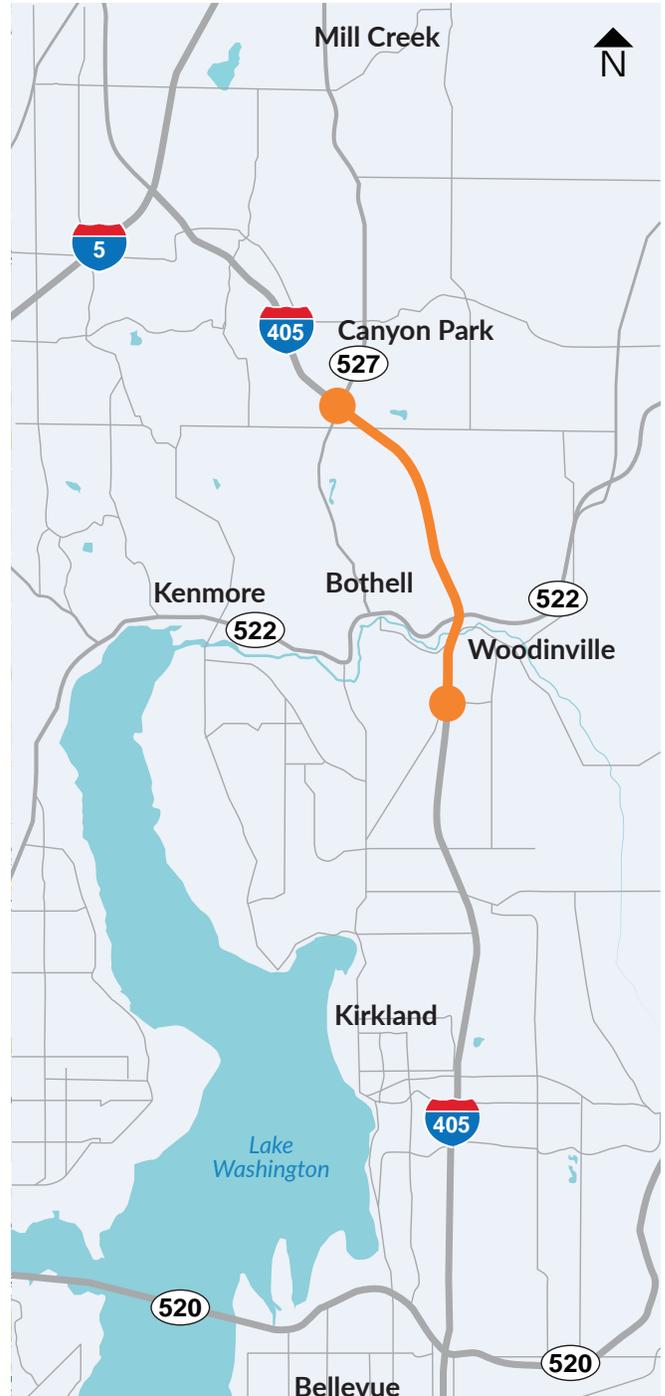


ENVIRONMENTAL ASSESSMENT

Appendix O: Cumulative Effects

I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project (MP 21.79 to 27.06)



Title VI Notice to Public

It is the Washington State Department of Transportation's (WSDOT) policy to assure that no person shall, on the grounds of race, color, national origin or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated, may file a complaint with WSDOT's Office of Equal Opportunity (OEO). For additional information regarding Title VI complaint procedures and/or information regarding our non-discrimination obligations, please contact OEO's Title VI Coordinator at (360) 705-7090.

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This material can be made available in an alternate format by emailing the Office of Equal Opportunity at wsdotada@wsdot.wa.gov or by calling toll free, 855-362-4ADA(4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

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Información del Acta Americans with Disabilities Act (ADA)

Este material es disponible en un formato alternativo enviando un email/correo electrónico a la Comisión Estadounidense de Igualdad de Oportunidades en el Empleo wsdotada@wsdot.wa.gov o llamando gratis al 855-362-4ADA (4232). Personas sordas o con discapacidad auditiva pueden solicitar llamando Washington State Relay al 711.



January 27, 2020

TO: Robert Woeck, WSDOT I-405/SR 167 Program Environmental Manager

FROM: Stephanie Miller, I-405, SR 522 to SR 527 Environmental Assessment Manager

SUBJECT: Cumulative Effects for the I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

This memorandum provides a technical analysis of potential cumulative effects for the I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project (Project). A summary of these findings appears in Chapter 5 of the Project *Environmental Assessment* (EA).

Overview

Cumulative effects are the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions. 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.

Study Approach

Washington State Department of Transportation (WSDOT) evaluated cumulative effects by using the steps identified in the *Guidance on Preparing Cumulative Impact Analyses* (WSDOT 2008). WSDOT's guidance calls for assessing potential cumulative effects for all resources where direct or indirect effects have been identified. WSDOT also considers climate change as part of the cumulative effects analysis.

This cumulative effects analysis used the analysis in the I-405 Corridor Program *Final Environmental Impact Statement* (EIS) as a starting point (FHWA et al. 2002). That EIS's cumulative effects analysis focused on air quality, energy, farmlands, fish and aquatic resources, surface water, and wetlands. This updated cumulative effects analysis looked at resources that would be directly or indirectly affected by this Project, combined with reasonably foreseeable future projects, and evaluated the potential for cumulative effects on each resource. WSDOT also sought regional data and planning documents prepared by the Puget Sound Regional Council (PSRC), WSDOT, and Bothell. Discipline-specific studies for the EA provided information about existing conditions and to help characterize trends.

I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
 Cumulative Effects
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WSDOT considered the potential for cumulative effect to all resource areas analyzed in this EA except for historic, cultural, and archeological resources, which would have no operational direct or indirect effects. Proposed measures to avoid or minimize direct or indirect effects of the Build Alternative were considered in making cumulative effects determinations for each resource.

The cumulative effects evaluation considers the same study areas used in assessing direct and indirect operational effects for each resource as described in Appendices A through D and F through K to this EA and summarized below in Exhibit 1. The study area varies depending on the resource but is roughly up to 0.5 miles from the proposed Project footprint. The time period considered was from when I-405 construction began in the 1960s through the design year for this Project, 2045.

