APPENDIX F: CULTURAL, HISTORIC, AND ARCHAEOLOGICAL TECHNICAL MEMORANDUM

This report is included following the *Cultural, Historic, and Archaeological Technical Memorandum*:
Data Recovery at 45KI757, an Olcott Isolate, King County, Washington. WSDOT Contract Y-10400 AA.
Prepared by AMEC Earth and Environmental, Inc.
December 24, 2009

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I-405, SR 520 to I-5 Improvement Project

INTERSTATE 405 **Corridor Program**

Congestion Relief & Bus Rapid Transit Projects

CULTURAL, HISTORIC, AND ARCHAEOLOGICAL TECHNICAL MEMORANDUM

September 2008

Includes 11/9/2010 Section 106 Review and Exemption Documentation.

Washington State Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

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MEMORANDUM FOR RECORD

November 09, 2010

TO: Bill Jordan, I-405 Corridor Environmental Manager

FROM: Michael Chidley, Archaeologist, Northwest Region

SUBJECT: **I-405, NE 6TH ST TO I-5 BELLEVUE TO LYNNWOOD IMPROVEMENT PROJECT**
KING AND SNOHOMISH COUNTIES
NHPA SECTION 106 REVIEW AND EXEMPTION DOCUMENTATION

Background

In 2008, the Washington State Department of Transportation (WSDOT), the Federal Highway Administration (FHWA), DAHP, the Muckleshoot Indian Tribe and the Snoqualmie Indian Tribe worked together to develop a programmatic agreement to guide the Section 106 consultation process for this project, and other projects in the I-405 corridor, in the event of project changes after the initial DAHP concurrence and tribal Section 106 consultation. The agreement, entitled *the Programmatic Agreement Pursuant to Section 106 of the National Historic Preservation Act of 1966 Among The Federal Highway Administration, The Washington State Historic Preservation Officer, The Washington State Department of Transportation, The Muckleshoot Indian Tribe, and The Snoqualmie Indian Tribe for Improvements to Interstate 405 (I-405) Corridor, King County and Snohomish County, Washington (I-405, Section 106 PA),* is the basis for this review.

Previous Documentation and Coordination

In 2008, the I-405 Environmental Team prepared the Cultural, Historic, and Archaeological Technical Memorandum (Technical Memorandum) for the I-405, SR 520-I5 Improvement Project. In developing this document, the I-405 team coordinated with the Department of Archaeology and Historic Preservation (DAHP) and tribes with an interest in the project area. Preliminary findings from the Technical Memorandum indicated an adverse affect to archaeological site 45KI757.
In August of 2008, WSDOT, FHWA, DAHP, the Muckleshoot Indian Tribe and the Snoqualmie Indian Tribe developed a memorandum of agreement for the data recovery and disposition of any artifacts found at the site. Data recovery at the site occurred in the fall of 2009 and resulted in a revised finding: one isolated artifact was found and the area was not an archaeological site as previous believed. In a letter dated February 17, 2010, DAHP agreed that the area was not eligible for listing on the National Register of Historic Places.

Current Cultural Resource Review

Between 2008 and early 2010, the project was on hold. In mid 2010, project designers were asked to look at ways to improve operation and safety in the project area. This resulted in redefining the project as the I-405, Bellevue to Lynnwood Improvement Project, extending the project area south to NE 6th Street for restriping and sign installation. It also resulted in additions to the project, including added widening for enforcement zones, maintenance pull-outs, and a transit shoulder, and installation of additional signs. Consistent with the *I-405, Section 106 PA* , the WSDOT Cultural Resource Specialist was asked to review the project to assess whether additional subsurface investigation and consultation would be required. The review is conducted by the Washington State Department of Transportation (WSDOT) on behalf of the Federal Highway Administration (FHWA) per the terms of the *I-405, Section 106 PA.*

Project Work Description

The proposed work considered under this review consists of work along Interstate 405 (I-405) including several enforcement zone pullouts, south-bound transit shoulder between State Route (SR) 522 and NE 160th St., maintenance pull-outs, and Active Traffic Management System (ATMS) sign and sign bridge locations between milepost (MP) limits 11.4 – 30.27. Proposed construction work activities include construction (grading, filling, and paving) of pull-outs and lane shoulders and pull-outs, and installation of multiple signs and sign bridges. Review is based upon WSDOT project plan sheets dated October 1, 2010.

Review and Documentation

This review was undertaken by the author following the intent and stipulations of the above referenced programmatic agreement, and included a review of the WSDOT GIS and DAHP WISAARD databases to identify any recently identified adjacent archaeological or historic sites, review of project information, plan sheets, and as-built data, review of aerial and SRView photos, and project element work area reconnaissance. The review found the following:

1. The proposed work considered in this review is a clarification and further development of small design elements within a much larger corridor improvement and widening project. The corridor improvements include widening I-405 between Bothell and Kirkland and other improvements for the Bellevue to Lynnwood Express Toll Lanes projects. The proposed elements considered here are shoulder widening, minor paving for emergency vehicle and maintenance vehicle pullouts, and a number of ATMS and express lane sign bridges and signs.

2. The proposed paving for shoulder widening and maintenance pullouts occurs within the existing median or immediately adjacent roadway shoulders of I-405. The identified locations for paving occur within areas of substantial prior construction disturbance and the depth of the proposed work is very limited in total depth and does not exceed the depth of the existing road prism and engineered fill, as confirmed by field reconnaissance.

3. The proposed sign bridges and sign work occur in locations within the existing interstate median or in areas immediately adjacent to the existing roadway shoulders. The identified locations for the ATMS, typical traffic signs (sign bridges with either single or double post gantries), or other sign locations occur in areas of substantial prior construction disturbance. Where the depth and the depth of the proposed work exceeds the depth of the existing road prism and engineered fill, the potential for intact Holocene sediments below the apparent road prism within the context of the landscape, cultural resources assessment results was assessed and confirmed by field reconnaissance. In each of those instances, due to the proximity of the proposed elements to the existing roadway and amount of disturbance/removal of the thin original sediments in those areas, the proposed elements occur in locations where intact Holocene sediments have been stripped during the interstate construction.

4. The proposed work is limited in scope and scale, and the probability for encountering archaeological materials is judged to be very low. The proposed work is isolated to the existing roadway prism, interstate shoulder and immediately adjacent right-of-way, occurs within a highly developed urban interstate section, and interfaces with existing roadway and traffic management features immediately adjacent (e.g. traffic control equipment, roadway shoulders, existing pavement).

5. The proposed signs and sign bridges are consistent with those elements currently existing on the interstate corridor and will not significantly alter the design, function, or overall appearance of the interstate highway.

6. A review of the Interstate 405 Corridor Survey: Phase III I-405, SR 520 to I-5 Improvement Project cultural resources assessment report identifies the areas of proposed work as being located within areas identified as unrestricted zones or areas of deep road prism. The cultural resources assessment for this portion of the I-405 corridor identified the areas where archaeological potential remains as those areas where: undeveloped upland areas where soils have been largely undisturbed, or areas where alluvial deposition has resulted in deeper sediments. The proposed elements do not occur in such undisturbed areas or in locations exceeding the road prism in areas of deeper alluvial sediments.

Conclusions and Determination

In accordance with the programmatic agreement identified above, this review followed direction of the relevant process as outlined in Stipulations I.B; IV.C.1; IV.C.2; and IV.C.3. Following the results of that review, these proposed project elements are determined to have no effect on historic properties and further cultural resources review and documentation is not required.

This memorandum serves as the written record of this determination.

The I-405 Corridor Unanticipated Discovery Plan, as attached in Appendix B of the I-405, Section 106 PA continues to apply to the work reviewed above and provides guidance in the event of post-review discovery of cultural resources during this project.

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Executive Summary

The I-405, SR 520 to I-5 Improvement Project (SR 520 to I-5 Improvement Project) is designed by the Washington State Department of Transportation (WSDOT) to improve traffic capacity along I-405. The I-405 Corridor Program Environmental Impact Statement (EIS) identified the need to improve highway safety by reducing traffic congestion and increasing travel capacity.

The SR 520 to I-5 Improvement Project is located in King and Snohomish counties. The project extends approximately 15 miles from SR 520 in Bellevue north to I-5 in Lynnwood and is located in:

- Sections 13, 14, and 24 of Township 27 North, Range 4 East;
- Sections 29, 30, 31, and 32 of Township 27 North, Range 5 East;
- Sections 4, 5, 8, 9, 16, 17, 20, 21, 28, 29, and 33 of Township 26 North, Range 5 East;
- Sections 4, 5, 8, 9, 17, 20, and 29 of Township 25 North, Range 5 East.

