



Everett Link Extension

Draft Environmental Impact Statement

UTILITIES TECHNICAL REPORT

Appendix G.16

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Acronyms

AIR	SR 99/Airport Road
ALD	West Alderwood
ASH	Ash Way
AWWD	Alderwood Water and Wastewater District
BI	Broadway/I-5
BPA	Bonneville Power Administration
BMP	best management practices
EGN	SR 526/Evergreen
EVLE	Everett Link Extension
GIS	geographic information system
kV	kilovolt
MAR	Mariner
MWWD	Mukilteo Water and Wastewater District
NEPA	National Environmental Policy Act
OMF	operations and maintenance facility
PSE	Puget Sound Energy
SnoPUD	Snohomish County Public Utility District
SR	State Route
SWI	SW Everett Industrial Center
WSDOT	Washington State Department of Transportation

1 INTRODUCTION

1.1 Overview

The Central Puget Sound Regional Transit Authority (Sound Transit) is proposing to expand Link light rail transit service northward from the Lynnwood City Center Station to the Everett Station area in Snohomish County, Washington (Figure 1-1). The Everett Link Extension (EVLE) Project would provide fast, reliable light rail service to regional residential and job centers in Snohomish County's growing urban areas. The proposed project is part of the Sound Transit 3 (ST3) Plan of regional transit system investments, funding for which was approved by voters in the region in 2016.

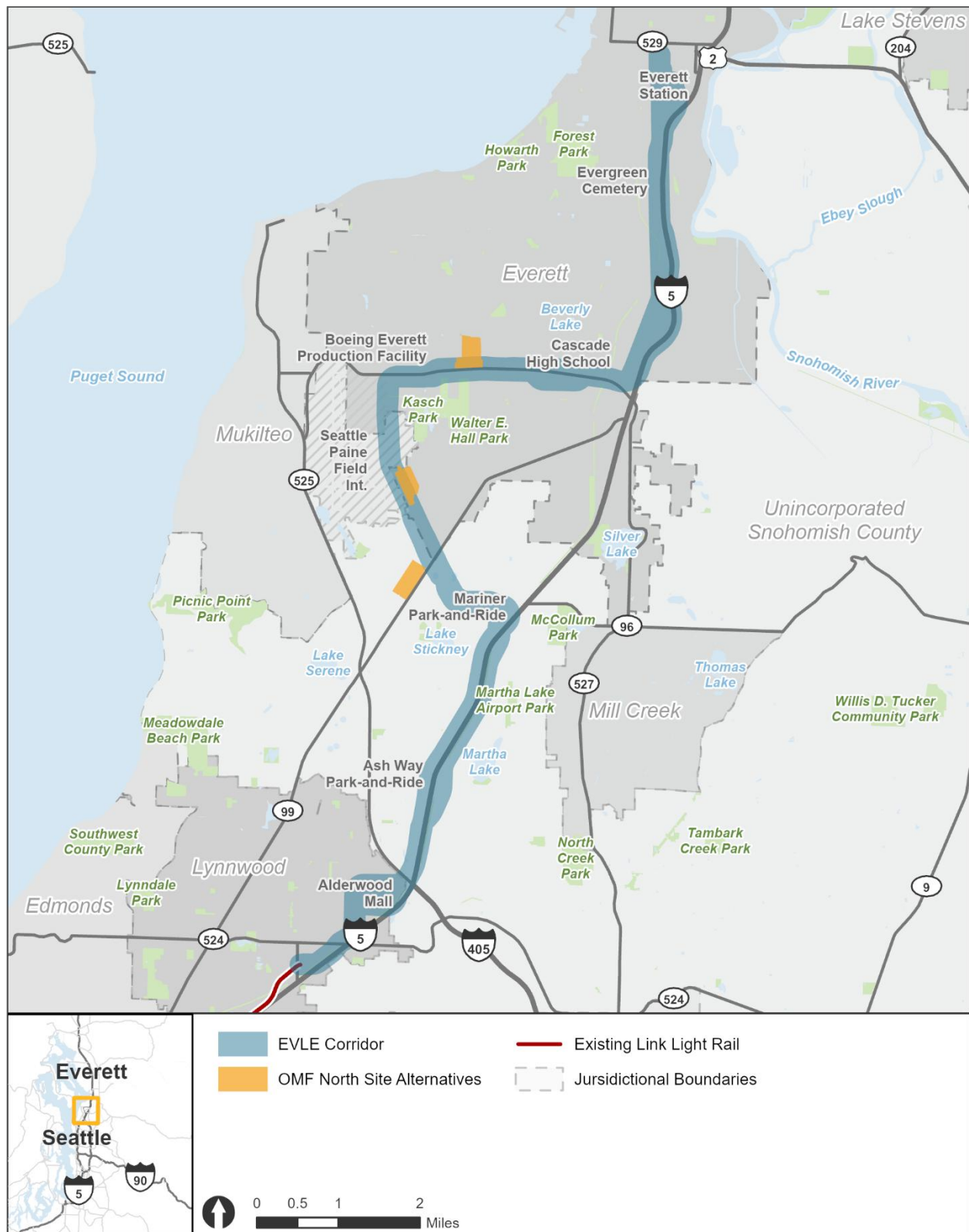
For this analysis, the EVLE Project consists of approximately 16 miles of light rail guideway, seven light rail stations, two parking facilities, and an operations and maintenance facility (OMF North). Sound Transit proposes to begin construction of the project in 2030. The current schedule for opening light rail service from the Lynnwood City Center Station to Everett Station is 2041. A shorter route connecting Lynnwood City Center to the SW Everett Industrial Center Station would open first in 2037 as the initial phase. OMF North would open by 2034, prior to opening of the light rail extension, as the facility is necessary for storing rail cars and supporting service for not only the extension to Everett, but also other parts of the regional system.¹ Parking facilities at the Mariner and Everett Stations would open by 2046.

One station, State Route (SR) 99/Airport Road Station, is currently considered provisional since planning, preliminary engineering, and environmental review are funded, but final design and construction are not. However, for purposes of this evaluation, all seven stations are assumed to be funded and open according to the schedule described above to capture all locations where impacts could occur. The station would be fully constructed and open for service when additional funding is identified.

The initial phase is not discussed in this analysis because it would not have additional potential impacts when compared with the fully built alternatives (i.e., the impacts would be the same in the West Alderwood, Ash Way, Mariner, SR 99/Airport Road, and SW Everett Industrial Center Segments, and for the OMF sites, but the impacts in the SR 526/Evergreen, Broadway/I-5, and Everett Station Segments would not occur until construction on those segments begins). All potential impacts are described in Section 4.

¹ Construction of light rail projects is typically divided into sections, and construction would occur across different parts of the corridor between 2030 and 2046. For more information on the construction approach, see Draft EIS Appendix B.

Figure 1-1 EVLE Project Corridor



For planning and engineering purposes, the project is organized into eight geographic segments, discussed in this document from south to north. Within those segments, a total of 17 alignment alternatives and 18 station location alternatives are under consideration. These alignment and station alternatives are combined into Build Alternatives for analysis as shown in Table 1-1 and Figure 1-2.

Table 1-1 describes the alignment and station alternatives as follows:

- **Segments:** The eight alignment segments and corresponding abbreviations are:
 - West Alderwood (ALD).
 - Ash Way (ASH).
 - Mariner (MAR).
 - SR 99/Airport Road (AIR).
 - SW Everett Industrial Center (SWI).
 - SR 526/Evergreen (EGN).
 - Broadway/I-5 (BI).
 - Everett Station (EVT).
- **Alignment alternatives:** Alignment alternatives in each segment are identified with numbers (e.g., ALD-1).
- **Station alternatives:** Station alternatives in each segment are identified with letters (e.g., ALD-B).²
- **Build Alternatives:** Alignments and stations are combined to create the Build Alternative name (e.g., Station ALD-B is located on Alignment ALD-1, so this pairing is referred to as Alternative ALD-1B). If a preferred Build Alternative has been identified by the Sound Transit Board of Directors, it is indicated with an asterisk.
- **Design options:** A design option is an alternate design for a portion of a Build Alternative. It could be a different route or profile along a portion of an alignment, a different station configuration, or a different parking location. For example, in the West Alderwood Segment, the Alderwood Mall Boulevard Design Option is being considered for all three Build Alternatives.

² Letters identifying station alternatives are non-sequential in some segments; missing letters denote alternatives that did not perform as well as alternatives considered in the Draft EIS. For more information on the Alternatives Development process, see Draft EIS Chapter 2.

Table 1-1 Alignment and Station Build Alternatives by Segment

Segment	Alignment Alternatives	Station Alternatives	Build Alternatives (Combined Alignment and Station)	Build Alternative Design Options Also Considered
West Alderwood	ALD-1	ALD-B	ALD-1B	Alderwood Mall Boulevard
	ALD-2	ALD-D	ALD-2D*	Alderwood Mall Boulevard
		ALD-F	ALD-2F	Alderwood Mall Boulevard
Ash Way	ASH-1	ASH-A	ASH-1A	None
	ASH-2	ASH-D	ASH-2D	None
Mariner	MAR-1	MAR-B	MAR-1B	Surface Parking
	MAR-2	MAR-D	MAR-2D	Surface Parking
SR 99/ Airport Road	AIR-1	AIR-A	AIR-1A	None
	AIR-2	AIR-B	AIR-2B	None
SW Everett Industrial Center	SWI-1	SWI-A	SWI-1A*	Lower
		SWI-B	SWI-1B	None
		SWI-C	SWI-1C	None
SR 526/ Evergreen	EGN-1	EGN-A	EGN-1A	None
	EGN-2	EGN-B	EGN-2B	North Side of SR 526
	EGN-3	EGN-E	EGN-3E	North Side of SR 526
Broadway/I-5	BI-1	None	BI-1*	None
	BI-2	None	BI-2	None
Everett Station	EVT-1	EVT-A	EVT-1A	None
	EVT-2	EVT-C	EVT-2C*	None
	EVT-3	EVT-D	EVT-3D*	None

* Denotes preferred alternative

There are also three OMF North site alternatives under consideration as shown in Table 1-2 and Figure 1-2.

