WASHINGTON STATE DEPARTMENT OF TRANSPORTATION MEGA-PROJECTS ARCHAEOLOGICAL INVESTIGATIONS PEER REVIEW REPORT

Prepared for:

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EXECUTIVE SUMMARY

In April 2009, the Washington State legislature passed a budget bill containing a proviso statement that the Washington State Department of Transportation (WSDOT) conduct an independent peer review of the archaeological investigations associated with four of WSDOT's "mega-projects." These projects included the:

- Alaskan Way Viaduct and Seawall Replacement Program, Seattle
- Interstate 5 Columbia River Crossing, Vancouver
- Mukilteo Multimodal Ferry Terminal Project, Mukilteo
- SR 520 Program: Bridge Replacement and HOV Project, Seattle

This report describes the process used in conducting the archaeological peer review and presents the review's findings. The objectives of the peer review were twofold:

- To determine if the archaeological investigations were done to professional and regulatory standards; and
- To assist WSDOT in developing specific practices or methodologies to ensure that the development of archaeological data recovery plans, curation methods, and public benefit/education strategies meet professional and regulatory standards.

In addition, the peer review addressed the following three questions for each project:

- Was the approach (i.e., methods) used reasonable?
- Was the scope of work and level of effort reasonable for the size of the project?
- Were the conclusions (findings) reasonable?

All four projects are, in part, federally-funded and require federal approvals. As a result, the federal agencies providing the funding and approvals (i.e., the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA)), must comply with the requirements of the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA), prior to release of any funding and approvals. The peer review did not evaluate if the federal agencies and WSDOT fully complied with Section 106 of NHPA and NEPA. Rather, the peer review focused on the quality of the archaeological investigations that were used by FHWA, FTA, and WSDOT to fulfill the requirements of these laws and their associated regulations. The peer review also examined how the federal agencies' and WSDOT's approaches to fulfill their responsibilities under Section 106 and NEPA helped or hindered the archaeological investigations.

The peer review was conducted by teams of regionally- and nationally-recognized archaeologists who were not involved in the four mega-projects. Each team consisted of

three archaeologists. A team was assigned one of the mega-projects and was directed to address the above listed objectives as part of their peer review, and also to make recommendations on how WSDOT, FHWA, FTA, and the state's Department of Archaeology and Historic Preservation (DAHP) might improve and enhance these and future archaeological investigations within the state. DAHP's role in these projects is to advise and assist the transportation agencies in their compliance with Section 106 of NHPA, and to reflect the historic preservation interests of the state.

WSDOT contracted with the SRI Foundation in May 2010 to facilitate and coordinate the archaeological peer reviews. Each peer review began with the review teams' examination of project-related documentation, prior to an on-site field visit. The on-site visit involved a kick-off meeting, followed by a field trip to the project area, interviews with archaeologists and environmental professionals who worked on the project, and writing a rough draft report on the results of the peer review based on the field trip, interviews, and earlier review of project materials. After the field visit, SRI Foundation staff compiled and edited these draft reports into one overall peer review report. A single report was more appropriate than four individual project reports, since the peer reviews revealed similar findings on all four mega-projects.

Sections 2.0 through 5.0 of this report present the peer review teams' evaluations of each mega-project. The final report section provides an evaluation of WSDOT's overall archaeological program as reflected by these four mega-projects. The following is a summary of this overall program evaluation.

In almost all cases, WSDOT's archaeological investigations were carried out to national, state, and professional standards. Some of the investigations, in fact, exceeded national and general professional standards. The peer review teams found, however, that when these investigations were conducted was problematic, especially in terms of linking these investigations with the timing of Section 106 and NEPA compliance. The peer review teams also disagreed with some of the investigations' findings and conclusions in terms of the significance of the identified archaeological sites. In addition, it was the opinion of the peer review teams that the public outreach efforts associated with these mega-projects did not reflect national professional standards.

First, the peer reviewers' observed that investigations to identify archaeological sites often began too late in the project development process, resulting in conflicts between the investigation schedules and the NEPA review schedules (e.g., the scheduled release of a Final Environmental Impact Statement). In addition, because the results of these investigations were not available early in the NEPA process, the agencies conducted detailed analyses of alternatives that might have been dropped from further consideration during early, preliminary screening of alternatives, based on the results of these archaeological investigations. The latter especially applies to the Mukilteo Ferry Terminal project.

Second, programmatic approaches to archaeological site identification would have been more appropriate and effective than the methods used on the Alaskan Way Viaduct

(AWV) Replacement Program and the Interstate 5 Columbia River Crossing project (CRC). Separate archaeological investigations were conducted for each individual project within the overall AWV Program, resulting in redundant and in some cases unnecessary investigations. A comprehensive, programmatic approach applied Program-wide would have more effectively met the overall Program schedules in terms of NEPA and the delivery of individual projects, and would have focused on those archaeological resources within the Program corridor that were the most significant and whose investigation would have had the greatest public benefit. The peer review team also noted that FHWA, WSDOT, and DAHP did not take into account how these programmatic approaches have been successfully applied in similar urban locations across the country. In terms of the CRC project, the peer review team found that the methods used to conduct archaeological investigations within the project area were inefficient and, again, in some cases unnecessary. These problems would have been avoided through the use of an early, programmatic approach to these archaeological investigations.

The lesson learned from the AWV Program and the CRC project is for FHWA, FTA, WSDOT, and DAHP to fully consider the value of more programmatic approaches to future archaeological investigations within similar urban environments. The use of these programmatic approaches is now standard among other federal and state transportation agencies.

Some of the problems discussed above may have been, in part, the result of not having a dedicated WSDOT staff archaeologist assigned to each of the mega-project when these projects were initiated. A dedicated WSDOT archaeologist with a strong grounding in the region's archaeology and a background in the complexities of conducting archaeological investigations in settings such as the AWV, CRC, and Mukilteo Terminal Ferry project areas might have been able to anticipate and avoid the problems encountered on each of these mega-projects.

The one area in which the four mega-projects did not come up to national professional standards was in terms of public outreach. In most cases, there was no public outreach during the execution of the mega-project archaeological investigations that shared the results of these investigations with the public in an on-going, engaging, and educational format. Rather, public outreach was done (or is planned to be done) only as an end product of future archaeological efforts associated with the mega-projects. All of the peer review teams noted that public outreach should have been a continuous component of all projects. Every reasonable effort should have been made to allow public access to archaeological field investigations either physically (to the degree feasible under WSDOT's health and safety plans) and/or virtually using web-based programs such as blogs or websites. Many federal and state transportation agencies across the country include direct and continuous public outreach as an integral component of all of their major archaeological investigations.

ACKNOWLEDGMENTS

The SRI Foundation wishes to first acknowledge the significant contributions of the peer review team members: Mr. James Ayres, Dr. David Brauner, Dr. Roy Carlson, Mr. Charlie Hodges, Dr. James Keyser, Dr. Peter Lape, Dr. Philippe LeTourneau, Dr. Adrian Praetzellis, Dr. Julie Schablitzsky, and Dr. Gary Wessen. We thank the peer reviewers for taking the time out of their very busy schedules to participate in this peer review effort.

Second, without the assistance of Washington State Department of Transportation (WSDOT) project staff and their consultants, this peer review would not have been possible. These individuals provided background materials on each project, and also set up the field visits to each project location. We wish to thank Steve Archer, Hannah Baweja, Kevin Bartoy, Tom Becker, Rob Berman, Michael Chidley, Allison Hanson, Michelle Paxson, Rachel Patterson, Barb Sinnott, Alissa VandenBerghe, Tenille Van Hollebeke, and Heather Wills. In particular, we wish to recognize Mr. Scott Williams' invaluable oversight of the entire peer review process, and his participation in the on-site project field visits. Mr. Williams is WSDOT's Cultural Resources Program Manager in the Environmental Services Office in Olympia.

Third, we wish to acknowledge the staff at Eastern Washington University who handled the contractual components of the peer review for WSDOT: Kimberly Crews, Ruth Galm, Stanly Gough, and Rebecca Stevens.

Finally, we thank the staff of the Federal Highway Administration, the Washington State Department of Archaeology and Historic Preservation, National Park Service, WSDOT, and WSDOT consultants who participated in the peer review interviews. Their observations and insights were critical to the success of the peer review.

This peer review report was written by Mr. Terry Klein, Executive Director of the SRI Foundation; Dr. Martha Graham, Historic Preservation Specialist at the SRI Foundation; and the above-listed members of the peer review teams. The peer review team members were the primary authors of the evaluations of each of the mega-projects.

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1.1 BACKGROUND

1.1.1 Why a Peer Review of Mega-Project Archaeological Investigations?

In April 2009, the Washington State legislature passed a budget bill containing a proviso statement that the Washington State Department of Transportation (WSDOT) conduct an independent peer review of the archaeological investigations associated with four of WSDOT's "mega projects." These projects included the:

- Alaskan Way Viaduct and Seawall Replacement Program, Seattle
- Interstate 5 Columbia River Crossing, Vancouver
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- SR 520 Program: Bridge Replacement and HOV Project, Seattle

This report describes the process used in conducting the archaeological peer review and presents the review's findings.

The purpose of this peer review was to ensure that the archaeological investigations associated with these four mega-projects were conducted according to federal, state, and professional standards. The bill passed by the Washington State legislature did not specify the approach to be used in conducting the archaeological peer review. WSDOT, in consultation with the state's Department of Archaeology and Historic Preservation (DAHP), decided to follow the peer review process established in the National Park Service's Technical Brief No. 21 "Peer Review of Federal Archaeological Projects and Program." The use of this technical brief was considered appropriate since the archaeological investigations associated with these four mega-projects were conducted by WSDOT for the Federal Highway Administration (FHWA) and/or the Federal Transit Administration (FTA), in order to fulfill these agencies' responsibilities to comply with Section 106 of the National Historic Preservation Act (NHPA).

Before discussing how the archaeological review process was carried out, the following sections describe the legal and regulatory framework within which these archaeological investigations were performed; that is, the Section 106 process and the environmental review process required by the National Environmental Policy Act (NEPA). This information is provided for readers who have little or no experience with the legal and regulatory foundation associated with these archaeological investigations.

1.1.2 Archaeological Sites and Compliance with Section 106 of the National Historic Preservation Act

Section 106 of NHPA requires federal agencies, such as FHWA and FTA, to take into account the affects of their actions on historic properties. These actions include funding, permitting, and authorizing projects and programs, both on and off federal lands. "Historic properties" are sites, buildings, districts, structures, or objects listed in or eligible for listing in the National Register of Historic Places (National Register). The National Register is used as the national standard for defining significant historic places, including archeological sites, that warrant protection under Section 106 and other historic preservation laws. Participants in the Section 106 process include the federal agency and what are referred to as "consulting parties." These include the State Historic Preservation Office (SHPOs), which serves as the state's representative in the process. In Washington State, DAHP is the SHPO. Additional consulting parties include, but are not limited to, local governments (such as the City of Seattle and King County), applicants for federal funds (such as WSDOT); federally-recognized tribes, and individuals and organizations with a demonstrated legal or economic interest in the federal project, or who have a concern about historic properties that may be affected by the federal action. The federal agency also has an obligation to inform and involve the public.