The project is a federal undertaking of the Federal Highway Administration (FHWA). FHWA, through WSDOT, must comply with federal regulations governing historic resources. The I-405 Team identified an area of potential effects (APE) for the project and conducted a cultural resources assessment in compliance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36 CFR 800, which require federal agencies to consider the effects of a proposed undertaking on historic properties. Section 106 fulfills the intent of the National Environmental Policy Act (NEPA), which also requires federal agencies to assess the effects of a project on environmental and cultural resources

The SR 520 to I-5 Improvement Project complements an earlier project, the I-405, SR 520 to SR 522 Kirkland Nickel Improvement Project (Kirkland Nickel Project), and includes two Build Alternatives (1 and 2) and a No Build Alternative. Both build alternatives include: one northbound lane between NE 124th Street and SR 522; one northbound lane between NE 195th Street and SR 527; replacement bridge structures at NE 132nd Street; and a grade separation between the I-405 northbound on-ramp from NE 160th Street and the northbound I-405 off-ramp to SR 522. The proposed additional pavement (footprints) for Build Alternatives 1 and 2 are the same; the difference between the two alternatives is operational.

The project is design-build, and the locations of some ground-disturbing project elements, such as stormwater outfalls, have yet to be finally determined. Also, wetland mitigation site(s) for the project have not yet been selected. Potential effects to historic properties from the stormwater features and mitigation site(s) will be assessed under the I-405 Corridor Programmatic Agreement (Appendix F).

Thirteen historic structures and three archaeological sites were identified within the APE. Of these resources, two – the Hosmer/Fries residence (NBH-013) and archaeological site 45KI757– were identified as eligible for inclusion in the National Register of Historic Places (NRHP) based upon criteria outlined in 36 CFR 60.4. Sites 45KI756 and NBA-003 are not eligible for inclusion in the NRHP.

The Hosmer/Fries residence (NBH-013) occupies its original location and the house is recommended eligible under Criterion C based on its classic Craftsman architectural features and on the integrity of design and materials. NBH-013 will not be directly or indirectly affected by proposed construction under Build Alternative 1 or Build Alternative 2.

Site 45KI757, an early Holocene prehistoric lithic scatter, is eligible under Criterion D because it has the potential to yield information important to prehistory. Archaeological site 45KI757 will be subjected to direct unavoidable adverse effects by Build Alternative 1 and Build Alternative 2. Both build alternatives propose to construct a grade separation between the I-405 northbound on-ramp from NE 160th Street and the northbound I-405 off-ramp to SR 522, and an associated large retaining wall along the eastern right-of-way line, which would result in the removal of the entire site area within the existing I-405 right-of-way. Data recovery is recommended for site 45KI757 as part of mitigation for the adverse effect.

Site 45KI756 is a dual-component site with an historic debris scatter and a small pre-contact lithic scatter. The structure on the site was demolished prior to the current investigation, and the site area was bulldozed, then groomed. The processes resulted in loss of physical integrity for both components. The historic component suffered losses of integrity of association, materials, setting, and feeling, and the pre-contact component now lacks integrity of location, association, and setting. Site NBA-003 is a road grade of undetermined age; the road could not be located on historic maps. It lacks any features to indicate it is an early historical transportation route. In addition, no historic artifacts or other features are associated with this site. Neither site appears to have the potential to yield additional information; thus these sites are not eligible for listing in the NRHP.

The No Build Alternative will have no effects on NBH-013 or 45KI757.

Introduction

Project Description

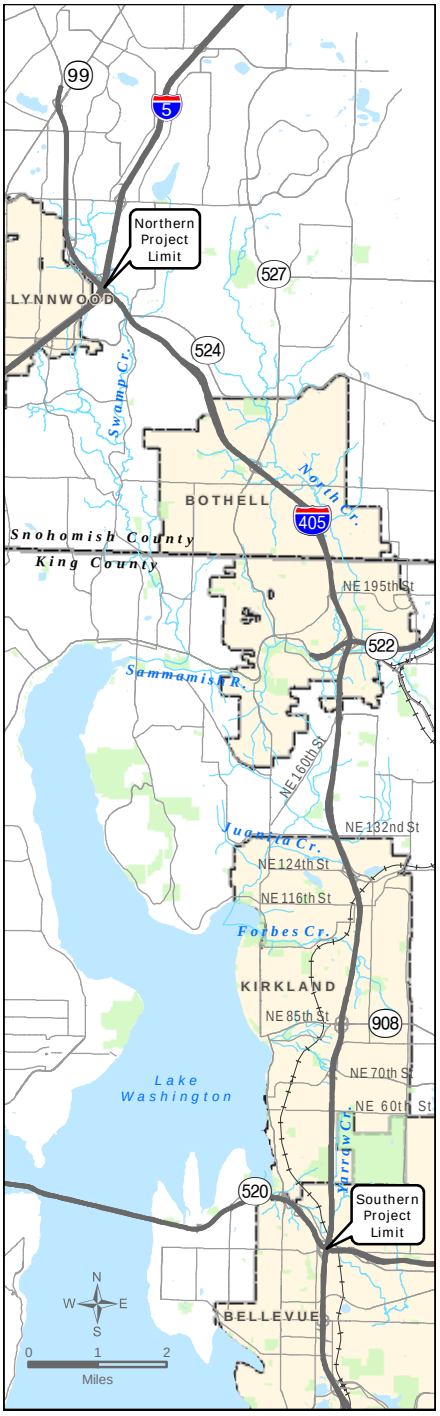
What is the I-405, SR 520 to I-5 Improvement Project?

The I-405, SR 520 to I-5 Improvement Project (SR 520 to I-5 Improvement Project) is part of the overall I-405 master plan designed to improve safety, reduce congestion, and add travel capacity. The project extends approximately 15 miles along I-405 from SR 520 in Bellevue at the southern limit, to I-5 in Lynnwood at the northern limit (see Exhibit 1). The Washington State Department of Transportation (WSDOT) has identified the primary construction elements of the SR 520 to I-5 Improvement Project as: one northbound lane between NE 124th Street and SR 522; one northbound lane between NE 195th Street and SR 527; replacement bridge structures at NE 132nd Street; and a grade separation between the I-405 northbound on-ramp from NE 160th Street and the northbound I-405 off-ramp to SR 522. The SR 520 to I-5 Improvement Project complements the I-405, SR 520 to SR 522 Kirkland Nickel Improvement Project (Kirkland Nickel Project).

The purpose of the SR 520 to I-5 Improvement Project is to improve personal and freight mobility, and reduce traffic congestion in the I-405 Corridor from Bellevue to Lynnwood. Specific benefits of the project include improved safety, reduced traffic congestion, increased travel speeds during peak travel periods, improved freight movement, and environmental improvements.

The baseline condition for the SR 520 to I-5 Improvement Project assumes completion of the improvements that have already been environmentally reviewed and permitted as a part of the Kirkland Nickel Project (Kirkland Nickel Stage 1 is currently under construction and Kirkland Nickel Stage 2 will be constructed at a later date concurrent with the SR 520 to I-5 Improvement Project).

Exhibit 1: Project vicinity



What alternatives will the proposed project analyze?

The SR 520 to I-5 Improvement Project will analyze two build alternatives and the No Build Alternative. Both build alternatives will improve overall operations of I-405, and will complement the Kirkland Nickel Project transportation improvements that have already been environmentally reviewed.

Build Alternatives

Both build alternatives add capacity and restripe existing pavement. The proposed additional pavement (footprints) for Build Alternatives 1 and 2 are the same; the difference between the two alternatives is operational. These operational differences will be implemented through different lane striping, and, in the case of Alternative 1, addition of electronic toll gantries and signage to accommodate tolling of the express toll lanes. Under both build alternatives, lanes that are not managed as express toll lanes or high-occupancy vehicle (HOV) lanes will be operated as general-purpose lanes (Exhibit 2).

Build Alternative 1 will result in a two-lane express toll lane system in both directions between SR 520 and SR 522, transitioning to a one-lane express toll lane system in both directions between SR 522 and I-5. With this alternative, the proposed express toll lanes will replace the existing HOV lane and the general-purpose lane south of SR 522 that will be built as part of the Kirkland Nickel Project.

Build Alternative 2 will retain the current one-lane HOV system in both directions throughout the project length from SR 520 to I-5. Build Alternative 2 makes minor improvements to the existing HOV system; however, the HOV lane occupancy requirement may change from 2+ to 3+ in response to current WSDOT and Federal Highway Administration (FHWA) policy, which states that HOV lanes should operate at 45 mph for 90 percent of the time (this goal is currently not being met).

What are express toll lanes?

Express toll lanes are designated travel lanes that are actively managed through a variable toll system in order to regulate their use and thereby maintain express travel speeds and reliability. WSDOT may choose to implement a toll structure on I-405 that differs for carpools, transit, motorcycles, and single-occupant vehicles (SOVs). Use of the express toll lane may be free for some users, such as transit and carpools, depending on congestion and/or time of day. WSDOT is currently working on determining the occupancy requirements and toll structure. If implemented, the express toll lane system will take the place of the existing HOV lanes.

What is an enforcement area?

An enforcement area is a paved 14-foot-wide shoulder extending approximately 1,300 feet, and is reserved for law enforcement officials to monitor and enforce HOV or express toll lane restrictions.