Exhibit 1. Cumulative Effects Analysis Study Areas

Resource	Study Area
Transportation	<ul style="list-style-type: none"> The I-405 mainline and ramps from south of NE 160th Street to SR 527, with some consideration of travel times from NE 116th Street in Kirkland to I-5 in Lynnwood. SR 522 from Campus Way NE to SR 202. Intersections from NE 160th Street to SR 524. See Exhibit 3-1 in EA Appendix A, <i>Transportation Discipline Report</i> for more information.
Noise	500 feet from the pavement edge throughout the Project limits
Ecosystems	<ul style="list-style-type: none"> Wetlands: 50 feet beyond proposed right of way line. Aquatic resources: 50 feet beyond proposed right of way line, plus 300 feet upstream and downstream of culvert replacements and bridge construction. Terrestrial wildlife: 0.25 miles from the Project footprint for upland vegetation resources and 1 mile from the project footprint for wildlife species. For purposes of the cumulative effects analysis, an area of 0.5 miles from the Project footprint was used because the 1-mile area was related to short-term construction effects related to noise.
Water Resources	Within the proposed and new WSDOT right of way and 300 feet upstream and 0.25 miles downstream of affected streams and rivers.
Visual Quality	Within the Project limits, located from just south of I-405/NE 160th Street interchange to just north of SR 527 near Canyon Park.
Recreational Resources	Up to 0.25 mile near proposed improvements.
Land Use, Economics, and Community Resources	Up to 0.5 mile on either side of the proposed Project improvements.
Environmental Justice	Up to 0.5 mile on either side of the proposed Project improvements.

Exhibit 1. Cumulative Effects Analysis Study Areas

Resource	Study Area
Air Quality, Energy, and Greenhouse Gases	Covers a large area; see study area map in Section 3.3 of Appendix D, <i>Air Quality Discipline Report</i> .
Geology, Soils, and Groundwater	Within the Project limits and area immediately adjacent to the roadway.
Hazardous Materials	Up to 0.5 miles from the Project limits

Historical and Present Context and Reasonably Foreseeable Future Projects

The Puget Sound region (King, Snohomish, Pierce, and Kitsap counties) has experienced substantial population growth since I-405 was built in the 1960s. Because of continued growth, the 2000 population of more than 3 million is projected to reach more than 5.5 million by 2045 (PSRC 2019). Communities east of Seattle that were largely rural in nature in the mid-1900s have been gradually transformed to rural/suburban and then suburban/urban areas. 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. The establishment of Microsoft and other high tech businesses along the I-405 corridor in the mid-1980s and 1990s also played a key role in this evolution. Related residential, commercial, and infrastructure development has been ongoing for decades in the I-405 corridor. Major employment and activity centers established in the late 1980s and early 1990s in the study area include the University of Washington (UW) Bothell/Cascadia College campus near the SR 522 interchange, the North Creek/195th business park area, and the Canyon Park Business Center located near SR 527.

Planned future private development and growth in the study area is largely limited to the redevelopment of existing urbanized areas. Many of these private projects are already permitted or under construction and would be in place by the time Project construction begins. Minor capital improvement projects such as sidewalk additions, pavement preservation, lane restriping, and water and sewer line replacements are ongoing throughout the area and are not likely to result in negative cumulative effects on resources.

WSDOT identified current and reasonably foreseeable actions that may contribute to a cumulative effect by evaluating projects that are planned, approved, and funded. Exhibit 2 summarizes the projects considered in this cumulative effect analysis, and Attachment A provides a complete list. In addition, transportation projects in the I-405 corridor that

I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
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were included in the baseline condition for the transportation analysis are listed in EA Appendix A, *Transportation Discipline Report*, Attachment C and Section 3.4.1.

WSDOT considered but did not include Bothell projects that involve maintenance and preservation of existing facilities, such as repaving 228th Street SE between 19th Avenue SE and Bothell-Everett Highway and replacing sewer Lift Station 4 because these projects would maintain and not expand existing infrastructure in the area.

Exhibit 2. Infrastructure Projects and Other Planned Developments Considered in this Cumulative Effects Analysis

Project	Description	Jurisdiction/Source
I-405 BRT	This multiyear project establishes BRT from the Lynnwood Transit Center to the Burien Transit Center via I-405 and SR 518. BRT service would use the I-405 ETL system where feasible. Project elements include adding several BRT stations, new/expanded parking facilities, interchange improvements, and station access improvements (including bus priority lanes and treatments).	PSRC Regional Transportation Plan 2018 (PSRC 2018); STIP 2019-2022 (WSDOT 2019)
I-405, Brickyard Inline Station	As part of the development of I-405 BRT, this project would construct a new inline freeway transit station and pedestrian connection to the Brickyard Park and Ride in the I-405 median on I-405 near NE 160th Street.	Sound Transit
Sound Transit Bus Base North	In support of the development of BRT on I-405, this bus base would be built in the Canyon Park area near 214th Street SE to provide operations and maintenance for additional BRT services on I-405 and SR 522/NE 145th Street. The site would support storage, maintenance, fueling, and washing for up to 80 articulated and 40 double decker hybrid buses. The site would also house offices and support areas for drivers and operations. The bus base would operate 24-hours a day, seven days a week, with approximately 253 employees working over three shifts.	Sound Transit
SR 522/NE 145th Street BRT	This multiyear project proposes design of a BRT system from the proposed Sound Transit Link light rail station at I-5 and Northeast 145th Street along the SR 522 corridor to the UW Bothell/Cascadia College campus and proposed I-405/SR 522 interchange transit facilities to be constructed as part of this Project, with connecting service at lower frequencies to Woodinville. The project includes new and upgraded transit centers, new park and ride capacity, and station access improvements.	PSRC Regional Transportation Plan 2018 (PSRC 2018); STIP 2019-2022 (WSDOT 2019)
19th Avenue SE Nonmotorized Improvements	This project includes building sidewalks, bike lanes, curb and gutter, storm drainage, ADA curb ramps, crosswalks, rectangular rapid flashing beacons, and crosswalk flags on 19th Avenue SE, 232nd Street SE, and 23rd Avenue SE.	2019-2025 Capital Facilities Plan (Bothell 2019b), STIP 2019-2022 (WSDOT 2019)
Canyon Park Fire Station 45 Replacement	This project includes rebuilding the fire station in its current location to include safety upgrades, technical modernization, and energy efficiency. The site would house a new police satellite office.	Capital Facilities Plan Addendum 2019-2025 (Bothell 2019c)

Exhibit 2. Infrastructure Projects and Other Planned Developments Considered in this Cumulative Effects Analysis