The regulations at 36 CFR Part 800 establish the process by which federal agencies meet their responsibilities under Section 106. This process consists of four steps. For surface transportation projects, FHWA is legally responsible for fulfilling the requirements of Section 106, but generally has the state DOT conduct the day-to-day work associated with the Section 106 process. In Step 1, the federal agency initiates the Section 106 process by first determining if its action is an undertaking that falls under the purview of Section 106, and whether or not the action has the potential to affect historic properties, including archaeological sites. If the action is an undertaking that has the potential to affect historic properties, then the agency initiates consultation with the SHPO and other consulting parties. The second step involves the identification of historic properties within the project's area of potential effects (APE). An APE is the area within which a project may directly or indirectly impact historic properties. Since many properties have not been previously identified and evaluated for National Register listing (this is especially the case for archaeological sites), federal agencies must make a reasonable and good faith effort to identify such properties within the APE and then evaluate their eligibility for listing in the National Register. In terms of identifying archaeological sites in an urban setting such as downtown Seattle, for example, this effort generally begins with extensive historical research on past land use in the project area, as a means to assess the types of archaeological sites that may be present buried below the area's surface. In downtown Seattle, again for example, these sites might include Native American villages or historic sites associated with the city's early waterfront settlement. This historical research is followed by archaeological field investigations to determine if archaeological sites are in fact located beneath the surface of the project area. These investigations can involve hand-excavations if the potential archaeological sites are not deeply buried, and mechanical excavations to reach sites deeply buried below modern fill.

Once found, the archaeological sites are evaluated by the federal agency, in consultation with the SHPO, to determine if the sites are eligible for listing in the National Register. This is the second step in the Section 106 process. For an archaeological site to be eligible for listing, it generally must have the potential to provide information important in prehistory or history. This important information can be recovered from the site through detailed and careful archaeological excavations, referred to as archaeological data recovery.

If there are National Register-eligible archaeological sites within a project area, the federal agency determines whether or not the proposed project will adversely affect the sites. This is the third step in the Section 106 process. Adverse effects generally involve the destruction of a portion or the majority of an archaeological site. After determining there will be an adverse effect on sites, FHWA notifies the Advisory Council on Historic Preservation (ACHP) that there will be an adverse effect and invites the ACHP to participate in identifying ways to resolve the adverse effect. The ACHP is the primary federal agency overseeing the Section 106 process and advises federal agencies on how to comply with this statute.

If adverse effects to the sites cannot be avoided, then, following the fourth and final step in the Section 106 process, the federal agency, SHPO, other consulting parties, and the ACHP, if they are participating, work together to identify ways to resolve the project's adverse effects on the archaeological sites. If impacts to an archaeological site cannot be avoided, the usual mechanism to resolve the adverse effects on the site is to excavate the site before the site is impacted. This type of site excavation is generally referred to as an "archaeological data recovery." The mechanisms to resolve adverse effects are codified in a Memorandum of Agreement (MOA), which is a legally binding agreement among the federal agency, the SHPO, and the consulting parties invited to sign the document. On roadway transportation projects, the state DOTs are also signatories of the MOA since they are usually the primary agency that carries out the mechanisms for resolving the adverse effects to the sites (e.g., carrying out the archaeological data recovery). Once the agreement is signed by all appropriate parties, the Section 106 process is legally completed. The federal agency's Section 106 responsibilities are fulfilled when the actions stipulated in the MOA are completed.

Before discussing NEPA, here are a few important points about the National Register-eligibility of archaeological sites and about archaeological data recovery plans. As noted above, archaeological sites are generally determined to be eligible for listing in the National Register if they have the potential to provide information important in prehistory or history (i.e., National Register Criterion D, as described in the federal regulations on the National Register). This information is used to learn and answer questions about life and activities in the past. As part of the evaluation of a site's National Register eligibility, archaeologists identify a number of important questions about the past that can be addressed through the excavation of the site. These questions are compiled into the archaeological data recovery plan. The plan is used to guide the archaeological excavation of a site if the site must be excavated before it is impacted by a project. The

plan includes details on how the site is to be excavated, and how the materials recovered from the site are to be analyzed in order to assist in addressing the research questions. Archaeological data recovery plans also include information on where all materials resulting from the data recovery are to be housed (i.e., "curated"). In the Seattle area, for example, materials are often curated at the University of Washington's Burke Museum of Natural History and Culture. The plans also note how the results of the archaeological investigations are shared with the general public.

1.1.3 The National Environmental Policy Act

NEPA requires federal agencies to balance project development and environmental protection. To comply with the Act, agencies must be fully informed about the environmental consequences of their decisions to approve, fund, permit, or license a project. They must also obtain input from and inform the public about the proposed project, the environmental consequences of the proposed action, and the final agency decision about how the project will proceed. The results of the NEPA decision-making process are detailed in an environmental document, such as an Environmental Impact Statement.

The NEPA process for roadway projects generally involves the following steps. First, the agency defines the purpose and need for the project. The purpose and need addresses a particular transportation issue such as traffic congestion or a high number of accidents. Once defined, the federal agency identifies and evaluates a number of alternatives that, if built or put in place, will address the project's purpose and need. This alternatives analysis looks at what are referred to as "build alternatives" and a "no build alternative." The "no build alternative," which describes what happens to the existing roadway if nothing is done over the next several years, serves as the baseline against which the build alternatives are compared and analyzed. This alternatives analysis includes an examination of the how each alternative may impact the environment, including historic properties. The public and various stakeholders are active participants in this analysis, providing comments and input on the agency's study of alternatives. After completing the analysis of the alternatives, the agency selects an alternative that it proposes to build, and then discloses this decision in the project's NEPA document. The participants in the NEPA process usually include the agency; the state DOT (who generally does the day-to-day work in carrying out the NEPA review); other federal agencies and state agencies who may have to approve or permit some aspect of the project (especially if the project crosses or uses lands managed by a federal or state agency); local governments; stakeholders who have an interest in the outcome of the project, such as land owners and businesses; and the general public.

Each federal agency has its own set of regulations stipulating how the agency is to comply with its NEPA responsibilities. FHWA and FTA's policies and procedures for implementing NEPA are found in 23 CFR 771. As noted in FHWA's NEPA website, (http://environment.fhwa.dot.gov/projdev/pd3tdm.asp), the agency manages the NEPA decision-making process

> … as an "umbrella," under which all applicable environmental laws, executive orders, and regulations are considered and addressed prior to the final project decision and document approval.

FHWA's compliance with Section 106 of the NHPA is generally accomplished under this NEPA umbrella. This is done by integrating the steps in the Section 106 process with the steps associated with the NEPA process, and completing Section 106 prior to the agency's issuance of its final NEPA document.

The level of NEPA analysis and documentation depends on the nature of the proposed project and the extent to which the project may affect the environment. An Environmental Impact Statement (EIS) is prepared when an action is likely to cause significant impacts to the environment. The federal agency prepares the EIS in two stages, beginning with a draft EIS that is reviewed by the public, state agencies, and other federal agencies involved in the project. Based on the comments received on the draft EIS, the lead federal agency prepares a final EIS and releases its Record of Decision (ROD), documenting the selection of an alternative that will be built to meet the project's purpose and need. For actions that clearly will not have a significant impact on the environment, the federal agency prepares what is referred to as a Categorical Exclusion (CE) (i.e., the project is a type of action that does not require the preparation of an EIS). In some cases, it is not clear if a proposed project will have a significant impact on the environment. In these cases, the federal agency conducts an Environmental Assessment (EA) to determine whether or not there will be a significant impact. If the federal agency finds that, through the alternatives analysis associated with the preparation of the EA, the proposed project will in fact not have a significant impact on the environment, the agency completes the EA and then issues a "Finding of No Significant Impact" or "FONSI." If the agency determines that there will be a significant impact on the environment, then the agency proceeds with the preparation of an EIS.

1.1.4 Archaeological Peer Review Objectives

The objectives of the peer review of the four mega-projects' archaeological investigations were twofold:

- To determine if the archaeological investigations were done to professional and regulatory standards and
- To assist WSDOT in developing specific practices or methodologies to ensure that the development of archaeological data recovery plans, curation methods, and public benefit/education strategies meet professional and regulatory standards.

In addition, the peer review focused on three aspects of each project:

- Was the approach (i.e., methods) used reasonable?
- Was the scope of work and level of effort reasonable for the size of the project?
- Were the conclusions (findings) reasonable?

It should be noted that the peer review did not evaluate whether or not the federal agencies and WSDOT fully complied with Section 106 of the NHPA. Rather, the peer review focused on the quality of the archaeological investigations that were used by both the federal agencies and WSDOT to fulfill the requirements of this statute. The peer review also examined how the federal agencies' and WSDOT's approaches to fulfill their responsibilities under Section 106 and NEPA helped or hindered the archaeological investigations.

The peer review was conducted by teams of regionally- and nationally-recognized archaeologists who were not involved in the four mega-projects. Each team consisted of three archaeologists. A team was assigned one of the mega-projects and was directed to address the above listed topics as part of their peer review, and also to make recommendations on how WSDOT, FHWA, FTA, and DAHP might improve and enhance these and future archaeological investigations within the state.

WSDOT contracted with the SRI Foundation in May 2010 to facilitate and coordinate the archaeological peer reviews. Mr. Terry Klein, Executive Director of the SRI Foundation, was the peer review manager. Mr. Klein, in consultation with WSDOT, recruited the peer review team members. Mr. Klein also developed specific agendas for each project peer review. SRI Foundation staff, under Mr. Klein's supervision, handled the peer review logistics, which are described in more detail in the following sections.

1.2 THE PEER REVIEW PROCESS

1.2.1 Selection of Peer Reviewers

Mr. Scott Williams, WSDOT's Cultural Resources Program Manager in the Environmental Services Office in Olympia, worked with Mr. Klein to develop a list of professional archaeologists who might serve as peer reviewers for each mega-project. The potential reviewers included local university professors; individuals who work (or had worked) for a local, state, or federal agency (not FHWA or FTA) in the region; and individuals from private-sector firms that had not been involved in any of the mega-projects. Potential reviewers also included non-local professionals with expertise in the types of archaeological sites present within the mega-project locations; for example, experience with historical-period urban archaeological sites (for the projects in Seattle and Vancouver).

After completing the list of potential peer reviewers, Mr. Klein sent letters to each potential reviewer inviting them to participate in the peer review. Once a potential reviewer agreed to participate in the peer review, they were sent an agenda for the review, along with all relevant materials on their respective project. The peer reviewers were given several weeks to review the project materials.

After the review of project materials, the peer reviewers and Mr. Klein visited the project area. The on-site visit began with a kick-off meeting, followed by a field trip to the

project area, interviews with archaeologists and environmental professionals who worked on the project, and writing a rough draft report on the results of the peer review based on the field trip, interviews, and earlier review of project materials. The field visits for the four mega-projects were conducted from mid-July 2010 through December 2010. Each reviewer received an honorarium for their participation in the peer review.

