to the existing ETLs from downtown Bellevue to Lynnwood. Where new pavement is needed, eastward expansion is proposed.
- **I-405 Eastside Rail Corridor Overpass (MP 12.4)** – Build a new northbound I-405 bridge structure adjacent to the existing I-405 structure over the Eastside Rail Corridor Regional Trail. The new structure would carry the two ETLs and the GP lanes would remain on the existing structure.
- **Eastside Rail Corridor Regional Trail (MP 12.09 to 12.49)** – Construct a new bridge for nonmotorized

travel over southbound I-405 near MP 12.15. Build a section of nonmotorized trail to connect with the Eastside Rail Corridor Regional Trail.

- **SE 8th Street Interchange (MP 12.78)** – Widen the northbound I-405 overpass over SE 8th Street.
- **Main Street Overpass (MP 13.31)** – Reconstruct the Main Street bridge (photo on right) over I-405.
- **Northbound I-405 to SR 520 Ramp (MP 14.6)** – Widen the existing northbound off-ramp to SR 520 from two lanes to three lanes for approximately 600 feet beginning where the NE 10th Street on-ramp merges onto the I-405 ramp.
- **Stormwater** – Build new flow control and runoff treatment facilities.
- **Other Improvements** – Provide pavement markings, drainage improvements, permanent signing, illumination, intelligent transportation systems, barriers, and tolling gantries.
- **Context Sensitive Solutions** – Incorporate CSS to enhance mobility, safety, the natural and built environment, and aesthetics throughout the Project corridor.
- **Property Acquisitions** – Acquire portions of five commercial and public properties to accommodate the Project.
- **Minimization Measures** – Implement avoidance and minimization measures or compensate for unavoidable effects on the environment, as described in Chapter 6, Measures to Avoid or Minimize Effects.



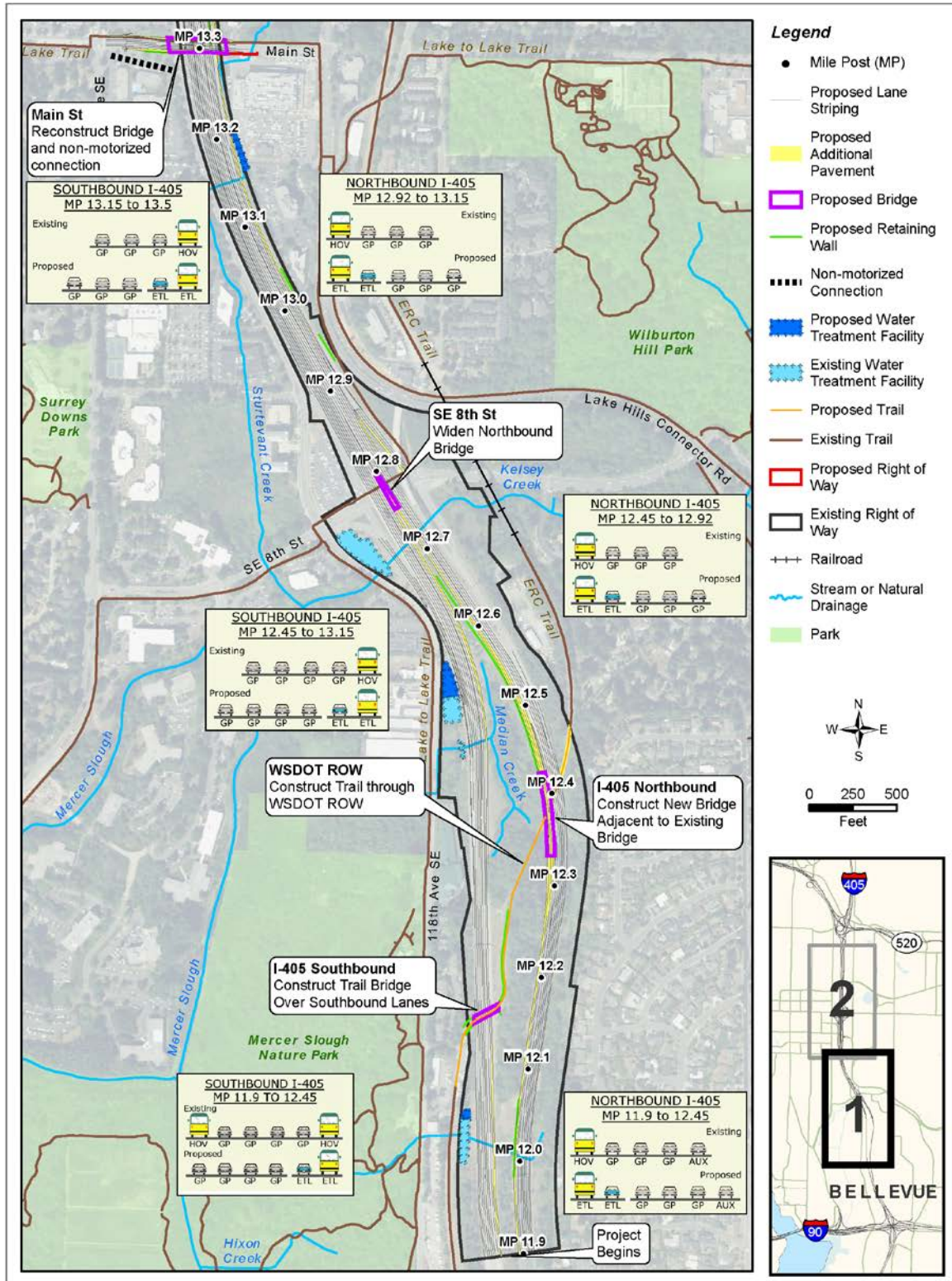
Existing Main Street Overpass

What are Context Sensitive Solutions?

The *Context Sensitive Solutions (CSS)* process is a model for transportation project development that has received much discussion and broad acceptance. Its essence is that a proposed transportation project must be planned not only for its physical aspects and road serving specific transportation objectives, but also for its effects on the aesthetic, social, economic, and natural environment, as well as the needs, constraints, and opportunities in a larger community setting.

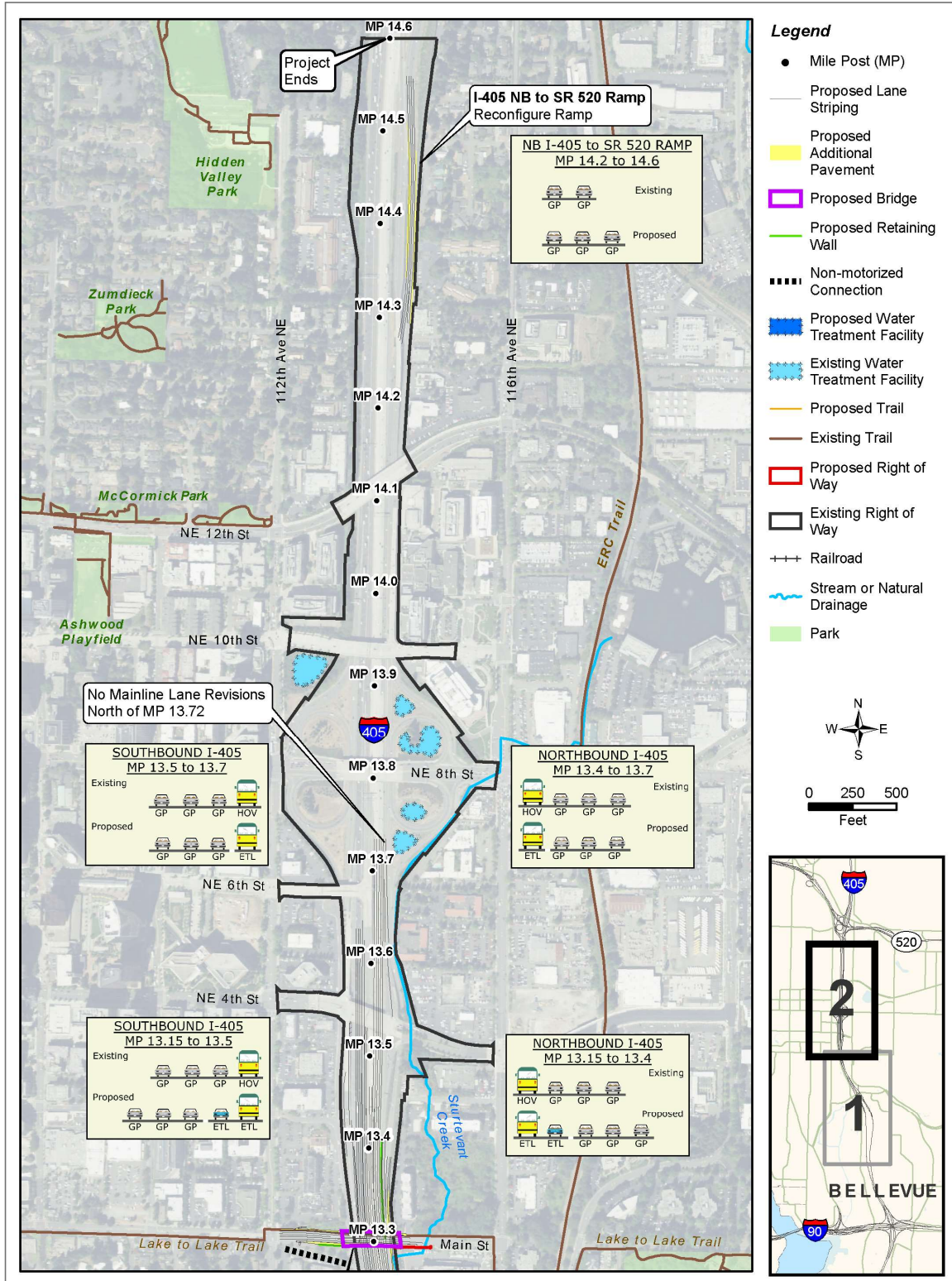
I-405, DOWNTOWN BELLEVUE VICINITY EXPRESS TOLL LANES PROJECT (MP 11.9 TO 14.6)
 ENVIRONMENTAL ASSESSMENT

Exhibit 3-1. Project Improvements, Sheet 1 of 2



I-405, DOWNTOWN BELLEVUE VICINITY EXPRESS TOLL LANES PROJECT (MP 11.9 TO 14.6)
ENVIRONMENTAL ASSESSMENT

Exhibit 3-1. Project Improvements, Sheet 2 of 2



How would the express toll lanes work?

At this time, the Washington State Transportation Commission (WSTC) has not established operational hours, user exemptions, occupancy requirements, and operating parameters for ETLs proposed with the Project. WSTC would set operational requirements for the ETLs prior to opening day. For this analysis, we assumed the requirements for the current I-405, Bellevue to Lynnwood ETL system would be used for the Project. These assumptions, listed below, represent the most recent operating guidance from the WSTC for ETLs:

- **Limited Access** – The system would have designated entry and exit points, with a buffer between the ETLs and the GP lanes. These access points would vary in length, depending on the location.
- **Dynamic and Destination Pricing** – The I-405 ETL system would use both dynamic and destination pricing to determine a driver’s toll at the time they enter the ETL. With *dynamic pricing*, toll rates vary based on congestion within the corridor to maintain performance. Electronic signs are used to communicate the current toll rate for drivers. Toll rates are updated every few minutes, but the driver’s price is set when they enter the system. With *destination pricing*, the toll is based on the driver’s destination. Toll signs show up to three toll rates for different toll zones, or destinations. Drivers pay the rate they see upon entering the ETLs to reach their destination, even if they see a different toll rate for their destination further down the road. When both of these pricing approaches are used together, it means the toll that drivers pay is based both on the congestion in the corridor and the distance they are traveling.
- **Operating Hours and Good To Go! Passes** – The ETL system is expected to operate from 5 a.m. to 7 p.m. on weekdays, with the system toll-free and open to all at other hours and on major holidays. Transit, HOVs, and motorcycles would need to have a *Good To Go!* pass to use the ETLs for free during operating hours. Eligible HOV users would

How does dynamic pricing work?

Electronic monitors along the roadway measure real-time information on speed, congestion, and number of vehicles in the ETLs. This information is used to determine whether tolls go up or down to optimize lane use.

As the ETLs become congested, toll rates increase, and as congestion decreases, toll rates decrease. The use of dynamic pricing allows the lanes to operate with high volumes, but avoid becoming congested.

When would tolls be charged to use the ETLs?

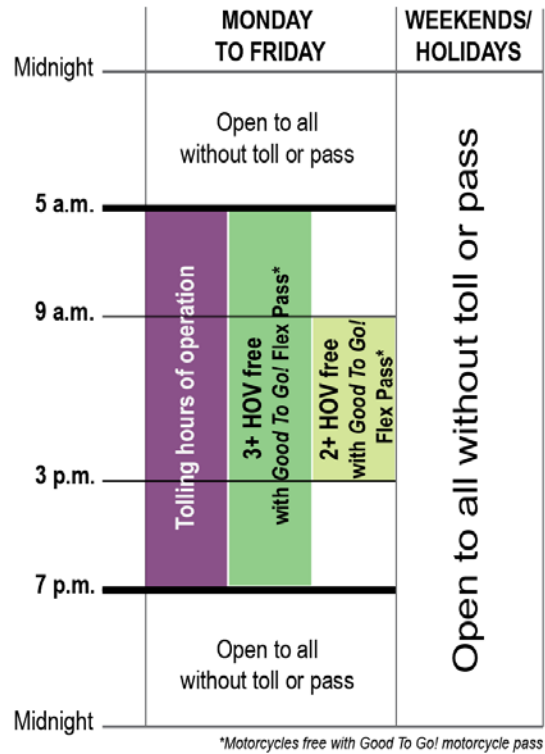
It is assumed the ETLs would operate from 5 a.m. to 7 p.m. on weekdays. At all other times and major holidays, the lanes would be free and open to all without a *Good To Go!* pass.

During operating hours:

- **SOVs** would pay a toll to use the lanes.
- **Transit, HOV 3+, and Motorcycles** would travel for free with a *Good To Go!* pass.
- **HOV 2+** would travel for free from 9 a.m. to 3 p.m. with a *Good To Go!* pass. From 5 a.m. to 9 a.m. and 3 p.m. to 7 p.m. HOV2+ would pay a toll to use the ETLs with or without a *Good To Go!* pass.
- **Large vehicles** over 10,000 pounds gross vehicle weight would not be able to use the ETLs at any time.

be required to set the *Good To Go!* pass to the HOV mode to avoid charges. SOVs could choose to pay a toll to use the ETLs during operating hours with or without a *Good To Go!* pass.

- **Occupancy Requirements** – During the peak periods (weekdays from 5 a.m. to 9 a.m. and 3 p.m. to 7 p.m.), transit vehicles and carpools with three or more persons (HOV 3+) would be able to use the lanes for free with a *Good To Go!* pass. From 9 a.m. to 3 p.m., the system would be open toll-free to those with two or more passengers with a *Good To Go!* pass. Motorcycles ride toll-free in the ETLs with a *Good To Go!* pass.
- **Vehicle Weight** – Vehicles over 10,000 pounds gross vehicle weight will be prohibited, which is consistent with HOV lane restrictions throughout Washington.
- **Electronic Tolling** – Payments will be made via electronic tolling with a *Good To Go!* pass. For drivers who choose not to use a *Good To Go!* Pass, WSDOT offers optional photo billing (pay by mail) for an extra fee.



How would tolling revenue be used?

Federal law and state law provide specific requirements on how toll revenues can be used. Federal law regarding the use of toll revenues is contained in 23 United States Code (USC) Section 129 (a)(3). This law states that all toll revenues received from operation of the toll facility are used for such things as debt service, a reasonable return on investment for any private financiers of the Project, operations and maintenance costs, and payments associated with any public-private partnership agreements.

In addition to these federal requirements, the Revised Code of Washington (RCW) 47.56.820 requires that all revenue from an eligible toll facility must be used only to construct, improve, preserve, maintain, manage, or operate the eligible toll facility on or in which the revenue is collected. Similar to the federal law, expenditures of toll revenues must be approved by the

Legislature and must be used only to cover operations and maintenance costs; to repay debt, interest and other financing costs; and to make improvements to the eligible toll facilities.

As required by state law, all toll revenue generated from the Project ETLs would be used to construct, improve, preserve, maintain, manage, or operate the I-405 corridor.

What is the Project construction schedule?

Construction of the Project is expected to last up to 5 years beginning in 2019 and ending in 2024.

CHAPTER 4 PROJECT EFFECTS

This chapter examines the potential effects of the Project on the people and environment in the study area. This chapter summarizes the analyses contained in technical reports and within this EA to explain how the Project might affect study area resources.

How did we evaluate project effects on the environment?

The following technical reports are attachments to this EA and the findings of these reports are summarized in this EA:

- Attachment A, Transportation Discipline Report
- Attachment B, Air Quality Discipline Report
- Attachment C, Noise Discipline Report
- Attachment D, Environmental Justice Discipline Report
- Attachment E, Geology and Soils Discipline Report
- Attachment F, Visual Impact Assessment Discipline Report
- Attachment G, Water Resources Discipline Report
- Attachment H, Hazardous Materials Technical Memorandum
- Attachment I, Cultural Resources Survey Discipline Report

These documents are available on the Project website at www.wsdot.wa.gov/projects/i405/RentontoBellevue.

The Project team analyzed other environmental topics in this EA, but these topics did not warrant a separate technical report. These included ecosystems; energy and greenhouse gases; Section 4(f) and Section 6(f) resources; social resources; and public services and utilities.

Other supporting documentation attached to this EA include the following:

- Attachment J, Glossary
- Attachment K, Acronyms and Abbreviations

ENVIRONMENTAL PROCESS FOR THE PROJECT

Discipline Reports and Technical Memorandums

Nine technical reports were completed to describe the affected environment, existing conditions, proposed actions, and how effects will be avoided, minimized, or mitigated. Some environmental topics did not warrant an in-depth technical report because they were not affected by the project, and as such, they are incorporated directly into this EA.



Environmental Assessment

This EA is prepared in compliance with NEPA and discusses the purpose and need for an action, alternatives to the action, and provides sufficient evidence and analysis of effects to determine whether to anticipate the preparation of an Environmental Impact Statement or a *Finding of No Significant Impact (FONSI)*.

- Attachment L, Agency and Tribal Correspondence
- Attachment M, Cross Reference of NEPA Elements
- Attachment N, Logical Termini

How would the Project affect the environment?

Because the study area is mostly within existing right-of-way in a highly urbanized area, the Project would have few effects on many elements of the natural and built environment, as such, we included only a brief discussion of these environmental topics in this section. These include air quality; noise; geology and soils; visual quality; hazardous materials; energy and greenhouse gases; historic, cultural, and archaeological resources; Section 4(f) and Section 6(f) resources; and public services and utilities. The remaining environmental topics that would have potential effects are discussed in more detail in Section 4.1, Transportation; Section 4.2, Socioeconomics and Environmental Justice; Section 4.3, Water Resources; and Section 4.4, Ecosystems. The potential cumulative effects of the Project on the environmental topics are evaluated in Chapter 5, Cumulative Effects. The mitigation measures, design elements, and best management practices (BMPs) that will be included to minimize or avoid potential effects during both the construction and operation phases of the Project can be found in Chapter 6, Measures to Avoid or Minimize Effects.

Air Quality

Air quality was evaluated for the Project and the I-405, Tukwila to I-90 Vicinity Express Toll Lanes Project (MP 0.0 to 11.9) and includes the I-405 freeway and arterials that would be affected by the projects within the west-central Puget Sound region. We have provided a summary of the air quality analysis in this section, with more details found in Attachment B, Air Quality Discipline Report, which analyzes the existing air quality conditions in the study area and the effects associated with the Project.

The I-405 corridor is in compliance (attainment) with all National Ambient Air Quality Standards (NAAQS).

What is the study area for the Project?

The study area for the Project is the area specifically identified for analysis. Study areas vary among individual resources as scientific convention and practice dictate.

What are potential effects?

Potential effects are impacts or changes that could occur as a result of a proposed action. The effects may be ecological, aesthetic, historic, cultural, economic, social, or health-related. Examples might include encroachment on nearby wildlife from widening a roadway or elevated noise levels for adjacent land uses due to increased traffic.

What are National Ambient Air Quality Standards?

The *Clean Air Act (CAA)* identified several air pollutants as being of concern nationwide. These pollutants are known as "criteria pollutants." The sources of these pollutants, their effects on human health and the nation's welfare, and their concentration in the atmosphere vary considerably. Under the CAA, the *U.S. Environmental Protection Agency (EPA)* has established *National Ambient Air Quality Standards (NAAQS)*, which specify maximum allowable concentrations for six criteria pollutants: carbon monoxide (CO), lead, nitrogen dioxide, particulate matter (PM₁₀ and PM_{2.5}), ozone, and sulfur dioxide (SO₂). Primary standards were created to protect public health and secondary pollutant standards were established to protect public welfare and the environment.

Recent air quality monitoring data from one monitoring station near the Project vicinity measured concentrations of all four pollutants: carbon monoxide (CO), particulate matter with a diameter of less than 10 micrometers (PM₁₀), particulate matter with a diameter of less than 2.5 micrometers (PM_{2.5}), and ozone. Exhibit 4-1 indicates that the air pollutant concentrations for the past three years has remained below the NAAQS.

Exhibit 4-1. Ambient Air Quality Monitoring Data at Kent and Beacon Hill Stations

Pollutant	NAAQS	2014 Maximum Concentration	2015 Maximum Concentration	2016 Maximum Concentration
Carbon Monoxide (CO)^a				
1-hour average (ppm)	35	1.0	1.1	1.1
8-hour average (ppm)	9	1.0	0.9	0.9
Ozone^a				
1-hour average (ppm)	0.070	0.048	0.062	0.060
8-hour average (ppm)	0.070	0.058	0.050	0.050
Particulate Matter (PM₁₀)^a				
24-hour average (µg/m ³)	150	25.0	37.0	PM10 is no longer being monitored.
Particulate Matter (PM_{2.5})^b				
24-hour average (98th Percentile) (µg/m ³)	35	22	26	18
Annual arithmetic average (µg/m ³)	12	6.2	6.7	5.5

Source: EPA 2016

Note: Beacon Hill Station is located at 4103 S Beacon Hill in Seattle, Washington. Kent Station is located at 614 N Railroad Avenue in Kent, Washington.

^a Concentrations of CO, ozone, and PM₁₀ are from the Beacon Hill station.

^b Concentrations of PM_{2.5} are from the Kent station.

ppm = parts per million; µg/m³ = micrograms per cubic meter; PM₁₀ = particulate matter with a diameter of less than 10 micrometers;

PM_{2.5} = particulate matter with a diameter of less than 2.5 micrometers

Compared to existing conditions, the No Build and 2025 and 2045 Build conditions would have lower emissions because of

improved vehicle technology. With the exception of CO in 2025, Build emissions are also expected to be lower than No Build emissions in both 2025 and 2045. CO emissions in the 2025 Build conditions would be only slightly higher (about 1 percent) than No Build conditions due to traffic changes. However, even if these increases do occur as shown in Exhibit 4-2, they would be substantially reduced compared to existing conditions through implementation of U.S. Environmental Protection Agency (EPA) vehicle and fuel regulations and the increased use of ETLs.

Exhibit 4-2. Criteria Pollutants Daily Regional Emission Burden Assessment for 2025 and 2045

Criteria Pollutant (lb/day)	Existing 2016 ^a	2025 No Build	2025 Projects ^b	2045 No Build	2045 Projects ^b
Daily VMT	4,129,899	4,336,881	4,428,518	5,027,883	4,858,118
CO	38,039	20,260	20,485	9,499	9,105
PM _{2.5}	639	171	169	93	92
PM ₁₀	699	187	185	102	101
VOCs	1,898	599	598	376	357
NO _x	16,974	4,828	4,813	3,173	3,174

^a Sources for 2015 conditions: PSRC Travel Demand Model and U.S. EPA MOVES 2014a Model

^b Air quality modeling shows the results of building both the I-405 Tukwila to I-90 Vicinity Express Toll Lanes Project and the I-405 Downtown Bellevue Vicinity Project.

VMT = vehicle miles traveled; lb/day = pounds per day; CO = carbon monoxide; PM_{2.5} = particulate matter with a diameter of less than 2.5 micrometers; PM₁₀ = particulate matter with a diameter of less than 10 micrometers; VOCs = volatile organic compounds; NO_x = nitrogen oxides

In addition, emissions of mobile source air toxics (MSATs) were modeled. Air quality standards have not been established for MSATs; however, the results of the regional analysis shown in Exhibit 4-3 demonstrate that MSAT emissions from the Project would decrease substantially in 2025 and 2045, as compared to No Build conditions.

In 2025 and 2045, the amount of MSATs emitted would be approximately proportional to the vehicle miles traveled (VMT). Although the VMT estimated for the Project in 2025 and 2045 would increase compared to existing conditions, MSATs are estimated to be lower than existing conditions because of improved vehicle technology. In addition, because

the estimated VMT for Stage 1 in 2025 and 2045 would vary by less than 2 percent compared to No Build, we expect that there would be no appreciable difference in MSAT emissions between No Build and Build Alternatives.

Exhibit 4-3. MSAT Daily Regional Emission Burden Assessment for 2025 and 2045

Criteria Pollutant (lb/day)	Existing Conditions 2016 ^a	2025 No Build	2025 Projects ^b	2045 No Build	2045 Projects ^b
Daily VMT	4,129,899	4,336,881	4,428,518	5,027,883	4,858,118
1-3-Butadiene	6	1	1	0	0
Acrolein	6	2	2	1	1
Acetaldehyde	39	12	12	9	9
Benzene	46	13	13	7	7
Ethyl Benzene	24	8	8	5	5
Formaldehyde	80	30	30	28	27
Diesel PM	604	138	136	71	71
PAH	9	3	3	2	2

^a Sources: Puget Sound Regional Council Travel Demand Model and U.S. Environmental Protection Agency MOVES2014a Model.

^b Air quality modeling shows the results of building both I-405 Tukwila to I-90 Vicinity Express Toll Lanes Project and the I-405 Downtown Bellevue Vicinity Project

lb/day = pounds per day; VMT = vehicle miles traveled; PM = particulate matter; PAH = polycyclic aromatic hydrocarbons

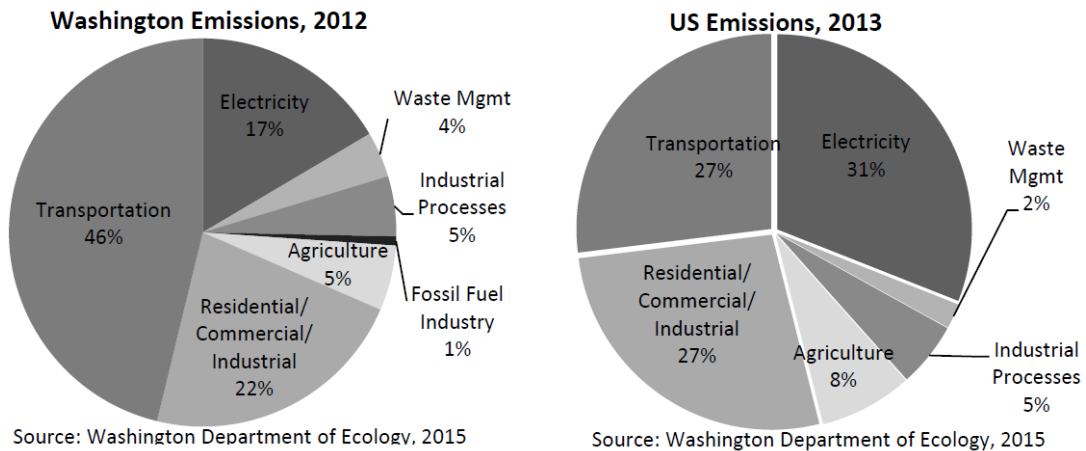
Construction of the Project would temporarily affect air quality. Temporary construction effects would include increases in particulate matter (typically fugitive dust, including PM₁₀ and PM_{2.5}) from excavation and earth-moving and increases in emissions from gas and diesel-fueled construction equipment. Engine and motor vehicle exhaust would result in emissions of CO, volatile organic compounds (VOCs), oxides of nitrogen, PM₁₀, PM_{2.5}, mobile source air toxics (MSATs), and greenhouse gases (discussed below).

Energy and Greenhouse Gases

The Air Quality Discipline Report (Attachment B) provides additional details regarding energy and greenhouse gas emissions.

Vehicles are a significant source of energy consumption and greenhouse gas emissions, primarily through the burning of gasoline and diesel fuels. National estimates show that the transportation sector (including on-road vehicles, vehicles used for construction activities, airplanes, and boats) accounts for about 27 percent of total domestic carbon dioxide (CO₂) emissions (WSDOT 2016d). However, in Washington, transportation accounts for nearly half of greenhouse gas emissions because the state relies heavily on hydropower for electricity generation, unlike other states that rely on fossil fuels such as coal, petroleum, and natural gas to generate electricity. Exhibit 4-4 shows the gross greenhouse gas emissions by sector, for Washington and the United States.

Exhibit 4-4. Greenhouse Gas Emissions by Sector, Washington (2012) and United States (2013)



Congested conditions on I-405 affect energy consumption and greenhouse gas emissions in the study area. Excessive idling and stop-and-go traffic conditions substantially reduce fuel economy compared with free-flow traffic conditions. In the study area, I-405 experiences congestion many hours of the day in both the GP and HOV lanes. In addition, many study area intersections operate under congested conditions during the AM and PM peak hours.