Project	Description	Jurisdiction/Source
Cedar Grove Park Field Improvements	This project would complete the development of this park located near the SR 527 interchange.	2019-2025 Capital Facilities Plan (Bothell 2019b)
1st Lieutenant Nicholas Madrazo US Marine Corps Memorial Park	This project would construct a new park and recreational amenities including a basketball court, walking paths, playfield, parking, landscaping, and other park facilities.	2019-2025 Capital Facilities Plan (Bothell 2019b)
East Riverside Drive Drainage and Sediment	This project would construct conveyance improvements, including sediment and debris control to reduce flooding potential.	2019-2025 Capital Facilities Plan (Bothell 2019b)
Perry Creek and 228th Street SE Culverts	This project would install a new culvert across 19th Avenue SE and a storm pipe along 19th Avenue.	2019-2025 Capital Facilities Plan (Bothell 2019b)
<p>Various private developments are planned, undergoing review, or are being constructed in Bothell (Bothell 2019d). See Attachment A for a list of projects considered in this analysis, including larger developments such as:</p> <ul style="list-style-type: none"> • Projects associated with the UW Bothell Campus Master Plan, including a 5,000 sq ft warehouse and a 40,000 sq ft parking garage. • Commercial developments under construction such as the Gun Club facility (32,000 sq ft) and a 110,000 sq ft self-storage facility. • Townhome developments under construction, such as the Preston North Townhomes (94 units), CP18-19 Townhomes (118 units) • Land subdivisions and plats for between 3 and 25 plots. 		

ADA = Americans with Disabilities Act; BRT = bus rapid transit; ETL = express toll lane; PSRC = Puget Sound Regional Council; STIP = State Transportation Improvement Program; UW = University of Washington

In addition to projects listed in Exhibit 2, Bothell is proposing to update its subarea plan for the Canyon Park neighborhood located in the study area near SR 527. This area was designated as a Regional Growth Center by PSRC in *VISION 2040* (PSRC 2009). Regional Growth Centers are designated areas where population and employment growth are expected to occur in the future. In December 2019, Bothell published the *Canyon Park Subarea Planned Action Draft EIS* (Bothell 2019a). The *Draft EIS* evaluates a no action alternative that would maintain growth established in the City’s currently adopted comprehensive plan, *Imagine Bothell* (Bothell 2015) and three build alternatives that would increase development densities over currently planned growth. The *Draft EIS* also identifies possible transportation improvements that may be needed to accommodate growth beyond currently adopted comprehensive plan. The *Draft EIS* does not identify a preferred alternative. The outcome of Bothell’s *Draft EIS* and comprehensive plan update process is currently unknown.

Per the *Draft EIS*, the following City of Bothell actions would be required before any of the build alternatives could be implemented:

- Select a preferred alternative, respond to comments on the Draft EIS and issue a Final EIS.
- Adopt the updated Canyon Park Subarea Plan as part of *Imagine Bothell*.
- Adopt zoning and development regulation amendments within the Bothell Municipal Code.
- Adopt a planned action ordinance.

As documented in the *Draft EIS*, the City plans to select a preferred alternative and issue a *Final EIS* in the first half of 2020. The timeline for other actions listed above is currently unknown, but would be expected to occur after the *Final EIS* is issued. This EA evaluates land use densities in Bothell's currently approved and adopted comprehensive plan, *Imagine Bothell* (Bothell 2015). Throughout the development of this EA, WSDOT has been coordinating with Bothell on the Canyon Park Subarea Plan update and *Draft EIS* as the City's plan progresses. The I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project would not preclude the City's proposal to increase land use densities in the Canyon Park Subarea.

Results

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 below.

Transportation

Over time, population increases and other factors have led to increasing congestion on highways and local roadways in the study area. In 2002, WSDOT developed a long-term vision for transportation improvements in the I-405 corridor as discussed in the *I-405 Corridor Program Final EIS* to provide needed infrastructure for planned local and regional growth. Since 2002, WSDOT has built transportation improvements in the I-405 corridor as funding has become available, but the pace of implementing these improvements has not kept up with regional and local growth. Despite constructing I-405 improvements such as the express toll lanes (ETLs) between Bellevue to Lynnwood ETL, I-405 in the study area is congested for several hours throughout the day.

When combined with planned projects listed in Exhibit 2, this Project would directly benefit interstate, regional, and local transportation by increasing highway capacity on an increasingly congested section of the I-405 corridor. The Project is consistent with current regional and local land use plans and would help to better accommodate planned growth in areas such as the SR 527/Canyon Park area because of improved highway and local roadway infrastructure and transit access. The addition of direct access ramps at SR

522 and near SR 527 would improve access for ETL users. New inline transit stations would support the development of bus rapid transit (BRT) by improving speed and reliability for transit, and would provide opportunities for local bus service provided by Community Transit and King County Metro to connect to BRT service. In addition to the proposed inline stations at SR 522 and SR 527, Sound Transit is proposing to build a new inline transit station and pedestrian connection on I-405 at NE 160th Street that would connect to the Brickyard Park and Ride. The I-405, Brickyard Inline Station Project would be constructed in a similar timeframe as this Project. The Project would not alleviate all congestion on this section of I-405, but coupled with BRT improvements planned on I-405 and SR 522, the Project would benefit transit riders, carpoolers, and individual drivers.

The Project would also provide benefits for pedestrians and bicyclists, including a new nonmotorized connection between the North Creek Trail and the proposed transit facilities at the I-405/SR 522 interchange near the UW Bothell/Cascadia College campus, and new sidewalks and bike lanes on 17th Avenue SE near the Canyon Park Park and Ride.

The overall benefits discussed above to I-405 congestion, travel times, and transit and nonmotorized operations would offset potential minor increases to traffic delay at a few locations. The Project would potentially result in negative indirect effects to travelers during peak periods on southbound I-5 near the I-405 interchange, southbound I-405 south of downtown Bellevue, and both directions of I-5 in Lynnwood, as described in Section 5.9 of Appendix A, *Transportation Discipline Report*. Local streets in the SR 527/Canyon Park area and major corridors including SR 527 and 228th Street SE would continue to operate poorly during peak travel hours, and planned population and commercial growth is expected in this area with or without the Project. As required by Bothell's land use and permitting requirements, planned projects, such as the Sound Transit Bus Base North, would be evaluated on a project-by-project basis, and any site-specific requirements to minimize traffic effects would be included as part of permitting.

When combined with proposed transit improvements related to I-405 and SR 522 BRT service (including the proposed I-405 Brickyard Inline Station) and planned transportation improvements identified in Exhibit 2, the Project would provide a positive contribution to cumulative effects on the transportation network. Combined with other planned improvements, the Project would continue to provide much-needed transportation infrastructure to support planned regional population and economic development in the study area.

Noise

As land uses have shifted from rural to urban since the 1960s, human-caused noise, including noise from transportation sources, has continued to increase over time.