Resumes of each of the peer reviewers are included in Appendix A. In addition, brief biographies of the peer reviewers are presented at the beginning of each mega-project review (i.e., Section 2.0, Alaskan Way Viaduct and Seawall Replacement Program; Section 3.0, Interstate 5 Columbia River Crossing; Section 4.0, Mukilteo Multimodal Ferry Terminal Project, Mukilteo; and Section 5.0, SR 520 Program: Bridge Replacement and HOV Project).

1.2.2 Collection of Project Materials and Distribution to Peer Review Teams

The SRI Foundation obtained copies of all relevant project materials from WSDOT project staff, and then distributed the materials to the peer review teams before each project field visit. These materials included, but were not limited to, NEPA documentation (e.g., Environmental Impact Statements (EISs)), WSDOT scopes of work and work plans guiding the archaeological investigations, technical reports presenting the results of the archaeological investigations, and project correspondence. The peer review teams did not review studies of historic buildings and structures within the project areas, since the focus of the peer review was on archaeology.

The amount of documentation associated with the Alaskan Way Viaduct & Seawall Replacement Program and SR 520 Program: Bridge Replacement and HOV Project was voluminous. To lessen the burden of the peer reviewers, each peer review team member for these two projects was responsible for reviewing a portion of the documentation and then reporting on this documentation to the rest of the team during the field visit.

It should be noted that some of the peer reviews occurred while project environmental analyses and preliminary design were in progress. As a result, not all archaeological work had been completed at the time the peer review teams examined project materials or conducted the field visits.

1.2.3 Field Visits

The peer review team and Mr. Klein met near each project location, usually at a WSDOT project office. Day 1 of the field visit began with a kick-off meeting. During this meeting, WSDOT project staff briefed the review team on the history of the project and its current status, in terms of both Section 106 and NEPA compliance. The review team and a representative from WSDOT's project staff visited the project area the morning of Day 2. Interviews of project personnel were conducted after the field trip, on the afternoon of Day 2. The schedule for the interviews had been arranged several weeks prior to the project field visit. The interviews ranged from 45 minutes to up to 2 hours, depending on who was being interviewed. Some interviews were done in person, others were done

through teleconferencing. Standardized questionnaires were used for the interview (See Appendix B). The questionnaire was targeted toward the role the individual had on to the project. Different questionnaires were developed for WSDOT project staff, DAHP, WSDOT's consultants, and other local, state, or federal agencies involved in the project. No WSDOT staff was present during the interviews of staff from DAHP, WSDOT consultants, or staff from non-WSDOT agencies. One member of the peer review team ran the interview, and all of the team members took notes during the interview. It was not possible to conduct all of the interviews during the field visit; therefore, some interviews were done a week or two after the field visit through teleconferences.

In most cases, the interviews were completed on the morning of Day 3. If there were no interviews during the afternoon of Day 3, the peer review team and Mr. Klein began work on a rough draft of the peer review report on the project. Work on the draft report was completed at the end of Day 4. A standard outline was used for each project report. Using a laptop computer, the report outline was projected on a screen and the peer review team wrote the text for each section of the outline. The peer reviewers used their review of the project materials and their notes from the field visit and interviews to write the rough draft report. The report documented the peer reviewers' evaluations of the performance and quality of the archaeological investigations for each mega-project. It focused on the following components of the investigations: scopes of work and work plans, archaeological site identification, National Register evaluations of the identified sites, reporting on the results of the investigations, management and administrative aspects of the investigations, and efforts to engage and educate the public about the investigations. The review of management and administrative aspects of the investigations focused on how these project elements affected the quality and performance of the archaeological work. This component of the peer review also examined how the federal agencies' and WSDOT's project-specific efforts to fulfill their responsibilities under Section 106 and NEPA helped or hindered the archaeological investigations.

After the field visit, Mr. Klein was responsible for editing the four rough draft reports, and placing the reports into an overall master peer review report. A single report was more appropriate than four individual project reports, since the peer reviews revealed similar findings on all four mega-projects. After Mr. Klein completed a draft of the master report, he sent WSDOT the components of the report that described the mega-projects and the archaeological investigations associated with each. The goal was to identify and correct any errors in these descriptions. WSDOT was not given the portions of the report discussing the observations, findings, and recommendations of the peer review teams, nor was WSDOT, FWHA, FTA, or DAHP provided an opportunity to review or comment on these observations, findings, or recommendations. The peer review teams also reviewed the draft report before it was finalized. The final report was sent to Mr. Scott Williams at WSDOT for distribution. It should be noted that this report does not list the names of the individuals who participated in the peer review interviews. These individuals are simply referred to by their association with an agency or are described as "WSDOT's consultant." The peer review teams felt that by keeping

anonymous the individuals who participated in the interviews, these individuals would be more open and frank in responding to the interview questions.

1.3 FORMAT OF PEER REVIEW REPORT

The following four sections of the report present the results of the peer review of each mega-project: Section 2.0, Alaskan Way Viaduct and Seawall Replacement Program; Section 3.0, Interstate 5 Columbia River Crossing; Section 4.0, Mukilteo Multimodal Ferry Terminal Project, Mukilteo; and Section 5.0, SR 520 Program: Bridge Replacement and HOV Project. Each section begins with an introduction of the peer review team assigned to the project, with a short biography of each reviewer. This is followed by a description of the project and the status of both the Section 106 and NEPA studies associated with the project. It should be noted that these project descriptions relate to the project alternatives and designs at the time of the peer reviews. Some of these alternatives and designs have changed since the completion of the reviews. Following the project descriptions are summary descriptions of the archaeological investigations. The next report section presents the peer review teams' evaluations of the projects. This evaluation examines project scopes of work and work plans, archaeological resource identification and evaluation, archaeological data recovery plans (if developed), reporting, project management and administration, and public outreach. The latter involve sharing the results of archaeological investigations with the public through various educational and outreach products such as exhibits, site tours, brochures, and websites. These efforts are different from the public involvement component associated with the NEPA and Section 106 review processes. The project evaluations also include any general observations about a project, in addition to recommendations for future investigations. Section 6.0 summarizes the results of the peer reviews, highlighting (a) the common themes observed by the peer review teams during their review of all four projects, and (b) how these themes relate to the overall performance of FHWA's, FTA's, WSDOT's and DAHP's archaeological programs in Washington State.

SECTION 2.0: ALASKAN WAY VIADUCT AND SEAWALL REPLACEMENT PROGRAM

2.1 PEER REVIEW TEAM

The Alaskan Way Viaduct (AWV) Program peer review team included Mr. James Ayres, Dr. Adrian Praetzellis, and Dr. Julie Schablitzsky. The following are brief biographies of each of the peer reviewers:

> Mr. James Ayres received his M.A. in Anthropology from the University of Arizona. He is currently serving as an Adjunct Lecturer on the faculty of the University of Arizona's School of Anthropology. Mr. Ayres has over 46 years of professional experience in archaeology, primarily in historical archaeology, in the western United States and northern Mexico. He is a pioneer in the practice of urban historical archaeology, as a result of his work in downtown Tucson, Arizona during the 1970s. Mr. Ayres was a former State Historic Preservation Officer for the state of Arizona. In 2008, Mr. Ayres received the prestigious Harrington Medal from the Society for Historical Archaeology, for his contributions to the field of historical archaeology. His current research focuses on logging camps in the Uinta Mountains of northeastern Utah and the Tucson newspaper project—1870–1912.
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> Dr. Adrian Praetzellis has a Ph.D. in Anthropology from University of California, Berkeley. He is a Professor of Anthropology and Director of the Anthropological Studies Center at Sonoma State University in California. Dr. Praetzellis has directed and co-directed hundreds of projects involving inventory, evaluation, and mitigation of impacts to archaeological properties under California's state environmental law and Section 106 of NHPA, in both urban and rural settings. He has over 30 years of experience as Principal Investigator on cultural resource projects including California DOT's SF-80, Bayshore, Bay Bridge West Approach, and Cypress Replacement projects. Dr. Praetzellis currently serves as the Principal Investigator for archaeology for the San Francisco Muni Central Subway project. Dr. Praetzellis is a member of the Archaeology Committee of the California State Historical Resources Commission and is the principal author of the Commission's white paper on Archaeological Standards and Guidelines. Since 2008, he has acted as staff to the City of the San Francisco's Planning Department, creating standards and guidelines for archaeological consultants and peer reviewing scores of archaeological compliance reports.
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> Dr. Julie Schablitsky has a Ph.D. from Portland State University, Oregon, in Urban Archaeology, Community Development and History. She currently serves as the chief archaeologist and heads the cultural resources section at the Maryland

State Highway Administration. She is also an adjunct assistant professor in the Anthropology Department at the University of Maryland, and is on the research faculty at the University of Oregon. Dr. Schablitsky has over 20 years of experience in archaeology, specializing in the historical-period and urban sites. Her current research includes colonial Bladensburg, the War of 1812 shipwreck USS Scorpion, and post-medieval sites in Scotland. Dr. Schablitsky has published on the Donner Party, archaeology and the media, and forensic applications in archaeology.

Resumes for the AWV Program peer review team can be found in Appendix A.

The list of AWV Program documents reviewed by the peer review team prior to the field visit, which took place during August 16–20, 2010 in Seattle, can be found in Appendix C. The field visit included a field inspection of the project area and eight (8) interviews. The peer review team interviewed WSDOT and DAHP staff about the Program, in addition to WSDOT staff who worked on the Program in the past but who are no longer with WSDOT. In addition, the peer review team interviewed WSDOT's cultural resource and environmental consultants who worked on or are currently working on the AWV Program.

2.2 AWV PROGRAM DESCRIPTION

The need to replace the Alaskan Way Viaduct State Route 99 (SR 99) was first recognized in 1995 when a study conducted by WSDOT and the University of Washington determined that the viaduct was vulnerable to soil liquefaction in the event of an earthquake. In early 2001, a team of design and seismic experts began work to consider various options for the viaduct. In the midst of this investigation, a 6.8-magnitude earthquake, called the Nisqually earthquake, shook the Puget Sound region on February 28, 2001. The February 2001 Nisqually earthquake compromised the viaduct's structural integrity. Moreover, the structure is nearing the end of its serviceable life span. Earthquake damage, age, design, and location of the existing viaduct, make it vulnerable to failure. The Alaskan Way Viaduct and Seawall Replacement Program proposes to replace SR 99 between South (S.) Royal Brougham Way and Roy Street with a facility that has greater resistance to earthquakes (Figure 2.1). The SR 99 corridor provides vital transportation connections into and through downtown Seattle, and between various regional destinations. Maintaining SR 99 as a reliable and safe transportation corridor is critical to sustaining business and tourism in downtown Seattle and the surrounding region.

In March 2004, a Draft EIS was prepared (FHWA, WSDOT, and the City of Seattle, 2004), analyzing five build alternatives and a no build alternative for their potential effects on the environment. Based on agency and public comments on the Draft EIS, and further study and design, the number of alternatives was subsequently reduced from five to two in late 2004. The two alternatives were carried forward for further evaluation in

the 2006 Supplemental Draft EIS (FHWA, WSDOT, and the City of Seattle, 2006): the Elevated Structure Alternative and the Cut-and-Cover Tunnel Alternative.