As shown in Exhibit 4-5, we estimate that CO₂ emissions for 2025 under both No Build and Build conditions would be lower than existing conditions. Further, in 2025, modeling does not show any meaningful difference of greenhouse gas emissions between No Build and Build conditions. In 2045,

compared to existing conditions, greenhouse gas emissions would be slightly greater under both Build and No Build. Also in 2045, greenhouse gas emissions from the Build Alternative would be slightly lower than the No Build. As shown in Exhibit 4-5, the reduction is in direct correlation with fewer vehicle miles traveled (VMT) in the study area.

Exhibit 4-5. Greenhouse Gas Emissions in Terms of CO_{2e} for 2025 and 2045

	Existing 2016	2025 No Build	2025 Projects ^a	2045 No Build	2045 Projects ^a
Daily VMT	4,129,899	4,336,881	4,428,518	5,027,883	4,858,118
Annual CO _{2e} (MT)	2,803	2,571	2,568	2,872	2,817

^a Air quality modeling shows the results of building both I-405 Tukwila to I-90 Vicinity Express Toll Lanes Project and the I-405 Downtown Bellevue Vicinity Project.

VMT = vehicle miles traveled; CO_{2e} = carbon dioxide equivalent; MT = metric tons

Although weekday I-405 travel demand would be greater with the Project than with No Build conditions, the ETLs would operate in such a way as to reduce stop-and-go conditions, improve roadway speeds, improve intersection traffic flow, and improve transit speeds. These project-related effects would reduce idling, which would result in negligible yet lower energy consumption and greenhouse gas emissions. Construction equipment would consume both gas and diesel fuels and produce greenhouse gas emissions.

WSDOT uses FHWA’s Infrastructure Carbon Estimator (ICE) spreadsheet tool to calculate greenhouse gas emissions from fuel usage, traffic delays, and maintenance emissions resulting from project construction (WSDOT 2016e). Appendix F of the Air Quality Discipline Report provides a discussion of the inputs used in the ICE model. We predict that construction of the Project along with the I-405, Tukwila to I-90 Vicinity Express Toll Lanes Project (MP 0.0 to 11.9) would emit a total of 6,343 metric tons (MT) of carbon dioxide equivalent (CO_{2e}) per year over the 5-year construction period.

Noise

The Noise Discipline Report (Attachment C) documents existing noise conditions in the study area and analyzes the potential noise impacts associated with the Project. We have

summarized the noise analysis in this section, with more details found in Attachment C.

The study area for the noise analysis consists mainly of commercial and a mix of single-family and multifamily residential properties. Using the FHWA-approved noise screening analysis, we determined that traffic noise levels drop below impact levels, at 400 feet from the edge of pavement, so the noise analysis covered 400 feet on both sides of I-405 to determine the potential noise impacts on sensitive land uses (i.e., sensitive receivers) such as residential properties, parks, and trails.

WSDOT compared the predicted peak-hour noise levels to the FHWA Noise Abatement Criteria (NAC) to determine if there would be future noise effects with the Project. Under existing conditions in 2016, the noise analysis revealed that traffic noise would approach or exceed the FHWA NAC impact level of 66 equivalent sound pressure level in A-weighted decibels (dBA Leq) at one hotel and a hospital.

The analysis of future 2045 modeled No Build conditions predicts an increase of 1 dBA in noise levels at the hotel and hospital. With the Project, noise levels are expected to be the same as with the 2045 No Build at the hospital and are expected to increase by 1 dBA compared to 2016 existing conditions. At the hotel, noise levels are expected to stay the same as 2016 existing conditions, which is 1 dBA less than the No Build.

Since there are no outdoor uses at the hotel or the hospital, interior noise levels were considered. The interior noise levels of both properties were below the impact level for consideration of noise abatement.

Construction would create temporary noise. Noise levels during construction would depend on the type, amount, and location of construction activities, and WSDOT would acquire temporary noise variances as needed.

Geology and Soils

The Geology and Soils Discipline Report (Attachment E) documents the topographic and soils conditions in the study area and assesses the impacts associated with the Project. We have provided a summary of geology and soils in this section, but more details can be found in Attachment E.

What is sound and how is it measured?

Sound is created when objects vibrate, resulting in a minute variation in surrounding atmospheric pressure, called sound pressure. The human response to sound depends on the magnitude of a sound as a function of its frequency and time pattern (EPA 1974). Magnitude is a measure of the physical sound energy in the air. The range of magnitude the ear can hear, from the faintest to the loudest sound, is so large that sound pressure is expressed on a logarithmic scale in units called *decibels (dB)*. Loudness refers to how people subjectively judge a sound and how it varies between people.

Sound is measured using the logarithmic decibel scale, so that doubling the number of noise sources, such as the number of cars on a roadway, increases the sound level by 3 *A-weighted decibels (dBA)*. Therefore, when you combine two sources emitting 60 dBA, the combined sound level is 63 dBA, not 120 dBA. The human ear can barely perceive a 3-dBA increase, while a 5 dBA increase is about 1.5 times as loud and readily noticed. A 10-dBA increase appears to be a doubling in noise level to most listeners. A tenfold increase in the number of noise sources will add 10 dBA.

The Project is in an area occupied by Lake Washington, which was once scoured by glaciers. Within the Project corridor, groundwater levels are anticipated to be approximately 25 feet below the ground surface at the southern project limit (MP 11.9) and increase in depth to the northern project limit (MP 14.6). Groundwater expresses out of the cut slope on the northbound side just south of the Wilburton railroad crossing. As the groundwater increases in depth, discontinuous perched aquifers can be expected and are likely to exhibit seasonal fluctuations.

The area is seismically active and potentially subject to ground motions resulting from a Cascadia subduction event or rupture along the Seattle fault. With the anticipated groundwater levels and ground conditions described previously, the liquefaction potential in the study area ranges from moderate to very low. Based on the site-specific explorations, WSDOT would conduct a liquefaction susceptibility analysis and develop and implement hazard mitigation measures in accordance with WSDOT design guidance.

Most of the soils within and adjacent to the Project limits have been extensively modified by earlier construction activities, and temporary construction activities would disturb these soils again. Temporary effects during construction would include increased erosion, vibration, and possible excavation of soft, wet soils.

Visual Impact Assessment

The Visual Impact Assessment Discipline Report (Attachment F) analyzes the visual quality character of the study area, as well as the change in visual quality and character once the Project is built. We have included a summary of the visual impact assessment in this section, with more detailed information found in Attachment F.

The visual impact assessment covers areas that have views to or from the study area based on topography, vegetation, and limits of human sight. Viewer groups within the study area include travelers on I-405, trail users on the Eastside Rail Corridor Regional Trail, and people in properties adjacent to these two facilities. The existing visual character of the study area ranges from the mixed deciduous-conifer forest on the southern end to Bellevue's urban core on the northern end.

The Project would result in permanent changes to the visual environment for I-405 users and neighbors in downtown Bellevue. In areas where the Project would add pavement to widen I-405, travelers on the freeway would experience a moderate increase in the expanse of pavement and scale of the freeway.

Exhibit 4-6 is a photo of the northbound I-405 lanes at Main Street under existing conditions. For comparison purposes, Exhibit 4-7 shows the same view with the Project.

As shown, the Project would have an overall beneficial impact on visual quality throughout the study area by replacing aging structures with new overpasses that adhere to the aesthetic treatments identified in WSDOT's *I-405 Urban Design Criteria* (WSDOT 2016b).

Construction would temporarily reduce visual quality throughout the study area by the presence of construction equipment and workers, materials, debris, construction signage, and staging areas. Although WSDOT would clear vegetation in select locations for construction access, visual impacts would be minimal. In most cases, except where vegetation is cleared to add new ETLs or structures, WSDOT would restore areas cleared for access with native vegetation to minimize visual impacts.

What is the purpose of the *I-405 Urban Design Criteria*?

The *I-405 Urban Design Criteria* serve as the primary standard design guidelines necessary to produce an attractive and unified highway system that will enhance corridor continuity and help guide traffic safely through the I-405 corridor. The document provides specific technical guidelines and criteria, as well as standard solutions for typical situations as derived from the CSS process. The design criteria are necessary to produce an intended aesthetic form, function, and appearance of the corridor for each highway feature and element to provide predictability and coherence in the visual environment throughout the I-405 corridor project.

Exhibit 4-6. Main Street Bridge Existing Conditions



Exhibit 4-7. Main Street Bridge After Construction with the Project



Hazardous Materials

WSDOT performed a review of the study area and documented this information in a Hazardous Materials Technical Memorandum (Attachment H). We have summarized the results of the hazardous materials assessment in this section, with more detailed information found in Attachment H.

Based on results of Ecology's online investigation, we identified 85 sites as potential Recognized Environmental Conditions (REC), including some adjacent properties, the Burlington Northern Railroad, and two properties proposed for acquisition. Out of the 85 sites, 78 sites were eliminated from further consideration because the Project was deemed unlikely to have an effect on those sites. However, the remaining seven sites qualify as RECs because of their historical land use and confirmed or suspected past releases of contaminants that could be encountered during construction or properties proposed for acquisition that are known or suspected of having contamination.

Based on the risk analyses performed for the seven RECs, four sites (Chevrolet of Bellevue, United Communications Systems Inc., Burlington Northern Railroad, and OR Bellevue Properties) were assigned a low impact ranking because of their proximity to the study area and uncertainty of whether contaminated groundwater has migrated off site into the study area. Three sites (Eastside Chrysler Jeep, Rabanco LTD, and Meydenbauer Center) were assigned a low-moderate ranking for potential effects from the Project because of their proximity to the study area and uncertainty of whether contaminated groundwater has migrated off site into the study area. However, these sites are located uphill from the study area.

Project construction could increase the risk of hazardous materials releases to wetlands, groundwater, public drinking water systems, and surface waters. To reduce this risk, measures will be required to protect against spills and releases and alteration of contaminant migration. Soil and groundwater contamination have been documented on the seven RECs.

Site-specific hazardous materials could include contaminated soil and/or groundwater, asbestos-containing materials, lead-

What are Recognized Environmental Conditions?

A Recognized Environmental Condition (REC) is the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property.

based paint, and liabilities associated with property acquisition. Potential contaminants that may be found in the soil and groundwater at depth and surface soils in the study area could include petroleum hydrocarbons, heavy metals, carcinogenic polycyclic aromatic hydrocarbons, and associated solvents.

The potential effects of the Project on these sites during construction would likely be minor based on the amount of planned excavation.

Historic, Cultural, and Archaeological Resources

WSDOT conducted a cultural resources survey of the APE in compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA). The Cultural Resources Survey Discipline Report (Attachment I) provides details and findings of the cultural resources survey completed for this Project. Potential effects on cultural resources and a discussion of work done as part of the Section 106 consultation for the Project is summarized below. The Section 106 consultation documentation can be found in Attachment L, Agency and Tribal Correspondence.

Fieldwork included a field survey of the entire APE and subsurface testing at locations in the APE that had not been previously tested and appeared to have potentially undisturbed soils. Subsurface testing noted extensive disturbance from previous roadway construction. No archaeological resources were identified. One built environment resource, an abandoned segment of the Northern Pacific Railway Lake Washington Beltline (photo on right), was identified in the study area. This resource has been previously determined eligible for listing in the National Register of Historic Places (NRHP). Project activities would not affect this resource.

On March 24, 2016, WSDOT, on behalf of FHWA, determined that this Project undertaking would have No Adverse Effect on historic properties, given that project activities would not affect the abandoned segment of the Northern Pacific Railway Lake Washington Beltline. On April 21, 2016, DAHP concurred with the determination that the abandoned segment represents a contributing element to the NHRP-eligible Burlington Northern Santa Fe (BNSF) rail line (determined to be eligible in 2007). Since

What is an Area of Potential Effect?

An *Area of Potential Effect (APE)* is the area in which historic properties, if they are present, could be affected by the Project either directly or indirectly.



Abandoned segment of the Northern Pacific Railway Lake Washington Beltline

construction associated with the Project would neither approach nor affect the abandoned segment of the Northern Pacific Railway Lake Washington Beltline, DAHP concurred with the determination that the Project would have No Adverse Effect on historic properties.

Section 4(f) and Section 6(f) Resources

We evaluated the Section 4(f) and Section 6(f) resources in the study area, along with the potential effects of the Project on those resources. This includes the potential use of Section 4(f) resources and conversion of Section 6(f) resources.

Three City of Bellevue parks are located within 0.25 mile of I-405: Mercer Slough Nature Park, Surrey Downs Park, and Wilburton Hill Park. Mercer Slough Nature Park is approximately 300 to 400 feet west of I-405. Surrey Downs Park is approximately 0.25 mile west of I-405, and Wilburton Hill Park is 0.25 mile east of I-405. All three parks are Section 4(f) resources because they are publicly owned and considered significant for recreational purposes. A portion of Mercer Slough Nature Park is also a Section 6(f) resource because a portion of the park was developed with funding from the Land and Water Conservation Fund Act.

The Project would not permanently or temporarily require land from any of the three parks. In addition, all three parks are buffered by residential and commercial uses, and they are

Why do we consider potential effects on cultural resources?

Under *Section 106 of the National Historic Preservation Act of 1966*, as amended, federal agencies must identify and evaluate cultural resources and consider how undertakings they fund, license, permit, or assist affect historic properties eligible for inclusion in the *National Register of Historic Places (NRHP)*. The FHWA is the federal agency responsible for implementing the Section 106 process for the Project undertaking, in coordination with WSDOT. The FHWA and WSDOT must allow the State Historic Preservation Officer, the Washington State *Department of Archaeology Historic Preservation (DAHP)*, the opportunity to comment on the project undertaking.

far enough from the freeway that there would be no proximity effects that would substantially impair the resources' activities, features, or attributes that qualify them for protection under Section 4(f). As such, the Project would not result in a use of these Section 4(f) resources or a conversion of the Section 6(f) resource.

Two trails are in the study area: the Wilburton segment of the Eastside Rail Corridor Regional Trail, and the Lake-to-Lake Trail and Greenway. Both trails are Section 4(f) resources because they are publicly owned and considered significant for recreational purposes. The Wilburton segment of the Eastside Rail Corridor Regional Trail is parallel to and west of the I-405 from the I-90 interchange north for approximately 1 mile. At that point, the Eastside Rail Corridor Regional Trail crosses I-405 before continuing to parallel the freeway on the eastside. The trail is within the WSDOT right-of-way for approximately 0.25 mile. The Eastside Rail Corridor Regional Trail is not currently developed or in use as a trail within the study area. The Project, however, would construct a portion of the trail located within WSDOT right-of-way, including a new bridge over southbound I-405 lanes.

Because the Project would complete a portion of the Eastside Rail Corridor Regional Trail it also meets the exception per 23 CFR 774.13 (g) for projects that enhance a Section 4 (f) resource and, therefore, do not constitute a Section 4(f) use. When completed, the trail would provide improved connections among other local and regional trails and parks. In addition to recreational opportunities, the trail would provide a nonmotorized or "active" transportation option for commuters connecting to surrounding neighborhoods, employment centers, and commercial areas.

The Lake-to-Lake Trail and Greenway extends from Lake Washington to Lake Sammamish and crosses I-405 at two Bellevue locations in the study area. The first crossing over I-405 is on Main Street on a narrow sidewalk, and the second is under I-405 at SE 8th Street. The trail provides a walking path from Bellevue's Lake

What is Section 4(f)?

Section 4(f) of the U.S. Department of Transportation Act of 1966 declares that special efforts be made to preserve public park and recreation lands, wildlife and waterfowl refuges, and historic sites of national, state, or local significance. Historic sites are afforded protection under Section 4(f) if listed or determined eligible for the NRHP. Section 4(f) permits the Secretary of Transportation to approve a project that requires the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge, or any land from a historic site of national, state, or local significance only if the lead federal agency(s) makes the following determinations:

- There is no feasible and prudent alternative to the use of such land; and
- All possible planning has been undertaken to minimize harm to the Section 4(f) lands resulting from such use.

What is Section 6(f)?

Section 6(f) of the 1965 Land and Water Conservation Fund Act provides funding for acquiring property and developing public recreational facilities, and protects against the loss of that property to other uses. This section of the act states, "No property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses." Section 6(f) applies when the project acquires property where Land and Water Conservation Grant Funds have been used to either acquire or develop the property.

Washington beach parks, through the wetlands of Mercer Slough Nature Park (photo on right), the Bellevue Botanical Garden at Wilburton Hill Park, Kelsey Creek Park, the lakes and wildlife in the Lake Hills Greenbelt, and then on to Lake Sammamish. The Project would construct a wider Main Street bridge over I-405, with a wider pedestrian- and bicycle-friendly multiuse path on the south side. The northbound I-405 overpass over SE 8th Street would also be widened. Construction at both trail crossings could result in a temporary detour around the construction work zones. The temporary detour would meet the exemption listed in 23 CFR 774.13(d) for Section 4(f) approval because the following conditions would be satisfied:



Mercer Slough Nature Park

- The duration is temporary, i.e., less than the time needed for construction of the Project, and there should be no change in ownership of the land.
- The scope of the work is minor, i.e., both the nature and the magnitude of the changes to the Section 4(f) property are minimal.
- There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis.
- The land being used is fully restored, i.e., the property must be returned to a condition which is at least as good as that which existed prior to the Project.
- Documented agreement of the official(s) with jurisdiction is received by March 23, 2018, over the Section 4(f) resource regarding the above conditions.



Wilburton Hill Park

Overall, the Project would not permanently require land from either of the two trails in the study area. Nor would there be proximity effects from the Project that would result in significant impairment to either of the resource's activities, features, or attributes that qualify them for protection under Section 4(f). The multiuse path on the wider Main Street bridge would improve trail connectivity and mobility for pedestrians and bicycles. As such, the Project would not result in a use of these Section 4(f) resources.

The Project would not convert any land from properties that were acquired or developed with Land and Water Conservation Fund grant assistance, and therefore, no Section 6(f) conversions.

Public Services and Utilities

We considered the potential effects of the Project on public services and utilities directly in this EA. The City of Bellevue owns and maintains a variety of public service and utility infrastructure, including drinking water, wastewater, and stormwater systems; police and fire facilities (photo on right); and municipal buildings. Major utility infrastructure owned or operated by other agencies include a King County solid waste transfer station, King County libraries, and various schools.

Service providers (i.e., police, fire, and ambulance services) would benefit from more reliable trips using the ETLs. The new lanes would also provide an overall benefit to public services by improving access to service locations and reducing response times for emergency vehicles.

The Project improvements on I-405 would not require relocating utility infrastructure or result in service outages or delayed emergency services response time due to detours. However, the reconstruction of the Main Street bridge might require some utility relocation. Utility infrastructure that may be relocated includes a City of Bellevue water line and other utilities provided by CenturyLink and Puget Sound Energy. Disruptions of utility service during relocations would likely be minimal because temporary connections to customers would be established before relocating utility conveyances.

The Project would cross a 16-inch-diameter water main buried along the north side of SE 8th Street at depths well below I-405. King County also has a 72-inch-diameter sanitary sewer pipe running parallel to I-405 on the east side and it crosses near the Eastside Rail Corridor Regional Trail crossing. The Project would also cross a water main underneath I-405 at Main Street where the bridge would be replaced. However, since the Project would not include deep excavation at these locations, no protective measures would be required.

Inadvertent damage to underground utilities could occur during construction if utility locations are uncertain or misidentified. While such incidents do not occur frequently,



Bellevue Fire Department, Station 7

they could temporarily affect services to customers served by the affected utility while emergency repairs are made. Efforts to minimize such effects would include preconstruction surveys to identify utility locations and outreach to customers to inform them of potential service disruptions.

Additionally, construction could result in temporary detours or lane closures on Main Street. Travelers, including public service providers, who typically use the Main Street overcrossing would experience delays or may be routed through detours during construction.

4.1 Transportation

The Transportation Discipline Report (Attachment A) assesses the Project's operational and construction effects on transportation. We analyzed the transportation and traffic effects from the Project and the I-405, Tukwila to I-90 Vicinity Express Toll Lanes Project (MP 0.0 to 11.9) together because the projects would be built at the same time and are located next to each other. A summary of this transportation analysis is provided in this section.

How did we evaluate transportation?

Existing and forecasted traffic data were analyzed to identify how the current transportation system is performing, how traffic levels are expected to grow in the future, and how the proposed improvements in the Build Alternative would affect traffic conditions. We conducted a traffic analysis for the AM and PM peak hours and peak periods for the following years:

- 2016 (existing base year)
- 2025 (anticipated year of opening)
- 2045 (design year)

The analysis determined effects on traffic volumes, freeway operations, person throughput, travel times, local street intersections, and safety performance.

What are the traffic conditions along I-405 today?

Today, traffic on I-405 in the study area (photo on right) is congested many hours of the day due to high regional traffic demand in both directions. Congestion is present in both GP lanes and HOV lanes with high traffic volumes and low speeds. Many of the study area intersections on adjoining local and regional roadways are also congested.

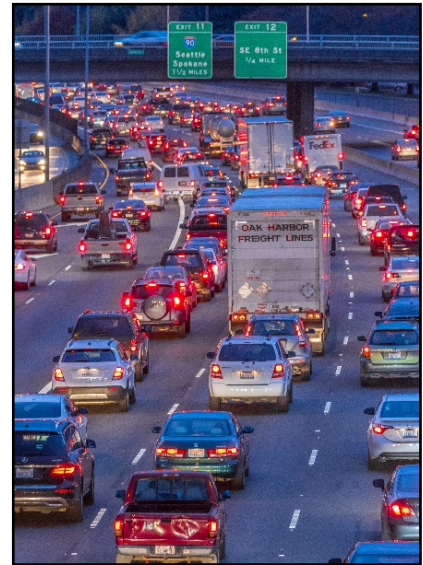
In 2016, the highest daily traffic volume in the study area occurred between I-90 and SE 8th Street. Approximately 206,000 vehicles per weekday (i.e., the total vehicles in both directions and all lane types) traveled through this section of I-405. HOV traffic made up approximately 16 percent of the average weekday traffic volume.

The HOV lanes regularly do not meet WSDOT's performance standard of maintaining a speed of 45 mph or greater at least 90 percent of the time during the morning and afternoon rush hour. The capacity of HOV lanes is further reduced as HOV users tend to drive slower and more cautiously when the adjacent GP lanes are congested. The I-405 HOV lane in the study area operates with open access, and HOV drivers reduce speeds out of concern of sudden lane changes to and from the HOV lane. The reliability of transit service is reduced during peak hours due to congestion-related delays. The HOV lane generally operates well during off-peak periods.

Rear-end and sideswipe crashes are typically associated with congested conditions and make up the majority of the crashes on I-405 between I-90, and SR 520. From 2012 to 2016, approximately 260 crashes per year occurred on this section of I-405.

What are the expected long-term traffic conditions if WSDOT does not build the Project?

We anticipate traffic volumes to increase on I-405 mostly during times outside the peak travel periods because the level of demand already exceeds the throughput during peak travel periods. In 2025, traffic on I-405 approaching downtown Bellevue between I-90 and SE 8th Street is projected to carry 255,000 vehicles per day under the No Build, an increase of



Traffic on I-405 in Downtown Bellevue

24 percent over 2016 conditions. In 2045, daily traffic volumes are projected to increase to 264,000 north of I-90.

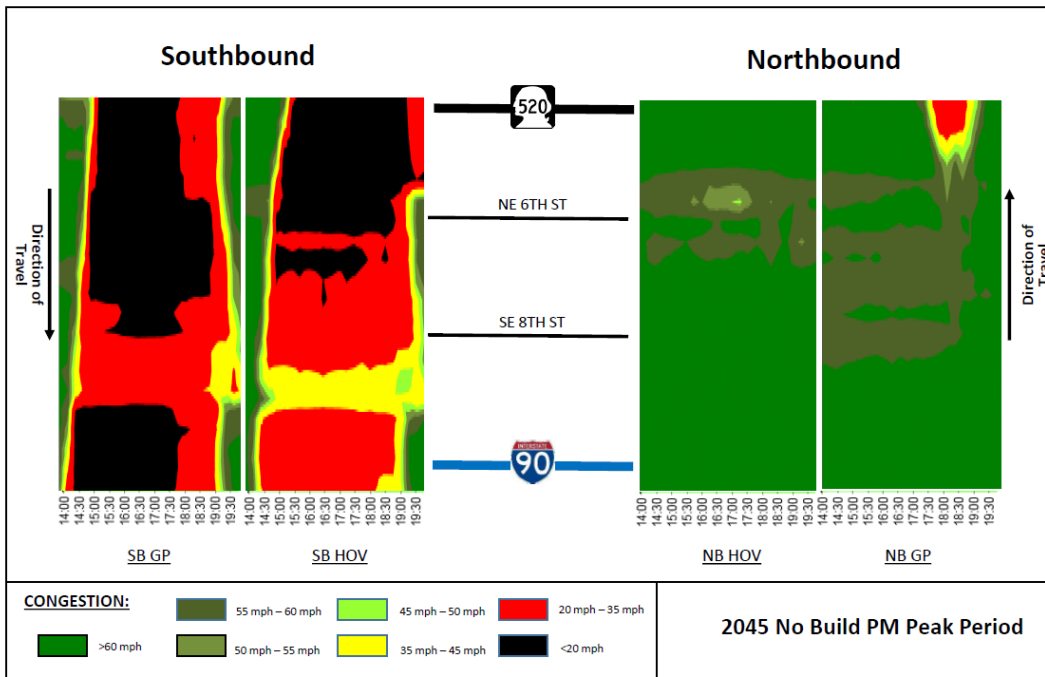
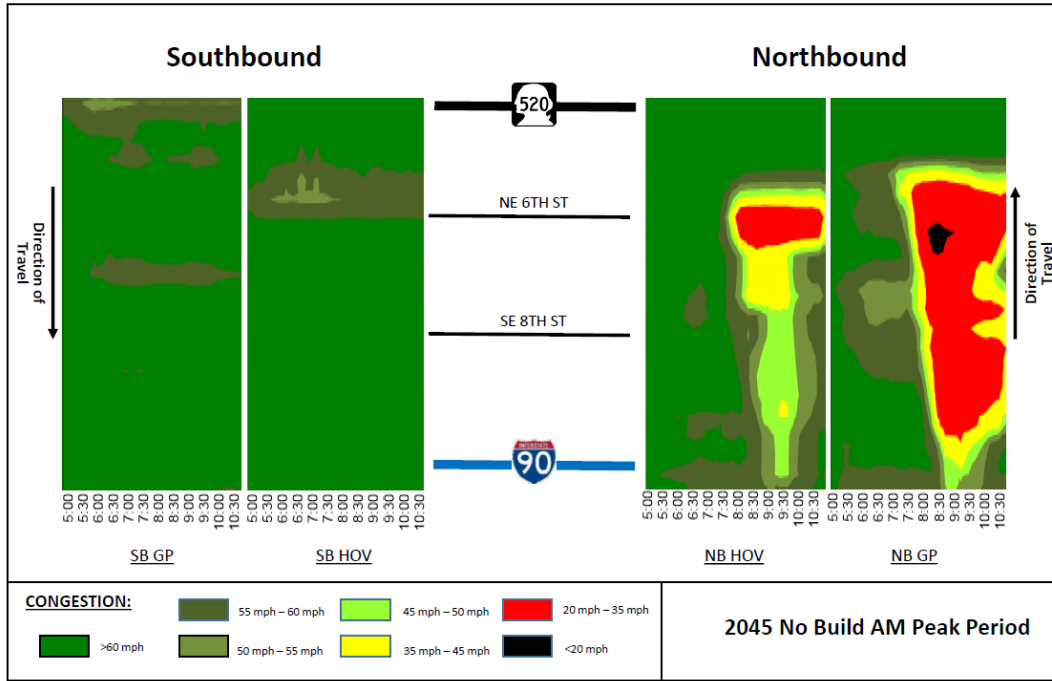
Exhibit 4.1-1 illustrates areas where heavy congestion would occur between I-90 and NE 6th Street if the Project were not built.

Operations would continue to degrade under the 2025 and 2045 No Build and both the GP lanes and HOV lane would experience the same or increased travel times and reduced throughput in the study area as compared to existing conditions. This increase in congestion is also expected south of I-90 through Renton. Additional graphics showing expected congestion south of I-90 for existing conditions and the 2025 and 2045 No Build are provided in Chapter 5 of the Transportation Discipline Report (Attachment A).

As shown in Exhibit 4.1-1, heavy congestion would occur in the northbound direction during the AM peak period. Travel speeds would vary between 20 mph and 35 mph. In the southbound direction during the PM peak period travel speeds would be even slower with stop-and-go conditions. These conditions could potentially cause freeway drivers to seek alternative routes on the limited number of local and regional roadways. Increased bypass traffic would cause additional congestion on those roadways.

In both 2025 and 2045, the No Build shows reduced freeway speeds compared to existing conditions. During the AM and PM peak periods, congestion would continue to increase. During the PM peak period congestion would spill back through downtown Bellevue. The HOV lane would also continue to operate poorly through this area. Speeds for transit and carpools would be slower and would negatively affect transit reliability and travel times. The number of congestion-related crashes would also be expected to increase in the study area.

Exhibit 4.1-1. No Build—Areas of Congestion



What are the expected long-term traffic conditions if WSDOT builds the Project?

The Project would add freeway capacity that would accommodate more traffic volumes, improve travel time reliability, increase travel speeds for most trips, and benefit freeway operations on I-405. As part of the I-405 Corridor Program, the Project would link existing tolled systems to create one 40-mile-long ETL system between Auburn on SR 167 and Lynnwood on I-405 that would give transit and carpool users a more reliable trip throughout the region. The Project would improve safety performance in the study area by reducing congestion, and in turn, congestion-related crashes. The buffer-separated ETL would also reduce friction between the ETL and GP lanes as an added benefit.

Traffic Volumes and Person Throughput

Once the Project is completed, I-405 approaching downtown Bellevue between I-90 and SE 8th Street would carry 279,000 vehicles per day, 9 percent more vehicles than the 2025 No Build conditions. In 2045, daily traffic volumes would increase to 297,000 vehicles per day north of I-90.

