



# ***Tacoma Dome Link Extension***

**Draft** Environmental Impact Statement

## HISTORIC AND ARCHAEOLOGICAL RESOURCES TECHNICAL REPORT

(Redacted)

### Appendix J5

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## **Attachments**

Attachment J5.1	Previous Cultural Resource Investigations and Supplementary 1-Mile Study Area Tables and Maps
Attachment J5.2	Inadvertent Discovery Plan (IDP)
Attachment J5.3	Detailed Historic Period Above Ground Resource Survey Maps
Attachment J5.4	Historic Map and Aerial Photograph Review
Attachment J5.5	Historic Property Inventory Forms
Attachment J5.6	Archaeological Resource Update Forms (Redacted)
Attachment J5.7	Archaeological Survey Overview Maps (Redacted)
Attachment J5.8	Detailed Archaeological Survey Overview Maps (Redacted)
Attachment J5.9	Archaeological Shovel Probe and Auger Core Table
Attachment J5.10	Previously Undocumented Archaeological Resource Forms (Redacted)
Attachment J5.11	Beta Analytic, Inc. Radiocarbon Dating Reports (Redacted)
Attachment J5.12	Correspondence
Attachment J5.13	Draft Programmatic Agreement

## Acronyms and Abbreviations

APE	Area of Potential Effects
AMS	accelerator mass spectrometry
ATCRC	Aqua Terra Cultural Resource Consultants
bgs	below ground surface
BP	Before Present
BPA	Bonneville Power Administration
ca.	circa
cal B.P.	Calibrated Years Before Present
CFR	Code of Federal Regulations
cm	centimeters
DAHP	Department of Archaeology and Historic Preservation
DOT	U.S. Department of Transportation
EIS	Environmental Impact Statement
FTA	Federal Transit Administration
GIS	Geographic Information System
GLO	General Lands Office
HBC	Hudson's Bay Company
HPI	Historic Property Inventory
HOV	High Occupancy Vehicle Lane
HRA	Historical Research Associates, Inc.
I-5	Interstate 5
IDP	Inadvertent Discovery Plan
NADB	National Archeological Database
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NP	Northern Pacific Railroad
NPS	National Park Service
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
Puyallup Tribe of Indians	Puyallup Tribe of the Puyallup Reservation
RCW	Revised Code of Washington

SF	South Federal Way
SHPO	State Historic Preservation Officer
SOI	Secretary of the Interior
Sound Transit	Central Puget Sound Regional Transit Authority
SR	State Route
St.	Saint
TCP	Traditional Cultural Property
TD	Tacoma Dome
TDLE	Tacoma Dome Link Extension
THPO	Tribal Historic Preservation Officer
TPSS	Traction Power Substations
U.S.	United States
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
WaDGER	Washington Division of Geology and Earth Resources
WHR	Washington Heritage Register
WISAARD	Washington Information System for Architectural and Archaeological Records Database
WPA	Works Project Administration
WSDOT	Washington State Department of Transportation

# 1 INTRODUCTION

The proposed Tacoma Dome Link Extension (TDLE) project is an approximately 10-mile light rail extension from just south of the Federal Way Downtown Station in Federal Way to the Tacoma Dome area of Tacoma, Washington. The project is part of the Sound Transit 3 Plan of regional transit system investments, funding for which was approved by voters in the region in 2016. The alternatives to be evaluated in the Environmental Impact Statement (EIS) were identified by the Central Puget Sound Regional Transit Authority (Sound Transit) Board in July 2019 and March 2023. Funding administered by the Federal Transit Administration (FTA) is anticipated for TDLE; as such, Sound Transit and FTA are preparing an EIS. The EIS is a joint National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA) document. FTA is the lead federal agency under NEPA and has determined the project is a federal undertaking pursuant to Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 Code of Federal Regulations (CFR) Part 800 (see additional discussion in Section 2).

FTA, in coordination with Sound Transit and in consultation with the State Historic Preservation Officer (SHPO) and affected Tribes, defined the project area of potential effect (APE) in March 2020 (FTA2020a; DAHP 2020a). The APE was subsequently revised in November 2020 and April 2023 to address project updates, as depicted in Figure 1-1, and it encompasses the proposed alternatives, as illustrated in Figures 1-2 through 1-5 (FTA 2020b; DAHP 2023).

This Historical and Archaeological Resources Technical Report includes background and archival research, context and fieldwork methods for cultural resource investigations, the results of the archaeological and built-environment surveys, and recommendations of effect for each alternative for the project. Archaeological investigations occurred throughout the APE in areas of potential ground disturbance, on both private and public property within the cities of Federal Way, Milton, Fife, and Tacoma, in King and Pierce counties, and within Washington State Department of Transportation (WSDOT) right-of-way. Built-environment survey fieldwork was conducted throughout the APE. The results of the cultural resource investigations are used to inform the alternatives analysis for historic and archaeological resources in the Draft EIS.

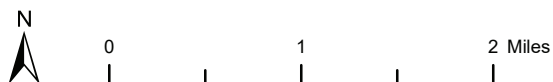
In support of this Historical and Archaeological Resources Technical Report, additional information can be found in Attachments J5.1 through J5.13:

- *Attachment J5.1 – Previous Cultural Resource Investigations and Supplementary 1-Mile Study Area Tables and Maps* – This attachment lists the previous cultural resource investigations for each segment in the TDLE corridor. These previous cultural resource investigations are discussed in Section 7.1 below.
- *Attachment J5.2 – Inadvertent Discovery Plan (IDP)* – This attachment contains procedures to follow in the event of unanticipated discovery of cultural resources or human remains.
- *Attachment J5.3 – Detailed Historic Period Above Ground Resource Survey Maps* – This attachment identifies the location of tax parcels included in the built-environment survey.
- *Attachment J5.4 – Historic Map and Aerial Photograph Review* – This attachment contains tables and georeferenced historical maps that cover the APE. These maps are discussed in Section 7.5 below.
- *Attachment J5.5 – Historic Property Inventory Forms* – This attachment includes the built-environment resources in the APE documented on HPI forms in the Department of Archaeology and Historic Preservation (DAHP) WISAARD database.





Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023).



**FIGURE 1-1**  
Tacoma Dome Link Extension  
Area of Potential Effect (APE)  
*Tacoma Dome Link Extension*



- Attachment J5.6 - *Archaeological Resource Update Forms* – This attachment consists of updates to State of Washington archaeological resource forms for previously documented archaeological sites within the APE.
- Attachment J5.7 – *Archaeological Survey Overview Maps* – This attachment identifies the areas of archaeological survey, including specific field conditions limiting survey coverage and parcels with right-of-entry access.
- Attachment J5.8 – *Detailed Archaeological Survey Overview Maps* – This attachment identifies the areas of archaeological survey, including specific field conditions limiting survey coverage, parcels with right-of-entry access, archaeological resource locations, and specific shovel probe and shovel probe/auger core number designations.
- Attachment J5.9 – *Archaeological Shovel Probe and Auger Core Table* – This attachment provides details of each shovel probe and shovel probe/auger core excavations, including sediment descriptions and identified cultural material.
- Attachment J5.10 – *Archaeological Resource Forms* – This attachment consists of the State of Washington archaeological resource forms for sites and isolates identified during the archaeological survey.
- Attachment J5.11 – *Beta Analytic, Inc. Radiocarbon Dating Reports* – This attachment contains the radiocarbon dating information from geoarchaeological boring samples.
- Attachment J5.12 – *Correspondence* – This attachment includes the correspondence with Tribes and SHPO for TDLE.
- Attachment J5.13 – *Draft Programmatic Agreement* – This attachment sets out the procedure for consultation, review, and compliance. Mitigation for impacts to historic and archaeological resources are in the early stages of coordination and will be further developed and documented during preparation of the Final EIS in coordination with SHPO, Tribes, and consulting parties.

## 1.1 Project Description

TDLE would expand the regional light rail system south from the Federal Way Downtown Station, which is the terminus of the Federal Way Link Extension opening in 2025–2026, to the Tacoma Dome area near the existing Tacoma Dome Station. The alternatives under consideration for TDLE are shown in Figures 1-2 through 1-5 and discussed in detail in Chapter 2, Alternatives Considered, of the Draft EIS. A brief overview is provided below for the purposes of this technical report.

Project elements include:

- Approximately 10 miles of new dedicated guideway. Most of the guideway would be elevated, and there would be no at-grade vehicle or pedestrian crossings. The guideway extends across ancestral and reservation lands of the Puyallup Tribe of the Puyallup Reservation (Puyallup Tribe of Indians), as well as the cities of Federal Way, Milton, Fife, and Tacoma, and unincorporated Pierce County.
- New stations in South Federal Way and Fife, and two in Tacoma (one near E Portland Avenue and one near the Tacoma Dome area).
- A new rail-only fixed-span bridge crossing the Puyallup River.
- New parking facilities with approximately 500 stalls each at the stations in South Federal Way and Fife in either surface or garage park-and-ride configurations.

The project would also include construction of multiple traction power substations (TPSS), emergency access spaces, stormwater management features, and various infrastructure realignments and upgrades. These alternatives are described by segment: Federal Way, South Federal Way, Fife, and Tacoma.

### 1.1.1 Federal Way Segment

In the Federal Way Segment (FW), there is one build alternative, the FW Enchanted Parkway Alternative and one design option, the FW Design Option (Figure 1-2). The FW Enchanted Parkway Alternative would begin at the terminus of the Federal Way Link Extension, curve east at S 324th Street to Interstate 5 (I-5), and parallel I-5 to S 344th Street. This alignment is part of the Preferred Alternative. The FW Design Option would modify the guideway curve near S 324th Street to accommodate slightly higher speeds through this section.

As described in Chapter 2 of the Draft EIS, the Sound Transit Operations and Maintenance Facility South (OMF South), a separate planned project, is planned to be located in this segment. OMF South includes the same 1.4-mile portion of guideway from the Federal Way Downtown Station to S 344th Street as the alternatives in the TDLE Federal Way Segment. Project development and environmental review for the OMF South and TDLE projects began concurrently; however, OMF South recently completed environmental review. In June 2024, FTA and Sound Transit issued the OMF South Final EIS, and the Sound Transit Board selected to build the Preferred South 336th Street Alternative. FTA issued the OMF South Record of Decision in August 2024. Based on the Sound Transit Board action, the 1.4-mile portion of guideway is planned to be constructed as part of the OMF South project. Due to the timing of the OMF South Board action in relation to the writing of this TDLE Draft EIS, construction impacts for this portion of track are included in the TDLE Draft EIS.

### 1.1.2 South Federal Way Segment

In the South Federal Way Segment, there are four build alternatives: South Federal Way (SF) Enchanted Parkway, SF I-5, SF 99-West, and SF 99-East alternatives (Figure 1-3). Additionally, there is one alignment design option, the Porter Way Design Option, that can be paired with either the SF 99-West or SF 99-East alternatives.

The SF Enchanted Parkway Alternative begins at S 344th Street on west side of I-5 before heading southwest toward Enchanted Parkway S to an elevated station located on the northwest corner of Enchanted Parkway S and S 352nd Street. A station design option to span S 352nd Street is also under consideration. The SF Enchanted Parkway Alternative continues to travel south until the alignment reaches I-5, where it continues south along the west side of I-5 to the Fife city limits.

The SF I-5 Alternative begins at S 344th Street and follows the west side of I-5 to the elevated SF I-5 Station located adjacent to I-5 south of S 356th Street. The alignment continues south along the west side of I-5 to the Fife city limits.

The SF 99-West and SF 99-East alternatives would begin at S 344th Street on the west side of I-5. Both alternatives would then head southwest toward Enchanted Parkway S to an elevated station. The station for the SF 99-West Alternative would be located on the northwest corner of Enchanted Parkway S and S 352nd Street (SF 99-Enchanted Station). The station for the SF 99-East Alternative would be located on the northwest corner of Enchanted Parkway S and S 352nd Street (SF 99-Enchanted Station). South of the station both alternatives would curve to parallel Pacific Highway. The SF 99-West Alternative would follow the west side of the roadway to Birch Street. The SF 99-East Alternative would follow the east side of the roadway to S 373rd Street where it would enter and travel in the median of Pacific Highway to Birch Street. Just south of

Birch Street both alternatives would cross to the east side of Pacific Highway and parallel the west side of I-5 just south of Porter Way before curving back to Pacific Highway near the Fife city limits.

The Porter Way Design Option could be paired with either the SF 99-West or SF 99-East alternatives (Figure 1-3). This design option would curve further east to minimize impacts to tribally owned parcels, but shift the alignment closer to the west fork of Hylebos Creek.

Approximately 500 parking spaces would be provided in a garage and/or surface lot at the station location selected.

### **1.1.3 Fife Segment**

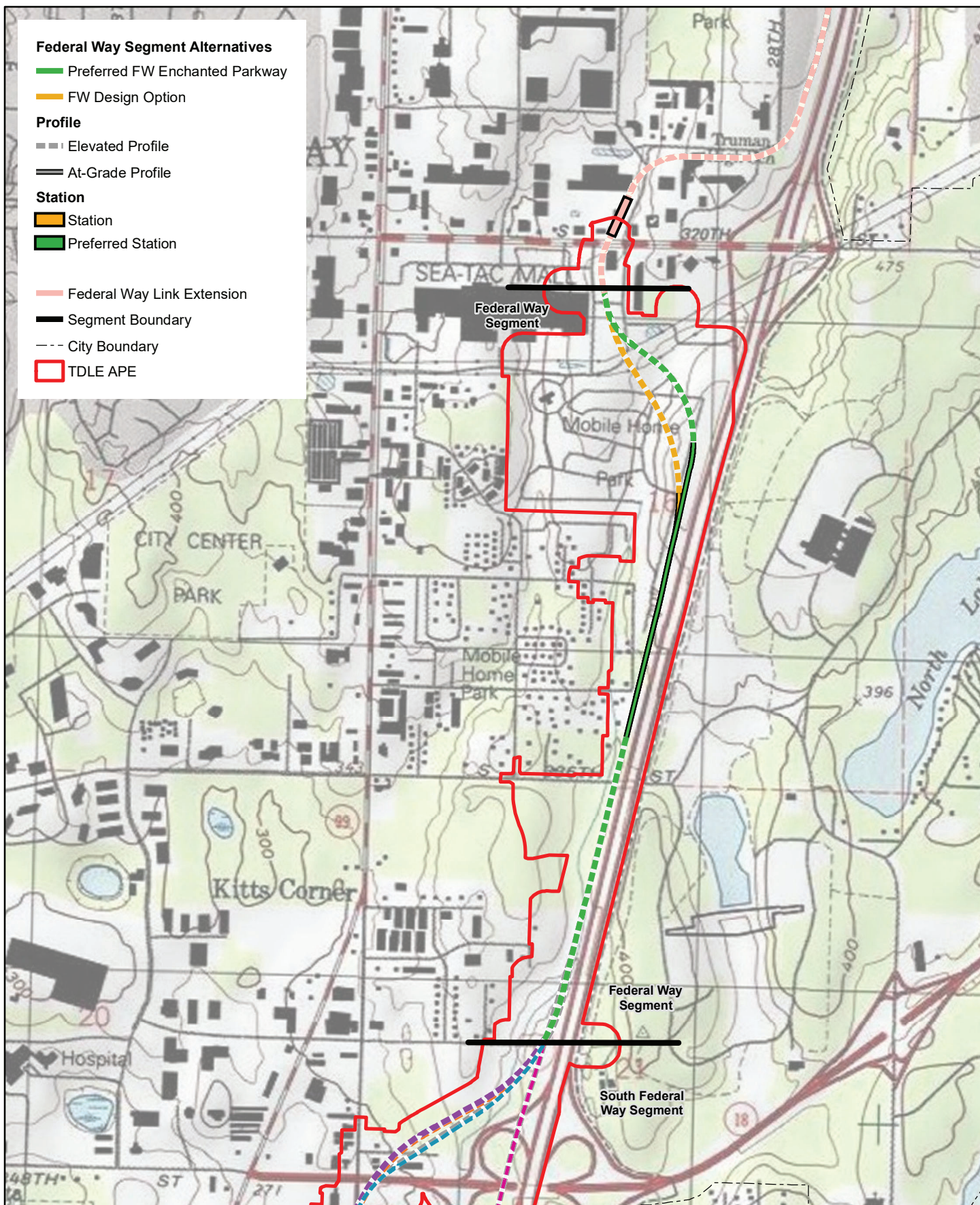
In the Fife Segment, the three build alternatives include the Fife Pacific Highway, Fife Pacific Highway Median (Fife Median), and Fife I-5 alternatives (Figure 1-4). These alternatives have two common sections that are identified as part of the Preferred Alternative. The first is from the Fife city limits near Wapato Way to 54th Avenue E, and the second is from near the Port of Tacoma Road to the Fife/Tacoma city limits. A preferred alternative has not been identified between 54th Avenue E and the Port of Tacoma Road vicinity. The Sound Transit Board is anticipated to identify a Preferred Alternative following publication of the Draft EIS.

From the Fife city limits near Wapato Way E, all alternatives curve northwest to travel parallel to and just north of 15th Street E between 62nd Avenue E and 54th Avenue E. The preferred Fife Station location is to the west of 59th Avenue E. Between 54th Avenue E and the Port of Tacoma Road area, the Fife I-5 Alternative would continue southwest from the station along the north side of I-5. The Fife Pacific Highway Alternative would continue west-southwest from the station until it crosses Pacific Highway E and continues west along the south side of Pacific Highway E, whereas the Fife Median Alternative would continue along the median of Pacific Highway E. West of the Port of Tacoma Road, all alternatives would curve south of Pacific Highway E to run parallel with the north side of I-5 toward the Fife/Tacoma city limits.

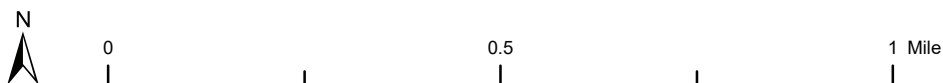
Two design options, the 54th Avenue Design Option and 54th Span Design Option, could be paired with each of the Fife Segment alternatives. Both the design options would shift the guideway slightly south towards Pacific Highway or I-5 to accommodate the station option locations. The 54th Avenue Design Option would locate a station on the west side of 54th Avenue E, south of 12th Street E. The 54th Span Design Option would locate the station platform to span over 54th Avenue E between 12th Street E and 15th Street E (Figure 1-4).

Approximately 500 parking spaces would be provided by a garage and/or a surface lot at the station location selected.



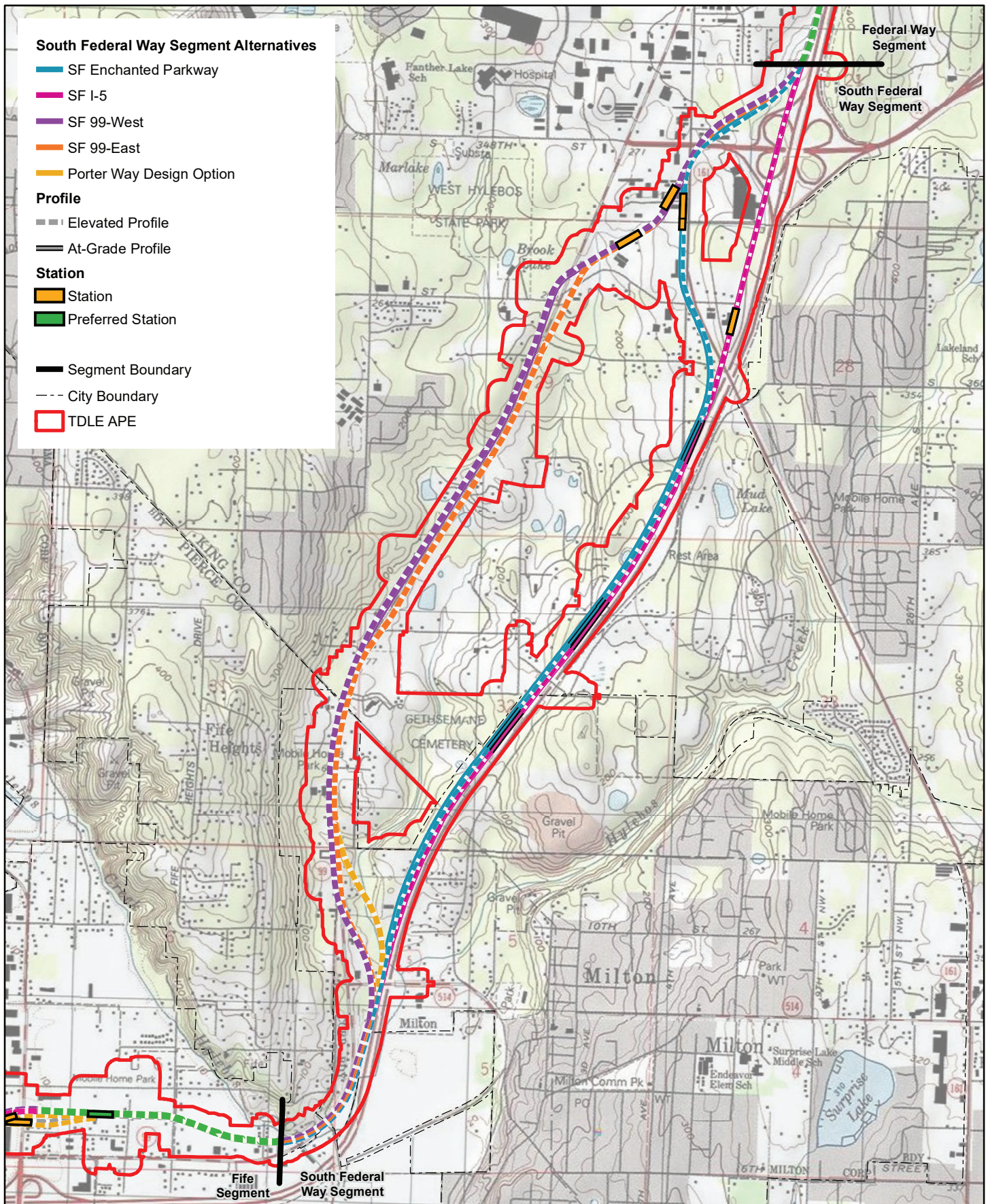


Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023).  
USGS Topographic: Poverty Bay, Puyallup, and Tacoma North & South Quads (1:24,000).

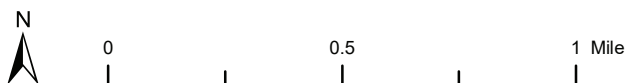


**FIGURE 1-2**  
Alternatives  
Federal Way Segment  
Tacoma Dome Link Extension



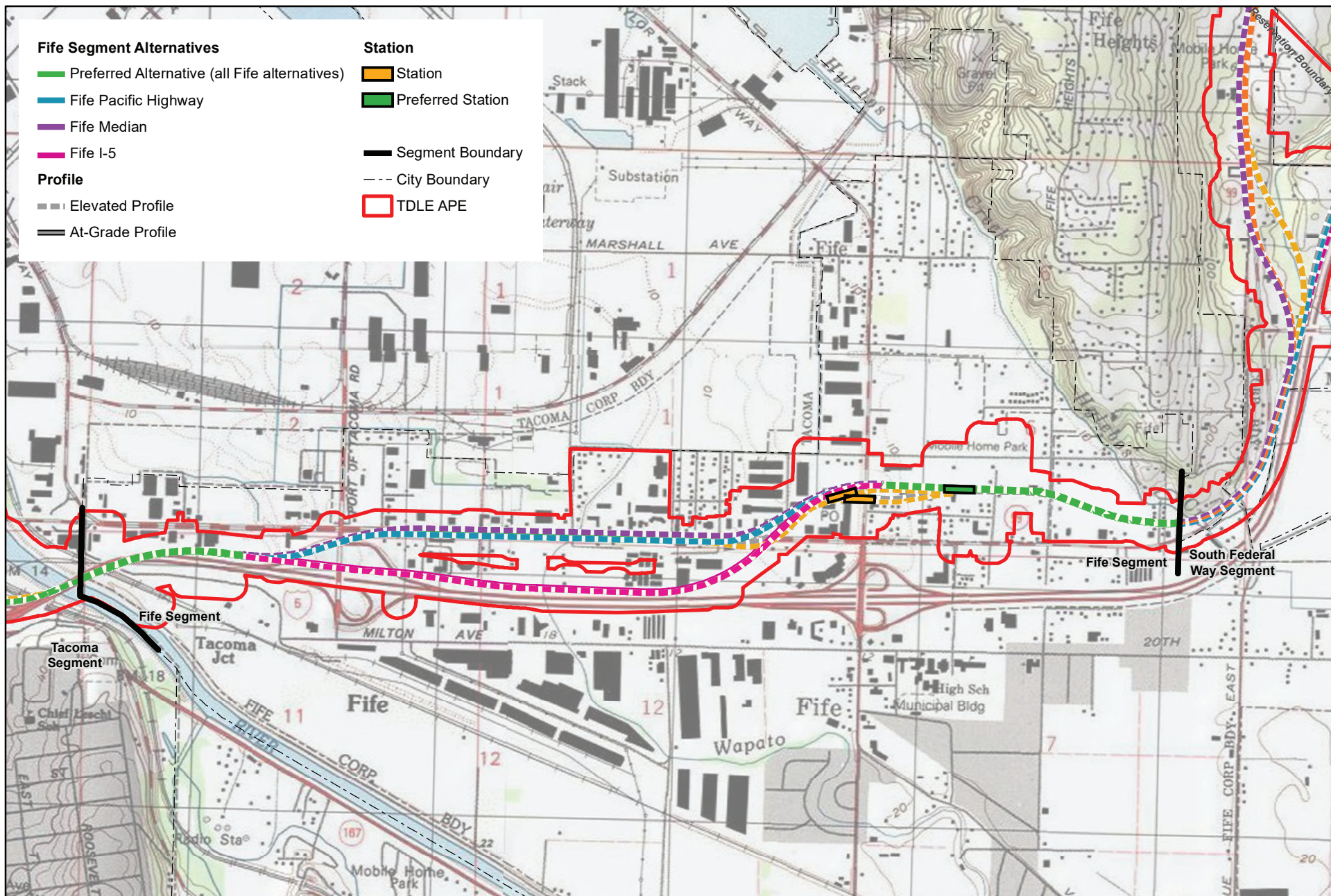


Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023).  
 USGS Topographic: Poverty Bay, Puyallup, and Tacoma North & South Quads (1:24,000).

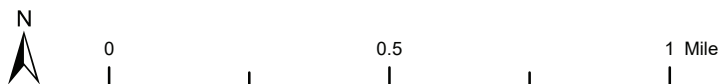


**FIGURE 1-3**  
 Alternatives  
 South Federal Way Segment  
 Tacoma Dome Link Extension





Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023).  
 USGS Topographic: Poverty Bay, Puyallup, and Tacoma North & South Quads (1:24,000).



**FIGURE 1-4**  
 Alternatives  
 Fife Segment

Tacoma Dome Link Extension

### 1.1.4 Tacoma Segment

There are four build alternatives in the Tacoma Segment: Tacoma 25th Street-West (Preferred Alternative), Tacoma 25th Street-East, Tacoma Close to Sounder, and Tacoma 26th Street Alternatives (Figure 1-5). These alternatives would each have the same alignment and design option between the Fife/Tacoma city limit to the station location at Portland Avenue. From the Fife/Tacoma city limit, all Tacoma Segment alternatives would cross the Puyallup River north of I-5. There are two bridge types: a long-span bridge with support columns located upland to the river, and a pier-supported bridge with a pier or piers placed in the river.