No Build Alternative

A No Build Alternative will be evaluated as the basis for comparing effects associated with the two build alternatives. The baseline condition assumes that the permitted improvements

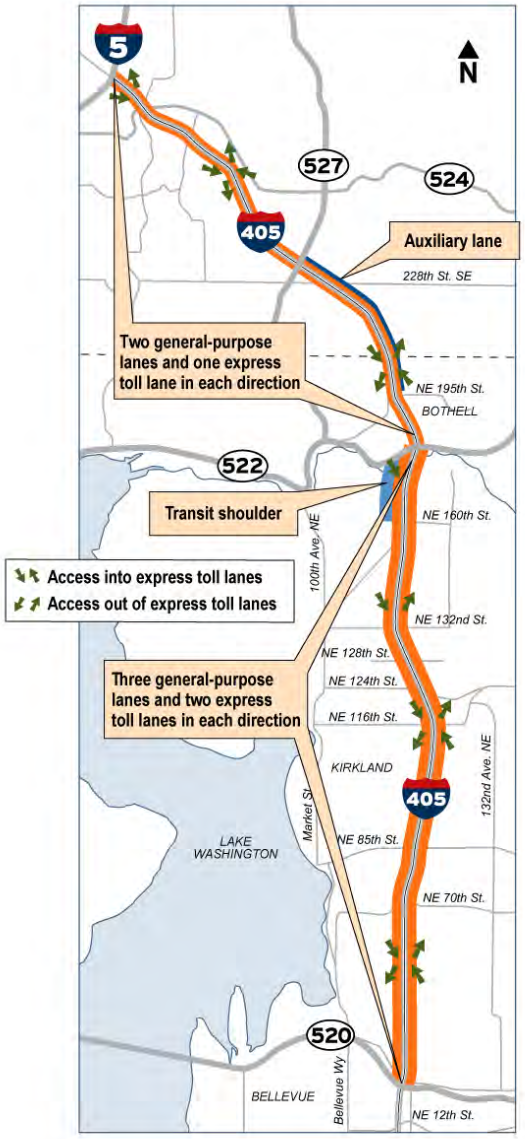
contained in the Kirkland Nickel Project will be built. The No Build Alternative for the SR 520 to I-5 Improvement Project assumes that no new improvements are made beyond those being constructed as a part of the Kirkland Nickel Project. The No Build Alternative does not include additional stormwater treatment or any roadway improvements that would widen roadway capacity, reduce congestion, or improve safety on I-405. Only routine activities such as road maintenance, repair, and minor safety improvements would occur.

Area of Potential Effects (APE)

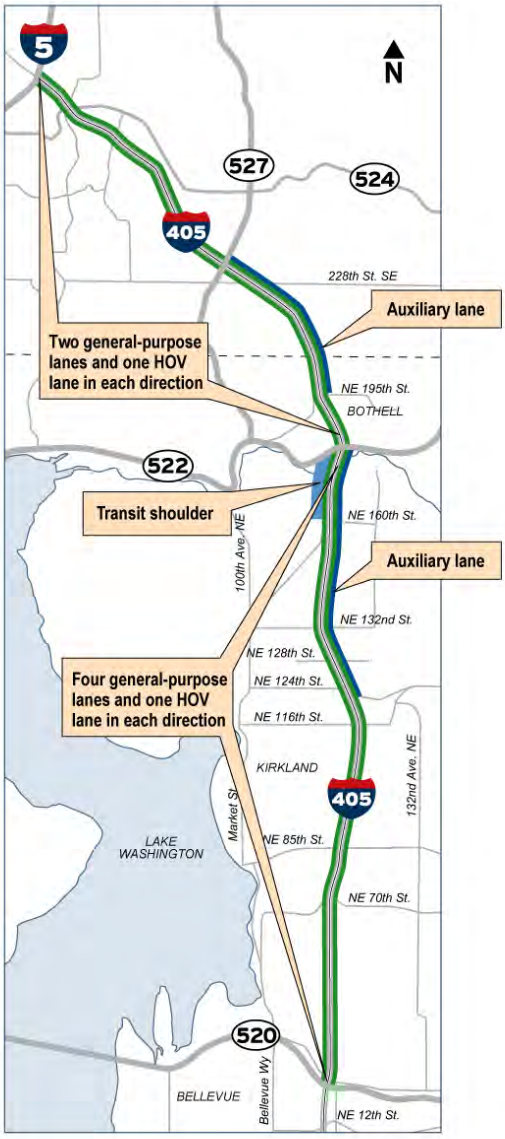
The area of potential effects (APE), as defined under 36 CFR 800.16(d), includes areas where archaeological resources may be affected during construction by ground disturbance and where historic structures or buildings may be directly or indirectly affected by the construction and operation of the project. Direct effects may occur where grading, clearing and grubbing, excavating, or other ground disturbance is planned, or when buildings, structures, or objects are altered or removed. Indirect effects may include increased noise or vibration, or changes to the view that would change the aspects of setting or feeling. The I-405 Team, in consultation with the State Historic Preservation Officer (SHPO) and interested and affected tribes, has determined that direct effects may occur within the existing I-405 right-of-way and that indirect effects may occur within one tax lot or 200 feet, whichever is less, of the I-405 right-of-way. The APE does not include those areas targeted only for proposed restriping of existing paved surfaces. The APE is shown in Exhibit 3.

Exhibit 2: Project alternatives

Build Alternative 1
(Express toll lanes)



Build Alternative 2
(General-purpose lanes)



Regulatory Context and Purpose of Investigation

Section 106 of the National Historic Preservation Act and its implementing regulations (36 CFR 800) require federal agencies to assess the effects of federally assisted undertakings on historic properties. These properties can be prehistoric or historic districts, sites, buildings, structures, or objects included in, or eligible for inclusion in, the NRHP. WSDOT, acting on behalf of FHWA and in consultation with the SHPO, the identified concerned tribes, and other interested parties, has the responsibility to identify and evaluate historic properties within the APE; assess effects to those properties; and avoid, minimize, or mitigate adverse effects on those properties. The Section 106 process fulfills NEPA requirements to assess the effects of a project on environmental and cultural resources.

An historic property is eligible for listing in the NRHP if it is more than 50 years in age, retains integrity, and meets the following criteria (36 CFR 60.4):

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, material, workmanship, feeling, and association, and:
>
> *a) that are associated with events that have made a significant contribution to the broad pattern of our history; or*
>
> *b) that are associated with the lives of persons significant in our past; or*
>
> *c) that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
>
> *d) that have yielded, or may be likely to yield, information important in prehistory or history.*

Because the project's proposed construction date is expected to be 2015, the I-405 Team evaluated resources that would reach 50 years in age by that time; that is, the Team evaluated those buildings or structures constructed in 1965 or before.

State Regulations

Construction of the SR 520 to I-5 Improvement Project also requires environmental compliance at the state level through Washington's State Environmental Policy Act (SEPA). Because of this requirement, project effects on cultural resources must be considered in weighing the overall effect of the project on the environment, as stipulated in WAC 197-11-960. SEPA requires that significant environmental impacts to cultural and historic resources be considered; be taken into account during the threshold determination process (WAC 197-11-330); and be considered in the final EIS (WAC 197-11-440). SEPA also stipulates that historic and cultural preservation is included as an element of the environment (WAC 197-11-444). All these requirements are satisfied within the SEPA process by compliance with Section 106 of the National Historic Preservation Act.

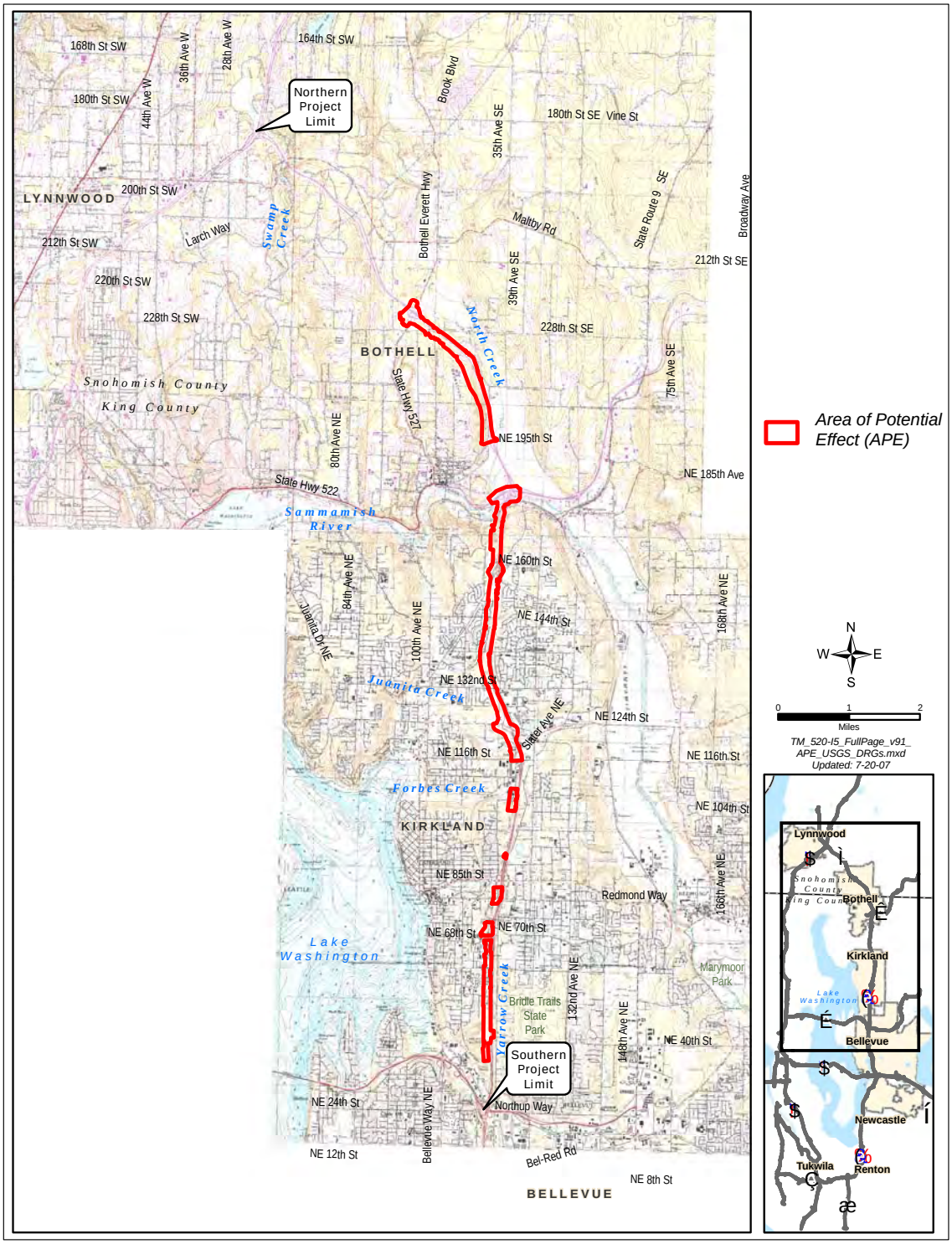
Native American burials are protected under RCW 27.44, and effects to archaeological sites are regulated by RCW 27.53. The Washington Heritage Register (WHR) is the Washington State version of the NRHP and follows similar criteria. The Washington State Department of