Figure 2.1. Project area for Alaska Way Viaduct

Several studies, evaluations, and events after the publishing of the Supplemental Draft EIS showed there was a lack of consensus regarding a preferred alternative for replacing the viaduct. In January 2009, the Governor, the former County Executive, and the former

Mayor made several recommendations that were incorporated into the new Bored Tunnel Alternative.

A second Supplemental Draft EIS was published in 2010 (FHWA, WSDOT, and the City of Seattle, 2010). This Draft EIS examined a Bored Tunnel Alternative in an effort to bring this new alternative to the same level of study as the previous two alternatives. The Final EIS (scheduled to be released in summer of 2011) will provide a comparative analysis of the Bored Tunnel, Cut and Cover Tunnel, and the Elevated Structure Alternatives. The Bored Tunnel Alternative is the FHWA's and WSDOT's preferred alternative. The build alternatives analyzed in the second Supplemental Draft EIS are described below.

> Bored Tunnel Alternative. The Bored Tunnel Alternative proposes to replace SR 99 in the central waterfront with a four-lane bored tunnel. Access to and from the tunnel would be provided via ramp connections near S. King Street in the south and Republican Street in the north. This alternative would remove the viaduct along the Seattle waterfront and would close and fill the Battery Street Tunnel. Improvements would be made to SR 99 north of the Battery Street Tunnel to Roy Street.
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> Cut-and-Cover Tunnel Alternative. The Cut-and-Cover Tunnel Alternative would replace SR 99 in the central waterfront with a six-lane, cut-and-cover tunnel. The tunnel would be built along the central waterfront, and the west wall of the tunnel would replace the existing seawall. Ramps to and from SR 99 would be provided near S. King Street, Elliott and Western Avenues, and Republican Street. Improvements would be made to the Alaskan Way surface street, the Battery Street Tunnel, and SR 99 north of the Battery Street Tunnel to Roy Street.
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> Elevated Structure Alternative. The Elevated Structure Alternative would replace SR 99 in the central waterfront with a six-lane, stacked, elevated structure. The seawall would be replaced to provide structural stability to the new elevated structure. Ramps to and from SR 99 would be provided near S. King Street, Columbia and Seneca Streets, Elliott and Western Avenues, and Republican Street. Improvements would be made to the Alaskan Way surface street, the Battery Street Tunnel, and SR 99 north of the Battery Street Tunnel to Roy Street.

Given the complexity of the overall AWV program, WSDOT and the City recognized the need to move several of the more minor transportation enhancements, repairs, and maintenance projects forward. The environmental assessments prepared for these minor projects were completed relatively quickly. Accordingly, maintenance, repairs, and operation of SR 99, the viaduct, and utilities in the project area could be undertaken while the EIS process for the central portion of the Program (i.e., involving the three alternatives discussed above) was on-going. These minor projects are referred to by WSDOT and the City of Seattle as the "Moving Forward" projects. The Moving Forward projects included in the AWV Program that had the potential to impact archaeological sites, if present, are described below.

2.2.1 Column Safety Repairs/Bent Stabilization (Between Columbia Street and Yesler Way)

Between Columbia Street and Yesler Way, some of the viaduct columns settled five-and-a-half inches into the ground since the 2001 Nisqually earthquake. To prevent further sinking of the viaduct and reinforce the seismically vulnerable viaduct, WSDOT strengthened four AWV column footings, Bents 93 East and West and 94 East and West (located in the vicinity of Yesler Way). A "bent" is a support located at the ends of a bridge or a viaduct, made up of two or more column-like members connected at the top by a cap, strut, or another member. Strengthening the columns/bents was accomplished by drilling a series of steel rods surrounded by concrete into stable soil, and adding a layer of reinforced concrete to tie the new supports to the existing column footings. This work was undertaken between October 2007 and April 2008.

2.2.2 Viaduct and Seawall Electrical Utilities Relocation Project

Before WSDOT and the City of Seattle could undertake improvements to the SR 99 corridor south of S. King Street, they needed to relocate electrical utilities connected to the AWV structure. Between September 2008 and December 2009, WSDOT and Seattle City Light relocated electrical lines from the viaduct between S. Massachusetts Street and Railroad Way South and placed them underground east of the viaduct. Relocating and upgrading the transmission and distribution lines in this location was undertaken to improve the system's reliability and protect Seattle's power supply in the event of an earthquake.

2.2.3 South Holgate Street to South King Street Viaduct Replacement Project

The South Holgate Street to South King Street Viaduct Replacement Project (referred to as H2K) will replace about one mile of SR 99 between S. Holgate and S. King streets, adding on-ramps and off-ramps, building frontage roads, relocating the Burlington Northern Santa Fe (BNSF) rail track, and reconfiguring intersections. This project replaces a seismically vulnerable portion of SR 99 with a seismically sound structure that is designed to current roadway and safety standards. The Environmental Assessment (EA) for this project was completed in June 2008, and the Finding of No Significant Impact (FONSI) was published in February 2009. Construction and early utility relocations for the H2K area began in mid-2009. Construction is expected to be completed at the end of 2014.

2.2.4 SR 99 Corridor, Intelligent Transportation System Improvements (ITS)

The SR 99 ITS improvements are intended to improve traffic safety on SR 99. The project area is divided into three sections: North, Ellis Avenue to S. Holgate Street, and South. Project elements include adding new traffic signal controllers, closed circuit television, vehicle detection, dynamic message signs, and license plate readers. This work will be completed in 2011.

2.2.5 Automated Gates

WSDOT identified the need for a system to automatically close the Alaskan Way Viaduct in the event of an earthquake that might compromise its structural integrity. The project involved installation of monitoring equipment at seven locations, and signing, gates, signals, and other traffic management devices at nine locations. This work will be completed in 2011.

2.3 SUMMARY OF AWV PROGRAM ARCHAEOLOGICAL INVESTIGATIONS

2.3.1 Program-Wide Corings and Trenching

The first step in locating archaeological sites in a highly urbanized area, such as downtown Seattle, is to reconstruct the area's historic land use. This reconstruction identifies the potential for buried landforms and surfaces that might have been used by Native Americans. Tidal flats or elevated areas next to fresh water sources are some examples of landforms used by Native Americans, the former for fishing and the latter for settlements, often dating prior to European contact (a period referred to as "pre-contact"). Over time, these areas are buried by natural forces, in addition to historic and modern land fill and land-making events (e.g., deliberate filling of shorelines and wetlands to make land for commercial use). Evidence of early historic Seattle, such as piers, wharves, streets, buildings, and yards associated with homes and businesses, are also buried beneath later historic and modern fill, and the historic fill itself provides evidence of how the landscape of Seattle was created and changed over time.

Since these archaeological sites can be deeply buried beneath Seattle's streets and lots, the most effective way to locate these sites is through mechanical excavations. One method that works well for identifying the presence of intact historic surfaces and landforms (buried beneath later historic and modern fill) is mechanical coring. This involves the use of a machine that drills a hollow core into the ground and then pulls up the soil in the core to the surface for inspection.

AWV archaeologists inspected the soils removed and recorded from cores placed in the Program area by project engineers, who used the cores to assess the nature and stability of the soils and geology within the Program area. Archaeologists who are trained to study geology and soils (both natural and man-made) are referred to as geoarchaeologists. By looking at the soils from coring, geoarchaeologists can determine if the cores (which can extend to 30 or more feet below the current surface) passed through an intact historic surface or landform. If present, these surfaces and landforms might have potential for intact archaeological sites. The soils from cores generally do not contain archaeological artifacts, given the small diameter of the cores (ranging from 2 inches to 6 inches). At times, however, the cores pass through layers of sawdust, wood chips, coal, and other materials that suggest the presence of historical-period remains. When artifacts are retrieved, they can be used to date the soils and fill through which the corings passed.

During the AWV Program, archaeologists also selected the placement of several corings, as opposed to relying on the locations selected by the project engineers. The locations selected were based on historic documentation, such as historic maps and photographs, which highlight the locations of tidal flats, early settlements, streets, buildings, etc. In addition, the archaeologists used larger-sized cores (12 inches in diameter) in order to both locate buried surfaces and landforms and to recover archaeological artifacts, if present.

Another way to locate deeply buried archaeological sites is through mechanical trenching, using a backhoe or similar piece of equipment. AWV archaeologists inspected soils removed from backhoe trenches excavated for the relocation of utilities in the Program area, and examined the walls of the trench (where safety permitted) to look for buried surfaces and landforms, in addition to concentrations of archaeological materials. These materials included remnants of building foundations or wharves and piers, and concentrations of historical-period artifacts. Archaeologists also used trenching, where possible, solely for the purpose of examining areas with a high potential for intact archaeological sites.

AWV archaeologists examined over 200 cores within the AWV Program area. A synthesis of the Program's corning efforts can be found in Huber et al. (2010). The inspection of cores and mechanical trenching in various locations within the Program area, such as those associated with the S. Holgate Street to S. King Street Viaduct Replacement Project and for the Column Safety Repair projects, helped to better define the location, nature, and date of buried intact surfaces and landforms that are present in many locations within the Program area. The trenching also identified several archaeological sites beneath modern fill soils. More detailed information on these coring and trenching programs is discussed below.

2.3.2 Viaduct and Seawall Electrical Utilities Relocation Project

The relocation of utilities required excavations of utility trenches and associated vaults. The trenches were 8 to 9 feet in depth and the vaults were 16 feet deep. Earlier coring excavations indicated a high potential for buried archaeological sites in the area of these relocations. Monitoring of the trench and vault excavations resulted in the identification of two archaeological sites, the Dearborn South Tideland Site (45KI924), and the Dearborn North Tideland Site (45KI943). Only the Dearborn South Tideland Site (45KI924) was determined eligible for listing in the National Register. Recovered archaeological artifacts, which numbered around 1,000, included glass, ceramics, metal, animal bone, and leather. Site 45KI924, extended into the South Holgate to South King Street Viaduct Replacement project area (see Section 2.3.4 below).

2.3.3 South Holgate Street to South King (H2K) Street Viaduct Replacement Project

During early Native American occupations of the Seattle area, the H2K area consisted of tidal flats. In the 1890s, the City of Seattle began to fill the tidal flats, and soon thereafter,

the area was occupied by various manufacturing and service industries as well as workers' houses. Archaeological investigations undertaken within the H2K area were designed to (1) provide a synthesis of the history of Native American and City of Seattle land use within the area, and based on this information, (2) develop research questions to guide the archaeological investigations, and (3) undertake archaeological investigations to locate any archaeological sites, and if present, evaluate their eligibility for listing in the National Register. These investigations confirmed that Site 45KI924 (initially identified during the investigations associated with the utilities relocation project) did extend into the H2K area. This National Register-eligible site was associated with early Seattle waterfront development. In addition, investigations within the H2K area have identified intact tidal flat soils buried beneath the area's later historic land fills. Tidal flat soils in the region have been found to contain the remains of Native American fish weirs. A fish weir is a fish trap, often made of wood, placed across a tidal flat, river, or stream.

Table 2.1 provides a chronology of the archaeological work done within the H2K area.