When combined with projects listed in Exhibit 2, this Project would provide a positive contribution to cumulative effects on noise because it will incorporate noise mitigation. With proposed noise walls, noise from the Project would affect 43 fewer residences than with the No Build Alternative in 2045. The Project does not preclude future efforts to minimize and mitigate noise effects associated with other planned projects in the area.

Ecosystems

Wetland resources in the study area have continued to decline over time because of human population increases and the associated construction of homes, retail centers, and industrial facilities. Although environmental awareness and regulatory requirements have increased, the number, size, and function of these wetlands has continued to decline. However, the rate of decline has slowed, and that trend is likely to continue. The regulatory trend of attaining no net loss (replacing impacted wetlands with at least as many acres of wetlands lost) and improved avoidance, mitigation, and compensation measures are helping to restore wetland areas. Refined regulatory requirements and programs and use of adaptive management procedures would further enhance the trend of restoring wetlands.

When combined with other reasonably foreseeable future projects listed in Exhibit 2, the Project would make a positive contribution to cumulative wetland effects because mitigation would provide high-quality wetlands and habitats to replace wetlands with lower quality functions. Future planned improvements in the study area such as BRT and various private developments may also require filling wetlands, but because of requirements that specify no net loss of wetlands, negative cumulative effects to wetlands are not expected.

As the human population and the extent of development in the study area have increased, the area of native vegetation has decreased and habitat for wildlife and aquatic organisms has been degraded and/or eliminated. Natural habitat alteration has taken the form of forest cover and stream-side vegetation removal, channel modification, stream bank armoring, 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 Endangered Species Act (ESA). This Project would permanently clear about 24 acres of vegetation, which would continue the trend of replacing vegetated areas with development. For vegetation and wildlife, the Project would have a small negative contribution to cumulative effects to vegetation and wildlife because small areas of low-quality vegetation would be affected.

Several aquatic species that are listed and protected under the ESA may live in the study area. As described in Section 4.4 of the EA, Water Resources, water quality is expected

to improve with the Project due to improved stormwater treatment. With proper maintenance, this should translate to beneficial effects on fish and aquatic habitat. Similarly, the Project would benefit fish and aquatic habitat by correcting fish barriers at five stream crossings in compliance with the terms of the 2013 United States District Court Injunction. The Project would make a positive contribution to cumulative effects on fish and aquatic habitat by providing improved stormwater treatment and detention, which would benefit water quality and quantity, and by correcting fish barriers that would restore anadromous fish access to 24,330 linear feet of additional habitat.

Overall, when combined with other reasonably foreseeable future projects listed in Exhibit 2, the Project would provide a negligible contribution to cumulative effects to vegetation and wildlife and a positive contribution to cumulative effects to wetlands and aquatic habitat.

Water Resources

Surface water in the area generally drains from east to west, with surface flows eventually reaching Lake Washington. 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, though some study area water bodies continue to have compromised water quality that do not meet state water quality standards.

When combined with other reasonably foreseeable future projects, such as Bothell's proposed drainage improvements on East Riverside Drive and 228th Street SE, this Project's contribution to cumulative effects on water quality and water quantity would be positive. Enhanced stormwater treatment will be provided for an area equivalent to all new pollution-generating impervious surfaces (PGIS), and older I-405 stormwater systems will be retrofitted to treat an additional 23 acres of PGIS that is not currently treated. The Project would also add stormwater detention and would correct several fish barriers, which would prevent increases in peak flows and velocities and help control flooding.

Visual Quality

Since the 1960s, the visual quality of the study area has changed from a landscape that had more vegetation and less hardscape (pavement, cement, buildings, etc.) to one that is now more suburban/urban. Over time, the I-405 Program's incorporation of context sensitive solutions guidelines, specifically the *I-405 Urban Design Criteria*, would help to create continuity and consistency for visual quality along the I-405 corridor for elements such as bridge design, lighting, and landscape features.

The Project would create varying effects on visual quality by reducing the natural harmony of the corridor (through removing strips of vegetation) and increasing the amount of hardscape. Changes in views for travelers on I-405, SR 522, and other study area trails and roadways would be generally neutral as compared to existing conditions, because the proposed Project would implement the *I-405 Urban Design Criteria*, which would help create a consistent look and feel for transportation elements such as walls, structures, landscaping, and lighting. The most noticeable long-term visual effect would be in the vicinity of the proposed direct access ramp south of SR 527 at 17th Avenue SE near the Canyon Park Park and Ride. In this area, WSDOT would remove vegetation and a screening wall that buffer the adjacent residential community to the south and would replace them with a retaining wall supporting a direct access ramp and a roundabout. WSDOT would widen 17th Avenue SE by one lane and would add a bike lane. As part of this work, WSDOT would remove existing mature trees adjacent to the road but would install a planting strip with grass and trees before the Project is complete. Views for drivers, pedestrians, and bicyclists on 17th Avenue would shift from suburban to a more urban environment. When combined with other planned development in the Canyon Park area, development density would increase. Increased development density in these areas may lead to clearing trees and native vegetation that give the area a natural character, which would continue the trend of modifying the natural character of the area.

When combined with other reasonably foreseeable future projects listed in Exhibit 2, the Project would have a small negative contribution to cumulative effects on visual quality. Continued implementation of the *I-405 Urban Design Criteria* would help to create a consistent look and feel for roadway improvements in the broader area.

Recreational Resources

Recreational opportunities, 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 recreational areas, such as the Sammamish River Trail, North Creek Trail, and the North Creek Forest. Between now and 2025, Bothell is proposing to add additional park and recreational facilities to the area, including at the planned 1st Lieutenant Nicholas Madrazo Memorial Park and the Cedar Grove Park Field Improvements. The City is also planning nonmotorized improvements to areas west of I-405 on 19th Avenue SE, 232nd Street SE, and 23rd Avenue SE. These investments would be enhanced by the elements of the proposed Project, including a new nonmotorized connection between the North Creek Trail and the proposed transit facilities at the I-405/SR 522 interchange, and reconstructing portions of one stream in the North Creek Forest.

When combined with other reasonably foreseeable future projects listed in Exhibit 2, the Project would have a positive contribution to cumulative effects on recreational resources in the community.

Land Use, Economics, and Community Resources

When I-405 was originally constructed in the 1960s, some neighborhoods were bisected by the new roadway. Since then, neighborhoods have adjusted and formed around I-405. 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. Population, housing, and employment have substantially grown since 2010, as described EA Appendix C, *Community Impact Assessment and Environmental Justice Discipline Report*, Section 4.3.1. This trend is expected to continue. In December 2019, Bothell published the *Canyon Park Subarea Planned Action Draft EIS* (Bothell 2019a). The *Draft EIS* evaluates alternatives that would increase development densities over the currently planned and approved growth specified in Bothell’s existing comprehensive plan, *Imagine Bothell* (Bothell 2015). The outcome of Bothell’s EIS and comprehensive plan update process is currently unknown, but the *Draft EIS* considers infrastructure improvements needed to support increased growth.