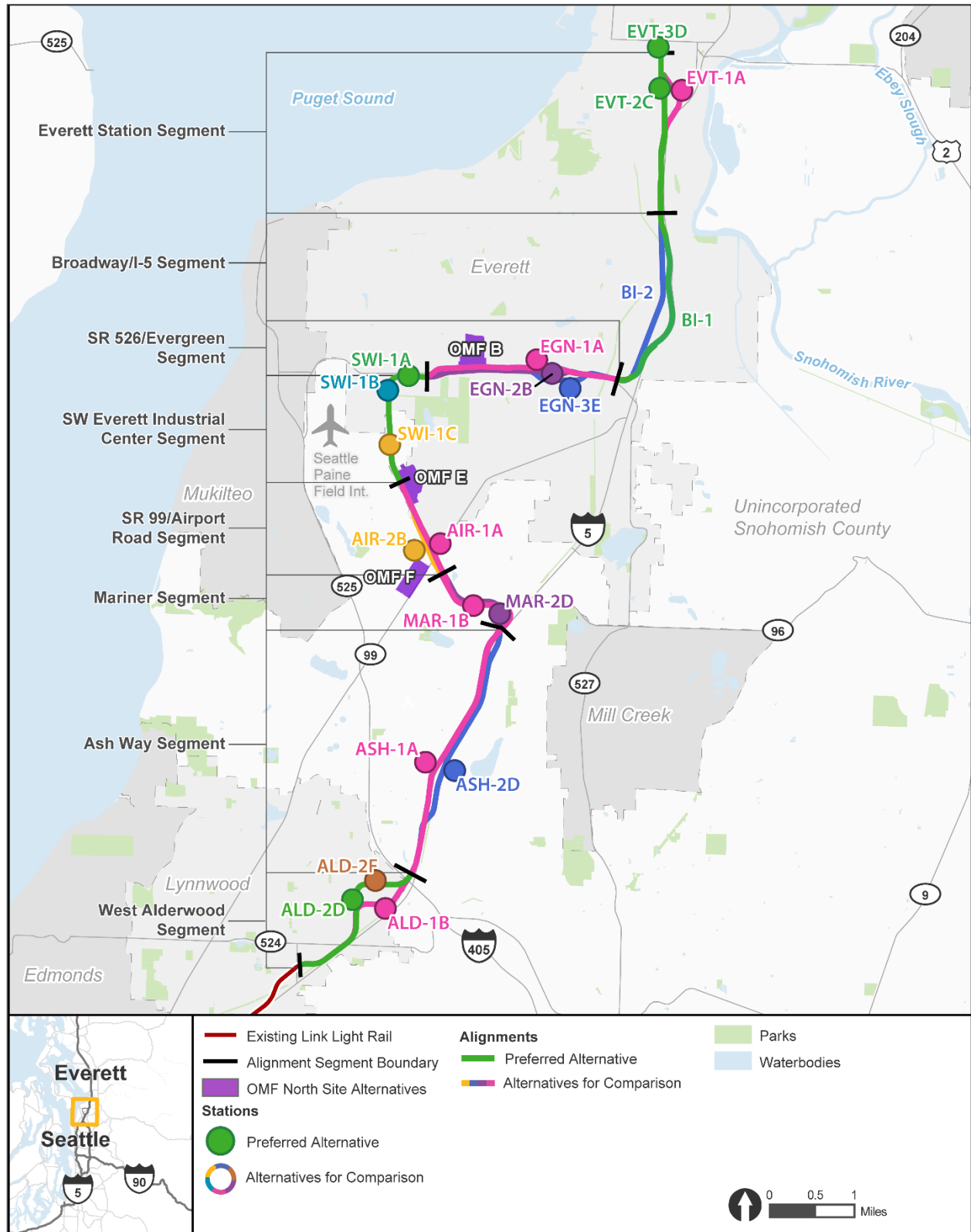
Table 1-2 OMF North Site Alternatives

Build Alternative	Build Alternative Design Options Also Considered
OMF Site F	Lead Tracks to West Side of Airport Road
OMF Site E	None
OMF Site B	Lead Tracks to South Side of SR 526

Analysis of the Build Alternatives was based on the conceptual design drawings included in Draft Environmental Impact Statement (EIS) Appendix F.

The No Build Alternative describes the environment, including the transportation system, as it would exist in 2046 without the proposed project. The No Build Alternative uses 2046 as the year of analysis to align with the target date for completion of all EVLE Project components and the full buildout of the light rail capital projects included in the ST3 Plan.

Figure 1-2 EVLE Project Alternatives



1.2 Potential Design Refinements

In addition to the alternatives described above, the Draft EIS provides a qualitative evaluation of potential design refinements that could reduce overall project cost if applied to the alignment and station alternatives (for more information, see Draft EIS Chapter 2). The potential design refinements identified to date that could be considered in each segment, along with potential changes in impacts, are described in Draft EIS Chapter 4. Sound Transit has not identified any change in utility impacts as a result of the potential design refinements (see quantitative analysis methodology in Draft EIS Appendix I). If Sound Transit decides to include these refinements as part of the project prior to the Final EIS, they would be reflected in the conceptual design plans and evaluated in the Final EIS.

1.3 Purpose of Report

The purpose of this report is to summarize utility impacts within the EVLE Project vicinity and evaluate potential impacts associated with the proposed alternatives. This report describes the major affected utilities and measures to mitigate potential impacts. Utilities covered in this report include electrical, natural gas, water, sanitary sewer, stormwater drainage, and telecommunication services and infrastructure. Additional information on stormwater infrastructure can be found in the Water Resources Technical Report in Draft EIS Appendix G.9.

2 REGULATORY CONTEXT AND METHODOLOGY

2.1 Applicable Laws, Regulations, and Guidelines

Federal, state, and local regulations, plans, and policies that apply to utilities include:

- Title 23, Code of Federal Regulations, Part 645 – Utilities.
- Washington State Department of Transportation's (WSDOT) *Design Manual* (M 22-01) (WSDOT 2023).
- WSDOT's *Utility Manual* (M 22-87) (WSDOT 2019) and *Accommodation Policy* (M 22-86) (WSDOT 2016).
- Applicable policies and procedures of the City of Everett (City of Everett 2023b), the City of Lynnwood (City of Lynnwood 2023), Snohomish County (SnoPUD 2022a), Alderwood Water and Wastewater District (AWWD) (AWWD 2017), and Puget Sound Energy (PSE) (PSE 2022).
- Adopted comprehensive plans and policies related to utilities codes and engineering standards for the City of Lynnwood (City of Lynnwood 2024), City of Everett (City of Everett 2023a), Snohomish County (SnoPUD 2022b), AWWD (AWWD 2017), and PSE (PSE 2022).
- Applicable standards of the *Sound Transit Requirements Manual*, including Set 902, Utilities (Sound Transit 2023).

2.2 Methodology

This analysis evaluated the potential reasonably foreseeable utility impacts of the No Build and Build Alternatives within the study area.

National Environmental Policy Act (NEPA) regulations require that an EIS disclose impacts (i.e., effects) of a proposed action on the environment. NEPA requires an EIS to evaluate and disclose the “reasonably foreseeable environmental effects of the proposed agency action” (42 USC Section 4332). Reasonably foreseeable environmental effects are those that are sufficiently likely to occur during operation (long-term) or construction (short-term). Reasonably foreseeable environmental effects do not include effects that are speculative in nature or remote in time or place, or that are the result of a lengthy causal chain. For this analysis, reasonably foreseeable effects include all effects that are considered likely to result from the project over its operational lifetime within the study area of each resource.

The study area for the utility analysis is the area within 100 feet of the project limits. The project limits include permanent project improvements and areas needed for project construction, such as staging areas. Information on existing utilities was compiled from these sources: aerial survey, record drawings, utility/agency-provided geographic information system (GIS) data, system maps, and as-built drawings obtained from private and public utility companies.

Record drawings were provided by:

- City of Everett.
- City of Lynnwood.
- The Williams Company, Inc.

GIS and system maps were provided by:

- AWWD.
- City of Everett.
- Mukilteo Water and Wastewater District (MWWD).
- Snohomish County (Paine Field).
- Snohomish County Public Utility District (SnoPUD).

Known utilities identified by the above sources were identified within the conceptual design evaluated in the Draft EIS. Additional utility infrastructure is expected to exist in the corridor (i.e. telephone and fiber-optic duct banks and PSE natural gas pipelines). Specific locations of these utilities will be identified as design advances.

Utilities within the study area were evaluated for potential conflicts. In case of conflicts, such utilities would need to be protected in place or relocated. Any utilities within 20 feet of elevated guideway columns or in direct conflict with at-grade and below-grade guideways were identified as needing to be relocated. This report primarily evaluates and discusses major utilities, which would be larger size infrastructure, such as:

- Water mains of 16-inch diameter or greater.

- Stormwater drains that are 36-inch diameter or greater and drainage ponds (refer to Ecosystems Technical Report in Draft EIS Appendix G.10 for discussion of fish bearing (Type F) stream culverts).
- Sanitary sewer force mains and gravity sewers of 24-inch diameter or greater.
- 115 kilovolt (kV) and greater electrical transmission lines.
- High-pressure gas mains of any diameter.
- Intermediate-pressure gas lines with an 8-inch diameter or greater.
- Communication hubs.
- Petroleum product pipelines.
- Steam pipelines of 12-inch diameter (carrier pipe diameter) or greater.

Known private wells were also identified within the study area and are discussed in this report.

3 AFFECTED ENVIRONMENT

Existing and planned major utilities identified in the study area include high pressure gas, electrical power, water, sanitary sewer, stormwater drainage, and communications systems. No petroleum product or steam pipelines were found within the study area.

The major utility providers in the study area include municipal agencies, public utility districts, and private franchise utility companies. Table 3-1 summarizes these providers in the study area.

Table 3-1 Major Utility Providers in Study Area

Utility	Provider
West Alderwood Segment	
Natural Gas	Williams, PSE
Electricity	SnoPUD
Water	AWWD, City of Lynnwood
Sanitary Sewer	City of Lynnwood
Ash Way Segment	
Natural Gas	PSE
Electricity	SnoPUD
Water	AWWD
Sanitary Sewer	AWWD
Mariner Segment	
Natural Gas	PSE
Electricity	SnoPUD
Water	AWWD
Sanitary Sewer	AWWD

Utility	Provider
SR 99/Airport Road Segment and OMF Sites F and E	
Natural Gas	PSE
Electricity	SnoPUD
Water	MWWD, AWWD, City of Everett
Sanitary Sewer	MWWD, AWWD, City of Everett
SW Everett Industrial Center Segment and OMF Site E	
Natural Gas	PSE
Electricity	SnoPUD
Water	MWWD, City of Everett
Sanitary Sewer	MWWD, City of Everett
SR 526/Evergreen Segment and OMF Site B	
Natural Gas	PSE
Electricity	SnoPUD, Bonneville Power Administration (BPA)
Water	City of Everett
Sanitary Sewer	City of Everett
Communications	Comcast, Ziply
Broadway/I-5 Segment	
Natural Gas	PSE
Electricity	SnoPUD, BPA, PSE ^a
Water	City of Everett
Sanitary Sewer	City of Everett
Everett Station Segment	
Natural Gas	PSE
Electricity	SnoPUD
Water	City of Everett
Sanitary Sewer	City of Everett
Storm Sewer	WSDOT

NOTE:

- a) PSE does not provide electrical service in the area but does have transmission lines crossing the project limits.

4 ENVIRONMENTAL IMPACTS

The following sections address the likely operational and construction impacts for the project alternatives. Most of the impacts on utilities would be temporary construction impacts rather than long-term operational impacts.

4.1 Build Alternatives

4.1.1 Operational Impacts

Long-term, impacts would be the same for all Build Alternatives; there would be no operational impacts unique to any of the alternatives.

4.1.1.1 Alignment and Station Alternatives

Based on the conceptual design of the alignment and station alternatives, the following utility services are assumed to be required for operation of the project: electrical power (1,000 kilo-volt-amperes [kVA]) and associated traction power substations, 6-inch sanitary sewer service, 2-inch domestic water service, 6-inch fire leads, and fiber and telephone for communications.

The Energy Technical Report in Draft EIS Appendix G.11 describes the Build Alternatives' energy consumption and identifies energy-related impacts. SnoPUD would provide the electricity needed to operate the project's light rail vehicles, stations, and OMF North facilities. Traction power substations placed at or near light rail stations would provide power to the overhead catenary system that would power the light rail vehicles using direct current power from alternating current power taken from the 26kV electrical distribution facilities. The substations would be powered by 26-kV electric lines connecting to the nearest power pole.

Stray electrical current from a light rail system's traction power electrical system can cause damage and corrosion to nearby underground utilities if not properly controlled by appropriate system design. Underground utilities in or adjacent to the project footprint, including communications, gas, sewer, water, storm drainage, and electric lines, could be susceptible to corrosion from stray electrical currents traveling from the traction power substations to overhead catenary system poles. The Electromagnetic Fields Technical Report (Draft EIS Appendix G.14) provides additional discussion of potential stray current effects on utilities.

Improved transit access from EVLE would support planned transit oriented development or redevelopment near the stations. This increase in population and development would also likely increase demand for utility services in some areas surrounding stations. However, the project corridor is within the urban growth boundaries of Lynnwood, Everett, and Snohomish County and an increase in development and overall density is addressed in each of the jurisdiction's comprehensive plans. Therefore, adverse impacts from increased development are not expected to occur due to the EVLE Project.