Table 2.1 Chronology of Archaeological Investigations within H2K

Year	Work Performed
2004	An archaeological overview and assessment is prepared for the AWV EIS.
2006	WSDOT's archaeological consultant prepares a research design to identify archaeological sites within the H2K area.
2007 – 2008	Fifty (50) cores are excavated in the area to document the sequence of fill and natural soils and landforms within the area. Information from these cores indicates that Site 45KI924 extends into the H2K project area. The cores also indicate the potential for intact tidal flats below fill soils. A number of reports are produced on the results of the coring and presence of important archaeological sites in the area.
2009	FHWA, DAHP, and WSDOT execute a Section 106 Memorandum of Agreement that sets up the process for future archaeological work within site 45KI924, and for identifying additional National Register-eligible archaeological sites in the H2K project area. The details of this future work are to be described in an Archaeological Treatment Plan.
2010	The archaeological treatment plan is prepared for H2K. The plan includes an archaeological data recovery program for Site 45KI924, which will be impacted by the proposed H2K project. The data recovery is conducted by a WSDOT archaeological consultant.

2.3.4 SR 99 Corridor, Intelligent Transportation System Improvements (ITS)

The ITS project required ground disturbance in 11 locations, and these locations had the potential to contain buried archaeological sites. Archaeological monitoring of project excavations did not identify intact archaeological sites. No further archaeological investigations were conducted for this project.

2.3.5 Automated Gates

Archaeological monitoring of excavations associated with the Automated Gates did not identify intact archaeological sites. No further archaeological investigations were conducted for this project.

2.3.6 Memorandum of Agreement for Future Archaeological Investigations—Bored Tunnel Alternative

Soon after the completion of the field component of the AWV peer review, WSDOT began work on developing a MOA to resolve the adverse effects resulting from the construction of the Bored Tunnel Alternative within the central waterfront component of the Program area. The MOA stipulates that FWHA and WSDOT, through the development of an Archaeological Treatment Plan, will avoid, minimize, and mitigate the adverse effects of this alternative on two archaeological sites that may be eligible for listing in the National Register and four archaeologically sensitive areas that have the potential to contain archaeological deposits eligible for listing in the National Register.

Site 45KI958, a historical archaeological site, and an area of buried peat soils, are located in the North Portal construction area. Future archaeological investigations will evaluate the National Register eligibility of Site 45KI958, and will examine the buried peat soils. These types of soils within the region have been found to contain very early pre-contact Native American sites. Portions of Site 45KI924, located within the H2K area discussed above, and an archaeologically sensitive area containing buried tidal flats, are located in the South Portal construction area. Given the depth of Site 45KI924 below the current surface, archaeologists will monitor construction within the South Portal area, examining and testing the site as it is exposed during construction. The same approach will be used as the buried tidal flats are exposed during construction. Additional archaeologically sensitive areas that may contain both pre-contact and historical-period archaeological sites include an area extending from Yesler Way to Seneca Street and Pike Street to Bell Street.

2.4 EVALUATION OF PERFORMANCE

2.4.1 Scopes of Work and Work Plans

The peer review team found that WSDOT's scopes of work were well done and appropriate for the types of archaeological investigations carried out within the AWV Program area. WSDOT's consultants conducting the work under these scopes of work were encouraged by WSDOT to comment on and improve the scopes of work.

2.4.2 Identification of Archaeological Sites

2.4.2.1 Corings. For the most part, investigations to characterize the Program area's deeply buried and complex archaeological deposits were piggy-backed on-to various

engineering, geotechnical, and hazardous material studies. These studies used coring to examine deeply buried soils within the Program area. In addition, soils from some coring efforts were deposited next to the coring sites and then inspected by archaeologists. The goals of the archaeological investigations associated with the coring also varied. In some cases, the goal was to retrieve archaeological materials and locate deeply buried archaeological sites. In other cases, the goal was to define subsurface deposits and surfaces that had the potential to contain sites. As a result of these different subsurface testing methods and goals, information from across the Program corridor was not comparable.

After the completion of the corings, WSDOT realized they were not able to identify or evaluate archaeological sites using coring; however, the cores did contribute to their understanding of the evolution and character of the Program area's buried landscape. Further, data from the corings could be used to determine high probability areas for buried archaeological sites.

2.4.1.2 Definition of "Archaeological Sites." The standard definition of an archaeological site as presented in DAHP's guidelines and applied to the investigations within the AWV Program area may not be applicable or appropriate to the AWV Program area. DAHP guidelines define a site as "a geographic locality in Washington, including, but not limited to, submerged and submersible lands and the bed of the sea within the state's jurisdiction, that contains archaeological objects" (DAHP, 2010). Artifacts (i.e., archaeological objects) are ubiquitous across the entire Program area and are found within many different soil layers that extend great distances within the area. Further, most of the artifacts in these layers do not appear to be related to intact surfaces associated with either Native American or historic Seattle land use, but represent fill layers.

The Program area's archaeological deposits should be considered, and evaluated for National Register eligibility, as several buried landscapes rather than as individual sites. This would have been possible if a comprehensive, programmatic approach to the Program's archaeological resources had been employed. Instead, the Program area's archaeological record was identified in a piece-meal and often redundant manner. In addition, the AWV archaeological investigations did not apply the "lessons learned" from archaeological work in similar complex urban environments located in other areas of the country, especially those along the eastern seaboard. These studies would have helped in defining the nature and origin of archaeological deposits in Seattle's waterfront environment, and the associated research potential (i.e., National Register eligibility) of these types of archaeological deposits. Other state DOTs have faced similar challenges with complex soil layers and archaeological deposits in urban environments. Their approaches should have been incorporated into the archaeological planning of AWV. These issues are discussed further in the following section, especially in Section 2.5—Recommendations.

2.4.3 National Register Evaluation of Identified Sites

As noted in the previous section, National Register eligibility evaluations of the archaeological deposits within the AWV Program area were problematic, because of (a) problems with how "archaeological sites" were defined and then evaluated, (b) the lack of a comprehensive, programmatic approach to the entire Program area, and (c) not applying "lessons learned" from archaeological investigations in similar environments in other parts of the country. Further, archaeological resource evaluations would have been more effective if there had been a Program-wide framework that established the parameters and decision-making process for identifying significant archaeological resources. This framework would have established the criteria for determining the National Register eligibility (or non-eligibility) of landfill deposits and surfaces, waterfront features, and post-landfill occupations (e.g., building foundations, surface/yard trash, trash-filled features). It is the peer reviewers' opinion that by using such an approach, some of the archaeological sites (and potential site locations) within the Program area might not have been determined to be National Register-eligible (e.g., some or all portions of Site 45KI924).

2.4.4 Archaeological Data Recovery Plans

The AWV Program was the only mega-project that involved the development of an archaeological data recovery plan. The purpose of an archaeological data recovery plan is to establish the methods to be used to resolve adverse effects on a National Register-eligible archaeological site. WSDOT prepared a data recovery plan for National Register-eligible site 45KI924. The peer review team concluded that the research design within the plan did not match the actual research potential of the site. Specifically, the research topics in the plan could not be addressed given the nature and content of this site, and some of the topics were inappropriate for this type of site. These inappropriate research topics include gender studies and the status/role of Seattle in terms of world economic and cultural systems. The site does not contain the artifacts or archaeological deposits that can be used to address these and related research topics. The research topic that is most appropriate to site 45KI924 is the nature of land creation along historic Seattle's waterfront. This topic is presented in WSDOT's research design as one research theme among many, when it should be the most prominent research focus given the content of this archaeological site. And as noted above, the peer review team had some questions about the National Register eligibility of the site (or portions of the site). It is the peer reviewers' opinion that the excavation of this site may have not been the most effective approach for investigating the nature of land creation along historic Seattle's waterfront.

2.4.5 Reporting

The reports and documents on the archaeological investigations were repetitious and redundant in terms of the area's Native American history and city history, descriptions of the Program, and the Section 106 regulatory context associated with the investigations. Most reports also lacked executive summaries that would have simplified their review. In

addition, many reports did not describe the goals of the investigations discussed in the reports. This, too, would have facilitated the review of the reports.

In terms of technical quality, there are several problems with the dating of artifacts and archaeological deposits. In some cases, incorrect or incomplete artifact date ranges were used to date deposits. Some artifacts were also misdated. In addition, the body of the reports did not contain citations referencing the source of the artifact dates.

2.4.6 Program Management and Administration

The peer review team found that WSDOT's contracting procedures for the archaeological investigations were efficient and responsive to the changing nature of the AWV Program. Also, DAHP reviews and responses to WSDOT documents and findings were timely. The peer review team also observed that DAHP's early concerns about the archaeological complexities of the AWV Program encouraged WDOT to increase the number of WSDOT staff archaeologists during the life of the AWV Program in order to more effectively manage the archaeological investigations. This resulted in improved oversight of the archaeological investigations and more efficient consultation efforts between DAHP and WSDOT. The peer review team, however, is concerned that some of the archaeological staff positions are temporary and linked to the duration of the Program. As the Program's final months approach, WSDOT's temporary archaeological staff may leave before the Program's investigations are completed in order to obtain more permanent employment elsewhere. This would affect the successful completion of the Program's archaeological studies and documentation, especially in terms of archaeological investigations that are to be conducted after the release of the ROD for the central waterfront portion of the Program (i.e., associated with the Bored Tunnel Alternative).

2.4.7 Public Outreach

Although public outreach will be required under the MOA for the Bored Tunnel Alternative, these outreach efforts will only occur at the conclusion of the investigations. This approach did not take advantage of the inevitable public interest that most likely existed throughout the life of the AWV Program. The only on-going public outreach noted by the peer review team was media coverage.

2.5 RECOMMENDATIONS

A consistent theme heard by the peer review team during the interviews was the lack of a comprehensive, programmatic approach to all archaeological investigations associated with the entire AWV Program. The peer review team also made this same observation on their own during their initial review of the AWV Program documents, prior to the field visit and interviews. The Program is made up of multiple individual undertakings, each with independent utility. As a result, NEPA compliance is linked to each of the individual undertakings, as is Section 106 compliance. The peer review team understands why

having individual undertakings was done in order to move elements of the Program forward, and why individual NEPA actions are being applied to each undertaking. Conducting Section 106 and the associated archaeological investigations for each individual undertaking, however, resulted in investigations that were repetitive, costly, piece-meal, and highly inefficient.

It would have been more effective and efficient to have conducted Section 106 archaeological investigations and evaluations as a single Program-wide package. In addition, a comprehensive, programmatic approach would have met the overall Program schedules in terms of NEPA and the delivery of individual undertakings, and would have focused on those archaeological resources within the Program corridor that were the most significant and whose investigation would have had the greatest public benefit. This comprehensive approach would have been established through the execution of a Program-wide Section 106 programmatic agreement (PA) as soon as the required archaeological and background information was available, which appeared to be the case in 2007 and 2008. Once this PA was executed, then Section 106 compliance would have been completed for all subsequent individual undertakings within the AWV Program. The PA would have stipulated specific protocols for future consultations among FHWA, WSDOT, and DAHP, and would have established a process for review of all investigations carried out under the agreement.