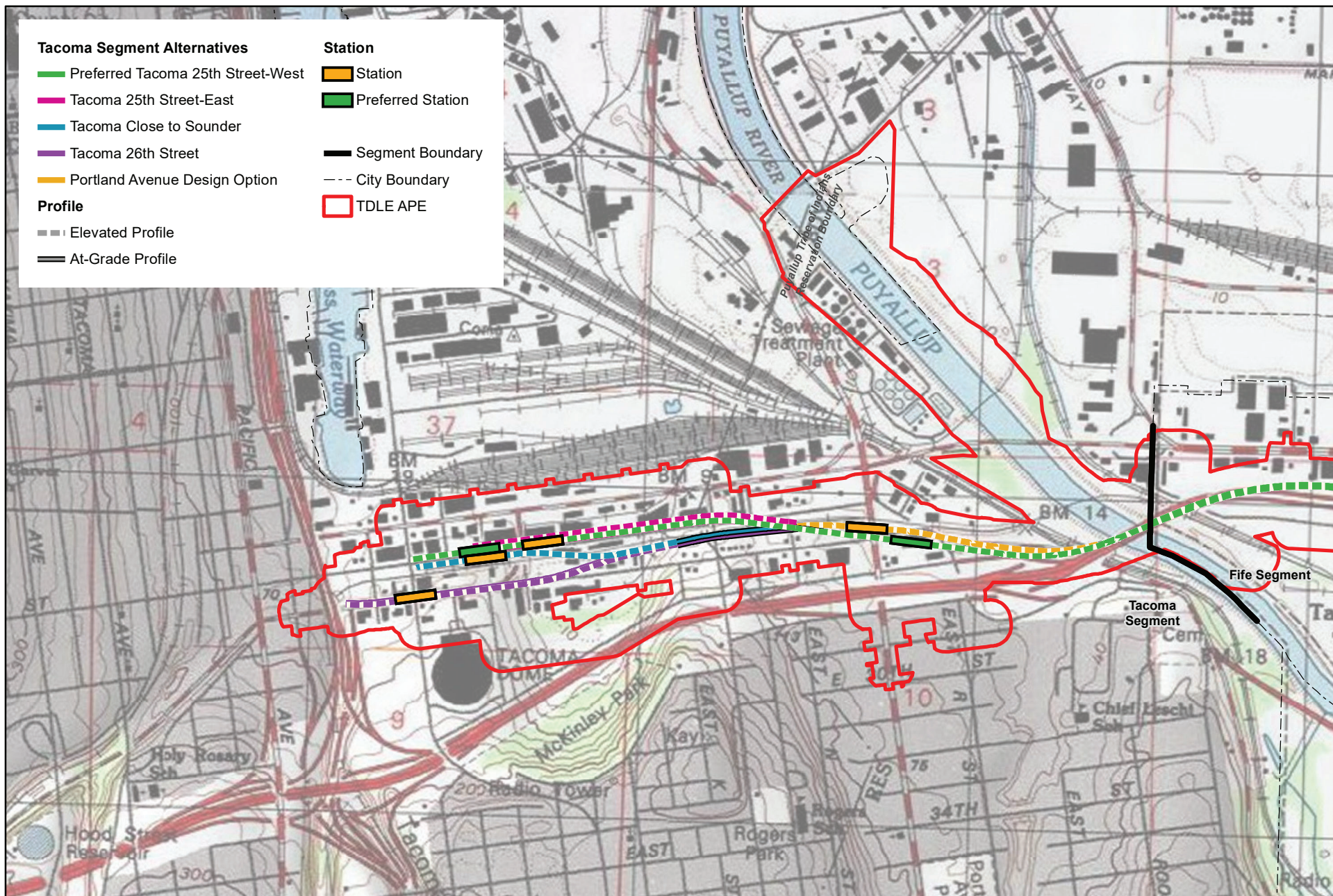
After crossing the Puyallup River, each alternative continues northwest to the Portland Avenue Station between E Portland Avenue and E Bay Street along the south side of E 26th Street. Each alternative could also be paired with the Portland Avenue Design Option, which would shift the guideway just north of the E 26th Street and E Portland Avenue intersection to accommodate the Portland Avenue Span Station Option. For either station location, other parties could provide a Portland Avenue bike and pedestrian bridge to improve nonmotorized access between the station north of I-5 and the neighborhoods to the south of I-5. West of the Portland Avenue Station, the alternatives continue northwest to the terminus station, as described:

- The Tacoma 25th Street-West Alternative (Preferred Alternative) continues northwest to align with the south side of E 25th Street until just west of East D Street. The Tacoma 25th Street-West Station is located east of East D Street along E 25th Street.
- The Tacoma 25th Street-East Alternative has the same alignment as the Tacoma 25th-West Alternative, except that the Tacoma 25th Street-East Station is located over E 25th Street to the southeast of the Tacoma Dome Station Parking Garage.
- The Tacoma Close to Sounder Alternative continues northwest and aligns with the south side of the Sounder tracks until McKinley Avenue, where it crosses over the Sounder tracks to a station between East G Street and East E Street.
- The Tacoma 26th Street Alternative continues northwest and aligns with the south side of the Sounder tracks until just east of East J Street. East of East J Street, the alternative continues southwest to align with the center of E 26th Street until East D Street. At East D Street, the alternative continues northwest and ends just east of East C Street. The Tacoma 26th Street Station is located over E 26th Street near East E Street.

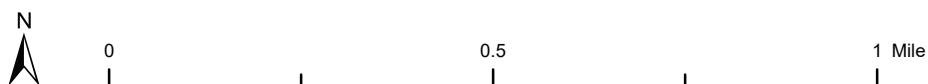
In addition, tail tracks (or storage tracks) and switches will be installed at the terminus station to support system operations.

Conceptual design-level plans developed for the project alternatives are included in Appendix F, Conceptual Design Drawings, of the Draft EIS.





Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023).  
USGS Topographic: Poverty Bay, Puyallup, and Tacoma North & South Quads (1:24,000).



**FIGURE 1-5**  
Alternatives  
Tacoma Segment  
*Tacoma Dome Link Extension*



## 1.2 Purpose of the Report

Historical Research Associates, Inc. (HRA) and Aqua Terra Cultural Resource Consultants (ATCRC) prepared this cultural resources technical report documenting the findings of architectural and archaeological survey and inventory investigations (between December 2020 and July 2023; see Section 9.1 for details) within the defined APE for the project.

## 1.3 Key Personnel

This technical report was prepared in accordance with the Secretary of Interior (SOI) Standards and Guidelines for the identification of historic properties and follows Washington State Standards and Guidelines for Cultural Resources Reporting. The principal contributors to this report are listed in Table 1-1. These individuals meet the SOI professional qualification standards as defined at 36 CFR Part 61.

**Table 1-1 Key Personnel**

Name	Qualifications	Roles and Responsibilities
Ron Adams, RPA	Masters of Archaeology, PhD Archaeology, Senior Archaeologist	Principal Archaeologist
Sarah Amell, RPA	Master of Maritime Archaeology, Principal Archaeologist	Project Manager for Archaeology Field Staff
Chrisanne Beckner	Master of Historic Preservation, Senior Architectural Historian	Principal Investigator and Architectural Historian
Brent Hicks, MA, RPA	Master of Archaeology, Principal Archaeologist	Project Manager
Michele Punke, RPA	Masters of Anthropology/ Geosciences, PhD Physical Geography, Senior Archaeologist and Geoarchaeologist	Principal Geoarchaeologist and Project Manager
Lauren Waldroop	Master of Historic Preservation, Architectural Historian	Architectural Investigator and Historian
Matthew Warren	PhD Archaeology, Archaeologist 2	Archaeological Investigator

HRA conducted the built-environment survey for the project. HRA Principal Investigator Chrisanne Beckner, MS, and Lauren Waldroop, MHP, conducted a field survey for the project and authored sections of this report.

Archaeological investigations, including monitoring of geoarchaeological testing was performed by HRA SOI-qualified staff, supported by an ATCRC field crew. HRA archaeologist Ron Adams led a field team and compiled sections of this report under project manager Brent Hicks. The ATCRC team conducted the near-surface archaeological inventory for the project and compiled sections of this report under project manager Sarah Amell. For survey activities along Pacific Highway in south Federal Way and Milton, HRA archaeologist Matthew Warren led a field team and compiled sections of this report under project manager Michele Punke.

HRA's geoarchaeologist and Senior Archaeologist Michele Punke, who meets the Secretary of the Interior's Standards for Archaeology, led a field team and authored sections of this report.

## 2 REGULATORY SETTING

Multiple federal, state, and local laws, regulations, and policies address the treatment and protection of cultural resources. A brief discussion of the regulatory setting for the project is presented below.

The two primary federal laws are the NHPA and NEPA. Under NEPA, cultural resources, including, but not limited to, sacred sites, archaeological and built-environment resources not eligible for the National Register of Historic Places (NRHP), archaeological and built-environment resources eligible for the NRHP, and archaeological collections, must be given consideration and coordination with Section 106 of the NHPA and its implementing regulations at 36 CFR Part 800 is encouraged.

Section 106 of the NHPA requires that federal agencies account for the effects of their undertakings on historic properties. A historic property is typically aged 50 years or older and is defined in 36 CFR 800.16(l)(1) as follows:

... any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Regulations at 36 CFR Part 800 require the federal agency involved in the undertaking to identify the APE, conduct an inventory of historic properties that may be located within the APE, determine whether any of the historic properties identified are eligible for listing in the NRHP, and determine whether NRHP-eligible properties will be adversely affected by the undertaking. An APE is defined in 36 CFR 800.16(d) as follows:

... the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking ...

In addition to Section 106, Section 4(f) of the Department of Transportation Act of 1966 at 23 CFR Part 774 is triggered by funding or approval from a U.S. Department of Transportation (DOT) agency for a transportation project that proposes “use” of land from a property protected by Section 4(f), including NRHP-eligible or -listed historic properties. A determination of adverse effect under Section 106 may constitute a use under Section 4(f).

The federal Native American Graves Protection and Repatriation Act (NAGPRA) (Public Law 101-601; 25 United States Code 3001-3013) applies to the protection, disposition, and repatriation of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony on federal or Tribal lands and recognizes that these human remains and objects belong to the lineal descendants. NAGPRA also requires that Indian Tribes or Native Hawaiian organizations be consulted whenever archeological investigations encounter, or are expected to encounter, Native American cultural items or when such items are unexpectedly discovered on federal or Tribal lands. A portion of the TDLE project extends through the Puyallup Reservation, and FTA has been in government-to-government consultation with the Puyallup Tribe of Indians (see Chapter 6).

The project must also comply with SEPA. Sound Transit is the lead agency for SEPA compliance. The project is subject to other Washington state laws that address the protection of archaeological sites and Native American burials, including, but not limited to, the Archaeological Sites and Resources Protection Act (Revised Code of Washington [RCW] 27.53), and the Indian Graves and Records Act (RCW 27.44). Protections afforded under RCW 27.53, and RCW 27.44 apply on both public and private lands. RCW 27.53 prohibits disturbance of known precontact and historic archaeological sites on public or private lands, whereas RCW 27.44 prohibits disturbance of Native American graves and provides that inadvertent disturbance through construction or other activity requires reinterment under supervision of the appropriate Tribes.

Other applicable county, and city codes related to the protection of cultural resources include:

- King County Code Chapter 20.62, Protection and Preservation of Landmarks, Landmark Sites, and Districts.
- King County Policy LUD 16-1 (AEP), which proscribes consistent procedures for considering and protecting cultural resources affected by County projects.
- Pierce County Code Chapter 2.88, Structures of Historical and Architectural Significance.
- City of Federal Way Code Chapter 19.285, Protection and Preservation of Landmarks, which adopts King County Code Chapter 20.26.
- City of Milton Municipal Code Chapter 18.04, Environmental Policy.
- City of Fife Municipal Code Chapter 17.04, Environmental Protection, and Chapter 21.10, Low Impact Development Permitting.
- City of Tacoma Municipal Code Chapter 13.07, Landmarks and Historic Special Review Districts, and Chapter 13.12, Environmental Code.

## 2.1 NRHP Requirements for Listing

### 2.1.1 Criteria for Significance

To be eligible for listing in the NRHP, a resource must meet one of four criteria for significance and possess sufficient integrity to express its significance (NPS 1995).

Resources are evaluated based on the following guidelines established by the National Park Service (NPS). To be eligible for listing in the NRHP, a property must be significant under one of the following criteria:

- Criterion A: Under Criterion A, properties can be determined eligible for listing in the NRHP if they are associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B: Under Criterion B, properties can be determined eligible for listing in the NRHP if they are associated with the lives of persons significant in our past (i.e., persons whose activities are demonstrably important within a local, state, or national context).
- Criterion C: Under Criterion C, properties can be determined eligible for listing in the NRHP if they embody the distinctive characteristics of a type, period, or method of construction, represent the works of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction (i.e., are part of a district). Discrete features, a particular building for example, may best be documented

under this Criterion, though collections of resources may also have significance under Criterion C for architecture or engineering association.

- Criterion D: Under Criterion D, properties may be eligible for the NRHP if they have yielded, or may be likely to yield, information important in prehistory or history. To be eligible under Criterion D, the property must have, or have had, information to contribute to our understanding of human history and that information must be considered “important” (NPS 1997). Most commonly applied to archaeological sites, buildings, structures, and objects may be eligible under Criterion D if they are the principal source of information.

### 2.1.2 Integrity

Integrity is the ability of a property to convey its significance. A property must meet one or more of the National Register Criterion for eligibility (defined above) and have integrity. The evaluation of integrity is grounded in an understanding of a property’s physical features and how they relate to its significance. Historic properties either retain integrity (that is, convey their significance) or they do not. To retain integrity, a property will always possess several, and usually most, of the seven aspects of integrity, which are:

- Location. Location is the place where the historic property was constructed or the place where the historic event occurred.
- Design. Design is the combination of elements that create the form, plan, space, structure, and style of a property.
- Setting. Setting is the physical environment of a historic property.
- Materials. Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
- Workmanship. Workmanship is the physical evidence of crafts of a particular culture or people during any given period in history or prehistory.
- Feeling. Feeling is the property’s expression of the aesthetic or historic sense of a particular period of time.
- Association. Association is the direct link between an important historic event or person and a historic property (NPS 1995).

## 2.2 Additional Historic Register Criteria for Listing

In addition to NRHP eligibility determinations, resources were evaluated for listing in the Washington State Heritage Register (WHR) and designation as a local historic landmark in King County, Pierce County, and the City of Tacoma. These recommendations for state and local listing are advisory only.

### 2.2.1 Washington Heritage Register

To be individually eligible for listing in the WHR, a property must be significant within a historic context. Sites which are listed in the NRHP are automatically added to the WHR (25-12 Washington Administrative Code [WAC]). As such, a separate nomination is not needed and, for the purposes of this report, the same four criteria utilized for the NRHP (A through D above) are used herein to evaluate for eligibility for listing in the WHR (DAHP 2020c).

### 2.2.2 King County Register of Historic Places

To be eligible for listing on the King County Register of Historic Places, a resource must be over 40 years old or contain resources that are more than 40 years old that possess integrity of location, design, setting, materials, workmanship, feeling, or association, and meet one or more of the following criteria, which are based on the following NRHP eligibility criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of local, state, or national history; or
2. Is associated with the lives of persons significant in local, state, or national history; or
3. Embodies the distinctive characteristics of a type, period, style or method of design or construction, or that represents a significant and distinguishable entity whose components may lack individual distinction; or
4. Has yielded, or may be likely to yield, information important to prehistory or history; or
5. Is an outstanding work of a designer or builder who has made a substantial contribution to the art (KC 20.62.040).

### 2.2.3 Pierce County Register of Historic Places

To be eligible for listing in the Pierce County Register of Historic Places, a resource must be at least 50 years of age — although exceptions may be allowed for special resources — and possess the quality of significance in American history, architecture, archaeology, or culture and have integrity of location, design, setting, materials, workmanship, feeling and association. The property must meet one or more of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of our history; or
2. It is associated with the lives of persons significant in Pierce County's past; or
3. It embodies the distinctive characteristics of a type, period, or method of construction or that represents the distinguishable entity whose components may lack individual distinction; or
4. It has yielded or may be likely to yield information important in prehistory or history (Pierce County 2020).

### 2.2.4 Tacoma Register of Historic Places

To be eligible for listing on the City of Tacoma Register of Historic Places, a resource must be over 50 years old or contain resources more than 50 years old that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet one or more of the following criteria:

- A. Is associated with events that have made a significant contribution to the broad patterns of our history; or
- B. Is associated with the lives of persons significant in our past; or
- C. Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or

- D. Has yielded or may be likely to yield, information important in prehistory or history; or
- E. Abuts a property that is already listed on the Tacoma Register of Historic Places and was constructed within the period of significance of the adjacent structure; or
- F. Owing to its unique location or singular physical characteristics, represents an established and familiar visual feature of the neighborhood or City (City of Tacoma 2020).

### 3 AREA OF POTENTIAL EFFECTS

The APE for TDLE is located within Sections 16, 20, 21, 28, 29, and 32 of Township 21N Range 04E, Sections 5, 6, and 7 of Township 20N Range 04E, and Sections 1, 2, 9, 10, 11, 12, and 37 of Township 20N Range 03E (Figures 3-1 through 3-13).

FTA, in coordination with Sound Transit and in consultation with SHPO, and affected Tribes, determined the project APE in March 2020 (FTA 2020a; DAHP 2020a). This consultation included a cultural resources survey methodology and inventory plan (Viloudaki et al. 2020) for review and comment. The APE was subsequently revised in November 2020 and again in April 2023 to incorporate changes made to the project (FTA 2020b, 2023; DAHP 2020b, 2023). No comments on the APE or Cultural Resources Survey and Inventory Plan were provided. The APE encompasses all project elements, including guideway, station locations, construction staging areas, and utility improvement and expansion areas. The boundary extends out from the project footprint to include the adjacent tax parcel, or a maximum of 200 feet for large tax parcels. The APE has also been widened in the following locations:

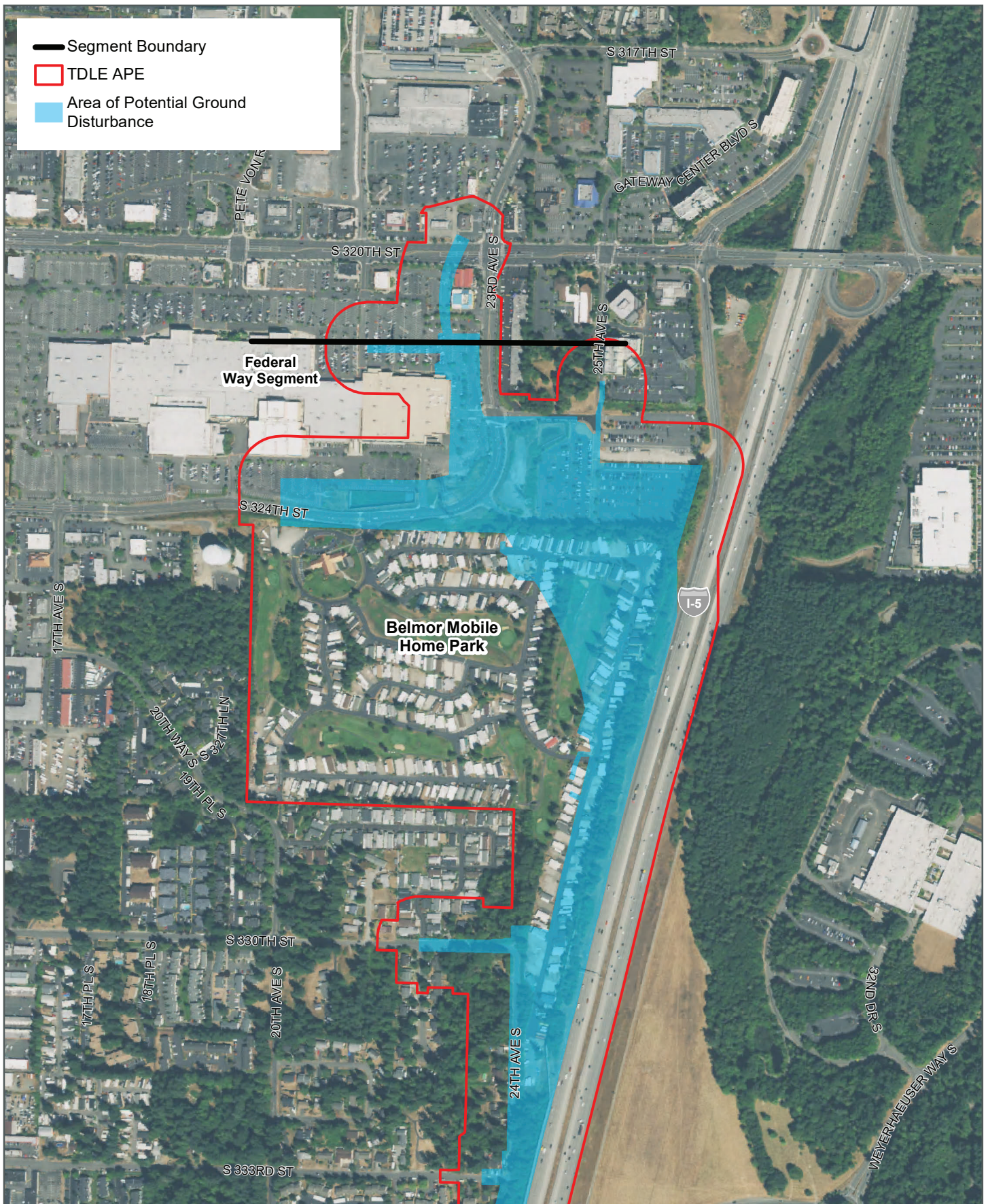
- The Belmor Park Golf & Country Club (Belmor) in Federal Way, near the north end of the APE. This was included because mobile home parks are evaluated in their entirety and not by individual mobile homes. See Figure 3-1.
- The Gethsemane Cemetery and Saint (St.) George's Cemetery. Portions of these cemeteries fall within 200 feet of project elements but were included in their entirety in the APE in response to comments from the Puyallup Tribe of Indians in meetings with FTA and Sound Transit. See Figures 3-5 through 3-7.
- The area between Pacific Highway E and 12th Street E, bounded on the west by Alexander Avenue E and 46th Avenue E on the east. This area was included in response to comments from the Puyallup Tribe of Indians in meetings with FTA and Sound Transit. See Figure 3-10.
- The area extending north from the anticipated bridge location over the Puyallup River to Lincoln Avenue. This area was included in response to comments from the Puyallup Tribe of Indians in meetings with FTA and Sound Transit. See Figure 3-12.

The anticipated depths of disturbance of the project are variable throughout the APE (Table 3-1). Deep ground disturbance is anticipated across approximately 85 to 90 percent of the guideway alignment and is associated with construction of drilled shafts or columns used to support the elevated guideway. Approximately 10 to 15 percent of the guideway is anticipated to be at grade. Ground-disturbing activities related to the construction of access roads, stormwater facilities, staging areas, and utility work will be shallow.

**Table 3-1 Approximate Depths of Deep Ground Disturbance**

Corridor Area	Depth of Disturbance
South of Federal Way Downtown Station to Eastern Fife	60-90 feet
Eastern Fife to Fife Station	90-120 feet
Fife Station to Tacoma Dome station area	120-190 feet
Puyallup River crossing vicinity	160-190 feet



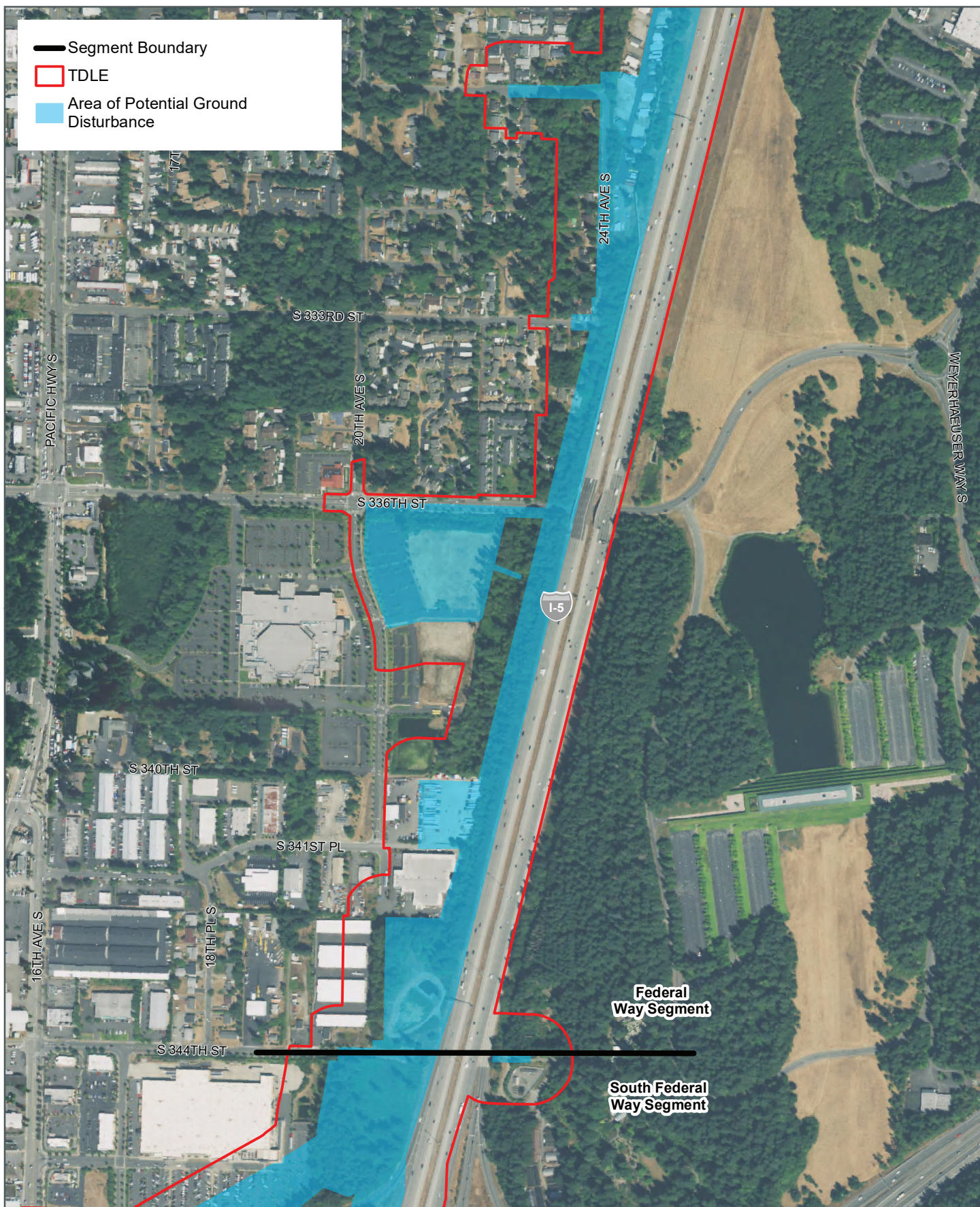


Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).



**FIGURE 3-1**  
 APE and Areas of Potential  
 Ground Disturbance  
 (Federal Way, Sheet 1 of 13)  
 Tacoma Dome Link Extension



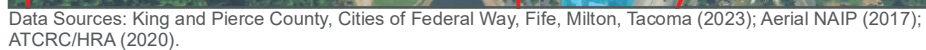


Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).