Archaeology and Historic Preservation (DAHP) administers the WHR. The WHR emphasizes local and statewide significance and has a lower threshold for eligibility than the NRHP. Any building or site listed in the NRHP is automatically listed on the WHR.

I-405 Corridor Programmatic Agreement

A corridor-wide Programmatic Agreement (PA) was recently completed for the I-405 Program (Appendix F) to provide for project-level circumstances where effects to historic properties could not be fully determined prior to Environmental Assessment (EA) approval, either because of insufficient levels of design, restricted access to some portions of the APE (i.e., private property), or late-stage identification of, or changes to, particular project elements. This project has such circumstances. The exact locations of two stormwater outfalls under the Sammamish River Bridge have yet to be determined. Because the project is design-build, the locations will be determined after the EA has been approved. Also, one or more wetland mitigation sites for the project have not yet been selected. The remaining archaeological studies necessary to establish potential effects to historic properties from the outfall features and mitigation site(s) will be completed under the I-405 Corridor Programmatic Agreement (Appendix F).

Exhibit 3: Area of potential effects (APE) map



Research Design

Introduction

This section provides the environmental, cultural, and historic background used to predict locations and types of resources that might be encountered in the project APE during the field survey. The I-405 Team researched previous cultural resource documentation and considered the following factors to place the resources within a contextual framework:

- Geology and soils;
- Flora and fauna;
- Prehistory;
- Ethnohistory; and
- History.

The following sub-sections discuss each of these factors.

Geology and soils

Sedimentary and volcanic rock spanning the period between 65 and 20 million years ago makes up the core of the Olympic and Cascade ranges, whereas these same geologic units in the Puget Sound area are covered by layers of glacial sediments that are as much as four miles thick. The Pleistocene era began 1.5 million years ago and witnessed the formation of continental ice sheets across North America. Irregularities in the earth's orbit, together with changes in oceanic currents, are thought to have caused variations in global temperatures that in turn created alternating periods of cold and warmer climates (Bradley 1985; Pielou 1991).

In the project area, at least seven successive advances of ice descended southward from Canada into Puget Sound, coalescing with mountain glaciers and forming a series of glacial lakes to the west. The Puget Lobe reached a maximum thickness of almost 5,600 feet and a width of more than 60 miles in the Bellevue vicinity, moving at a rate of 300 to 525 feet per year and eventually extending as far south as Olympia. During warmer periods between glacial advances, melting ice was accompanied by the formation of extensive outwash plains, with drainages resuming their north-trending courses into Puget Sound and the Strait of Juan de Fuca (Easterbrook 2003; Orr and Orr 1996; Pielou 1991; Troost et al. 2003; Wright and Frey 1965).

The most extensive glacial deposit visible in the landscape around Bellevue is the Vashon Drift. This formation was laid down during the last period of major continental glaciation, the Fraser Glaciation, which occurred 18,500 to 14,400 years ago. This deposit consists of approximately 200 feet of poorly sorted clays, silts, sands, gravels, and boulders that represent till and glacial outwash (Easterbrook 2003; Minard 1983; Pielou 1991; Troost et al. 2003; Wright and Frey 1965). Till is sediment that is carried within an advancing glacier, and outwash is sediment that is deposited by streams flowing from an advancing or retreating ice front. Vashon till is distributed locally along the upper portions of Beckstrom and Norway Hills. Advance outwash

deposits appear along the I-405 corridor and recessional outwash is found along SR 520 (Booth et al. 2002; Minard 1983).

Because of its location next to an active subduction zone between the Juan de Fuca, Pacific, and American tectonic plates, Puget Sound is susceptible to volcanism and earthquakes. A subduction zone is an area where opposing movement of continental and oceanic crust causes the former to override the latter, which is driven deep into the earth, forming a trough. Up to 100 earthquakes occur each year in the region and are caused by three factors: subduction, north-south compressional stress, and continental rise created by the retreat of Pleistocene-age glacial ice (Gower et al. 1985).

Soils are classified and mapped according to shared traits, such as parent material, organic content, landform, texture, color, slope, aspect, and moisture. The primary soil type within the project area is the Alderwood-Everett series, a group of moderate to very deep, well-drained soils formed on glacial till, terraces, and outwash plains. This soil is divisible into two primary subgroups: the Alderwood gravelly sandy loam and the Everett gravelly sandy loam. Alderwood soils are moderately deep, well-drained dark brown to dark grayish-brown soils formed on glacial till in upland forested contexts. These soils occupy slopes in the project area from 6 to 30 percent and consist of very gravelly sandy loam appearing in three horizons, the lowest of which exhibits a hardpan at about 27 inches below ground surface (BGS). The Everett gravelly sandy loam is a very deep, excessively drained dark brown soil formed on gravelly glacial outwash in lowland topographic settings, such as floodplains, between sea level and 500 feet in elevation and on slopes of 5 to 15 percent (Snyder et al. 1973).

Flora and fauna

The dominant vegetation province in the Puget Lowland is the forest province. The western hemlock (*Tsuga heterophylla*) zone is the plant association that dominates the Bellevue area of the Puget Lowland. Douglas-fir (*Pseudotsuga menziesii*) is the dominant tree in the western hemlock zone, even though the zone is not named for this tree. Western red cedar (*Thuja plicata*) consistently occurs in this zone. In disturbed areas, red alder (*Alnus rubra*) often is the first species to become established after the removal of coniferous forest. Big-leaf maple (*Acer macrophyllum*) and Douglas-fir are additional successional species. Understory species commonly found in the project area include swordfern (*Polystichum munitum*), bracken fern (*Pteridium aquilinum*), Oregon grape (*Berberis nervosa*), vine maple (*A. circinatum*), huckleberry (*Vaccinium spp*.), berry vines (*Rubus spp*.), creambush ocean-spray (*Holodiscus discolor*), salal (*Gaultheria shallon*), and twinflower (*Linnaea borealis*) (Franklin and Dyrness 1988).

Terrestrial fauna present historically and currently in the Puget Lowland include deer (*Odocoileus spp.*), elk (*Cervus canadensis*), black bear (*Ursus americanu*s), cougar (*Felis concolor*), and coyote (*Canis latrans*). These mammals have extensive ranges and at one time were common in both bottomlands and uplands. Marshy habitats near the project area typically supported a specialized, diverse array of fauna that still includes raccoon (*Procyon lotor*), ermine (*Mustela erminia*), beaver (*Castor canadensis*), river otter (*Lutra canadensis*), marten (*Martes americana*), and muskrat (*Ondatra zibethicus*) (Dalquest 1948).

The aquatic environments of Puget Sound are diverse and include freshwater rivers, streams, and lakes. Anadromous fish pass through these riverine and lacustrine environments. The relative abundance of different species of these fish in river and stream channels, and the timing of their passage, are specific to each drainage. In the project area, Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), and steelhead (*O. myk*iss) inhabit the Sammamish River and its tributaries, with spawning typically occurring in late summer to winter. Moreover, Lake Washington supports populations of kokanee salmon (*O. nerka*) and sockeye salmon (*O. nerka*). Populations of resident cutthroat (*O. clarki*) and rainbow trout (*O. mykiss*) inhabit the waters of the Sammamish River, Lake Sammamish, and Lake Washington (Williams et al. 1975; Wydoski and Whitney 1979).