4.1.1.2 OMF North Site Alternatives

Based on the conceptual design, the OMF sites are assumed to require electrical power (10,000 kVA total connected load provided via a 1,500 kVA transformer for the OMF building, 1,500 kVA transformer for the Maintenance of Way building, and a feed for the traction power substation) as well as services for an 8-inch sanitary sewer, 8-inch water loop for 4-inch services to the buildings and 6-inch leads for hydrants, and fiber and telephone for communications.

For each of the OMF North site alternatives, water demand would increase, most of it for light rail vehicle washing. Water and sanitary sewer demand loads for all buildings and for fire suppression will be determined as design advances and will be coordinated with jurisdictions to minimize impacts to existing systems. Water from the vehicle washing would be treated, to be used as reclaimed water, reducing the amount of sewage discharged to the sanitary sewer

system. The water discharged to the sanitary sewer system would be disposed in accordance with local and state regulations. For each of the OMF North site alternatives, existing sewer lines on adjacent streets would be available for sewer connections. Nonrecycled vehicle wash water disposal volumes would be compared with conveyance capacity of the existing system. On-site filtering and recycling capacity would be developed in more detail during the final design to ensure compatibility with the existing system.

Sound Transit would design the project to maintain access to utilities for maintenance and repair and to avoid major service disruptions to utility customers. In some cases, this would require Sound Transit to relocate sewer maintenance holes, pipes, vaults, or other access points. Sound Transit would work with utility providers to maintain required access to these utilities and relocated sewer maintenance holes and vaults, utility mains, fire hydrants, and other features.

Sound Transit would integrate efficient operating practices at existing and new facilities and use equipment to reduce energy and water demand and to recycle water. Implementing these and other efficient practices would reduce consumption and demand on utilities.

4.1.2 Construction Impacts

4.1.2.1 Impacts Common to All Build Alternatives

Potential impacts to major utilities during construction may require the following:

- Relocating utility poles supporting overhead lines.
- Raising overhead power lines to heights that do not interfere with the guideway or catenary system.
- Constructing new distribution lines to provide power to substations.
- Relocating underground utilities.
- Inspecting, repairing, and casing underground utilities at guideway track crossings.
- Service disruptions.

Construction could affect access to underground utility providers, and in some cases, utilities would need to be relocated in consultation with the utility provider.

Construction could lead to impacts such as relocation, removal, abandonment, or interrupted service to utilities. The degree of impact would depend on depth, material composition, excavation limits, construction methods, project alignment, and other factors. To allow for excavation and to minimize load impacts from the weight of light rail vehicles, underground utilities would be relocated or cased for protection. Utilities within public road rights-of-way would generally be moved to a different location within the right-of-way. In some cases, utilities may need to be relocated to adjacent rights-of-way and/or require additional easements from affected private properties.

Where feasible, columns for elevated guideways would avoid impacts on underground utilities. Elevated guideways might also require that existing power lines be relocated or elevated over the overhead catenary system.

Temporary connections to utility customers would typically be established before relocations to minimize service disruptions. Efforts to minimize impacts would also include potholing and pre-

construction surveys to identify utility locations as well as outreach to inform customers of potential service disruptions. However, inadvertent damage to underground utilities could occur if utility locations are uncertain or misidentified. Sound Transit would work with utility companies to identify damaged utility lines or connections and restore service as soon as possible.

The following subsections summarize the potential major utility conflicts in each segment for the alignment and station alternatives and for each OMF North site alternative. A figure is included at the end of each subsection showing likely conflict locations. Where major utilities would be directly under or above the project limits, the approximate length of the anticipated relocation is provided. Where major utilities would intersect with an alternative, the number of crossings is identified. Sound Transit would determine extent of potential relocations during final design.

4.1.2.2 Alignment and Station Alternatives

West Alderwood Segment

Alternative ALD-1B would directly impact a 16-inch and 8-inch gas line within Alderwood Mall, owned by Williams. The 16-inch and 8-inch gas lines would need to be relocated away from the alignment and around Station ALD-B.

Alternative ALD-2D would directly impact a 16-inch and 8-inch gas line within 33rd Avenue, owned by Williams. The 16-inch and 8-inch gas lines would need to be relocated away from the guideway columns.

All alternatives in this segment would directly impact a 20-inch waterline within the Interurban Trail in two locations. The 20-inch waterline would need to be relocated away from the guideway columns and an access point. This would result in removing approximately 100 feet of waterline and installing approximately 150 feet of new waterline.

All alternatives in this segment would directly impact a 16-inch/24-inch (width varies) waterline located near the I-5 southbound off-ramp and northbound on-ramp. The waterline would need to be relocated around a proposed drainage basin. This would result in removing approximately 250 feet of waterline and installing approximately 350 feet of new waterline.

All alternatives within the West Alderwood Segment would directly impact a SnoPUD's overhead transmission line that runs parallel to the Interurban Trail. The transmission line would need to be raised or relocated away from the elevated guideway. If the transmission line is raised, it would require new, taller poles. The new poles would be 115 to 140 feet tall, which would be 25 to 70 feet taller than existing conditions.

All alternatives within the West Alderwood Segment would directly impact a 36-inch sewer line crossing the alignments near the I-405 westbound on-ramp. The 36-inch sewer line would need to be relocated away from the guideway columns.

These conflicts are summarized in Table 4-1, and the locations are shown in Figure 4-1.

Table 4-1 Major Utility Conflicts – West Alderwood Segment

Build Alternative	Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications	Storm Drain
ALD-1B	2 crossings, 2,200 feet	3 crossings, 350 feet	1 crossing, 150 feet	2 crossings, 3,200 feet	No conflicts identified	No conflicts identified
ALD-1B with Alderwood Mall Boulevard Design Option	2 crossings, 2,200 feet	3 crossings, 350 feet	1 crossing, 150 feet	2 crossings, 3,200 feet	No conflicts identified	No conflicts identified
ALD-2D	2 crossings, 2,200 feet	3 crossings, 350 feet	1 crossing, 150 feet	2 crossings, 700 feet	No conflicts identified	No conflicts identified
ALD-2D with Alderwood Mall Boulevard Design Option	2 crossings, 2,200 feet	3 crossings, 350 feet	1 crossing, 150 feet	2 crossings, 700 feet	No conflicts identified	No conflicts identified
ALD-2F	2 crossings, 2,200 feet	3 crossings, 350 feet	1 crossing, 150 feet	No conflicts identified	No conflicts identified	No conflicts identified
ALD-2F with Alderwood Mall Boulevard Design Option	2 crossings, 2,200 feet	3 crossings, 350 feet	1 crossing, 150 feet	No conflicts identified	No conflicts identified	No conflicts identified

Ash Way Segment

Both alternatives within the Ash Way Segment would require SnoPUD's overhead transmission line to be raised or relocated away from the elevated guideway. If the transmission line is raised, it would require new, taller poles. The new poles would be approximately 110 to 120 feet tall, which would be 50 to 60 feet taller than existing conditions.

Both alternatives within the Ash Way Segment would impact a 30-inch waterline between 20th Avenue W and I-5. The 30-inch waterline would need to be replaced and encased under the guideway or protected in place. Additionally, both alternatives would cross a 24-inch waterline in 164th Street SW running east and west under I-5 and would be protected in place.

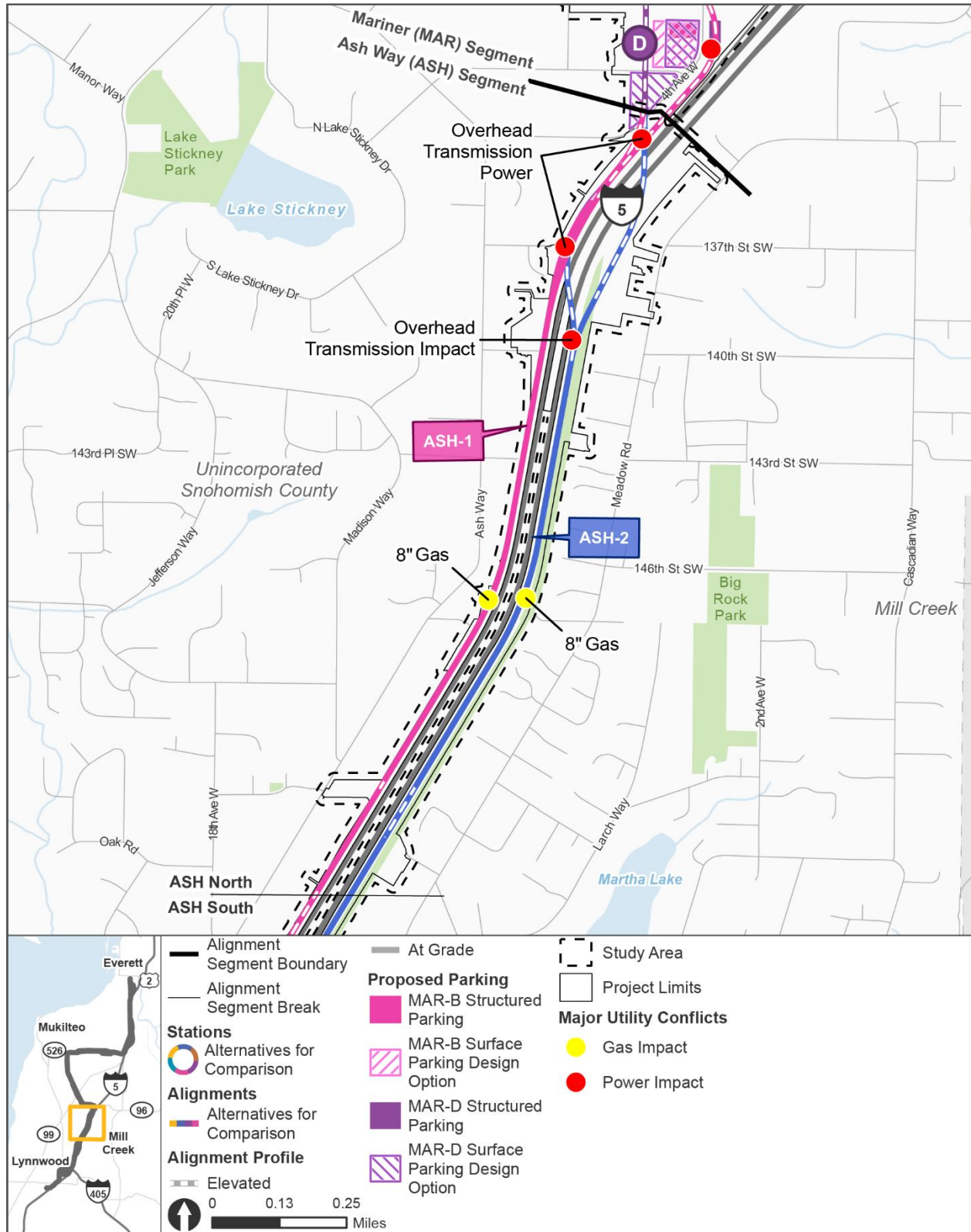
Both alternatives would directly impact an 8-inch gas line crossing I-5 near 148th Street SW. The 8-inch gas line would need to be replaced and encased under the at-grade guideway.

These conflicts are summarized in Table 4-2, and the locations are shown in Figure 4-2 and Figure 4-3.

Table 4-2 Major Utility Conflicts – Ash Way Segment

Build Alternative	Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications	Storm Drain
ASH-1A	2 crossings, 3,700 feet	1 crossing, 100 feet	No conflicts identified	1 crossing, 60 feet	No conflicts identified	No conflicts identified
ASH-2D	4 crossings, 4,200 feet	No conflicts identified	No conflicts identified	1 crossing, 60 feet	No conflicts identified	No conflicts identified

Figure 4-3 Major Utility Conflicts – Ash Way Segment (North)



Mariner Segment

Alternative MAR-1B and Alternative MAR-1B with Surface Parking Design Option would require SnoPUD's overhead transmission line to be raised or relocated away from the elevated guideway. If the transmission line is raised, it would require new, taller poles. The new poles would be approximately 135 feet tall, which would be 70 feet taller than existing conditions.