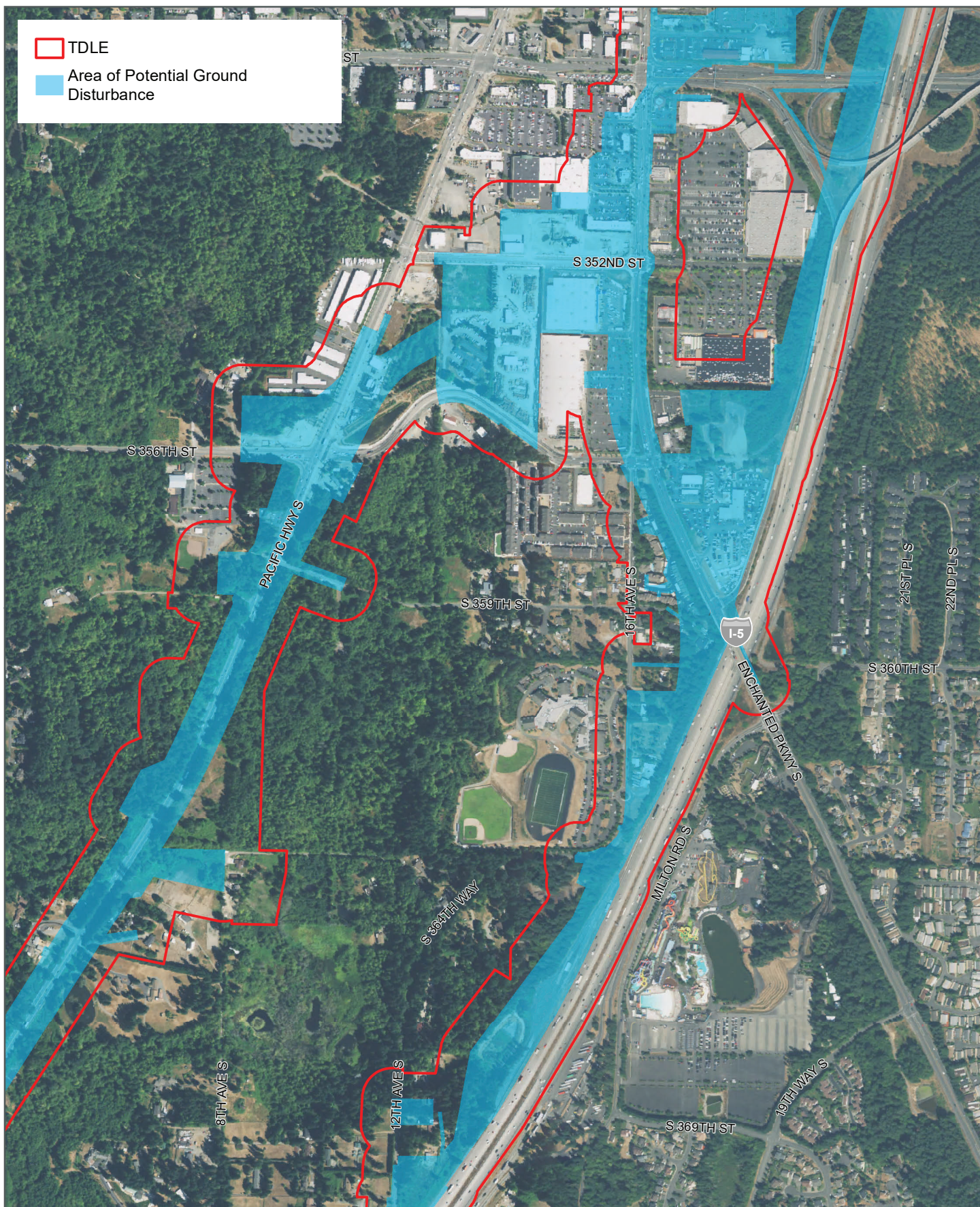
**FIGURE 3-2**  
 APE and Areas of Potential  
 Ground Disturbance  
 (Federal Way, Sheet 2 of 13)  
*Tacoma Dome Link Extension*





**FIGURE 3-3**  
APE and Areas of Potential  
Ground Disturbance  
(South Federal Way, Sheet 3 of 13)  
*Tacoma Dome Link Extension*





**FIGURE 3-4**  
**APE and Areas of Potential**  
**Ground Disturbance**  
 (South Federal Way, Sheet 4 of 13)  
*Tacoma Dome Link Extension*

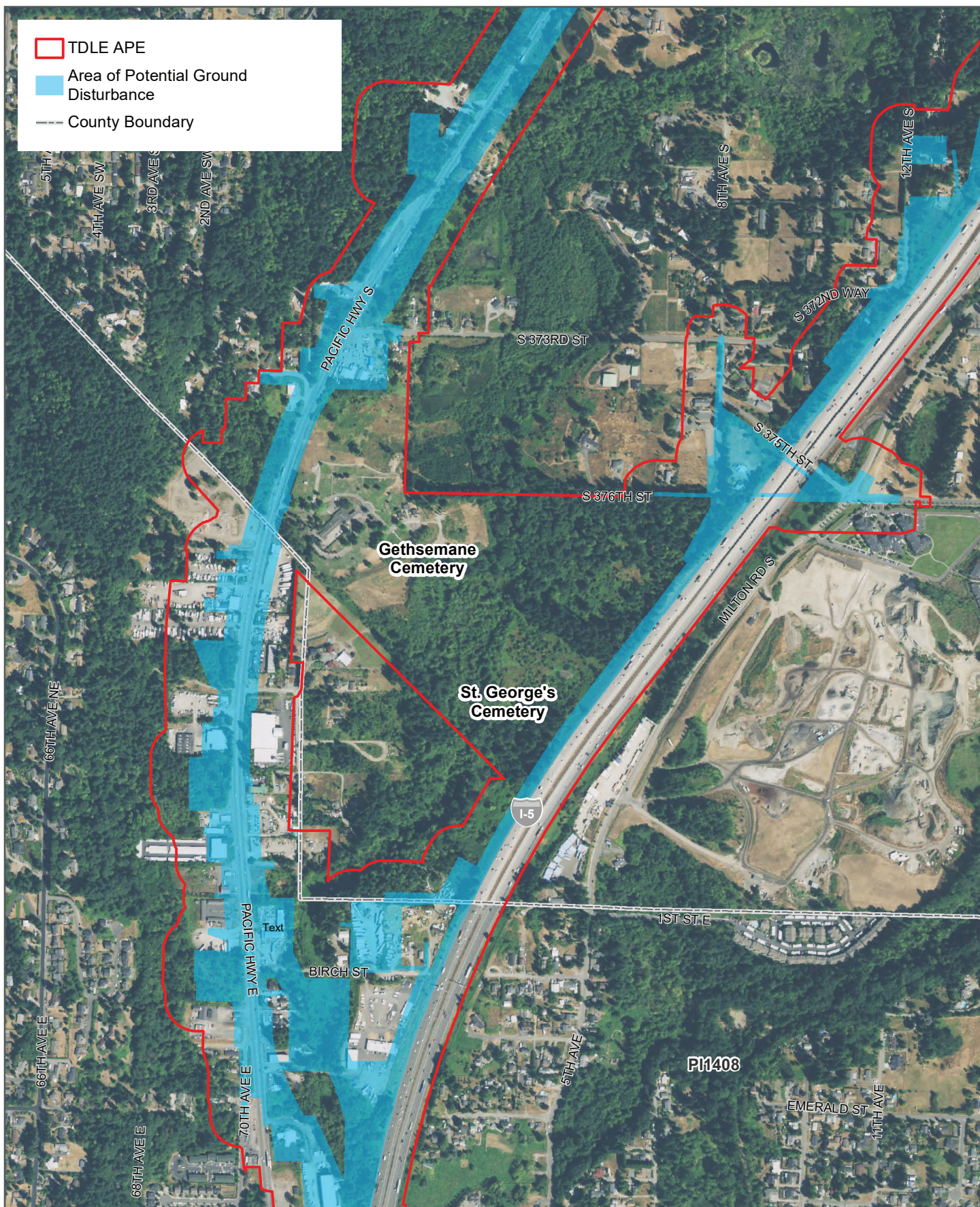




Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).

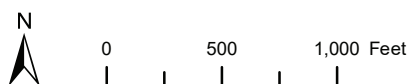
**FIGURE 3-5**  
**APE and Areas of Potential**  
**Ground Disturbance**  
 (South Federal Way, Sheet 5 of 13)  
*Tacoma Dome Link Extension*



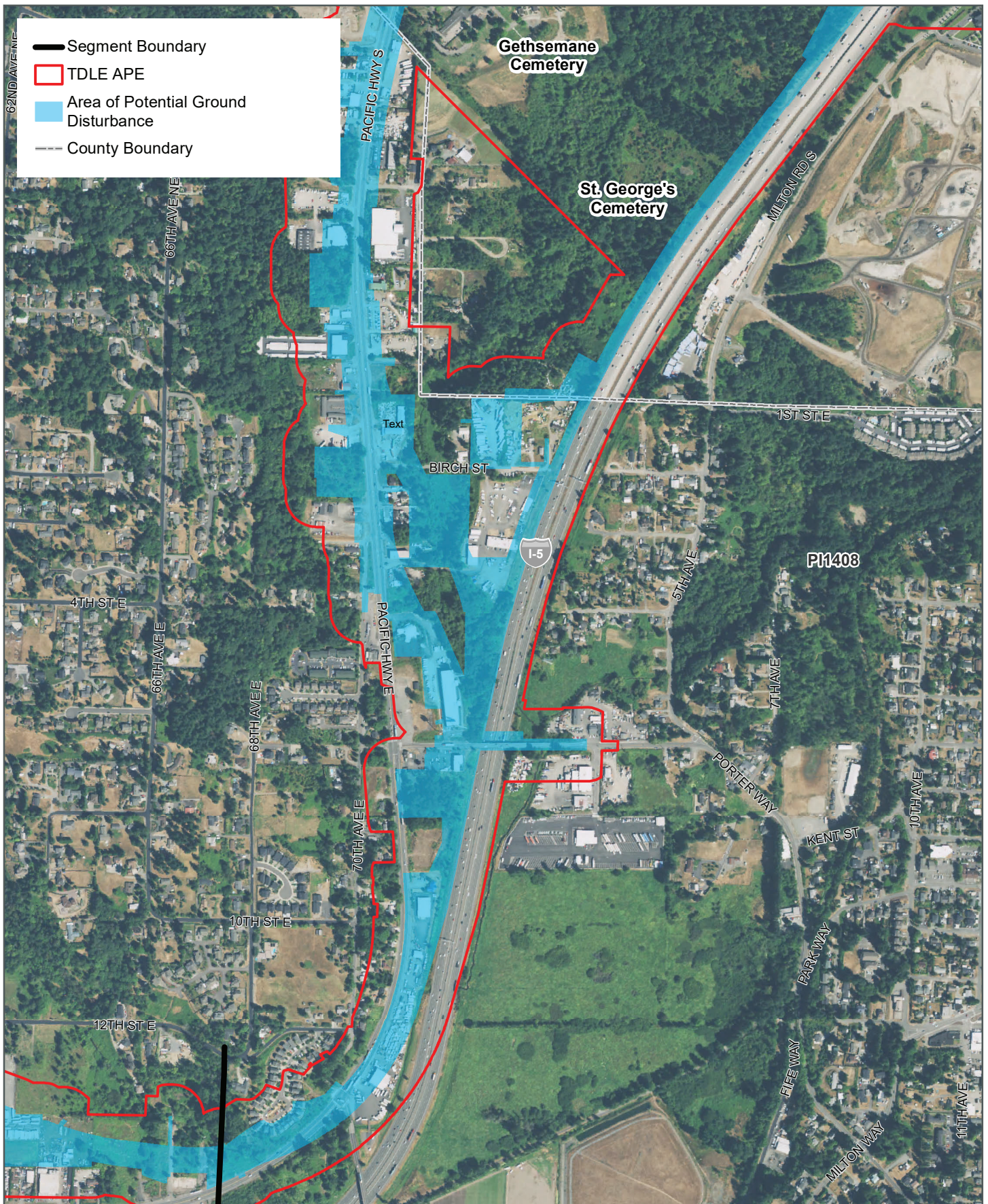


Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).

**FIGURE 3-6**  
 APE and Areas of Potential  
 Ground Disturbance  
 (South Federal Way, Sheet 6 of 13)  
 Tacoma Dome Link Extension

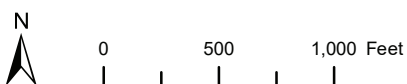




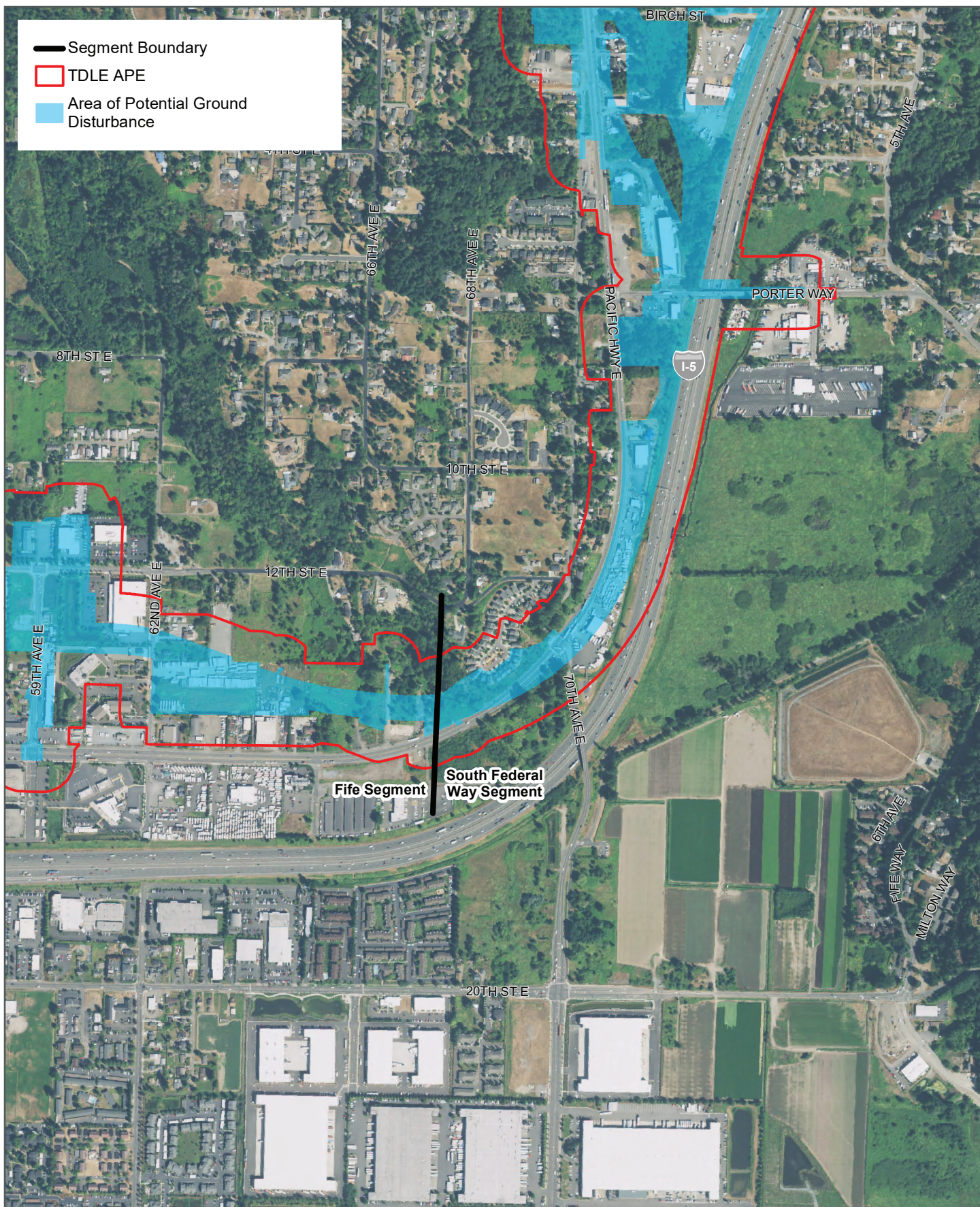


Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).

**FIGURE 3-7**  
 APE and Areas of Potential  
 Ground Disturbance  
 (South Federal Way, Sheet 7 of 13)  
 Tacoma Dome Link Extension



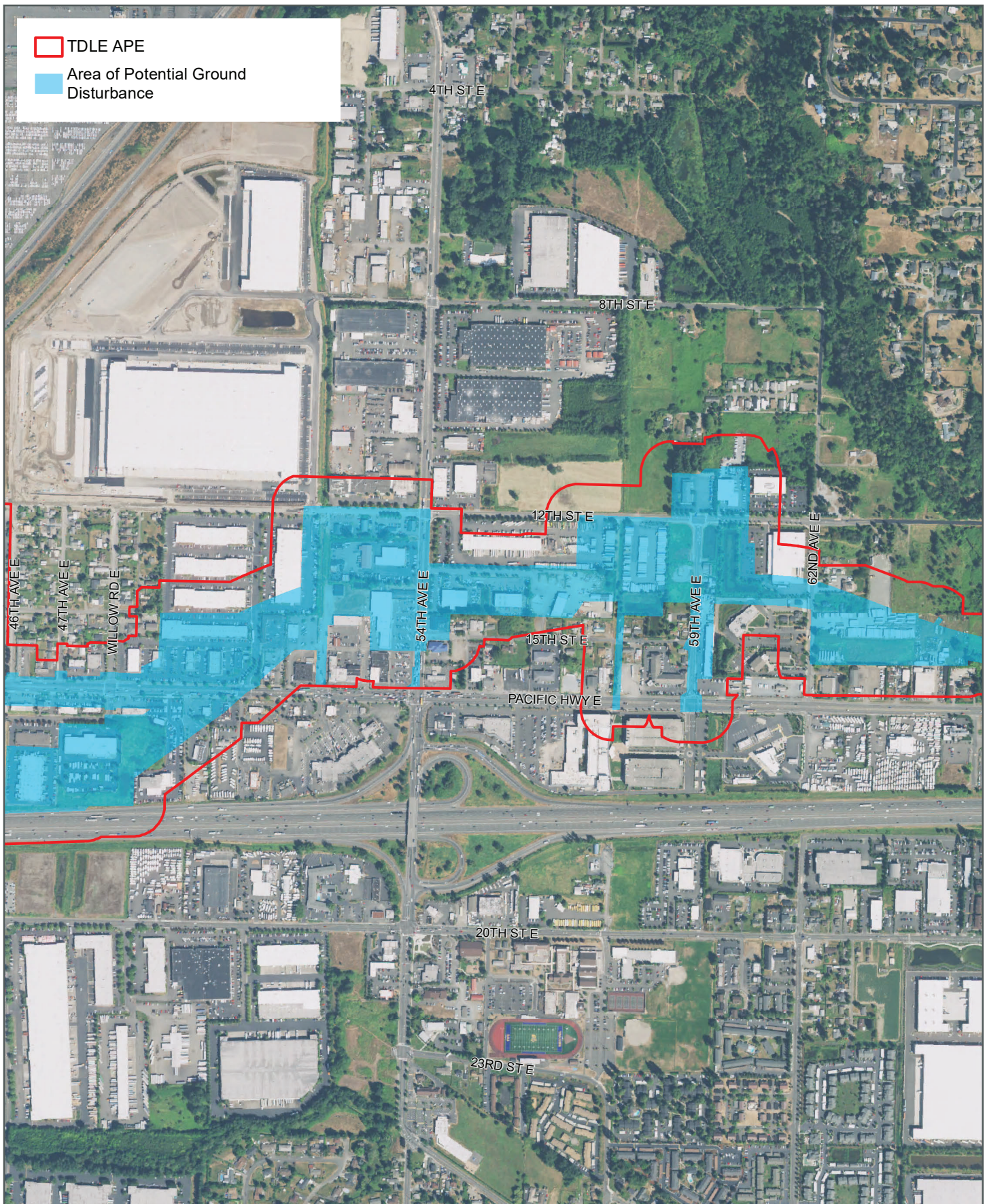




Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).

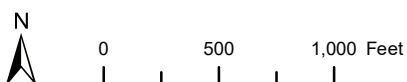
**FIGURE 3-8**  
APE and Areas of Potential  
Ground Disturbance  
(South Federal Way/Fife, Sheet 8 of 13)  
*Tacoma Dome Link Extension*





Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).

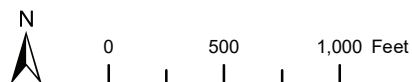
**FIGURE 3-9**  
 APE and Areas of Potential  
 Ground Disturbance  
 (Fife, Sheet 9 of 13)  
*Tacoma Dome Link Extension*







Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).

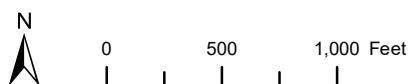


**FIGURE 3-10**  
 APE and Areas of Potential  
 Ground Disturbance  
 (Fife, Sheet 10 of 13)  
*Tacoma Dome Link Extension*



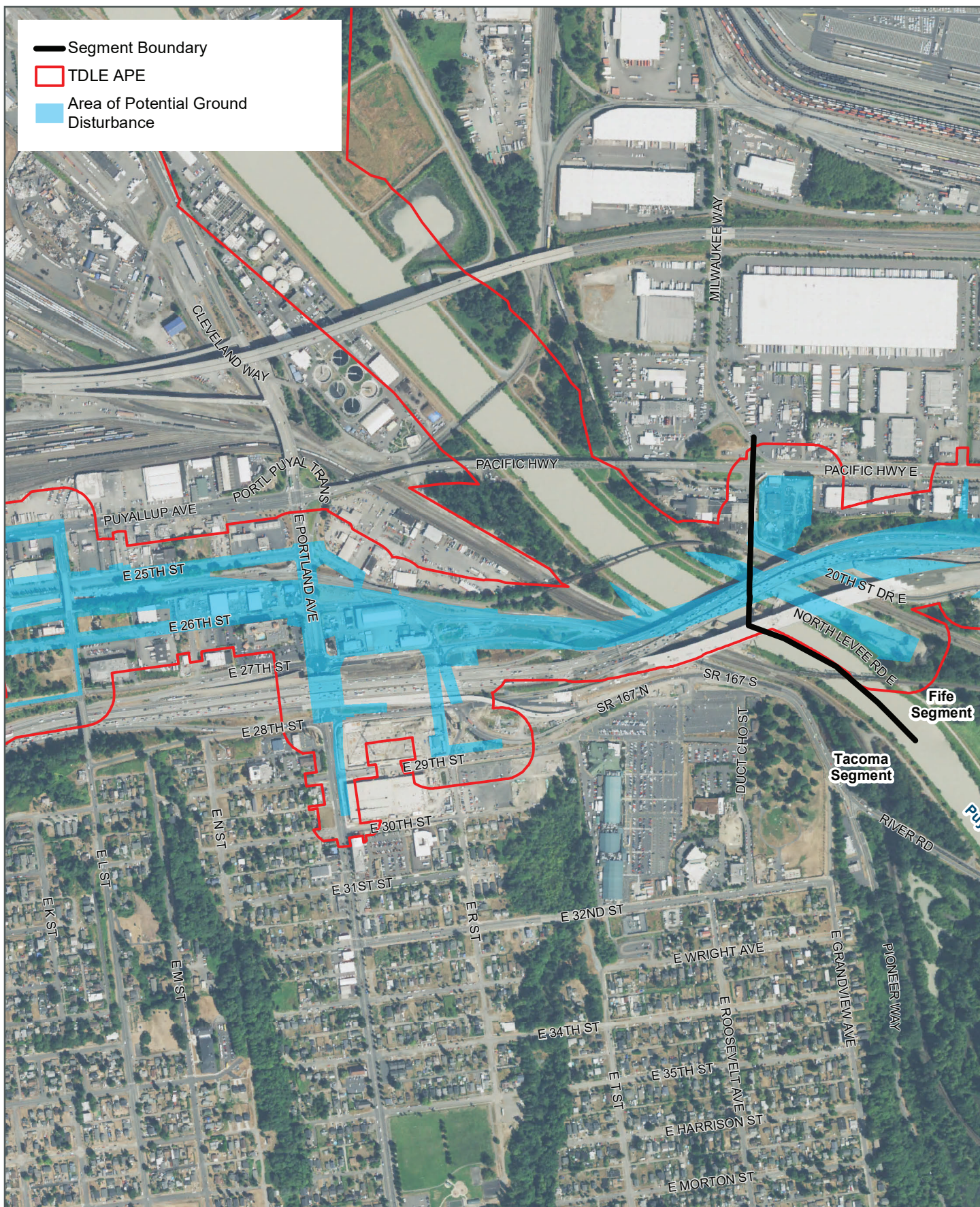


Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).

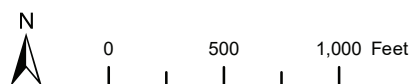


**FIGURE 3-11**  
 APE and Areas of Potential  
 Ground Disturbance  
 (Fife, Sheet 11 of 13)  
 Tacoma Dome Link Extension





Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).

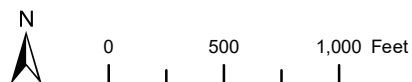


**FIGURE 3-12**  
**APE and Areas of Potential**  
**Ground Disturbance**  
 (Tacoma, Sheet 12 of 13)  
*Tacoma Dome Link Extension*





Data Sources: King and Pierce County, Cities of Federal Way, Fife, Milton, Tacoma (2023); Aerial NAIP (2017); ATCRC/HRA (2020).



**FIGURE 3-13**  
 APE and Areas of Potential  
 Ground Disturbance  
 (Tacoma, Sheet 13 of 13)  
 Tacoma Dome Link Extension



## 4 NATURAL AND CULTURAL CONTEXT

The following sections summarize the environmental, precontact, ethnographic, and historical setting of the Puget Sound region and general historic context of the project area. Following this is a more specific history for each of the project segments. This information on setting and historic context supports the assessment of significance and NRHP-eligibility of precontact and historic resources identified within the APE per 36 CFR 60.4, Criteria for Evaluation, and in guidance provided in National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation (NPS 1995).

### 4.1 Natural Setting

The APE is located in the Puget Sound area of the Western Hemlock Zone, which typically averages annual precipitation between 80 to 90 centimeters (cm) and has moderate summers that are generally cool and dry and winters that are moist and mild. These climatic conditions promote the thick floral growth of the Puget Sound area of the western hemlock vegetation zone (Franklin and Dyrness 1973; Kruckeberg 1991; Brennan 2007). This zone typically consists of a mixed coniferous and deciduous overstorey dominated by western hemlock, Douglas-fir, and western red cedar, with an understory of shrubs and vines, particularly sword fern, red huckleberry, Oregon grape, and salal. The riparian areas within the broader vegetation zone are dominated by red alder, big leaf maple, willow, and black cottonwood with a variable understory including salmon berry, lady fern, and deer fern (Franklin and Dyrness 1973; Kruckeberg 1991; Brennan 2007).

Historic farm, residential, and industrial uses dominate the APE, and all have significantly altered the vegetation patterns from those of the precontact to early historic period. Invasive species that are common to Western Washington, and the APE, include Himalayan blackberry and Scotch broom (Franklin and Dyrness 1973; Kruckeberg 1991; Brennan 2007).

Typical pre-development fauna of the Puget Sound Area includes deer, elk, bears, several fur-bearing animals (e.g., beavers, marmot), other small mammals, with a very large assortment of shore and marine fowl, freshwater game fish (i.e., trout, bass), at least five species of salmonids (e.g., Sockeye, Coho, Chinook), marine invertebrates (e.g., shellfish), marine fish, and marine mammals.

### 4.2 Geologic Context

The geology of the south-central Puget Sound region is complex. The modern landforms in the vicinity of the APE are the result of glacial, fluvial, and tectonic forces. These forces, coupled with substantial filling and cutting associated with development in the region, have created a palimpsest of landforms with varying archaeological sensitivity.

The APE is located at the southern end of the Puget Lowland, a physiographic province that was shaped by several periods of extensive glaciation during the late Pleistocene Fraser Glaciation (Booth et al. 2004a; Harris 1998; Lasmanis 1991; Mullineaux 1965; Yount et al. 1993). Arrival of the ice front to the Seattle area during the last Glacial period is estimated to have occurred around 17,400 BP, and it reached its maximum southern extent near Olympia approximately in 16,950 BP (Porter and Swanson 1998). Retreat of the glacier began shortly after reaching its maximum extent, and it exited the central Puget Lowland, including the Tacoma area, by approximately 16,420 BP (Borden and Troost 2001; Dethier et al. 1995; Easterbrook 1986; Porter and Swanson 1998). Deposits dating from pre-Fraser glacial and

interglacial periods are mapped in and around the project vicinity, including the uplands in the westernmost and northeastern portions of the APE (Harris 1998).

The Puget Lowland is characterized by a series of water-filled, generally north–south oriented, linear troughs (Troost and Booth 2008) separated by thick glacial sedimentary deposits. These troughs formed at the end of the last ice age through a combination of erosion and scour by an advancing and retreating ice sheet and subglacial fluvial forces (Booth 1994; Booth and Hallet 1993). The APE crosses one of these troughs, the Puyallup River Basin, through which the Puyallup River now flows.

The Puyallup River flows north through the Puyallup River Basin and empties into Commencement Bay near Tacoma. The Puyallup River and its major tributaries, the White and Carbon Rivers, drain the northwestern slope of Mount Rainier. Within the Puyallup River Basin, between approximately 396 and 579 meters (1,300 and 1,900 feet) of unconsolidated sediment overlies bedrock (Jones 1996), including glacial and postglacial sediments. The majority of this sediment was deposited as a result of periodic lahar deposition or the entrainment and deposition of volcanoclastic sediments originating on the slopes of Mount Rainier and in the upriver portions of the Puyallup River (Borden and Troost 2001; Crandell et al. 1958).

Around 5,600 years ago, a catastrophic lahar (a debris flow originating on the slopes of an active volcano), the Osceola Mudflow, buried more than 200 square kilometers (77 square miles) of the Puget Lowland in rock debris, glacial ice, and clay-rich sediment (Crandell 1971; Crandell and Waldron 1956; Dragovich et al. 1994; Vallance and Scott 1997). The mudflow originated as a massive, deep-seated avalanche that swept down the north face of Mount Rainier and flowed into the nearby drainages, including the Puyallup River Basin. As the lahar sediments moved downstream, they became progressively more sand and gravel dominated and increasingly more sorted (Vallance and Scott 1997). These sediments were deposited throughout the Puyallup River Basin, with the thickest Osceola Mudflow materials deposited in the central portion of the basin and thinning towards the basin's margins (Dragovich et al. 1994).

Researchers have found evidence of at least five additional lahar depositional events originating from Mount Rainier that occurred after the Osceola Mudflow (Crandell 1971; Pringle 2000; Scott et al. 1995; Zehfuss et al. 2003). These deposits generally appear clay-poor and andesitic sand-rich in their distal reaches and have been informally called “black sands” when identified in the region. The oldest of the post-Osceola Mudflow lahars dates to around 2200–2800 calibrated years BP (cal B.P.) and is associated with volcanism of Summerland age (Vallance and Donoghue 2000). Other lahars include two associated with the Twin Creek episode of deposition dating to ca. 1350–1700 cal B.P. and the Fryingpan Creek episode, which occurred ca. 800–1260 cal B.P. (Scott et al. 1995).

Prior to deposition of the Osceola Mudflow, the Puyallup River Basin was inundated by the waters of Puget Sound south to approximately the position of the modern city of Puyallup. At that time, sediment deposition within the basin occurred primarily at the point where the Puyallup River flowed into the deeper marine waters of Puget Sound, forming the ancient Puyallup River delta (Dragovich et al. 1994). After its deposition, erosion and redeposition of upstream Osceola Mudflow deposits and other lahars caused continued sediment accumulation in the downstream portions of the Puyallup River (Crandell 1971; Dragovich et al. 1994; Mullineaux 1970; Scott et al. 1995; Zehfuss et al. 2003). This resulted in a migration of the delta front and the marine shoreline toward Puget Sound. Aided by a slowing rise in sea level, high Mount Rainier erosion rates, and erosion of upstream deposits, the delta front eventually moved to its historic position and the upriver portion of the Puyallup River Basin eventually infilled to its current elevation (Dragovich et al. 1994:22).

Like other river systems in the Puget Sound where the river runs through a Pleistocene glacial trough and the river valley has a low gradient, a great width, and low elevation relative to the riverbanks, the Puyallup River valley would have supported extensive wetlands prior to historic-period river straightening and valley infill (Collins et al. 2002). These wetlands included tidally influenced areas, especially along the margins of the Sound.