As shown in Exhibits 4.1-2 and 4.1-3, the Build Alternative would provide more person throughput than the No Build Alternative during the 3-hour peak periods.

As indicated in Exhibit 4.1-1, substantial congestion would occur in the southbound direction under the No Build Alternative. Exhibit 4.1-3 illustrates the effect this congestion would have on person throughput in the year 2045. As shown under the No Build condition, person throughput in the southbound direction would be less than under existing conditions. With the Project, however, the conditions in the southbound direction would improve and person throughput would increase substantially, as compared to both existing conditions and No Build conditions.

Exhibit 4.1-2. Existing and 2045 - Person Throughput during the 3-hour AM Peak Period

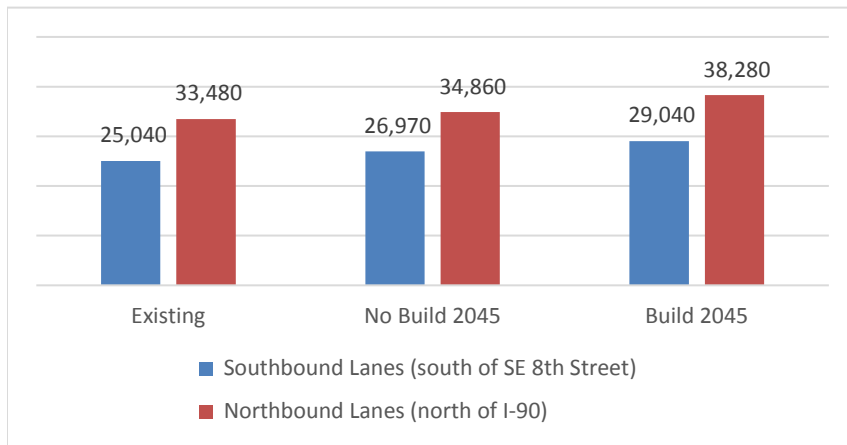


Exhibit 4.1-3. Existing and 2045 - Person Throughput during the 3-hour PM Peak Period

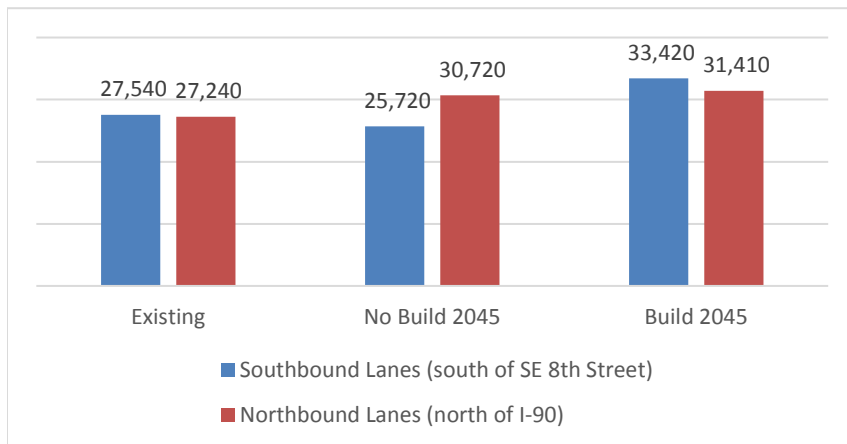
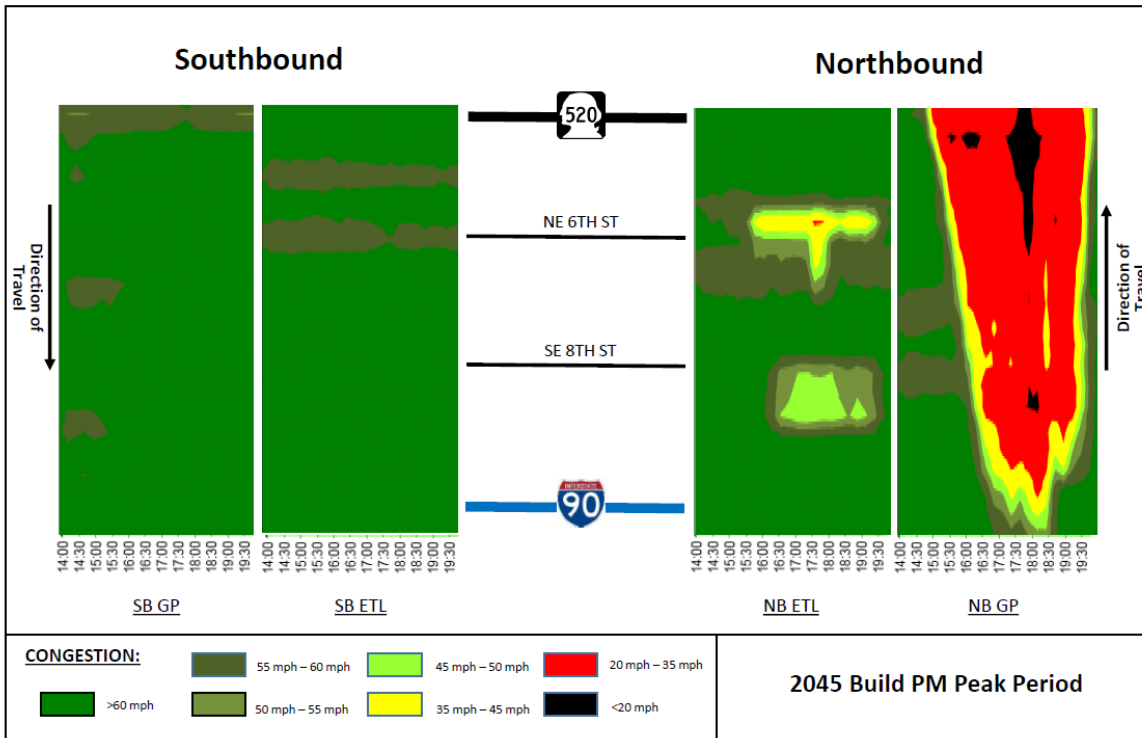
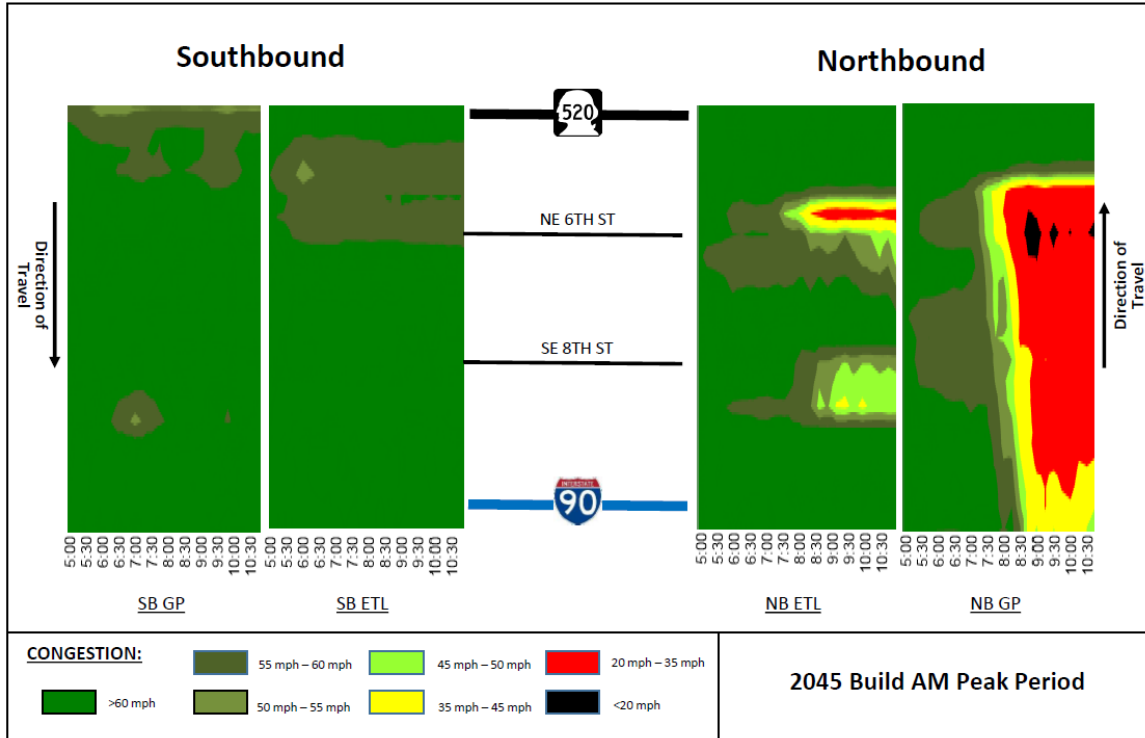


Exhibit 4.1-4 illustrates the areas where heavy congestion would occur along the corridor after the Project is built.

Congestion in Bellevue would remain heaviest in the northbound direction both in the AM and PM peak periods. With the Project, the PM peak period congestion in the southbound direction, however, would be substantially reduced as compared to the No Build, which would allow for a more reliable trip for transit and HOV users. Additional graphics showing expected congestion south of I-90 for existing conditions and the 2025 and 2045 Build conditions are provided in Chapter 5 of the Transportation Discipline Report (Attachment A).

Exhibit 4.1-4. Build—Areas of Congestion



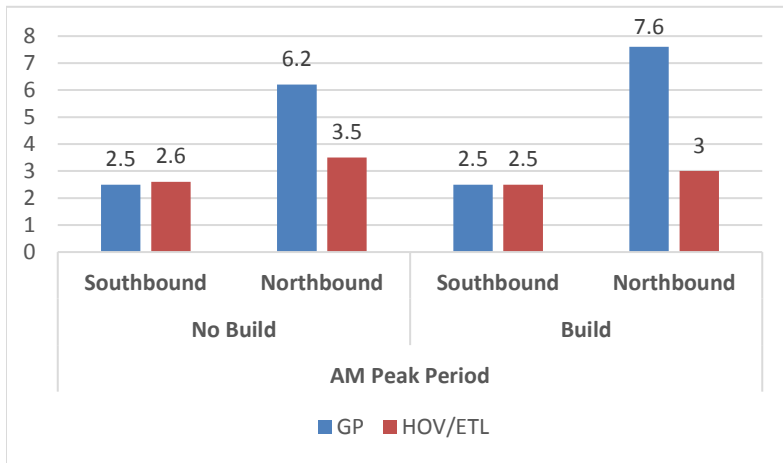
Travel Times

Overall, greater traffic volumes would travel through the study area at speeds similar to or higher than the No Build due to the ETLs and increased capacity. Vehicles would operate at higher speeds in the ETLs and would have a more reliable trip than the No Build HOV lanes. This would give more users, including transit and carpools, a faster trip.

In the year 2025, most trips during the AM and PM peak periods would be the same or better than the No Build conditions in both directions of travel. The one exception is 2025 northbound AM peak trips; these trips would increase by about 1 minute in the GP lanes.

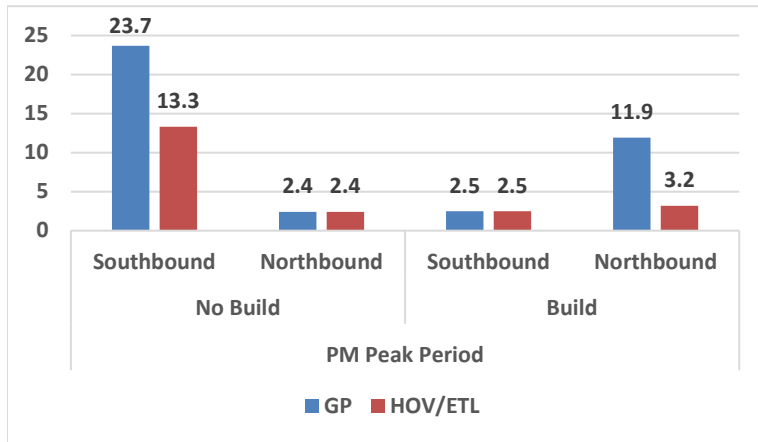
The remainder of this section focuses on travel times in 2045, i.e., the design year for the Project. In 2045, as shown in Exhibit 4.1-5, average travel times during the AM peak period would be the same in the southbound direction for both the No Build and Build alternatives. In the northbound direction, travel times would increase by about 1 minute in the GP lanes with the Build Alternative.

Exhibit 4.1-5. 2045 Average Travel Times during the AM Peak Period between I-90 and SR 520 (minutes)



As shown in Exhibit 4.1-6, average travel times during the 2045 PM peak period in the southbound direction would improve greatly. With the Project, travels times would be under 3 minutes for both the GP lanes and ETLs as compared to 23 minutes in the GP lanes and 11 minutes in the HOV lane under the No Build Alternative.

Exhibit 4.1-6. 2045 Average Travel Times during the PM Peak Period between I-90 and SR 520 (minutes)



By 2045 in the PM peak period, northbound I-405 travel times would increase by 9 minutes between I-90 and SR 520 compared to the No Build Alternative. Under the No Build PM peak period, congestion from southbound I-405 spills back onto I-90 and SR 520, which meters traffic to northbound I-405. With the Build Alternative, southbound I-405 operations improve, relieving congestion at interchanges on I-90 and SR 520. In the northbound direction of I-405, this results in more congestion and longer travel times in the greater Bellevue area. Southbound I-405 is able to accommodate the shift in congestion through Bellevue with no negative effects. Other I-405 Master Plan improvements are planned in this area of the corridor and are expected to provide future benefits that will improve travel times.

Intersection Operations

The NE 6th Street interchange would become more attractive for trips using the ETL system. Under the No Build conditions, these intersections operate at level of service (LOS) C with some approaches that operate at LOS E or F due to queues from adjacent intersections. The additional demand that the ETL access would generate would further degrade operations. With geometric modifications in the area, the intersections can operate better. Geometric changes would require further coordination among WSDOT, Washington State Patrol, and the City of Bellevue.

Potential geometric changes at the intersection of NE 6th Street and the I-405 direct access ramps to allow for right turns onto

the southbound on-ramp to operate concurrently with the northbound left turns. WSDOT would restrict any off-ramp to on-ramp movements at this intersection to eliminate vehicle conflicts. We expect this intersection to operate at LOS C or better in the 2025 and 2045 AM and PM peak hours. Potential geometric changes at the intersection of NE 6th Street/112th Avenue NE intersection to allow for the westbound traffic lanes to accommodate changes in traffic volume throughout the day using a variable message sign to indicate allowable movements in each lane. In the AM peak hour, we expect this intersection to operate at LOS D in 2025 and 2045. During the PM peak hour, we expect this intersection to operate at LOS E in 2025 and LOS F in 2045. This would be a degradation from operations under No Build, where we expect the intersection would operate at LOS D or better in the 2025 and 2045 AM and PM peak hours.

WSDOT would work with the City of Bellevue to monitor future 5 year operations at this location. Toll rates may be adjusted to manage use at this and other locations as necessary.

What are the expected short-term or construction impacts if WSDOT builds the Project?

Existing roadway capacity would be maintained during construction to the extent possible. Lane or roadway closures would be minimized and scheduled to occur when there would be the least effect on traffic in the corridor, such as during overnight and weekend periods.

Most construction vehicles would carry dirt and materials to and from construction sites. As such, construction vehicles would increase traffic delay and volume in the study area during the construction period. These delays would occur on freeways and arterials identified as haul routes. The exact haul routes and quantity of construction vehicles would not be known until the construction contract is underway; however, we anticipate most construction vehicles would use I-405 and I-90 to bring materials to and from construction sites.

During construction, the existing I-405 GP and HOV lanes would be realigned through the construction area. Temporary night and weekend lane closures may be required as WSDOT widens the freeway. Freeway ramps may also be closed as needed during construction, but closures would also occur

during nights and weekends when traffic demand would be lower and can more easily be accommodated through detours.

Full freeway closures may be required at limited times to shift traffic between phases of construction or during demolition, construction, and setting of bridge girders. Most of these full closures would occur at rolling slowdowns. If a longer-term freeway closure is needed, it would be restricted to nights and weekends.

We expect the Main Street bridge overpass in Bellevue to be constructed in phases, with an anticipated closing of up to two lanes for over a year. WSDOT would maintain traffic flow in both directions during construction to the extent possible.

Construction activities may also limit pedestrian and bicyclist movements on local roadways. Safe routes for nonmotorized users would be maintained to the extent possible, with specified detour routes when needed.

Would the Project have other effects on transportation that may be delayed or distant from the Project?

Effects that are delayed or distant from the Project are referred to as indirect effects. The Project would reduce congestion that would normally occur at several locations with the No Build. Downstream areas could see changes in volume and congestion due to this reduction. Exhibits 4.1-1 and 4.1-4 illustrate areas where congestion is expected to occur under the No Build and Build alternatives. Due to heavy congestion during both the AM and PM peak periods near the I-405/I-90 interchange, many drivers currently choose alternative routes. These routes include local roadways through downtown Bellevue, the Eastgate area, and south Bellevue. During both the AM and PM peak periods, travel patterns could change on local roadways and I-90 as trips shift to I-405 with the Project. This may result in higher use at some ramp terminals in the area and lower use at others.

What are indirect effects?

An indirect effect is caused by the proposed action that is later in time or farther removed in distance, but still reasonably foreseeable. Indirect effects may include effects related to changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

4.2 Socioeconomics and Environmental Justice

This section describes the effects of the Project on socioeconomics and environmental justice. For more information on environmental justice, refer to the Environmental Justice Discipline Report (Attachment D). The report also evaluates the effects of not building (No Build) the Project on environmental justice populations.

How did we evaluate socioeconomics and environmental justice?

Review of existing social and economic characteristics of the study area focused on understanding the general community context, employment opportunities, and demographic characteristics in and around the study area.

We used demographic data to determine if minority, low income, or persons with limited English proficiency live in the area or use I-405. Potential benefits and disproportionate effects of the Project including effects on community character and livability were evaluated. The transportation analysis provided key information to identify potential effects related to traffic, access, and mobility for people living and working in the study area, including environmental justice populations. We used demographic analyses to determine if any benefits or any adverse effects would disproportionately affect environmental justice populations, and if so, whether any disproportionate effects would be high or severe. We identified mitigation if appropriate.

What are the socioeconomic and environmental justice conditions today?

Communities

Bellevue's neighborhoods include single-family and multi-family communities and the growing vertical neighborhoods of downtown. Four neighborhoods are adjacent to I-405 within the study area: Downtown Bellevue, West Bellevue, Wilburton, and Woodridge neighborhoods. These neighborhoods have formed and adjusted around I-405, using it as a boundary and as the primary thoroughfare for residents and businesses. According to the *Bellevue Comprehensive Plan* (Bellevue 2016), the transportation system issues of special concern to neighborhood quality of life are roadway projects

What is environmental justice?

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Environmental justice principles apply to minority, low-income, and persons with limited-English proficiency populations.

What are environmental justice populations?

Multiple federal orders, regulations, and guidance require agencies to identify and address potential adverse effects on low-income and minority populations. Additionally, Executive Order 13166 ensures persons with limited-English proficiency have fair and equal access to the decision-making processes for publicly funded projects, as well as the benefits of these projects.

in and near residential areas that may affect neighborhood appearance, character, and livability and cut-through traffic on residential streets (Bellevue 2016).

Employment

Local and regional plans designate downtown Bellevue as one of King County’s Urban Centers and the area in Bellevue that will receive the city’s most intense development. In PSRC’s *VISION 2040*, downtown Bellevue (photo on right) is a regional growth center and the largest employment center outside of Seattle. Bellevue continues to be the financial, retail, and office center of the Eastside and home to many businesses. The growth strategy for Bellevue directs most of the city’s growth to downtown and other areas designated for compact, mixed-use development served by a full range of transportation options. Bellevue’s economic development plan recognizes that its economic success will require a range of multimodal transportation options that maintain mobility for people and goods.



Downtown Bellevue skyline

I-90, I-405, and SR 520 provide regional mobility and serve as the backbone of the transit system and truck freight network for the nearly 78 percent of Bellevue workers who commute from other cities. The city’s major employment centers are centered along these corridors and encompass nearly all of Bellevue’s commercially designated land. Bellevue’s Comprehensive Plan advocates for a highway system that keeps pace with population growth and economic activity by incorporating technology, demand management, and infrastructure improvements (Bellevue 2016). Key mobility principles include interconnectivity, accessibility, speed, and reliability. The City of Bellevue *Downtown Subarea Plan* (Bellevue 2015) also recognizes the need for regional access to prosper from both an economic and cultural standpoint and identifies state projects on I-405 as the highest priority items (Bellevue 2015).

Environmental Justice Populations

There are minority, low-income, and persons with limited English proficiency living in the study area, as illustrated in Exhibits 4.2-1 and 4.2-2. Minority, low income, and persons with limited-English proficiency also drive or use transit on I-405 in the study area. These people—along with all other I-405

motorists and transit riders—deal with daily traffic congestion on I-405.

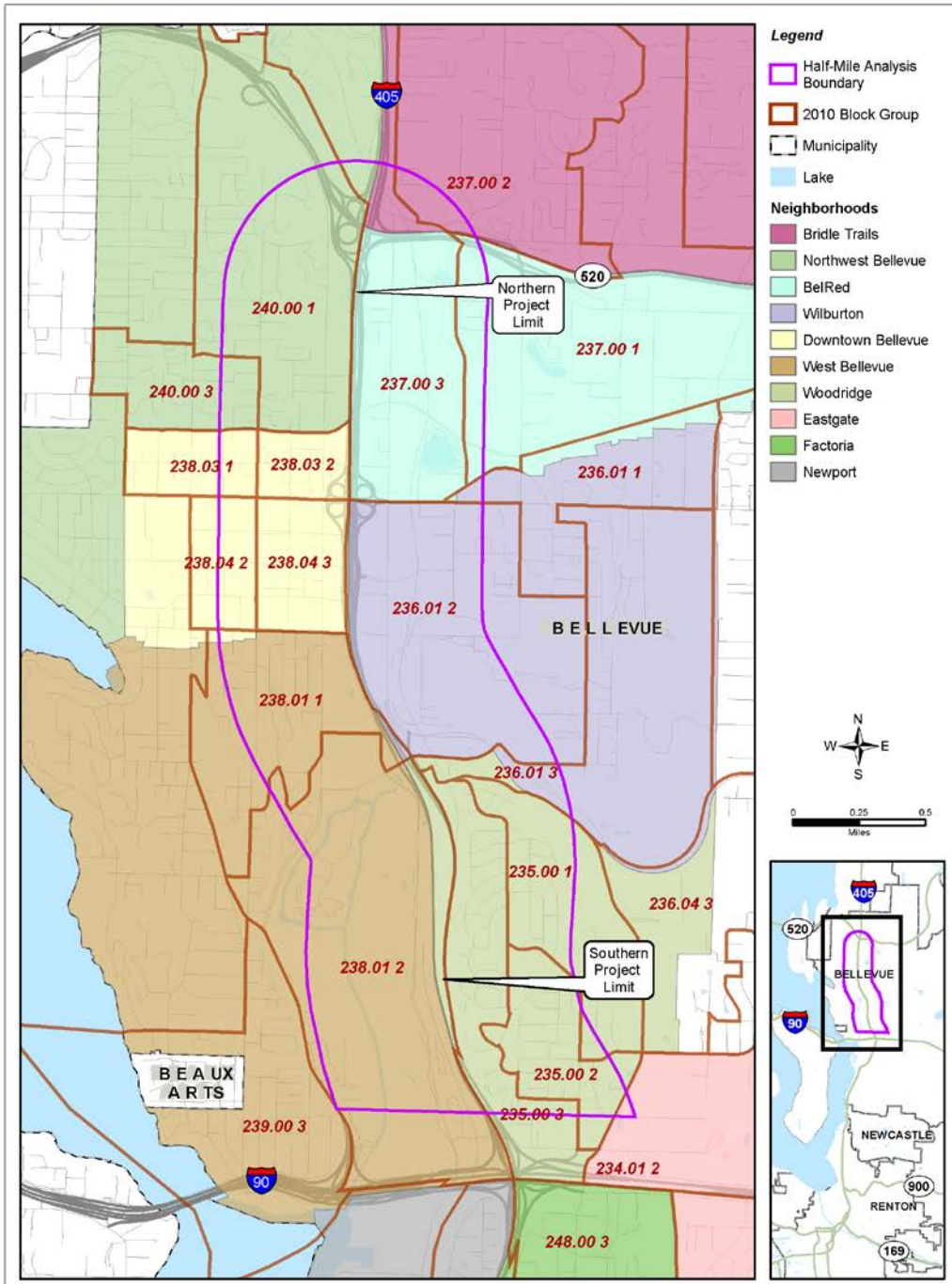
Exhibit 4.2-1. Minority and Low-Income Populations in the Study Area

Census Block Group	Percent Identifying as Minority	Percent Population at or below Federal Poverty Level
530330234012	56	12
530330235001	34	4
530330235002	37	4
530330235003	42	12
530330236012	60	13
530330236013	31	6
530330237003	35	7
530330238011	46	9
530330238012	37	8
530330238032	52	14
530330238043	45	8
530330240001	39	2
530330248003	65	9
Project Area Average	47	9

Recognized neighborhoods with environmental justice populations exist in the study area, including Downtown Bellevue, Wilburton, Woodridge, West Bellevue, Factoria, Eastgate, Newport, and Clover Creek in Bellevue. Based on the demographic analysis, environmental justice populations live in all eight neighborhoods. Census block groups do not overlap exactly with designated neighborhood boundaries, but the analyst can make inferences about the demographic makeup of each neighborhood by overlaying 2011–2015 American Community Survey estimates with neighborhood maps.

Exhibit 4.2-2. Neighborhoods and Census Block Groups

Note: Census block numbers correspond with last six digits in Exhibit 4.2-1.



The Wilburton and Factoria neighborhoods in Bellevue appear to have concentrations of linguistically isolated populations. Small pockets of West Bellevue and Downtown Bellevue also have linguistically isolated residents. According to the U.S. Census Bureau, a linguistically isolated person speaks limited to no English.

The neighborhoods in the study area are well established. These neighborhoods have existed for a long time, and the City of Bellevue supports community cohesion in their neighborhoods.

How has WSDOT engaged low-income and minority populations?

An important aspect of environmental justice is providing opportunities for full and fair participation by potentially affected communities. WSDOT conducted interviews of social service providers who serve environmental justice populations in the study area and I-405 travelshed. The purpose of these interviews was to share information about the Project, including the introduction of ETLs, and gather their insights on how environmental justice populations may benefit or experience disproportionate effects as a result of the Project.

In general, interview participants expressed concern that a toll would dissuade low-income individuals from using ETLs. A few interview participants explained their clients cannot afford gas for their automobiles and expressed skepticism that these clients would be able to afford a toll. On the other hand, some interview participants felt that, because the GP lanes would continue to be available, their clients would not be disproportionately affected. Additionally, some social service providers indicated that, after initial confusion about and frustration with the Bellevue to Lynnwood ETLs, the negative feedback from staff and clients has subsided and some people appreciate having the option of purchasing a faster trip when they need it.

WSDOT also coordinates with tribes to identify and address social, cultural, environmental, and other issues of significance to tribal staff. WSDOT is committed to respectful, effective consultation and communication with tribal governments with recognition that project activities

What is a travelshed?

A travelshed is similar to a watershed. In a travelshed trips tend to cluster in a linear pattern. Generally, a travelshed is a network of transportation routes that link to a larger route, such as an interstate highway that carries longer distance trips in a metropolitan area.

Who did WSDOT interview?

WSDOT conducted seven interviews of social service providers who serve environmental justice populations in the study area and I-405 travelshed including:

- City of Bellevue Human Services Division
- City of Burien Department of Human Services
- City of Redmond Human Services
- City of Renton Department of Human Services
- Coal Creek YMCA
- Hopelink
- Youth Eastside Services

WSDOT reached out to 28 other human service agencies and social service providers to offer project briefings, but did not receive a response or the request was turned down. WSDOT will continue to reach out to these organizations as the project progresses.

may affect their rights and interests. WSDOT Executive Order E1025.01 on tribal consultation reaffirms the commitment to an effective working relationship with tribal governments.

What are the expected long-term effects if WSDOT did not build this Project?

Without the Project, there would be no capacity improvements or tolls on this section of I-405. Residents and employees in the communities along I-405 through the study area would experience continued delay and time spent in traffic. These conditions would continue to make travel times unpredictable, affecting the quality of life for people that live and work in the area. Worsening traffic congestion and decreased travel speeds on I-405 GP and HOV lanes would also cause delays and reduce the reliability of transit service and carpools through the study area.

What are the expected long-term effects if WSDOT builds the Project?

Communities

Widening to create a dual ETL on I-405 would not affect the adjacent neighborhood's appearance, character, and livability. Most of the widening would be achieved through restriping instead of roadway expansion. Widening would occur within the I-405 median south of SE 8th Street. North of SE 8th Street, widening would occur along the east side of I-405 and would require five partial property acquisitions from privately owned commercial and publicly owned properties. No displacements are anticipated for these land acquisitions.

All compensation for land acquisition would be made in compliance with applicable regulations of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, which identifies the process, procedures, and timeframe for land acquisition and displacement of affected residents and businesses.

Adjacent neighborhoods would, however, benefit from the added capacity provided by the ETLs through reduced peak hour congestion along I-405 and improved travel times, thus allowing more travelers to use the freeway instead of diverting onto local streets.