Cultural Setting

Prehistory

Cultural change in Northwest Coast prehistory is discernable across time and space based on variation in archaeological assemblages, subsistence resource use, and settlement patterns within regional environmental contexts. The prehistoric record for Puget Sound is divided into three broad chronological periods: Early (13,000–5,000 Before Present [BP]), Middle (5,000-1,000 BP), and Late (1,000-250 BP).

The Early Period is characterized by chipped stone tools, such as fluted and leaf-shaped projectile points, and cobble tools with associated core and blade manufacture. Subsistence patterns indicate a reliance on upland hunting of large terrestrial mammals. Settlements are typically small with sparse concentrations of artifacts and manufacturing debris, and found on upland plateaus or river terraces. Occupations in low-lying coastal areas and on river deltas are relatively rare, but it is likely that many sites are submerged because of sea level rise or earthquake subsidence during the early and middle Holocene.

The Middle Period is characterized by a broad array of tool assemblages distinct from one another at the regional level, interpreted to mean that local populations adjusted to changing environmental conditions differently across regions according to resource availability and productivity. Notched stone projectile points (darts) decrease in size, and toolkits broadened to include groundstone and worked bone and antler tools and tool parts. Subsistence practices shifted away from a heavy reliance on large terrestrial animals toward marine and riverine resources and habitats; shellfish, salmon, and sea mammals became more important resources. Shell middens appear in the archaeological record during this period. Areas occupied by humans expanded to include modern shorelines and islands in Puget Sound, characterized by the earliest evidence of seasonal village sites. Both population size and density likely increased.

The Late Period is characterized by assemblages containing small side-notched and triangular stone projectile points, and a dramatically increased emphasis on bone and antler tools. Also common are trade goods imported from indigenous populations of the Columbia Plateau, and metal arrowheads and trade beads and other goods of European and Asian manufacture. Salmon became a major staple, indicated by relatively permanent villages located on major rivers at confluences with tributary streams, along with the construction and maintenance of

elaborate fish weirs. Aquatic subsistence practices were supplemented by terrestrial hunting and plant procurement. Permanent, ethnographically described village sites were established and persisted into the ethnohistoric and historic period (Carlson 1990; Kidd 1964; Nelson 1990; Wesson and Stilson 1987). Population size and density likely continued to increase.

Ethnohistory

The project APE and vicinity were occupied by the Duwamish Indians, a southern Coast Salishan linguistic group that consisted of a number of bands, including the Sammamish, who occupied much of the area along the river that bears their name (Haeberlin and Gunther 1930; Spier 1936; Swanton 1952).

Duwamish bands oriented their settlement-subsistence systems on seasonal rounds toward the saltwater, riverine, and inland environments within their territories. The focus of the Duwamish's yearly cycle was the permanent winter village, which consisted of cedar plank longhouses in which several families resided, although temporary pole and mat structures were used seasonally when family groups dispersed to harvest and process resources in different environmental zones. Primary resources consisted of salmon harvests and shellfish supplemented with roots, berries, and other plant products. Fishing stations were established along major rivers at tributary confluences to harvest salmon, steelhead, and trout. Inland bands hunted game, such as elk, deer, bear, and beaver, and trapped waterfowl with nets. Trade was conducted during the fall, and tool maintenance, basket weaving, wood carving, and storytelling were reserved for the winter (Campbell 1981; Haeberlin and Gunther 1930; Swanton 1952; Ruby and Brown 1986; Suttles and Lane 1990).

Historically, the Bellevue/Kirkland/Bothell area provided habitat for numerous animals and plants that would have served as food resources and other uses for Indians and early Euro-American settlers. Large and small game animals, anadromous and resident fish, and birds were procured for food and the technological resources they provided, such as bones for tool making, hides for clothing, and sinew for cordage. Plants provided sustenance and were used as building materials and medicines. Local tribes used parts of western hemlock for firewood, fishing hooks, medicinal poultices, and cold remedies. White pine gum served as cough medication and an infusion made from its bark ameliorated stomach problems and rheumatism. Red alder provided a dye that camouflaged fishnets. Big-leaf and vine maple fiber was used in basketry, and the leaves were used as containers for cleaned fish. Swordfern leaves were also used as food containers, bedding, and berry-drying racks; the rhizomes were sometimes baked and eaten. Huckleberries and salal berries were eaten raw or dried for later use. Oceanspray wood was made into canoe paddles, and its seeds were used as a blood purifier (Gunther 1945; Moerman 1998).

The arrival of Euro-Americans was presaged decades earlier by outbreaks of epidemics that decimated native populations. Euro-American fur traders were followed by incursions of missionaries and settlers who displaced native groups. Alcohol, disease, and relocation disrupted social and political organization (Haeberlin and Gunther 1930; Swanton 1952; Ruby and Brown 1986; Suttles and Lane 1990).

In 1855, Isaac Stevens, then Governor of Washington Territory, initiated a series of treaty negotiations with the Duwamish, Suquamish, Snoqualmie, Snohomish, Stilliguamish, Swinomish, Skagit, Lummi, and other western Washington tribes with the intention of relocating native groups to small reservations within their traditional territories. Native groups in the northeastern Puget Sound region avoided formal removal and relocation programs. The Duwamish bands resisted settlement on reservations but many eventually dispersed to become members of the Muckleshoot, Snoqualmie, and Tulalip Tribes. In the late 1960s, the Duwamish, Samish, Snohomish, Snoqualmie, and Steilacoom tribes united to form the Small Tribes organization of Western Washington to pressure the U.S. for a settlement and recognition for the seizure of tribal lands (Marino 1990). The Duwamish Tribe briefly gained federal recognition in 2001 but that recognition was rescinded by the Bush administration later that same year.

Native American place names

Several ethnographic place names, or toponyms, in the project APE describe locations associated with Coast Salish tradition, settlements, and subsistence (Exhibit 4). The ethnographer T.T. Waterman notes that toponyms vary according to tribal recollection, and his informants admitted that many locations were lost to tradition over time (Waterman 1922; 2001).

The project's APE is located in an area that was known as *Saba'bsh.* This area encompasses the eastern shore of Lake Washington to the shores of Lake Sammamish, and included a band of people alternately referred to as *Sts-ap-abc,* "meander dwellers," who lived along the Sammamish River. Several named places are located within three miles of the project's area of potential effects (Exhibit 3). Places names can be descriptive or associated with traditional subsistence locations. The closest place name is *Ctcel* for North Creek entering the Samammish River, located approximately 0.25 mile from the project's APE. Within 1 mile of the project APE is *Txwa'bats,* "pulling toward something," for a swamp at the head of Northrup Creek, and *sts!ap*, meaning "crooked" or "meandering," located upstream from Bothell at Squawk Slough. Located approximately 2.5 miles east are *Xa'3palb1u*, "a lot of brush piled up," for a creek that enters the Sammamish River near the present city of Bothell, and *TLnai'3si* for a type of bony fish with a stripe that historically ran in a creek located at Meydenbauer Inlet (Waterman 2001). Other Salishan names include *Cxa'tcugwEs*, "where the lake becomes elongated," denoting the narrow estuary where the Sammamish River enters Lake Washington approximately 3 miles from the project's APE. Lake Washington was known as *At-kow-chug*, "large body of fresh water," or *Xatcu*, "lake," although Waterman claims a colleague had identified the lake as D'Wamish Lake, around which resided the *S'pe-tehl-mush* (Waterman 2001). The Lake Washington shoreline is from 1 mile to 3 miles from the project's APE.

The toponym *Sts-ap-abc* may also have been a village, *Stsapabsh*, located at the present site of Woodinville. Waterman mentions a colleague who identified the *Xatcxatcu-abc*, "lake-dwellers," referring to people who lived along the shores of Lake Washington, and *Squaux'abc*, "dwellers at Squax," as that band that inhabited the area around Lake Sammamish (Waterman 1920; 1922).

Within an approximately 2.5-mile vicinity of the project's APE are other toponyms that are suggestive of village locations, including *TL!ahwa'dis*, "something growing or sprouting," a village on the north shore of Lake Washington at the mouth of the Sammamish River, and *Sa'tsalaL*, "water at the head of the bay," for a village site located near present-day Bellevue.

Contemporary Indian tribes are concerned about development that occurs within their ceded territories and traditional use areas. These tribal groups often want to protect cultural properties, which include archaeological, traditional procurement, historical or landmark, and religious sites (Kennedy 1993).