Historic mapping of the Puyallup River Basin suggests that as early as 1866 these watercourses crossed the location of the APE at nearly the same location as today (GLO 1866, 1873). The precontact alignments of the Puyallup River and other small distributary streams within the basin, including Wapato Creek and Hylebos Creek, are not known. However, archaeological sites in the area provide some evidence that these waterways have been present near to their current positions for at least around 1,000 years, if not longer. Archaeological site 45PI930 was found between 4.7 and 6.9 meters (15 and 23 feet) bgs near to the current margins of the Puyallup River, suggesting the river, or at least a major tidal channel, was present near the margin of the modern-day river at the I-5 crossing around 910 to 1270 cal B.P. (Sharpe et al. 2009). Site 45PI974 was found at a depth of 2.2 meters (7 feet) bgs along Hylebos Creek and dated to 1110 uncalibrated years BP (Shantry et al. 2010). Site 45PI488, positioned just 80 meters (262.5 feet) south of the TDLE alignment on Hylebos Creek, was found between 30 and 50 cm (1 and 1.6 feet) bgs and dated to approximately 900 years ago (Luttrell 2001).

The Puget Lowland is positioned within the forearc basin of the tectonically active Cascadia Subduction Zone (Atwater and Hemphill-Haley 1997). A series of west- to northwest-trending faults cross the Puget Lowland (Johnson et al. 1994; Wells et al. 1998), including a series of southwest-dipping monoclines in the vicinity of Tacoma (Johnson et al. 2004). Between the cities of Tacoma and Seattle is a region of deformation called the Seattle Uplift (Pratt et al. 1997). The southern edge of this uplifted zone is located roughly along the axis of the Puyallup River Basin, to the south of which is the Tacoma Basin (Booth et al. 2004b; Sherrod et al. 2004). The boundary between the Seattle Uplift and the Tacoma Basin is the Tacoma fault zone (Booth et al. 2004b; Brocher et al. 2001; Johnson et al. 2004; Sherrod et al. 2004).

The Tacoma fault zone comprises a series of northwest-trending lineaments along which deformation has occurred since the end of the last glacial period, including at least one large earthquake that struck between A.D. 770–1160 (Brocher et al. 2001; Nelson et al. 2008; Sherrod et al. 2004). Surface sediment deformation along lineaments has been minor (Sherrod et al. 2004), but the side effects of fault rupture would have included ground shaking, tsunami run up, and liquefaction of water-saturated sediments, such as those in the Puyallup River Basin (Gomberg et al. 2010). The APE is positioned just south of the Tacoma Fault Zone.

The APE crosses the Puyallup River near the present I-5 crossing, immediately north of the Cushman Cemetery. The Puyallup River is approximately 72 kilometers (45 miles) long, beginning at the melt flows of the Tahoma and Puyallup glaciers on Mount Rainier. As the river progresses west toward the Puget Sound, the Mowich, Carbon, and White Rivers, along with many smaller waterways, converge with the Puyallup. Heavy rainfall across the Puyallup River Basin has resulted in extensive sediment deposits and destruction of property. Historically documented extensive floods occurred in 1891, 1906, 1917, 1918, 1919, 1921, 1923, 1932, 1933, and 1935 (Kent 2004; Sharpe et al. 2009). In the APE, the Puyallup River has been channelized with extensive levees built to control and limit flooding. The history of flooding and flood control measures along the Puyallup River is documented in several publications, including Sharpe et al. (2009) and Kent (2004).

Most of the APE has undergone extensive modern development, obscuring local soil conditions. The general geological and soil conditions represented throughout the APE are presented in Table 4-1.

**Table 4-1 General Geological and Soil Conditions within the APE**

Segment	Geology (WaDGER 2016)	Soils (NRCS 2019)
<b>Federal Way</b>	Continental glacial till and outwash – Fraser Glaciation	<ul style="list-style-type: none"> <li>- Alderwood, Kitsap, and Everett gravelly sandy loams</li> <li>- Arents, Alderwood material</li> <li>- Norma sandy loam</li> </ul>
<b>South Federal Way</b>	Continental glacial till and outwash – Fraser Glaciation	<ul style="list-style-type: none"> <li>- Alderwood, Kitsap, and Everett gravelly sandy loams</li> <li>- Kitsap and Bellingham silt loams</li> <li>- Norma sandy loam- Urban land</li> </ul>
	Holocene artificial fill	<ul style="list-style-type: none"> <li>- Alderwood gravelly sandy loams</li> <li>- Arents, Alderwood material</li> <li>- Artificial fill</li> <li>- Urban land</li> </ul>
	Glaciolacustrine deposits	<ul style="list-style-type: none"> <li>- Kitsap and Bellingham silt loam</li> <li>- Bellingham silty clay</li> <li>- Tisch silts</li> <li>- Shalcar muck</li> </ul>
<b>Fife</b>	Glaciolacustrine deposits	<ul style="list-style-type: none"> <li>- Kitsap and Bellingham silt loam</li> <li>- Bellingham silty clay</li> <li>- Tisch silts</li> </ul>
	Quaternary Peat	<ul style="list-style-type: none"> <li>- Tisch silts</li> <li>- Semiahmoo muck</li> <li>- Kitsap Silt Loam</li> </ul>
	Quaternary alluvium	<ul style="list-style-type: none"> <li>- Sultan and Tacoma silt loams</li> <li>- Briscot loam</li> <li>- Puget silty clay loam</li> <li>- Puyallup fine sandy loam</li> </ul>
	Continental glacial till – Fraser Glaciation	<ul style="list-style-type: none"> <li>- Alderwood gravelly sandy loam</li> <li>- Kitsap silt loam</li> </ul>
<b>Tacoma</b>	Quaternary alluvium	<ul style="list-style-type: none"> <li>- Puyallup and Sultan silt loams</li> </ul>
	Continental glacial outwash – Fraser Glaciation	<ul style="list-style-type: none"> <li>- Alderwood and Everett gravelly sandy loams</li> </ul>
	Holocene artificial fill	<ul style="list-style-type: none"> <li>- Artificial fill</li> </ul>

Notes:

WaDGER – Washington Division of Geology and Earth Resources

NRCS – Natural Resources Conservation Service

### 4.3 Precontact Context

The cultural history of the Pacific Northwest and Puget Sound region encompasses the earliest periods of human settlement of North America (e.g., Kopperl et al. 2015; Kopperl et al. 2016). Given the geologic information presented above and the age of the landforms within the APE, it is possible that archaeological sites dating throughout the period of known human occupation in the region could be encountered within the APE. In order to frame an understanding of the types of sites that may be anticipated (as discussed in Section 6 below), a generalized cultural chronology adapted from that of Matson and Coupland (2009) is presented below.

### 4.3.1 Earliest Cultures (14,000+ to 10,000 BP)

The earliest documented settlement in the Puget Sound region begins about 14,000 BP (Matson and Coupland 2009). During this period, humans were continually adapting to the region, which includes a dynamic landscape of glacial retreat as well as climatic and environmental change (Matson and Coupland 2009). Between about 14,000 and 10,000 BP, it has been hypothesized that there was a general continuity in settlement, subsistence, and technologies. Archaeological evidence from this period indicates that human social groups were probably small, highly mobile, and reliant on seasonally available resources across the landscape (Ames and Maschner 1999; Matson and Coupland 2009).

Traditionally, the earliest occupation recognized in North America and the Pacific Northwest has been the Clovis culture (12,000-11,000 BP) with its distinctive fluted projectile points (Matson and Coupland 2009). Clovis projectile points are widely distributed in the Puget Sound region, all of them surface finds (Croes et al. 2008). There is also growing evidence of an earlier, pre-Clovis occupation in the Northwest (e.g., Paisley caves in southeastern Oregon at 14,400 BP [Gilbert et al. 2008; Beck and Jones 2010, 2012]).

Several archaeological sites provide information about the earliest period of occupation in Washington. Remains found at the Manis mastodon site near Sequim, Washington, suggest humans hunted mastodon as early as 13,800 BP (Waters et al. 2011). The Ayer Pond bison remains from Orcas Island date to approximately 14,000 BP and include evidence of human butchering (Kenady et al. 2011). The Richey-Roberts site in East Wenatchee, Washington, contained a large cache of Clovis points and bone rods dated to ca 13,000 to 12,000 BP (Kirk and Daugherty 2007). Within the Puget Sound lowlands, the Bear Creek site (45KI839) in Redmond, Washington, is the only example of a stratified site dating to this earliest period of human occupation. The site contains a large, flaked stone assemblage and includes both stemmed and concave base projectile points (Kopperl et al. 2015).

### 4.3.2 The Archaic (10,000 to 5,000 BP)

The Archaic period in the Puget Sound region is one with a few distinct types of archaeological sites. These distinct site types have led archaeologists to hypothesize that occupants of the region during this period continued to follow a highly mobile settlement pattern focused on terrestrial game supplemented by plant processing and use of aquatic environments to a lesser extent (Ames and Maschner 1999). Archaeological features and faunal remains from archaic period sites are rare, but when they are found they seem to indicate a well-developed land-use strategy (Chatters et al 2011).

Archaeological sites from this period are often characterized by the presence of larger laurel-leaf shaped blades/projectile points and are part of a tradition that goes by many regional names. In the Puget Sound region, this time period is often called the Cascade Phase (Matson and Coupland 2009), and localized material culture complex names like Olcott (Kidd 1964) fall into this phase. In addition to laurel-leaf-shaped bifaces, other flaked stone tools (e.g., cobble tools), blade cores, and flaking debris are commonly found in association at Cascade sites (Carlson 1990; Miss and Campbell 1991, Matson 1985, Morgan 1999). Most commonly, sites dating to this period, especially Olcott sites, are generally found in upland settings and on higher river terraces. The sites are likely resource procurement and processing camps focused on exploitation of upland game and wild plant foods, but subsistence adaptations for this period are poorly understood. Although faunal remains for sites dating to this period are rare, mammalian and fish remains have been reported (Chatters et al. 2011). What is known about subsistence and settlement patterns from this period comes from sites like Glenrose Cannery (DgRr6) site in



British Columbia, The Dalles Roadcut site (35WS8) on the Columbia River, and the Granite Falls site (45SN303) in western Washington, among others (Chatters et al. 2011; Kopperl et al. 2016). In the Puget Sound, Olcott-style points have been reported in private collections throughout the region as well as inland areas of islands in the Puget Sound (Deppen et al. 2014; Taylor et al. 2009 and 2011). Lowland sites dating to this period include the Marymoor site (45KI9), and the DuPont Southwest site (45PI172), dating ca 6,000 BP and containing the earliest shell lenses in the Puget lowlands along with other tools and evidence of shellfish processing (Kopperl et al. 2016). These sites have components into the following phase that are discussed in the following section. Site 45PI1327, located within the APE, may be one of the few sites in the south-central Puget Sound that dates to this period (see additional discussion of 45PI1327 in Section 5).

### 4.3.3 Development of Coastal Lifeways (5,000 to 3,500 BP)

After about 5,000 BP, archaeological evidence suggests that distinctive regional cultures developed with settlement and subsistence patterns that differ from those of the earlier adaptations in western Washington (Kopperl et al. 2016). Throughout this period, subsistence among Puget Sound groups becomes increasingly focused on marine resources, particularly shellfish and salmon, along with exploitation of a broad spectrum of other intertidal and upland subsistence resources. Shell middens become more common during this period, and these sites provide some of the best insights into shifting subsistence regimes. During this period, settlement patterns appear to become more intensive in localized areas, indicating reduced residential mobility (see Binford 1980) through time. New technologies are also present, among them ground stone tools and bone tools (Larson and Lewarch 1995; Ames and Maschner 1999; Matson and Coupland 2009). Western red cedar becomes a dominant tree in the region during this period, and wood-working adzes appear as early as 5,000 years ago, with evidence of canoe technology and construction of large plank houses by at least 2,000-3,000 years ago (Hebda and Matthews 1984; Donald 2003; Matson and Coupland 2009). With the rise in sea level during this period, earlier sites in coastal settings are likely to be submerged or have eroded away (Larson and Lewarch 1995; Kopperl et al. 2016).

Several previously excavated archaeological sites dating to this time period provide information relevant to the general history of the Puget Sound lowlands. The Marymoor site (45KI9), located near the juncture of the Sammamish River and Bear Creek in King County, has cultural deposits dating from approximately 6,000 to 1,500 BP. The artifact assemblage contains flaked stone tools, stone tool manufacture, and evidence of food processing dating to both this and the preceding period (Greengo 1966; Lockwood 2016). The DuPont Southwest site (45PI172) is on a bluff overlooking the Nisqually Reach in the south Puget Sound (Wessen 1969). The site was tested and contains flaked stone artifacts along with lenses of shell and other food remains, with the oldest calibrated radiocarbon date ranging from 6,180 to 5,930 BP and the most recent at 3,000 BP. The West Point sites, 45KI428 and 45KI29, in West Seattle are shell middens that have cultural deposits dating to this period. The cultural deposits at the site contain at least five distinct camping and food processing loci dating from 4,200 to 200 BP. Material remains included faunal bone, ground stone, and flaked stone tools, and subsistence remains include sea and terrestrial mammal remains, birds, fish, and shellfish (Larson and Lewarch 1995). The Bray site (45PI1276) located on a terrace above the White River near Sumner, Washington (Jolivet and Huber 2016) dates to approximately 3,800 to 2,500 BP and includes several earth ovens, an array of dart points, microblades, ground stone, and steatite beads. The earth ovens at the Bray site appear to be similar those used to process camas bulbs in sites in eastern Washington; however, no evidence to support such use was found.

#### 4.3.4 The Northwest Coast Cultural Pattern (3,500 to 1,500 BP)

Development of the Northwest Coast cultural pattern in the Puget lowlands (ca 3,500 to 1,500 BP) is marked by continued decrease in residential mobility and is accompanied by evidence of increased social complexity (e.g., Larson and Lewarch 1995). The majority of shell midden sites in the Puget Sound date to this and, in part, to the preceding period (Taylor, Stein, and Jolivet 2011). Residential stability and logistic settlement patterns are in evidence during this period and seen by increases in lowland and upland limited activity procurement sites associated with spring and summer fishing and root-gathering areas as well as specialized base camps and permanent or semi-permanent winter villages (Kopperl et al. 2016). The latter are associated with distinct longer-term community groupings, especially in the form of large multifamily plank houses. Social stratification is seen in the archaeological record of the region, through differentiation in burial practices and wealth item distribution (Ames and Maschner 1999; Lewarch and Larson 1995).

Also distinctive from the previous period is the marked degree of subsistence intensification as shown by the presence of large-scale fish harvesting technologies (nets and weirs), large-scale storage of salmon, and winter storage of shellfish. Village sites are widely distributed in all coastal areas of the Puget Sound (Nelson 1990; Ames and Maschner 1999; Matson and Coupland 2009). Fish weirs and other constructed features are often found in association with large village sites. Common artifact assemblages consist of a range of hunting, fishing, and food processing tools; bone and shell implements; and dense midden deposits. By the end of the period, wide similarities to ethnographically described contact-period cultures in the Puget Sound lowlands are evident (Ames and Maschner 1999; Matson and Coupland 2009). The Marymoor site (45KI9) has cultural deposits dated at 2,500 BP. The long-term occupations at West Point (45KI428 and 45KI29) in King County and the Bray site in Pierce County (45PI1276) contain cultural deposits that extend into this period and provide settlement and subsistence information. Dated coastal sites from this and the preceding time period appear to be relatively rare in the southern King and Pierce counties, perhaps due in part to destruction from development, or burial beneath historic period land fill deposits.

#### 4.3.5 Late Northwest Coast Culture (1,500 BP to ca 200 BP)

The period (1,500 to 200 BP), when European and American explorers arrived in the region, is characterized by continued enhancement of material culture and social complexity from that noted in the previous period (Nelson 1990; Ames and Maschner 1999; Matson and Coupland 2009). These include widespread occupation of permanent and semi-permanent coastal villages, continued intensive procurement and storage of salmon and shellfish resources, and hereditary inequality throughout the coastal cultures of the Pacific Northwest, including the Puget Sound region. Village sites have been identified in the Puget Sound lowlands, typically located adjacent to, or near, river or marine transportation routes (Larson and Lewarch 1995; Ames and Maschner 1999).

Common artifact assemblages consist of a range of hunting, fishing and food processing tools, bone and shell implements, and midden deposits. This period is dominated by settlement along the coastlines and along streams and rivers, with far greater specialization of technology than the preceding period. Trade goods become relatively abundant, indicating extensive trade networks up and down the coast as well as with inland plateau neighbors (Wessen 1985). As in the preceding period, salmon was among the primary food sources in this time period. Fish weirs and preserved netting dating to this period have been found at Wapato Creek in Tacoma (45PI47) and along the Green River (Ballard 1957; Munsell nd).

Three archaeological sites dating to the Late Northwest Coast Culture period are near the Tacoma Segment of the project. All three were discovered during deep coring or excavation along the Puyallup River and tributaries. The Xaxtl'abish site (45PI974) is a midden deposit near the bank of Hylebos Creek north of the I-5 corridor and has been radiocarbon dated to ca 1,100 BP. Site deposits were found at a depth of 6 feet below the surface and were composed of shell, faunal remains, and fire-cracked rock (Shantry et al. 2010). Site 45PI930 is located east of I-5 on the south side of the Puyallup River. The site dates to ca 1,040 to 1,240 BP and is reported as a precontact village containing lithic, faunal, and botanical remains. Cultural deposits were found from 12 to 22 feet below ground surface (bgs) on the west side of the Puyallup River (Sharpe et al. 2009). Site 45PI967, a shell midden on the south bank of the Puyallup River near Clear Creek, was found during backhoe testing approximately 8 feet bgs and dates to approximately 400 to 200 BP. The artifact assemblage consisted of burned and unburned fish bones, botanical remains, flaked and ground stone artifacts, and fire-cracked rock (Shufelt 2009).

This final precontact period of Northwest Coast Culture and its lifeways is characterized by dramatic changes to its cultures, lifeways, and communal organization with the influx of Euro-American material goods, diseases, and technologies throughout the Puget Sound and the Pacific Northwest (Boyd 1998; Suttles and Lane 1990). Ethnographically known villages, camps, and limited activity sites that were the loci of habitation, food processing, acquisition of riverine and upland plant and animal foods, along with other biotic and abiotic resources, have been documented throughout the Puget Sound region by Waterman (1922) and others. The ethnographic Northwest Coast cultures and traditional use areas around the APE are summarized in the following sections.

## 4.4 Ethnohistoric Context

The APE is in the traditional territory of the contemporary Puyallup and Muckleshoot Tribes (Haeberlin and Gunther 1930; Ruby and Brown 1986; Smith 1940; Spier 1936: 42; Hilbert et al. 2001). The Muckleshoot Tribe is a historic conglomerate of traditional Upper Puyallup, Upper Duwamish, and other "Inland" groups, such as the Sitkamish and the Smulkamish of the Upper White River reaches and the Yilalkoamish and the Skopamish of the Upper Green River reaches (Hodge 1907-1910; Spier 1936; Smith 1940; Suttles and Lane 1990). This merging of Tribes is a direct result of the Medicine Creek Treaty (1854), the Point Elliot Treaty (1855), and the Fox Island Council following the 1855-1856 conflicts.

Precontact peoples, whose descendants are now part of the Puyallup and Muckleshoot Tribes, often had settlements located along major waterways and at the heads of bays or inlets, where abundant resources of coastal, riverine, and also inland environments supported a relatively rich, diverse, and reliable subsistence base. During the winter months, they lived in large villages of cedar plank houses, while the spring and summer months were spent at seasonal encampments often constructed of reed mats while fishing, hunting, and plant and berry collecting. Salmon was a principal resource (Ruby and Brown 1986). Early economies were also supported by inland resources, such as mountain goats, deer, and elk (Haeberlin and Gunther 1930).

Ancestors of the present-day Puyallup Tribe of Indians lived in villages between the Puyallup River delta and Mount Rainier; along the Carbon and Stuck Rivers; and on the shorelines of Commencement Bay, the Gig Harbor Peninsula, and Vashon Island (Smith 1940; Hilbert et al. 2001). They followed a seasonal settlement pattern directly tied to resource availability. Their winter villages typically consisted of one to three houses, about 9 meters wide and up to 30.5 meters long with pitched roofs. The cedar plank walls were split from standing trees, using antler wedges, and then smoothed with adzes (Smith 1940: 274–287; Carpenter 1986). Cedar logs were also floated downriver to desired locations to process them on shore, generally near

villages located on the banks of the creeks and rivers. Many of the villages constructed of cedar involved years of labor and were relatively permanent, often used for generations. Villages were located near river mouths or where a creek joined the main river channel (Hartwich 1972) or above the tidal flats along the margins of “two streams or at the mouth of a stream where it entered the Sound” (Smith 1940: 4, 9). Cedar houses were generally located on high ground away from the river or stream high-water mark. The house faced the water, with the length paralleling the river or stream (Hartwich 1972).

Winter subsistence was composed of freshwater and marine fish, shellfish, game, and preserved food collected during the other seasons. In the spring months, the ancestors of the present-day Puyallup Tribe of Indians moved to temporary shelters made of reed mats and spent their time searching for fish, game, roots, berries, and bulbs. The most important fish resource was the salmon, which were caught at the mouths and along the banks of fish-bearing rivers as the salmon migrated from Puget Sound to native spawning streams. Salmon were smoked or dried for the winter and provided the bulk of food consumed and exchanged in that season (Suttles and Lane 1990).

Smith (1940) lists 13 Puyallup Tribal villages in the area now occupied by the City of Tacoma and the immediate surrounding area, including the village from which the name of the Puyallup Tribe of Indians originated, which was Puyallupahmish (Gibbs 1877). Smith (1940) and Hilbert et al. (2001) report that this ethnohistoric village was located near the modern-day intersection of S 15th Street and Pacific Avenue in downtown Tacoma. Other ethnographically described villages associated with the Puyallup Tribe of Indians near the APE are located near the present-day intersection of 24th Street and Pacific Avenue in Tacoma, the Clay Creek-Puyallup confluence near the Cushman School (near the Emerald Queen Casino in Tacoma), the mouth of Wapato Creek (near Pacific Highway E and 54th Avenue E in Fife), and another near Hylebos Waterway and Hylebos Creek. Table 4-2 lists ethnographic places and place names near the APE.

**Table 4-2 Recorded Ethnographic Places within a 1-Mile Radius of the APE**

Location	Ethnographer's Orthography	Ethnographer's Translation/ Description	Lushootseed Orthography	Lushootseed Translation	Source
Tacoma: site of the smelter	Tcotco'³Lats	Where there are maples growing	ČuČu?łac	Vine maple	Hilbert et al. (2001)
Tacoma: between the main part of the city and Old Tacoma	Caba'l³úp	Shade	šabalap	Dry area under the tree	Hilbert et al. (2001)
Tacoma: the corner of Pacific Avenue and Jefferson Street	TsalaL-ali	Pond and place containing	caləłali	Place of lake	Hilbert et al. (2001)
Tacoma: place along the old river channel	Pu-yä'lup	Ample supply of everything	puyaləp	Curved on the bottom of the water; winding river	Hilbert et al. (2001)
Tacoma: mouth of the stream, which formerly ran in the gully near 24th Street	Tux'wa'dabcEb	Ground flooded or dry according to the tides	dəx'wadačəb	Place of the tide; place of where the tide has gone out	Hilbert et al. (2001)
Tacoma: a small stream, a tributary to reference No. 5	Tca'tc	Hidden	čadʒ	Hide	Hilbert et al. (2001)



**Table 4-2 Recorded Ethnographic Places within a 1-Mile Radius of the APE (continued)**

Location	Ethnographer's Orthography	Ethnographer's Translation/ Description	Lushootseed Orthography	Lushootseed Translation	Source
Tacoma: a creek over which the Chicago, Milwaukee, and St. Paul Railroad passes on a trestle	Kô'yôb	None	–	–	Hilbert et al. (2001)
Tacoma: creek near the Cushman School	KE'labid	Place where salmon eggs are stored	qəl'xabad	Coming from the salmon eggs	Hilbert et al. (2001)
Tacoma: Swan Creek	Bswa'qed	Place at the head of something; where there are swans	bəsx'wucid	A place that has swans	Hilbert et al. (2001)
Fife: a place near the edge of the marsh, east of the Puyallup	Xe'l x-ale	Place where there was a battle	ḡiliḡali	Place of battle	Hilbert et al. (2001)
Tacoma: an affluent of the Puyallup River	Ca'sqwED	Clear	–	–	Hilbert et al. (2001)
Tacoma: old village site	Casqwo'd-tsid	Mouth of Ca'sqwED	–	–	Hilbert et al. (2001)
Fife: flats between Hylebos Creek and Wapato Creek	Kalka'laq <sup>u</sup>	Place around which the water passes	qalqaləq <sup>w</sup>	Circles	Hilbert et al. (2001)
15th Street and Pacific Avenue	spwiyalaphabc	Main Puyallup Village	–	–	Smith (1940)
24th Street and Pacific Avenue	twadebcab	Village located near a former creek mouth on Commencement Bay	–	–	Smith (1940)
Confluence of Clay Creek and Puyallup River	catcqad	"Main" Puyallup Village (Haeberlin and Gunther 1930)	–	–	Smith (1940)
Mouth of Wapato Creek	kalkalaq	Village location	–	–	Smith (1940)
Hylebos Waterway	Shaxl'abc	Village located along the waterway	–	–	Smith (1940)
Fife: a place below of the mouth of Swan Creek	Saoxe'xele'ux	Place where they practice or train for war	səx'wuxiḡiliḡ	By means of battle	Hilbert et al. (2001)
Fife: a shallow inlet between the Puyallup River and Wapato Creek	Asxwop	Where seals haul out	?asx'wap	Seals all over the ground	Hilbert et al. (2001)
Fife: Wapato Creek	Qa'lqalEq <sup>w</sup> ; Sto'lagwali; spiyaaqo'ts	Making many turns; where the river used to be; Indian potato (wapato)	qalqaləq <sup>w</sup> ; stuləg <sup>w</sup> ali; spiq <sup>w</sup> ulc	Circles; places of river; potato	Hilbert et al. (2001)
Fife: Hylebos Creek	XaxtL!	Brushy	ḡaxḡ	Brushy	Hilbert et al. (2001)

**Table 4-2 Recorded Ethnographic Places within a 1-Mile Radius of the APE (continued)**

Location	Ethnographer's Orthography	Ethnographer's Translation/ Description	Lushootseed Orthography	Lushootseed Translation	Source
Fife: tide flats where the shipyards stood during the busy times of 1918	LtcEIEb	None	–	–	Hilbert et al. (2001)
Tacoma: Browns Point	Tcaia'lqo	Hidden water	čayalqʷu?	Hidden water	Hilbert et al. (2001)

Notes:

Table generally arranged from south to north, and from east to west.

## 4.5 Historic Context

Historic period Euro-American exploration and settlement in the Puget Sound region began in the 1600s with Spanish exploration along the western coast of North America, including the Puget Sound. In response to Spanish exploration in the region's western waters, English explorer Captain George Vancouver and his crew investigated the Puget Sound in 1792. Vancouver sent Lt. Peter Puget and Master Joseph Whidbey on a six-day tour of the Sound in May. The pair named various landmarks, including Whidbey Island and the Puget Sound itself, as well as Mount Rainier and Hood Canal. The team then returned to Britain, where Vancouver began preparing a report of his findings. He died before it could be completed (Crowley 2003a). This was followed by the Lewis and Clark Expedition in 1802 to 1804 that traveled to the mouth of the Columbia River to explore the lands purchased by the United States from France and the people who lived in them.

Hudson's Bay Company (HBC), a partnership between the Bay Company and the North West Company, two rival fur trading operations in Canada and the United States, established fur trade posts in the Pacific Northwest during the early 1800s. HBC established its first foothold in today's Washington state in 1825, when Chief Factor John McLoughlin moved his operation at Fort George on the south side of the Columbia River mouth to Fort Vancouver further upstream on the north side of the river near the Columbia and Willamette River confluence. From there, Captain Vancouver oversaw expansion into the Puget Sound region, where his staff traveled, trapping and trading with local Tribes until they returned south to Fort Vancouver in the fall. There, the company accepted supplies from a London supply ship each fall and loaded up the empty hold with timber bound for Hawaii. When the ship returned from Hawaii, Captain Vancouver's staff filled the hold with pelts bound for Great Britain.

Competition from American fur traders increased during the 1830s. In 1833, McLoughlin sent Archibald McDonald to the Puget Sound to establish a new trading post and stockade, Fort Nisqually, at today's DuPont, Washington. In 1840, Captain Vancouver established the Puget Sound Agricultural Company at Nisqually to provide crops and livestock to an increasing number of Russian-American fur traders from Alaska (Crowley 2003b; Nisbet 2011). While farming at Fort Vancouver and Fort Nisqually, among other locations, HBC cultivated cattle, hogs, goats, apple trees, grape vines, potato patches, and other crop gardens. Fort Vancouver's wheat harvest alone supplied the company throughout the Northwest (Rowe 2018).

The HBC's Fort Nisqually was the first non-native settlement in the Puget Sound region, and it acted as a local hub, attracting traders, providing goods, and welcoming the first waves of Euro-American settlers. As early as 1841, Congress had passed the Distributive Preemption Act, which recognized squatter's rights and allowed settlers to buy up to 160 acres for \$1.25 an

acre after 14 months' residence. In 1843, the provisional government in Oregon was offering 640-acre claims to new settlers, partly to assist the United States in establishing control of the region, which it shared with Great Britain. The United States and Great Britain settled their dispute over where to draw a boundary between the United States and Canada in 1846, settling on the 49th parallel and leaving Fort Nisqually and other HBC properties on lands owned by the United States (U.S.) government. The United States continued to encourage Euro-American settlement in the region, and waves of migrating Americans arrived. Soon, relationships between Euro-American settlers and native Tribes deteriorated and the fur trade worsened. Fort Vancouver closed in 1860 and Fort Nisqually in 1870 (Nisbet 2011).