Employment

The addition of a new lane in each direction coupled with the existing HOV lane resulting in a dual ETL would be consistent with the PSRC's *Vision 2040* and *Transportation 2040* update, as well as King County's Countywide Planning Policies (King County 2016) and the local policies for Bellevue. These documents support the regional growth strategy by focusing on connecting centers with a highly efficient multimodal transportation network. Within Bellevue, I-405 provides regional mobility, and the addition of ETLs would reduce traffic congestion and manage demand to improve speed and reliability. With the ETLs, I-405 would operate more efficiently than with No Build conditions. The Project supports King County's policies for congestion pricing strategies and local policies that call for effectively using existing and planned transportation capacity.

Would the Project disproportionately affect environmental justice populations?

The use of ETLs and the cost of the toll would disproportionately affect environmental justice populations. Any toll that charges all users the same amount, regardless of income, disproportionately affects low-income users. This is because, compared to users with moderate and high incomes, the toll represents a higher proportion of annual income. While tolls would represent a higher proportion of household income for low-income users, these estimates do not suggest the tolls are unaffordable for these users.

Multiple studies on ETL use indicate users of all incomes value the faster trip and use the lanes when they absolutely need to be somewhere on time. Given the relative infrequency with which the average I-405 motorist chooses to pay the toll and use the ETLs, the annual cost of making this choice tends to be relatively small for most users. Furthermore, because the ETLs are free for all users at night and on weekends, the tolls would only affect environmental justice and other ETL users during the daytime.

Use of the ETLs would also disproportionately affect persons with limited-English proficiency. Such users who have difficulty understanding the ETL system and how to acquire a

transponder may be less likely to use the system or could incur additional costs in Pay-by-Mail surcharges.

To understand the severity of the effect of the toll and electronic toll collection system on environmental justice populations, we compared forecasted average travel times during the peak hours of the day for people who would use the GP (untolled) lanes and people who would use the ETLs.

Under the Build Alternative, most trips in both the GP (untolled) lanes and ETL lanes would experience increased speeds and person throughput as compared to the No Build within the study area. Exhibits 4.1-3 and 4.1-4 in Section 4.1, Transportation, show these comparisons. Overall, greater traffic volumes would travel at higher speeds due to ETLs and increased capacity. The greatest travel time benefit for all users would occur on I-405 southbound in the PM peak period. Because vehicles would have decreased travel times in the ETLs they would experience a more reliable trip than the No Build HOV lanes. This would give more users, including transit and carpools, a faster trip.

Note that when the ETLs are operating, we anticipate that some two-person carpools would choose to use the GP lanes during peak periods instead of paying the toll to use the ETLs. The travel time forecasts in the transportation analysis take into account the expected increase in traffic volumes as two-person carpools move into the GP lanes.

As shown in Exhibit 4.1-3 (Section 4.1, Transportation), average travel times during the AM peak period would be the same in the southbound direction for both the No Build and Build Alternatives. In the northbound direction, travel times would be 1 minute longer in the GP lane and less than 1 minute longer in the ETLs with the 2045 Build Alternative.

As shown in Exhibit 4.1-4 (Section 4.1, Transportation), average travel times during the PM peak period in the southbound direction would improve from 23 minutes in the GP lanes and 11 minutes in the HOV lane under the No Build Alternative to under 3 minutes in either the GP (untolled) lanes or the ETLs with the Build Alternative. In the northbound direction, travel times would increase in the PM peak period (9 minutes in the GP lanes and less than 1 minute in the ETLs) with the 2045 Build Alternative.

Specifically, within the study area, a southbound trip on I-405 during the PM peak period using the general-purpose lanes would take about 2.5 minutes in 2045, compared to over 23 minutes under No Build conditions. Travel times with the Project as compared to No Build would be even greater when considering travel distances beyond the study area.

This leads us to conclude that the cost of the tolls and all-electronic toll system would have a disproportionate effect on environmental justice populations.

The WSTC would set toll policy and toll rates for the ETLs on I-405 in the study area. This could include a future policy or toll rate applying to the entire I-405/SR 167 ETL facility. As with any tolled facility, the cost to use the entire length of the system would disproportionately affect environmental justice users, for whom the total cost would represent a higher proportion of annual household income. Disproportionate effects would be offset by improved peak travel times in most locations, reliability, and travel conditions in both the GP lanes and the ETLs. The Project would not change the number of GP lanes or reduce GP capacity. We do not anticipate the Project to have a high and disproportionate effect on environmental justice populations.

The ETL system is expected to improve travel times in the ETLs, which would reduce delay and improve reliability for transit service that use these lanes. Some transit routes would continue to operate in the GP lanes. These transit routes would also benefit from expected decrease in most peak travel times for the GP lanes.

In addition, Sound Transit's expansion of the regional mass transit system includes multiple future projects in the study area. These include funding for bus rapid transit on I-405 between south Renton and Lynnwood, as well as freeway stations that would allow buses to pick up and drop off riders without having to exit and re-enter the I-405 corridor. These transit system improvements, in concert with the Project, would result in benefits to most transit riders, including those transit riders who identify as minority, have low incomes, or are persons with limited-English proficiency.

In summary, most users of I-405—even those who do not use the ETLs—would benefit from the Project over the No Build.



Express bus

What are the expected short-term or construction impacts if WSDOT builds the Project?

Project construction would have the following benefits and effects:

- Construction jobs would be generated that could benefit all populations, including environmental justice populations.
- Construction vehicles would increase traffic delay on the I-405 mainline, ramps to and from I-405, and local arterials in the study area during the construction period. This would affect all I-405 users and motorists on local streets, including minority, low-income, and persons with limited-English proficiency motorists.
- Transit riders—including minority, low-income, and persons with limited-English proficiency riders—could face revised routes and closed transit stops during construction.

Additional temporary construction-related effects on neighborhoods in the study area could also include noise, dust, visual effects, and reduced access to community resources such as parks, recreational facilities, public services, and utilities.

In addition, we expect the Main Street overpass in Bellevue to be constructed in phases, with an anticipated closing of up to two lanes for over 1 year. WSDOT would maintain traffic flow in both directions during construction to the extent possible.

Would the Project have other effects on environmental justice populations that may be delayed or distant from the Project?

To determine if the Project would contribute indirect effects, we examined local and regional comprehensive plans that affect the study area to determine if the Project would support or disproportionately affect changes in the type, rate, or timing of planned growth. As discussed previously, the Project is consistent with PSRC's *Vision 2040* and *Transportation 2040* long-range plans, King County's Countywide Planning Policies, and local policies for the City of Bellevue.

We also looked at future impacts on environmental justice populations that are reasonable and foreseeable. As described earlier, the ETLs for the Project would—in combination with

the other I-405 projects and the SR 167 HOT Lanes—create a 40-mile-long ETL system from Auburn on SR 167 to Lynnwood on I-405. The WSTC has not yet set toll policy and toll rates for the entire I-405/SR 167 ETL system, so we do not know how much it would cost a motorist to travel from Auburn to Lynnwood in the ETLs. (For more information on current rates of the existing system please see <http://www.wsdot.wa.gov/Tolling/TollRates.htm>.) Regardless of the toll policy, the cost to use the entire ETL system would disproportionately affect low-income users, for whom the total cost would represent a higher proportion of annual household income.

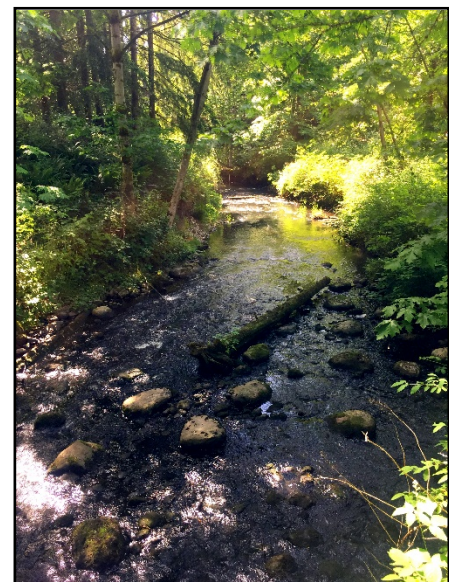
These disproportionate effects would be offset by improved travel time, reliability, and travel conditions in both GP lanes and the ETLs systemwide. As of 2009, low-income individuals who are eligible for public benefits may use their Electronic Benefit Transfer cards to open and maintain their *Good To Go!* accounts. This option could offset some of the disproportionate effect. In addition, WSDOT is currently working to expand the network of retail location where people can buy *Good To Go!* passes with cash, making it easier for people to purchase a pass without a bank account. As concluded in the analysis of ETLs on these and other segments of I-405, we do not anticipate the I-405/SR 167 corridor ETL system would result in disproportionately high indirect effects on environmental justice populations.

4.3 Water Resources

The Water Resources Discipline Report (Attachment G) evaluated existing and future conditions for water resources in the study area, including tributaries to Lake Washington, stormwater, floodplains, groundwater, and aquifers. A summary of the water resources analysis is provided in this section.

How did we evaluate water resources?

WSDOT evaluated existing conditions of water resources in the study area by reviewing existing flow patterns, water quality, land use, floodplains, peak flow conditions, steep slopes, wetlands, and other water bodies, and water treatment and conveyance facilities. We assessed future conditions of water resources by analyzing drainage characteristics of the Project, including the Project's plan



Kelsey Creek, east of I-405

and conceptual designs for stormwater conveyance, potential stormwater treatment facilities, and discharge points.

What water resources are found in the study area today?

Surface Water

Surface water in the study area generally drains from east to west, with all surface flows eventually discharging into Lake Washington. The lake has two large tributaries—Sturtevant Creek and Kelsey Creek—that cross the I-405 roadway in the study area. Those two large tributaries enter the Mercer Slough west of I-405. Additionally, many other small tributaries and watercourses cross the freeway and drain to the Mercer Slough wetland complex. Exhibit 3-1 in Section 3, Project Description, shows the major tributaries in the study area, and their characteristics are provided in Exhibit 4.3-1.

Effects on surface water are important to the Project because when pervious surfaces such as soil and vegetation are converted to surfaces such as pavement, stormwater cannot infiltrate into the ground and stormwater volumes that stay on the ground surface increase. When natural ground cover changes to a smooth impervious surface, runoff velocity also increases. Increased runoff volume and velocity can cause erosion of streambanks and scouring of streambeds and increase flooding risks.

What are threshold discharge areas?

A threshold discharge area (TDA) is an on-site area draining to a natural or constructed discharge location(s) that combine within 0.25 mile downstream—as determined by the shortest flow path. A TDA delineation begins at the first discharge location that exits WSDOT right-of-way and is based on preproject conditions. The limits of a TDA would generally encompass the study area, including existing and proposed right-of-way. The limits of a TDA should be large enough to include all development by the project.

Exhibit 4.3-2. Characteristics of Major Tributaries in the Study Area

Characteristic	Sturtevant Creek	Kelsey Creek
Drainage Area (square miles)	1.2	14.8
Average Annual Discharge (cubic feet per second)	Unknown	23 ^a
Tributary To	Mercer Slough	Mercer Slough
Length (miles)	0.8	1.5
Crosses I-405 at River Mile	0.4	0.1
I-405 Crossing Structure	Culvert	Culvert

^a Upstream of I-405 crossing at U.S. Geological Survey (USGS) gauge 12120000 Mercer Creek near Bellevue, WA.

Highway runoff can also affect the quality of receiving waters, such as a stream or lake, if no measures are taken to remove excessive pollutants.

Floodplains, Groundwater, and Aquifers

Floodplain areas have been identified by the Federal Emergency Management Agency (FEMA) for City of Bellevue water bodies Mercer Slough and lower Kelsey Creek. This floodplain is subject to federal, state, and local regulations. No flood hazard areas are located in the study area.

Floodplains are important because the effectiveness of rivers and floodplains to convey and store floodwater and minimize flood risks can be adversely affected by human development that physically changes the floodplain. Encroachment upon existing floodplains could increase flood elevations and have adverse social and ecological effects.

Groundwater pertains to the water contained in the soil and bedrock below the ground's surface. Groundwater quality and quantity were considered because changes can affect water supplies for drinking water and water available for surface water bodies such as lakes, streams, and wetlands.

No Critical Aquifer Recharge Areas (CARAs) were identified in the study area. The City of Bellevue website indicates that drinking water is acquired through the Cascade Water Alliance, an association of seven municipalities and water districts in King County, which serves as a regional water supply agency and wholesale water provider. Within the study area, drinking water comes from the protected watersheds of the Cedar and South Fork Tolt Rivers in the Cascade Mountains.

Although the Kelsey Creek aquifers are not within a designated CARA, groundwater is shallow without a surface low-permeability protective layer and is susceptible to contamination.

How is stormwater currently managed in the study area?

The study area topography is hilly, with the overall drainage direction to the west. The topography of the study area drains to four individual threshold discharge areas (TDAs).

South of Kelsey Creek (MP 11.1 to about 12.6), the study area is on the west slope of a hill between Mercer Slough and

Kelsey Creek. Drainage from this area is from east to west and includes TDA C and TDA D. TDA C discharges through a WSDOT cross culvert that continues under the Eastside Rail Corridor Regional Trail and 118th Avenue SE to a short channel section of Trail Creek that was constructed along a city park trail. The channel eventually disperses out as sheet flow into the Mercer Slough wetland complex. A combined stormwater treatment wetland/detention pond provides treatment for a portion of the highway runoff in this TDA before discharging into a manhole on the cross culvert.

TDA D discharges into wetlands associated with Median Creek located at MP 12.5 between I-405 and 118th Avenue SE. Flows continue through a city street culvert into a wetland pool area on the west side of 118th Avenue SE. No outlet channel was found, so the WSDOT team assessment assumes that flows eventually overtop the pond banks to flow into the Mercer Slough wetland complex. A combined stormwater treatment wetland/detention pond provides treatment for a portion of the highway runoff in this TDA before discharging through a flow dispersal system into the wetland just north of the Median Stream culvert under southbound I-405.

From approximately MP 12.6 to 12.9, water flows toward Kelsey Creek on the east side of I-405 and to Mercer Slough on the west side of I-405. North of approximately MP 12.9, drainage flows to Sturtevant Creek. The highway elevation ranges from about 82 feet to 179 feet above mean sea level in the northbound lanes and from about 39 feet to 144 feet above mean sea level in the southbound lanes.

TDA E is associated with Kelsey Creek, which crosses I-405 between MP 12.7 and 12.8. Stormwater in TDA E collects in an existing stormwater treatment pond, which drains into Kelsey Creek near its convergence with Mercer Slough.

TDA F is associated with Sturtevant Creek, which crosses I-405 between MP 13.1 and 13.2. There is no existing stormwater treatment or flow control in the existing WSDOT drainage system. Stormwater in this TDA includes I-405 areas that are collected in drainage systems that eventually discharge into Sturtevant Creek on the west side of I-405. In the upper reach of this TDA, between MP 13.8 and 14.6, the northbound braided ramps are collected for flow control and runoff treatment in a combined stormwater treatment wetland/detention pond in the northeast quadrant of the NE 8th Street

interchange. That pond connects into a stormwater lateral on the storm drainage system that conveys Sturtevant Creek under the interchange. The stream continues in closed conveyance along the east side of I-405 to NE 4th Street. There is an open channel reach between NE 4th Street and NE 6th Street, before the stream continues in closed system to the I-405 crossing.

Kelsey Creek has a fish-passable culvert across I-405 that supports anadromous fish upstream of I-405. Downstream of I-405, Mercer Slough and Sturtevant Creek support anadromous salmonid fish. There are three fish passage barrier culverts (Trail Creek, Hixon/Median Creek, Sturtevant Creek) per the WDFW website, Washington State Fish Passage Map Application. Although, the fish barrier culverts would not be improved as part of this Project, they will not be precluded from future replacement and will be addressed as part of the I-405 Master Plan.

The Mercer Slough complex creates a natural (wetland) barrier with no channel habitat connection downstream of the Median Creek and Trail Creek culvert crossings.

What are the expected long-term effects on water resources if WSDOT did not build this Project?

If the Project is not built, the proposed stormwater treatment retrofit improvements would not occur, which would leave untreated runoff from the more congested roadways to continue to reach water resources in the study area.

What are the expected long-term effects on water resources if WSDOT builds the Project?

The Project would add 2.7 acres of new impervious surface to the existing 104.4 acres of highway pavement to accomplish the scope of the transportation improvements. The Project improvements would not encroach into surface water, but the Project would add new impervious surface areas. As such, the added pavement would increase stormwater runoff volume and flow rates.

The Project would improve the way highway runoff is collected, as well as stormwater management along I-405. WSDOT would modify existing or add new detention storage to control flow where applicable. Discharges to Mercer Slough are exempt from flow control requirements.

WSDOT would collect the runoff from an equivalent area of pavement to mitigate new impervious surface for treatment in compliance with the WSDOT *Highway Runoff Manual* (WSDOT 2016a). WSDOT *Highway Runoff Manual* guidelines that are current at the time of project advertising would be applied.

Overall, the Project would reduce pollutant loading relative to existing conditions. There would be minor increases in some TDAs, but other TDAs would more than compensate for those increases.

The Project would not physically encroach on any existing 100-year floodplain designated as a Special Flood Hazard Area and would not affect downstream or upstream flood levels.

Groundwater is expected to follow the slope of the terrain and flow generally from east to west across the corridor. Where I-405 is in a significant cut section (MP 11.9 to 12.4), groundwater is known to seep out of the slope and flow as surface water within the existing drainage system.

What are the expected short-term or construction impacts if WSDOT builds the Project?

Using standard construction BMPs, the Project is not expected to affect surface water, or water quality.

Since the Project would not require any construction, staging, or other activity in floodplain areas, project construction would not affect floodplains.

Project construction activities would include heavy equipment that could create a risk for fuel and oil leaks that could affect groundwater.

Would the Project have other effects on water resources that may be delayed or distant from the Project?

Surface Water

Because the Project would manage water quality with a combination of BMPs and stormwater treatment facilities to avoid or minimize direct effects on water quality, WSDOT anticipates that there would not be any downstream effects outside the study area.

What is a 100-year floodplain?

A 100-year floodplain is a geographic area typically adjoining the channel of a watercourse within which a flooding event (also known as a base flood) has a 1 percent chance of being equaled or exceeded in any given year. The base flood is the national standard used by the National Flood Insurance Program (NFIP) and all federal agencies require the purchase of flood insurance and regulate new development.

The land area covered by the floodwaters of the base flood is the Special Flood Hazard Area (SFHA) on NFIP maps. The SFHA is the area where the NFIP's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.

Floodplains, Groundwater, and Aquifers

The Project would not affect floodplains located at a distance away from the study area because the only floodplains downstream are those associated with Mercer Slough and Lake Washington. Because the elevation of Mercer Slough and Lake Washington are controlled entirely by operation of the Hiram M. Chittenden Locks, floodplains of these water bodies would be unaffected by changes in discharge from the study area.

No effects on groundwater and aquifers are expected because of the Project. The highest risk would be during construction where WSDOT requires the contractor to prepare and follow a project-specific Spill Prevention Control and Countermeasure Plan to ensure that these risks are avoided and/or minimized. WSDOT operations, maintenance, and emergency response procedures have been developed to mitigate any potential long-term effects on groundwater.

Would there be any unavoidable effects on water resources?

With new impervious area, changes in hydrology are unavoidable. Conversion of pervious land with vegetated land cover results in a reduction of evapotranspiration. Evaporation accounts for the movement of water to the air from sources such as the soil, canopy interception, and water bodies. Transpiration accounts for the movement of water within a plant and the subsequent loss of water as vapor through stomata (i.e., pores) in its leaves. Evapotranspiration is an important part of the water cycle and is an unavoidable effect of urbanization.

Reduction of evapotranspiration means that the surface water component of runoff is increased. New flow-control facilities would control the rate of runoff for the periods when flows are damaging to the water bodies in the study area, but the streams and wetlands would receive more water volume via surface runoff and groundwater recharge would be reduced.

The relative scale of the Project is small (the addition of 2.7 acres of new impervious surface area) compared to the overall scale of the stream drainage basins in the study area. In addition, the Mercer Slough wetland hydrology (where most of the Project would eventually discharge after being treated) is primarily influenced by water surface elevations in Lake

What is a drainage basin?

A drainage basin or catchment basin is an area of land where all surface water from rain, melting snow, or ice converges to a single point at a lower elevation and waters join another body of water, such as a river, lake, reservoir, estuary, wetland, sea, or ocean.

Washington. The conceptual design was evaluated and found to comply with the WSDOT *Highway Runoff Manual* Minimum Requirement 7 – Wetlands Protection.

Therefore, these unavoidable changes in volume of runoff are considered negligible to the water resources in the study area, and we do not foresee the Project causing any unavoidable effects on water resources.

4.4 Ecosystems

The Project's Biological Assessment (BA) and Wetland and Stream Assessment Report evaluate the ecosystems in the study area. This section presents a summary of the wetlands, aquatic resources, upland vegetation, and wildlife habitat found in the study area and explains how the proposed Project may affect them.

How did we evaluate ecosystems and natural resources?

For wetlands and aquatic resources, the study area extends 300 feet from the study area, which is defined as current and proposed I-405 right-of-way and the anticipated construction limits. More detailed information is available in the *Wetland and Stream Assessment Report* (WSDOT 2017b). The study area for vegetation, wildlife habitat, and Endangered Species Act (ESA) considerations extends 400 feet from the study area based on calculated site-specific noise attenuation and stormwater outfall dilution. Additional information is provided in the Project's BA (WSDOT 2016c).

What ecosystems and natural resources are located in the study area today?

Wetlands

WSDOT biologists identified five wetlands in the study area totaling 2.84 acres, as listed in Exhibit 4.4-1. Each of these delineated wetlands were surveyed previously for the I-405, Bellevue Nickel Improvement Project. We did not identify any additional wetlands in portions of the study area not previously assessed for the I-405, Bellevue Nickel Improvement Project and the I-405, Bellevue to Lynnwood Improvement Project.



Mercer Slough

Exhibit 4.4-1. Wetlands in the Study Area

Wetland	Wetland Permanent	Wetland Temporary	Buffer Permanent	Buffer Temporary
12.4L	0.0	0.0	0.0	0.0
12.45M	0.002	0.010	0.083	0.285
12.82R	0.0	0.0	0.0	0.0
13.0R	0.159	0.0	0.0	0.0
13.25R	0.189	0.0	0.0	0.0
Total	0.350	0.010	0.083	0.285

State and local resource agencies rate or categorize wetlands according to their relative rarity, sensitivity to disturbance, and the functions they provide. WSDOT biologists collected field data on the wetlands in the study area and categorized them as Category III and IV wetlands according to the Washington State Wetland Rating System for Western Washington: 2014 Update (Ecology 2014) and wetland rating systems from applicable local jurisdictions. Under Ecology’s rating system, three major wetland functions are analyzed: water quality improvement, flood and erosion control, and wildlife habitat. The wetlands found in the study area were assigned to Category III and IV, based on the following criteria:

- **Category III** wetlands have a moderate level of functions, can often be adequately replaced with a well-planned mitigation project, or are interdunal wetlands up to 1 acre in size. They have been disturbed in some way and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands.
- **Category IV** wetlands have the lowest levels of functions and are often heavily disturbed, though some may still provide important functions. These wetlands should be able to be replaced, and in some cases, improved.

The *Wetland and Stream Assessment Report* (WSDOT 2017b) contains the Ecology wetland rating forms for the delineated wetlands shown on Exhibit 4.4-2.

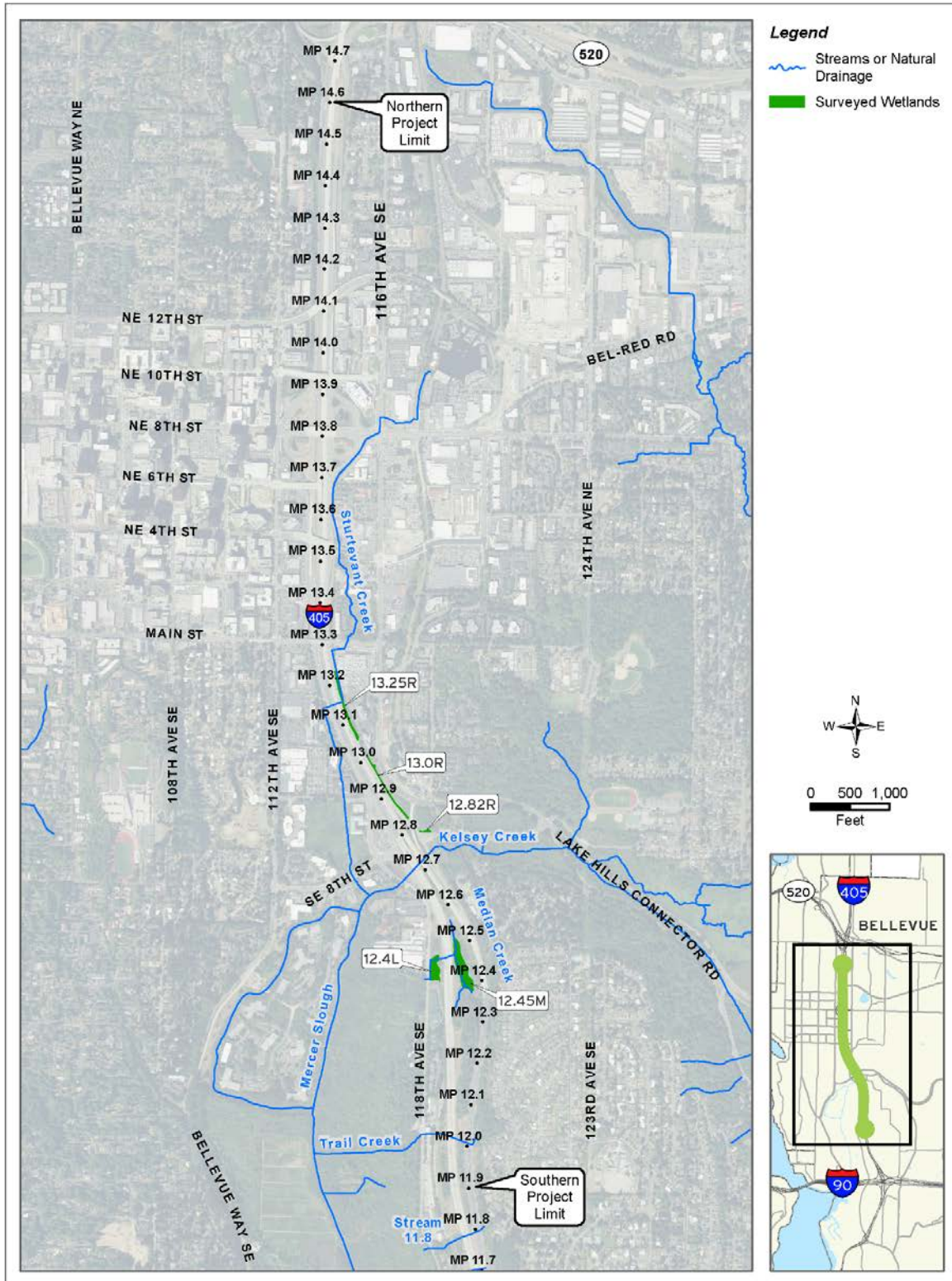
Aquatic Resources

Exhibit 4.4-2 also shows several streams in the study area, which is in the Lower Sammamish River Watershed. The function and character of these streams have been altered by the effects of intensive residential and commercial development.

Examples of land use activities that have altered the drainage characteristics include logging, vegetation clearing, new impervious surfaces, new buildings, stream placement into culverts, and new water quality treatment and detention features such as ponds. Removal of native vegetation in and around streams, the addition of impervious surfaces, and the rerouting of stream channels changes the patterns and quantity of water and nutrients, recharge capabilities, and temperature regulation.

Despite altered habitat conditions, streams in the study area still support various fish species and life history stages. Mercer Slough, Kelsey Creek, Sturtevant Creek, and potentially Median and Trail Creeks serve as important migration corridors for various resident and anadromous fish. The primary resident fish species using these systems are rainbow trout (*Oncorhynchus mykiss*) and cutthroat trout (*Oncorhynchus clarkii*). Other fish species that are likely to be found in the study area include the three-spine stickleback (*Gasterosteus aculeatus*), longnose dace (*Rhinichthys cataractae*), speckled dace (*Rhinichthys osculus*), longfin smelt (*Spirinchus thaleichthys*), prickly sculpin (*Cottus asper*), riffle sculpin (*Cottus gulosus*), reticulate sculpin (*Cottus perplexus*), shorthead sculpin (*Cottus confusus*), torrent sculpin (*Cottus rhotheus*), largescale sucker (*Catostomus macrocheilus*), peamouth chub (*Mylcheilus caurinus*), bluegill (*Lepomis macrochirus*), redbreast shiner (*Richardsonius balteatus*), Pacific lamprey (*Lampetra tridentata*), river lamprey (*Lampetra ayresi*), and western brook lamprey (*Lampetra richardsoni*). The primary anadromous fish species migrating and rearing in these streams are Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), chum salmon (*Oncorhynchus keta*), sockeye salmon (*Oncorhynchus nerka*), bull trout, steelhead trout, and sea-run cutthroat (*Oncorhynchus clarkii clarkii*).

Exhibit 4.4-2. Wetlands and Streams in the Study Area



Terrestrial Resources

Based on the available habitat, wildlife species that commonly occur in urban areas also occur in the study area. This includes, but is not limited to, coyote (*Canis latrans*), opossum (*Didelphus virginianus*), raccoon (*Procyon lotor*), American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), redtailed hawk (*Buteo jamaicensis*), and other common mammal and bird species. Domestic and feral wildlife, including dogs (*Canis familiaris*) and cats (*Felis catus*), are also likely to be present.

Based on the USFWS Information for Planning and Consultation database, 16 special status wildlife species may be present within 1 mile of the study area (USFWS 2017). According to WDFW Priority Habitats and Species data and previous field reconnaissance surveys, none of these species have documented occurrences in the study area (WSDOT 2017b).