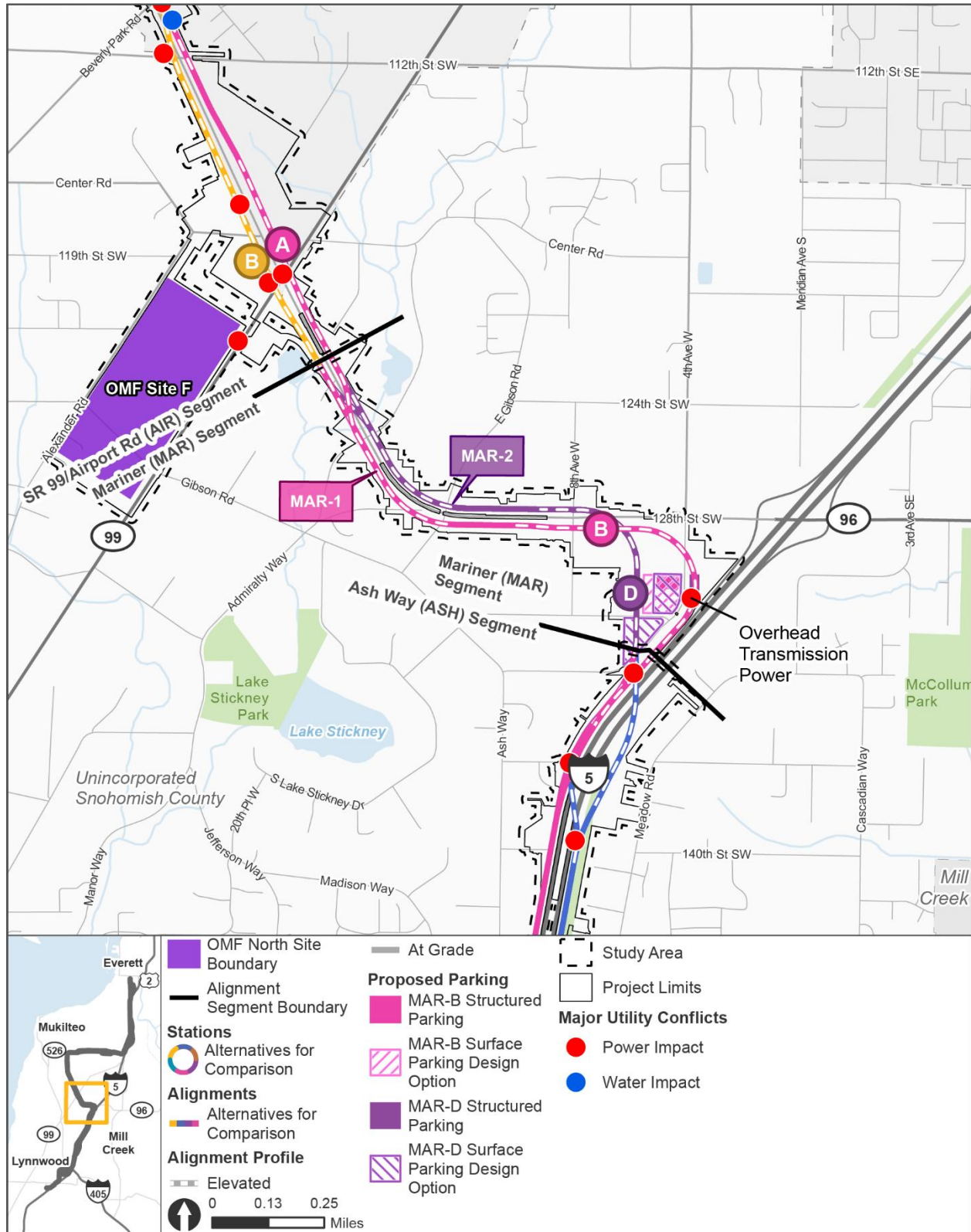
Alternative MAR-2D and Alternative MAR-2D with Surface Parking Design Option would not result in conflicts with major utilities.

These conflicts are summarized in Table 4-3, and the locations are shown in Figure 4-4.

Table 4-3 Major Utility Conflicts – Mariner Segment

Build Alternative	Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications	Storm Drain
MAR-1B	1 crossing, 700 feet	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
MAR-1B with Surface Parking Design Option	1 crossing, 700 feet	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
MAR-2D	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
MAR-2D with Surface Parking Design Option	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified

Figure 4-4 Major Utility Conflicts – Mariner Segment



SR 99/Airport Road Segment

Both alternatives within the SR 99/Airport Road Segment would require SnoPUD's overhead transmission line to be raised over the elevated guideway along SR 99. Raising the transmission line would require new, taller poles. The new poles would be approximately 115 to 135 feet tall, which would be 30 feet taller than existing conditions. Alternative AIR-1A would require SnoPUD's overhead transmission line to be relocated along 112th Street SW and to Airport Road from the east side to the west side. Alternative AIR-2B would require SnoPUD's overhead transmission line to be relocated from the west side of Airport Road to the east side.

Both alternatives within the SR 99/Airport Road Segment would impact a 16-inch waterline between 112th Street SW and Holly Drive along Airport Road. The 16-inch waterline would need to be relocated for Alternative AIR-1A and protected in place for Alternative AIR-2B. A 30-inch waterline in Holly Drive running east and west would be protected in place for both alternatives.

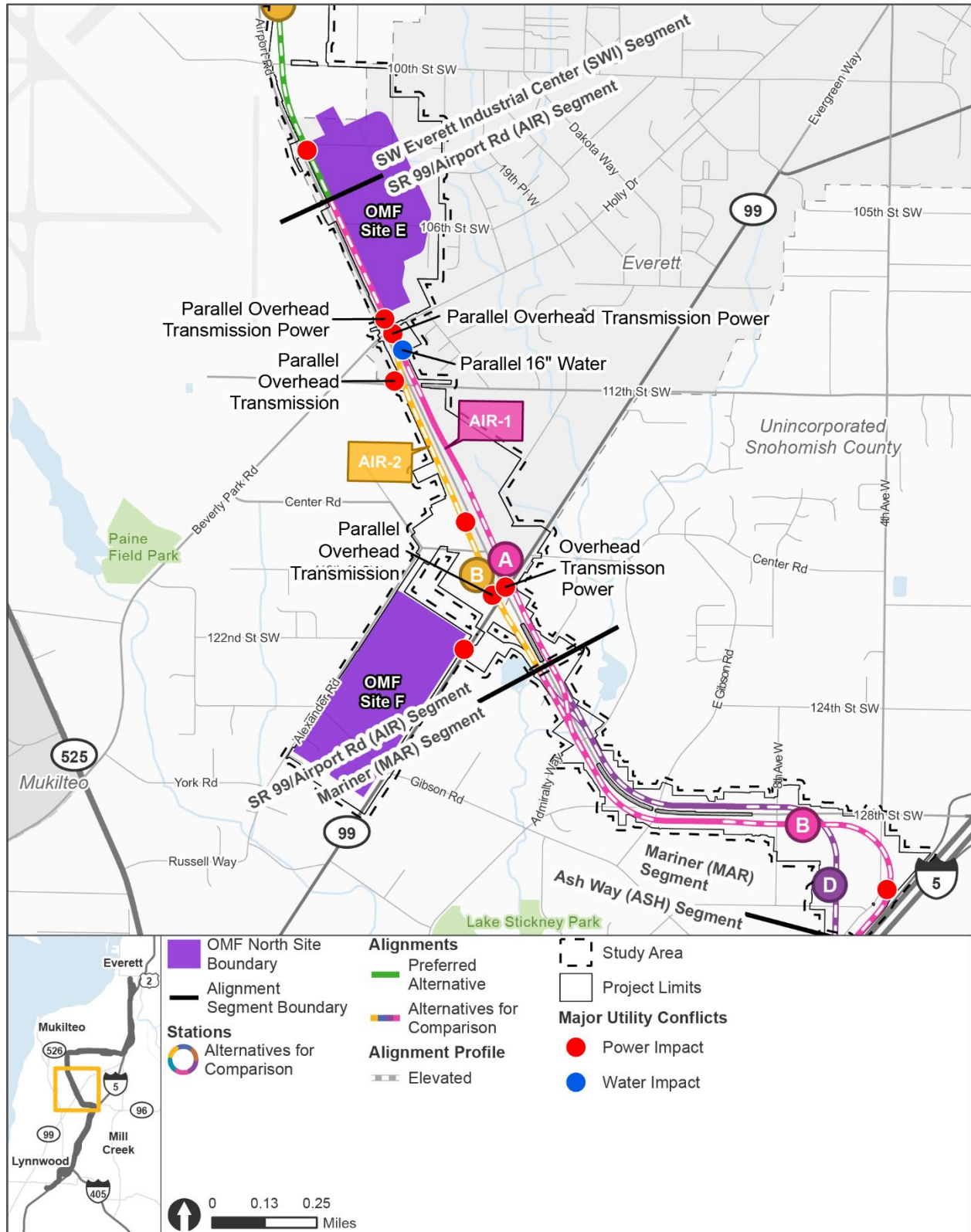
For both alternatives within the SR 99/Airport Road Segment, a 12-inch gas line in Holly Drive running east and west would be protected in place.

These conflicts are summarized in Table 4-4, and the locations are shown in Figure 4-5.

Table 4-4 Major Utility Conflicts – SR 99/Airport Road Segment

Build Alternative	Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications	Storm Drain
AIR-1A	2 crossings, 2,300 feet	1 crossing, 600 feet	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
AIR-2B	3 crossings, 4,500 feet	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified

Figure 4-5 Major Utility Conflicts – SR 99/Airport Road Segment



SW Everett Industrial Center Segment

All alternatives within the SW Everett Industrial Center Segment would directly impact City of Everett Sanitary Sewer Lift Station 28 located on the southeast corner of Casino Road and Airport Road. The lift station and impacted pipes would need to be relocated outside of the guideway and column locations.

The City of Everett Lift Station 29 is on the southeast side of Station SWI-A. The lift station would not be impacted by the project and would need to be protected in place.

All alternatives within the SW Everett Industrial Center Segment would directly impact a 16-inch waterline located between SR 526 and Casino Road. The 16-inch waterline would need to be relocated away from the guideway columns. Alternative SWI-1B would directly impact a 16-inch waterline within Airport Road north of 94th Street to Casino Road. The 16-inch waterline would need to be relocated away from the guideway columns.