While the depletion of pelts, increased settlement, and worsening Tribal relations spelled the end of HBC in the Northwest, other broad trends in development began to shape the Puget Sound region. In 1849, gold was discovered in California and settlers flowed west, either to hunt for gold or to supply those who did. Concurrently, in a succession of donation land acts, the U.S. government offered free or inexpensive land in Oregon Territory (which included today's Washington state) to settlers who moved to the region and homesteaded. To protect newly arrived settlers in the wake of an attack on Fort Nisqually, the U.S. Army established Fort Steilacoom in today's Pierce County in 1849, which provided medical care and protection but also supported a local road-building program (Denfeld 2012). In 1850, Congress passed the Donation Land Claim Act, which offered 320 acres of federal land to white male adults who established residence on the property by December 1, 1851. If married, a couple could claim an additional 320 acres (Riddle 2010).

In 1853, Washington Territory was carved from the Oregon Territory. While the Donation Land Claim Act was still in effect, the rules changed in 1854 and settlers in the Northwest had to purchase land for \$1.25 an acre, which remained the law until the Homestead Act was passed in 1862. The first land patents in Washington Territory were granted in Thurston and Clark counties in 1857. Under the Donation Land Claim Act, Thurston County recorded 234 claims, followed by Clark County with 161 claims, Pierce County with 108 claims, Cowlitz County with 107 claims, Lewis County with 96 claims, Pacific County with 61 claims, and King County with 58 claims (Riddle 2010).

While settlement increased, the new arrivals brought with them agricultural and ranching practices that introduced new species, suppressed native species, introduced new weeds and new crop diseases, and led to the suppression of traditional life ways, including the late-summer controlled burns that native Tribes used to prepare the land for new crops of camas and berries (Rowe 2018). While non-native settlement grew, and tensions rose, Territorial Governor Isaac I. Stevens negotiated a series of treaties with native inhabitants, confining them to reservations away from their native homelands and further increasing tensions that eventually led to war (Rowe 2018).

Both the Medicine Creek Treaty (1854) and the Point Elliot Treaty (1855) were attempts by the United States government to secure valuable land for settlement and resource use by non-native peoples (Ruby and Brown 1986). In late December 1854, Stevens, General George Gibbs, and local officials met with 600 Native American Tribal members, including members of the Nisqually, Puyallup, and Squaxin Tribes, near She-na-nam, or Medicine Creek (now known as McAllister Creek), approximately 20 miles southwest of Tacoma, in Nisqually. The Medicine Creek Treaty (1854) removed Native Americans from about 2.2 million acres of their traditional lands and granted three reservations for them to share. The treaty provided rights to fish, hunt, gather roots and berries, and pasture horses; provided rules of conduct; and appropriated \$32,500 to be paid to the Tribes over a 20-year period. The treaties forced Native Americans to relocate to one of several reservations designated in the treaties (Ruby and Brown 1986). Of the

three initial reservations defined in the Medicine Creek and Point Elliot treaties, the largest was the Puyallup, with 1,280 acres. The Puyallup Reservation was home to people who identified with the Nisqually, Cowlitz, Muckleshoot, and other local area Tribal groups (Smith 1940; Suttles 1990; Kirk and Alexander 1990).

Between 1855 and 1858, what was then called the “Indian Wars” broke out and unsettled Native American and Euro-American relations across Washington Territory, leading many homesteaders to retreat to secure locations like Fort Steilacoom and briefly limiting settlement in some locations, including Pierce County (Rowe 2018). However, with the end of hostilities, settlement soon increased again. With the success of local agriculture, the availability of timber, and access to the rivers of the Puget Sound, settlers spread across the region. New advancements in transportation, including the coming of the nation’s second transcontinental railroad, further spurred development. After the Puget Sound Indian War of 1855-1858, the Nisqually, Puyallup, and White and Green River Tribes met with an American delegation led by Governor Stevens on Fox Island. Two of the resulting agreements were the enlargement of the Puyallup Reservation to 18,062 acres by executive order (Ruby and Brown 1992) and recognition of the need for a reservation in a more appropriate location for those groups culturally linked to inland areas. The reservation was to be placed between the White and Green Rivers at Muckleshoot where a U.S. Army fort was located on the prairie of the same name.

The passage of the 1862 Homestead Act granted 160 acres to individual U.S. citizens to further encourage non-native settlement. Eventually, commercial and residential development expanded, and citizens began to request that restrictions on reservation lands be removed to accommodate urban and industrial growth. Many Tribal landowners would eventually lose their properties through sale, auction, or approval by the government for automatic inclusion in land grants. In 1864, a land grant was provided for the construction of the Northern Pacific Railroad (then the Milwaukee and Union Pacific), and a line was planned that would extend from the Great Lakes to Tacoma.

In 1873, as Northern Pacific Railroad executives toured Washington in search of a terminus for their new railroad line, cities up and down the Puget Sound competed for the honor, offering perks and financial advantages, knowing that with the railroad would come industry, a growing population, and wealth. In July 1873, Northern Pacific executives announced that Tacoma’s Commencement Bay would be the railroad’s new terminus. It was undeveloped and closer to the rail line’s route along the Columbia River than Seattle. The decision set off a bitter rivalry between the two cities and kicked off decades of rail expansion in the area, thrilling entrepreneurs like Tacoma’s first promoter, Matthew McCarver, who had located the city on Commencement Bay hoping to attract the railroad to its deep-water port (MacIntosh and Wilma 1999).

## **4.6 Historical Contexts for the Project Segments**

This section focuses on the context for historic developments within and near the APE for TDLE in both Pierce and King counties. Because there are differences in the developmental histories along the length of the APE, it has been broken into three sections covering the project’s four segments: the Federal Way and South Federal Way Segment, the Fife Segment, and the Tacoma Segment.

### **4.6.1 Federal Way and South Federal Way Segments**

The northern segments of the APE are in the City of Federal Way and cross through a small section of both unincorporated Pierce County and the City of Milton. While urban centers like Tacoma and



Seattle were quick to grow, today's Federal Way area was slow to develop. In the 1850s, under supervision of the U.S. Army, surveyors began to prepare a road between Fort Steilacoom in Pierce County and Fort Bellingham in Whatcom County. It was designed to allow for the movement of troops and supplies and to support increasing development in the region. The "Military Road," as it was known, relied on existing pathways, including one in today's Federal Way. Today, portions of Military Road remain, following a path east from Tacoma, north along the west side, and then over the top of Lake Washington and north again to Bellingham (Meador 2014).

While the road was designed to ease the movement of troops, the transportation corridor allowed for increased exploration in the area. In 1871, Sam Stone established a homestead in Redondo along the banks of the Sound, believed to be the first settlement in the Federal Way area. He was joined by others who settled near the area's many small lakes, some of whom started sawmills to support local construction. By 1880, a school was established at Star Lake, approximately 6 miles north of the APE, near where the town's first post office would be established in 1891. In 1890, Arthur Steele settled at what is now known as Steel Lake, approximately 1 mile north of the APE, which would become the site of one of the area's first sawmills in 1890. By 1884, a school was located slightly east of today's I-5 at roughly S 360th Street, directly east of the APE. While settlement picked up slowly, timber was plentiful. Homesteaders constructed log cabins, logged the surrounding area, and constructed skid roads to move their logs to the Sound for distribution and corduroy roads for overland travel (Historical Society of Federal Way 2015). In 1885, African American pioneers John and Mary Conna settled on 175 acres near Panther Lake, approximately 1 mile west of the APE. In 1900, Weyerhaeuser Timber Company incorporated in Tacoma, purchasing between 800,000 and 900,000 acres of timber, including some in Federal Way, from the Burlington Northern Railroad at 6 dollars per acre (Historical Society of Federal Way 2015).

Also during this time, the Catholic Church established Saint (St.) George's Indian School for the Muckleshoot Indian Tribe at the present location of the Gethsemane Cemetery, on the King/Pierce County line within the APE, after Father Hylebos purchased land at the location in 1888. A school was built and opened to students that same year. Children from Tribes throughout the Pacific Northwest and Alaska attended the school, where they received basic education and training in agricultural and household skills. A cemetery was established on the school grounds soon after it was opened, as deaths occurred among the students. Deceased individuals from the neighboring farm community were also reportedly interred in the cemetery, which was located within the APE between present-day I-5 and the Gethsemane Cemetery (former school location) to the west. The school operated until 1937, when it closed due to a lack of funding (Boswell and Rinck 2017:17, 18, 19, 22, 28).

Not until the turn of the century did Federal Way attract much commercial development. In 1904, Charles Betts opened the first store in this rural community, which was generally otherwise limited to small farmsteads. It would grow into a local recreation area known as Redondo Beach. While the area remained sparsely developed, as early as 1910, the Pacific Highway Association was meeting in Seattle to discuss how to construct a highway between Mexico and Canada. In 1915, the U.S. Army Corps of Engineers began constructing a dirt road while headquartered at Camp Lewis. In 1925, the U.S. government designated the original dirt road an interstate highway, US 99 (also called Pacific Highway), thereby freeing up federal funds for paving the section between Tacoma and Seattle, which ran alongside Military Road in many places and was sometimes known as the "federal way" (Givens 2017). Completed in 1930, the highway connected today's Federal Way to the rest of the west by way of a smooth, generally straight, concrete thoroughfare, but the Great Depression, which descended in the 1930s, stalled roadside development in the area. The Depression was followed by World War II, which centered resources on the war effort, further curtailing growth in small rural hubs and concentrating new growth in Seattle and Tacoma, where

ship and airplane builders were most active. As part of the war effort, the U.S. government also leased the former school buildings at the former St. George's Indian School in 1943. The buildings were later converted to apartments following the war (Boswell and Rinck 2017:30, 35).

With the end of World War II, development again picked up in the area, and those traveling US 99 soon found restaurants, diners, and hotels in today's Federal Way, along with roadside attractions and shopping centers, including the Federal Shopping Way mall at the southwest corner of US 99 and S 312th Street, just northwest of the APE. The mall opened in 1955, the first shopping mecca in the area and a precursor to a neighboring amusement park with rides, historic exhibits, and a narrow-gauge railroad (despite the owners' ambitious plans, the venture went bankrupt in 1962). In 1958, as infrastructure continued to improve, State Route (SR) 18 was constructed south of I-5, connecting Federal Way to Auburn, Washington. Concurrently, private developers funded large industrial and residential projects, such as Ninelake Residential Park east of US 99 at S 320th Street near the APE (Givens 2017; Historical Society of Federal Way 2015; Stein 2003).

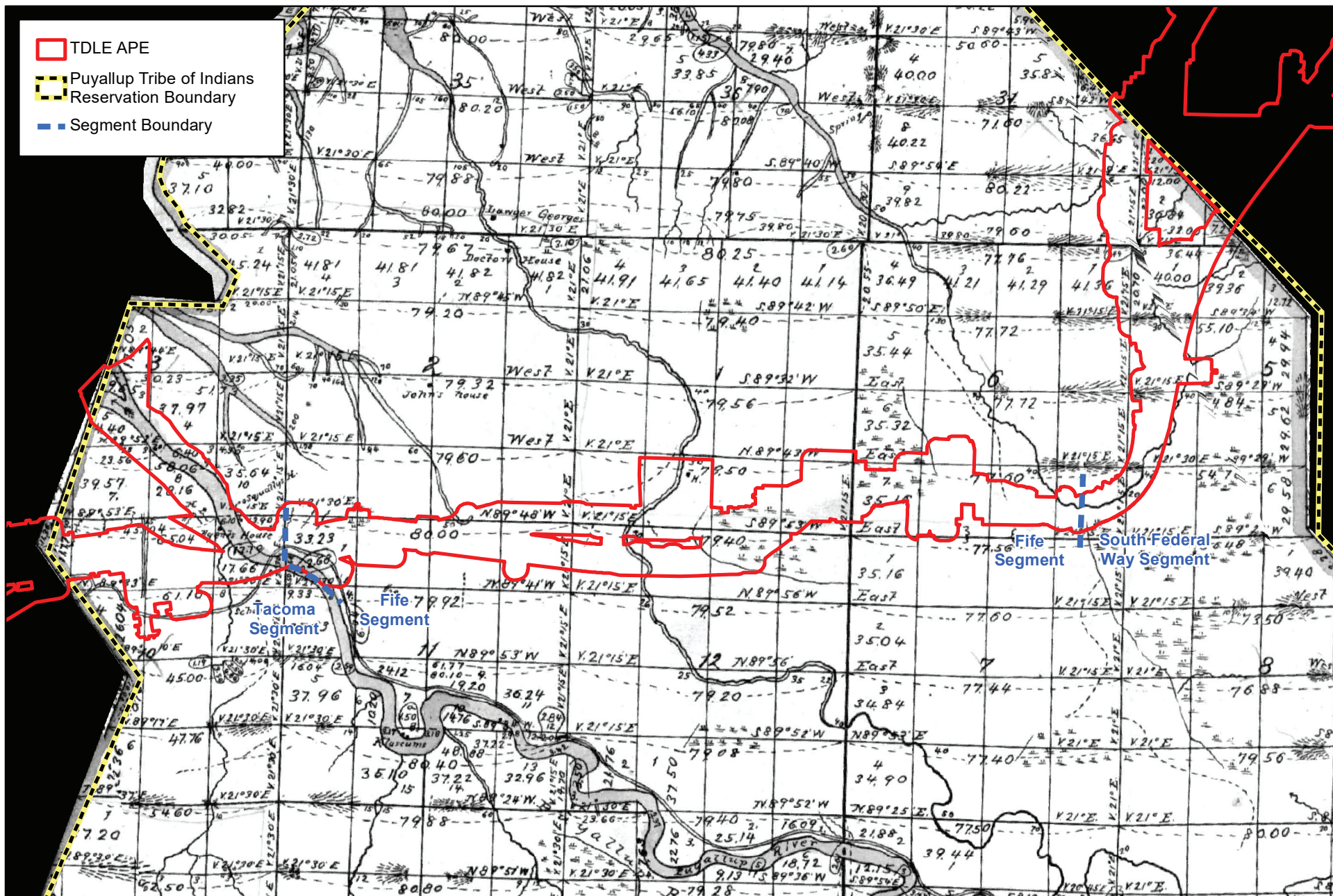
Like many small communities in Washington, Federal Way saw expansion in the late 20th century due to the construction of I-5 just 1 mile east of US 99. In 1962, Governor Albert A. Rosellini opened the 13.5-mile stretch of I-5 from the Puyallup River to Midway. Subsequently, US 99 was downgraded to a state highway and renamed SR 99 (Pacific Highway). Soon, construction teams were building new housing developments, some of which were built to accommodate employees of a nearby Boeing plant and their families. In 1968, Weyerhaeuser began to build its corporate headquarters in Federal Way. It opened officially in 1971. It was also during this time in the early 1970s that the buildings of the former St George's Indian School were demolished as part of the development of the Gethsemane Cemetery (Boswell and Rinck 2017:36). In 1975, SeaTac Mall opened between US 99 and I-5, attracting 20,000 enthusiastic visitors in its first week. In 1976, the SeaTac Village Shopping Center opened across the street from the mall, and in 1979, a 798 car, 5.62-acre park-and-ride lot opened off I-5 at S 320th Street. At the time, it was the largest such lot in Washington. Other large developments included the Wild Waves Pool at Enchanted Village, which remains visible east of I-5 today; St. Francis Community Hospital; and a Federal Way Costco store, all constructed in the 1980s (Historical Society of Federal Way 2015; Stein 2003). Federal Way attempted to incorporate first in 1971, then again in 1981 and 1985, but failed. In 1989, voters finally approved incorporation, and the City of Federal Way was officially incorporated in 1990 (Stein 2003).

#### **4.6.2 Fife Segment**

South of Federal Way and east of Tacoma is the city of Fife, located across the Puyallup River from Tacoma on fertile agricultural land ideal for supporting orchards, vegetables, and flowers. In the Fife Segment, the APE runs east and west along Pacific Highway and I-5 in what has developed into a commercial corridor.

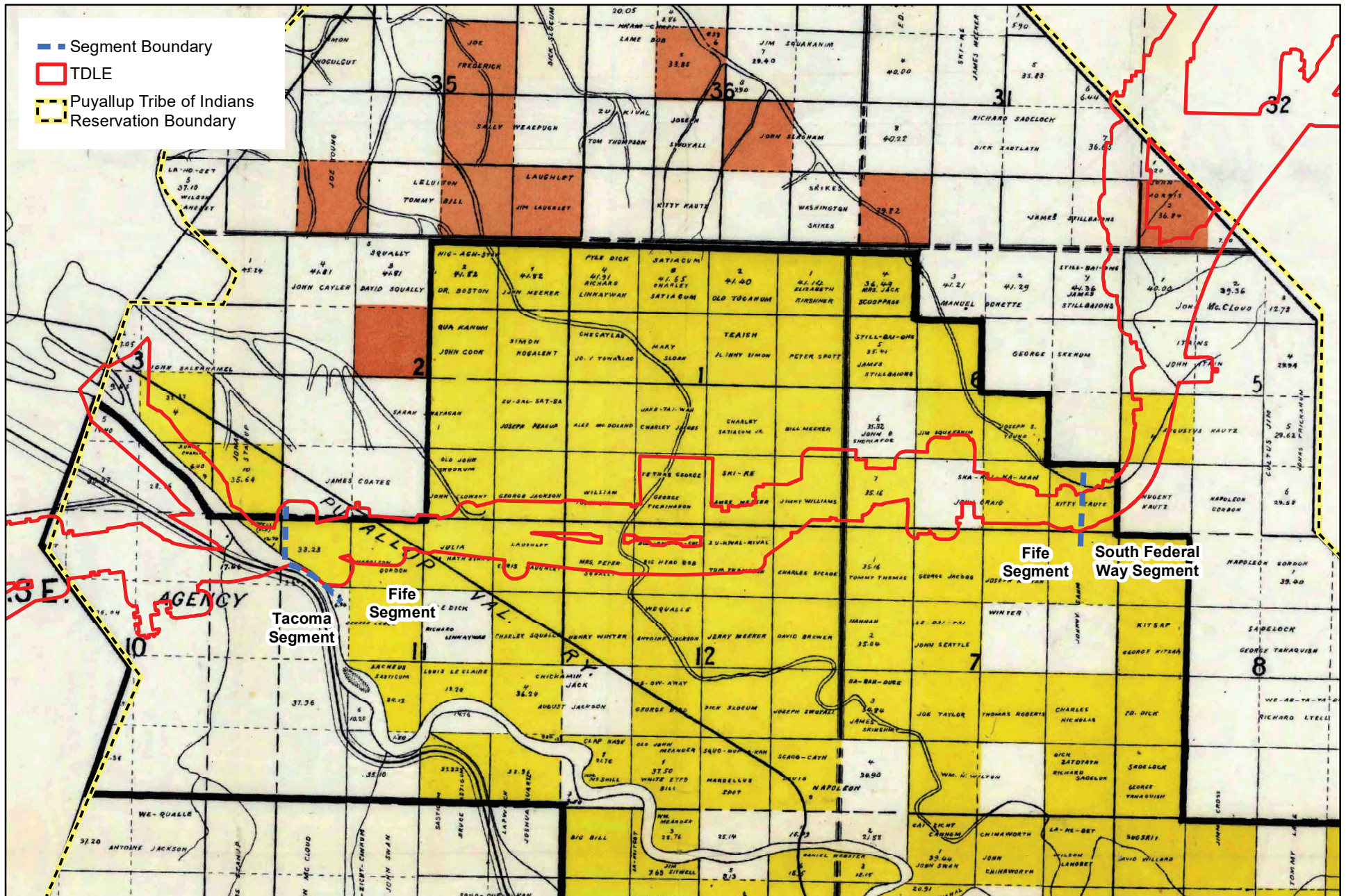
Fife was originally part of the 1,280-acre Puyallup Reservation, established by the Medicine Creek Treaty in 1854, and expanded to 18,060 acres by presidential order in 1857 (Figures 4-1 and 4-2). The reservation included the banks of the Puyallup River and stretched up into the tidelands of Commencement Bay and inland to the east. The treaty allowed the Puyallup Tribe of Indians to divide the land into independent lots for individual Tribal members rather than maintain the entire reservation as one communal land holding. However, under these rules, those lands that were not partitioned and allotted could be considered surplus, and surplus reservation lands could be sold to non-native buyers. As the numbers of Tribal members decreased due in part to diseases like smallpox, more and more of the Puyallup Reservation became available for non-native occupation (Caldbeck 2013).





**FIGURE 4-1**  
 APE and Puyallup  
 Reservation GLO 1874  
 Tacoma Dome Link Extension





Data Sources: Washington State University Libraries - Report of the Puyallup Indian Commission 1892;  
King and Pierce County; Cities of Federal Way, Fife, Milton, Tacoma (2023).

**FIGURE 4-2**  
APE and Puyallup  
Reservation Allotment 1892  
Tacoma Dome Link Extension



Initially, Tribal members were forbidden from selling portions of their individual allotments. However, in 1903, this prohibition was lifted, and many tribal members sold portions of their lands, often for less than they were worth, to non-native settlers, primarily farmers (Caldbick 2013). In the 1890s and early 1900s, Henry Sicade, a prominent Puyallup tribal leader, helped negotiate the leasing and purchasing of reservation land. New residents, who were often immigrants from Japan, Switzerland, Italy, or Germany, worked to clear the land of trees, remove rocks and stumps, and build the fences required to corral livestock. Using immigrant labor, farmers like John McAleer, originally from Ireland, were able to acquire and cultivate 400 acres, which he used for farming vegetables and dairying in the early 20th century. His neighbors in Fife included Swiss dairy farmers, Japanese gardeners who trucked vegetables and berries to nearby marketplaces, and others who grew bulbs to be sold in Tacoma and, eventually, abroad.

According to historian John Caldbick:

In the last decades of the nineteenth century and the first two decades of the twentieth, a surge of European and Asian immigration flowed into the Fife area. By purchase or by lease, more and more Puyallup Reservation land ended up owned or controlled by non-Indians. Immigrants, many from Japan or Italy, who came to work on existing farms, often stayed and bought or leased farms of their own. Piece by piece, over years, almost all of the Puyallup Reservation fell out of Native ownership [Caldbick 2013].

According to Caldbick (2013), by 1934, all but 33 acres of the Puyallup Reservation land had passed out of Tribal control, although the boundaries of the reservation remained the same, encompassing parts of Tacoma, Federal Way, Puyallup, Edgewood, and Milton. In 1990, after many years of litigation, a settlement was reached to compensate the Puyallup Tribe of Indians for its lost lands. In return for ceding legal ownership, the Tribe received 162 million dollars in cash disbursements, 900 acres of waterfront property, and other rights and considerations.

Fife was first known as Gardenville, a name that spoke to the agricultural character of the region at that time (Kaelin 2011; Caldbick 2013). Like many communities in western Washington, however, Fife's character and trajectory as a town changed with the evolution of transportation. First, the Northern Pacific Railroad completed a transcontinental rail line that traveled through today's Fife and terminated in Tacoma in 1873. Then came US Highway 99, a new paved highway completed through Fife in the 1920s along the route of the former Military Road, mentioned above. The Puyallup River Bridge that links Tacoma and Fife was completed in 1927. As the popularity of the personal vehicle exploded during the first half of the 20th century, the former US Highway 99, now State Route 99 (SR 99), attracted explorers, vacationers, and those moving between expanding urban centers like Tacoma and Seattle. Restaurants, hotels, and other retail operations sprung up along the roadway, encouraging drivers to stop and visit local businesses, while much of the rest of town remained relatively rural (Caldbick 2013) (see Attachment J5.4). As described by writers of the Works Project Administration in 1940, Fife "at a valley crossroads in the midst of a thickly settled berry growing and truck-gardening district is represented by a string of markets, taverns, shops, and a large balloon-roofed dance hall along the highway" (WPA 1941:483). The balloon-roofed dance hall, known as the Century Ballroom, opened alongside SR 99 in 1934 and attracted live musicians, including Louis Armstrong, Glenn Miller, and Lawrence Welk. It was built behind the Poodle Dog, a popular family restaurant with a big neon sign constructed in 1933, located within the APE. The Century Ballroom has since been demolished and replaced with a commercial strip (Bluhm 2016).

Gardenville was incorporated as Fife in 1957, and in 1960, I-5 was completed alongside SR 99 at the north end of town. Throughout the last half of the 20th century, I-5 attracted new commercial development to the area, including shopping centers, hotels, restaurants, and car dealerships, as well as large office and warehouse campuses located alongside Fife's railroad corridor. Today, little remains of the farms and agricultural lands that once defined the town, although some agricultural properties remain along the east banks of the Puyallup River. Some early examples of roadside commercial development along the former US 99 remain as well, among them local favorites like the Poodle Dog restaurant.

In 1996, the Puyallup Tribe of Indians purchased the Emerald Queen, a Mississippi riverboat casino, and brought it to the Port of Tacoma. In 2002, a bingo hall was added to the strip of land between I-5 and SR 99. It is now known as the Emerald Queen Hotel and Casino and is one of two locations along I-5 in the Tacoma/Fife area, a new symbol of Fife's continuous growth along the SR 99 and I-5 transportation corridors.

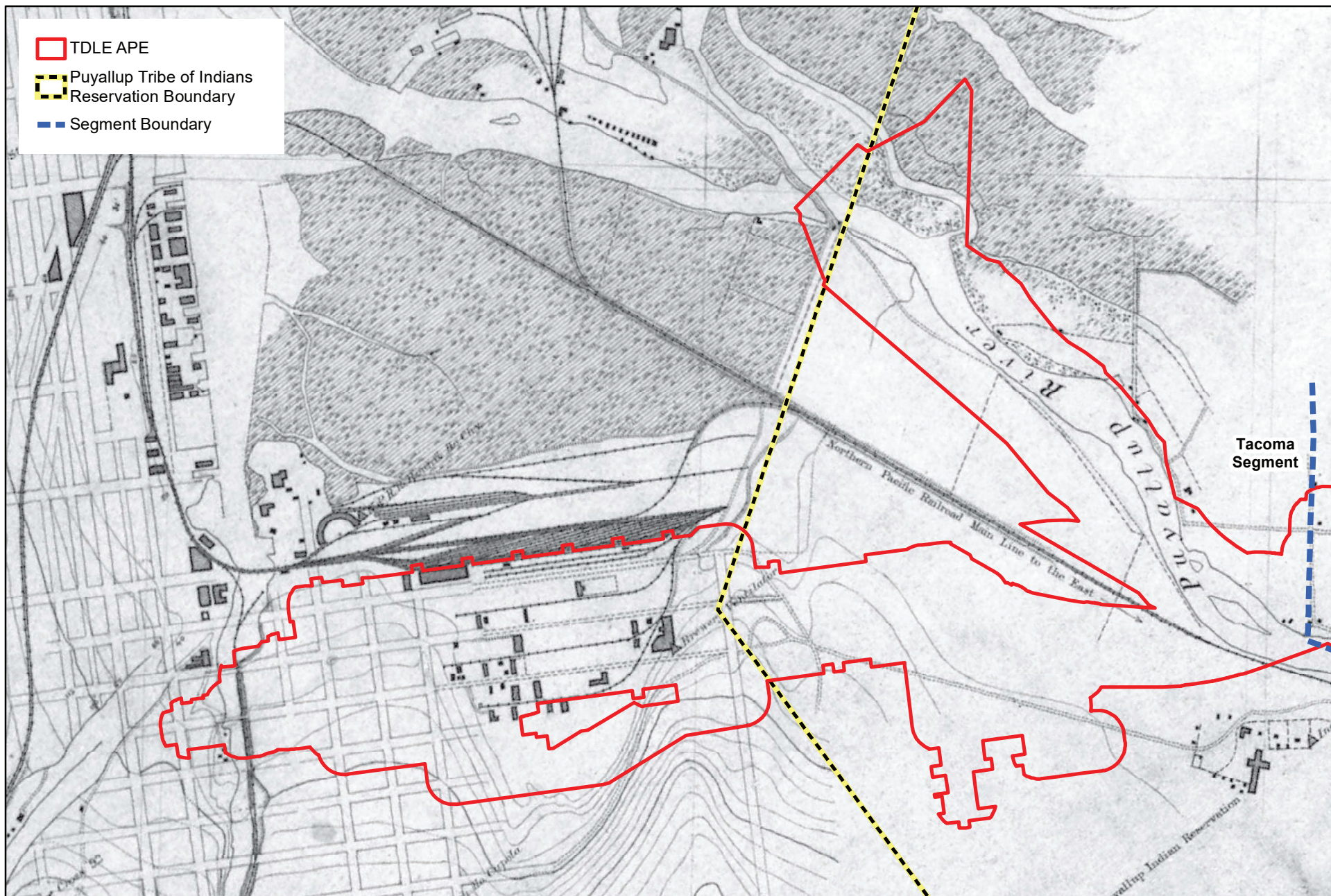
### **4.6.3 Tacoma Segment**

In the Tacoma Segment, the APE is in the industrial and commercial district, between I-5 to the south and the rail yards to the north. US 99 once ran through this section of Tacoma as well, following E 26th Street to East G Street and running east to the Puyallup River, but today SR 99 officially begins at 54th Avenue E in Fife, east of Tacoma. Historic development in the Tacoma Segment began following the arrival of Euro-American settlers to the area. The original land claim of Section 37 of Township 20 N, Range 3 E, was Nicholas Delin (Claim No. 37 [505, O-480]) in 1850 (Washington Territory Donation Land Claim Patents, 1851-1903: 107). The growth of Tacoma as a whole soared during the 1880s when the population increased from 1,098 to 36,006 in 1890 after the Transcontinental Railroad Link arrived in 1884. Sanborn Fire Insurance Maps from 1888, 1896, and 1912 help illustrate the boom of industrial, commercial, and residential development during this time period (see Attachment J5.4). Both the Northern Pacific Railroad and the Port of Tacoma drove development along the tide flats south of Commencement Bay.