The Project would directly affect about 3.5 acres of existing commercial and residential properties. This land use change would have a negligible contribution to communities and neighborhoods when added to other reasonably foreseeable projects in the area because it represents less than 0.1 percent of Bothell’s total land area.

When coupled with other reasonably foreseeable planned improvements listed in Exhibit 2, the Project would have a positive contribution to cumulative effects on land use, economics, and community resources because it would provide much-needed transportation infrastructure to support planned regional population and economic development.

Environmental Justice

About 33 percent of the study area population identify as minorities, 5 percent identify as low-income, and 3 percent identify as persons with limited English proficiency, which is similar to Bothell, where the majority of the study area is located. The Project would provide a number of benefits for all people living in, working in, and visiting the study area and would not result in disproportionately high and adverse effects on persons who identify as minorities and/or persons who identify as low-income. Reduced congestion and increased travel speeds on I-405 coupled with transit improvements associated with implementing BRT on I-405 and SR 522 would benefit all populations, including persons who identify as minority and persons who identify as low-income.

The Project would expand the existing single ETL to a dual ETL. The ETLs would continue to have positive and negative direct and indirect effects on environmental justice populations in the I-405 travelshed. The ETLs would make a positive contribution to cumulative effects to regional transportation and could make a negative contribution to

cumulative effects to the economic burdens of low-income users of I-405 as explained in the text below.

While projected job and population growth in the region is likely to increase traffic congestion, the ETLs—in conjunction with other reasonable and foreseeable transportation investments in the I-405 travelshed—would improve transportation conditions for most I-405 users, including environmental justice populations. The continued operation of ETLs would disproportionately affect low-income populations because the cost to use the ETLs would represent a higher proportion of their household income than middle- and high-income users. In combination with the trend of rising housing costs in the I-405 travelshed and Washington’s regressive tax system, the ETLs would make a negative contribution to cumulative effects on economic burdens of low-income users of I-405. The operation of ETLs could continue to disproportionately affect persons with limited English proficiency, who may have difficulty understanding and using all-electronic tolling.

PSRC’s long-term vision for the region includes regional tolling on multiple highways in the Puget Sound region. Because of this, WSDOT acknowledges that more roads in the Puget Sound area may be tolled in the future and that the cumulative effects of tolls on low-income and/or minority populations would need to be analyzed appropriately as specific projects move forward.

Air Quality, Energy, and Greenhouse Gases

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 U.S. Environmental Protection Agency (EPA) as a “non-attainment area” for CO and ozone. The degradation largely resulted from the rise in vehicle miles traveled 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 the EPA to redesignate the region as a “maintenance area” for carbon monoxide (CO) and ozone in 1996. As described in the *I-405 Corridor Program Final EIS*, during that same two-decade period, freeway lane miles increased by approximately 50 percent while the region-wide vehicle miles traveled grew by approximately 200 percent. From 1970 to 1999, the average daily traffic on I-405 north of I-90 increased nearly 500 percent.

As described in Appendix D, *Air Quality Discipline Report*, air emissions for criteria pollutants, mobile source air toxics, and greenhouse gases 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 Project would have similar emissions to the No Build, but air emissions and greenhouse gases under both the Project

and No Build are expected to continue to decrease compared to existing conditions. When combined with planned future development listed in Exhibit 2, the Project would not contribute to a cumulative effect to air quality, energy, or greenhouse gas emissions.

Geology, Soils, and Groundwater

Human activities over the last several decades have changed the topography of the study area through 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 Project would continue this development trend by requiring cut and fill activities as part of construction. The Project is not expected to have long-term effects to groundwater. When combined with other reasonably foreseeable future projects listed in Exhibit 2, proposed cut and fill associated with the Project would not substantially alter the topography in the study area and would be consistent with current development trends that require soil excavation as development density increases. The Project would have a not contribute to cumulative effects on geology, soils, and groundwater in the study area.

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.

If hazardous materials are encountered during Project construction, or if property acquisitions are required on sites with known contamination, impacted materials disturbed as a result of construction activities will be remediated in accordance with state and federal laws. When combined with other reasonably foreseeable future projects listed in Exhibit 2, the Project would have a small, positive contribution to the cumulative trend of removing hazardous materials from the landscape.

Climate Change

All of WSDOT's major capital projects undergoing environmental review consider climate change and extreme weather events as part of the agency's 2014–2017 strategic plan commitment. WSDOT examined available information about climate trends and the results of WSDOT's assessment of vulnerable infrastructure for I-405, SR 522, and SR 527 (WSDOT 2011). WSDOT's assessment showed the section of I-405 in the study area to have a low level of vulnerability to climate-related threats. SR 522 and SR 527 have a

moderate vulnerability to climate-related threats; however, the areas with moderate vulnerability are well outside of the affected area for the Project. Therefore, climate-related risks for infrastructure in the study area are considered to be low. Climate-related threats on I-405, SR 522, and SR 527 are mostly related to increased risks for flooding on the Sammamish River and other area streams, because the study area may experience extreme wind, rain, and snow storms and more days of extreme heat as the climate changes.

The Project includes several features that would improve the resiliency of I-405, SR 522, and SR 527. These features include:

- Adding stormwater detention, which would reduce localized flooding and improve floodplain function compared to existing conditions.
- Removing four bridge piers from the Sammamish River, which would improve river and floodplain function by removing the fill material of the piers and removing a constraint in the river.
- Correcting fish barriers by replacing culverts with larger spanned structures, which would increase resilience to changes that may occur with increased severe weather and precipitation events.



Northbound I-405 to eastbound SR 522 ramp with two piers proposed for removal in the Sammamish River.

Exhibit 3 shows how existing culvert sizes would be upgraded.

Exhibit 3. Proposed Fish Barrier Correction Upgrades

Stream	Current Crossing Structure	Proposed Crossing Structure	Current Structure Length	Proposed Structure Length
Par Creek	60-inch precast concrete pipe	25-foot span structure	312 feet	323 feet
Stream 25.0L	30-inch corrugated metal pipe	19-foot span structure	205 feet	229 feet
North Fork of Perry Creek	60-inch precast concrete pipe	21-foot span structure	368 feet	370 feet
Queensborough Creek #1	48-inch corrugated steel pipe	20-foot span structure	209 feet	250 feet
Queensborough Creek #2	42-inch corrugated steel pipe	20-foot span structure	450 feet	439 feet

WSDOT is active in statewide and regional efforts to reduce greenhouse gas emissions and improve multimodal choices. Greenhouse gas emissions would be reduced with the Build Alternative, compared to existing conditions, which would contribute to WSDOT's efforts to reduce greenhouse gas emissions. .