Exhibit 4: Place names (toponyms) within three miles of the APE

Place Name	Meaning	Location	Approximate Distance from APE
Ctecl	Location along North Creek	Place where North Creek enters into the Samammish River	0.25 mile
Xwa'bats	"pulling towards something"	A swamp at the head of Northrup Creek	1 mile
Sts!ap	"crooked, meandering"	Located upstream from Bothell at Squawk Slough	1 mile
Xa'3palb1u	"a lot of brush piled up"	A creek that enters the Sammamish River below Bothell	2.25 miles
TLnai3si	"bony fish with stripe"	Bony fish with a stripe located in a creek near Meydenbauer Inlet	1.28 miles
Cxa'tcugwEs	"where the lake becomes elongated"	Where the Sammamish River enters Lake Washington and where the lake gradually narrows into an estuary	3 miles
At-kow-chug	"Lake Washington"	Lake Washington	1 to 3 miles
Saba'bsh	No translation	Area encompassing the eastern shores of Lake Washington to the shores of Lake Sammamish	Encompasses APE
Srs-ap-abc	"meander dwellers"	A band who lived along the Sammamish River and a possible village site at Woodinville	Varies
Xatcxatcu-abc	"lake dwellers"	A group who live along the shores of Lake Washington	1 to 3 miles
Squaux'abc	"dwellers at Squax"	A group who inhabited the area around Lake Sammamish	4 miles
TL!ahwa'dis	"something growing or sprouting"	A village on the north shore of Lake Washington at the mouth of the Sammamish River	3 miles
Sa'tsalaL	"water at the head of the bay"	Village near Bellevue	3 miles

History

Although Russian, Spanish, and British naval expeditions are thought to have traversed the coastal waters off Washington as early as the middle 1500s, British Captain George Vancouver's arrival in 1792 marks the earliest undisputed record of Euro-American contact in the Puget Sound region. Many of the region's physiographic eponyms, such as Puget Sound, Hood Canal, Mount Baker, and Mount Rainier, were derived from members of Vancouver's party and the British admiralty (Cole and Darling 1990; Kirk and Alexander 1990; Marino 1990; Meany 1923).

Exploration was followed by incursions of Euro-American fur traders under the aegis of the Hudson's Bay Company during the 1830s. Early contacts between Euro-American traders and native populations proved disastrous to the latter, as they fell victim to waves of malaria, tuberculosis, and smallpox epidemics in the late 1700s and middle 1800s (Cole and Darling 1990; Kirk and Alexander 1990; Marino 1990).

An especially significant stimulus for settlement in the region was the Donation Land Act of 1850. The law granted each male American citizen 18 and older a half section, or 320 acres, of public lands, requiring that he occupy, cultivate, and "improve" it for 4 consecutive years. Wives of the settlers were granted an additional 320 acres in their own names (Ficken and LeWarne 1988; Johansen and Gates 1967). Washington Territory was organized in 1853 by its first governor, Isaac Stevens, and the territory eventually achieved statehood on November 11, 1889 (Kirk and Alexander 1990).

Cadastral surveys of western Washington Territory by the General Land Office began in 1851 with the setting of the Willamette Meridian. The surveys provided information about topography, hydrology, vegetation, roads, trails, homestead cabins, and Native American villages and camps by mapping these features, thereby aiding settlers in selecting a land claim. The township, range, and section lines for the project area were surveyed between 1860 and 1874 (General Land Office 1860, 1871a and b, 1874).

The Project APE encompasses areas within the boundaries of the cities of Bellevue, Bothell, and Kirkland. A brief history of the development of these communities is outlined below.

In 1869, William Meydenbauer and Aaron Mercer arrived in Bellevue within months of each other to claim land. By 1871, Meydenbauer had sold his property and by 1872 Aaron Mercer had moved to the Duwamish Valley. The claims of these pioneers were located close to what is now downtown Bellevue (McDonald 2000; Stein and The HistoryLink Staff 2004).

Much of the area in Bellevue, Bothell, and Kirkland was heavily wooded. In the Bellevue area, loggers routinely felled trees measuring 9 feet in diameter and 325 feet high, with teams of horses and oxen skidding the logs to Lake Washington, where the logs were floated to Phinney's Mill on the west shore (McDonald 2000). As more land was cleared in the area, greater numbers of settlers were drawn to the Bellevue area where they claimed land and set up farming operations. The city of Bellevue was the last of these three cities to be platted and incorporated. It was not until 1904 that the city of Bellevue was platted, and in 1952 the City of Bellevue was incorporated (Bagley 1929; McDonald 2000; Stein and The HistoryLink Staff 2004).

The first settlers to the Bothell area were Columbus S. Greenleaf and George R. Wilson, who established homesteads in 1870. In 1876, George Brackett started a logging operation at Brackett's Landing. The logs were floated down the Sammamish River to Lake Washington and then floated to sawmills in Seattle and Ballard. Bothell was first platted in 1889 by David Bothell and his wife. It was not until 1908 that the town became incorporated (Bagley 1929; Evans 1988).

The City of Kirkland had a slightly different start. Settlers first arrived in the area in 1871 and by the 1880s the communities of Houghton and Juanita were established (Bagley 1929; Ely 1975). In 1888, Peter Kirk, a steel industrialist from Britain, partnered with Leigh S. Hunt and acquired 1,200 to 1,400 acres in which to found the city of Kirkland. Kirkland was located between the communities of Houghton and Juanita and Peter Kirk's vision was to have the City of Kirkland become a steel town. Kirk and Hunt platted the town and named streets; however, difficulties with the railroads, financial difficulties, and ultimately the panic of 1893 forced Kirk and Hunt to abandon their plans to make Kirkland a steel town. The City of Kirkland first

appears on the census rolls in 1900 with a population of 392. The City of Kirkland was incorporated on October 12, 1905 and in 1910, the vacant tracts were acquired by Burke and Farrar and new subdivisions were created. By 1920, the population of Kirkland was 1,354 (Bagley 1929; Ely 1975).

Waterways were used as the earliest transportation in the Bellevue, Bothell, and Kirkland areas. Supplies were brought to the east side of Lake Washington from Seattle via boats, and early pioneers rowed across Lake Washington to sell produce in Seattle. It was not until 1903-1904 when the Northern Pacific Railroad constructed the Washington Belt Line, between Renton, Washington, and the Canadian border, that items were transported by rail (MacDonald 2000).

One of the earliest roads built on the east side of Lake Washington was NE 24th Street, which was begun in 1879 as a route from the lake to Northrup and intersected with a trail along what is now 140th Avenue NE on the west side of I-405 (McDonald 2000).

Paved roads connecting Bellevue with other towns were contracted by King County in 1919. The first of these linked Newport with Bellevue, followed by the completion of Lake Washington Boulevard to Seattle in 1920 (McDonald 2000). Within two more years, automobile travel around the circumference of Lake Washington was possible, although not always a recommended route because of the condition of the road surface in places (Jones 1963; McDonald 2000). For residents who worked in Seattle but lived on the east side of Lake Washington, the ferry service was used to commute from the east side, including the communities of Bellevue and Kirkland to Seattle (McDonald 2000; Whitley 2002).

Plans for a bridge across Lake Washington linking Bellevue and the rest of the east side more directly with Seattle were formulated as early as 1926. Although several routes were proposed, magazine magnate and civic developer Miller Freeman suggested constructing the shortest route toward Elliott Bay; the modern I-90 corridor, built in 1940, deviates less than 2,000 feet from the line Freeman drew. Highway planners began proposing routes for what would become the second bridge across the lake, SR 520, in 1948. Highway A-2, the precursor to I-405, was completed in 1956 and construction began on I-405 in 1963 (Stein and The HistoryLink Staff 2004).

The late 1940s saw increased development as part of a post-World War II economic boom. For building new residences, developers focused on former agricultural parcels located only 15 minutes from Seattle in Bellevue on the east side of Lake Washington (Brant 1947; Cohn and Sellers 1990). Pressure by homebuyers to live on the east side spurred the development of new neighborhoods (McDonald 2000). Developers began platting other communities in a widening arc from Bellevue's Main Street. The population growth of Bellevue reflects the movement of people into the east side suburbs: 400 residents in 1900; 1,500 in 1920; more than 9,000 within 2 years after World War II; 12,800 in 1960; and more than 62,000 by 1970 (Brant 1947; McDonald 2000; Stein and The HistoryLink Staff 2004).

Previous investigations/literature review

This section and those following include information about archaeological investigations and field data. DAHP requires that survey data, such as transect intervals, excavation depths, and

prehistoric or ethnohistoric artifact measurements, be recorded in metric units; English measurements are used only for historic period materials. Metric measurements are provided in this document to meet these reporting requirements.

The information in this section builds on the previous investigations provided in the Kirkland Nickel Project report (WSDOT 2005) and also provides a larger geographic context in which to place resources that are located within the APE. Below is information from previously conducted archaeological assessments that were conducted in the proximity of the SR 520 to I-5 Improvement Project APE.

Project Vicinity (Outside of APE)

Twenty-nine cultural resource assessments have been conducted within 2 miles of the SR 520 to I-5 Improvement Project APE (Exhibit 5). These assessment reports were completed for transportation, development, and recreation projects.

Archaeologists conducted one cultural resources assessment, one cultural resources investigation report, one archaeological evaluation, and a discovery report for projects related to two existing parks, one proposed park, and a mastodon or mammoth tusk discovery at a local elementary school (Jones and Stokes 2004; Liddle 2000; Luttrell 2003; Thomas 1978).

During the [redacted] Project, construction of a pedestrian foot bridge disturbed [redacted] site 45KI12. The site had been re-recorded in 1977 prior to construction of the foot bridge, at which time fire-cracked rocks, a basalt flake, and a cobble tool were recorded (Thomas 1977). The site was tested following the disturbance, [redacted] (Thomas 1978).