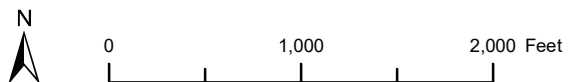
Development in the Tacoma Segment began on the original high ground generally located between East J and L Streets and E 25th Street to the east; East C to F Streets and E 23rd Street to the west; and wetlands, gulches, creeks, and tidal flats in between and north of each area. The draining and infilling of lowlands and lower "high" ground areas continued into the modern period (General Lands Office Survey 1867; U.S. Coastal and Geodetic Survey 1877 and 1892; Sanborn 1888 and 1896; United States Geological Survey (USGS) Aerial Photographs 1941 and 1957). Figures 4-3 and 4-4 show the APE overlain on select historical representations displaying the development of Tacoma. This type of landscape alteration assists with the preservation of historic land surfaces and potential archaeological materials. In conjunction with the protection granted by the infilling process, soils with saturated conditions (i.e., wetlands and tidal flats) also have exceptional preservation properties for artifacts that may typically decay shortly after deposition.

The infilling processes were not restricted to lowland areas. As the city of Tacoma expanded and improved its infrastructure, the East Tacoma Gulch was bridged and filled to grade west-northwest of the Tacoma Segment. This infilling process also resulted in the high ground of the northern side of the gulch to be filled in to create a seamless grade. Some sections of the high ground were graded out; however, the landscape overall seems to have had a history of being infilled rather than cut.



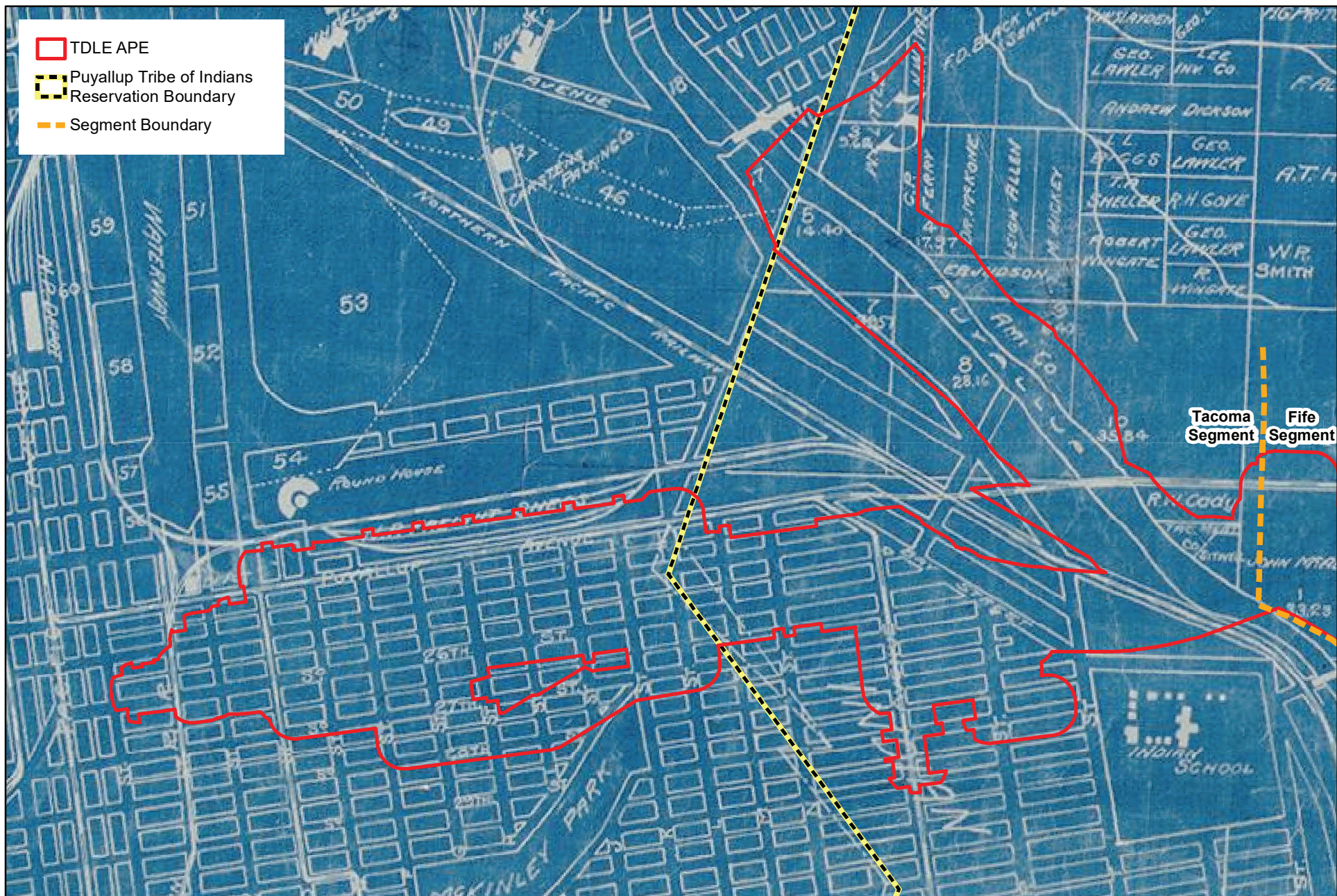


Data Sources: National Oceanic and Atmospheric Administration; King and Pierce County; Cities of Federal Way, Fife, Milton, Tacoma (2019).

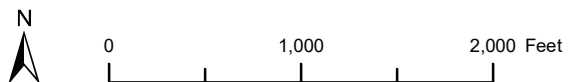


**FIGURE 4-3**  
 APE and Commencement Bay  
 1892 (T-2262)  
 Tacoma Dome Link Extension





Data Sources: L.A. Nicholson Civil Engineer; King and Pierce County; Cities of Federal Way, Fife, Milton, Tacoma (2019).



**FIGURE 4-4**  
APE and Tacoma Tidelands  
Rail and Manufacturing (1902-1912)  
*Tacoma Dome Link Extension*



Once Commencement Bay was chosen as the terminus of the Northern Pacific's transcontinental railroad, Tacoma began to develop in two locations along the bay. The first, located on the hills west of the bay, was only a small town when the Northern Pacific decided to develop New Tacoma on the south end of the bay. The two developments were later merged.

International trade began from the tide flats south of Commencement Bay, a deep-water port, in approximately 1870, when Hanson & Co. mills began supplying local lumber to Peru's chief port. By 1873, Hanson was also shipping to Melbourne, Australia. Also, in 1873, the Northern Pacific bought Hanson's mill and 600 acres of tide flats to develop its nationwide railroad system (Long 2003; Magden 2008).

The Northern Pacific proposed not only to link the West to a network of rail lines stretching across the continent but also to link Tacoma to nearby coal fields, preparing Commencement Bay to grow into a shipping hub and central distribution point for coal, lumber, and local crops, such as hops. Sawmills, shingle mills, and brickyards soon sprang up along the tide flats, and Tacoma dredged a channel at the west of today's port that became known as the City Waterway. With the coming railroad, international trade expanded. By 1883, the transcontinental link was completed, and from 1887 to 1892, Tacoma's port welcomed 16 ships with 37 million pounds of tea from traders in Japan and China, who were shipping their product across the United States from Commencement Bay. In 1887, the Port of Tacoma became the shipping point for Washington wheat as well. Also in the late 1880s, Thea Foss, a Norwegian immigrant, purchased her first boat at Commencement Bay for 5 dollars. She sold it for three times that much and used the proceeds from this and subsequent sales to launch Foss Maritime, a now-famous empire in which her husband Andrew built tugboats and she made them available for rent or sale. Foss Maritime grew into one of the West Coast's largest tugboat and marine services companies, and the City Waterway is now named after Foss, who was one of the many local entrepreneurs who used the waters of the Puget Sound as the primary transportation route to communities along its banks in the days before roads, streetcars, and passenger vehicles (Long 2003; Magden 2008). In 1889, Washington achieved statehood, and in the dynamic decade between 1880 and 1890, Tacoma's population grew from 1,098 to 36,006 (Wilma and Crowley 2003).

Trade at the port dwindled in the 1890s after the Economic Panic of 1893, which brought down banks and other businesses. Under increasing competition from Seattle, Tacoma's port struggled, although it continued to grow its lumber industry. By 1907, the Port of Tacoma hosted 135 lumber handlers, and its 22 sawmills worked around the clock (Magden 2008).

Railroads were also in transition during this period. In 1904, the U.S. Supreme Court broke up monopolies, including Northern Pacific, and soon the Union Pacific Railroad, the Great Northern Railway, and the Milwaukee Road were building lines into Tacoma. As part of its innovative rail line, the Milwaukee Road built a 1,500-foot-long timber trestle over the marshy tidelands south of Commencement Bay in the APE. The trestle required constant maintenance and was later rebuilt. After the Milwaukee Road eventually went bankrupt, the trestle served Sound Transit's Sounder commuter rail line and Tacoma Rail until it was replaced in 2017 (Caldbeck 2015).

As railroad development increased, other efforts were underway to develop the land around Commencement Bay and provide a stable base for industrial growth. Beginning in 1913, Pierce and King counties launched a series of programs to straighten and control the Puyallup River to end persistent flooding – although flooding continued throughout the historic period. Some levees from between 1913 and 1940 remain in place today. The Northern Pacific and Great Northern were also involved in land management, helping to dredge waterways and fill wetlands. Soon, the lands south of the Port of Tacoma supported warehouses, wharves, and

other facilities, including passenger depots like the one constructed at 25th Avenue and A Street for the Tacoma Eastern Railroad, since demolished, and the Milwaukee Road freight house, constructed in 1909 and now known as Freighthouse Square, a commercial building adjacent to a Sound Transit passenger station. In downtown Tacoma, the Northern Pacific and Union Pacific built Tacoma's grand Union Station downtown in 1912. Also, in the early years of the 20th century, real estate developers saw opportunity and acquired large sections of the Puyallup Reservation in Tacoma for industrial development (Caldbeck 2015). Businesses also sprung up around the railroad, including hotels, restaurants, and shops.

While transportation and industrial development expanded along the waterway, the neighborhood south of the bay also grew. Constructed as early as the 1880s, a community of residences sprung up along the area's first dirt roads as they were cut into cleared flat lands south of the wetlands. Known as the East School neighborhood for a large elementary school built at 519 E 28th Street in 1913, the neighborhood, and the school itself, would come to be known as Hawthorne. The Hawthorne neighborhood, developed alongside railroad lines and port industries, served working-class families employed by the railroads or nearby industry and stretched south of today's I-5 (Gallacci and Karabaich 2013).

World War I diverted attention and resources from local development but led to the major expansion of industries along Commencement Bay, including factories, mills, processing plants, and shipbuilding (Magden 2008). After the war, the Great Depression slowed trade and limited development until World War II ramped up production and distribution once more. Not only were materials and goods shipped from the port, but soldiers trained at nearby Fort Lewis were shipped overseas as well (Oldham 2011a).

With increasing development in the area, efforts were made to control flooding along the Puyallup River, which was diked by 1958 and crisscrossed with bridges connecting east and west Tacoma. Business at the Port of Tacoma grew during the mid- to late 20th century, and with the addition of new technologies and new management, made the transition to container shipping beginning in the 1970s. Tacoma continued to be a major shipping port for the timber industry and continued to expand trade with countries including China, Japan, Taiwan, and Korea (Oldham 2011b). According to one historian, the arrival of Sea-Land and Maersk in 1985 made the Port of Tacoma the fastest-growing port in North America (Oldham 2011c).

The 1980s were a period of change south of Commencement Bay. In the project area, construction of I-5 led to the demolition of homes and other buildings associated with the Hawthorne neighborhood, and in 1981, the Hawthorne School was demolished along with additional residences to make way for the Tacoma Dome, which opened in 1983, first with a rodeo and then with a David Bowie concert (Gallacci and Karabaich 2013: 60).

According to one historian, between 1877 and 1988, 90 percent of the Puyallup River mudflats were filled (Caldbeck 2013). Since then, the area has remained a busy commercial and industrial section of the city and a hub for transportation networks, including Sound Transit's light rail and commuter rail service.

## 5 METHODS

### 5.1 Archaeological Field Investigations

Archaeological survey was conducted within the APE, primarily within the permanent footprint and construction limits for the project, which are referred to as the areas of potential ground disturbance. The survey was conducted within municipal and state rights-of-way and parcels for which rights of entry were procured by Sound Transit. Prior to the field investigations, a pre-field investigation was conducted to identify locations within the area of potential ground disturbance that would be accessible for investigation. Subsequent investigations were conducted in these locations, including pedestrian survey, subsurface shovel probes and hand augers, and/or archaeological borings.

Information and data derived from archival research (Section 4) and the archaeological literature (Section 7) helped to inform the location and nature of field investigations to identify cultural resources within the APE. The following sections describe the archaeological field methods used during field investigations.

#### 5.1.1 Utility Locates

The State of Washington requires that consultants/contractors call for utility locates prior to conducting fieldwork. HRA prepared and submitted utility locate requests for the project location through Washington State's Utility Notification Center via their website prior to fieldwork in various portions of the APE between December 2020 and March 2021 and between May and July 2023. In addition, HRA arranged with CNI Locates, Ltd., to perform a private utility locate within a portion of the APE in the Belmor property.

#### 5.1.2 Near-Surface Survey

The near-surface<sup>1</sup> archaeological field investigations began with the identification of areas of potential ground disturbance that were accessible for subsurface investigation. The methods used in the near-surface survey followed those outlined in the project Cultural Resources Survey and Inventory Plan (Viloudaki et al. 2020), unless otherwise noted below. Investigations within the areas of potential ground disturbance near previously documented sites were undertaken as practicable. Archaeological sites that have been previously determined not eligible for listing in the NRHP and are within the potential area of ground disturbance were not revisited. Sites within areas of potential ground disturbance that do not have a formal NRHP eligibility status or are eligible for listing in the NRHP will be addressed during a later phase of investigations. However, investigations were conducted within the areas of anticipated ground disturbance near previously documented sites (e.g., 45PI488). Three general categories of archaeological field methods are described below.

Results of field investigations are described in Section 9.1.

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<sup>1</sup> The term "near-surface" is used throughout this document to discuss archaeological investigations and finds that occur in the upper 3 to 5 meters (10 to 15 feet) across the APE. This term aids in distinguishing these shallower investigations from deep explorations conducted for geoarchaeological purposes.



### 5.1.2.1 Pedestrian Survey

A pedestrian survey was conducted within the Area of Potential Ground disturbance using adjacent transects spaced at 10-meter (33-foot) intervals (maximum). Transect coverage and areas not subject to pedestrian reconnaissance due to artificial surface coverage (pavement or imported fill) are identified and documented in the survey results in Section 9.1 and in Attachments J5.7 and J5.8.

### 5.1.2.2 Shovel Probes and Hand Auger Coring

Shovel probes and hand augering were used to investigate areas where potential ground disturbance is anticipated to be approximately 3 meters (10 feet) deep or less. Hand augering to depths greater than 3 meters (10 feet) was conducted in select locations. This includes shovel probes in which potentially sensitive soils were encountered between 80 and 100 cm (2.5 and 3 feet) and, more broadly, shovel probes excavated within the Tacoma and Fife segments, where soils are generally much deeper than those in the Federal Way and South Federal Way Segments (see below). In all cases, excavations that began as shovel probes and continued as auger cores, are referred to as auger cores in this technical report.

Shovel probes were spaced approximately 20 meters (66 feet) apart in areas of moderate to high archaeological probability and approximately 30 meters (100 feet) apart in areas where the probability of encountering archaeological resources is low. Shovel probes were excavated approximately 5 meters (16 feet) apart near Site 45KI866 (Gethsemane Cemetery) and Site 45KI867 (St. George's Cemetery) in the southern part of the South Federal Way Segment.

Areas of apparent previous disturbance were identified and classified as low sensitivity areas. These include portions of the APE that were clearly covered with deep fill deposits, such as artificial berms adjacent to I-5 and nearby streets that were not investigated for the project. However, shovel probes were excavated in areas that appeared to have previous disturbances shallower than the depths of potential disturbance associated with the project.

Each shovel probe was a minimum of 30 cm (1 foot) in diameter and was excavated up to 1 meter (3 feet) below grade, or up to 20 cm (8 inches) into intact glacially derived parent material (e.g., intact glacial till or outwash). At the bottom of selected shovel probes, a 5-inch-diameter auger probe was used to extend the depth of the probe. Auger probe extensions were excavated when potentially sensitive soils (e.g., paleosols, peat) were identified between 80 and 100 cm (2.5 and 3 feet) bgs within shovel probes. Where deeper fill was present, shovel probes were replaced with auger cores that could be used to more efficiently investigate soils underlying fill.

Probes were terminated in cases where rock obstructions, high water tables that caused sediment cave-in, excessively compacted sediments, root obstructions, and concrete obstructions prevented deeper excavations. Within the Fife and Tacoma segments, all shovel probes were extended with an auger core to assess archaeological potential, except in the circumstances noted above, where conditions (e.g., water saturation, large rocks) resulted in the termination of shovel probes at shallow depths. In some cases within these segments, glacially derived parent material was encountered in shovel probes, halting excavations in lieu of being extended with an auger core. In accordance with the project Cultural Resources Survey and Inventory Plan (Viloudaki et al. 2020), auger cores in the Fife and Tacoma segments were excavated with a targeted depth of up to 5 meters (16 feet), but water-saturated sediments that could not be effectively retrieved with augers limited the maximum excavated depth to 365 cm (12 feet) bgs.

All archaeologically excavated materials were screened through 1/4-inch wire mesh hardware cloth. Global positioning system coordinates were collected for each shovel probe and auger core. Soil types and colors were documented using the Munsell Soil Color Chart for each shovel probe and auger core. If sediment change was observed during excavations, the depth of transition and information on whether the transition is abrupt or gradual was documented. A brief statement of stratigraphic interpretation was compiled for all geographical areas where general stratigraphic trends were identified. Each shovel probe and auger core was photographed.

All archaeological sites and isolates observed were photographed and documented pursuant to the Washington State Standards for Cultural Resource Reporting (DAHP 2021a). All artifacts encountered were photographed with a scale and then returned to the location of the find. In contrast to the methodology outlined in the Cultural Resources Survey and Inventory Plan (Viloudaki et al. 2020), sketches were not made of individual artifacts identified in the field due to the fact that photographs adequately captured meaningful information derived from the classes of artifacts (e.g., fragments of glass, metal, ceramic) identified during the field survey.

Archaeologists also excavated shovel probes in the vicinity of both the subsurface and surface finds to establish the boundaries for the resources and examine the nature of their subsurface components (if any). For isolated finds, shovel probes were spaced no greater than 5 meters (16 feet) from the locations of the cultural material. For archaeological sites covering a broader area, shovel probes were spaced less than 20 meters (66 feet) apart to establish approximate boundaries of the resources.

### **5.1.3 Archaeological Boring**

#### **5.1.3.1 Archaeological Boring Field Methods**

Archaeological boring was performed to sample deep sediments within the APE and to assess them geoarchaeologically, following the project Cultural Resources Survey and Inventory Plan (Viloudaki et al. 2020). This analysis focuses on the human interaction with the landscape and the geological history of landscape development through time as factors in determining the probability that archaeological sites will be present. Based on geological and geotechnical information, late Pleistocene to Holocene-age sediments are present at depths greater than those testable through shovel probing or hand augering primarily in the Tacoma and Fife segments. Glacial deposits were present at shallow depths below the ground surface throughout most of the South Federal Way Segment, so mechanical deep testing was planned along this segment only where deep archaeological potential was anticipated, specifically near the southern end of the segment.

Proposed archaeological boring included 40 bores located within the South Federal Way, Fife, and Tacoma segments (Attachment J5.4 includes figures showing the locations). Bore locations were selected based on two factors. The first set of bores was placed at roughly 400-meter (1,312-foot) intervals along the length of the proposed alignments. The second set of bores was placed at locations selected based on previous knowledge of subsurface conditions (e.g., geoarchaeology), ethnographic data, modern informant testimony, and/or environmental features with high archaeological potential. Total depth of sampling was determined by two considerations: anticipated depth of effects and subsurface geologic conditions. Bores extended to within the proposed range of depth of disturbance by the project, when feasible, or until glacial materials were reached. In some cases, boring was terminated due to groundwater issues, such as encountering a high-flow artesian well, because of concerns about contamination from potentially hazardous waste materials or because of limited access to the location. In bores that encountered glacial materials before reaching the proposed depth of



disturbance, at least 1.5 meters (5 feet) of glacial materials were recovered at each bore location before drilling was ceased in that hole, except as otherwise noted above. Information from geoarchaeological and previous geotechnical studies conducted in the vicinity were referenced to ensure coarse-grained lahar materials were not misinterpreted as glacial deposits, leading to premature cessation of boring.

Archaeological bores were excavated using a variety of methods appropriate to the landform, including direct push Geoprobe or sonicore drilling methods. Both methods recovered continuous core sections that were examined to reconstruct depositional histories, identify buried surfaces or soils, and determine their context and whether archaeological materials were present. The type of boring method used depended on a variety of factors. In general, direct push boring with a Geoprobe provides the quickest, most cost-effective means of extracting sediment samples, with excellent stratigraphic integrity (Figure 5-1). This type of boring is reliable only to depths of around 12 to 15 meters (40 to 50 feet) and in fine-grained clays, silts, or loams. Coarse sands and gravels can be recovered using a Geoprobe, but it is much more difficult, and the recovery success rate is inconsistent.



**Figure 5-1 Archaeological Boring Using a Geoprobe at AB-20**

For retrieval of sediment greater than 12 meters (40 feet) in depth or very gravelly sediments that cannot be retrieved with direct push boring, sonicoring was the preferred method due to its speed and run length (length of core sections), as well as the stratigraphic integrity of retrieved samples (Figure 5-2). Some samples were extruded into plastic bags for analysis during boring because this manner of extrusion is less costly and quicker, and analysis does not require the splitting of hard Lexan liners. A subset of core sediments extracted during sonicoring were collected in liners in order to retain better stratigraphic control for more precise sampling. This subset included areas with the greatest potential for containing archaeological deposits based on cultural and environmental factors, including proximity to streams or previously identified archaeological resources. Both boring methods retrieved samples in 1.5-meter (5-foot) sections, when possible. Partial recovery occurred in cases of very coarse gravelly deposits or supersaturated muds.



**Figure 5-2 Archaeological Boring Using a Sonicore at AB-8**

Due to access issues, landowner restrictions, and other factors, only 20 of the 40 locations were examined using mechanical boring techniques (Table 5-1). Sediments from all 20 bore locations were analyzed using geoarchaeological techniques to assess their potential for archaeological deposits (see Section 5.1.3.2, below). An additional six locations, where access was limited due to landowner or access issues and where deeply buried archaeological resources are not expected (e.g., glacial uplands), were investigated through geoarchaeological shovel probing. Geoarchaeological shovel probes were excavated using methods described in Section 5.1.2.2 above, but the sediments and stratigraphic profiles revealed in each probe were closely examined for geoarchaeological properties, such as lithology, color, grain size, inclusions, sedimentary structure, pedogenic properties, and stratigraphic breaks.



**Table 5-1 Archaeological Bores and Geoarchaeological Shovel Probes Excavated for Geoarchaeological Analysis**

Name <sup>1</sup>	Segment	Investigation Type (Drill)	Anticipated Depth of Disturbance by Project (ft)	Boring Depth (ft)	Boring Depth (m)	Reason for Termination
AB/SP-1	Tacoma	Shovel Probe	120–190	3.0	0.9	Glacial Materials
AB-3	Tacoma	Boring (Sonic)	120–190	80.0	24.4	Glacial Materials
AB-6	Tacoma	Boring (Sonic)	160–190	55.0	16.8	Groundwater Issue
AB-7	Tacoma	Boring (Sonic)	160–190	150.0	45.7	Glacial Materials
AB-8	Tacoma	Boring (Sonic)	160–190	150.0	45.7	Glacial Materials
AB-9	Tacoma	Boring (Sonic)	160–190	160.0	48.8	Glacial Materials
AB-12	Fife	Boring (Sonic)	120–190	150.0	45.7	Within Target Depth
AB-13	Fife	Boring (Sonic)	120–190	150.0	45.7	Within Target Depth
AB-14	Fife	Boring (Sonic)	120–190	100.0	30.5	Depth Reached during Time Allowed by Landowner
AB-17	Fife	Boring (Sonic)	90–120	120.0	36.6	Within Target Depth
AB-20	Fife	Boring (Geoprobe)	90–120	50.0	15.2	Max. Depth with Geoprobe
AB-21	Fife	Boring (Geoprobe)	90–120	50.0	15.2	Max. Depth with Geoprobe
AB-23 (SP-416)	Fife	Shovel Probe	90–120	2.3	0.7	Glacial Materials
AB-24 (SP-404)	Fife	Shovel Probe	90–120	1.3	0.4	Glacial Materials
AB-25	Fife	Boring (Geoprobe)	60–90	33.0	10.0	Glacial Materials
AB-26	Fife	Boring (Sonic)	90–120	100.0	30.5	Within Target Depth
AB-27	Tacoma	Boring (Sonic)	120–190	85.0	25.9	Glacial Materials
AB-28	Tacoma	Boring (Sonic)	120–190	75.0	22.9	Glacial Materials
AB-30	Tacoma	Boring (Sonic)	120–190	20.0	6.1	Contamination Concerns
AB-31	Tacoma	Boring (Sonic)	120–190	55.0	16.8	Groundwater Issue
AB-32	Fife	Boring (Sonic)	120–190	120.0	36.6	Within Target Depth
AB-33 (SP-280)	South Federal Way	Shovel Probe	120–190	2.6	0.80	Glacial Materials
AB-34 (SP-281)	South Federal Way	Shovel Probe	120–190	2.0	0.60	Glacial Materials
AB-35 (SP-286)	South Federal Way	Shovel Probe	120–190	2.0	0.60	Glacial Materials
AB-36	Fife	Boring (Sonic)	90–120	120.0	36.6	Within Target Depth
AB-40	Fife	Boring (Sonic)	120–190	150.0	45.7	Within Target Depth

Note:

(1) Names use the abbreviation AB for archaeological bores and SP for geoarchaeological shovel probes.

### 5.1.3.2 Archaeological Boring Laboratory Methods

HRA personnel split core sections in the laboratory for inspection. Each core section was photographed and described (logged). Samples were taken from bore sections for special analyses, such as accelerator mass spectrometry (AMS) radiocarbon dating. Sediment attributes of each core were recorded and characterized into types. Sediment types represent discrete, identifiable, often reoccurring depositional units that were discernible based on lithology, color, grain size, inclusions, and sedimentary structure. HRA noted the depth and thickness of each sedimentary type to recreate vertical stratigraphic sequences. The presence of disconformities (a boundary between sediment layers that represents a period of non-deposition or erosion), including abrupt changes in grain size or erosional surfaces, were noted to aid in defining transitions between types. Of note, sediment types are descriptive and do not correlate directly with specific depositional settings; individual types may be associated with multiple depositional settings depending upon their location in the core, inclusions, and position relative to other types. Interpretations of past depositional environments are conducted only after cored sediments have been assigned to depositional types.

Sediment types were deposited in specific depositional environments under specific depositional conditions. Types vary due to a variety of factors, including sediments source, energy required for transport and deposition, and position within the depositional system. By identifying these factors, HRA was able to assign each sediment type or groups of types into depositional units that correlate with anticipated attributes of sediments and inclusions of specific depositional environments, or “Depositional Setting.”

Interpretation of depositional environments and assignment of Depositional Settings were based on scientific literature concerning the sedimentary signatures of depositional environments, with special attention to geological, soils, and geoarchaeological studies conducted along the TDLE corridor. Depositional Setting types are defined as part of the results of the geoarchaeological investigations in Section 9.3 of the report. Sediment/strata that included possible cultural items were screened through 1/8-inch hardware mesh; all other sediments were screened through 1/4-inch mesh.

For situations where direct push or sonicoring was not possible due to access issues, shovel probes were excavated. The probes measured at least 35 cm (1.1 feet) in diameter at the surface and were excavated at least 20 cm (8 inches) into glacial materials. Sediments from these cores were logged and screened following the same techniques as those described for the bores.

Radiocarbon dating by accelerator mass spectrometry (AMS) was performed on selected botanical samples extracted from select sediment deposits to aid in the correlation of stratigraphic units and help reconstruct the depositional setting of the area through time. Samples were submitted to Beta Analytic, Inc. (Beta), and were processed using standard methods (Attachment J5.11). Calendar calibrated results were calculated using the 2013 database INTCAL13.