Measures Proposed to Avoid or Minimize Cumulative Effects

No measures, beyond those incorporated in the Project design or listed in Chapter 6, Measures to Avoid or Minimize Effects, are proposed.

References

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Attachment: Attachment A, Projects Considered in Cumulative Effects Analysis

Attachment A

Projects Considered in the Cumulative Effects Analysis

Cumulative Effects - I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
 Attachment A: Projects Considered in the Cumulative Effects Analysis

Map ID	Project	Type	Agency	Source	Description	Notes
Infrastructure Projects						
1	I-405 Bus Rapid Transit (BRT)	Transit	Sound Transit	PSRC Regional Transportation Plan 2018; STIP 2019-2022	This multiyear project establishes BRT from the Lynnwood Transit Center to the Burien Transit Center via I-405 and SR 518. BRT service would use the I-405 ETL system where feasible. Project elements include adding 10 BRT stations, new/expanded parking facilities, interchange improvements, and station access improvements (including bus priority lanes and treatments).	NA
2	I-405 Brickyard Inline Station	Transit	Sound Transit	Sound Transit	As part of the development of I-405 BRT, this project would construct a new inline freeway transit station and pedestrian connection to the Brickyard Park and Ride in the I-405 median on I-405 near NE 160th Street.	NA
9	East Riverside Drive Drainage and Sediment	Drainage	Bothell	City of Bothell Capital Facilities Plan 2019-2025	This project would construct conveyance improvements, including sediment and debris control to reduce flooding potential.	NA
15	SR 522/NE 145th Street BRT	Transit	Sound Transit	PSRC Regional Transportation Plan 2018; STIP 2019-2022	This multiyear project proposes design of a BRT system from the proposed Sound Transit Link light rail station at I-5 and Northeast 145th Street along the SR 522 corridor to the UW Bothell/Cascadia College campus and proposed I-405/SR 522 interchange transit facilities to be constructed as part of this Project, with connecting service at lower frequencies to Woodinville. The project includes new and upgraded transit centers, new park and ride capacity, and station access improvements.	NA
16	1st Lieutenant Nicholas Madrazo Memorial Park	Park	Bothell	City of Bothell Capital Facilities Plan 2019-2025	This project would construct a new park and recreational amenities including a basketball court, walking paths, playfield, parking, landscaping, and other park facilities.	NA

Cumulative Effects - I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Attachment A: Projects Considered in the Cumulative Effects Analysis

Map ID	Project	Type	Agency	Source	Description	Notes
27	19th Avenue SE/232nd Street SE/23rd Ave SE Nonmotorized Improvements	Ped/Bike	Bothell	City of Bothell Capital Facilities Plan 2019-2025; STIP 2019-2022	This project includes building sidewalks, bike lanes, curb and gutter, storm drainage, ADA curb ramps, crosswalks, rectangular rapid flashing beacons, and crosswalk flags.	NA
33	Perry Creek and 228th Street SE Culverts	Drainage	Bothell	City of Bothell Capital Facilities Plan 2019-2025	This project would install a new culvert across 19th Avenue SE and a storm pipe along 19th Avenue.	NA
35	Cedar Grove Park Field Improvements	Park	Bothell	City of Bothell Capital Facilities Plan 2019-2025	This project would complete the development of this park located near the SR 527 interchange.	NA
36	Canyon Park Fire Station 45 Replacement	Fire Station	Bothell	City of Bothell Capital Facilities Plan Addendum 2019-2025	This project includes rebuilding the fire station in its current location to include safety upgrades, technical modernization, and energy efficiency. The site would house a new police satellite office.	NA
42	Sound Transit Bus Base North	Transit	Sound Transit	Sound Transit	In support of the development of BRT on I-405, this bus base would be built in the Canyon Park area near 214th Street SE to provide operations and maintenance for additional BRT services on I-405 and SR 522/NE 145th Street. The site would support storage, maintenance, fueling, and washing for up to 80 articulated and 40 double decker hybrid buses. The site would also house offices and support areas for drivers and operations. The bus base would operate 24-hours a day, seven days a week, with approximately 253 employees working over three shifts.	NA

Cumulative Effects - I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
 Attachment A: Projects Considered in the Cumulative Effects Analysis

Map ID	Project	Type	Agency	Source	Description	Notes
Bothell Development Projects						
3	Spatacean Short Plat	Private Development	Bothell	Bothell 2019d	4 lot short plat	In Review. Project number SUB2019-14981. Viewed 12/2019.
4	Cedar Park AOG Middle School CUP	Private Development	Bothell	City of Bothell Private Development database (Bothell 2019d)	Classroom building; youth center; church building expansion	Under Construction. Updated 11/2018. Project Number CUP2017-10550
5	Tang/Bothell Plat	Private Development	Bothell	Bothell 2019d	5 lot subdivision	In Review. Last updated 11/2018. Project Number SUB2018-13008.
6	Bothell 170 Caldwell/Compton	Private Development	Bothell	Bothell 2019d	3 lot short plat	Preliminary Approval. Last updated 9/2019. Project Number SUB2018-12030
7	Bothell Brickyard	Private Development	Bothell	Bothell 2019d	4 lot clustered planned unit development	In Review. Last updated 9/2019.
8	Riverside Short Plat (Cook)	Private Development	Bothell	Bothell 2019d	4 lot short plat	Under Construction. Project Number SUB2018-13585. Last updated 9/2019.
10	10624 E Riverside Dr Plat	Private Development	Bothell	Bothell 2019d	5 lot plat	In Review. Project Number SUB2019-14992. Last updated 9/2019.
11	UW Bothell/Cascadia Corporation Yard	Private Development	Bothell	Bothell 2019d	Site Plan Review for 2-story 4,780 sq ft warehouse	Preliminary Approval. Project Number SPR2019-13757. Last updated 9/2019.