A Program-wide approach might have had the following components, which are presented below in chronological order:

> Begin by developing a comprehensive historic context for the archaeological landscapes within the waterfront and other locations covered by the AWV Program. This context would include explicit definitions of archaeological resources that may occur in Program areas and specific National Register evaluation criteria for these resources. The historic context would cover all potential archaeological resources in the Program area. These resources may include large landfill units that extend beyond specific lots or blocks, landfill surfaces, and specific features and deposits within historically-defined lots and blocks, among others. This historic context would be based on the extensive historical research that was carried out by WSDOT's consultants as part of the AWV's previous archaeological studies.
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> The historic context would address important questions about the archaeological deposits within the AWV Program area. For example, should the landfill in the Program area be treated as one large archaeological deposit? Can this archaeological resource contribute significant and new information about human use and occupation that is not already available in historic records? Based on work done in similar urban environments, what is the significant data potential of this type of archaeological deposit? Are there archaeological deposits within the AWV Program area that are more important than others in terms of understanding and showcasing life in early Seattle?

> The historic context would then be used to develop a treatment plan for archaeological resources within the entire AWV Program area. The treatment plan would focus on those archaeological areas that have the greatest potential to produce significant research results, in addition to products that would be of a compelling interest to the citizens of Seattle and the region. The treatment plan would be designed by a multi-disciplinary team (e.g., archaeologists, historians, soil scientists), and would address standard archaeological data recovery. It also would describe those contexts when archaeological monitoring was appropriate. The Program-wide treatment plan would also consider creative mitigation measures, including off-site mitigation, where such measures both enhance the delivery of the AWV Program and result in a clear and direct public benefit. Examples of off-site mitigation might include the investigation and preservation of significant archaeological sites outside the AWV corridor in lieu of conducting an archaeological data recovery of a National Register-eligible site within the corridor. This effort would also include a public outreach and educational component.
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> The Program-wide agreement would also establish a comprehensive artifact collection and curation policy that recognizes the range and volume of materials to be excavated from the Program area. The agreement would outline culling procedures both in the field and during laboratory processing of recovered artifacts. This would avoid placing an undue curation burden on the local repositories that would house the resulting archaeological collections. These repositories, such as the Burke Museum of Natural History and Culture, have limited space for housing archaeological collections.

WSDOT did, in fact, begin drafting a PA in February 2007. The overall goal of the PA was to streamline the Section 106 process for the entire Program. In February 2008, WSDOT notified the ACHP that the Department was preparing an agreement document. The ACHP declined to participate, which the ACHP often does on projects they consider to be non-controversial and straight-forward.

During further consultation, DAHP informed WSDOT that a PA was not appropriate for the Program because there was not enough information about the individual projects that made up the overall Program. Given the lack of information on individual projects, DAHP concluded that an overarching PA would have been exceedingly nebulous in terms of the requirements for future work and actions. Further, DAHP noted that using a PA to streamline the Section 106 process does not work, given the experience with and lessons learned from having such an agreement for the Port Angeles Graving Dock project. In addition, it was DAHP's opinion that the AWV agreement as written was insufficient in terms of tribal consultation procedures. DAHP would not support the agreement until WSDOT could guarantee tribal attendance and participation in the meetings and other consultation components stipulated in the PA. FHWA and WSDOT responded that they could not guarantee tribal attendance and participation. As an alternative, DAHP recommended that individual MOAs should be prepared for individual projects within the Program, as work proceeded on these projects. WSDOT consulted

again with the ACHP and was told that a Program-wide PA was more appropriate, but they did support the development of project-specific MOAs. DAHP noted during the peer review that it was a good thing that a project-specific approach was used given how the nature and location of the Program's individuals projects and associated alternatives changed over time.

It was the opinion of the peer review team that the benefits of a programmatic approach to archaeological investigations within the AWV Program area far outweigh the negative issues and concerns raised above. These types of PAs have been successfully used in many other FHWA and state DOT projects around the country, and they have been demonstrated to streamline and enhance the Section 106 process.

The peer review team also noted that public outreach should have been a continuous component of the Program, not an activity or product at the conclusion of a specific archaeological investigation. Again, public outreach and education should have been conducted as a single program within the overall AWV Program, focusing on the most significant archeological sites. Every reasonable effort should have been made to allow public access to archaeological field investigations either physically (to the degree feasible under the Program's health and safety plan) and/or virtually using web-based programs such as blogs or websites. Movable weather-resistant signage could have been developed and installed where archaeological work was being carried out. These materials could be reused as fieldwork moved from place to place.

SECTION 3.0: INTERSTATE 5 COLUMBIA RIVER CROSSING

3.1 PEER REVIEW TEAM

The Columbia River Crossing peer review team included Dr. David Brauner, Mr. Charlie Hodges, and Dr. James Keyser. The following are brief biographies of each of the peer reviewers:

Dr. David Brauner received his Ph.D. at Washington State University (WSU). His research at WSU focused on the prehistory of the southern Columbia Plateau and western Alaska. Dr. Brauner has been with the Department of Anthropology at Oregon State University (OSU) since 1976. Although he continued to develop his research interests in the Native American history of the Pacific Northwest, he has built one of the largest programs in historical archaeology in the region. His major research interests have included Civil War and pre-Civil War military archaeology in Oregon and Washington, late fur trade archaeology in western Oregon, and Klondike Gold Rush archaeology in Alaska. He has contributed to the development of a graduate program in Applied Anthropology at OSU known for its training in cultural resources management (CRM) and historical archaeology. Dr. Brauner is a strong advocate for public archaeology and archaeological site conservation in the Pacific Northwest and Alaska.

Mr. Hodges has a B.A. in Anthropology from the University of Arizona and an M.S. in Anthropology from the University of Oregon. Mr. Hodges has been active in CRM and field archaeology since 1975, and he has been involved in all phases of archaeological resource management projects in many regions of the North American Far West. His background experience includes inventories of historical properties for the Idaho Panhandle National Forest in northern Idaho and archaeological reconnaissance, testing, and data recovery excavations in conjunction with pipeline construction projects, oil and gas exploration, and construction of electrical transmission lines in California, Montana, North Dakota, Oregon, and Washington. Mr. Hodges has been involved in archaeological and geoarchaeological survey, testing, and data recovery projects in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Washington. Mr. Hodges has been a formally trained and active geoarchaeologist since 1990 and has carried out geoarchaeological studies on numerous archaeological sites. His firm, Pacific Geoarchaeological Services, specializes in providing geoarchaeological support for CRM firms operating in the North American Far West.

Dr. James Keyser received a B.A. and M.A. from the University of Montana and a Ph.D. from the University of Oregon. Dr. Keyser is retired from his position as

Regional Archaeologist for the Pacific Northwest Region of the USDA-Forest Service, where he worked for 26 years. Dr. Keyser has extensive experience in the Section 106 process as both a contractor and federal employee. His broad knowledge of Pacific Northwest and Plains archaeology derives from his experience as Principal Investigator or Field Supervisor for large-scale excavation projects in Montana, South Dakota, Oklahoma, and Oregon. His specialty is the archaeology of pre- and post-contact Native American history. Dr. Keyser has published more than 150 articles, books, and monographs on the archaeology of Northwestern North America.

Resumes for the peer review team can be found in Appendix B.

Appendix C lists the project materials reviewed by the peer review team prior to the field component of the review, which took place during October 18–21, 2010 in Vancouver, Washington. The field visit included a field inspection of the project area, and nine (9) interviews. The peer review team interviewed WSDOT, DAHP, and National Park Service staff about the project, in addition to individuals who worked on the project in the past but who currently are not employed by these agencies. The peer review team interviewed staff from the National Park Service (NPS) since the project area extended into the Vancouver National Historic Reserve, which is managed by NPS. In addition, the peer review team interviewed WSDOT's cultural resource consultants who had worked or are currently working on the project. The peer review team did not review archaeological work conducted in the Oregon portion of the project area.

3.2 PROJECT DESCRIPTION

The Interstate 5 (I-5) Columbia River Crossing (CRC) project is a multimodal project along a five-mile section of the I-5 corridor connecting Vancouver, Washington and Portland, Oregon (Figure 3.1). The essential elements of the project include replacing the current I-5 bridge, improving closely spaced interchanges, extending light rail to Vancouver, and enhancing pedestrian and bicycle paths. The project area begins around State Route 500 (SR 500) in northern Vancouver, Washington. It extends south through downtown Vancouver and over the I-5 bridges across the Columbia River to a point just north of Columbia Boulevard in north Portland, Oregon.

The project's lead federal agencies are the FHWA and FTA. These agencies are coordinating the project with WSDOT, Oregon DOT, the Southwest Washington Regional Transportation Council, the Metropolitan Regional Government, C-TRAN, and TriMet. Other cooperating federal agencies on the project are the U.S. Army Corps of Engineers, the U.S. Coast Guard, the Federal Aviation Administration, and the NPS.

Figure 3.1. Interstate 5 Columbia River Crossing Project Area (from the Draft EIS, Executive Summary)

The CRC project at the time of the release of the Draft EIS in 2008 (FHWA, FTA, ODOT, and WSDOT, 2008) consisted of four build alternatives:

- Replacement bridge with bus rapid transit
- Replacement bridge with light rail
- Supplemental bridge with bus rapid transit
- Supplemental bridge with light rail

The Locally Preferred Alternative (LPA), which the project partner agencies endorsed later in 2008, is a replacement bridge with light rail extending to Clark College in Vancouver. In August 2010, the Project Sponsors Council unanimously agreed on a set of recommendations to the governors of Washington and Oregon for moving ahead with development and construction of the project. The recommendations include a permanent 10-lane I-5 bridge. The Final EIS, which is scheduled to be released in 2011, will describe the additional analysis on potential community and environmental effects of the project and will include responses to comments received during the Draft EIS public comment period.

The Section 106 process associated with the CRC project was somewhat more complex than for the other three mega-projects, since the CRC project area extended onto lands managed by the NPS. These lands encompass several significant historical and archaeological sites within the Vancouver National Historic Reserve. Under the Section 106 process for the CRC project, NPS has a role as a consulting party since the agency owns historic properties that will be affected by the project (the Vancouver National Historic Reserve is listed in the National Register). In addition, WSDOT must obtain a permit from NPS prior to conducting any subsurface excavations within the Reserve that might affect archaeological sites, as required by the Archaeological Resources Protection Act (ARPA). As a condition of this permit, NPS required that only NPS archaeologists conduct the archaeological investigations within the boundaries of the Reserve, who then would submit the results of their work to WSDOT and DAHP.

3.3 SUMMARY OF ARCHAEOLOGICAL INVESTIGATIONS

Archaeological investigations within the CRC project area were conducted within three locations: the Vancouver National Historic Reserve, the WSDOT right-of-way between the eastern edge of I-5 and the western boundary of the Reserve, and areas west of I-5. As noted above, the NPS conducted the archaeological investigations within the Reserve. A WSDOT archaeological/historical consulting firm conducted the work in the other two locations.