## 5.2 Geotechnical Monitoring

As part of the geotechnical investigations for TDLE, ATCRC staff monitored the extraction of 26 geotechnical bores. Soils were sampled using a 50.8-cm (20-inch) sample tube that was extracted at 0.76-meter (2.5-foot) intervals for the first 6.1 meters (20 feet) and at 1.5 meters (5 foot) intervals until the desired depth. Samples with visible archaeological materials were screened. These were washed and dried before screening through a 1/8-inch hardware cloth except for the sample from PRB-4-19 discussed in Sections 9.2.2.5 and 9.3.

## 5.3 Built-Environment Survey and Documentation

A built-environment survey and inventory for the project was undertaken that identified and documented built-environment resources within the APE. Built-environment resources are identified as those constructed in or before 1980 and likely to reach the age of 50 years, which is generally accepted as the age at which resources qualify for listing in the NRHP, before the project is constructed. Cemeteries within the APE were not surveyed because these were considered archaeological resources, unless they included built-environment resources constructed in 1980 or earlier, as in the Gethsemane Cemetery. In this instance, only architectural resources constructed in 1980 or earlier were surveyed. Likewise, there was no survey of resources within the expanded areas of the APE (i.e., more than 200 feet from the proposed construction corridor), including resources in the area near Pacific Highway E and 12th Street E, bounded on the west by Alexander Avenue E and 46th Avenue E on the east, and along the banks of the Puyallup River, where the APE was expanded in consultation with the Puyallup Tribe of Indians specifically to consider cultural resources with unique sensitivities to noise, visual, and other effects (see Section 3 for additional discussion). Buildings, structures, and objects more than 200 feet from the construction corridor were not anticipated to have this increased level of sensitivity and were excluded from survey. Additionally, in oversized parcels that extended more than 200 feet from the proposed construction footprint, survey was limited to the 200-foot corridor unless the oversized parcel was most appropriately considered as a single site or complex. Finally, transmission system elements, including lines, towers, and substations, were not surveyed, as they were previously documented in a separate report prepared by the transmission system's owner, Bonneville Power Administration (BPA). In 2020, as the lead federal agency under NEPA, BPA conducted its own consultation with SHPO under Section 106 regarding the relocation of towers along the Tacoma-Covington No. 2, 3, and 4 and Tacoma-Raver No. 1 transmission lines in association with a project at the north end of TDLE. BPA determined that the transmission lines were eligible for listing in the NRHP, but that proposed tower relocation does not constitute an adverse effect under Section 106. In a letter dated August 19, 2021, SHPO concurred with the finding. Therefore, no additional analysis of effects on the transmission lines was warranted.

Archival research, including review of King and Pierce County Assessor's records, resulted in the compilation of maps and a database identifying built-environment resources by build date within the APE. Survey and inventory were limited to built-environment resources expected to reach the age of 50 years or older by the initial start of construction for TDLE (i.e., built in 1980 or earlier).<sup>2</sup>

<sup>2</sup> In cases where no dates of construction were available in assessor's records, but a review of maps or aerials photographs suggested that architectural resources may be present, Sound Transit conducted a field visit. When architectural resources were present, they were added to the survey and documented.

The resulting database was compared with WISAARD to determine which resources had current and up-to-date Historic Property Inventories (HPIs) on file with DAHP. Per DAHP Cultural Resource Survey Reporting Guidelines (January 2020), built-environment resources with existing HPIs that were prepared 10 or more years ago were resurveyed and documentation updated. During consultation, the project proponent, lead agency, and consulting parties reviewed existing HPIs prepared between 5 and 10 years ago for resources within the APE. If HPIs were completed within the previous 5 years for resources within the APE, the HPIs were considered up to date and no further research or documentation was done. Attachment J5.3 contains maps identifying those tax parcels where built-environment resources required survey and inventory.

Field teams documented all built-environment resources in the project database that dated to 1980 or earlier and had not been documented in WISAARD within the last 10 years, or were excluded from survey, as described above. Teams used electronic tablets and digital cameras, generating field notes documenting architectural style, materials, workmanship, modifications, and condition, supplemented by digital photographs. They recorded any additional details relevant to the assessment of integrity and eligibility.

Based on this information and additional archival research, recommendations on eligibility for listing in the NRHP are provided for each property identified as a result of this survey. To be eligible for listing in the NRHP, a resource must meet one of four criteria for significance (NRHP Criteria A, B, C, or D) and possess sufficient integrity to express its significance (NPS 1995). See Section 2, Regulatory Setting.

FTA has consulted on these eligibility determinations and effects addressed in this report with the SHPO, Tribes, and other consulting parties.



## 6 AGENCY AND TRIBAL CONSULTATION

Several federal statutes require federal agencies to consult or coordinate with Native American Indian Tribes. Key federal historic preservation and cultural resource protection statutes that require agencies to consult with Tribes or accommodate Tribal views and practices are summarized below:

**National Historic Preservation Act of 1966 (NHPA)**, as amended, is the basis for Tribal consultation in the Section 106 review process. In particular:

- Section 101(d)(6)(A) states that properties of religious and cultural significance to Indian Tribes may be eligible for listing in the NRHP.
- Section 101(d)(6)(B) requires that federal agencies consult with any Indian Tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking.

**The National Environmental Policy Act of 1969 (NEPA)** contains language in the Council on Environmental Quality (CEQ) regulations mandating federal agencies to contact Tribes and provide opportunities to participate in the preparation of an environmental assessment or EIS.

**The American Indian Religious Freedom Act of 1978 (AIRFA)** contains language establishing federal government policies to protect the right of American Indians to exercise their traditional religions, ceremonials, and traditional rights including access to sites and the use and possession of sacred objects.

**The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA)** directs federal agencies to consult with Indian Tribes prior to removal or excavation of Native American human remains on federally managed lands.

**Executive Order 13175**, Consultation and Coordination with Indian Tribal Governments (2000) directs federal agencies to consider Tribal government, sovereignty, rights, and responsibilities whenever policies are formulated that significantly affect Tribal governments.

**Section 4(f), Department of Transportation Act of 1966**, generally prohibits U.S. DOT agencies, including FTA, from approving projects that would use certain types of property, including traditional cultural properties (TCPs).

Table 6-1 lists the correspondence with Tribes, SHPO, and consulting parties for TDLE between 2020 and November 2024, which are included in Attachment J5.12. Recent Section 4(f) correspondence is included in Appendix D, Section 4(f) Evaluation.

**Table 6-1 Section 106 Consultation**

Date	Form	Participants	General Topics
March 26, 2020	Letter	FTA to SHPO and Tribes <sup>1</sup>	Area of Potential Effect definition
March 30, 2020	Letter	SHPO to FTA	Comment on Area of Potential Effects
November 5, 2020	Letter	FTA to SHPO and Tribes <sup>1</sup>	Revised Area of Potential Effects
November 4, 2020	Email	FTA to Tribes	Inadvertent discovery notification for geotechnical monitoring at location PRB-4
November 13, 2020	Letter	SHPO to FTA	Comment on Revised Area of Potential Effects
August 13, 2021	Letter	FTA to City of Fife	Invitation to be Section 106 Consulting Party
August 13, 2021	Letter	FTA to City of Tacoma	Invitation to be Section 106 Consulting Party
August 13, 2021	Letter	FTA to King County Historic Preservation Program	Invitation to be Section 106 Consulting Party
August 13, 2021	Letter	FTA to Washington Trust for Historic Preservation	Invitation to be Section 106 Consulting Party
August 13, 2021	Letter	FTA to Pierce County	Invitation to be Section 106 Consulting Party
August 18, 2021	Email	City of Fife to FTA	Accepted invitation to be Section 106 Consulting Party
September 8, 2021	Email	Washington Trust for Historic Preservation to FTA	Accepted invitation to be Section 106 Consulting Party
September 10, 2021	Email	King County Historic Preservation Program to FTA	Declined invitation to be Section 106 Consulting Party
September 2021	Email	Pierce County to FTA	Accepted invitation to be Section 106 Consulting Party
September 23, 2021	Email	City of Tacoma to FTA	Accepted invitation to be Section 106 Consulting Party
April 11, 2023	Letter	FTA to SHPO, Tribes, and Consulting Parties <sup>1</sup>	Revised Area of Potential Effects
April 20, 2023	Letter	SHPO to FTA	Comment on Revised Area of Potential Effects
May 29, 2024	Letter	FTA to SHPO, Tribes and Consulting Parties <sup>1</sup>	NRHP Eligibility Determinations
June 26, 2024	Letter	SHPO to FTA	Eligibility Determinations Concurrence
September 17, 2024	Letter	FTA to SHPO, Tribes, and Consulting Parties <sup>1</sup>	Finding of adverse effect for Project
September 25, 2024	Letter	SHPO to FTA	Concurrence with finding of adverse effect for TDLE project
October 18, 2024	Email	FTA to Advisory Council on Historic Preservation	Notice of finding of adverse effect for project and invitation to participate in preparation of Programmatic Agreement Development
October 31, 2024	Meeting	Sound Transit, FTA, Tribes, SHPO, and consulting parties	Meeting to discuss project and Section 106 process
October 31, 2024	Letter	ACHP to FTA	Additional information requested
November 13, 2024	Letter	ACHP to FTA	Declined participation

Note:

(1) Tribes include Puyallup Tribe of Indians, Muckleshoot Indian Tribe, Nisqually Indian Tribe, and Confederated Tribes and Bands of the Yakama Nation. Consulting Parties include City of Fife, Pierce County, Washington Trust for Historic Preservation and City of Tacoma.



## 7 RECORDS SEARCH

The electronic record search for the APE was limited to records housed in the DAHP Washington Information System for Architectural and Archaeological Records Data (WISAARD) database. Reviewed records included NRHP nomination forms, archaeological site and isolate records, cultural resource studies, cemetery locations, and other publicly restricted cultural resource data that were plotted on WISAARD within 1 mile of the APE.

To identify built-environment resources for survey and documentation, Sound Transit reviewed state and local archival records, including local histories, historic maps, newspaper archives, and additional online sources, as needed, to complete a historic context for the study area. King County and Pierce County Assessor's records were searched to identify buildings and structures within the APE that were old enough to meet city, county, state, and NRHP listing criteria (Attachment J5.3). Results of archival and records searches were paired with field inventory documentation to prepare recommendations for each surveyed resource's eligibility for listing in the NRHP.

Information on previous cultural resources studies within 1 mile of the APE is presented below and in Attachment J5.1. This is followed by a consideration and discussion of cultural resources within the APE. Cultural resources outside the APE but within 1 mile of the APE are then discussed. These data are presented to generate expectations regarding the types and locations of cultural resources that may be encountered during investigations for TDLE.

### 7.1 Previous Cultural Resource Investigations within 1 Mile of the APE

Within 1 mile of the APE, there are some locations that have had intensive survey for cultural resources and others with little or no previous study. The most heavily investigated locations are in the I-5 corridor, specifically the span of I-5 from the Tacoma Dome to the Puyallup River crossing, and the Wapato and Hylebos Creek crossings. Two other locations of intense investigation that overlap with the APE are the proposed State Route 167 (SR 167) interchange and extension near Hylebos Creek and I-5, and the Sound Transit rail corridor between E 25th Street and E 26th Street in Tacoma. Most cultural resource investigations within 1 mile of the upland Federal Way and South Federal Way segments of the APE have involved only surface survey and shovel probing, which has resulted in the identification of primarily historic-period archaeological sites in shallow, commonly disturbed deposits overlying glacial material or at ground surface in those segments (e.g., Earley 2005; Rooke 2011). In contrast, subsurface testing in the Holocene alluvial and wetland deposits within the Puyallup River basin between the Tacoma Dome and the Hylebos Creek crossing has resulted in the identification of precontact sites that are often deeply buried within these more dynamic depositional settings (e.g., Shantry et al. 2010; Sharpe 2009; Stevenson 2015).

In total, 128 previous cultural resource investigations have been conducted within a 1-mile radius of the APE. Attachment J5.1 provides lists the previous cultural resource investigations with accompanying maps for each segment in the TDLE corridor: Federal Way, South Federal Way, Fife, and Tacoma, respectively (the National Archeological Database [NADB] numbers associated with the overlapping study areas are illustrated in figures, and in the tables of previous cultural resource investigations).

## 7.2 Cultural Resources within the APE

Within the APE, 27 precontact and historic period cultural resources have been previously identified: Seven are built-environment resources that have been determined eligible for or are listed in the NRHP or the Tacoma Register, two are cemeteries, and 18 are precontact and historic period archaeological sites. Tables 7-1 through 7-4, below, provide summary information for the archaeological sites, built-environment resources, and cemeteries within the APE. Cultural resources within the APE are denoted in **bold**. The tables list all archaeological sites within 1 mile of the APE, by project segment. In December 2023, a separate project encountered one additional archaeological site, 45PI1631, that is also within the APE along the Fife Segment. Detailed information about the site is not currently provided in the DAHP WISAARD database. Due to the absence of additional information on WISAARD, this site is not included in the discussion below, but as information becomes available via WISAARD, this site will be incorporated into analysis for TDLE.

### 7.2.1 Archaeological Sites

A records search of WISAARD files found 54 previously recorded archaeological sites within 1 mile of the APE. **The rest of this section is redacted, contains privileged information that is not for public disclosure.**



**Section above is redacted, contains privileged information that is not for public disclosure.**

#### **7.2.2 NRHP/WHR-Eligible or Listed Built-Environment Resources**

Within the APE, five previously identified built-environment resources have been listed in or found eligible for listing in the WHR and NRHP (Table 7-5). One of these resources is the historic Engine House No. 4 that was listed in the NRHP in 1984. The remaining four built-environment resources include three railroad structures (one of which has been demolished) and two road

bridges that cross the Puyallup River (DAHP 2020c). See Attachment J5.1 for a complete list of NRHP-eligible and listed built-environment resources within 1 mile of the APE.

**Table 7-5 NRHP- and WHR-Eligible or Listed Built-Environment Resources within the APE<sup>1</sup>**

Segment/Alignment	Resource ID	Name/Address	Year Built	NRHP/WHR Listing Status and Criteria	Reference
Tacoma - All alternatives	31231	Milwaukee Railroad-Puyallup River Bridge, Tacoma (railroad crossing)	1910	Determined NRHP eligible under Criteria A and C	FHWA 2009
Tacoma - All alternatives	31786	Puyallup River Bridge, Tacoma (Pacific Highway E crossing)	1927	Determined NRHP eligible, criteria undefined	FHWA 2013
Tacoma - All alternatives	90499	East 21st Street Bridge, Tacoma (Lincoln Avenue crossing)	1929	Determined NRHP eligible, criteria undefined	FHWA 2008
Tacoma - None (demolished)	31669	Chicago, Milwaukee, St. Paul, and Pacific S-Turn Trestle (demolished)	1908	Determined NRHP eligible under Criteria A and C; demolished 2017	FTA 2014
Tacoma 26th Street	31673	Engine House 4 – Tacoma Fire Station No. 4, 220-224 E 26th Street, Tacoma	1912	Listed in the WHR and NRHP in 1984	DAHP 2020c

**Bold** denotes within APE.

Note:

- (1) One additional resource within the APE, the Puyallup River levees, were previously determined eligible for listing in the NRHP according to personal communications with the Washington State Department of Transportation; however, no documentation was found in WISAARD. Therefore, a new evaluation was prepared and appears in Section 9.4.

### 7.2.3 Tacoma Register of Historic Places-Listed Properties

In addition to the five built-environment resources that have been found eligible or listed in the WHR and NRHP, there are resources within the APE that are listed in the Tacoma Register of Historic Places (City of Tacoma 2020). The Carman Manufacturing Building is located within the permanent impact area for the Tacoma 25th Street-East Station and within the temporary impact area for the Tacoma 25th Street-West and Close to Sounder alternatives. Additionally, the Trecento Block is partially located within the APE adjacent to area of potential ground disturbance for utility realignment and nearest to the Tacoma 25th Street-West Station (Table 7-6).

**Table 7-6 Tacoma Register-Listed Properties**

Segment/Alignment	Resource ID	Name/Address	Year Built	Local, State, and National Listing Status	Reference
Tacoma 25th Street-West, 25th Street-East, and Close to Sounder	N/A	Carman Manufacturing Building, 725 E 25th Street, Tacoma	1893	Listed in the Tacoma Register of Historic Places 2008	City of Tacoma 2020
Tacoma 25th Street-West Station	N/A	Trecento Block, 309 Puyallup, Avenue, Tacoma	1919	Listed in the Tacoma Register of Historic Places 2018	City of Tacoma 2020

**Bold** denotes within APE.

One additional building should be noted. Freight House Square, a large, well-known former rail depot, now a commercial operation, is also located within the APE. It has not been listed in the Tacoma Register of Historic Places, and was determined to be not eligible for listing in the NRHP by FTA in 2014 (City of Tacoma 2020a; DAHP 2020c).



#### **7.2.4 Cemeteries**

There are seven recorded instances of human remains or cemeteries recorded on WISAARD within 1 mile of the APE (Table 7-7). There are two cemeteries located within the APE: Gethsemane and St. George's (45KI866 and 45KI867). They are adjacent to each other between Pacific Highway and I-5 along the King-Pierce county boundary (Table 7-7) (DAHP 2010).

**Table 7-7, Cemeteries and Burials within a 1-mile radius of the APE, redacted.  
Contains privileged information that is not for public disclosure.**

## 7.3 Cultural Resources within 1 Mile of the APE

### 7.3.1 Archaeological Sites

Within a 1-mile radius of, but not including, the APE, there are 37 previously recorded archaeological sites (Tables 7-1 through 7-4). These sites represent the broad nature of potential archaeological sites within the APE, including precontact campsites, refuse concentrations and scatters, domestic features, utilities, and ruined structures. Excluding the sites within the APE, there are three historic-period sites around the Federal Way Segment, three precontact and three historic-period sites around the South Federal Way Segment, no precontact and eight historic-period sites around the Fife Segment, and two precontact and 17 historic-period sites, as well as one multicomponent site, around the Tacoma Segment (Tables 7-1 through 7-4).

Two precontact archaeological sites, 45PI930 and 45PI580 (the Cushman Cemetery: see Section 7.3.3), have been identified on the south bank of the Puyallup River, within 200 feet of but not within the APE. Site 45PI930 is a precontact site initially discovered in a core sample at a depth of 14.5 feet bgs. The core sample contained lithic debitage, fire-modified rock, faunal bone, and organic materials, including hazelnut shells, bearberry seeds, and nodding onion, dating to around 1,090 years in age (Hodges 2009; Sharpe et al. 2009).

### 7.3.2 NRHP-Eligible or Listed Built-Environment Resources

Within a 1-mile radius of, but not including, the APE, 31 buildings, structures, and/or objects, along with two NRHP-listed historic districts, have been previously documented. In addition, there are 34 built-environment resources that have been determined eligible for listing in the NRHP. All of the properties listed in the NRHP are located west of the APE within Tacoma, and 23 of the eligible properties are located west of the Puyallup River (DAHP 2020c). Of those properties listed on the NRHP, two of the properties and one of the districts have been removed from the NRHP (see Attachment J5.1).

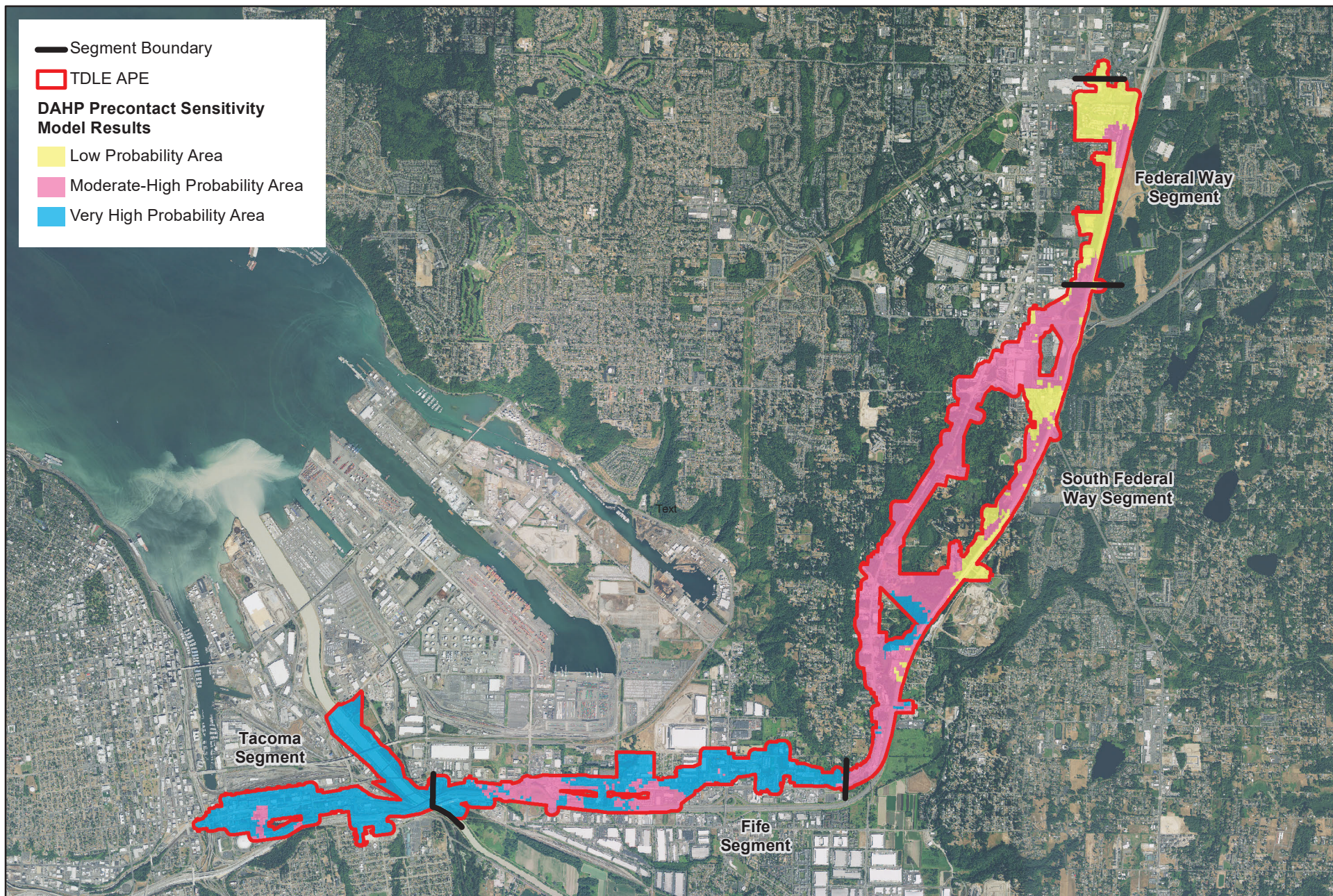
### 7.3.3 Cemeteries and Burials

In addition to Gethsemane Cemetery (45KI866) and St. George's Cemetery (45KI867), which are within the APE, there is one cemetery (the Cushman Cemetery [45PI580]) and four individual burials within a 1-mile radius of, but outside, the APE (Table 7-7). These burials indicate that, in addition to formal cemeteries, family plots and informal burials might be encountered within the APE, especially those dating to the early historic settlement of what became the City of Tacoma. Family plots and informal burials might well have been forgotten, disturbed, and built over as development expanded into formerly rural areas.

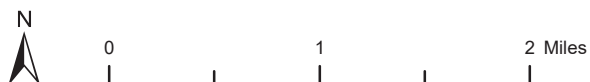
## 7.4 DAHP Archaeological Predictive Model

The APE is generally within highly developed areas in the cities of Federal Way, Milton, Fife, and Tacoma, as well as portions of unincorporated Pierce County, along the I-5 corridor. The DAHP statewide predictive model indicates that the APE intersects areas that are at varying risk for encountering precontact cultural resources ranging from very low to very high with the highest risk areas for precontact period archaeological sites found in and near the APE within the Fife and Tacoma segments, as well as along portions of the SF 99-West and SF 99-East alternatives (Figure 7-1).





Data Sources: DAHP - WISAARD: Predictive Model; King and Pierce County; Cities of Federal Way, Fife, Milton, Tacoma (2023).



**FIGURE 7-1**  
 DAHP Precontact Predictive  
 Model Sensitivity within the APE  
*Tacoma Dome Link Extension*



## 7.5 Historic Photograph and Map Review

As part of the background research for each segment, historic maps, plats, and aerial photographs that included the APE were reviewed. The focus of the map and aerial analysis is to identify locations with potential cultural resource (generally archaeological) sensitivity that may exist within the APE. These reviews are discussed below and maps and tables with identified cultural resource sensitive areas are included in Attachment J5.4.

### 7.5.1 Federal Way and South Federal Way Segments

The oldest visual representation of this segment is an 1868 GLO plat (see Attachment J5.4), but no culturally sensitive locations were identified on this map. Although it lacks detail, the 1897 USGS topographic map shows four archaeologically sensitive locations are present within this segment (see Attachment J5.4). All are farm complexes surrounded by cleared fields and accessed by dirt roads. No additional information was found in maps dating between 1897 and 1928. From the late 1920s onward, a general baseline can be established for development in this segment that is largely concentrated around US 99 (the Pacific Highway; Old State Road No. 1) corridor. Isolated structures related to residential and farming development between the 1920s and 1950s overlap with the APE in six locations within the segment along S 336th Street, 16th Avenue South, and S 372nd Street, with a higher density of development in Section 32 Township 21 North Range 4 East. Of these six locations, only one is present in 1965, near the corner of 8th Avenue S and S 375th Street. This general trend in settlement and development shifts following the completion of I-5 in the 1950s, resulting in extensive development concentrated on the I-5 corridor, with gradual infilling between US 99 and I-5 radiating outward along main thoroughfares.

### 7.5.2 Fife Segment

The oldest map found for the Fife Segment is an 1874 GLO plat (see Attachment J5.4). Only one structure is identified on this GLO plat; however, multiple landscape features (creeks, sloughs, and others) are favorable for the presence of archaeological sites for both precontact and historic periods. Maps from 1874 and 1892 (Figures 4-1 and 4-2) show parts of the western portion of the Fife Segment that show the development of Tacoma and the Puyallup River area (see Tacoma Segment below). Both clearly show that settlement and developmental growth of the Fife to Tacoma areas focused primarily on the areas along and adjacent to Commencement Bay and the Puyallup River.

Locations of potential historic-period archaeological resources are shown on the 1897 USGS topographic map (see Attachment J5.4). Although it lacks detail, eight locations with potential for historic-period archaeological remains are represented within the segment, with 11 other structures found within 0.15 mile of the APE. Each of these structures is linked by a system of what were likely dirt roads branching off the Military Road/Indian Ferry and Stuck Valley Road (present-day Milton Avenue). The only historic-period archaeological resource area found in the area between 1897 and the 1940s is the Puget Sound Electric Railway alignment, which operated from ca 1908 through the 1920s. Its location was mapped by the then Washington Department of Highways prior to improvements to State Road No. 1 (US 99) in 1929.

Aerial photographs of the Puyallup River Valley from 1940 taken by the United States Army Corps of Engineers (USACE) overlap the APE from the King-Pierce County line to Pacific Avenue (see Attachment J5.4). The Works Progress Administration characterized development along the Puyallup Valley at that time as “a valley crossroads in the midst of a thickly settled berry growing and truck-farming district is represented by a string of markets, taverns, shops, and a large balloon-roofed dance hall along the highway.” (WPA 1941:483). From the 1940s onward, the



development within the segment is concentrated heavily along US 99, with a southern shift following the completion of I-5 in the late 1950s to early 1960s.

### 7.5.3 Tacoma Segment

The oldest visual representations of this segment are the 1867 and 1874 GLO plats (see Attachment J5.4). Three structures are found on the 1874 plat along the Puyallup River. In addition to these historic-period structures, multiple environmentally sensitive areas (e.g., creeks and sloughs) are found on both maps that have the potential to contain both precontact period and historic-period archaeological deposits. An 1877 topographic map of Commencement Bay shows 25 structures within the APE focused around the Puyallup River in the same general area as those found in 1874 GLO map. These structures are associated with farm fields and a system of dirt roads. The 1877 map also identified landscape features, particularly those related to water, that have the potential for precontact and historic-period archaeological deposits in this portion of the APE.

The series of Sanborn Fire Insurance maps for this segment of the APE provide relatively detailed illustrations of streets and utilities. The 1888 Sanborn map overlaps with the APE between E 23rd Street to E 28th Street and East E Street and East R Street and E Bay Street (see Attachment J5.4). This set of maps is followed by three maps dating to the early/middle 1890s that further detail the expansion and development of both the Puyallup Reservation and the City of Tacoma. A topographic map of Commencement Bay from 1892 highlights the development of the City of Tacoma and the Puyallup Reservation illustrating extensive development within the APE between East B Street and the Puyallup River crossing at the Indian Ferry and Stuck Valley Road (Milton Avenue).

Sanborn maps from 1896 detail continued development of residential, commercial, and industrial spaces between E 23rd Street to E 28th Street and East E Street and East L Street that were highlighted in 1892; more than doubling the area of development within the segment in less than 8 years (see Attachment J5.4). Maps dated between 1896 and 1911 do not have the level of detail necessary to identify areas in which historic-period archaeological remains might be present. However, a USGS topographic map from 1897 shows two structures within the APE east of the Puyallup River along with a system of roads and a block of development west of East L Street in Tacoma. The last set of Sanborn Maps reviewed for the project date to 1912. These maps detail extensive development from E 23rd Street to E 28th Street and East E Street and East R Street and Bay Street. This map set details the residential, commercial, and industrial expansion of Tacoma to the east.