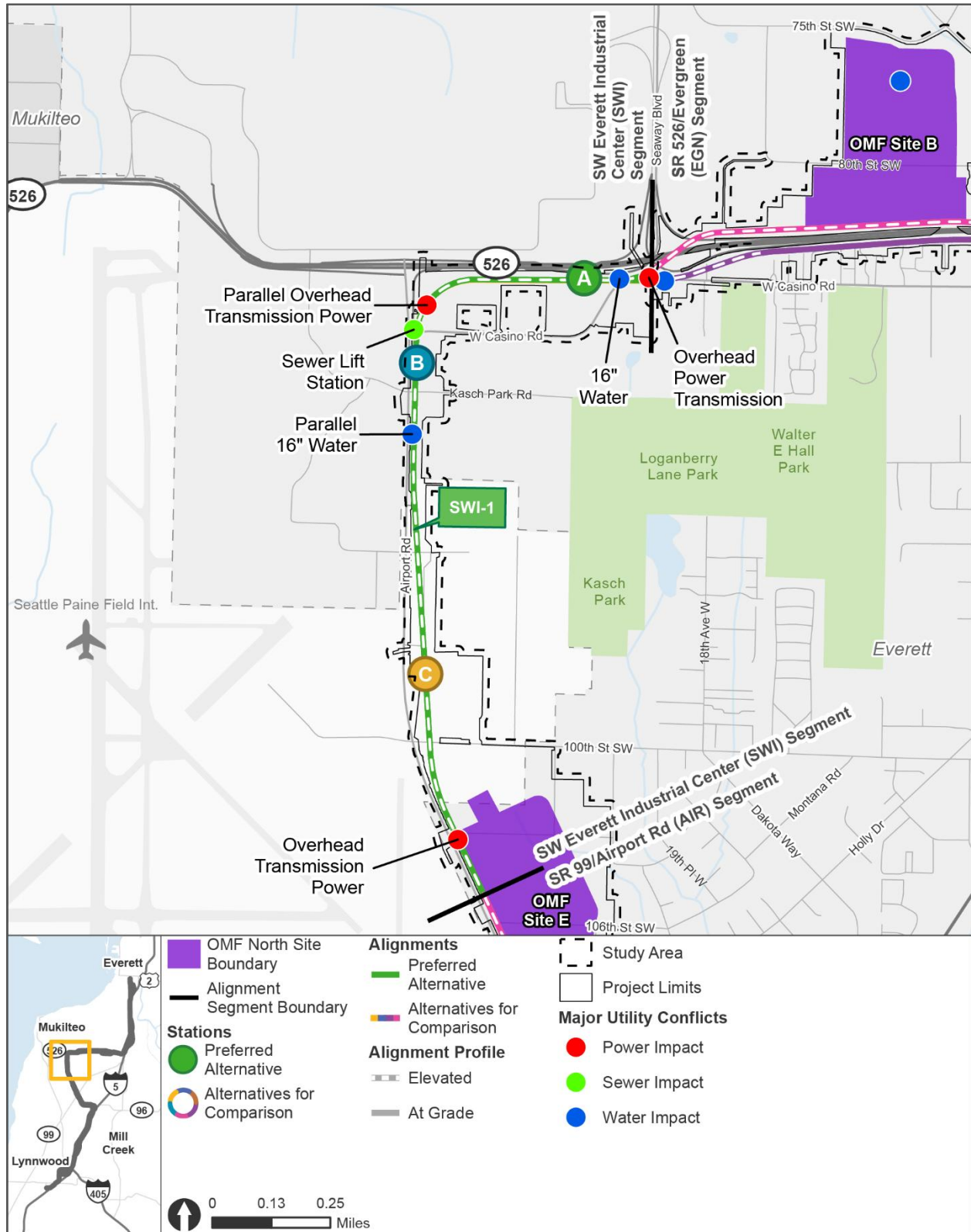
All alternatives within the SW Everett Industrial Center Segment would require SnoPUD's overhead transmission line near 103rd Street SW to be raised or relocated away from the elevated guideway. If the transmission line is raised, it would require new, taller poles. The new poles would be approximately 90 to 115 feet tall, which would be 10 to 30 feet taller than existing conditions. All alternatives directly impact SnoPUD's overhead transmission line along the east side of Airport Road north of 94th Street SW to the north side of SR 526. The impacts would require the transmission line to be relocated to the east of the alignment and raised to cross over the guideway near Casino Road.

These conflicts are summarized in Table 4-5, and the locations are shown in Figure 4-6.

Table 4-5 Major Utility Conflicts – SW Everett Industrial Center Segment

Build Alternative	Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications	Storm Drain
SWI-1A	3 crossings, 4,200 feet	1 crossing, 300 feet	Lift station	No conflicts identified	No conflicts identified	No conflicts identified
SWI-1A with Lower Design Option	3 crossings, 4,200 feet	1 crossing, 300 feet	Lift station	No conflicts identified	No conflicts identified	No conflicts identified
SWI-1B	3 crossings, 4,200 feet	2 crossings, 1,600 feet	Lift station	No conflicts identified	No conflicts identified	No conflicts identified
SWI-1C	3 crossings, 4,200 feet	1 crossing, 300 feet	Lift station	No conflicts identified	No conflicts identified	No conflicts identified

Figure 4-6 Major Utility Conflicts – SW Everett Industrial Center Segment



SR 526/Evergreen Segment

All alternatives within the SR 526/Evergreen Segment would require SnoPUD's overhead transmission lines to be raised along SnoPUD's corridor east of Casino Road, along Evergreen Way running north and south, and along Hardeson Road running north and south. Raising the transmission lines would require new, taller poles. The new poles would be approximately 100 to 135 feet tall, which would be 25 to 50 feet taller than existing conditions.

Alternatives EGN-3E and EGN-3E with the North Side of SR 526 Design Option would directly impact SnoPUD's overhead transmission line located along Casino Road running east and west between Evergreen Way and 8th Place SE and would result in a relocation to the north side of Casino Road.

All alternatives within the SR 526/Evergreen Segment would cross a 16-inch waterline east of the SR 526 westbound off-ramp, a 16-inch waterline in Hardeson Road running north and south, a 36-inch waterline in Casino Road/Holly Drive running north and south, and a 36-inch waterline running parallel with SnoPUD's corridor east of Casino Road. These waterlines would be protected in place.

Alternatives EGN-3E and EGN-3E with the North Side of SR 526 Design Option would cross two 30-inch waterlines located in Casino Road running east and west, a 20-inch waterline located in 7th Avenue SE, and a 36-inch waterline located in 7th Avenue SE that would be protected in place.

Alternatives EGN-3E and EGN-3E with the North Side of SR 526 Design Option would directly impact a 36-inch waterline running east and west along 84th Street SE and require relocation around the guideway column.

Alternatives EGN-2B and EGN-3E would directly impact a 16-inch waterline running east and west along Casino Road and require relocation around the guideway columns.

Alternative EGN-1A would directly impact two 36-inch waterlines located east of Evergreen Way and SR 526 and located west of Casino Road with the at-grade guideway. Both 36-inch waterlines would need to be lowered and encased under the at-grade guideway.

Alternatives EGN-2B and EGN-2B with the North Side of SR 526 Design Option would cross a 36-inch waterline running north and south to the east of Casino Road that would be protected in place.

Alternative EGN-1A would directly impact a Comcast Hub Building located at 8398 Beverly Lane. The building, owned by Comcast, would need to be relocated away from the alignment across the street to minimize the impacts of lines feeding into the building.

Alternatives EGN-3E and EGN-3E with the North Side of SR 526 Design Option would impact a Zipl building at 426 E Casino Road. This building is a centralized operations building and serves as a major hub for multiple forms of communication. These alternatives would allow the building to remain, but generators located in the parking lot would have to be relocated.

All alternatives within the SR 526/Evergreen Segment cross a 36-inch sanitary sewer line running parallel with SnoPUD's corridor east of Casino Road, which would be protected in place.

Alternatives EGN-3E and EGN-3E with the North Side of SR 526 Design Option would cross an 8-inch gas line running parallel in Casino Road that would be protected in place.

Alternatives EGN-1A, EGN-2B, and EGN-2B with the North Side of SR 526 Design Option would cross a 12-inch gas line running parallel in Casino Road north of SR 526 that would be protected in place.

These conflicts are summarized in Table 4-6, and the locations are shown in Figure 4-7 and Figure 4-8.

Table 4-6 Major Utility Conflicts – SR 526/Evergreen Segment

Build Alternative	Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications	Storm Drain
EGN-1A	3 crossings, 4,000 feet	2 crossings, 250 feet	No conflicts identified	No conflicts identified	Hub building	No conflicts identified
EGN-2B	3 crossings, 4,000 feet	1 crossing, 350 feet	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
EGN-2B with North Side of SR 526 Design Option	3 crossings, 4,000 feet	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
EGN-3E	4 crossings, 6,000 feet	2 crossing, 450 feet	No conflicts identified	No conflicts identified	Hub building	No conflicts identified
EGN-3E with North Side of SR 526 Design Option	4 crossings, 6,000 feet	1 crossing, 150 feet	No conflicts identified	No conflicts identified	Hub building	No conflicts identified

Figure 4-7 Major Utility Conflicts – SR 526/Evergreen Segment (West)

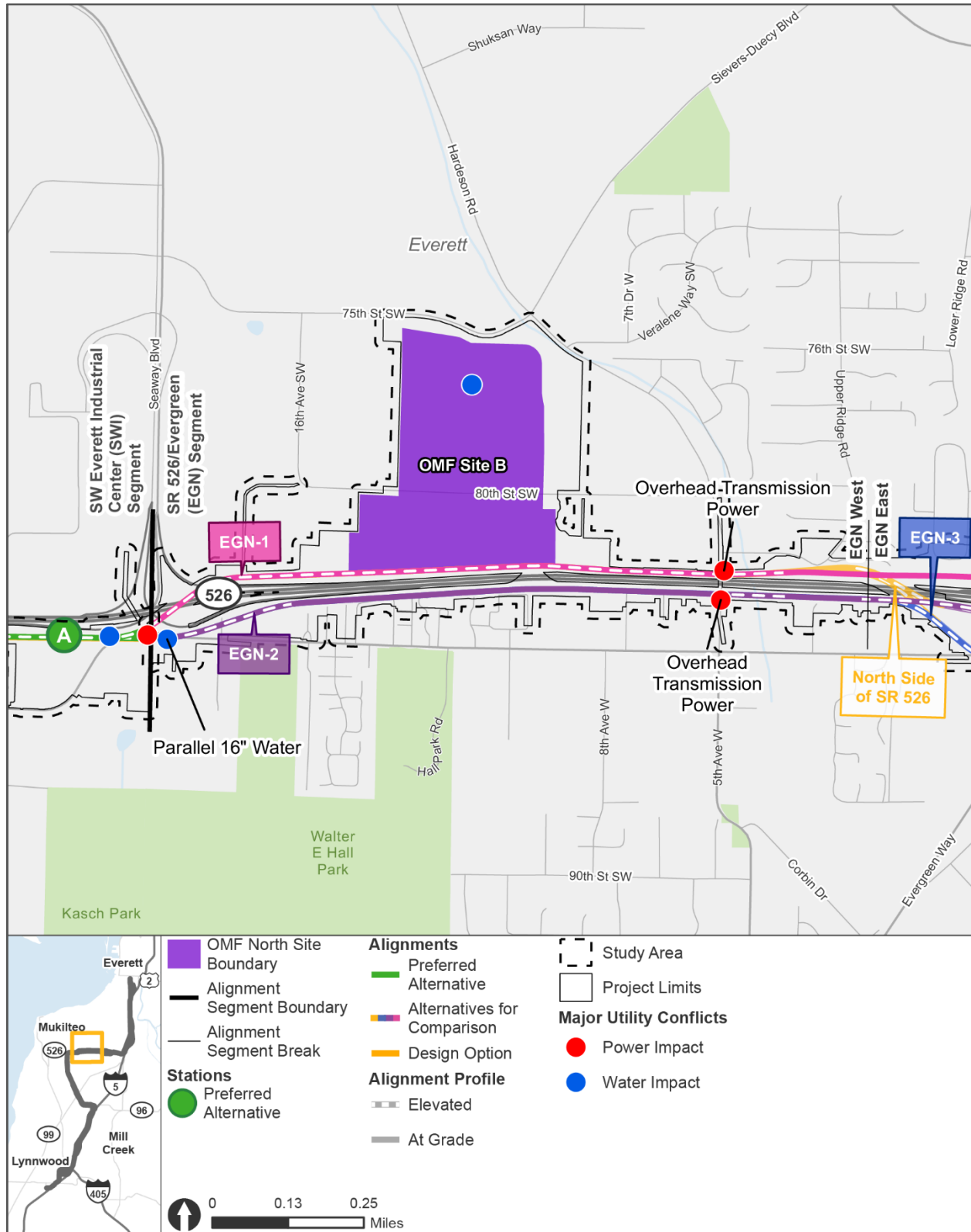


Figure 4-8 Major Utility Conflicts – SR 526/Evergreen Segment (East)



Broadway/I-5 Segment

Both alternatives within the Broadway/I-5 Segment would require SnoPUD's and BPA's overhead transmission lines to be shifted or raised crossing I-5 east and west near Lincoln Street, crossing I-5 east and west near 52nd Street SE, and crossing I-5 east and west near 75th Street SE. Raising the transmission lines would require new, taller poles. The new poles would be approximately 75 to 115 feet tall, which would be 20 to 50 feet taller than existing conditions.