What are the expected long-term effects on ecosystems if WSDOT did not build this Project?

Ecosystems would be affected from continued operation of I-405 under No Build conditions. Both wetlands and streams in the study area that currently receive untreated runoff would likely continue to be affected by these conditions. Water quality functions provided by wetlands and stream water quality would continue to be affected by sediment transport and erosion. WSDOT would continue minor routine roadway maintenance improvements.

Vegetation in the right-of-way would be mowed and maintained. This land cover type would still provide poor habitat for wildlife in the study area.

What are the expected long-term effects on ecosystems and natural resources with the Project?

Wetlands

Most wetlands in the study area (Exhibit 4.4-1) are currently affected by the lack of modern stormwater control, conveyance, and management facilities. However, enhanced water quality treatment proposed with the Project would improve the quality of water entering some wetlands in the study area.

To build the Project, construction would need to occur in and adjacent to wetlands and their buffers. The Project would permanently affect 0.35 acre of wetlands in the study area. Three wetlands would be permanently affected: wetlands 12.45M, 13.0R and 13.25R. In addition, the Project would permanently affect approximately 0.08 acre of wetland buffer associated with wetland 12.45M (photo on right). See Exhibit 4.4-1 for the location of the wetlands in the study area.



Wetland 12.45M, I-405 median

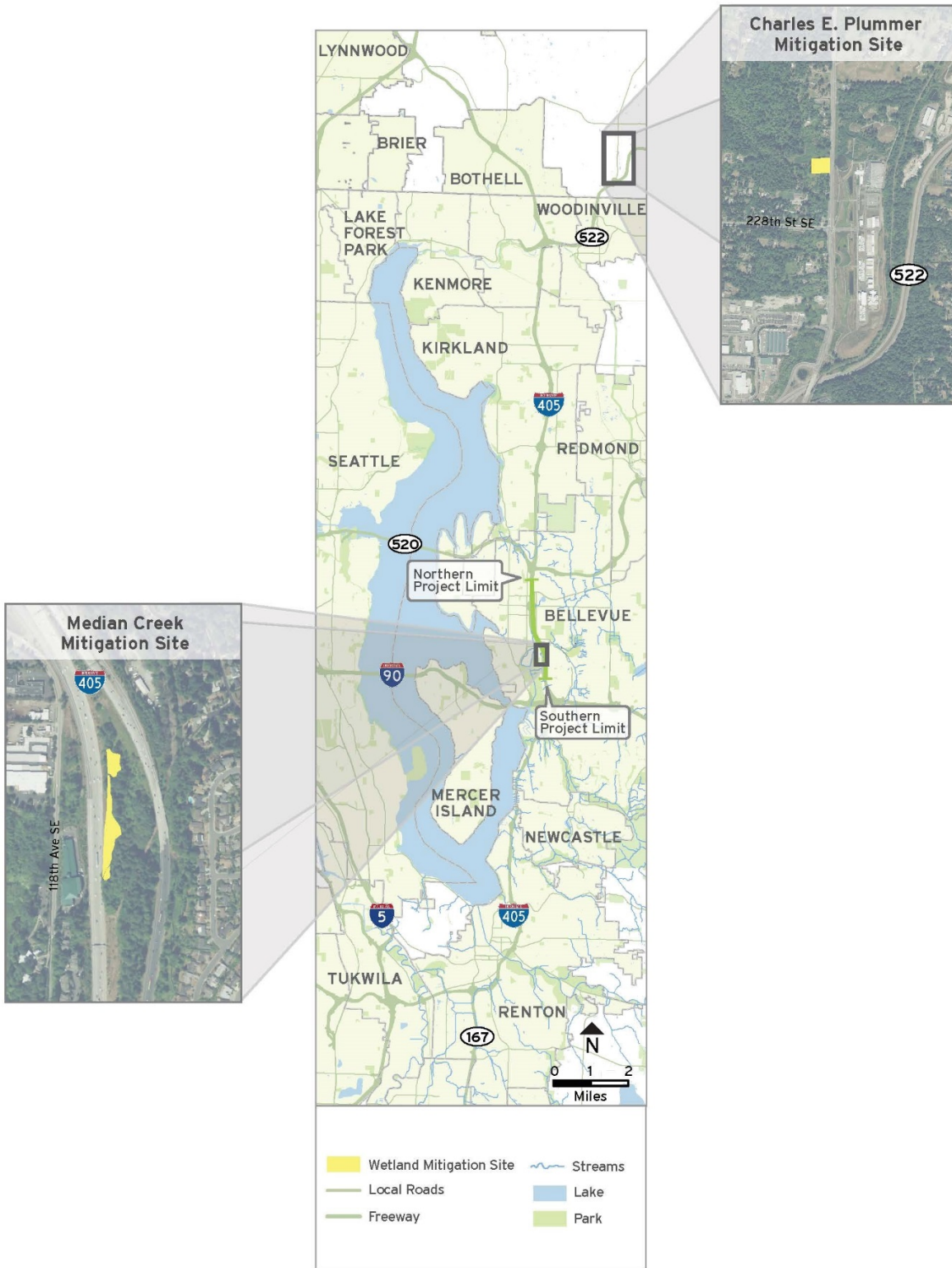
Permanent effects on wetlands and their buffers would be compensated by using on-site and off-site mitigation. Wetlands would be mitigated at WSDOT's existing Charles E. Plummer mitigation site and wetland buffers would be mitigated at the Median Creek site within the City of Bellevue as shown on Exhibit 4.4-4.

Aquatic Resources

The Project has been designed to avoid both streams and stream buffers. However, effects on aquatic resources would result from the operation of stormwater facilities, including stormwater culverts being installed or extended during project construction. Stormwater facilities, which include detention ponds, would collect runoff from all new impervious surfaces created by the Project. The water would be treated for enhanced water quality before being discharged to streams.

While Sturtevant Creek and Kelsey Creek contain Essential Fish Habitat (EFH) in the study area, the pollutants discharged into these creeks from enhanced treatment features would lessen to background levels in less than a 1-foot distance from the outfall. Site assessments determined the wetlands that would be affected by the Project are not connected by surface flow to these EFH streams. WSDOT would implement specific BMPs and minimization measures so the Project would not result in effects on EFH.

Exhibit 4.4-4. Wetland Mitigation Sites



Terrestrial Resources

Approximately 2.08 acres of terrestrial vegetation, equal to less than 1 percent of the study area, would be permanently removed and converted to impervious surface with the Project. Of this total, 0.35 acre is forested habitat and 1.73 acres are shrub/grass habitat. This may affect wildlife species in the study area by eliminating potential habitat for wildlife currently using these habitat types. Some wildlife species using these habitats would disperse elsewhere in the study area to locate available habitat.

WSDOT does not anticipate that operation of the Project would affect wildlife habitat. Wildlife species in the study area are more adapted to urban environments and associated noise levels. Thus, noise levels from the additional vehicle traffic on I-405 are not anticipated to affect wildlife species in the study area. Vegetation in the right-of-way would be mowed and maintained. This land cover type would still provide poor habitat for wildlife in the study area. WSDOT does not anticipate any other effects on wildlife habitat associated with project operations.

What are the expected short-term or construction effects on ecosystems and natural resources with the Project?

Wetlands

WSDOT may need to temporarily place fill in wetlands and buffers to allow adequate room for construction activities. About 0.01 acre of wetlands and 0.28 acre of wetland buffer, both associated with wetland 12.45M, would be temporarily affected in the study area.

These construction disturbances would result in a short-term loss of wetland functions. Erosion and sedimentation caused by construction activities could increase the amount of sediment settling within a wetland and reduce the quality of habitat available for invertebrate life and habitat for plants. Additionally, loose sediment may reduce the potential water quality and quantity benefits provided by those wetlands.

Aquatic Resources

The Project would not temporarily affect the streams or their associated buffers in the study area during construction.

Terrestrial Resources

Terrestrial vegetation in the study area may be temporarily affected by construction activities such as clearing and grading. Temporary effects on wildlife species would include noise associated with general and localized construction activities. Although resident wildlife is more adapted to urban environments and associated noise levels, some wildlife species would be affected during localized construction activities when noise levels noticeably increase. Noise can disturb wildlife by disrupting communication, interfering with mating, and reducing the ability to obtain sufficient food, water, and cover.

Due to the localized increases in noise levels, WSDOT biologists expect wildlife species to move to other habitats in the study area. An increase in the number of animals moving into currently inhabited areas may result in animals competing for shelter, resting, or foraging habitat. However, wildlife species would disperse to other areas only during these specific times and would most likely return to the general area upon completion of the construction activity.

Endangered Species Act Considerations

WSDOT prepared a BA (WSDOT 2016c) for the Project in compliance with Section 7 of the ESA. The BA assessed the potential effects on the listed species shown in Exhibit 4.4-5. On March 22, 2016, NMFS issued a Biological Opinion that concluded the Project is *not likely to adversely affect* the Puget Sound Chinook salmon and Puget Sound steelhead trout (NMFS Tracking No. WCR-2016-4189). NMFS did not provide an evaluation of potential effects on the other listed species because the BA concluded the Project would have no effect on these species. In addition, NMFS did not provide an evaluation of potential effects on critical habitat for these species since none are present in the study area. Documentation of the Section 7 ESA consultation can be found in Attachment L, Agency and Tribal Correspondence. Concurrence from USFWS and NMFS occurred on March 22, 2016.

Exhibit 4.4-5. Threatened ESA Listed Species

Name	Critical Habitat Presence in Study Area	Effect Determination
Aquatic Species		
Puget Sound ESU Chinook Salmon	Designated but not present	Not likely to adversely affect
Puget Sound Steelhead Trout	Designated but not present ^a	Not likely to adversely affect
Puget Sound/Coastal DPS Bull Trout/ Salvelinus confluentus	Designated but not present	No effect
Terrestrial Species		
Canada Lynx / Lynx canadensis	Designated but not present	No effect
Golden Paintbrushb/Castilleja levisecta	Critical habitat not designated or proposed for species	No effect
Marbled murrelet/Brachyramphus marmoratus	Designated but not present	No effect
Streaked horned lark/Eremophila alpestris strigata	Designated but not present	No effect
Yellow-Billed Cuckoo/Coccyzus americanus	Proposed but not present	No effect

^a Critical habitat for this species was designated on February 24, 2016 (81 FR 9252).

^b According to the 2017 USFWS Information for Planning and Consultation database, this species is no longer listed as having the potential to occur within 1 mile of the study area.

DPS = distinct population segment; ESU = evolutionarily significant unit

WSDOT notified NMFS in January 2018, of minor design changes to the Project associated with widening the I-405 northbound ramps to SR 520. The ramp widening did not change the effect determinations of these species and their associated critical habitats.

WSDOT also analyzed EFH for species regulated under a federal Fisheries Management Plan under the Magnuson-Stevens Fishery Conservation and Management Act. The only group of species with EFH in the action area for the Biological Opinion are Pacific salmon (includes Chinook, coho, and pink salmon). EFH in the action area includes Sturtevant Creek and Kelsey Creek. The analysis concluded that there would be no adverse effect on Pacific salmon EFH.

Would the Project have other effects on ecosystems that may be delayed or distant from the Project?

Wetlands

WSDOT assessed delayed and distant effects as they relate to the loss of specific wetland functions. These may include a reduction in the habitat area available for wetland-dependent wildlife and changes to wetland hydrology resulting from the Project.

Wetlands and buffers permanently affected by the Project would not be available for use by wildlife as habitat. As a result, increased competition in the remaining wetlands would likely occur because of the potential influx of displaced wildlife from the affected wetlands. The effect on wildlife populations from increased competition is difficult to predict. The likelihood and severity of delayed or distant effects caused by increased competition among wetland-dependent wildlife would be highest for wetlands with the most wildlife habitat. Similarly, in the wetlands with low wildlife habitat function, the likelihood of delayed or distant effects on wetland-dependent wildlife would be low. The severity of those effects is also likely to be low.

Aquatic Resources

WSDOT would plant a diverse assemblage of native plant species within the buffer, which, over time, would improve the overall condition of the stream buffer. Many of the existing riparian buffers in the study area are dominated by nonnative or invasive vegetation. WSDOT would replant these areas with native species, if they are temporarily affected. Establishing native species in riparian buffers would improve the quantity and quality of riparian habitat in the study area, and over time, result in beneficial increased shade and nutrient deposition.

Terrestrial Resources

The loss of upland habitat could result in delayed or distant effects on wildlife habitat. There could be increased competition among wildlife for available upland habitat in the study area. Also, an increased use of remaining upland habitat by wildlife species in the study area could occur.

Would the Project have any unavoidable effects on ecosystems?

WSDOT would design the Project to avoid wetland, aquatic, and terrestrial resources to the extent practicable. WSDOT would incorporate project elements such as locating project features away from these resources throughout the design of the Project. However, the Project would result in effects on wetlands and upland vegetation that cannot be avoided despite the Project design.

The permanent effects on 0.35 acre of wetlands and 0.08 acre of wetland buffer cannot be avoided due to the current roadway design. The Project effects on wetlands and their buffers would compromise their ability to provide water quality, hydrologic, and habitat functions. No permanent effects are anticipated on the streams or their buffers.

The Project would result in the permanent loss of 2.08 acres of terrestrial vegetation (0.35 acre of forested habitat, 1.73 acres of shrub/grass) from the addition of new pavement to widen I-405. These losses would be adjacent to the existing roadway, and while they may reduce habitat available to species in the vicinity, they are not anticipated to lead to habitat fragmentation and loss of connectivity since the Project is occurring in an existing urban environment. Therefore, we do not foresee the Project causing any unavoidable effects on ecosystems.

CHAPTER 5 CUMULATIVE EFFECTS

This chapter describes cumulative effects on selected environmental resource areas resulting from the construction and operation of the Project and past and reasonably foreseeable future actions.

What are cumulative effects and why do we study them?

Cumulative effects are important to consider during the evaluation of a project. While project effects may be minor when viewed in the individual context of direct and indirect effects, they can add to the effects of other actions and eventually lead to a measurable environmental change.

In 2008, WSDOT published new guidance titled *Guidance on Preparing Cumulative Impact Analysis* (WSDOT 2008) on how to evaluate cumulative effects as required by NEPA. The updated guidance lays out the following eight-step process for identifying and assessing cumulative effects:

1. Identify resources that may have cumulative impacts to consider.
2. Define the study area and timeframe for each affected resource.
3. Describe the current health and historical context for each resource.
4. Identify direct and indirect impacts that may contribute to a cumulative impact.
5. Identify other historic, current, and reasonably foreseeable actions that may affect each resource.
6. Assess potential cumulative impacts on each resource; determine the magnitude and significance.
7. Report the results.
8. Assess and discuss potential mitigation for all adverse impacts.

Following the 2008 guidance meant that any resource that would be directly or indirectly affected by the Project would need to be included in the cumulative effects discussion. The

What are cumulative effects?

The Council on Environmental Quality's (CEQ) regulations implement the procedural provisions of NEPA. The CEQ/NEPA regulations (40 CFR 1508.7) define cumulative effects as:

The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

2008 guidance calls for assessing potential cumulative effects for all resources where direct or indirect effects have been identified.

It is possible that some environmental resources can be negatively affected, and others positively affected by the same proposed Project. Cumulative effects can also be positive, as well as negative depending on the environmental resource being evaluated.

In addition, WSDOT published guidance in 2017 for assessing climate change in NEPA documents (WSDOT 2017c). Because of this, the effects of climate change are considered as part of this updated cumulative effects analysis.

How does this cumulative effects analysis relate to the I-405 Corridor Program Final EIS?

This cumulative effects analysis for the Project used the analysis in the I-405 Corridor Program Final EIS as a starting point. The I-405 Corridor Program cumulative effects analysis focused on air quality, energy, farmlands, fish and aquatic resources, surface waters, and wetlands.

This analysis looked at the resources that would be directly or indirectly affected by this Project, combined with the reasonably foreseeable future projects, and evaluated the potential for cumulative effects on each resource. Resources considered in this analysis are air quality, noise, geology and soils, visual quality, hazardous materials, energy and greenhouse gases, climate change, recreation, public services and utilities, transportation, socioeconomics and environmental justice, water resources, and ecosystems.

The cumulative effects evaluation uses the same study areas used in assessing direct effects. In addition, WSDOT considered the information provided in the *I-405 Corridor Program Final EIS* and sought regional data and studies prepared by PSRC. WSDOT relied on the information in the discipline-specific studies and regional and local comprehensive planning documents. Information provided in the affected environment and direct effects analyses also helped to characterize the trend and current conditions.

WSDOT considered the potential for cumulative impacts on all resource areas analyzed in this EA. In addition, the measures to minimize direct effects of the Build Alternative

were evaluated in making the cumulative effect determination. For example, temporary construction effects that are fully mitigated during construction are not likely to contribute to a cumulative effect. In general, the study focused on operational effects of the Project.

What is the historical and present context (including reasonably foreseeable projects) for this analysis?

The time period from 1960 through 2045 was used for the analysis. The project team considered how the Project, in combination with past, present, and future actions is likely to affect the natural and built environment. For a historical perspective, the Puget Sound region has experienced substantial population growth since 1960. As a result of continued growth, the 2000 population of more than 3 million is projected to reach nearly 5 million by 2030.

Eastside communities that were largely rural in nature in the mid-1900s, have been gradually transformed to rural/suburban and then suburban/urban. This transformation was facilitated by major transportation and infrastructure additions such as the first Lake Washington floating bridge (now I-90) connecting Seattle to the Eastside via Mercer Island, the second Lake Washington floating bridge (SR 520), and the construction of I-405 itself. Also playing a key role in the evolution was the establishment of Microsoft and other “high-tech” businesses along the I-405 corridor in the mid-1980s and 1990s. Identifiable urban centers such as Bellevue and Renton emerged resulting in increased pressures on the I-405 corridor to provide the means for movement of goods and people. As a result, residential, commercial, and infrastructure development has been ongoing for decades in the I-405 corridor.

The project team identified current and reasonably foreseeable actions that may contribute to a cumulative impact as projects that are planned, approved, and funded. Exhibit 5-1 lists the projects considered in this cumulative effects analysis. The future private development and growth in the study area is largely limited to the redevelopment of existing areas. New commercial and residential development has primarily changed parking lots into high-rise office and residential towers. Recent planning efforts have identified the areas of

BelRed and Eastgate as opportunities for additional redevelopment that leverages convenient access to transit.

Minor capital improvement projects such as sidewalk additions, lane restriping, changes in signalization, and water and sewer line replacements were not included in this cumulative effects analysis because they would not be of a scale to cumulatively affect the resources studied.

Exhibit 5-1. Transportation Projects and Other Land Use Developments Considered in Cumulative Effects Analysis

Project	Sponsor
I-405, Tukwila to I-90 Vicinity Express Toll Lanes Project (MP 0.0 to 11.9)	WSDOT
I-405, NE 6th Street to SR 520 Widening	WSDOT
I-405, SE 8th Street Braided Ramps	WSDOT
I-405, NE 8th Street to SR 520, Southbound Braided Ramps	WSDOT
I-405, Eastbound SR 520 to NE 10th Street Off-Ramp	WSDOT
I-90, Hard Running Shoulder Project	WSDOT
SR 520 Bridge Replacement and HOV Program	WSDOT
SR 520 at 124th Avenue NE Eastbound On-Ramp and Westbound Off-Ramp	WSDOT
East Link Extension	Sound Transit
Link Light Rail Operations and Maintenance Satellite Facility	Sound Transit
BRT along I-405 between Lynnwood and south Renton	Sound Transit
Land Use Development Projects in Downtown and Bel-Red Neighborhoods of Bellevue – Several projects have been recently permitted including Pacific Regent Phase II, 600 Bellevue MDP, Parkside, Plaza Residential. Projects under construction include Washington Square Hilton garden, Evergreen Plaza Bellevue, 103 rd Avenue Apartments, Metro 112 Apartments, Bellevue Vuecrest Apartments.	Developers
NE Spring Boulevard	City of Bellevue
120th Avenue NE, NE 8th Street to Northup Way	City of Bellevue
Bellevue Way SE Southbound HOV	City of Bellevue / Sound Transit
NE 6th Street Extension, I-405 to 120th Avenue NE	City of Bellevue / Sound Transit
NE 2nd Street, Bellevue Way NE to 112th Avenue NE	City of Bellevue

What are the potential cumulative effects during operation?

WSDOT finds that the Project, together with past, present, and reasonably foreseeable future projects, would have minor contributions, many of which are positive, to cumulative effects on natural and community resources in the study area as described in the text below.

Air Quality

Air quality in the central Puget Sound region has varied since 1960. In 1978, air quality had degraded to the point that the Central Puget Sound Region was classified by the EPA as a “nonattainment area” for CO and ozone. The degradation was largely a result of the rise in VMT associated with increasing population and urbanization.

Air quality improved over the next two decades due to technological improvements in emissions control equipment and more stringent regulations. This improvement enabled EPA to redesignate the region as a “maintenance area” for CO and ozone in 1996.

Air emissions are expected to continue to decrease between now and 2045, due to improved vehicle technology, which would continue the trend of improved air quality in the region. The Build Alternative would have slightly fewer emissions than the No Build, since the improvements would result in less congestion on I-405. Therefore, when combined with other reasonably foreseeable projects, the Build Alternative improvements are expected to make a small positive contribution to long-term trend of improving air quality in the Puget Sound region.

Noise

Since the 1960s, land use in the study area has continued to shift from rural/suburban to suburban/rural development. This development has been a result of a robust regional economy and substantial increases in population since the 1960s. As land uses shift from rural to urban, human-caused noise, including noise from transportation sources, has continued to increase over time.

WSDOT does not expect that any additional sensitive receivers would approach or exceed the NAC of 66 dBA by 2040 as a result of the Project. The cumulative effect of transportation-

related noise, however, is gradually being mitigated as many new transportation improvement projects incorporate modern noise reduction strategies.

Geology and Soils

Human activities over the last several decades have changed the topography of the area by cutting, filling, and moving soils to make way for increasingly dense urban development. The original construction of I-405, as well as past projects to improve I-405, excavated areas to create bridge footings and facilitate connections with local streets. The Build Alternative would continue this development trend by requiring cut and fill as part of construction. When combined with other reasonably foreseeable future projects, proposed cut and fill associated with the Build Alternative would not substantially alter the topography in the study area and would be consistent with current development trends that require soil excavation as development becomes denser. The Build Alternative is expected to contribute to a negligible cumulative effect on changes to topography in the study area.

Visual Quality

Since the 1960s, the landscape has shifted from rural/suburban to suburban/urban. This has changed the landscape and visual quality over time from a landscape that had more vegetation and less hardscape (pavement, cement, buildings, etc.) to one that is now more urban. The I-405 Program's incorporation of CSS guidelines, specifically the I-405 Design Criteria, have helped create continuity and consistency for visual quality along the I-405 Corridor for elements such as bridge design, lighting, landscape features, etc. Ongoing collaboration with city staff in Renton and Bellevue help to ensure that projects associated with the I-405 Program are cohesive with design elements in these urban areas.

When combined with other reasonably foreseeable future projects, the Build Alternative is expected to have a small contribution to the trend of the landscape becoming increasingly urban. Continued implementation of the I-405 Design Criteria in the corridor would help minimize this effect by ensuring that improvements being designed to maintain continuity with their surroundings to the extent practicable.

Hazardous Materials

As the population and density in the area has increased, many federal and state regulatory programs have been put in place to regulate and require cleanup of hazardous materials on properties affected by past and present industrial and commercial operations. Over the past few decades, properties with known hazardous materials contamination in the study area have been cleaned up as part of required site remediation and various redevelopment efforts. Stricter regulations on hazardous materials management, cleanup, and overall development have resulted in a current landscape that has fewer contaminated sites, which has a positive contribution on human health, water quality, the overall condition of area soils, and the health of wildlife and aquatic organisms.

With the Build Alternative, if hazardous materials are encountered during construction, the materials would be remediated in accordance with state and federal laws, which would continue this positive trend of remediating contaminated properties. Because of this, when combined with other reasonably foreseeable future projects, the Build Alternative is expected to have a small, positive contribution to the cumulative trend of removing hazardous materials from the landscape.

Energy and Greenhouse Gases

Total demand for energy sources in Washington State has grown steadily since the early 1970s. Even though Washington State is the leading hydroelectric producer in the nation, energy derived from petroleum products outpaced hydroelectric in 2004. While the transportation sector is the largest producer of greenhouse gas emissions per capita, use of gasoline is about the same and diesel use is slightly lower than the national average.

The Puget Sound region experienced accelerating population growth and industrial, commercial, and residential development, particularly during the second half of the 20th century. Population growth and economic development is projected to continue (PSRC 2010a). Similarly, traffic volumes have increased with population, leading to increased automotive emissions; this trend is likely to continue in the reasonably foreseeable future.

Policies at the federal, state, and local levels support energy conservation and are intended to reduce energy use, including petroleum, as well as greenhouse gas levels over the long term. As stated previously, fuel efficiency is largely regulated through requirements on vehicle manufacturers. The trend toward more fuel-efficient vehicles is expected to continue. At the same time, investments in transit and transit service are helping to reduce emissions.

Construction and operation of the Project, along with the other present and reasonably foreseeable future transportation improvement projects would make a small contribution to statewide greenhouse gas emissions. However, these projects would together generate a smaller contribution to the cumulative effect on energy consumption and greenhouse gas emissions than their No Build alternatives because the projects would improve regional transportation efficiency and increase HOV and transit ridership. Tolling of the corridor is also anticipated to encourage transit use. Over the long-term, improvements proposed for the I-405 corridor in conjunction with Sound Transit's light rail projects would contribute to meeting greenhouse gas emissions reduction goals.

Climate Change

All of WSDOT's major capital projects undergoing environmental review consider climate change and extreme weather events as part of WSDOT's 2014–2017 strategic plan commitment. We examined available information about climate trends and the results of WSDOT's assessment of vulnerable infrastructure. The results of WSDOT's vulnerability assessment (WSDOT 2011) show the section of I-405 in the study area to be of low vulnerability to climate-related threats. The study area appears resilient to future climate-related effects. The study area may experience extreme wind, rain and snow storms and more days of extreme heat. The Project would include elements that address stormwater flow to reduce the likelihood of localized flooding.

WSDOT is active in statewide and regional efforts to reduce greenhouse gas emissions and improve multimodal choices. The Build Alternative would improve transit reliability and pedestrian and bicycle facilities. Greenhouse gas emissions related to construction and operation of the Project would not be measurably different from the No Build and, therefore, would not contribute to a cumulative effect.

Recreation

Recreational areas, including parks, natural areas, and nonmotorized trails have been a long-held value of residents living in the communities surrounding I-405. Over time, neighboring communities have invested in improvements to these areas. No direct or indirect effects on recreation would occur with the Project. When combined with other reasonably foreseeable projects, the Build Alternative would not contribute to cumulative effects on the recreational environment in the area.

Public Services and Utilities

As development has increased in the study area, so has the need for public services and utility services that support the growing population. Although, the Build Alternative would have a minor temporary effect on utilities, it would not result in any permanent increases in service or demands on utility providers. The proposed stormwater system improvements would have a slightly positive contribution to cumulative effects.

The Build Alternative would reduce congestion and improve overall travel times. These changes would benefit emergency and other service providers in the area since they would alleviate congestion. When combined with other reasonably foreseeable future projects, the net cumulative effect on public service providers would be positive.

Transportation

Over time, population increases have led to increased congestion on highways and local roadways in the study area. Today, drivers on I-405 through the study area experience several hours of congestion throughout the day. The Build Alternative would directly benefit interstate, regional, and local transportation by increasing highway capacity on an increasingly congested section of the I-405 corridor, and would reduce travel times for travelers in both the GP lanes and ETLs.

The Build Alternative, coupled with proposed transit improvements related to bus rapid transit, as well as planned roadway improvements identified in Exhibit 5-1 would continue to provide much-needed transportation infrastructure to support planned regional population and economic development in the study area. Continued targeted

investments to reduce congestion, increase roadway capacity, and improve transit are underway and planning and funding efforts are ongoing to better accommodate the existing population and future planned growth.

Socioeconomics and Environmental Justice

When I-405 was originally constructed in 1965, some neighborhoods were bisected by the new roadway. Since then, neighborhoods have adjusted and formed around I-405, using it as a boundary. Services and community facilities have also adjusted to the location of I-405, particularly since I-405 is the primary thoroughfare for residents and businesses on the Eastside. Local and regional plans designate downtown Bellevue as one of King County's Urban Centers and the area in Bellevue that would receive the city's most intense development.

Current and future projects include many transportation improvements by WSDOT, Sound Transit, and the cities of Bellevue and Renton on I-405 and local networks to address traffic congestion and safety; add bicycle and pedestrian facilities; and expand or improve transit service. Other than the effects of the ETLs, which we describe below, the Project would not have direct or indirect effects on environmental justice populations in the Project study area.

The study area has also become much more populated and diverse over time. In addition, in the last 10 years, the percentage of residents with low incomes has increased from 7 percent to 9 percent, despite the growing local and regional economy.

As described earlier, the ETLs for the projects would—in combination with the Bellevue to Lynnwood ETLs and SR 167 HOT Lanes—create a 40-mile-long ETL system from Auburn on SR 167 to Lynnwood on I-405. The WSTC has not yet set toll policy and toll rates for the entire I-405/SR 167 ETL system, so we do not know how much it would cost a motorist to travel from Auburn to Lynnwood in the ETLs. Regardless of the toll policy, the cost to use the entire ETL system would disproportionately affect low-income users for whom the total cost would represent a higher proportion of annual household income. In combination with the trend of rising housing costs in the I-405 travelshed, the ETLs would have a minor

contribution to a negative cumulative effect on economic burdens of low-income users of I-405.