The cultural resource assessment conducted for the proposed Cedar Grove Park did not reveal any significant cultural material during the subsurface testing; however, one potentially historic property, the Sparks House, was noted. The Sparks House was recorded and though the house was built in 1926, it was determined not eligible for listing on the NRHP because of major renovations in the 1970s (Jones and Stokes 2004).

During excavations of a utility trench at Lakeview Elementary School, a mastodon or mammoth tusk was uncovered in an anaerobic blue-gray clay and peat layer. The faunal find did not include any cultural resources. Subsequent monitoring of the remaining construction activity did not reveal the presence of any additional mastodon/mammoth remains or cultural resources (Liddle 2000).

Sixteen cultural resources reports were completed for transportation-related projects within 1 mile of the SR 520 to I-5 Improvement Project APE (Crisson 2006; Hanley 1981; Iverson et al. 2003; LeTourneau and Nelson 2004a; Luttrell 2001; Lyons 1992; Robbins and Dugas 2000; Robinson 1981, 1983a and b, 1986, 1987a and b, 1988; Thompson 1978; WSDOT 2005). In 2005, an assessment was conducted for the Kirkland Nickel Project. No archaeological resources were observed during subsurface testing; however, 14 historic structures were recorded. While the APEs of the Kirkland Nickel Project and the SR 520 to I-5 Improvement Project overlap in some areas, they do not correspond exactly. Thus, some resources found in the Kirkland Nickel Project APE are not located within the SR 520 to I-5 Improvement Project's APE.

Two historic buildings are located outside of but immediately adjacent to the SR 520 to I-5 Improvement Project APE and within the Kirkland Nickel Project APE. The George Shaw house was first inventoried in 1988 and re-inventoried during the cultural resource survey for the Kirkland Nickel Project. The house appears to meet the NRHP eligibility Criterion A for association with economic growth during the early 20th century and association with the Woodin homestead, and Criterion C as an example of the Craftsman bungalow style (more specifically, a Flemish bond pattern brick residence [Gray 2004a; WSDOT 2005]). The Henry and Bell Miller residence is located outside of but immediately adjacent to the SR 520 to I-5 Improvement Project APE but within the Kirkland Nickel APE. The house was first inventoried in 1988 and re-inventoried during the cultural resource survey for the Kirkland Nickel Project. According to the recorders, the house appeared to meet the NRHP eligibility Criterion C as a rare example of an early 20th century log cabin. Regardless, the house has since been destroyed by the property owner (Gray 2004b; WSDOT 2005).

In 2004, subsurface testing for wetland mitigation associated with road improvements along SR 524 recorded an archaeological isolate site (45SN376). The isolate consisted of four pieces of lithic debitage [redacted] (LeTourneau and Nelson 2004a and b). No other cultural resources were observed or recorded per the remaining reports.

Six development-related cultural resources surveys were conducted within 1 mile of the SR 520 to I-5 Improvement Project APE (Abbott and Larson 1984; Blukis Onat 2002a and b; Chatters 1981 a,b, and c; Kielusiak 1983; Robinson 1987c; Trudel et al. 2004).

In 1981, an archaeological site inventory was conducted [redacted] in preparation for the development of the site located approximately one-eighth mile east of the SR 520 to I-5 Improvement Project APE. During the initial pedestrian survey, site 45KI72 [redacted] (Chatters 1981a). The site was further tested [redacted] (Chatters 1981b and c). This site was identified as an Olcott period site (Chatters 1981b and c). Part of the site was destroyed by construction prior to the planned excavation of the site.

In 2002, BOAS, Inc. conducted field investigations for proposed development in Bothell, located approximately 0.75 mile west of the SR 520 to I-5 Improvement Project APE. Site 45KI331 was surface-recorded, and 11 flakes and a possible core were observed. Subsequent subsurface testing did not reveal any additional cultural material, but did establish that the site was not significant due to lack of integrity (Blukis Onat 2002a and b).

In 2004, an archaeological resources and traditional cultural places assessment report was conducted for the proposed Waterford development at North Creek. Subsurface testing revealed the presence of a brick fragment, two glass fragments, and two fire-cracked rock fragments that were subsequently determined to be recent (less than 50 years old). Six historic

buildings were identified and the report recommended that these structures be evaluated by an architectural historian prior to demolition (Trudel et al. 2004).

Two reports detailing cultural resource findings are outlined in the Final Environmental Impact Statement (FEIS) for the proposed Brightwater Regional Wastewater Treatment System (Brightwater). The proposed Brightwater conveyance system would extend from Edmonds to Bothell, Washington, with segments of the system located within approximately 1 mile of the SR 520 to I-5 Improvement Project APE. No significant archaeological material was observed during the subsurface testing of the proposed conveyance system routes (LAAS 2003a). Larson Anthropological Archaeological Services (LAAS) inventoried numerous historic structures. Within the vicinity of the SR 520 to I-5 Improvement Project APE, historic buildings include the Wild West Classic Mustang Ranch, the Howell Log Cabin and outbuildings, and the Bear Creek Grange. Of these resources, it was determined that the Wild West Classic Mustang Ranch was eligible for listing on the NRHP under Criterion C (LAAS 2003b).

Exhibit 5: Cultural resource assessments conducted within two miles of the APE

Author	Date	Name of Report	Resource
Thomas	1978	*Archaeological Evaluation of Pedestrian Bridge Site on Sammamish River Trail*	45KI12
Thompson	1978	*Cultural Resources Assessment of Department of Transportation Park and Ride Lot at 132nd Street and NE 116th Street, near Kirkland, Washington*	None
Chatters	1981a	*Report on the Archaeological Site Inventory of the Quadrant Property, North King County, Washington*	Site 45KI72
Chatters	1981b	*Quadrant Site Bothell-Test Excavation and Evaluation of Significance*	Site 45KI72
Hanley	1981	*An Archaeological Reconnaissance of SR 405; Woodinville Park and Ride Lot*	None
Robinson	1981	*An Archaeological Reconnaissance of SR 405: N.E. 195th Street Park and Ride Lots, Alternatives 2 and 15*	None
Kielusiak	1983	*Cultural Resource Assessment for North Creek Comprehensive Plan Amendment and Rezone Draft Environmental Impact Statement*	None
Robinson	1983a	*An Archaeological Reconnaissance of SR 522: N.E. 195th Street Interchange King County, Washington (L-7231)*	None
Robinson	1983b	*A Preliminary Archaeological Reconnaissance of SR 502: 108th Avenue N.E. Transit Access Ramp, King County*	None
Abbott and Larson	1984	*Cultural Resource Assessment of the Yarrow Village Project*	None
Robinson	1986	*A Cultural Resources Reconnaissance of the SR 527 North Creek Bridge Replacement, Snohomish County, Washington*	None
Robinson	1987a	*A Cultural Resources Survey of 116th Avenue NE from NE 124th Street to the Vicinity of the Metro Park and Ride Lot, and North 124th Street Between 100th Avenue NE and 116th Avenue NE*	None
Robinson	1987b	*A Cultural Resources Survey of SR 202: SR 522 to 175th Street, King County, Washington*	None

Author	Date	Name of Report	Resource
Robinson	1987c	*An Archaeological Survey of the Proposed Sammamish Park Estates Property, King County, Washington*	None
Robinson	1988	*Archaeological Monitoring on SR 527: North Creek Bridge Replacement Snohomish County (TAD 233)*	None
Lyons	1992	*A Cultural Resource Overview of the Proposed Modifications to SR 520 between 104th Avenue NE and SR 901, King County, Washington*	None
Stutzman	1995	*Archaeological Resources Assessment of the University of Washington, Bothell Branch and Cascadia Community College Collocation Project at the Truly Farms/Stringtown Site, Bothell Washington*	None
Robbins and Dugas	2000	*Proposed Sound Transit Regional Express Totem Lake Project Cultural Resource Assessment*	None
Liddle	2000	*Discovery of Mastodon Tusk during Utility Excavations at Lakeview Elementary School*	Mastodon tusk
Luttrell	2001	*Cultural Resources Investigations for Washington State Department of Transportation's SR 522 UWB/CCC South Access Project, King County, Washington*	None
Blukis Onat	2002a	*Field Investigations at Property 22916 Bothell-Everett Highway*	Site 45SN331
Iverson et al.	2003	*Final 124th Avenue Northeast Roadway Improvement Project Archaeological Resources and Traditional Cultural Places Assessment King County, Washington*	None
LAAS	2003a	*Final Environmental Impact Statement, Brightwater Regional Wastewater Treatment System, Chapter 15, Cultural Resources*	None
LAAS	2003b	*Final Environmental Impact Statement, Brightwater Regional Wastewater Treatment System, Appendix 15A, Cultural Resources: Historic Buildings and Structures*	None
Luttrell	2003	*Cultural Resources Investigations at Bridle Trails State Park, King County, Washington*	None
Jones and Stokes	2004	*Cultural Resources Assessment of the Proposed Cedar Grove Park Project Snohomish County, Washington*	None
LeTourneau and Nelson	2004	*Results of Archaeological Field Investigations at Proposed Mitigations Sites for SR 524 Improvements, Snohomish County, Washington*	Isolate 45SN736
Trudel et al.	2004	*Waterford at North Creek Archaeological Resources and Traditional Cultural Places Assessment, Snohomish County Washington*	None
WSDOT	2005	*I-405, SR 520 to SR 522-Kirkland Nickel Project*	George Shaw House-potentially eligible to NRPH
Crisson	2006	*SR 522: University of Washington Bothell/Cascadia Community College South Access Project, King County Washington, Agreement GCA-4414, TOD AU*	None

Within Project APE

No cultural resources assessments have occurred within the SR 520 to I-5 Improvement Project APE.