The transmission lines exiting Beverly Park Switching Station to the east would cross Alternatives BI-1 and BI-2. This corridor of transmission lines includes services from SnoPUD, BPA, and PSE. Alternative BI-2 would be at the same height as the existing road and would cross underneath the transmission lines; the transmission lines would be protected in place. Alternative BI-1 would potentially impact three transmission poles that would need to be shifted west. The height of the poles would remain the same as existing conditions because Alternative BI-1 would be in a cut section in this location.

Both alternatives within the Broadway/I-5 Segment would cross a 51-inch waterline east and west near Ravenna Street. The 51-inch waterline would need to be lowered and encased under the at-grade guideway for Alternative BI-1 and protected in place for Alternative BI-2. Both alternatives would also cross a 24-inch waterline east and west near 52nd Street SE. This waterline would be protected in place.

Alternative B-1 would impact Sanitary Sewer Lift Station 19 on 74th Street SE between McDougall Avenue and I-5. The lift station and existing 8-inch sanitary sewer line would need to be replaced and relocated outside the transit right-of-way. The lift station is proposed to be relocated to the north side of the rebuilt cul-de-sac along 74th Street SE.

Alternative BI-2 would impact Sanitary Sewer Lift Station 18 on Broadway south of 75th Street SE. The lift station and existing 8-inch sanitary sewer line would need to be replaced and relocated outside the transit right-of-way. The lift station is proposed to be relocated to the southeast corner of 75th Street SE and Broadway to provide access required for the site.

Both alternatives within the Broadway/I-5 Segment would cross a 24-inch sewer line running east and west at Lowell Road. The sewer line would be protected in place.

Both alternatives within the Broadway/I-5 Segment would cross a 12-inch gas line running east and west at Lowell Road. The gas line would be relocated south for Alternative BI-1 and protected in place for Alternative BI-2.

These conflicts are summarized in Table 4-7, and the locations are shown in Figure 4-9 and Figure 4-10.

Table 4-7 Major Utility Conflicts – Broadway/I-5 Segment

Build Alternative	Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications	Storm Drain
BI-1	5 crossings, 1,600 feet	1 crossing, 100 feet	Lift station	1 crossing, 50 feet	No conflicts identified	No conflicts identified
BI-2	2 crossings, 1,100 feet	No conflicts identified	Lift station	No conflicts identified	No conflicts identified	No conflicts identified

Figure 4-9 Major Utility Conflicts – Broadway/I-5 Segment (South)

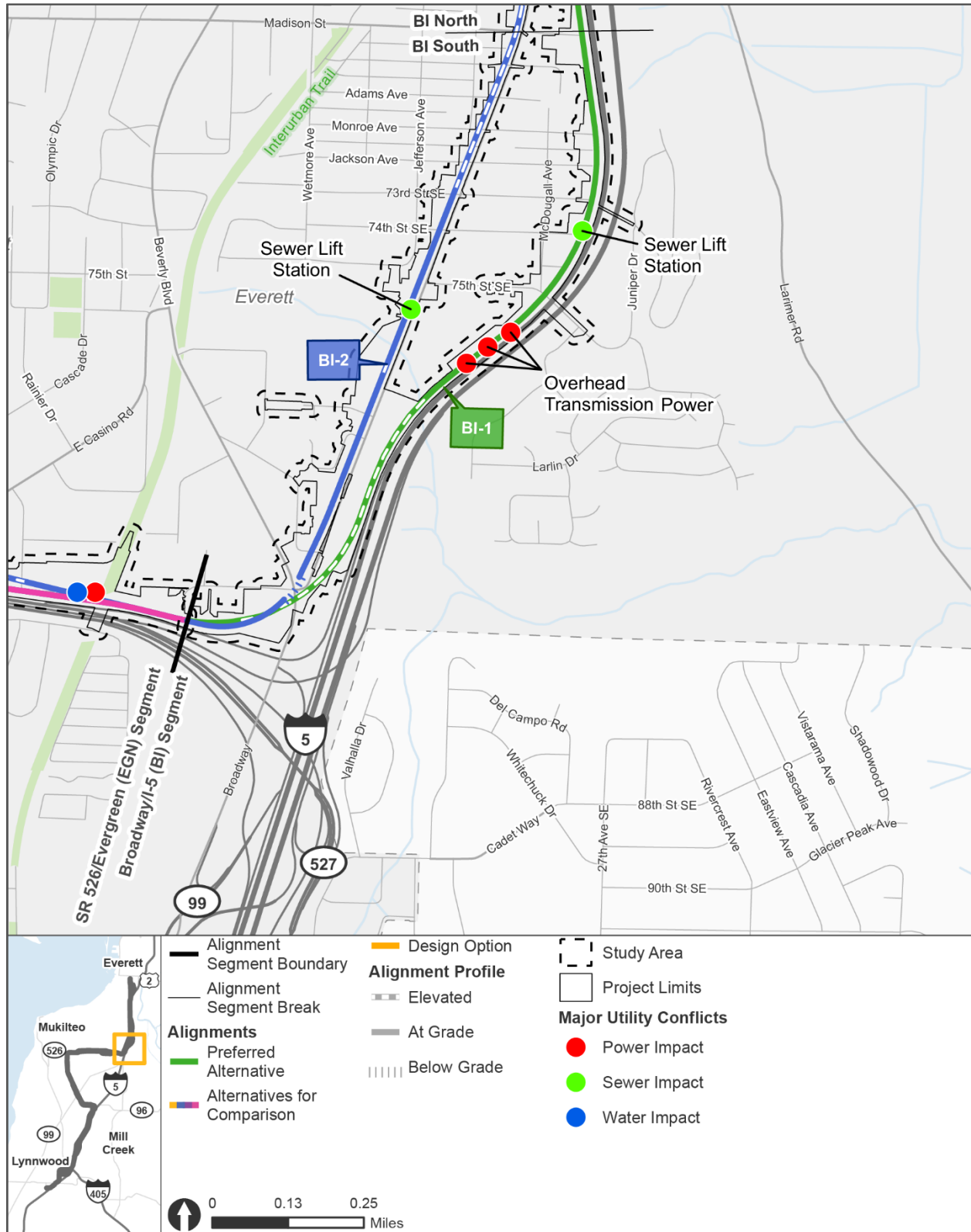
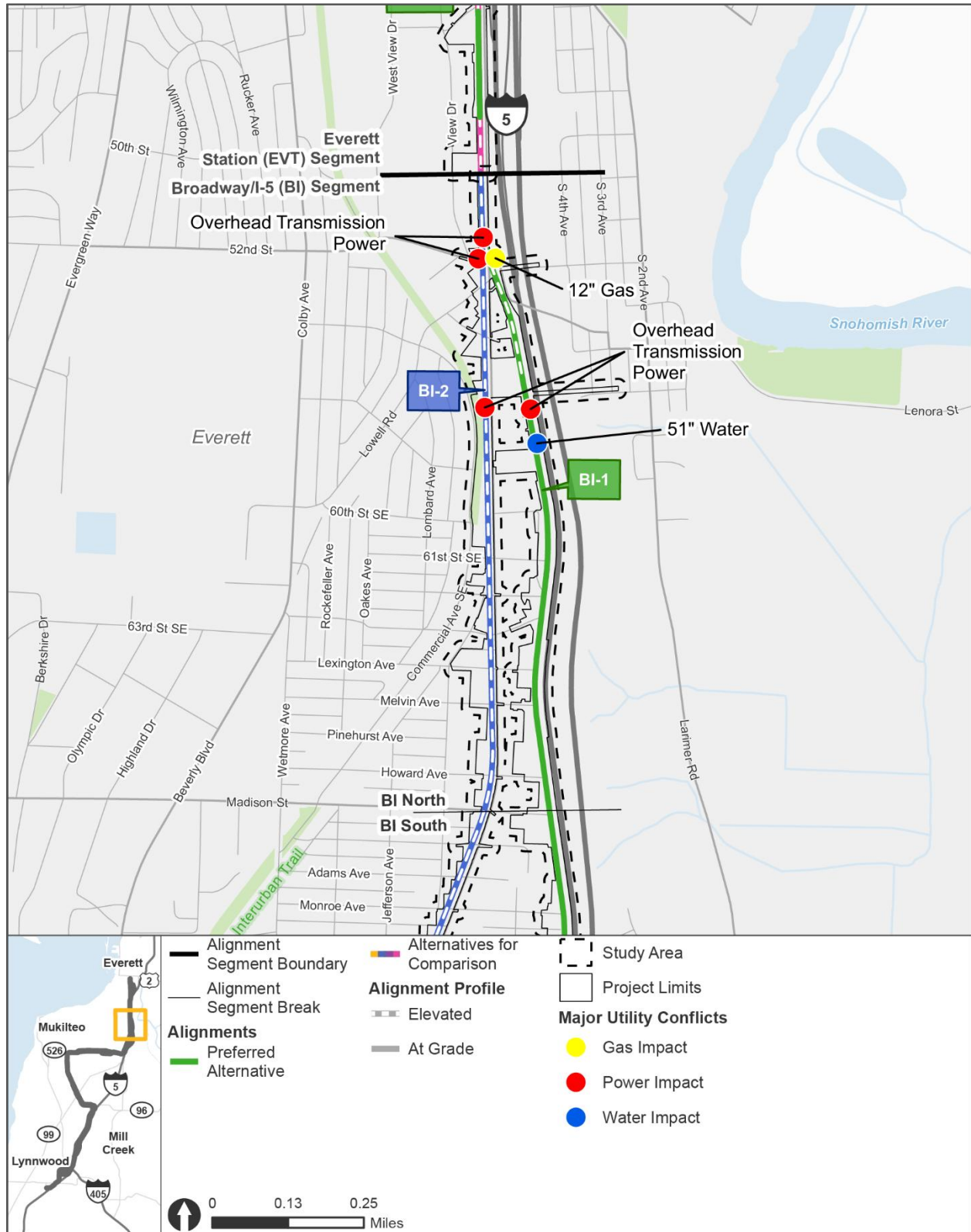


Figure 4-10 Major Utility Conflicts – Broadway/I-5 Segment (North)



Everett Station Segment

Alternative EVT-1A would require SnoPUD's overhead transmission lines to be raised crossing I-5 east and west near 38th Street, over the guideway near Smith Avenue, crossing I-5 north and south along Paine Avenue, and over the guideway along McDougall Avenue north of 32nd Street. Raising the transmission lines would require new, taller poles. The new poles would be approximately 110 to 120 feet tall, which would be 10 to 60 feet taller than existing conditions.

Alternatives EVT-2C and EVT-3D would directly impact SnoPUD's overhead transmission lines and require relocation along McDougall Avenue running north and south between 38th Street and Wall Street and along McDougall Avenue running north and south between 38th Street and Wall Street.

Alternative EVT-1A would directly impact a 16-inch waterline located in 37th Street and a 48-inch waterline located in 33rd Street, both of which would be relocated away from guideway columns. A 36-inch waterline located between Smith Avenue and I-5 would be protected in place.

Alternatives EVT-2C and EVT-3D would cross a 48-inch waterline in 36th Street and along McDougall Avenue and a 36-inch waterline located in 35th Street. Both would be protected in place.

Alternative EVT-1A would cross a 48-inch and a 30-inch sanitary sewer in 36th Street and Smith Avenue that would be protected in place. A 36-inch sanitary sewer located between Smith Avenue and I-5 would be relocated away from a guideway column.

Alternatives EVT-2C and EVT-3D would cross a 48-inch sanitary sewer in 37th Street and a 30-inch sanitary sewer in 36th Street running east and west that would be protected in place.

Alternative EVT-3D would cross a 60-inch sanitary sewer in Wall Street that would be protected in place. A 24-inch/30-inch sanitary sewer located between Wall Street and Hewitt Avenue would be relocated away from the guideway columns.