Aerial photographs taken by the USACE in 1940 of Tacoma and Puyallup River valley show that the APE is densely populated with industrial and commercial buildings surrounded to the west and south by residential suburbs, the Gardenville farmlands to the west, and the expanding Port of Tacoma to the north (see Attachment J5.4). Initial development within this segment is mostly complete by 1940. Continued expansion and redevelopment of the City and Port of Tacoma occurred during World War Two and into the 1950s as shown in topographic maps through the 1960s.

## 7.6 Geoarchaeological Review

It is important to understand the subsurface conditions within the APE to assess the potential for archaeological resources where ground disturbance is anticipated. Although fill materials are present along much of the TDLE corridor, intact, shallow, and deeply buried native sediments dating to the late Pleistocene and Holocene are present (e.g., Punke et al. 2017). In the case of the Federal Way and South Federal Way Segments, these deposits of interest are generally represented by thin topsoils that have formed in place since the end of the Pleistocene. Within the Fife and Tacoma segments, deposits from the late Pleistocene through the Holocene may be much deeper and were emplaced through much more complicated geomorphic processes.

Previous geoarchaeological and geotechnical coring within and in the vicinity of the APE has provided data concerning the depositional history for the APE. Welch et al. (2015:Plates 2 and 3) compiled hydrogeologic data for the region to produce a surficial hydrogeologic map and cross section of the Puyallup River Basin. This map and cross section have been modified and are included below (Figures 7-2 and 7-3) for the purposes of the current study to aid in illustrating the archaeological potential of sediments along the project alignment with depth.

A geotechnical study conducted along I-5 between Fife and Tukwila by Hong West & Associates (1992) included a series of bores at the eastern end of the Fife Segment (Figure 7-2). These bores recovered fill materials over silty and sandy alluvium, silts and clays, and peats to depths of over 9.1 meters (30 feet) bgs. One deeper bore recovered over 21.3 meters (70 feet) of post-glacial alluvium. As the bores extended east into the Fife curve, alluvial deposits became shallow over glacial till.

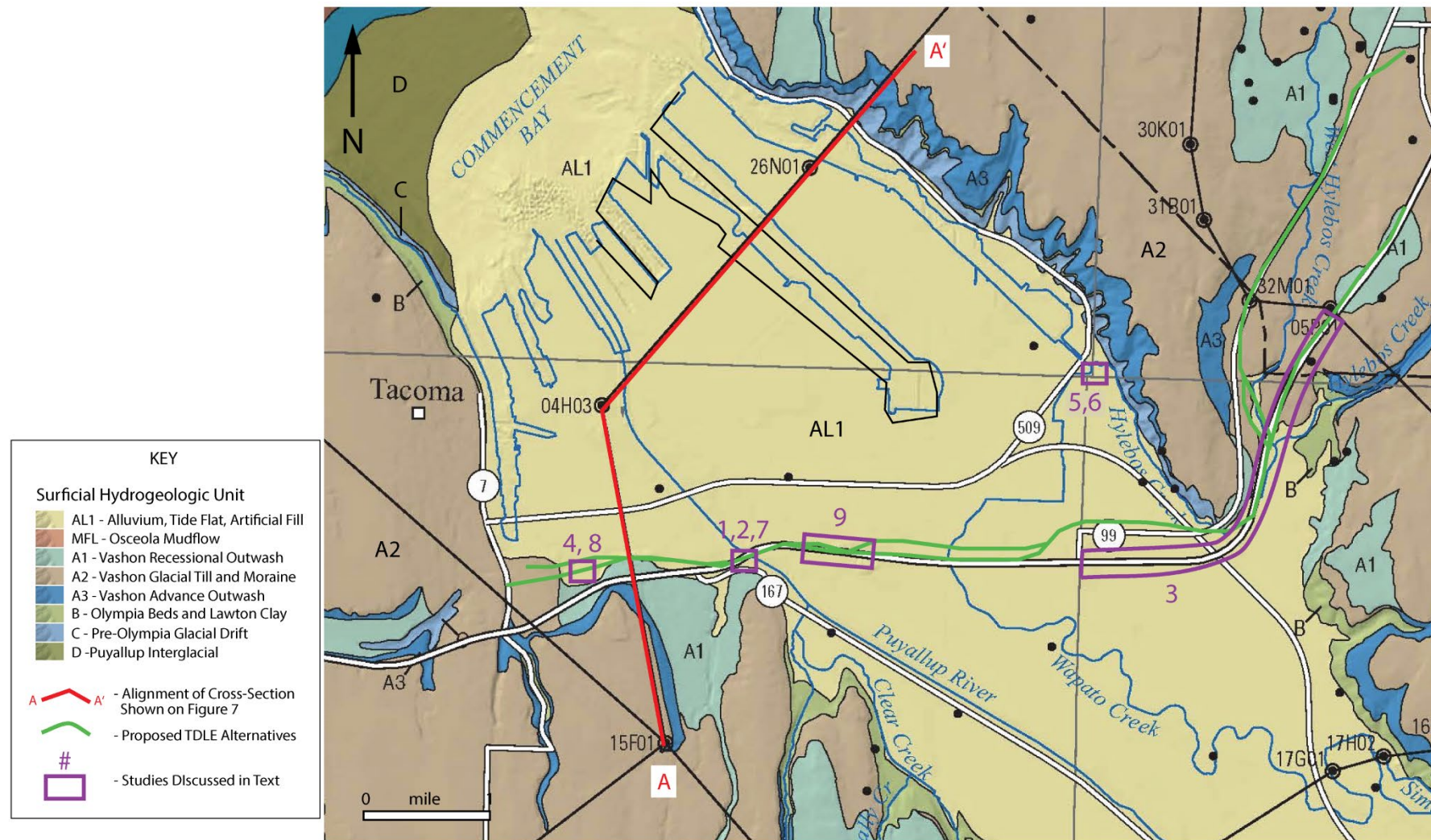
To the west of Fife but east of the Puyallup River, the Washington State Department of Transportation (WSDOT 1999) excavated a series of geotechnical bores along the I-5 corridor (Figure 7-2). These bores encountered over 22.9 meters (75 feet) of alluvial materials that included layers of organically enriched sediments throughout. These materials represent post-glacial infilling of the valley. Neither the Hong West & Associates (1992) nor the Jackson (1999) studies included detailed descriptions of organic-rich sediments that would allow for buried, stable paleosurfaces or soils to be identified, nor were radiocarbon dates of organic materials provided.

While both the Fife and Tacoma segments have been heavily affected by historic-period and modern human modifications of the landscape, precontact archaeological resources have been found deeply buried under fill and alluvial sediments at multiple locations along or adjacent to these segments. Rinck (2014) summarizes some of these discoveries and postulates that many of them were associated with the northwestward-migrating Puyallup River delta front. She suggests that middle to late Holocene subsistence strategies that focused on nearshore resources would result in the occupation of littoral areas, such as the shoreline margin of the Puyallup embayment. This shoreline would have been present near the position of the Fife and Tacoma segments as early as 4,200 years ago (Hodges 2009; Rinck 2014:16). Aggradation along and near this shoreline resulted in the formation of thick delta-front sediments, within which Site 45PI974 (Xaxtl'abish 1) was discovered (Shantry et al. 2010) (Figure 7-2). This midden deposit, found between 2.4 and 3.5 meters (8 and 11.5 feet) bgs, dates to around 1,100 years in age.

Older stable landscapes that would have been conducive to human occupation have been identified at greater depths along the Tacoma Segment (Hodges 2009; Punke et al. 2017). Hodges (2009) conducted a detailed study of bores extracted on each side of the Puyallup River at the I-5 crossing (Figure 7-2). On the east side of the river, Hodges found around 6.1 meters (20 feet) of wetland deposits and alluvium overlying thick black sands representing reworked lahar materials. Glacial till was encountered at nearly 36.6 meters (120 feet) bgs.

The stratigraphy encountered in bores on the west side of the river was more varied than on the east. In the upper portions of the bores, fill and wetland sediments were present. Archaeological Site 45PI930 was found immediately underlying these wetland peaty silts at the transition into the underlying delta front silts and sands (Hodges 2009; Sharpe et al. 2009). The site found between 4.8 and 6.9 meters (15.6 and 22.8 feet) bgs dated to between around 1,040 and 1,240 years in age (Elder and Sparks 2010). Hodges (2009) found a deeper, buried paleosurface between 9.1 and 11.0 meters (30 and 36 feet) bgs that dated to around 4,520 years ago. This surface would have represented the former shoreline of the Puyallup bay front and may have been conducive to human occupation. Glacial materials were found on the west side of the Puyallup at a depth of between 12.2 and 18.3 meters (40 and 60 feet) bgs.

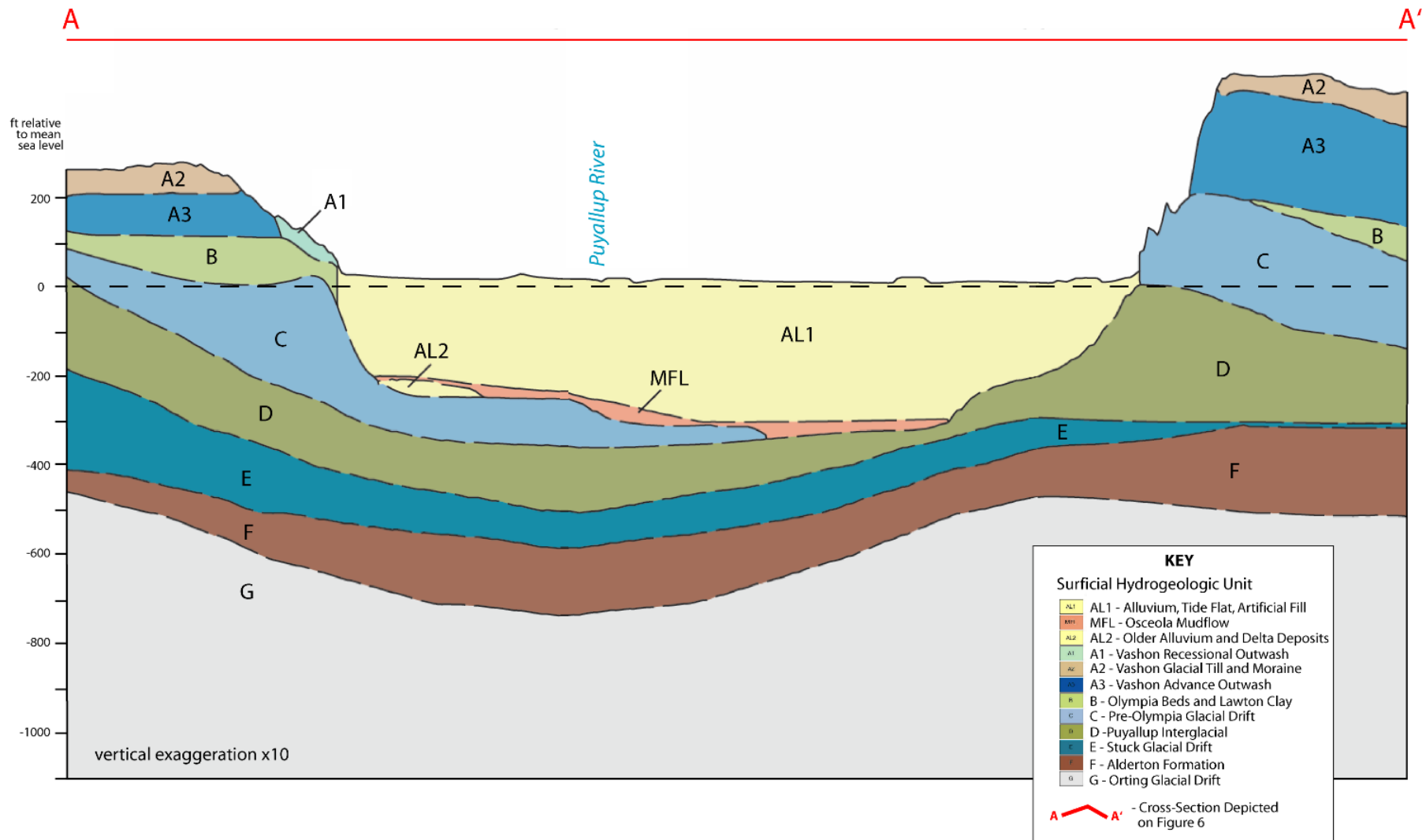




**Figure 7-2 Hydrogeologic Map of the Puyallup River Valley and Surrounding Geology**

(Modified from Welch et al. [2015: Plate 2], depicting proposed project alignments and geotechnical or geoarchaeological data)

1 (Elder and Sparks 2010); 2 (Hodges 2009); 3 (Hong West & Associates 1992); 4 (Punke et al. 2017); 5 (Rinck 2014); 6 (Shantry et al. 2010); 7 (Sharpe et al. 2009); 8 (Stevenson et al. 2015b); 9 (Jackson 1999).



**Figure 7-3 Hydrogeologic Cross Section**

(Modified from Welch et al. [2015: Plate 3], depicting the geotechnical or geoarchaeological data referred to in the text along cross section axis A-A'.)



Investigations for the Tacoma Trestle project at the western end of the Tacoma Segment revealed multiple buried surfaces within a series of geoarchaeological bores (Punke et al. 2017; Stevenson et al. 2015b) (Figure 7-2). Buried sediment deposits representing freshwater wetlands or bogs in a pine-spruce forest setting were identified at a depth of nearly 21.3 meters (70 feet) bgs and dated to around 13,000 years ago. Additional buried soils from intertidal marsh settings were found that dated to between approximately 7,700 and 9,700 years ago. These former surfaces ranged between 19.8 and 22.9 meters (65 and 75 feet) bgs and would have been available for early human use of the area.

A detailed analysis of historic surface landform modification within the Puyallup River Valley from the I-5 corridor northwest to the edges of Commencement Bay was conducted by the U.S. Army Corps of Engineers (USACE) and others (1991). While the primary goal of the investigations was to identify the extent and location of special aquatic sites in and around Commencement Bay, their literature review and analysis provided a detailed assessment of land modifications conducted between 1877 and 1941, any of which could have affected cultural resources directly, the depositional contexts of prior surface archaeological deposits, and altered potential historic cultural deposits related to the growth and development of Tacoma, the Port of Tacoma, and the transportation corridors of Pacific Highway (US 99) and I-5. The most pertinent conclusion of the USACE and others (1991) analysis is that while much of the Puyallup River Valley has been affected by development, the depths of disturbance and fill materials have not been recorded. Many of the areas identified as having been filled were likely filled repeatedly.

## 7.7 Segment Summaries

The following section provides summaries of data presented above as well as expectations for discovery of precontact and historic-period archaeological sites. These discussions below are specific to each of the project segments: Federal Way, South Federal Way, Fife, and Tacoma. In general, based on information presented above in Sections 4 and 5, the Federal Way and South Federal Way Segments have a lower likelihood of including archaeological resources than the Fife and Tacoma segments.

### 7.7.1 Federal Way Segment

Based on DAHP's predictive model data and an assessment of background data, the APE for the Federal Way Segment has a variable probability for precontact archaeological materials, ranging from low to moderately low probability at its north and south ends to moderate probability in its central section (Figure 7-1). The potential for precontact archaeological materials is likely low throughout this segment based on the history of development within the APE and the glacial landform upon which the APE is primarily situated. Historic land use, including agriculture, logging, and urban development, has modified the landscape and near-surface archaeological potential. The construction of I-5 has also dramatically affected the landforms in this segment.

Given the data presented above, including Federal Way's history surrounding the APE, the likelihood of identifying historic-period archaeological deposits is low to moderate throughout the segment.

Two historic-period archaeological sites, 45KI719 and 45KI1662, are within this segment of the APE (see Table 7-1). The 45KI719 vicinity would be affected by the elevated guideway proposed to cross the site from north to south. Given the site's prior disturbance and/or demolition, TDLE would not have an effect on this site, which was determined not eligible for listing in the NRHP.

However, the presence of a historic building may signal the existence of outbuildings in the vicinity of the site that could be affected by the project. Likewise, 45KI1662 has been subject to previous disturbance and was determined not eligible for listing in the NRHP. Therefore, ground-disturbing activities associated with TDLE would not affect these sites.

Given the scale of ground disturbances with original construction of I-5 and subsequent expansions, it is probable that precontact and historic-period cultural resources that existed are likely disturbed and intermixed with historic/recent fill deposits.

### 7.7.2 South Federal Way Segment

Based on DAHP's predictive model data and an assessment of background data, the APE for the South Federal Way Segment has a variable probability for precontact archaeological materials with the greatest potential near West Hylebos Creek and the Gethsemane and St. George's cemetery sites (Figure 7-1). As in the Federal Way Segment, the potential for precontact archaeological materials elsewhere in the South Federal Way Segment is considered low, based on the extent of prior development within the APE. Historic land use, including agriculture and urban development, has modified the glacial landform and near-surface archaeological potential. The construction of I-5 has likewise dramatically affected the landscape and development patterns in this segment.

Given the data presented above, including Federal Way's history surrounding the APE, the likelihood of identifying historic-period archaeological deposits is low to moderate throughout the segment, with somewhat increased sensitivity within Sections 29, 31, and 32 of Township 21 North Range 4 East based on features noted on historic map and aerial imagery.

One precontact archaeological isolate, 45KI1177, and one historic-period archaeological site, 45KI1021, are within this segment of the APE (see Table 7-2). Ground-disturbing activities associated with the removal of an underground storage tank previously demolished 45KI1021. As a precontact isolate, 45KI1177 is not eligible for listing in the NRHP.

Gethsemane Cemetery (45KI866) and St. George's Cemetery (45KI867) are included within the APE at the request of the Puyallup Tribe (November 22, 2019). **Text redacted. Contains privileged information that is not for public disclosure.** The cemeteries are located outside of the proposed area of ground disturbance or impact from the project. **Text redacted. Contains privileged information that is not for public disclosure.**

Given the scale of ground disturbances with original construction of I-5 and subsequent expansions, it is probable that precontact and historic-period cultural resources that existed are likely disturbed and intermixed with historic/recent fill deposits.

### 7.7.3 Fife Segment

Based on the DAHP predictive model, the Fife Segment has a moderate to very high probability for encountering precontact archaeological materials (Figure 7-1).

All the available soil data for the Fife region of the Puyallup River Valley suggests that extensive land alterations due to land reclamation, urbanization, farming, and transportation have variously affected the entire APE within the Fife Segment (see USACE et al. [1991] for a detailed discussion). Within the Puyallup River Valley, historic land modification and late Holocene



sediment deposition have either disturbed or buried former land surfaces that may have been occupied by early settlers or Native Americans. Almost the entire Fife Segment is located on Quaternary alluvium. As such, significant archaeological deposits may be deeply buried as a result of seismic, alluvial, and cultural processes (Rinck 2014).

The channelization of all the waterways within the Puyallup River Valley, in conjunction with extensive historic and modern land reclamation and flood controls (USACE et al. 1991), has resulted in an overall elevated and leveled landscape through grading and redistribution of materials as fill in low-lying areas. These factors could have destroyed or buried potential cultural resource locations. It is likely that precontact and ethnographic period archaeological resources may be capped by fill where present within the APE in the Fife Segment.

All ethnographic accounts of the Puyallup Tribe of Indians agree that the Puyallup River and its associated drainages are the core of the traditional Puyallup Tribal area (Smith 1940; Hilbert et al. 2001). The APE surrounding the Fife and Tacoma segments lies at the heart of the traditional Puyallup Tribal areas as well as the 1874 boundaries of the Puyallup Reservation.

Based on information presented above, this region has seen substantial development during the historic and modern period. Historic archaeological resources related to urbanization, farming, and transportation could be found throughout the depositional sequences of fill and within former land surfaces predating fill episodes that were used during the historic period.

Two previously identified archaeological resources, 45PI488 and 45PI724, are within this segment of the APE but located outside the area of potential ground disturbance (Table 7-4). Site 45PI724 is a historic-period debris scatter, and 45PI488 is a precontact period campsite. Evidence from site 45PI488 suggests there may be areas of the APE that have been minimally affected by historic land modification (Luttrell 2001). The presence of 45PI724 demonstrates the presence of historic deposits within historic fill soil strata (Cooper 2005).

During the early consultation regarding the APE between Sound Transit, FTA, and the Puyallup Tribe's Cultural Resource Department (November 22, 2019), **Text redacted. Contains privileged information that is not for public disclosure.** Based on the distance from the area of potential ground disturbance, this area and any associated archaeological resources are not anticipated to be affected by ground disturbance associated with the project.

#### 7.7.4 Tacoma Segment

The Tacoma Segment has a very high probability for encountering precontact archaeological materials, according to the DAHP model (Figure 7-1). The waterways, sloughs, wetlands, and associated riparian environments that characterized the pre-industrial landscape in the Tacoma Segment is clearly an area that contained critical resources that would have been ideal for settlement by precontact indigenous peoples for their villages and winter camps as well as locations for resource procurement and processing activities.

As with the Fife Segment, all ethnographic accounts of the Puyallup Tribe of Indians agree that the Puyallup River and its associated drainages are the core of their usual and accustomed traditional use areas (Smith 1940; Hilbert et al. 2001). Of the 13 ethnographically described villages, at least three would have been in close proximity to the Tacoma Segment of the APE (Table 4-2). This segment has had extensive land alterations due to land reclamation, urban expansion, and industrialization, which have drastically affected the entire area, obscuring some areas that could contain *in-situ* precontact cultural materials.

The location of the dedicated TDLE guideway bridge over the Puyallup River would be adjacent to the current I-5 bridge and in the footprint of the former I-5 Puyallup River bridge crossing, near the main ethnographic village site, Tsahskahd of the Puyallup Tribe of Indians. The village has been described by ethnographers but was not mapped at a scale that allows for its precise location to be identified. Haeblerlin and Gunther (1930) state that the main village was located on the north bank of the Puyallup River near the Cushman School, and Smith (1940) reports that the village was located on the south bank near the confluence of Clay Creek. It has been hypothesized (Larson 1985) that the village may have changed banks due to occasional flooding or for other unknown reasons.

Tacoma has a long history of growth and development dating back well into the 19th century. Given this history, it is highly probable that historic archaeological deposits occur throughout this segment due to its placement within the historic boundaries of the city of Tacoma.

There are 11 recorded archaeological sites within the Tacoma Segment of the APE, only one of which, 45PI1327, has been determined eligible for listing in the NRHP. **Text redacted. Contains privileged information that is not for public disclosure.**

Of the remaining 10 historic-period archaeological sites and isolates within APE for the Tacoma Segment, sites 45PI1290, 45PI1542, 45PI1458, 45PI1463, and 45PI743 have previously been determined not eligible for listing the NRHP, and sites 45PI1563, 45PI1456, 45PI1457, 45PI1459, and 45PI1460 are unevaluated (see Table 7-4). With the exception of site 45PI1563, these sites are within the area of potential ground disturbance. **Text redacted. Contains privileged information that is not for public disclosure.** The eight other sites are historic debris scatters and structural remains (45PI1563, 45PI1542, 45PI743, 45PI1456, 45PI1457, 45PI1458, 45PI1459, and 45PI1460, respectively) that have been identified from depths ranging from 1 to 12 feet bgs, across the Tacoma Segment of the APE.



## 8 ARCHAEOLOGICAL EXPECTATIONS

From an archaeological perspective, precontact and ethnographic site types that could be encountered within the APE include villages, seasonally occupied base camps, short-term field camps and seasonally utilized resource- procurement and processing loci. Resource procurement and processing loci represent a wide variety of activities that vary according to resource types present and environmental setting. Activities occurring at such sites were generalized or focused on specific resources such as shellfish or salmonid procurement, game hunting sites, plant gathering areas, felling trees for planks, canoe building and bark, and localities where flaked and groundstone material sources exist. In addition, other site types or features would have been present in the precontact and early contact period cultural landscapes associated with occupation of lowland and upland settings through which the APE passes. These include trails linking villages or accessing resource procurement loci, rock art, culturally modified trees, and burials among others; however, it is unlikely that the latter set of site types are extant.

Archaeological sites dating to the historic period result from early/modern Euro-American settlement activities that include homesteading, farming, and ranching. In addition, resource exploitation activities that were common to market driven economies of mid- to late 19th century included common commercial activities that revolved around widespread timber harvesting and delivery to sawmills for processing along with harvesting of intertidal shellfish and salmon runs. Sites of this time period include farmsteads clustered around highly productive areas in river valleys, sawmills located along larger watercourses and embayments near developing towns and ports to facilitate transport of timber to the mills, and road systems linking developing areas to developed areas and areas where resources were being exploited. With the arrival of the Northern Pacific Railroad terminus at Commencement Bay, industrial and urban development resulted in widespread construction and landscape modification associated with expanding port facilities, industrial zones, and commercial and residential buildings, and expansion of farms, orchards, and other agricultural activities in outlying areas to support the growing population (Schwantes 1996; Morgan 1979). During this period, the Puyallup Indian Reservation was defined and soon after allotments were assigned resulting in the disaggregation of Tribal lands in the Tacoma and Fife segments in the early 1900s as documented in Section 4 (Caldbrick 2013) (Figure 4-2). The remains of individual households of Tribal members and burials may be present and have been previously documented in areas near the APE (see Table 7-7).

From the information developed in Sections 5 and 7 of this document, known historic-period archaeological sites range from historic buildings and structures such as bridges and railroad trestles to building foundations, assumed to be remains of commercial, governmental, and residential structures, historic trash deposits and dumps, historic rail alignments, road beds, and underground utility tunnels that have been abandoned and covered by later developments, and a large array of associated features. These may include privies, storage dugouts, outbuildings, cemeteries, agricultural buildings, fields, and orchards, among others.

The risk of encountering near-surface ethnohistoric and historic-period archaeological materials in the APE is also modified by historic land alterations related to industrialization, development, and urban growth in all three segments – in particular, the Tacoma Segment. Within the South Federal Way Segment, historic landscape alterations include historic logging and agriculture, extensive land reclamation, and development beginning in the mid-20th century. The Fife Segment has also been affected by extensive historic agriculture and river channelization, with developmental land reclamation effects accelerating during the mid-20th-century development. The Tacoma Segment has been similarly affected; however, the extent of historic industrialization and development with associated land reclamation has filled more land than in other areas. The historic urban nature of the Tacoma Segment adds an additional level of

sensitivity for historic archaeological deposits. This sensitivity is based on continued development and use of historic parcels as residential, commercial, and industrial properties.

## 8.1 Expectations – Deeply Buried Archaeological Resources

Geological, geotechnical, and geoarchaeological studies of the three project segments (see Section 5) suggest the potential for deeply buried cultural deposits or stable landforms that would have been conducive to human occupation varies between and within segments. Along the South Federal Way Segment, post-glacial materials are generally thin over glacial deposits (e.g., glacial till and outwash), suggesting a low potential for deeply buried cultural strata.

Within the Fife and Tacoma segments, deeply buried deposits with the potential to contain cultural materials are present throughout, though vary by depth. In general, the basin is filled with hundreds of feet of alluvial materials deposited as a result of river deposition, lahar emplacement, delta building, and wetland sedimentation. These alluvial deposits are thickest near the center of the basin, with over 200 feet of alluvium, tidal flat, and fill materials present (Dragovich et al. 1994). Data from Welch et al. (2015) indicates that Osceola Mudflow deposits are found near the base of the valley, suggesting that most of the overlying alluvium was emplaced after approximately 5,600 years ago (Vallance and Scott 1997). Along the margins of the Puyallup River Basin, alluvial deposits tend to be shallower over the glacial till and outwash that line the valley.

Deposits with the greatest potential to contain evidence of human occupation are those that represent stable surfaces, such as buried soils, organic-rich wetland settings, shorelines, and stream terraces. Such deposits have been identified along the eastern and western margins of the Puyallup River Basin as a result of geoarchaeological investigations. At the eastern margin of the valley, near Hylebos Creek, delta shoreline sediments were encountered between 10 and 14 feet bgs that dated to as early as 4,200 years ago (Shantry et al. 2010). Archaeological midden materials found at the same location between 8 and 11.5 feet bgs dated to around 1,100 years in age. Along the western margin of the basin, a buried stable surface containing cultural materials was discovered between 15 to 23 feet bgs, as was a delta shoreline deposit dating to around 4,500 years in age between 30 and 36 feet bgs (Hodges 2009). Farther west, a series of buried soils and wetland deposits were identified between 65 and 75 feet bgs dating to the late Pleistocene and early Holocene (Punke et al. 2017).

Geotechnical coring nearer to the center of the Puyallup River Basin identified over 70 feet of alluvium containing layers of organically enriched materials (Hong West & Associates 1992; Jackson 1999). While none of these studies included detailed descriptions of organic-rich sediments that would allow for buried, stable paleosurfaces or soils to be identified, and no radiocarbon dating of organic materials was performed, these buried organic-rich deposits have the potential to represent stable paleosurfaces.

It was expected that archaeological testing along the Federal Way and South Federal Way Segments of the project would be conducted primarily using geoarchaeological shovel probes. If post-glacial deposits were encountered during the shovel probing that were too deep to be sampled using nonmechanical methods, archaeological boring was performed.

Deeply buried stable surfaces, former shorelines, and paleosols are anticipated along the Fife and Tacoma segments. It is possible that in some areas, especially along the margins of the Puyallup River Basin, deep boring may encounter glacial sediments below alluvium. Toward the center of the basin, however, glacial sediments are positioned well below the proposed depth of project disturbances and are unlikely to be encountered during the archaeological boring.