Cumulative Effects - I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
Attachment A: Projects Considered in the Cumulative Effects Analysis

Map ID	Project	Type	Agency	Source	Description	Notes
12	Securite Luxury Gun Club	Private Development	Bothell	Bothell 2019d	Two-story, 32,000 SF private recreational facility	Under Construction. Project Number SHR2016-08343. Last updated 11/2018.
13	UW Master Plan Development	Land Development	Bothell	University of Washington	The UW Master Plan calls out a number of projects identified for near term development (within 6 to 10 years). These projects are funded through the Washington State Legislature, and UW and Cascadia College have received funding for one building per year during previous years.	Phased master plan - UW and Cascadia funded 1 building per year
14	CC/UWB West Parking Garage	Private Development	Bothell	Bothell 2019d	Site Plan Review for approx. 40,000 sq ft parking garage	In Review. Project Number SPR2019-13842. Last update 4/2019.
17	Preston South Townhomes	Private Development	Bothell	Bothell 2019d	Site Plan Review for 59 townhouse-style condominium units	In Review. Project Number SPR2019-14036. Last updated 9/2019.
18	Beardslee South Townhomes.	Private Development	Bothell	Bothell 2019d	Construction of 60 unit townhome development	Under Construction. Project Number GRA2017-17502. Viewed 12/2019.
19	Zhang Short Plat	Private Development	Bothell	Bothell 2019d	2 lot short plat	In Review. Project Number SUB2017-11190. Viewed 12/2019.
20	Uliuu (Vasile) 3 lot short plat	Private Development	Bothell	Bothell 2019d	3 lot short plat	Under Construction. Project Number SUB2018-12229. Last updated 9/2019.
21	Preston North Townhomes	Private Development	Bothell	Bothell 2019d	Site Plan Review for 94 unit multifamily townhome project	In Review. Project Number SPR2019-13866. Last updated 9/2019.
22	Woodcrest Plat/PUD	Private Development	Bothell	Bothell 2019d	7 lot plat	Under Construction. Project Number SUB2016-08712. Last updated 4/2018.

Cumulative Effects - I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
 Attachment A: Projects Considered in the Cumulative Effects Analysis

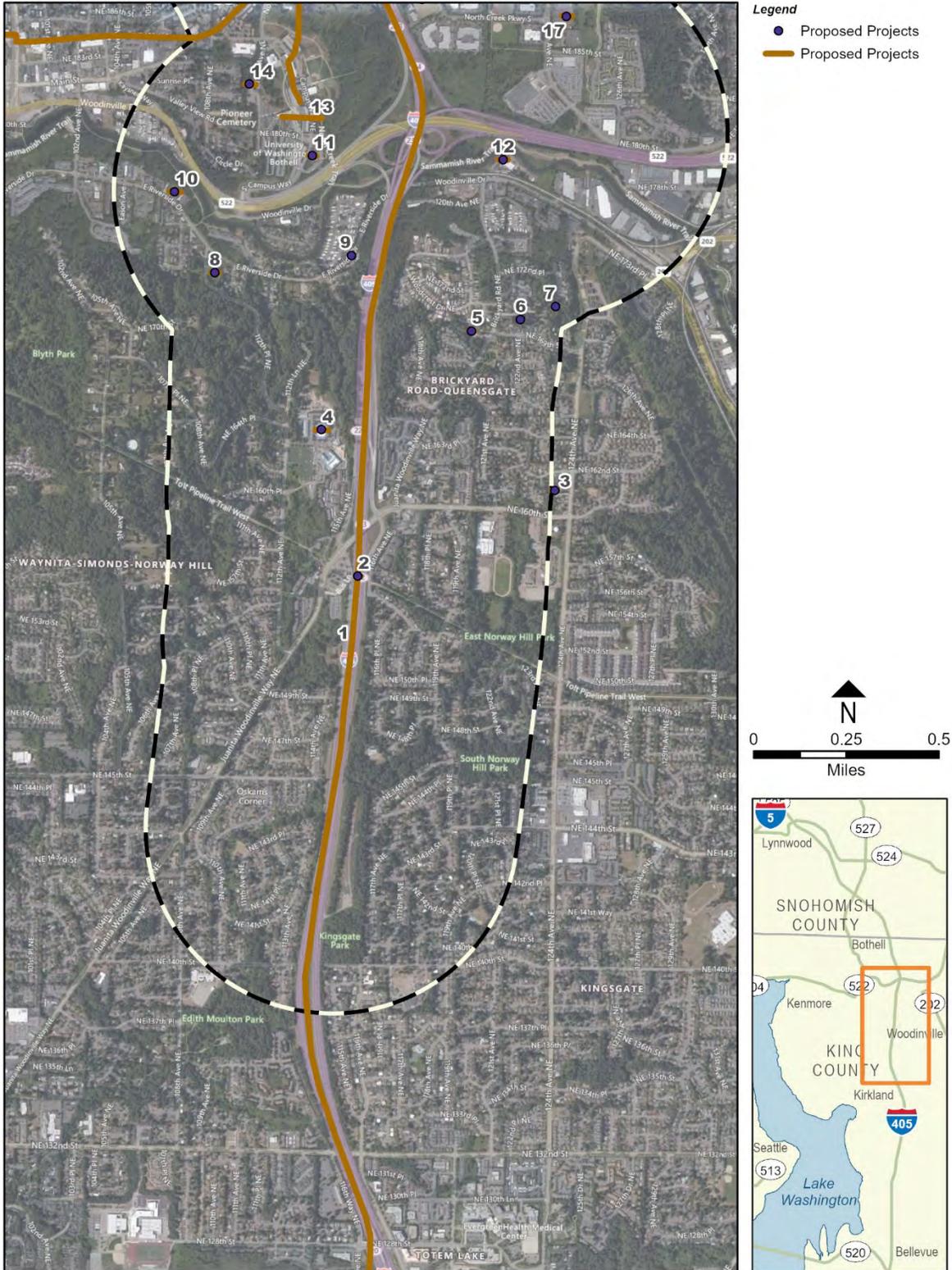
Map ID	Project	Type	Agency	Source	Description	Notes
23	Islamic Community Center	Private Development	Bothell	Bothell 2019d	13,000 SF building addition to Monte Villa Farmhouse site	Under Construction. Project Number SEP2016-08497. Viewed 12/2019.
24	Serena Condos	Private Development	Bothell	Bothell 2019d	12 detached condominiums	Under Construction. Project Number GRA2014-07730. Viewed 12/2019.
25	Haight Preliminary Plat	Private Development	Bothell	Bothell 2019d	19 lot subdivision	Preliminary Approval. Project Number SUB2017-09678. Viewed 12/2019.
26	Lisa's Acre	Private Development	Bothell	Bothell 2019d	4 lot short plat	Under Construction. Project Number SPL2004-00004. Last updated 9/2019.
28	15th Ave Short Plat and Critical Area Tract	Private Development	Bothell	Bothell 2019d	3 lot short plat and critical area tract	Under Construction. Project Number GRA2018-20410. last updated 9/2019.
29	Westerford Plat	Private Development	Bothell	Bothell 2019d	8 lot subdivision	Under Construction. Project Number SUB2017-09921. Last updated 9/2019.
30	Bonnie Short Plat	Private Development	Bothell	Bothell 2019d	Short plat existing parcel into 3 lots. Existing house will remain on Lot 3. Lots 1 and 2 will have new homes constructed	Preliminary Approval. Project Number SUB2018-13133. 9/2019.
31	Clyde Hill	Private Development	Bothell	Bothell 2019d	12 lot preliminary plat	In Review. Project Number SUB2018-13335. Last updated 9/2019.
32	Jackson No 615 Fuel Station	Private Development	Bothell	Bothell 2019d	Fuel station redevelopment	In Review. Project Number GRAR2019-14969. Last updated 9/2019.