Alternatives EVT-2C and EVT-3D would cross a 12-inch gas line running east and west in 32nd Street that would be protected in place.

Alternative EVT-1A would cross a 12-inch gas line running north and south in Smith Avenue that would be protected in place.

These conflicts are summarized in Table 4-8, and the locations are shown in Figure 4-11 and Figure 4-12.

Table 4-8 Major Utility Conflicts – Everett Station Segment

Build Alternative	Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications	Storm Drain
EVT-1A	4 crossings, 2,300 feet	2 crossings, 200 feet	1 crossing, 100 feet	No conflicts identified	No conflicts identified	1 crossing, 900 feet
EVT-2C	2 crossings, 6,100 feet	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
EVT-3D	2 crossings, 7,100 feet	No conflicts identified	1 crossing, 200 feet	No conflicts identified	No conflicts identified	No conflicts identified

Figure 4-11 Major Utility Conflicts – Everett Station Segment (South)

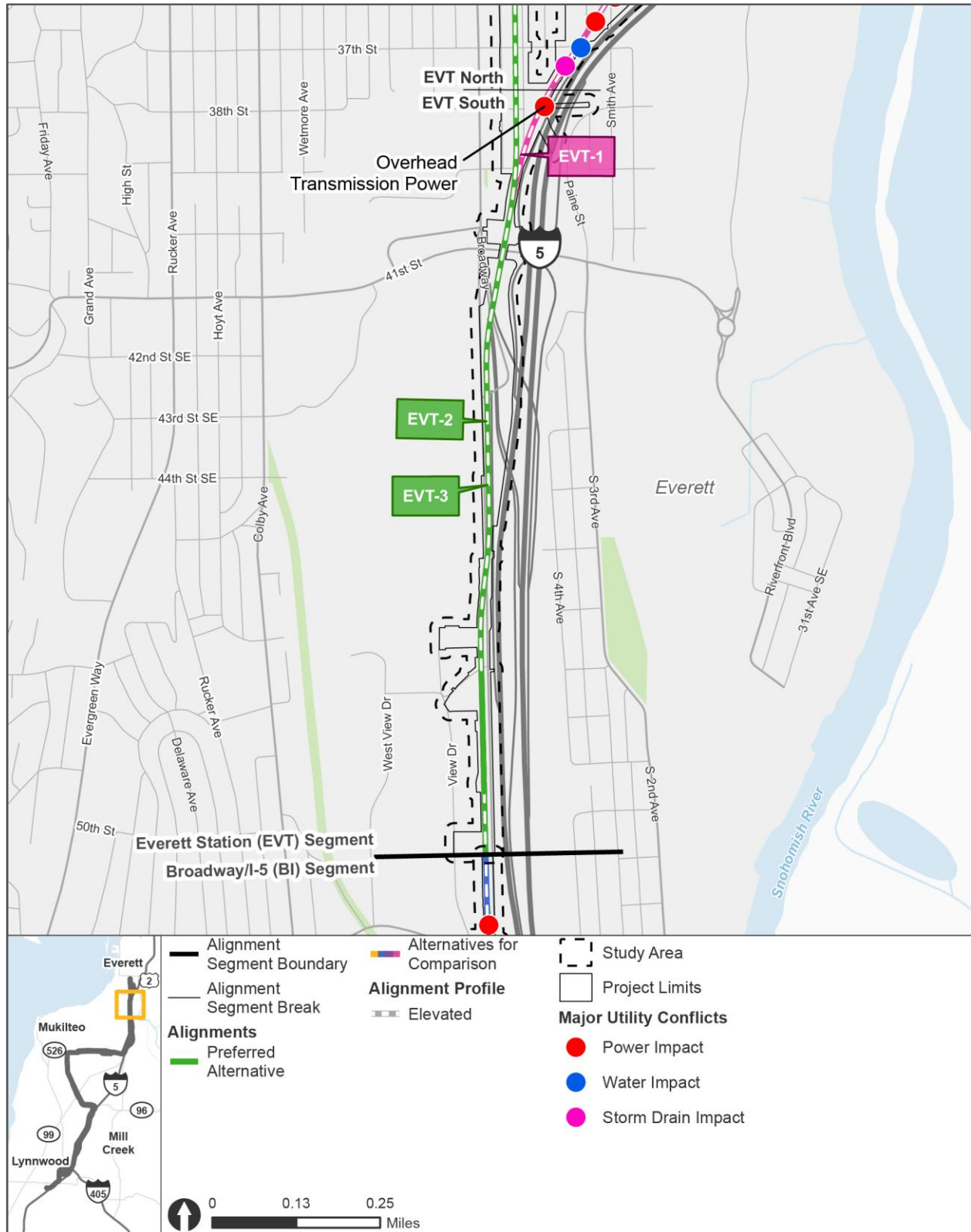
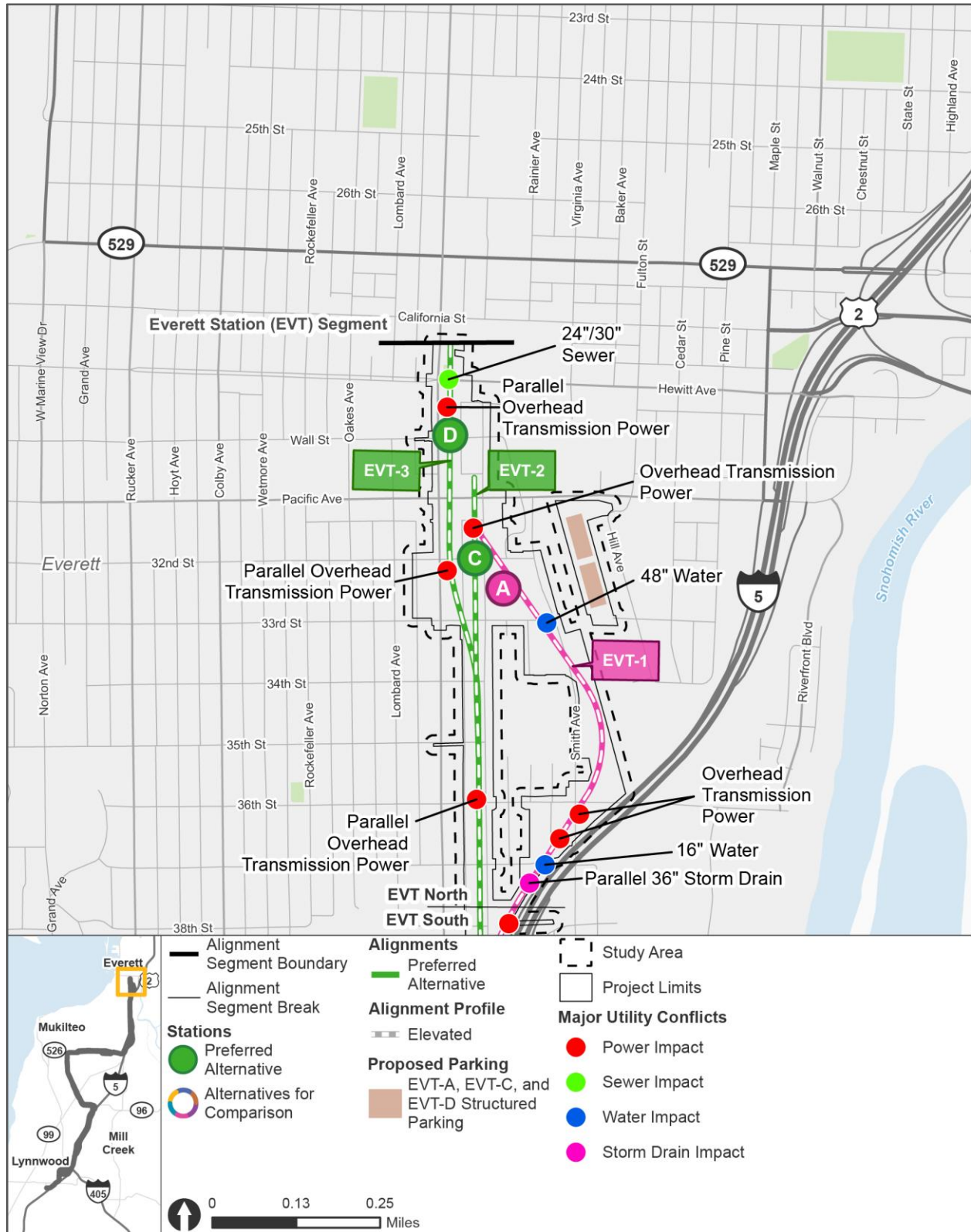


Figure 4-12 Major Utility Conflicts – Everett Station Segment (North)



4.1.2.3 OMF North Site Alternatives

The following sections describe major utility conflicts for each of the OMF North site alternatives. These conflicts are summarized in Table 4-9, and the locations are shown in Figure 4-13, Figure 4-14, and Figure 4-15.

OMF Site F (SR 99)

Both OMF Site F and OMF Site F with Lead Tracks to West Side of Airport Road Design Option would require SnoPUD's overhead transmission lines to be raised over the guideway north of SR 99 and Airport Road. Raising the transmission lines would require new, taller poles. The new poles to be approximately 100 to 110 feet tall, which would be 30 feet taller than existing conditions.

SnoPUD's overhead transmission lines to the south of the site running along SR 99 would be protected in place but would require coordination with SnoPUD.

OMF Site E (Airport Road)

OMF Site E would directly impact SnoPUD's overhead transmission line located along 23rd Avenue W and 103rd Street SW, which would be relocated.

OMF Site B (SR 526)

A private well serving Achilles USA located at 1407 80th Street SW is in direct conflict with OMF Site B and OMF Site B with Lead Tracks to South Side of SR 526 Design Option. The well and existing water lines would need to be replaced and relocated outside the OMF site.

Table 4-9 Major Utility Conflicts – OMF North Site Alternatives

Build Alternative	Power Line	Water Line	Sanitary Sewer Line	Gas Line	Communications	Storm Drain
OMF Site F	1 crossing, 800 feet	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
OMF Site F with Lead Tracks to West Side of Airport Road Design Option	1 crossing, 900 feet	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
OMF Site E	1 crossing, 2,400 feet	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
OMF Site B	No conflicts identified	Private well	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified
OMF Site B with Lead Tracks to South Side of SR 526 Design Option	No conflicts identified	Private well	No conflicts identified	No conflicts identified	No conflicts identified	No conflicts identified