The operation of ETLs would also disproportionately affect persons of limited English proficiency, who may have difficulty understanding and using all-electronic tolling. As discussed in Section 4.2, Socioeconomics and Environmental Justice, these disproportionate effects would be offset by improved travel times, reliability, and travel conditions in both the GP (untolled) lanes and the ETL systemwide.

Water Resources

Water quality, particularly in Lake Washington, has improved since the early 1960s, when the lake's water quality was severely compromised by septic and sewage system discharges. The creation of the Municipality of Metropolitan Seattle, and the subsequent construction of regional wastewater treatment plants in Renton and at West Point in Seattle, led to elimination of municipal wastewater discharges to Lake Washington, which resulted in a substantial improvement to the lake's water quality by the mid-1970s. Today, water quality in Lake Washington is much improved, despite the increase in impervious surfaces surrounding the lake and resulting runoff.

Since the 1960s, the regulatory environment for water quality has substantially changed, and regulations have been put in place at the federal, state, and local levels to regulate and manage pollutant discharges from wastewater, industrial sites, stormwater runoff, and groundwater. This has led to increased treatment and reduced pollutant discharges over time.

When combined with other reasonably foreseeable future projects, the Project's contribution to cumulative effects on surface waters would likely be positive. The Build Alternative would increase the runoff volume to the Mercer Slough wetland complex, while the I-405, Tukwila to I-90 Vicinity Express Toll Lanes Project (MP 0.0 to 11.9) would also increase runoff to the same wetland (though they would discharge in different locations). There is potential for the combined effects of these two projects to change the wetland hydrologic period of inundation, which could adversely affect wetland wildlife and habitat. The total change in impervious surface added by both projects would be small relative to the Mercer Slough wetland complex basin. Our calculation shows that the

cumulative effect would be within Ecology's guidelines for maintaining the Mercer Slough wetland complex hydrology.

Ecosystems

As the human population and the extent of development in the study area have increased over time, the area of native vegetation has decreased and habitat for wildlife and aquatic organisms has been eliminated and/or degraded. Wetland resources in the watersheds have continued to decline over time because of human population increases. Increases in the human population have been accompanied by the construction of homes, retail centers, and industrial facilities and the associated loss of natural landscapes including wetlands.

Natural habitat alteration has taken the form of forest cover and stream-side vegetation removal, channel modification, bank armoring, dredging, removal of woody debris from streams, routing of streams through culverts, alteration of natural stream flow regimes, and construction of barriers to fish passage. These habitat changes have contributed to declining wildlife and fish populations, which in some cases have led to the species being protected by increasing regulatory oversight under the ESA.

The regulatory trend of attaining no net loss (at least as many acres of wetlands created as lost/filled) and improved avoidance, mitigation, and compensation measures are helping to restore wetland areas. Advanced scientific studies, refined regulatory requirements and programs, and use of adaptive management procedures would serve to further enhance the wetlands restoration trend.

WSDOT would design the Project to avoid wetland, aquatic, and terrestrial resources to the extent practicable. Less than a half-acre of wetlands would be filled to construct the Project. In addition, the Project would result in the permanent loss of 2.08 acres of terrestrial vegetation (0.35 acre of forested habitat, 1.73 acres of shrub/grass) from the addition of new pavement to widen I-405. When combined with other reasonably foreseeable future projects, the Build Alternative is expected to result in a minor contribution to cumulative effects on ecosystems.

What would be the potential cumulative effects associated with No Build?

Construction-related and operational effects on air quality, surface waters, wetlands, and fish and aquatic resources resulting from the Project would not occur.

In addition, improvements and enhancements associated with the Project would not occur. There would be no relief to traffic congestion, and as a result, the rate of localized air quality degradation could increase. There would be no improvements to existing water quality treatment facilities that do not meet current standards.

Would there be any unavoidable cumulative effects?

No unavoidable cumulative effects are anticipated due to construction and operation of the Project. The Project in combination with other I-405 investments would result in long-term improvements to transportation. Overall, operation of the Project would not contribute to cumulative impacts and no mitigation would be required.

Are there measures to avoid or minimize cumulative effects?

No measures, beyond those incorporated in the Project design or listed in the air quality, water resources, and ecosystems discipline reports, would be necessary to avoid or minimize cumulative effects.

CHAPTER 6 MEASURES TO AVOID OR MINIMIZE EFFECTS

This chapter describes the established design and construction practices that WSDOT will include to avoid or minimize effects on the various environmental resources during both the construction and operation phases of the Project. We will use BMPs, WSDOT Standard Specifications, and design elements to avoid or minimize potential effects on the environment from the Project. We refer to measures that avoid or minimize potential effects on the environment as “avoidance measures.” If the Project has additional effects not addressed in the avoidance measures, we will address these effects through mitigation.

What measures will WSDOT take to avoid or minimize construction effects?

Measures for Air Quality

Per WSDOT’s *Environmental Manual* M31-11, the construction contractor will be contractually obligated to control fugitive dust in accordance with the October 1999 Memorandum of Agreement between WSDOT and Puget Sound Clean Air Agency regarding control of fugitive dust from construction projects (WSDOT 2016e).

The following measures could be used to control dispersion of dust (PM₁₀ and PM_{2.5}), transmission of particulate matter, and emissions of CO, nitrogen oxides (NO_x), and VOCs during construction:

- WSDOT will encourage contractors to use newer construction equipment and maintain all equipment in good mechanical condition to minimize exhaust emissions.
- WSDOT will assess the viability of carpooling, commute trip reduction, and other transportation demand management programs for construction workers.
- WSDOT will stage construction between other I-405 transportation projects to minimize congestion that contributes to regional emissions of pollutants during construction.

What are best management practices?

Best management practices (BMPs) are generally accepted techniques that, when used alone or in combination, prevent or reduce adverse effects of a project. Examples include erosion-control measures and construction management to minimize traffic disruption.

What are WSDOT Standard Specifications?

Standard specifications are guidelines and procedures established by WSDOT for roadway design and construction.

- WSDOT will encourage contractors to reduce construction truck idling.
- Where possible, WSDOT will locate construction equipment and staging areas away from sensitive receptors such as fresh air intakes to buildings, air conditioners, and sensitive populations such as the elderly and the young.
- WSDOT will spray exposed soil with water or other suppressant as needed to minimize emissions of PM₁₀ and reduce deposition of particulate matter.
- WSDOT will cover all loads in trucks transporting materials, wet materials in trucks, or provide adequate freeboard (space from the top of the material to the top of the truck bed) to minimize PM₁₀ and deposition of particulates during transportation.
- WSDOT will provide wheel washers to remove particulate matter that would otherwise be carried off site by vehicles to decrease deposition of particulate matter on area roadways.
- WSDOT will remove particulate matter deposited on paved roads, public roads, sidewalks, and bicycle and pedestrian paths to reduce mud and dust.
- WSDOT will cover and stabilize project-site dirt, gravel, and debris piles, as needed, to minimize dust and wind-blown debris.
- WSDOT will restrict the speed of construction vehicles when operating in areas of exposed earth.
- WSDOT will route and schedule construction trucks to reduce delays to traffic during peak travel times to minimize air quality impacts caused by a reduction in traffic speeds.

Measures for Geology and Soils

Seismicity

- WSDOT will meet American Association of State Highway and Transportation Officials (AASHTO) design standards and implement design methods that will make project elements stable under the design AASHTO event and limit susceptibility to collapse under an unlikely larger event.

What is the American Association of State Highway and Transportation Officials?

The *American Association of State Highway and Transportation Officials (AASHTO)* is a standard setting body that publishes specifications, quality control protocols, and guidelines used in highway design and construction throughout the United States. AASHTO started as a highways and roads association back in 1914. Today, AASHTO serves as a liaison between state departments of transportation and the federal government. It is an international leader in setting technical standards for all phases of highway system development. Standards are issued for design, construction, materials, and many other technical areas.

Liquefaction-Prone Areas

- WSDOT will identify areas where liquefaction-prone soils may be located. For structures underlain by liquefaction-prone soils, WSDOT will evaluate the potential effects on the structure from liquefaction. If liquefaction risks are determined unacceptable, then WSDOT will use appropriate measures to reduce long-term liquefaction and lateral spreading risks. Such measures might include soil densification, such as stone columns, vibratory compaction, compaction grouting, and dynamic compaction. Liquefaction potential along the Project alignment is assessed as low.

Soft Ground Areas

- WSDOT will take appropriate measures to assess and reduce potential settlement problems associated with existing utilities or structures in areas underlain by soft, compressible soil. If deemed necessary, structures could be underpinned and utilities relocated or made more flexible. In cases where settlement exceeds WSDOT tolerance and the settlement is allowed, any repairs will be made, as needed, after the settlement is complete. Where soft ground areas are identified, WSDOT will conduct preconstruction surveys and monitor construction settlements. Soft ground areas are not likely to be encountered along the Project alignment.
- WSDOT will assess the settlement potential for structures and embankments underlain by soft, compressible soil. If the potential settlement is unacceptable, WSDOT will design the structures and embankments to accommodate or avoid the settlement, such as deep foundations for structures or surcharge fills for embankments.
- WSDOT will develop the means and methods to avoid or minimize settlement resulting from construction vibration in areas underlain by soft or loose soils.

Slope Stability and Landslide Areas

- WSDOT will develop appropriate construction procedures to maintain or enhance slope stability in areas underlain by landslides or with landslide-prone

geology. The design through these areas will include suitable wall types, such as soldier piles with tiebacks, possibly supplemented with enhanced drainage, such as improved surface drainage or horizontal drains. This analysis has not identified any landslide hazard areas within the Project alignment.

- WSDOT will drain suspected or observed seepage to reduce the risk of landslide and surface sloughing through the use of gravel drainage blankets, French drains, horizontal drains, placement of a surface rock facing, or other methods.

Dewatering

- WSDOT will use properly designed, installed, and operated dewatering systems because dewatering for utility trenches can induce ground settlement in areas of soft compressible soils. This might include sheet pile cut-off shoring, recharge wells, a settlement and groundwater level monitoring system, and other procedures. We understand that complete elimination of settlement in proximity to excavations can be difficult, particularly if loose granular soils are densified by installing sheet piles.
- WSDOT will control dewatering discharge to avoid effects. If dewatering occurs in contaminated ground, discharge into storm drains or adjacent surface drainages could affect water quality. This condition is normally mitigated by disposing of the discharge in a sanitary sewer or performing on-site treatment.

Erosion

- WSDOT will prepare and implement a Temporary Erosion and Sediment Control (TESC) plan to minimize erosion and protect water quality.
- If any BMP or other operation does not function as intended, WSDOT will take additional action to minimize erosion, maintain water quality, and achieve the intended environmental performance.

Earthworks

- WSDOT will control dust by using a water truck or other dust-control measures (see measures for air quality). WSDOT will also control soil tracked onto

nearby surface streets from truck tires. WSDOT will place and maintain stockpiles properly to avoid erosion or slope stability problems. Proper traffic control and construction management procedures will be implemented to reduce truck-related construction effects. Erosion control of stockpiles will be included in the TESC plan.

Groundwater Quality

- WSDOT will avoid drawdown of nearby wells during construction. These effects can be avoided by using recharge wells and/or cut-off walls, if necessary. WSDOT will implement good construction management, safety precautions, and safety enforcements to avoid construction-related traffic accidents, which could damage and disrupt these wells.
- WSDOT will locate areas where permanent drainage will be required by site conditions for cut slopes. If local private groundwater users or down-gradient wetlands and spring water right holders could become affected by drawdown of the groundwater table from these drain systems, these effects will be avoided on a site-specific basis by designing the permanent drainage system to recharge or replenish the down-gradient water table.

Measures for Visual Quality

- WSDOT will minimize project-related light and glare to the maximum extent possible using color-corrected halide lights, operating lights, and light-emitting diode (LED) signs at the lowest wattage possible; directing work lights away from neighboring properties; and using screens to prevent light from spilling outside of the work area.
- WSDOT will restore all staging and access areas to preconstruction conditions or better by restoring natural contours, rehabilitating soils, and planting native vegetation in accordance with WSDOT's *Roadside Manual* (2016d).
- WSDOT will work in concert with an International Society of Arboriculture-certified arborist to trim or remove trees, as needed during construction of new noise or retaining walls and carefully perform pruning

to avoid harming trees and hindering future growth. In accordance with WSDOT policy, staging and laydown areas will be located where there is no vegetation, undesirable vegetation (such as Himalayan blackberries), or vegetation, such as grassed road shoulders, that is easy to restore.

Measures for Hazardous Materials

- WSDOT's contractor will prepare an SPCC plan that provides specific guidance for managing contaminated media that may be encountered within the right-of-way.
- If WSDOT encounters an underground storage tank (UST) within the right-of-way, WSDOT will assume cleanup liability for the appropriate decommissioning and removal of the UST.
- WSDOT's contractor will dispose of all construction waste material, such as concrete and other potentially harmful materials at approved sites.

Measures for Public Services and Utilities

- WSDOT will prepare and implement a Traffic Management Plan (TMP).
- WSDOT will post signs to show detour routes if periods of closures are needed.
- WSDOT will coordinate with school districts before construction.
- WSDOT will coordinate with all emergency services prior to or during construction.
- WSDOT will coordinate with utility providers to identify conflicts and resolve them prior to or during construction.

Measures for Transportation

- WSDOT will prepare a TMP before making any changes to the traffic flow. We will advise the public, school districts, and emergency service providers of the changes ahead of time through a public information process.
- Prior to and during construction, WSDOT will implement strategies to manage the demand on transportation infrastructure. These transportation

demand management strategies, such as support for the use of carpools, vanpools, and public transportation programs, will form an important part of the construction management program and will be aimed at increasing public awareness of their travel options in the corridor.

- Existing capacity will be maintained during construction activities to the extent possible. Lane or roadway closures will be minimized and schedule to occur when there is the least effect on traffic within the Project corridor, such as overnight and weekend time periods.
- Pedestrian and bicycle circulation will be maintained as much as possible during construction. For any road, bicycle lane, and/or sidewalk closure, clearly marked detours will be provided.

Measures for Socioeconomics and Environmental Justice

- WSDOT is also considering two strategies it has used on other tolled projects to further minimize the effects of tolls on environmental justice populations
 - Exempt transit and paratransit from the tolls.
 - Make it easy for people without a bank account to purchase and preload a *Good To Go!* pass—for example, selling them in local grocery stores and pharmacies and allowing people to use cash to load them.
 - As of 2009, low-income individuals who are eligible for public benefits may use their Electronic Benefit Transfer cards to open and maintain their *Good To Go!* accounts. This option could offset some of the disproportionate effect. In addition, WSDOT is currently working to expand the network of retail location where people can buy *Good To Go!* passes with cash, making it easier for people to purchase a pass without a bank account.
- WSDOT will prepare and implement a TMP. If local streets must be temporarily closed during construction,

detour routes will be provided and clearly marked with signs.

- WSDOT will coordinate with the school districts before construction. The TMP will be implemented and coordinated with all emergency services organizations prior to any construction activity.
- WSDOT will maintain access to businesses throughout the construction period.
- Because it can be difficult to determine whether a business is open, or how to access the site during the construction period, WSDOT will make provisions for posting appropriate signs to communicate the necessary information to potential customers.
- WSDOT will keep daytime street closures to a minimum.
- In situations where it is necessary to acquire property, WSDOT will conform to the requirements set forth in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, as amended and implemented by FHWA under 49 CFR 24, and according to Chapter 468-100 Washington Administrative Code (WAC) Uniform Relocation and Assistance and Real Property Acquisition. This will ensure just compensation for all properties and minimize any effect on the current owners and residents. Relocation resources are available, without discrimination, to all eligible residents and businesses.
- WSDOT will continue to conduct targeted outreach to minority, low-income, and persons of limited-English proficiency in the study area and I-405 travelshed before and during construction. This includes:
 - Translate project materials about construction effects—especially those related to transit reroutes and temporary closures of transit stops—into Spanish.
 - Distribute project materials—especially prior to construction-related closures that will affect motorists and transit riders—through social service agencies, community-based

organizations, libraries, community groups,
and schools.

Measures for Water Resources

WSDOT's current *Highway Runoff Manual* (2016a) requires that the contractor apply for a National Pollutant Discharge Elimination System (NPDES) construction permit. This permit requires development of the following:

- TESC plan
- SPCC plan
- Compliance with specific State of Washington water quality standards

The TESC will include BMPs to address the issues of source control, flow control, and treatment. BMPs will be site-specific and include the following:

- Install check dams in drainage ditches to reduce velocity and allow fine sediment to settle.
- Install inlet protection filters to keep sediment from entering storm drains.
- Protect steep slopes.
- Stabilize open grading after a specified period if outside active work areas.

The SPCC plan will include measures to protect groundwater during construction. These measures will be developed based on the specific contractor activities at the site and will include the following:

- Develop staging areas for equipment repair and maintenance away from all drainage courses.
- Protect groundwater with the use of standard BMPs.
- Provide secondary containment for fuel and chemical storage, fueling operations for construction vehicles, and equipment.
- Locate spill response equipment at regular and specified intervals along the Project alignment.
- Verify that imported fill meets Model Toxic Control Act Method A or B soil cleanup standards (WAC 173-340-740) for unrestricted use.

Measures for Ecosystems

- WSDOT will protect, preserve, and enhance wetlands in the study area during the planning, construction, and operation of transportation facilities and projects consistent with U.S. Department of Transportation (USDOT) Order 5660. 1A; Executive Order 11990; and Governor's Executive Orders Executive Order 89-10 and Executive Order 90-94.
- WSDOT will use fencing to clearly mark wetlands in the construction areas that are to be avoided.
- WSDOT will implement avoidance measures to reduce temporal losses of wetland functions. Project-level design and environmental review has included avoidance, minimization, restoration, and compensation of wetlands.
- WSDOT will prepare and implement a revegetation plan. If WSDOT must permanently remove vegetation for roadway construction, it will be replaced with native vegetation within or near the study area.
- WSDOT will adhere to project conditions identified in the BA and agency concurrence letters.
- WSDOT will implement construction BMPs (such as silt fencing or sedimentation ponds) to avoid disturbing sensitive natural areas.

What measures will be taken to mitigate effects of operation?

Measures for Geology and Soils

Seismicity

- WSDOT has procedures in place to inspect critical highway elements following a major seismic event. These procedures will be implemented for the Project as necessary.

Soft Ground

- WSDOT will conduct long-term monitoring of embankments or walls constructed on soft ground to ensure that they are not experiencing unacceptable settlement.

Slope Stability and Landslides

- WSDOT will conduct long-term maintenance of surface and subsurface drainage in areas of landslide risk. If installed, horizontal drains will be periodically inspected and maintained because these types of drains tend to clog with time. If identified as a need during the design geotechnical investigation, long-term monitoring of slopes and walls may be appropriate in selected areas.

Measures for Visual Quality

- WSDOT will apply CSS treatments to all new structures, light poles, sign bridges, retaining walls, noise walls, and landscape areas to as shown in the *I-405 Urban Design Criteria* (WSDOT 2016b).
- WSDOT will limit artificial outdoor lighting to achieve safety and security requirements while limiting the amount of light spill onto adjacent properties or open spaces. Highway and pedestrian lights will be of the type and color shown in the *I-405 Urban Design Criteria* (WSDOT 2016b).
- Project designers will site the LED signs that announce the current toll rate to minimize the spillover of light onto adjacent properties. Noise walls, existing vegetation, and elevation change will prevent residential neighbors from seeing the illuminated signs at night. LED signs in the commercial areas of Bellevue will blend with other light sources in the area.
- WSDOT will widen the highway and site new bridges away from the right-of-way line, wherever possible, to minimize visual impacts on neighbors during construction and operation of the facility. Where the Project removes structures or pavement, restore areas to match the surrounding context as shown in the *I-405 Urban Design Criteria* (WSDOT 2016b).

Measures for Water Resources

Surface Water

- WSDOT has designed stormwater detention and treatment facilities that will minimize effects on stormwater discharge flows and water quality. The stormwater facilities will treat an equivalent highway

pavement area to address the 2.7 acres of new impervious surface area following the *Highway Runoff Manual*.

- WSDOT will retrofit existing stormwater facilities to treat an additional 3 acres of highway pavement in the study area to further mitigate effects on water resources. As a result, the quality of the stormwater discharged will have a slightly increased amount of dissolved copper, but all other assessed pollutants (total suspended solids, total copper, and total and dissolved zinc) will decrease.
- Stormwater ponds will provide flow control, except where the Project discharges directly to Mercer Slough.

Measures for Ecosystems

- WSDOT will revegetate areas where vegetation removal will occur, if possible (except for areas of new impervious surface).
- WSDOT will leave large woody debris found in any landslide material in riparian areas and retain it for future restoration use or donate it to a local watershed group if there is a need for the material.
- WSDOT's will not include the application of any chemical weed control agents (herbicides) in its ongoing maintenance of stormwater treatment and detention facilities.
- WSDOT will provide compensatory mitigation at on- and off-site locations.

Measures for Socioeconomics and Environmental Justice

Although there is no need for additional mitigation, WSDOT will continue conducting targeted outreach to engage minority, low-income, and limited English proficient residents of the study area and I-405 travelshed. Ongoing public involvement activities when the Project is constructed will include the following measures:

- Maintaining ongoing communications with community-based organizations and social service providers throughout design of the Project, and scheduling briefings with them at project milestones.

- Developing a summary of the EA for this Project and posting the summary to the WSDOT website and in libraries throughout the study area. As part of its standard outreach practice, WSDOT will translate outreach materials related to the environmental documents, such as flyers and newspaper announcements, as well as any documents for which the agency receives a request for translation.
- Distributing project materials through social service agencies, community-based organizations, libraries, community groups, and schools and host booths at community events in the study area.
- Planning and implementing a public information campaign in multiple languages to explain ETLs, how to obtain a *Good To Go!* pass, and how to set up an account, with the goal of increasing the proportion of passholders who identify as minority, have low incomes, or are limited English proficient.
- Including information about how to use the ETLs in Spanish and other languages, as needed, as part of the public information campaign, such as how to enter and exit the lanes, how to determine the cost, and how to obtain a free *Good To Go!* pass for carpools.
- Conducting outreach about the Project and ETLs at community fairs and festivals, including events at Bellevue's Crossroads Mini-City Hall, in one of the Eastside's most ethnically and linguistically diverse neighborhoods.
- Conducting media outreach, specifically with ethnic media outlets serving the study area.

To reduce possible barriers to obtaining and maintaining a *Good To Go!* account for persons who have low-incomes or are underbanked:

- WSDOT will continue to offer the option for low-income persons who are eligible for public benefits to use their Electronic Benefit Transfer cards to open and maintain their *Good To Go!* accounts.

WSDOT is working to expand the network of retail locations where people can buy *Good To Go!* passes with cash, making it easier for people to purchase a pass without a bank account.

Note that, as of 2009, low-income individuals who are eligible for public benefits may use their Electronic Benefit Transfer cards to open and maintain their *Good To Go!* accounts. This option could offset some of the disproportionate effects. In addition, WSDOT is currently working to expand the network of retail location where people can buy *Good To Go!* passes with cash, making it easier for people to purchase a pass without a bank account.

CHAPTER 7 LIST OF PREPARERS

This EA was prepared through a collaborative effort by the FHWA, WSDOT, and the I-405 project team. Exhibit 7-1 lists the people who contributed to the information provided in the document, including their contribution, education, and years of experience.

Exhibit 7-1. List of Preparers

Name Affiliation	Project Role	Education Certifications/Licenses Professional Organizations	Years of Experience
Alan Black, PE I-405 Team	Water Resources Discipline Report Lead	BS, Civil Engineering WA Professional Engineer CPSWQ, CPESC	32
Allison Hanson I-405 Team	I-405 Program Environmental Manager	BA, Environmental Education	20
Caroline Barnett, PE I-405 Team	I-405 Program Design Manager	BS, Civil Engineering WA Professional Engineer	16
Conrad Felice I-405 Team	Geology and Soils Report Lead	PhD, Civil Engineering WA Professional Engineer ARMA, ASCE, DFI, DRBF, EERI, UCA of SME	38
Emily Gerald I-405 Team	GIS Lead; EA Contributor: Ecosystems	MNRM, Natural Resources Management	5
Gaylin Gardette I-405 Team	Document Formatting	BA, Rhetoric USACE Quality Manager	28
Greg McKnight I-405 Team	Transportation Discipline Report Lead	Washington Professional Engineer	11
Hussein Rehmat I-405 Team	EA Contributor	BA Community, Environment, and Planning	10
Jamie Strausz-Clark I-405 Team	Environmental Justice Discipline Report Lead	Master of Public Policy	18
Jason Cooper I-405 Team	Historic and Cultural Resources Report Contributor	MA, Anthropology Register of Professional Archaeologists	10
Jennifer Thomas I-405 Team	Historic and Cultural Resources Report Lead	MA, Anthropology	14

Exhibit 7-1. List of Preparers

Name Affiliation	Project Role	Education Certifications/Licenses Professional Organizations	Years of Experience
Jill Irwin I-405 Team	Document Technical Editing	BA, Art History Certificate, Technical Writing	23
Joshua Johnson, PE I-405 Team	Transportation Discipline Report Lead	BS, Civil Engineering Washington PE	12
Karin Fusetti I-405 Team	EA Contributor: Energy, Section 4(f)/6(f), Public Services and Utilities, Cumulative Effects	BA, Planning and Design	25
Karl Westby I-405 Team	I-405 Program Traffic Lead	PhD, Civil Engineering MS, Transportation BA, Urban and Regional Planning	26
Katey Bean I-405 Team	Visual Impact Assessment Discipline Report Lead	MLA, Landscape Architecture WA Landscape Architect American Society of Landscape Architects	11
Lisa Ives I-405 Team	Primary EA Author	MS, Geography and Environmental Studies	28
Michelle Jones I-405 Team	Air Quality and Greenhouse Gases Discipline Report Lead	BS, Civil Engineering	24
Akberet Ghebreghzabiher WSDOT	Noise Discipline Report Lead	BS, Civil Engineering	11
Trent Ensminger WSDOT	Hazardous Materials Technical Memorandum Lead	BS, Biology, with a minor in Education	9.5

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ATTACHMENT J GLOSSARY

Term	Meaning
A-weight	A standard frequency weighting that simulates how humans perceive sound (dBA)
access	The ability to enter or approach a facility or to make use of a facility.
adverse effects	<p>The totality of individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to:</p> <ul style="list-style-type: none"> ▪ bodily impairment, infirmity, illness or death ▪ air, noise, and water pollution and soil contamination ▪ destruction or disruption of human-made natural resources ▪ destruction or diminution of aesthetic values ▪ destruction or disruption of community cohesion or a community's economic vitality ▪ destruction or disruption of the availability of public and private facilities and services ▪ vibration ▪ employment effects ▪ displacement of persons, businesses, farms, or nonprofit organizations ▪ increased traffic congestion, isolation, exclusion or separation of minority or low- income individuals within a given community or from the broader community ▪ denial, of, reduction in, or substantial delay in the receipt of benefits of DOT programs, policies, or activities
air quality standards	The level of pollutants prescribed by regulations that may not be exceeded during a given time in a defined area.
ambient	Surrounding atmosphere.
anadromous fish	A fish species that spends a part of its life cycle in the sea and returns to freshwater streams to spawn.
area of potential effect (APE)	This is the area in which historic properties, if they are present, could be affected by the project either directly or indirectly.
arterial	A major street that primarily serves through traffic, but also provides access to abutting properties. Arterials are often divided into principal and minor classifications depending on the number of lanes, connections made, volume of traffic, nature of traffic, speeds, interruptions (access functions), and length.

best management practices (BMPs)	BMPs are generally accepted techniques that, when used alone or in combination, prevent or reduce adverse effects of a project. Examples include erosion control measures and construction management to minimize traffic disruption. See Chapter 6 for a complete list of BMPs.
buffer	A designated area along and adjacent to a stream or wetland that may be regulated to control the negative effects of adjacent development on the aquatic resource.
capacity	The maximum sustained traffic flow of a transportation facility under prevailing traffic and roadway conditions in a specified direction.
choke points	An area of highway with inadequate capacity or a point or area of traffic congestion.
Code of Federal Regulations	The Code of Federal Regulations (CFR) is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government. It is divided into 50 titles that represent broad areas subject to federal regulation. Each volume of the CFR is updated once each calendar year and is issued on a quarterly basis.
congestion	A condition characterized by unstable traffic flows that prohibit movement on a transportation facility at optimal legal speeds. Recurring congestion is caused by regularly occurring excess volume compared with capacity. Nonrecurring congestion is caused by unusual or unpredictable events such as traffic accidents.
conservation	Defined by the Endangered Species Act (ESA) as the use of all methods and procedures which are necessary to bring any endangered or threatened species to the point at which the measures provided pursuant to the ESA are no longer necessary.
constructive use	A type of indirect use in which a transportation project's proximity impacts (as opposed to direct impacts) are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. Examples include excessive noise level increases, diminished aesthetic features, ecological intrusions, and other indirect impacts to the resource's environment or utility.

context sensitive solutions (CSS)	A model for transportation project development that has recently received much discussion and broad acceptance. Its essence is that a proposed transportation project must be planned not only for its physical aspects as a road serving specific transportation objectives, but also for its effects on the aesthetic, social, economic, and environmental values, needs, constraints, and opportunities in a larger community setting.
cultural resources	Any historic (or prehistoric) district, site, building, structure, or object that is either listed or eligible for listing on the National Register of Historic Places (NRHP). Examples include such items as artifacts, records, structures, and remains.
cumulative effect	Effect on the environment which results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions. Cumulative effects can result from individually minor but collectively noticeable actions taking place over a period of time.
delay	Increased travel time experienced by a person or a vehicle because of circumstances that impede the desirable movement of traffic.
direct effect	Effect caused by the proposed action and occurring at the same time and place.
disproportionately high and adverse effect	An adverse effect that: <ul style="list-style-type: none"> (a) is predominately borne by a minority population and/or a low-income population, or (b) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.
Ecology	Washington State Department of Ecology
ecosystem	Community of organisms interacting with each other and the environment in which they live.
effect	Includes ecological effects (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health effects, whether direct, indirect, or cumulative. Effects may include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes the effect will be beneficial.