Cumulative Effects - I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
 Attachment A: Projects Considered in the Cumulative Effects Analysis

Map ID	Project	Type	Agency	Source	Description	Notes
34	Canyon Village	Private Development	Bothell	Bothell 2019d	13 unit detached condo project	Under Construction. Project Number GRA2004-00006. Last updated 4/2019.
37	CP18-19	Private Development	Bothell	Bothell 2019d	118 townhome units	Under Construction. Project Number GRA2018-18873. Last updated 10/2019.
38	Valley View South	Private Development	Bothell	Bothell 2019d	2 lot short plat	Under Construction. Project Number SUB2016-09364. Viewed 12/2019.
39	216 Valley View West	Private Development	Bothell	Bothell 2019d	3 lot short plat	Under Construction. Project Number SUB2018-11533. Viewed 12/2019.
40	216 Valley View East	Private Development	Bothell	Bothell 2019d	4 lot short plat	Under Construction. Project Number SUB2018-11532. Viewed 12/2019.
41	Royal Meadows PUD Plat	Private Development	Bothell	Bothell 2019d	25 lot subdivision	In Review. Project Number SUB2018-13532. Last updated 9/2019.
43	People's Storage	Private Development	Bothell	Bothell 2019d	110,000 SF mini self-storage facility	Under Construction. Project Number BNR2016-13002. Last updated 11/2018.

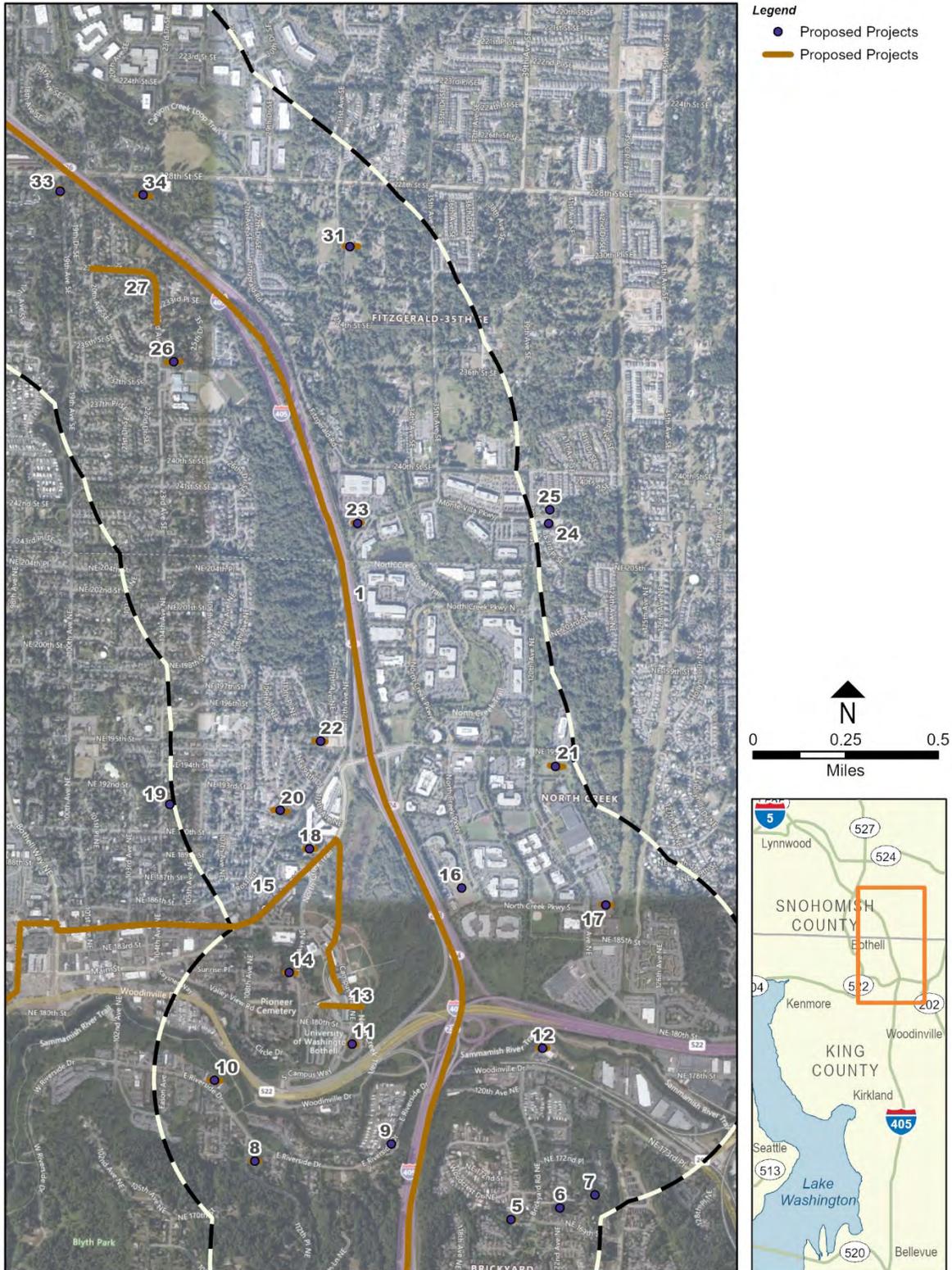
Cumulative Effects - I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project Attachment A: Projects Considered in the Cumulative Effects Analysis

Projects Considered in the Cumulative Effects Analysis, Sheet 1 of 3



Cumulative Effects - I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project Attachment A: Projects Considered in the Cumulative Effects Analysis

Projects Considered in the Cumulative Effects Analysis, Sheet 2 of 3



Cumulative Effects - I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project Attachment A: Projects Considered in the Cumulative Effects Analysis

Projects Considered in the Cumulative Effects Analysis, Sheet 3 of 3