Figure 4-13 Major Utility Conflicts – OMF Site F

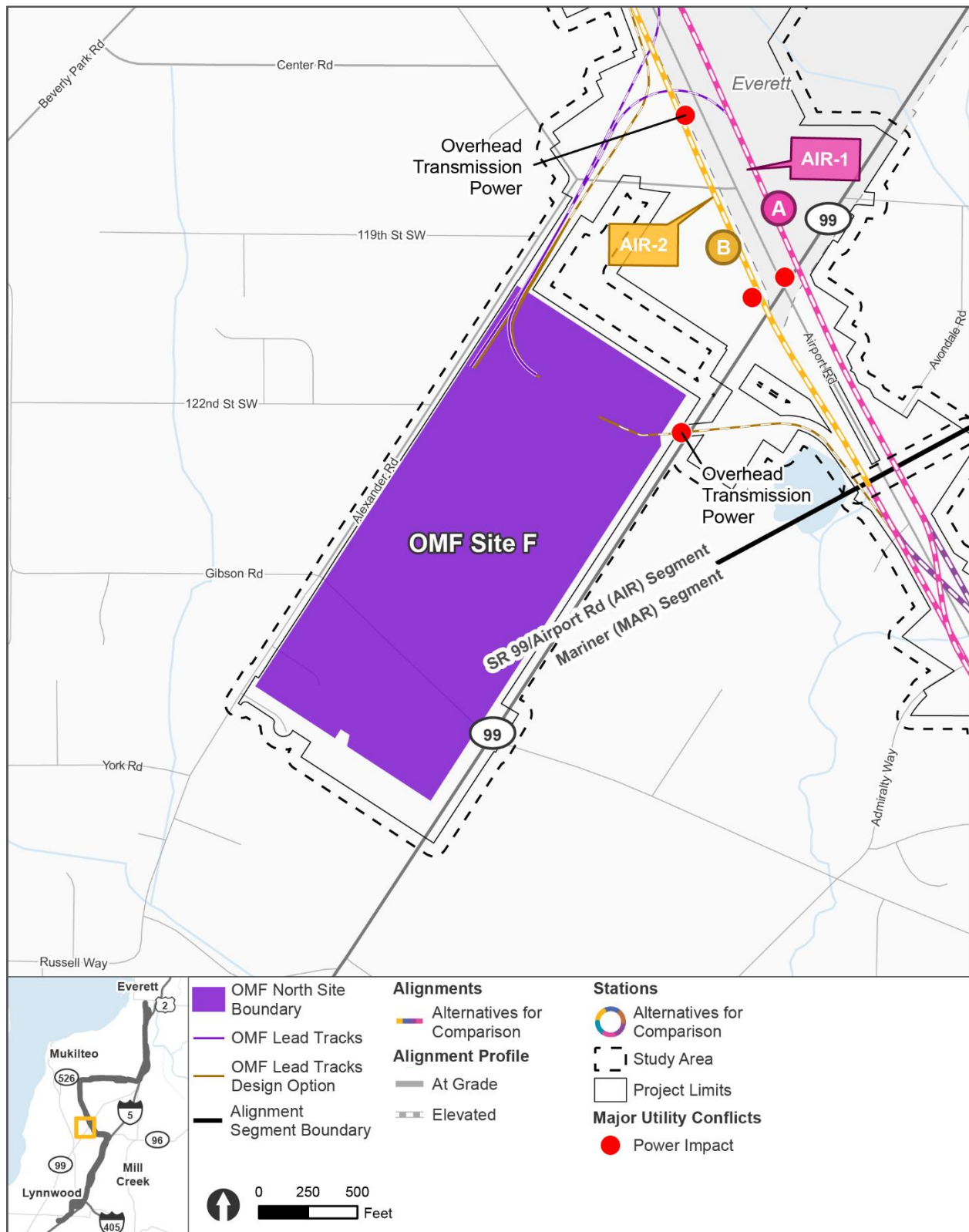


Figure 4-14 Major Utility Conflicts – OMF Site E

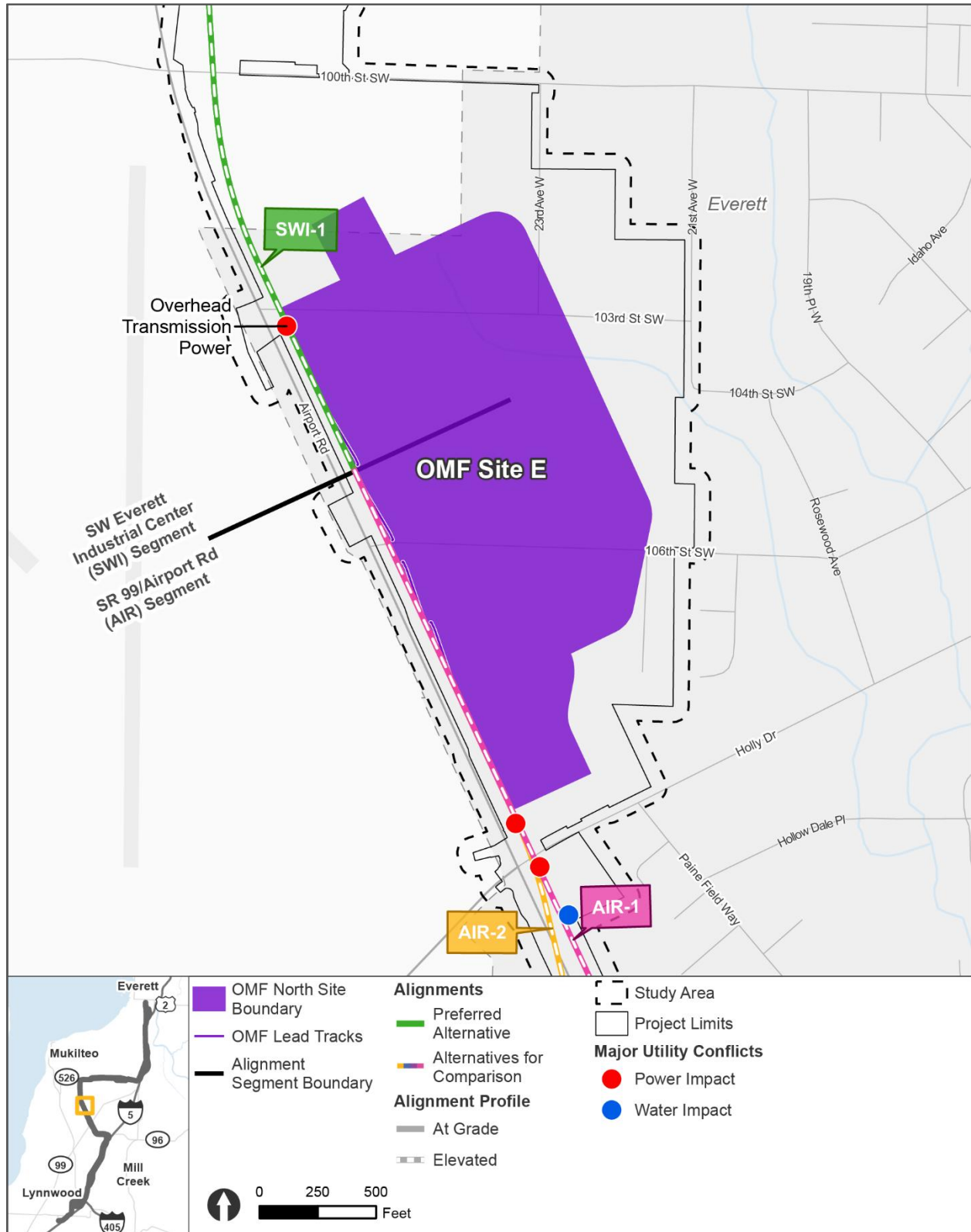
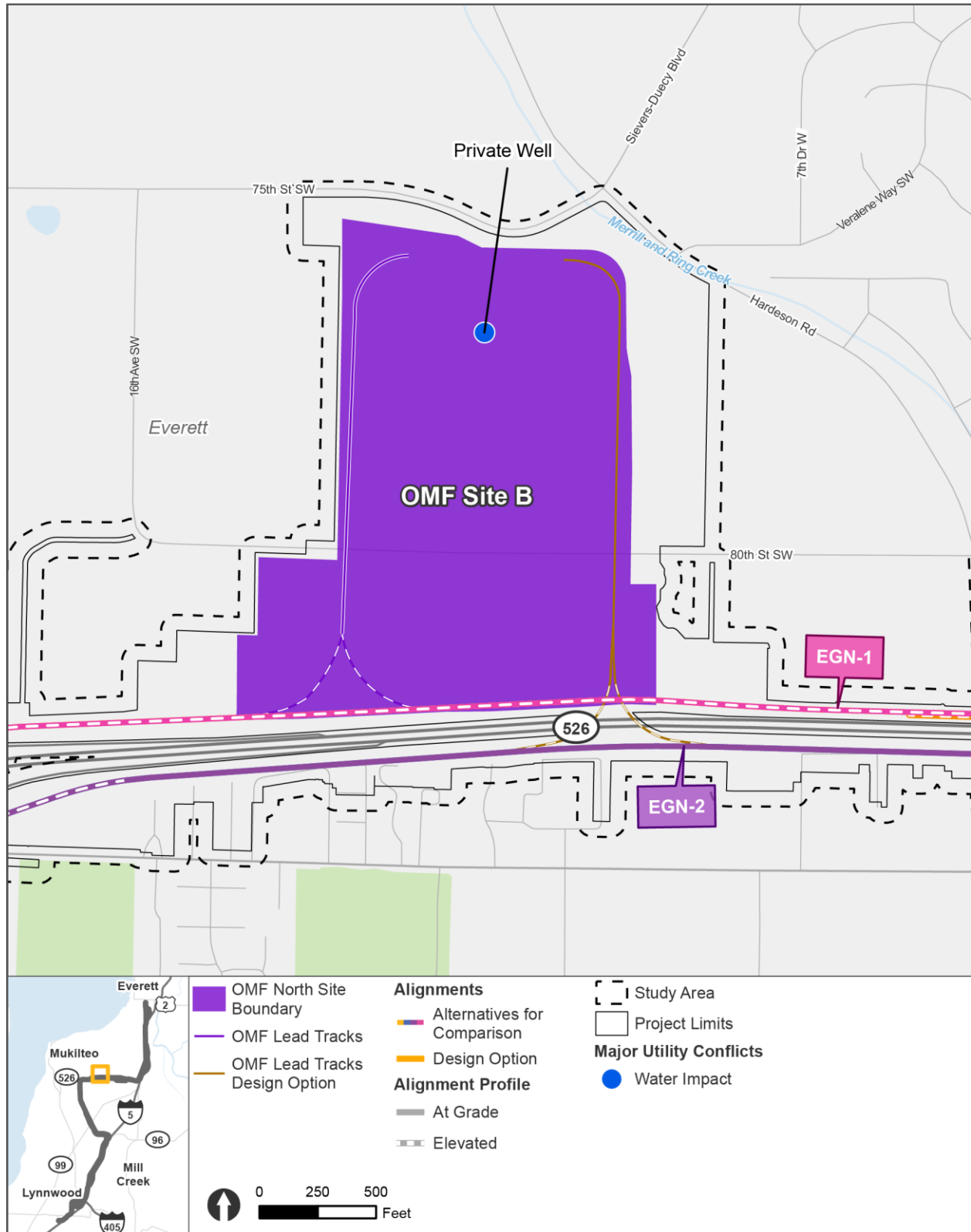


Figure 4-15 Major Utility Conflicts – OMF Site B



4.2 No Build Alternative

If the EVLE Project is not built, there would be no light rail-related changes to the existing utilities.

5 POTENTIAL MITIGATION MEASURES

Sound Transit is committed to complying with all applicable federal, state, and local environmental regulations, following best management practices (BMPs), and designing the EVLE Project in a way that mitigates adverse impacts. As a result, mitigation measures are reflected in the design of Build Alternatives. The following section presents additional mitigation measures that would further reduce or eliminate adverse effects. Final mitigation measures will be based on advanced design and will be included in the Final EIS and in FTA's Record of Decision as environmental commitments for the project.

Sound Transit would develop agreements, where applicable, with utility providers to address construction and long-term impacts. When developing alternatives for conceptual design, Sound Transit employed several measures to mitigate potential utility impacts. For example, where feasible, columns for elevated guideway are currently anticipated to be placed to avoid impacts to underground utilities.

Design of the guideway would maintain access to utilities for maintenance and repair per the utility owner's requirements. In some cases, that would require relocation of sewer manholes, pipes, vaults, or other access points as part of construction. Sound Transit would work closely with utility providers to maintain required access to these utilities and any relocated sewer manholes and vaults, utility mains, fire hydrants, and other features. To minimize potential impacts due to service disruptions, potholing and preconstruction surveys would be performed to identify utility locations as well as communicate with customers to inform them of planned or potential service disruptions.

To mitigate potential corrosion impacts, Sound Transit would coordinate with utility providers to identify appropriate control measures. Typical design measures include:

- Installing cathodic protection systems.
- Installing insulating unions to break the electrical conductivity of the utility.
- Isolating electrical rails from the ground.
- Installing stray-current-control track fastening systems, where appropriate.

To minimize consumption and demand on utilities, such as energy and water, Sound Transit would integrate efficient operating practices at existing and new facilities that require the use of energy- and water-saving equipment and related design strategies.

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