Previously Recorded Archaeological Sites

Known archaeological sites and historic buildings/structures are presented according to their proximity to the SR 520 to I-5 Improvement Project APE – either within one mile of the APE or within the APE.

Project Vicinity (Outside of APE)

Five archaeological sites and one archaeological isolate are located within 1 mile of the APE, and provide information about the site types that occur in the project vicinity (Exhibit 6).

As previously mentioned, site 45KI12 was re-recorded in 1977. [redacted] were observed. It was noted that the site was eroding [redacted] and the site had been further damaged by the dredging of the river and development (Thomas 1977).

Site 45KI72, [redacted] consists of hundreds of fire-cracked rocks, [redacted] were uncovered (Chatters 1981b and c). The site is an Early Period Olcott culture occupation (Chatters 1981b and c).

Site 45SN331, the [redacted] site, is located approximately 0.75 mile west of I-405. Eleven flakes and a possible battered core were observed (Blukis Onat 2002a and b).

Site 45SN369, the [redacted] is located approximately 0.5 miles east of I-405. The remains of a farm building or residence, several debris scatters, windrows, fence lines, non-native plantings, and rock features were recorded. The site is identified as part of a homestead [redacted] (Goetz 2003).

Site 45KI741, the Gertrude Wiley Homestead site, is located approximately 0.2 mile from the SR 520 to I-5 Improvement Project APE. It is located within the Kirkland Nickel Project APE. The site was identified as an historic debris scatter with architectural remains. Remnants of a wood-lined pump house with steel pipes, bottle fragments, food containers, and asbestos siding were observed. The site appears to contain materials dating from the 1920s through the 1950s (Fallon and Lenz 2006).

The North Creek isolate (45SN376) includes four pieces of stone tool-making debris found between [redacted] The cultural material was identified in a plowed, but fallow field (LeTourneau and Nelson 2004b).

Exhibit 6: Previously recorded archaeological sites adjacent to the area of potential effects

Site No.	Site Name	Cultural Material	Distance from APE
45KI12	[redacted]	[redacted] fire-cracked rock, basalt flake, cobble tool	0.5 mile
45KI72	[redacted] Property	Fire-cracked rock, [redacted]	0.2 mile
45SN331	[redacted]	11 flakes and possible battered core	0.75 mile
45SN369	[redacted]	Structural remains, trash scatters, non-native plantings, fence lines and rock features	0.5 mile
45KI741	Gertrude Wiley Homestead	Pump house, steel pipes, fragmented food containers and bottles	0.2 mile
45SN376	North Creek Isolate	Four lithic debitage pieces	0.5 mile

Within the Project APE

No archaeological sites have been recorded within the SR 520 to I-5 Improvement Project APE.

Previously Recorded Historic Buildings and Structures

Project Vicinity (Outside of APE)

Twenty-six historic buildings, structures, or resources within approximately 2 miles of the Project APE are listed on the NRHP, WHR, and/or as a National Historic Landmark (NHL) (Exhibit 7).

Exhibit 7: Previously recorded historic buildings, structures, and objects adjacent to the APE

Site Number	Site Name	Approximate Distance from APE	Listing Status
45KI222	Hollywood School House	2 miles	WHR
45KI213	Hollywood Farm-Residence and Grounds	1.75 miles	WHR/ NRHP
45KI590	Louis S. Marsh House	1 mile	WHR/ NRHP
45KI572	Kirkland Women's Club	1 mile	WHR/ NRHP
45KI195	Peter Kirk Building	1.5 miles	WHR/ NRHP
45KI612	John George Kellet House	1.5 mile	WHR
45KI188	Joshua Sears Building	1.25 miles	WHR/ NRHP
45KI186	William A. Jones House	1.5 miles	WHR/ NRHP
45KI189	Masonic Lodge Building	1.25 miles	WHR/ NRHP
45KI194	Lightship "Relief"	1 mile	NHL
45KI631	Tourist II	1 mile	WHR/ NRHP
45KI674	Tugboat Arthur Foss	1 mile	NHL

Site Number	Site Name	Approximate Distance from APE	Listing Status
45KI603	Bothell Pioneer Cemetery	0.5 mile	WHR/ NRHP
45KI219	Bothell's First Schoolhouse	0.75 mile	WHR
45KI565	Northern Pacific Depot	1 mile	WHR
45KI216	Beckstrom Log Cabin	0.5 mile	WHR
45KI217	William A. Hannan House	0.5 mile	WHR
45KI609	James Skirving House	0.75 mile	WHR
45KI647	Dr. Reuben Chase House	0.5 mile	WHR/ NRHP
45KI614	Faust-Ryan House	0.75 mile	WHR/ NRHP
45KI218	Bothell-Lake Forest Park Brick Highway	1.25 miles	WHR
45KI633	William Harper Thornton House	1.25 miles	WHR/ NRHP
45KI 619	Lilly Kirk House	1.25 miles	WHR/ NRHP
45SN346	North Creek School	0.25 mile	WHR/ NRHP
45SN348	Bates-Tanner Farm	0.5 mile	WHR/ NRHP
45SN349	Winningham Farm	0.25 mile	WHR/ NRHP

Within Project APE

No historic buildings or structures have been recorded within the Project APE.

Archaeological Site and Historic Resource Expectations

Two factors affect the likelihood that archaeological materials will be present at a given location: (1) the lifeways of the people who left cultural remains; and (2) the post-depositional processes that may either destroy or preserve evidence of use. Post-depositional processes affect both the likelihood that archaeological materials will be preserved and that they are in a condition and position that can be observed. Many sites have been disturbed by cultural or natural processes, and others may be very deeply buried.

A review of the natural and cultural history of the study area indicates that known prehistoric period sites are few but tend to have small artifact assemblages with fire-cracked rock features or scatters, suggestive of only short-duration occupations. The known archaeological sites tend to be located in the following landform settings:

- Early Holocene campsites: Upland plateaus, ridgelines overlooking river valleys, and river terraces.
- Middle and Late Holocene village sites: River terraces, particularly at confluences, and estuaries.
- Specialized resource gathering locations: Anywhere resources are densely concentrated, including, but not limited to, salmon-bearing waterways, prairie margins, waterfowl nesting areas, gathering areas for specific plants, and lithic quarries.

Many of these settings occur in the APE. Thus, it is quite likely that archaeological materials are present somewhere within it. Although relatively few archaeological sites are currently recorded, the once diverse habitats suggest that indigenous peoples regularly used or passed through the area (Leopold and Boyd 1999). Cultural use of specific areas related to patchy resource distributions and post-depositional processes has produced low, moderate, and high probability zones for Native American archaeological resources within the APE.

Recent disturbance by 20th century development activities is one of the most significant effects on archaeological sites. Grading and filling episodes associated with urban development in general, and road building in particular, can affect archaeological sites by exposing, removing, mixing, or burying stratigraphic horizons associated with prehistoric and historic cultural components (Rothschild and Rockman 1982). Much of the current study area has been disturbed to some degree by placement of utilities, paving, grading, and previous commercial development.

Geologically, the basal deposits of glacial outwash in the study area provide a lower limiting boundary to regional archaeological materials. Holocene prehistoric components will only be present in soil horizons overlying Pleistocene-age deposits, and could be shallowly to deeply buried beneath the ground surface depending on the degree of erosion, deposition, and ground disturbance. Because part of the project crosses an abandoned floodplain terrace above the Sammamish River, sites in that area could be deeply buried under naturally occurring alluvial deposits. In upland areas, archaeological materials are on the surface or only shallowly buried by periodic slow organic accumulation in a forested zone. Archaeological remains may become more deeply buried within forested zones because tree and plant roots push them downward. Also, vegetation may stabilize slopes and impede sediment erosion.

Other variables affect site preservation, including animal disturbance and soil chemistry (Thorson 1980; Waters 1992). Highly acidic soils destroy organic materials including all but the most durable portions of animal bones associated with archaeological sites; however, waterlogged sites or those sites buried by peat can be well preserved (Nelson 1990).

The most likely historic period resources in the project vicinity would be associated with late 19th century through 20th century homesteading and farming. These site types would yield forest clearing and grading features and architectural remains with associated utilitarian items of glass, metal, ceramic, and brick, the condition and visibility of which would depend on vegetative cover, the age of the property in question, or whether earlier occupations had been leveled to make way for subsequent land use or early road construction. Other historic features likely to be present are ones related to previous road construction within the project APE. Given the area's history as a center of economic development in the central Puget Sound, there is a high probability that historic period resources were once present in the APE but it is likely that most have been destroyed by more recent urbanization.