eligible	Refers to properties that meet the National Park Service criteria for listing on the National Register of Historic Places (NRHP).
emergent	A plant that grows rooted in shallow water or saturated soil, where most of the plant emerges from the water or above the ground surface and stands vertically.
emergent wetland	In the USFWS classification system (Cowardin et al. 1979), a wetland characterized by erect, rooted, non-woody plants.
Endangered Species Act (ESA)	The Endangered Species Act provides a means whereby the ecosystems, upon which endangered and threatened species depend, may be conserved to provide a program for the conservation of such species and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in the act.
environmental justice	Executive Order 12898 provides that each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.
express toll lane (ETL)	A limited-access freeway lane that is actively managed through a variable toll system to regulate its use and thereby maintain express travel speeds and reliability. Toll prices rise or fall in real time as the lane approaches capacity or becomes less used. This ensures that traffic in the ETL remains flowing at express travel speeds of 45 miles per hour or greater a majority of the time. Transit and carpools do not pay a toll.
feasible and prudent	<p>A term that is integral to the Section 4(f) process, feasible and prudent refers to the viability of an alternative that avoids the use of a Section 4(f) resource. The term "feasible" refers to the constructability of a project—whether or not it can be built using current construction methods, technologies, and practices. The term "prudent" refers to how reasonable the alternative is—in essence, whether or not it makes sense. Given a range of options, a transportation agency must select an avoidance alternative rather than adversely impact Section 4(f) resources if it is feasible and prudent. By contrast, an alternative may be rejected if it is not feasible and prudent. An alternative may be considered not feasible and prudent for any of the following reasons:</p> <ul style="list-style-type: none">▪ Does not meet project purpose and need▪ Excessive cost of construction▪ Severe operational or safety problems

- Unacceptable impacts (social, economic or environmental)
- Serious community disruption
 - A combination of any of the above

Federal Highway Administration (FHWA)	One of several agencies in the U.S. Department of Transportation, the FHWA provides federal financial assistance to the states through the Federal Aid Highway Program, the purpose of which is to construct and improve the National Highway System, urban and rural roads, and bridges.
fill	Soil placed by humans, such as for roads or building foundations.
flood hazard areas	Frequently flooded areas.
floodplain	The area that is subject to periodic flooding. The jurisdictional floodplain area for this project is that area that has a greater than 1% chance of flooding in a given year. We refer to this area as the 100-year floodplain.
forested wetland	In the USFWS classification system (Cowardin et al. 1979), a wetland characterized by woody vegetation that is greater than or equal to 20 feet high.
general purpose (GP) lane	A freeway or arterial lane available for use by all traffic.
hazardous materials	Hazardous materials include any material that, because of its quantity, concentration, or physical or chemical characteristics, may pose a threat to human health or the environment.
high-occupancy vehicle (HOV)	Vehicle that carries two or more people, including buses, vanpools, and carpools.
hydrologic	Pertaining to the study of water and its interaction with the environment. Hydrologic effects may include changes in stream flow, flooding, or channel capacity, backwatering at culverts, or other characteristics.

impervious surface area	<p>Area that is not permeable to infiltration of precipitation or runoff to groundwater (water will run off this type of surface but not soak in). A high proportion of precipitation that falls onto impervious surfaces drains from the area as stormwater runoff.</p> <p>In contrast, vegetated areas are permeable, and a large proportion of precipitation that falls on vegetated areas is either intercepted by vegetation or infiltrates into the soil.</p>
indirect effect	<p>Effect caused by the proposed action that is later in time or farther removed in distance, but still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.</p>
jurisdiction	<p>A municipal government agency, such as a city or county. As appropriate, the term "jurisdiction" also includes federal and state agencies.</p>
low-income	<p>A person whose median household income is at or below the Department of Health and Human Services poverty guidelines.</p>
mitigation	<p>An effort to replace land or facilities either with resources that are comparable in value and function, or with monetary compensation that can be used to enhance the remaining land. Specifically, for Section 4(f) resources, the cost of mitigation should be a reasonable public expenditure in light of the severity of the impact.</p>
modeling	<p>Use of statistics and mathematical equations to simulate and predict real events and processes.</p>
National Environmental Policy Act (NEPA)	<p>The National Environmental Policy Act of 1969 (NEPA) is considered to be the basic "National Charter" for protection of the environment. NEPA requires that, to the extent possible, the policies, regulations, and laws of the federal government be interpreted and administered in accordance with the protection goals of the law. It also requires federal agencies to use an interdisciplinary approach in planning and decision making for actions that impact the environment. Finally, NEPA requires the preparation of an environmental impact statement</p>

(EIS) on all major federal actions significantly affecting the human environment.

National Register of Historic Places (NRHP)	The Nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archaeological resources. Properties listed in the register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The National Park Service administers the National Register, which is part of the U.S. Department of the Interior.
official with jurisdiction	The legal representative at the agency owning or administering the resource, unless the agency has delegated or relinquished this authority via formal agreement.
off-peak direction	Travel direction of the freeway with the lower demand.
palustrine	In the USFWS classification system (Cowardin et al. 1979), freshwater areas (having less than 0.5 part per thousand ocean-derived salts) dominated by trees, shrubs, persistent emergents, mosses, or lichens. These areas can be tidal (waters which alternate by rising and falling) or non-tidal. Palustrine also includes wetlands that lack this vegetation but have the following characteristics: (1) area less than 20 acres; (2) no active wave-formed or bedrock shoreline; and, (3) deepest water depth is less than 6.6 feet at low water.
peak	The maximum sound level during a given time interval when the normal frequency and time weighting is not used. The noise measurement instrument has a peak detector that responds rapidly to changing sound levels, unlike the normal time weighting of the instrument.
peak hour	The hour in the morning and in the afternoon when the maximum demand occurs on a given transportation facility or corridor.

peak period	The period of the day during which the maximum amount of travel occurs. It may be specified as the morning (AM), or the afternoon or evening (PM) peak.
proximity effects	See “Constructive Use.”
prudent	See “Feasible and Prudent.”
public services	Public services include fire and police protection, schools, parks and recreational facilities, places of worship, and cemeteries.
publicly owned	Property that is owned and/or operated by a public entity. If a governmental body has a proprietary interest in the land (such as fee ownership, drainage easements or wetland easements), it can be considered publicly owned. Land subject to a public easement in perpetuity can also be considered to be publicly owned land for the purpose for which the easement exists.
Puget Sound Regional Council (PSRC)	The Metropolitan Planning Organization (MPO) and Regional Transportation Planning Organization (RTPO) for the Central Puget Sound region, which is comprised of Snohomish, King, Pierce, and Kitsap Counties. The MPO and RTPO is the legally mandated forum for cooperative transportation decision-making in a metropolitan planning area.
right-of-way	Land legally established for public use by pedestrians, vehicles, or utilities.
riparian	Land that occurs along or interacts with flowing water. Pertaining to anything connected with or immediately adjacent to the banks of a stream, river, or other waterbody.
runoff	Rainwater or snowmelt that directly leaves an area as surface drainage.
Section 4(f)	Section 4(f) of the U.S. Department of Transportation Act of 1966 declares that special efforts be made to preserve public park and recreation lands, wildlife and waterfowl refuges, and historic sites of national, state, or local significance. Historic sites are afforded protection under Section 4(f) if listed or determined eligible for the NRHP. Section 4(f) permits the Secretary of Transportation to approve a project that requires the use of land from a significant publicly

	<p>owned park, recreation area, or wildlife and waterfowl refuge, or any land from a historic site of national, state, or local significance only if the lead federal agency(s) makes the following determinations:</p> <ul style="list-style-type: none"> ▪ There is no feasible and prudent alternative to the use of such land; and ▪ All possible planning has been undertaken to minimize harm to the Section 4(f) lands resulting from such use.
Section 6(f)	<p>Section 6(f) of the 1965 Land and Water Conservation Fund Act provides funding for acquiring property and developing public recreational facilities, and protects against the loss of that property to other uses. This section of the act states, “No property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses.” Section 6(f) applies when the project acquires property where Land and Water Conservation Grant Funds have been used to either acquire or develop the property.</p>
Section 106	<p>Under Section 106 of the National Historic Preservation Act of 1966, as amended, federal agencies must identify and evaluate cultural resources and consider how undertakings they fund, license, permit, or assist affect historic properties eligible for inclusion in the National Register of Historic Places (NRHP). The federal agencies must afford the State Historic Preservation Officer and the Advisory Council on Historic Preservation the opportunity to comment on these undertakings.</p>
Significance (for 4(f) resources)	<p>Significance means that in comparing the availability and function of a Section 4(f) resource with the recreational, park, and refuge objectives of that community, the resource in question plays an important role in meeting those objectives. Barring a determination from the official with jurisdiction to the contrary, the Section 4(f) land will be presumed to be significant. All determinations (whether stated or presumed) are subject to review by FHWA for reasonableness.</p>
spill prevention control and countermeasures (SPCC) plan	<p>An SPCC Plan is implemented to minimize effects to soil, surface water, and groundwater. The SPCC plan addresses procedures, equipment, and materials used in the event of a spill of contaminated soil, petroleum products, contaminated water or other hazardous substances.</p>
stormwater	<p>Stormwater is that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows overland into a defined surface waterbody or a constructed infiltration facility.</p>

stormwater detention ponds	Ponds constructed to hold stormwater runoff.
study area	The area specifically identified for analysis. Study areas vary among individual resources as scientific convention and practice dictate.
threatened	An animal or plant species that is protected by the Endangered Species Act because likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
throughput	The number of vehicles being carried on a facility. This is usually measured at a specific point on the roadway facility for a Predetermined period.
undertaking	A project that is funded or permitted by a federal agency or on federal land that has the potential to affect historic properties.
upland vegetation	Vegetation associated with dry areas away from water or wetlands; vegetation that is not located within the area influenced by a body of water.
use	Generally, "use" occurs with a DOT-approved project or program (1) when land from a Section 4(f) site is acquired for a transportation project, (2) when there is an occupancy of land that is adverse in terms of the statute's preservationist purposes, or (3) when the proximity impact of the transportation project on the Section 4(f) site, without acquisition of land, are so great that the purposes for which the Section 4(f) site exists are substantially impaired.
utilities	Utilities include electricity, natural gas, water, wastewater and stormwater collection, and telecommunications.
vehicle	Any car, truck, van, motorcycle, or bus designed to carry passengers or goods.
visual quality	An assessment of the visual character, which identifies the character-defining features for selected views.
watershed	The region of land that drains into a specific body of water, such as a river, lake, sea, or ocean. Rain that falls anywhere within a given body of water's watershed will eventually drain into that body of water.

wetland

Wetlands are formally defined by the U.S. Army Corps of Engineers (Federal Register 1982), U.S. Environmental Protection Agency (Federal Register 1988), Washington Shoreline Management Act of 1971 (SMA) (Ecology 1991), and Growth Management Act (GMA) (Ecology 1992) as:

... those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (Federal Register 1982, 1986).

The SMA and the GMA definitions add:

Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990 that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificially created wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.

WSDOT standard specifications

Guidelines and procedures established by WSDOT for roadway design and construction in a variety of design, engineering, and environmental manuals.

ATTACHMENT K ACRONYMS AND ABBREVIATIONS

Term	Meaning
ADA	Americans with Disabilities Act
APE	area of potential effect
AASHTO	American Association of State Highway and Transportation Officials
BA	Biological Assessment
BAC	Bellevue Advisory Committee
BMP	best management practices
BNSF	Burlington Northern Santa Fe
BRT	bus rapid transit
CAA	Clean Air Act
CARA	Critical Aquifer Recharge Areas
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CSS	context sensitive solutions
CO	carbon monoxide
CO ₂	carbon dioxide
DAHP	Department of Archaeology and Historic Preservation
dB	decibels
dBA	A-weighted decibel
DNS	Determination of Nonsignificance
DPS	Distinct Population Segment

EA	Environmental Assessment
Ecology	Washington State Department of Ecology
EFH	essential fish habitat
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	evolutionarily significant unit
ETL	express toll lane
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	finding of no significant impact
FTA	Federal Transit Administration
GMA	Growth Management Act
GP	general purpose
HCM	Highway Capacity Manual
HOV	high-occupancy vehicle
I-405	Interstate 405
I-90	Interstate 90
LED	light-emitting diode
LOS	level of service
MP	milepost
mph	miles per hour
MSAT	mobile source air toxics
MTCA	Model Toxics Control Act
MTP	Metropolitan Transportation Plan
N	North

NAAQS	National Ambient Air Quality Standards
NAC	Noise Ambient Criteria
NE	Northeast
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO₂	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O₃	ozone
OEO	Office of Equal Opportunity
PM₁₀	particulate matter 10
PM_{2.5}	particulate matter 2.5
PSRC	Puget Sound Regional Council
REC	Recognized Environmental Conditions
ROD	record of decision
SE	Southeast
SEPA	Washington State Environmental Policy Act
SFHA	Special Flood Hazard Area
SMA	Shoreline Management Act
Sound Transit	Central Puget Sound Regional Transit Authority
SO₂	sulfur dioxide
SOV	Single-occupant vehicle
SPCC	Spill Prevention Control and Countermeasures
SR	State Route
TDA	threshold discharge areas
TESC Plan	Temporary Erosion and Sediment Control Plan
TMP	traffic management plan

TRB	Transportation Research Board
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation
WSTC	Washington State Transportation Commission

ATTACHMENT L AGENCY AND TRIBAL CORRESPONDENCE



**Washington State
Department of Transportation**

I-405 Program Office
600-108th Avenue NE Ste. 405
Bellevue, WA 98004
425-456-8582
TTY: 1-800-833-6388
www.wsdot.wa.gov

March 22, 2018

Steve Costa
City of Bellevue Parks & Community Services
PO Box 90012
Bellevue, WA 98009-9012

Re: City of Bellevue Lake to Lake Trail 4(f) Temporary Occupancy Approval Letter
I-405, Downtown Bellevue Vicinity Express Toll Lanes Project

Dear Steve,

WSDOT is in the process of developing an Environmental Assessment (EA) for the I-405, Downtown Bellevue Vicinity Express Toll Lanes Project (Project). As part of the EA development, WSDOT has identified the need to temporarily occupy the Lake to Lake Trail. The Lake to Lake Trail was identified as a Section 4(f) resource in the previous I-405 Bellevue Nickel Improvement Project. Section 4(f) refers to the original section within the U.S. Department of Transportation Act of 1966 which provided for consideration of park and recreation lands, wildlife and waterfowl refuges, and historic sites during transportation project development. Section 4(f) applies to projects that receive funding from or require approval by FHWA.

Section 4(f) Rules specify that protected resources include publicly owned, shared use paths or trails (or portions thereof) designated or functioning primarily for recreation, unless the official(s) with jurisdiction determines that it is not significant for such purpose. If a publicly owned shared use path or trail is primarily used for transportation and is an integral part of the local transportation system, the requirements of Section 4(f) do not apply since it is not a recreational area. Also, note that if the publicly owned path or trail is simply described as occupying the right-of-way of the highway and is not limited to any specific location within the right-of-way, a Section 4(f) use of land would not occur provided that adjustments or changes in the alignment of the highway or the trail would not substantially impair the continuity of the path or trail.

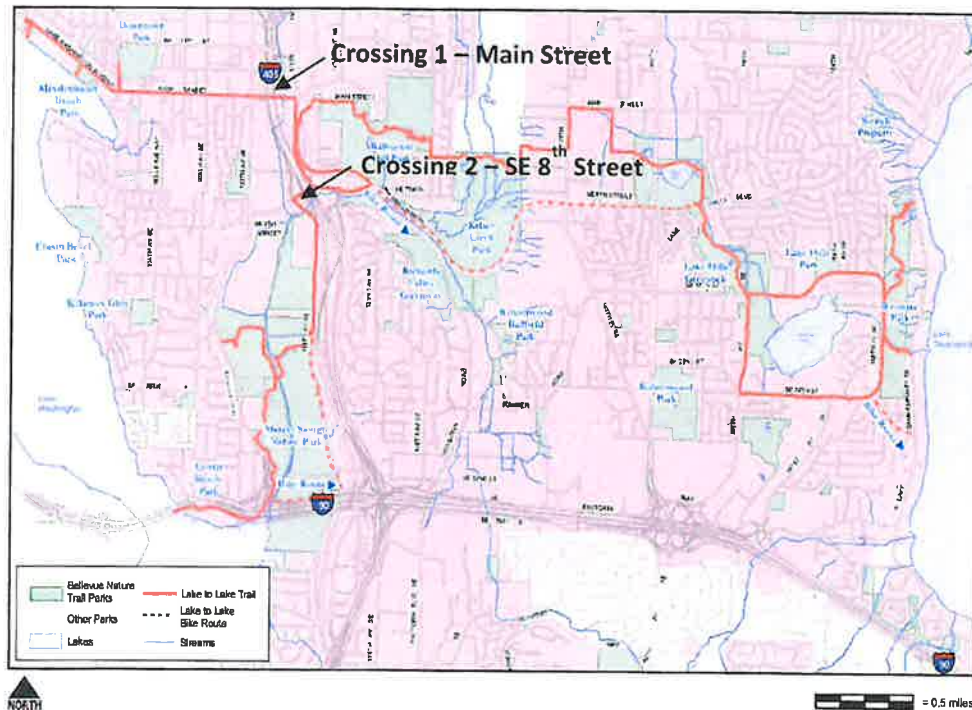
Rules also specify that the temporary occupancy of Section 4(f) land must meet the following conditions for Section 4(f) Temporary Occupancy Approval (per 23 CFR 774.13 (d)).

1. The duration would be temporary, i.e., less than the time needed for construction of the project, and there would be no change in ownership of the land;
2. The scope of the work is minor, i.e., both the nature and the magnitude of the changes to the Section 4(f) property are minimal;
3. There would be no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis;

4. The land being used will be fully restored, i.e., the property must be returned to a condition which is at least as good as that which existed prior to the project

We anticipate that the construction of the Project would require temporary occupancy of the Lake to Lake Trail at two locations (see below). During temporary occupancy, access to these crossings will be maintained with temporary detours. The adjustments or changes in the alignment of the highway or the trail would not substantially impair the continuity of the path or trail.

Lake to Lake Trail



The first crossing over I-405 is on Main Street on a narrow sidewalk. The Project would reconstruct the Main Street bridge over I-405, with a wider pedestrian- and bicycle-friendly multi-use path on the south side of Main Street. The second crossing is under I-405 at SE 8th Street. The Project would widen the northbound I-405 overpass over SE 8th Street and perform seismic retrofit on the bridge structure.

Construction at both trail crossing locations would result in a short-term temporary detour (up to 6-12 months at Main Street and 6 weeks at SE 8th Street) around the construction work zones. Future coordination with City of Bellevue will occur through the Right-of-way Use Permit that WSDOT will obtain from the City of Bellevue, the details of the detour routes will be confirmed with the City of Bellevue through that permit process.

Steve Costa
City of Bellevue
Page 2

WSDOT requests that the City of Bellevue sign below confirming that the temporary construction impacts meet the conditions listed for the Section 4(f) Temporary Occupancy Approval (per 23 CFR 774.13 (d).

If further questions or clarifications are needed please contact Allison Hanson at 425-450-2703.

Sincerely,



Kim Henry, P.E.
I-405/SR 167 Program Administrator

City of Bellevue Representative



3/23/18 (Signature/Date)



3/23/18 (Signature/Date)



**Washington State
Department of Transportation**

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710

(206) 440-4000
TTY: 1-800-833-6388
www.wsdot.wa.gov

March 24, 2016

Dr. Allyson Brooks, SHPO
Department of Archaeology and Historic Preservation (DAHP)
P.O. Box 48343
Olympia, WA 98504-8343

Log: 2016-02-01086
Property: I-405—I-90 to Northeast 6th Street Project
**Re: Request for Concurrence, NRHP Eligibility and No Adverse Effect to
Historic Properties Determinations**

Dear Dr. Brooks:

Pursuant to the *Programmatic Agreement Pursuant to Section 106 of the National Historic Preservation Act of 1966 (NHPA) among the Federal Highway Administration (FHWA), the Washington State Historic Preservation Officer (SHPO), the Washington State Department of Transportation (WSDOT), the Muckleshoot Indian Tribe, and the Snoqualmie Indian Tribe for Improvements to Interstate 405 (I-405) Corridor (PA)* executed on April 4, 2008, the Washington State Department of Transportation (WSDOT), on behalf of the Federal Highway Administration (FHWA), is continuing consultation with your office in regards to the I-405 – I-90 to Northeast 6th Street Project. WSDOT is requesting your review of the enclosed cultural resources survey. Following your review, WSDOT, on behalf of FHWA, requests your concurrence with our effect determination for the undertaking as detailed below.

Consultation with DAHP

On February 2, 2016, WSDOT, on behalf of FHWA, initiated consultation with your office with a request for comment letter in regards to the Area of Potential Effects (APE) and the Archaeological Potential Zone Maps. On February 22, 2016, Matthew Sterner provided a concurrence with this APE and review of the Archaeological Potential Zone Maps. From that date to the present, Kevin Bartoy has provided monthly project status updates to Matthew Sterner during regularly scheduled monthly meetings between WSDOT and DAHP.

Consultation with Tribes and Consulting Parties

On February 5, 2016, WSDOT, on behalf of FHWA, initiated consultation with King County, the City of Bellevue, the Eastside Heritage Center, and Duwamish Tribal Services as consulting parties, and with the Snoqualmie Tribe, Muckleshoot Indian Tribe, Stillaguamish Tribe, and Yakama Nation as Indian tribes who may attach religious or cultural significance to historic properties that may be affected by the undertaking. In an email dated March 9, 2016, Brady Kent of the Yakama Nation stated that the Yakama Nation had no comments on the project. To date, WSDOT has not received any other

communications from consulting parties or tribes. Kevin Bartoy and Steve Shipe have provided monthly project status updates to the Snoqualmie Tribe, the Stillaguamish Tribe, and Muckleshoot Indian Tribe during regularly scheduled monthly meetings.

Cultural Resources Survey Results

WSDOT retained Archaeological and Historical Services (AHS) of Eastern Washington University to conduct a cultural resources survey of the APE. The report of that survey is attached to this letter. The fieldwork included a pedestrian survey of the entire APE and subsurface testing at locations within the APE that had not been previously tested and appeared to have potentially undisturbed soils. Subsurface testing noted extensive disturbance from previous roadway construction. No archaeological resources were identified. One built environment resource, an abandoned segment of the Northern Pacific Railway Lake Washington Beltline, was identified within the project area. This resource has been previously determined eligible for listing in the National Register of Historic Places (NRHP). Project activities will not affect this resource.

NRHP Eligibility and Project Effect Determinations

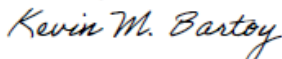
WSDOT, on behalf of FHWA, is submitting the attached cultural resources survey for your review with the determination that this undertaking will have **No Adverse Effect** on historic properties given that project activities will not affect the abandoned segment of the Northern Pacific Railway Lake Washington Beltline. WSDOT is sending this determination and the attached report to King County, the City of Bellevue, the Eastside Heritage Center, and Duwamish Tribal Services, as well as the Snoqualmie Tribe, Muckleshoot Indian Tribe, Stillaguamish Tribe, and Yakama Nation. WSDOT will provide you with any comments that the agency receives from the consulting parties and the tribes.

WSDOT, on behalf of FHWA, respectfully requests your concurrence with our determination that this undertaking will have **No Adverse Effect** on historic properties.

Please provide your response to this request by April 25, 2016.

Should you require additional information or have any questions please contact me at 206.440.4525, or by email at bartoyk@wsdot.wa.gov. Thank you for your continued consultation on this project.

Sincerely,



Kevin M. Bartoy, M.A., RPA
Cultural Resources Specialist, WSDOT Northwest Region

Cc: Matthew Sterner, DAHP
Project File

Att: 1) Cultural Resources Survey for the Washington State Department of Transportation's I-405: I-90 to Northeast 6th Street Improvements Project, King County, Washington



Allyson Brooks Ph.D., Director
State Historic Preservation Officer

April 21, 2016

Mr. Kevin Bartoy
WA State Dept. of Transportation
15700 Dayton Avenue North
Seattle, WA 98133-9710

In future correspondence please refer to:

Project Tracking Code: 2016-02-01086

Property: I-405—I-90 to NE 6th St

Re: Contributing Component to NRHP Eligible Property, No Adverse Effect

Dear Mr. Bartoy:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP) and providing a copy of the cultural resources report prepared by AHS. The report has been reviewed on behalf of the State Historic Preservation Officer (SHPO) under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. Our review is based upon documentation contained in your communication.

First, I concur with your determination that the abandoned segment of the Northern Pacific Railway, Lake Washington Beltline, documented as 45K11274, represents a contributing element to the National Register of Historic Places eligible BNSF rail line (determined eligible in 2007). Since the proposed construction associated with the project will neither approach nor affect this resource, I concur with your determination that the project will have no adverse effect on historic properties.

As a result of our concurrence, further contact with DAHP on this proposal is not necessary. However, if new information about affected resources becomes available and/or the project scope of work changes significantly please contact DAHP once again. Also, if any archaeological resources are uncovered during construction, please immediately halt work in the area of discovery and contact the appropriate Native American Tribes and DAHP for further consultation.

Thank you for the opportunity to review and comment. If you have any questions, please feel free to contact me.

Sincerely,

Matthew Sterner, M.A.
Transportation Archaeologist
(360) 586-3082
matthew.sterner@dahp.wa.gov





Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710
206-440-4000
TTY: 1-800-833-6388
www.wsdot.wa.gov

February 22, 2016

Kim Kratz
Assistant Regional Administrator
NOAA Fisheries
Habitat Program/Olympia Field Office
510 Desmond Drive SE, Suite 103
Lacey, Washington 98503-1273

Subject: Biological Assessment for I-405, I-90 to NE 6th St. Widening and Express Toll Lanes
Project – Mileposts 11.9 to 13.7
WSDOT Project No. A40502H
Federal Aid No. NA

Dear Mr. Kratz

The Washington State Department of Transportation (WSDOT) plans to construct a congestion relief project, including one new northbound lane and one new southbound lane, on I-405. The proposed project will include additional improvements between mileposts (MP) 11.9 and 13.7, including expansion of existing overpasses and a stormwater treatment facility. The new lanes will link existing high occupancy vehicle (HOV) lanes north- and southward to create a dual lane express tolling system in King County, Washington. The project is located in Township 25N, Range 5E, Sections 20, 29, 32 and 33; and Township 24N, Range 5E, Sections 4 and 9. The proposed project will address safety concerns, increase capacity, and encourage the use of multi-occupancy vehicles. The project will require a United States Army Corps of Engineers permit. Therefore, it is subject to requirements under Section 7(c) of the Endangered Species Act.

This project was presented at two pre-BA meetings with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) on 8/20/2015 and 1/21/2016. In attendance were Leslie Durham from the USFWS and Michael McDonald from NOAA Fisheries.

The enclosed biological assessment analyzes potential impacts of the proposed project on marbled murrelet, streaked horned lark, yellow-billed cuckoo, Puget Sound/Coastal DPS bull trout, Puget Sound ESU Chinook salmon, Puget Sound DPS steelhead trout, Canada lynx, and golden paintbrush as required under Section 7(c) of the Endangered Species Act.

The biological assessment concludes that the project *may affect but is not likely to adversely affect* Chinook salmon and Puget Sound steelhead trout; and will have *no effect* on Coastal Puget Sound bull trout, marbled murrelet, streaked horned lark, yellow-billed cuckoo, Canada lynx and golden paintbrush.

It is our understanding that with federal concurrence this satisfies our responsibilities under Section 7(c) of the Endangered Species Act at this time. We will continue to remain aware of any change in status of these species and will be prepared to reevaluate potential project impacts if necessary.

In compliance with the Magnuson-Stevens Fishery Conservation and Management Act, essential fish habitat (EFH) was assessed for the project. It was determined; the project *will not have an adverse effect on EFH*.

Please contact Rob Woeck at 206-440-4523 if you require additional information or have any questions about this project.

Sincerely,

A handwritten signature in blue ink, appearing to read 'April Magrane', with a horizontal line extending to the right.

April Magrane

Biology Lead, WSDOT, NWR

Enclosure: Biological assessment

cc: w/ enclosure: Allison Hanson, WSDOT NW Region Design Build Program
Rebecca McAndrew, WSDOT Liaison to USACE



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, Washington 98115

NMFS Tracking No:
WCR-2016-4189

March 22, 2016

Rob Woeck
Washington State Department of Transportation
Northwest Region
15700 Dayton Avenue north
Seattle, WA 98133-9710

Re: Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the I-405, I-90 to NE 6th Street Widening and Express Toll Lanes Project in King County, Washington (Sixth Field HUC: 171100120400 Lake Washington-Sammamish River).

Dear Mr. Woeck,

On February 25, 2016 NOAA's National Marine Fisheries Service (NMFS) received your request for a written concurrence that the proposed project constructed by the Washington Department of Transportation (WSDOT), with a United States Army Corps of Engineers (Corps) permit, is not likely to adversely affect (NLAA) species listed as threatened or endangered or critical habitats designated or proposed under the Endangered Species Act (ESA). This response to your request was prepared by NMFS pursuant to section 7(a) (2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.