3.3.1 Vancouver National Historic Reserve

To facilitate their archaeological investigations, NPS used the results of previous archaeological work in the Reserve to divide the CRC project area located in the Reserve (approximately 3 acres) into five sub-areas:

1. The 1850s Old Post Cemetery. This area encompassed a City of Vancouver property at the west end of Officers Row north of Evergreen Boulevard, plus a small area along the south side of Evergreen Boulevard.
2. The West Barracks. This area extended from Evergreen Boulevard south to East 5th Street, parallel to I-5.
3. The U.S. Army Property. This area included land south of East 5th Street, along I-5, and a second area along the western portion the Fort Vancouver Village ("Kanaka Village") north of SR 14.
4. Hudson Bay Company Village. The southwest and southern areas of the Fort Vancouver Village, north of SR 14.
5. Old Apple Tree Park. This area was bounded on the east by northbound I-5 and extended along the north side of SE Columbia Way south of SR 14.

In the late 1970s, NPS identified the location of Site 45CL300 within the area east of I-5 and north of SR 14. This archaeological site encompassed the remains of "Kanaka Village," an early nineteenth-century village that housed the majority of Hudson's Bay Company employees at Fort Vancouver. In 1980, as part of a National Register determination of eligibility evaluation for "Fort Vancouver–Kanaka Village," prepared in conjunction with proposed improvements to the I-5/SR 14 interchange, the area of 45CL300 was expanded to include lands administered by NPS, the U.S. Army, and WSDOT. The site's boundaries were based on the anticipated construction impact area rather than on the extent of archaeological deposits as defined by archaeological fieldwork. Site 45CL300 now encompasses over 50 acres east of I-5, and its boundaries extend into WSDOT's I-5 right-of-way. In 2007, the Reserve was listed in the National Register as the Vancouver National Historic Reserve Historic District. The historic district includes the following sites:

- Hudson Bay Company-U.S. Army Trash Dump/Pond (Sites 45CL47 and 45CL54)
- Officer's Row (45CL160H)
- Vancouver Barracks (45CL162H)
- Fort Vancouver National Historic Site (45CL163H)
- Old Apple Tree (45CL164H)
- Pearson Field (45CL224)
- Kanaka Village (45CL300)
- Pearson Airfield Site (45CL524)

Using the information derived from existing historical and archaeological research (including the work within Site 45CL300), NPS evaluated the potential for encountering individual historical-period archaeological sites within the above discussed five CRC project sub-areas, and identified the most effective locations for the placement of subsurface excavations in these areas to confirm the location of the sites. Archaeological testing consisted of exploratory trenching with a backhoe and manual excavations. Where historical-period archaeological remains were relatively close to the surface or in sensitive areas, excavations were conducted manually. In three of the five areas within

the Reserve, NPS conducted mechanical excavations to explore archaeological remains buried beneath modern fill.

Based on historical records, the archaeological excavations, and analysis of materials recovered from the excavations, NPS identified historical-period archaeological sites in each of the five areas. In all, NPS identified 15 sites that have the potential to provide important information about the history of the National Register-listed Reserve. These sites included (from north to south):

- 1850s Old Post Cemetery (which has the potential to still contain human remains, possibly Native American)
- 1879 Line Officers Quarters
- 1859 Workshops
- 1851 Blacksmith Shop
- 1892 U.S. Army Stable
- 1859 Quartermaster Stable
- 1880s Heritage Trees-McLoughlin Road Tree Allee
- Hudson Bay Company–1840s Kanaka House
- Hudson Bay Company Village–1840s Tayenta House
- 1850s McLoughlin Road
- Hudson Bay Company Village–1840s House 4
- Hudson Bay Company Village–Pond
- 1826 Apple Tree
- 1874 Vancouver House Hotel
- 1859 U.S. Army Building

Based on the results of their investigations, NPS recommended redefining some of the previously recorded sites located within the Reserve. For example, 45CL300 should now encompass several of the above-listed, newly identified sites.

3.3.2 Archaeological Investigations West of the Vancouver National Historic Reserve and East of Interstate 5

WSDOT's consultant conducted archaeological investigations within a narrow strip of land east of the Interstate 5 and west of the Reserve, focusing on eight parcels owned by WSDOT. Each of these parcels was to be the location of future construction and subsurface excavations associated with the building of any of the project alternatives. These investigations consisted of hand-dug test excavations (one-foot diameter holes dug with a shovel) and mechanical excavations. All eight parcels were located within the construction zone of I-5, and each parcel had been subject to extensive amounts of earth-moving during highway construction and subsequent improvements. Excavation of hand-dug tests in this area revealed fill soils with historical-period artifacts, but the origin of these fill soils was not clear, and the tests did not reach the original historic ground surfaces that once existed in this area. Subsequent mechanical trenching demonstrated that the hand-dug test excavations could not reach the base of the deep fill deposits nor

the original historic ground surface. Therefore, hand excavations were replaced by mechanical trenching for all subsequent investigations within the parcels.

Although deposits in the eight areas revealed evidence of disturbance from past highway construction, seven of the eight parcels contained some intact archaeological remains. The eighth area contained steep slopes created when fill material was brought in to support construction of the SR 14 overpasses. The amount of fill brought into the area and the narrow configuration of this parcel made it impossible for WSDOT's consultant to excavate below the construction fill levels or determine whether the parcel contained intact archaeological remains.

WSDOT's consultant designated each of the eight parcels as archaeological sites, and each was assigned a site number, in consultation with WSDOT and DAHP. All but two of these archaeological sites are located totally or partially within the boundaries of site 45CL300, as defined by NPS, which as noted above, extends into WSDOT's right-of-way. All of the archaeological sites contained historical-period artifacts. WSDOT's consultant identified historical-period structural remains at sites 45CL912, 45CL914, 45CL916, and 45CL917. A single Native American projectile point fragment (i.e., arrowhead) was also found in soils at 45CL912. Debris from Native American stone-tool manufacturing was found in soils within 45CL913 and 45CL917, and a possible stone tool was also recovered from the latter site. These Native American materials were recovered in soils that also contained non-Native American artifacts.

WSDOT's consultant recommended that three of the sites (45CL912, 45CL913, and 45CL916) were not eligible for listing in the National Register[1]. These site locations had been extensively disturbed by the construction and subsequent improvements of I-5 and SR 14, resulting in the mixing of original intact soils and impacting any archaeological sites that were once located on the surfaces of these intact soils. Two sites, 45CL914 and 45CL917, contained historical-period artifacts directly associated with historic-structural remains (brick piers most likely associated with the late nineteenth and early twentieth century U.S. Army Quartermaster Depot; and a concrete foundation, a concrete and brick wall, and a sidewalk probably associated with the Quartermaster Depot Stable). WSDOT's consultant recommended that these two sites were eligible for listing in the National Register. As noted above, it was not possible to fully investigate one of the eight WSDOT parcels due to the presence of deep modern fill, although previous archaeological investigations in the area had indicated the presence of archaeological remains in this general area. WSDOT's consultant assigned this parcel a site number, 45CL915, though no archaeological site was actually found in this area.

3.3.3 Archaeological Investigations West of Intestate 5

WSDOT's consultant conducted the archaeological investigations west of I-5, using hand-dug test excavations and mechanical excavations. A few of the hand-dug tests in the

[1] After the peer review team completed its review of the CRC project, the CRC project team, WSDOT, and DAHP met and agreed that all sites east of I-5 and west of the Reserve boundary, and all sites west of I-5 were National Register eligible.

northern portion of this area did reach the original historical-period ground surfaces, but in most cases they did not, similar to the WSDOT parcels east of I-5. Therefore, the majority of testing west of I-5 involved mechanical excavations. It should be noted that WSDOT's consultant was denied access to various parcels west of I-5 that were privately owned or were the property of the City of Vancouver.

Investigations west of I-5 included the review of cores dug within the project area for engineering purposes, and also a review of documentation on two previously recorded submerged archaeological sites located in the Columbia River just off the Washington shore. These sites contained both Native American and non-Native American historical-period artifacts. After this initial research, WSDOT's consultant investigated ten separate WSDOT parcels west of I-5.

WSDOT's consultant identified nine archaeological sites within these parcels, and the boundaries of these parcels were used to define the boundaries of the sites. All of these sites most likely represent nineteenth- and early twentieth-century business and residences within the historic City of Vancouver. WSDOT's consultant recommended that sites 45CL918, 45CL920-45CL922, 45CL924, and 45CL926 as eligible for listing in the National Register. These sites contain intact structural remains, such as building foundations, walls, and floors, in addition to intact soils with many late nineteenth- and early twentieth-century artifacts. Three other sites (45CL919, 45CL923, and 45CL925) were not recommended as eligible for listing in the National Register. The soils in these sites had been extensively disturbed by highway construction, destroying any intact historic ground surfaces or structural remains that may have once existed in these locations.

No archaeological investigations were conducted at the locations of the two submerged archaeological sites in the Columbia River. These investigations remain to be done in the future, prior to the construction of the project's selected build alternative. Archaeological investigations within the areas of the proposed light rail in Vancouver also have not been conducted.

3.4 EVALUATION OF PERFORMANCE

3.4.1 Scopes of Work and Work Plans

NPS developed individual work plans for the investigation of specific locations within the portions of the APE that extended into the Reserve. WSDOT's consultant wrote the scopes of work for investigations outside the Reserve, and the scopes of work were reviewed and approved by WSDOT. It should be noted that as WSDOT's consultant conducted their initial fieldwork to identify archaeological sites west of I-5, the CRC project design changed. This required changes in WSDOT's consultant's scopes of work, and resulted in stopping and restarting their work.

From the beginning, there should have been a dedicated WSDOT project archaeologist coordinating the investigations conducted by WSDOT's consultant and NPS, resulting in one unified and consistent approach to all archaeological work. Since there was no dedicated in-house WSDOT archaeologist devoted to the CRC project during the project's early phases, the approaches to identification and National Register evaluation within the project's APE inside and outside of the Reserve were disjointed and problematic, and as a result, did not meet the needs of the project. The problems that arose as a result of having two separate approaches within the Reserve versus outside the Reserve are discussed in more detail below.

3.4.2 Identification of Archaeological Sites

The peer review team noted that readily available geological and soils information, such as government reports and a number of peer-reviewed publications, was not used to its full potential to understand the area's historic landscape and archaeological site potential. Further, although geotechnical engineering data were available and examined, the project's geoarchaeological team did not extract information from these data to assess the effects of modern land-use impacts and modifications to historic landforms and soils in the project area. Geotechnical data can be a valuable resource for a preliminary or "heads-up" assessment of subsurface conditions. Thorough analyses of these and associated data would have provided an initial clue about the inappropriateness of conducting hand excavations in the majority of the project's APE, as well as the potential location of buried intact soils and landforms.

In addition, a review of these existing geological and soils data should have been followed by a thorough geoarchaeological investigation of the APE in order to better define the location of intact buried soils, and thus the potential for both pre-contact and historical-period archaeological sites associated with Fort Vancouver, the City of Vancouver, and other historic occupations. This investigation would have also provided critical information on the appropriate methods to be used in identifying intact sites within the APE. The only geoarchaeological field investigations conducted for the CRC project was within the Columbia River. This study provided some information on the Washington state-side of the project area, based on geotechnical records, but this information was too broad for identifying potentially intact buried surfaces and areas of subsurface disturbance.