The WSDOT proposes to construct a congestion relief project, including one new northbound lane and one new southbound lane, on I-405. The proposed project will include additional improvements between mileposts (MP) 11.9 and 13.7, including the expansion of existing overpasses and a stormwater treatment facility. The new lanes will link existing high occupancy vehicle (HOV) lanes north- and south-ward to create a dual lane express tolling system in King County, Washington. The proposed project will address safety concerns, increase capacity, and encourage the use of multi-occupancy vehicles.

The NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination that you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. In this case, NMFS concluded the action would not adversely affect EFH. Thus, consultation under the MSA is not required for this action.



This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). A complete record of this consultation is on file at the NMFS Lacy office.

Proposed Action and Action Area

The WSDOT proposes to add one new north-bound (NB) lane and one new south-bound (SB) lane between MP 11.9 and 13.7 in the city of Bellevue. The project area currently consists of four NB lanes and 5 SB lanes, including a single HOV lane in each direction. Additional improvements include four overpasses, stormwater facility expansion, and minor components such as illumination and signage. The new lanes will link existing HOV and express toll lanes (ETL) to the north and south of the project area; creating a dual-lane express tolling system to address safety concerns, increase capacity, and encourage the use of multi-occupancy vehicles.

The project will add one new NB lane from I-90 to NE 6th St. Where feasible, the additional lane will be achieved by restriping instead of expanding the roadway. Westward expansion is proposed south of SE 8th St, and eastward expansion is proposed north of SE 8th St. Due to length and depth of the culverts at Kelsey and Sturtevant Creeks, these features will not need to be replaced or altered by the proposed project.

The project will add one new SB lane between SE 8th St and NE 6th St. The lane will be expanded eastward to allow for the additional lane and shoulder. The culverts at Kelsey and Sturtevant Creeks will not need to be replaced.

A new northbound overpass over the Eastside Rail Corridor at MP 12.4 will be built adjacent to the existing structure. The new structure will carry the two express toll lanes while the general purpose lanes remain on the existing structure. The overpasses over SE 8th St. at MP 12.78 over Main Street at MP 13.31 will be replaced to accommodate the widened I-405 corridor.

Stormwater treatment will be enhanced for threshold discharge area E, which outfalls into Kelsey Creek near its convergence with Mercer Slough. The facility will be retrofitted to receive runoff from additional pollution generating impervious surfaces.

Minor improvements will include pavement markings, drainage improvements, permanent signing, illumination, intelligent transportation systems, and barriers.

The action area includes the geographical extent of project effects including vegetation removal, topographic and surface alterations, noise effects and stormwater outfalls and treatment facilities. Mitigation for unavoidable wetland impacts will take place at the Kelsey Creek Wetland Mitigation Site, which has undergone a separate ESA Section 7 consultation; therefore the action area is composed of the disturbance footprint plus the area of noise and stormwater dilution. An action area of 400 feet was determined based on calculated site-specific noise attenuation and stormwater outfall dilutions.

Action Agency's Effects Determination

As referenced in the Biological Assessment submitted to facilitate consultation, the Corps determined that the proposed action is not likely to adversely affect (NLAA) the ESA-listed Puget Sound (PS) Chinook salmon (*Oncorhynchus tshawytscha*) and the PS steelhead trout (*O. mykiss*) (see Table 1 below). Critical habitat for PS Chinook and PS steelhead is not present in the action area. Therefore, no evaluation of potential effects to critical habitat is provided in this letter.

Table 1.

Federal Register notices for final rules that list threatened species, designate critical habitats, or apply protective regulations to listed species in the action area

Species /ESU or DPS ¹	Listing Status Last Reaffirmed	Critical Habitat	Protective Regulations
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)			
Puget Sound	T; 04/14/14; 79 FR 20802	09/02/05; 70 FR 52630	06//28/05; 70 FR 37160
Steelhead (<i>O. mykiss</i>)			
Puget Sound	T;04/14/14;79 FR 20802	02/24/16;81 FR 9251	09/25/08;73 FR 55451

¹ "T" means listed as threatened under the ESA; ESU: evolutionarily significant unit; DPS: distinct population segment.

Consultation History

The NMFS received the complete biological assessment (BA) and request for informal consultation on February 25, 2016, which is the initiation date for this consultation. The proposed project was presented at two pre-BA meetings with the U.S. Fish and Wildlife Service and the NMFS on August 20, 2015 and again on January 21, 2016. In attendance was Michael McDonald from NOAA Fisheries.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a proposed action is not likely to adversely affect listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical

habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

The effects of the proposed action are reasonably likely to include short-term disturbance from low-level construction noise, removal of vegetation, and short-term and minor impacts to water quality from construction-related turbidity and stormwater runoff from impervious surfaces.

These effects are proposed to occur from early 2019 to 2023.

Noise Disturbance Effects

The proposed project will involve the use of some heavy machinery that could cause some increased noise disturbance in the construction area. Attenuation distances for noise disturbance as measured in decibels (dBA) were calculated using the three loudest types of construction equipment (concrete saw (90 dBA), grader (89 dBA), and chainsaw (84 dBA)) in comparison with existing background (population 1,806/square mile) and traffic noise (178,000 vehicles per day @ 60mph). The 2014 average daily traffic volume for three locations along I-405 within the project area was used to determine the measured average daily traffic (ADT). This distance assumes blasting and pile driving will not occur. Construction noise is expected to attenuate to traffic and ambient sound levels less than 400 ft. from the project area. No pile-driving will be conducted and no noise disturbances will take place in the water. Overall, the noise levels will be slightly above background for the area during construction only.

Vegetation Removal

The proposed project is estimated to temporarily impact up to 44,000 square feet (sf) and permanently impact up to 237,000 (sf) of ground surface in the project area. Vegetation removal includes early seral trees, shrubs and roadside grasses.

The project has been designed to minimize impacts to wetlands, streams and associated buffers. Temporarily disturbed upland areas in the project corridor will be re-vegetated in accordance with WSDOT's Roadside Manual and the Roadside Classification Plan. Seeding and mulching will be carried out, where appropriate, to minimize sediment from entering any streams or wetlands. Sensitive areas will already be isolated before restoration by appropriate construction of temporary erosion and sediment control Best Management Practices (BMPs) that will remain in place until all construction activities are completed. All BMPs, including silt fencing, will be completely removed when the project has been completed.

Stormwater Runoff and Turbidity Effects

The proposed construction activities will have short-term and minor impacts to water quality during peak levels of construction. High visibility fencing will be used to protect existing wetlands and sensitive areas from impacts near the construction zone. Following earthwork activities, exposed slopes will be graded and stabilized, and all exposed soils will be seeded or planted with native vegetation.

The project will implement a Stormwater Pollution Prevention Plan and a Spill Prevention, Control and Countermeasures Plan to protect listed species from any adverse effects that might result from the inadvertent discharge of contaminants from the project site. Any turbidity that would be caused by the construction activity will likely be minor and short-term. In addition, no in-water work will be conducted and river substrates will not be disturbed during the construction. It is expected that any listed fish present during phases of construction that could result in higher turbidity levels will temporarily move to refuges where turbidity impacts can be avoided.

Stormwater generated by the new impervious surfaces were analyzed for their change in pollutant loads and concentrations for pre- and post- project effects to ESA-listed species by WSDOT using the HI-RUN model approved by the Federal Highway Administration (FHWA) and NMFS (<http://www.wsdot.wa.gov/NR/rdonlyres/1B1E1A6B-C844-4345-8388-A371934572C2/0/StepByStepExample.pdf>). The model specifically predicts the concentration and loads of total suspended solids, and total and dissolved copper and zinc concentrations at a discharge outfall based on the level of treatment provided, the amount of pollutant generating impervious surface (PGIS) created, and the amount of rainfall expected, by month, for the approximate location where the project is planned. If biological thresholds are not met at the end of the pipe, dilution zone modeling is subsequently conducted to determine the aquatic habitat area that would potentially experience concentrations of modeled contaminants above recognized biological thresholds for adverse effects.

Effects of copper exposure on olfactory-mediated predator avoidance and sensory physiology have been measured at dissolved concentrations as low as 2 µg/L over 3-hour exposure durations (Sandahl et al. 2007). Baldwin et al. (2003) found that 30 to 60 minute exposures to a dissolved copper concentration of 2.3 µg/l over background levels caused olfactory inhibition in coho salmon juveniles. While neurophysiological effects from copper exposure are concentration dependent, they do not appear to be heavily influenced by conventional water quality parameters of hardness, alkalinity, or pH, but are highly influenced (reduced) by dissolved organic carbon (Linbo et al. 2009; McIntyre et al. 2008). Like copper, dissolved zinc exposure has altered behavioral reactions in fish at exposure concentrations below those which affect osmoregulation by interfering with sodium uptake across the gills (Lauren et al. 1985). Sprague (1968) showed strong avoidance reactions in rainbow trout (*Oncorhynchus mykiss*) to sublethal concentrations of zinc sulphate. The threshold avoidance level determined was 5.6 µg/L of zinc added to laboratory water. This concentration was only 0.01 of the lethal threshold concentration Sprague established in an earlier report (Sprague 1964). There were no significant differences in threshold avoidance levels at 9.5° and 17°C in this study, nor when background of zinc in the water was increased during acclimation and/or testing, from 3 µg/L to 13 µg/L. Based on the effects discussed above, the NMFS has recognized that exposure to dissolved copper at a concentration of 2.3 parts per billion above background, and 5.6 parts per billion above background for dissolved zinc have the potential to elicit adverse effects, depending on the potential exposure scenario in the receiving water.

A summary of the pre- and post-project HI-Run results for the proposed project indicates that all concentrations of dissolved copper and zinc are well below the biological thresholds that would

harm listed species. The dissolved (bioavailable) copper and zinc levels either remain constant at levels below these biological thresholds or are reduced in most of the TDAs over baseline conditions. At each outfall where discharges do not meet the biological thresholds at the end of the pipe the thresholds are reached less than one foot downstream—a mixing zone of such low probability of exposure that potential effects are considered insignificant.

Long-Term Habitat Alteration

No major changes to the existing on-site vegetation are planned. The proposed project will result in a slight improvement of existing vegetation conditions by removing non-native herbaceous plant species and revegetating the site with local native plants. Plantings of additional native trees, shrubs, and herbaceous species will be installed at the end of construction, thereby improving PS Chinook and PS steelhead habitat quality in the long-term.

Indirect Land Use Effects

The proposed project will improve the safety of the roadway. There is no additional development planned as a result of this project.

Effects to Species

The PS Chinook and PS steelhead adults and juveniles may be present in the action area during various phases of the proposed project. The construction of new impervious surfaces created by the project could increase stormwater pollutant loading and turbidity to fish-bearing creeks in the action area. However, the project will implement a Stormwater Pollution Prevention Plan, a Spill Prevention, Control and Countermeasures Plan, and will upgrade all stormwater treatment facilities to protect listed species from any adverse effects that might result from the inadvertent discharge of contaminants from the project site as well as from short- and long-term stormwater runoff from the action area.

No wetlands affected by the project have a surface water connection to waters accessible by adult or juvenile PS Chinook or PS steelhead. In addition, there will be no in-water work, and no modification of aquatic habitat, either temporary or permanent, that is anticipated to adversely affect these species. We therefore conclude that disturbance from the project action will not rise to levels that would adversely affect Chinook or steelhead, and are therefore considered insignificant.

Species Effects Summary

Based on the analyses provided above, we consider the overall effects of the proposed action insignificant, and therefore concur with the Corp's and WSDOT's determination that the effects of the proposed project "may affect, but is not likely to adversely affect" PS Chinook and PS steelhead that are ESA-listed, as identified in Table 1.

Effects to Critical Habitat

Chinook, and Steelhead

The PCEs and essential features for the designated critical habitat of ESA-listed salmonids in the action area include:

1. Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
2. Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

The critical habitats contained within the action area provide rearing and migration conditions, primarily in the form of shallow water and canopy cover. The creeks are not suitable for salmonid spawning because the substrate is dominated by sand which is not used by salmonids for spawning. However, some of the mature riparian trees may provide canopy cover and could serve as high-water rearing and refuge habitat for juvenile salmonids. The proposed project will not permanently or temporarily modify aquatic habitat within the Lake Washington watershed. Therefore, the project's effects to designated critical habitat for the ESA-listed salmonids that use the action area are considered insignificant.

On the basis of the above analysis, the NMFS concurs with the Corps and WSDOT's determination that the proposed action is not likely to adversely affect the designated critical habitats for the species identified in Table 1, above.

Conclusion

Based on this analysis, the NMFS concurs with the Corps and WSDOT that the proposed project is not likely to adversely affect the subject listed species and their designated critical habitats.

Reinitiation of Consultation

Reinitiation of consultation is required and shall be requested by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA portion of this consultation.

Please direct questions regarding this letter to Michael Grady at the Oregon-Washington Coastal Office, (206) 526-4645 or email Michael.Grady@noaa.gov.

Sincerely,



(for)

William W. Stelle, Jr.
Regional Administrator

Cc: April Magrane, WSDOT
Rebecca McAndrew, COE

References:

Baldwin, D.H., J.F. Sandahl, J.S. Labenia, and N.L. Scholz. 2003. Sublethal effects of copper on coho salmon: Impacts on nonoverlapping receptor pathways in the peripheral olfactory nervous system. *Environmental Toxicology and Chemistry* 22(10):2266–2274.

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Washington State
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February 3, 2016

City of Renton
Department of Community & Economic Development
Planning Department
1055 South Grady Way
Renton, WA 98057

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710

(206) 440-4000
TTY: 1-800-833-6388
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I-405: I-90 to NE 6th Street Project
Re: Section 106 Initiation and Request for Comment on Area of Potential Effects and
Archaeological Potential Zone Maps

To Whom It May Concern:

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If you have any general questions about the Section 106 process, you may contact Steve Shipe by phone at (206) 440-4531 or by E-mail at shipest@wsdot.wa.gov.

Sincerely,



Cameron Kukes
WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

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Matthew Sterner, DAHP, w/o attachments
Kevin Bartoy, WSDOT NW Region Cultural Resource Specialist, w/o attachments
Linda Cooley, WSDOT NWR Env. Doc. & Permitting Specialist, w/o attachments



Washington State
Department of Transportation

Lynn Peterson
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February 3, 2016

The Honorable Cecile Hansen, Chair
Duwamish Tribe
4705 W. Marginal Way SW
Seattle, WA 98106

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710

(206) 440-4000
TTY: 1-800-833-6388
www.wsdot.wa.gov

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Chairwoman Hansen:

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February 3, 2016

Charlie Sundberg, Preservation Planner
King County Historic Preservation Program
King Street Center
201 S. Jackson St. Room 700
Seattle, WA 98104-3855

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710

(206) 440-4000
TTY: 1-800-833-6388
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Sincerely,



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WSDOT NW Region Environmental Program Manager

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Enclosures

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Chris Salomone, Director
Planning & Community Development
P.O. Box 90012
Bellevue, WA 98009

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710

(206) 440-4000
TTY: 1-800-833-6388
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Heather Trescases, Director
Eastside Heritage Center
P.O. Box 40535
Bellevue, WA 98015

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710

(206) 440-4000
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Renton Historical Society
c/o Renton History Museum
235 Mill Avenue South
Renton, WA 98057

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710

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If you have any general questions about the Section 106 process, you may contact Steve Shipe by phone at (206) 440-4531 or by E-mail at shipest@wsdot.wa.gov.

Sincerely,



Cameron Kukes
WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

cc: Project File
Lindsey Handel, Federal Highway Administration, w/ attachments
Matthew Sterner, DAHP, w/o attachments
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Washington State
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February 3, 2016

The Honorable Virginia Cross, Chair
Muckleshoot Tribe
39015 172nd Ave. SE
Auburn, WA 98092

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
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www.wsdot.wa.gov

I-405: I-90 to NE 6th Street Project
Re: Section 106 Initiation and Request for Comment on Area of Potential Effects and Archaeological Potential Zone Maps

Dear Chairwoman Cross:

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Sincerely,

A handwritten signature in blue ink, appearing to read 'C. Kukes', written over a light blue horizontal line.

Cameron Kukes
WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

cc: Project File
Laura Murphy, Muckleshoot Tribal Archaeologist, w/ attachments
Karen Walter, Muckleshoot Tribe Watershed/Land Use Team Leader, w/attachments
Lindsey Handel, Federal Highway Administration, w/ attachments
Matthew Sterner, DAHP, w/o attachments
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I-405: I-90 to NE 6th Street Project
Re: Section 106 Initiation and Request for Comment on Area of Potential Effects and Archaeological Potential Zone Maps

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Sincerely,



Cameron Kukes
WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

cc: Project File
The Honorable Virginia Cross, Chair, Muckleshoot Tribe, w/o attachments
Karen Walter, Muckleshoot Tribe Watershed/Land Use Team Leader, w/attachments
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WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

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I-405: I-90 to NE 6th Street Project
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CK:ss
Enclosures

cc: Project File
Steven Mullen-Moses, Snoqualmie Tribe Dir. Archaeology & Historic Preservation, w/attachments
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Cindy Spiry, Snoqualmie Tribe Director of Natural Resources, w/attachments
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If you have any general questions about the Section 106 process, you may contact Steve Shipe by phone at (206) 440-4531 or by E-mail at shipest@wsdot.wa.gov.

Sincerely,



Cameron Kukes
WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

cc: Project File
The Honorable Carolyn Lubenau, Chair, Snoqualmie Tribe, w/o attachments
Steven Mullen-Moses, Snoqualmie Tribe Dir. Archaeology & Historic Preservation, w/attachments
Cindy Spiry, Snoqualmie Tribe Director of Natural Resources, w/attachments
Lindsey Handel, Federal Highway Administration, w/ attachments
Matthew Sterner, DAHP, w/o attachments
Kevin Bartoy, WSDOT NW Region Cultural Resource Specialist, w/o attachments
Linda Cooley, WSDOT NWR Env. Doc. & Permitting Specialist, w/o attachments



Washington State
Department of Transportation

Lynn Peterson
Secretary of Transportation

February 3, 2016

Cindy Spiry, Director of Natural Resources
Snoqualmie Tribe
P.O. Box 969
Snoqualmie, WA 98065

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710

(206) 440-4000
TTY: 1-800-833-6388
www.wsdot.wa.gov

I-405: I-90 to NE 6th Street Project
Re: Section 106 Initiation and Request for Comment on Area of Potential Effects and Archaeological Potential Zone Maps

Dear Ms. Spiry:

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Sincerely,



Cameron Kukes
WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

cc: Project File
The Honorable Carolyn Lubenau, Chair, Snoqualmie Tribe, w/o attachments
Steven Mullen-Moses, Snoqualmie Tribe Dir. Archaeology & Historic Preservation w/ attachments
Adam Osbekoff, Snoqualmie Tribe Asst. Dir. Archaeology & Historic Preservation, w/ attachments
Lindsey Handel, Federal Highway Administration, w/ attachments
Matthew Sterner, DAHP, w/o attachments
Kevin Bartoy, WSDOT NW Region Cultural Resource Specialist, w/o attachments
Linda Cooley, WSDOT NWR Env. Doc. & Permitting Specialist, w/o attachments



Washington State
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February 3, 2016

The Honorable Shawn Yanity, Chair
Stillaguamish Tribe
P.O. Box 277
Arlington, WA 98223

Northwest Region
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710

(206) 440-4000
TTY: 1-800-833-6388
www.wsdot.wa.gov

I-405: I-90 to NE 6th Street Project
Re: Section 106 Initiation and Request for Comment on Area of Potential Effects and Archaeological Potential Zone Maps

Dear Chairman Yanity:

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If you have any general questions about the Section 106 process, you may contact Steve Shippe by phone at (206) 440-4531 or by E-mail at shipest@wsdot.wa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Cameron Kukes', with a stylized flourish extending to the right.

Cameron Kukes
WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

cc: Project File
Kerry Lyste, Stillaguamish Tribe GIS Analyst, Database Administrator, w/ attachments
Lindsey Handel, Federal Highway Administration, w/ attachments
Matthew Sterner, DAHP, w/o attachments
Kevin Bartoy, WSDOT NW Region Cultural Resource Specialist, w/o attachments
Linda Cooley, WSDOT NWR Env. Doc. & Permitting Specialist, w/o attachments



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Cameron Kukes
WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

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Lindsey Handel, Federal Highway Administration, w/ attachments
Matthew Sterner, DAHP, w/o attachments
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Linda Cooley, WSDOT NWR Env. Doc. & Permitting Specialist, w/o attachments



Washington State
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The Honorable JoDe Goudy, Chair
Yakama Nation
P.O. Box 151
Toppenish, WA 98948

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I-405: I-90 to NE 6th Street Project
Re: Section 106 Initiation and Request for Comment on Area of Potential Effects and Archaeological Potential Zone Maps

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Cameron Kukes
WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

cc: Project File
Johnson Meninick, Yakama Nation Cultural Resources, w/ attachments
Brady Kent, Yakama Nation Environmental Review Coordinator, w/ attachments
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Matthew Sterner, DAHP, w/o attachments
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P.O. Box 151
Toppenish, WA 98948

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Re: Section 106 Initiation and Request for Comment on Area of Potential Effects and Archaeological Potential Zone Maps

Dear Mr. Kent:

Pursuant to 36 CFR 800.3(f)(2), in accordance with the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR 800), the Washington State Department of Transportation (WSDOT), on behalf of the Federal Highway Administration (FHWA), is initiating consultation with the Yakama Nation in regards to the I-405 – I-90 to Northeast 6th Street Project. This undertaking was previously subject to Section 106 consultation and a cultural resources study was conducted in 2006. The undertaking was previously determined as No Historic Properties Affected. As ten years have passed since the previous study and determination, and project changes have occurred, WSDOT, on behalf of FHWA, is reinitiating consultation on the project and invites you to comment on the Area of Potential Effects (APE) and the archaeological potential zone maps and documentation attached to this letter.

Project Description

This undertaking is located along the I-405 corridor within the city limits of Bellevue within King County, Washington. The project extends from Milepost (MP) 11.9 to MP 13.7 of I-405. The undertaking is within Township 25N, Range 5E, Sections 32 and 33, and Township 24N, Range 5E, Sections 4 and 9.

The project will add one new lane in each direction of I-405 from MP 11.9 to MP 13.7. Where feasible, the additional lanes will be achieved by restriping instead of roadway expansion. Additional related improvements include the widening and/or replacement of three overpasses, stormwater facility expansion, and minor components, such as illumination and signage. The three overpasses that will be modified by this project are as follows: 1) Eastside Rail Corridor / I-405 NB Overpass at MP 12.4 will be replaced with an adjacent structure; 2) Southeast 8th / I-405 Overpass at MP 12.78 will be widened; and, 3) Main Street / I-405 Overpass at MP 12.78 will be replaced. Minor project improvements will include pavement markings, drainage improvements, permanent signing, illumination, intelligent transportation systems, and barriers.

Definition of the Project Area of Potential Effects (APE)

The project APE includes areas where archaeological resources may be encountered or disturbed and areas where historic structures, landscapes, and viewsheds may be directly or indirectly affected. Potential effects to archaeological sites are primarily anticipated where ground disturbance will occur during project construction. Historic structures may be directly affected by the above described construction activities, and may be indirectly affected by noise, vibration, or changes to the visual environment associated with the construction and implemented use of the proposed project.

The APE for this project is defined by the *PA* as follows:

- 1) All areas where ground disturbance is planned, including but not limited to: clearing and grubbing, grading, bridge foundations, retaining walls, noise walls, detention ponds, conveyances, and ecology embankments, creation or enhancement of wetland mitigation sites, and staging and stockpiling areas; and,
- 2) Historic properties located either one tax lot on each side of the affected rights-of-way or 200 feet from their margins, whichever is less.

Based upon a review of the DAHP WISAARD database and information contained in the previous cultural resources survey for the project, a majority of the APE has been previously surveyed. The level of intensity of the survey varied throughout the corridor and additional survey will be necessary to ensure that the locations of ground disturbance are tested to current standards. Following the protocol outlined in the *PA*, the attached archaeological potential zone maps and documentation will be used to guide the additional survey work.

There are no known archaeological sites located within a half mile of the APE, and only one historic property located within a half mile. The historic property is the Wilburton Trestle, which spans Mercer Slough approximately 1,000 feet to the east of the Southeast 8th Street and I-405 interchange. This historic property is removed from any proposed project elements.

Recognizing the government-to-government relationship that the Federal Highway Administration has with the Yakama Nation, FHWA will continue to play a key role in this project as the responsible federal agency.

Your response to this letter, acknowledging your interest in participating in this undertaking as a consulting party, is greatly appreciated. We are also inviting comments regarding any other concerns, such as fisheries and Treaty Rights, the proposed project may raise. Please provide a response by March 4th so that we may discuss this undertaking and any of those identified areas of interest. Should you have any questions about this project, you may contact Linda Cooley by phone at (425) 456-8586 or by E-mail at CooleyL@wsdot.wa.gov.

If you have any general questions about the Section 106 process, you may contact Steve Shippe by phone at (206) 440-4531 or by E-mail at shipest@wsdot.wa.gov.

Sincerely,



Cameron Kukes
WSDOT NW Region Environmental Program Manager

CK:ss
Enclosures

cc: Project File
The Honorable JoDe Goudy, Chair, Yakama Nation, w/o attachments
Johnson Meninick, Yakama Nation Cultural Resources, w/ attachments
Lindsey Handel, Federal Highway Administration, w/ attachments
Matthew Sterner, DAHP, w/o attachments
Kevin Bartoy, WSDOT NW Region Cultural Resource Specialist, w/o attachments
Linda Cooley, WSDOT NWR Env. Doc. & Permitting Specialist, w/o attachments

ATTACHMENT M CROSS REFERENCE OF NEPA ELEMENTS

NEPA Element of the Environment	Location in Environmental Assessment	Attachment
Geology and Soils	Chapter 4 Project Effects, Geology and Soils, Geology and Soils Discipline Report	E
Air Quality	Chapter 4 Project Effects, Air Quality, Air Quality Discipline Report	B
Water Quality	Section 4.3 Water Resources, Water Resources Discipline Report	G
Surface Water	Section 4.3 Water Resources, Water Resources Discipline Report	G
Floodplains	Section 4.3 Water Resources, Water Resources Discipline Report	G
Groundwater	Section 4.3 Water Resources, Water Resources Discipline Report	G
Wildlife, Fish, and Vegetation	Section 4.4 Ecosystems	--
Wetlands	Section 4.4 Ecosystems	--
Energy	Chapter 4 Project Effects, Energy and Greenhouse Gases, Air Quality Discipline Report	B
Greenhouse Gases	Chapter 4 Project Effects, Energy and Greenhouse Gases, Air Quality Discipline Report	B
Noise	Chapter 4 Project Effects, Noise, Noise Discipline Report;	C
Hazardous Materials	Chapter 4 Project Effects, Hazardous Materials, Hazardous Materials Technical Memorandum;	H
Land Use and Land Use Plans	Chapter 4 Project Effects, Land Use and Economics	--
Economics	Chapter 4 Project Effects, Land Use and Economics	

NEPA Element of the Environment	Location in Environmental Assessment	Attachment
Section 4(f) and Section 6(f) Resources	Chapter 4 Projects Effects, Section 4(f) and Section 6(f) Resources	--
Historic, Cultural, and Archaeological Resources	Chapter 4 Project Effects, Historic, Cultural, and Archaeological, Cultural Resource Survey Report	I
Social Conditions	Chapter 4 Project Effects, Neighborhoods	--
Environmental Justice	Section 4.2 Environmental Justice, Environmental Justice Discipline Report	D
Visual Impact Assessment	Chapter 4 Project Effects, Visual Impact Assessment, Visual Impact Assessment Discipline Report	F
Transportation	Section 4.1 Transportation, Transportation Discipline Report	A
Public Services and Utilities	Chapter 4 Project Effects, Public Services and Utilities	--
Cumulative Effects	Chapter 5 Cumulative Effects	--

ATTACHMENT N LOGICAL TERMINI

Logical Termini – Downtown Bellevue Vicinity Express Toll Lanes Facility Where is the Project located?

The I-405, Downtown Bellevue Vicinity Express Toll Lanes Project (the Project) is located in Bellevue beginning just north of the I-405/I-90 interchange at MP 11.9 extending up to SR 520 at MP 14.6. Exhibit 1 explains how the project limits meet FHWA’s criteria for setting project limits (23 CFR 771.111(f)).

Exhibit N-1 Explanation of the Project’s Limits

FHWA’s Criteria	Explanation
<p>Criteria 1 - Connect logical termini and be of sufficient length to address environmental matters on a broad scope</p>	<p>The project limits connect a 2.4-mile section of I-405 extending through downtown Bellevue between two major highways, I-90 and SR 520. The southern endpoint at milepost (MP) 11.9 is located just north of the location where the ramps from I-90 complete the tie-in to I-405. The northern endpoint at MP 14.6 ends at SR 520, a major state highway, just north of downtown Bellevue.</p>
<p>Criteria 2 - Have independent utility or independent significance (i.e. be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made)</p>	<p>No additional improvements are needed to make the Project a usable or reasonable expenditure. At its southern limit, the Project will connect to a separate, independent project called the I-405, Tukwila to I-90 Vicinity Express Toll Lanes Project. If the I-405, Tukwila to I-90 Vicinity Express Toll Lanes Project were not built, some design modifications would be required to transition I-405 from a tolled to non-tolled facility. On the north end, the Project will connect to existing express toll lanes on I-405 between downtown Bellevue and Lynnwood.</p>
<p>Criteria 3 - Not restrict consideration of alternatives for other reasonably-foreseeable transportation improvements</p>	<p>The project limits do not restrict consideration of other alternatives, preclude the addition of other lanes on I-405, or force toll lanes to be operated on I405 in perpetuity.</p>