It is the peer reviewers' opinion that full consideration of existing geological and soil information, followed by a comprehensive geoarchaeological investigation of the project area, would have demonstrated during the early phases of the project that archaeological sites within the Reserve are, for the most part, fairly intact. A thorough review of existing information and a geoarchaeological study also would have provided, during the early phases of the project, the specific location of intact soils within WSDOT's eastern I-5 right-of-way. With this geoarchaeological information in hand, WSDOT and its consultant could have conducted targeted mechanical trenching to investigate the locations of these intact soils. Since WSDOT did not conduct these geoarchaeological studies during the early phases of the project, WSDOT spent unnecessary time and

money conducting extensive and unnecessary archaeological testing in the right-of-way east of I-5 and west of the Reserve boundary. In addition, a geoarchaeological investigation west of I-5 would have demonstrated the inappropriateness of conducting hand excavations in this portion of the APE.

3.4.3 National Register Evaluation of Identified Sites

The peer review team agrees with WSDOT's consultant's findings for the area east of I-5 and west of the Reserve boundary, with the following caveat. As discussed above, two sites, 45CL914 and 45CL917, were recommended as National Register eligible. These archaeological remains are most likely associated with archaeological sites within the Reserve. It is the peer reviewer's opinion that these sites should not have been considered individually eligible, nor should they have been assigned separate site numbers. Rather, these archaeological remains should have been designated as contributing components of the sites located within the Reserve.

In the area west of I-5, there was only a minimal effort to consult historical records in order to reconstruct the area's land-use history, and based on this information, assess the significance of the archaeological deposits and features identified during field investigations of this area. WSDOT's consultant focused on historical records associated with the area's contact period Native American settlement and reviewed historic insurance maps. There was no attempt to link identified archaeological deposits and features with documented historical land use or block/lot histories. WSDOT's consultant simply equated the presence of intact historical-period deposits and features with National Register eligibility. It should be noted that this approach was acceptable to both WSDOT and DAHP. It is the peer reviewers' opinion that deposits and features should have been linked to lot or block histories, as well as a broader historical context on the City of Vancouver. WSDOT's consultant's approach, and the acceptance of this approach by WSDOT and DAHP, was an inappropriate application of National Register eligibility criteria. Historical-period archaeological sites are generally eligible for listing in the National Register when it can be demonstrated that the sites meet National Register Criterion D; that is, they have the potential to provide information important in history. By not linking the identified deposits and features to specific, documented, historical occupations or land use within the historic city of Vancouver, it is not possible to determine if these archaeological remains can, in fact, yield information important in history.

Not only were there problems in how sites were evaluated for National Register eligibility in the areas west of I-5, but how sites were defined, especially in terms of their boundaries, was also problematic. WSDOT's consultant, in consultation with WSDOT and DAHP, used CRC project work areas to define the boundaries of archaeological sites. This approach does not follow traditional archaeological protocols for defining site boundaries, which in the context of a historic settlement like the City of Vancouver, should be based on historical criteria such as lots or blocks, or historic parcels. If archaeological data recovery is conducted within these work areas, there will be an unnecessary complexity and confusion in terms of numerical designation of actual

individual sites located within these work areas. For example, a feature, lot, or block may extend into multiple work areas and will therefore be assigned multiple site numbers. This will result in administrative and management inefficiencies. A more appropriate approach would have been the use of temporary numbers until actual sites were defined through future archaeological investigations.

A different process was used in defining sites and assigning archaeological site numbers in the Reserve (and as noted above, some of these sites extended into WSDOT's I-5 right of way and were assigned new site numbers by WSDOT and DAHP). Within the Reserve, NPS was evaluating, in several cases, the National Register eligibility of archaeological sites located within a larger, National Register site—45CL300. As discussed above, this archaeological site encompasses the remains of "Kanaka Village," an early nineteenth-century village that housed the majority of Hudson's Bay Company employees at Fort Vancouver. It would have been more appropriate for NPS to evaluate these archaeological "sites" within 45CL300 as contributing or non-contributing components of 45CL300. Further, the sites recommended as National Register eligible within WSDOT's eastern I-5 right-of-way should also have been considered contributing elements to site 45CL300. An alternate approach would have been to designate the significant deposits and features within WSDOT's right-of-way as contributing elements to the National Register-listed Vancouver National Historic Reserve Historic District (and the same could have been done within the Reserve).

The peer review team also found that, in some cases, the level of testing within the APE in the Reserve was not adequate to evaluate the integrity of identified archaeological deposits or features; nor was the level of testing adequate to determine if a location was a contributing element to 45CL300. For example, testing in the area of the 1879 Line Officers Quarters identified historical-period artifacts in mixed soils, but no intact archaeological features associated with the quarters. NPS still recommended this location as National Register eligible under National Register Criteria A and D (Criterion A is association with events that have made a significant contribution to the broad patterns of history). The peer review team concluded that a larger subsurface exposure was required to appropriately evaluate the significance of this location and other locations within the APE extending into the Reserve. Equating the documented location of a historic structure and the presence of historical-period artifacts in mixed and possibly disturbed soils is not sufficient to meet National Register eligibility criteria and integrity requirements.

3.4.4 Reporting

The reporting process for the CRC project was unusual and very different from the reporting process for the other three mega-projects. This is a result of having two independent entities conducting archaeological investigations within the project's APE. The NPS wrote a report on their work within the Reserve. WSDOT's consultant wrote a separate report on their work immediately west of the Reserve (and east of I-5), as well as on their work west of I-5. As noted above, WSDOT's consultants work immediately adjacent to the Reserve (and east if I-5) dealt with the same sites/components that NPS identified and evaluated within the Reserve. WSDOT's consultant was then tasked by

WSDOT to prepare a technical report on all archaeological work in the APE. The report was to include as appendices separate reports on NPS's work within the Reserve and the consultant's work in all other areas of the APE, with the body of the report consisting of a summary of all of the investigations. This required WSDOT's consultant to meld the use of different and incompatible methods for identifying, numbering, and evaluating archaeological sites within the APE.

As a result of having two different approaches to defining sites and evaluating National Register eligibility, a portion of a site within the Reserve was recommended as National Register eligible while the portion of the same site outside of the Reserve boundary and east of I-5, was recommended as not eligible. What should have occurred was to identify archaeological deposits within and outside of the Reserve as the same, single site, and then evaluate which portions of the site retained integrity (or were components that contributed to the National Register significance of the site). In addition, the site should have been assigned a single number even though it extended outside of the Reserve.

The peer review team learned that over the past year (2010), two interim archaeological technical reports were produced by WSDOT's consultant for submittal to DAHP for review and comment. The first interim report in July 2010 was sent to all of the consulting parties, including NPS and DAHP. When NPS informed WSDOT and DAHP that they had comments on the report, DAHP stated they would not review the report until WSDOT responded to NPS's comments. WSDOT's consultant revised the report based on NPS's comments, and this revised technical report was sent to DAHP in September 2010 for review and comment, even though, the peer review team learned, WSDOT's consultant's work on the artifact analysis and report were not finished. The peer review team questioned all parties as to why a report was sent to DAHP when WSDOT's consultant's work had not been completed. The response was that this had to happen in order for the project to meet both its Section 106 and NEPA schedule, and the remaining work and final report would be completed by the release of the Final EIS.

The peer review team was concerned that DAHP was reviewing a report prior to the completion of all archaeological analyses. In addition, the peer review team is of the opinion that the report does not contain sufficient information to evaluate National Register eligibility for the majority of archaeological sites identified in the APE, given the problems discussed above in Section 3.2.3.

3.4.5 Project Management and Administration

For the longest time, there was no dedicated WSDOT archaeologist assigned to the CRC project, overseeing the archaeological investigations and managing the linkage between the archaeological work within and outside of the Reserve. As noted in the above sections, the lack of a coordinated approach within and outside of the Reserve resulted in an inefficient and unnecessarily complex administration of the project's overall archaeological investigations. If there had been a full-time dedicated WSDOT archaeologist working on the project from the beginning, the problems encountered

during the investigations both with and outside the Reserve might have been avoided at an early stage in the project's NEPA review process.

3.4.6 Public Outreach

There was no formal public outreach efforts associated with the project's archaeological investigations, beyond normal NEPA-related public involvement activities.

3.5 RECOMMENDATIONS

The peer review team found that the methods used to conduct archaeological investigations within the project area, and the approaches used to evaluate National Register eligibility were inefficient and in some cases unnecessary given (a) the complex urban environment through which the project passes on the Washington side of the Columbia River, (b) the early stages of project design, (c) the intensive pre-contact and historical occupations that had occurred within the project's APE, and (d) the multi-federal agency involvement (FTA, FHWA, and NPS). In retrospect, it would have been more appropriate for FHWA, FTA, NPS, DAHP, and WSDOT to have prepared a PA establishing a process for conducting archaeological investigations within the project area. A PA should have been executed early in the NEPA review process.

A PA would have included stipulations directing the parties to conduct the following studies and consultations:

1. Historical research for reconstructing pre-contact and historic land use and land modifications.
2. A comprehensive, project-wide geoarchaeological investigation.
3. If appropriate, targeted archaeological testing, such as mechanical trenching, to confirm and expand upon the results of the geoarchaeological investigation.
4. FTA, FHWA, NPS, DAHP, and WSDOT would then consult to develop a process for conducting future archaeological investigations, defining archaeological sites, and evaluating National Register eligibility (in addition to a process for assessing project effects and resolving any adverse effects).

Based on the peer review team's understanding of the project's construction schedule after the release of the Record of Decision, there would have been sufficient time to conduct the archaeological investigations required by the PA. Some, if not all of the archaeological investigations could be conducted as the project design moved closer to final design, well before construction would begin. This would have resulted in more efficient and focused archaeological investigations within areas that would actually experience impacts from project construction.

During the interviews, the peer review team did learn that the CRC project team considered preparing a PA early in the NEPA review process, and they discussed preparing a PA with FHWA, FTA, and DAHP. For some reason, which no one could

identify for the peer review team, the preparation of a PA was dropped from further consideration.

Finally, the peer review team has some recommendations in terms of future archaeological work within the project APE. The peer review team was told that the portion of the 1850s Old Post Cemetery between the Reserve and I-5 will be avoided by the proposed project, even though construction activities are planned in this location. Given the early design stage of the project and the potential for the design to change right up to construction (which is standard on all major transportation projects), the peer review team questions such definitive statements about the cemetery. Any issues related to human remains need to be addressed well before construction begins in order to avoid a potentially difficult and controversial discovery situation. The peer review team recommends that WSDOT determine if burial pits are present within the cemetery area between the Reserve and I-5. There is no need at this point to fully excavate the burials, if they exist. It is just important to determine whether or not graves are present.

SECTION 4.0: MUKILTEO MULTIMODAL FERRY TERMINAL PROJECT

4.1. PEER REVIEW TEAM

The Mukilteo Ferry Terminal project peer review team included Dr. Peter Lape, Dr. Philippe LeTourneau, and Dr. Gary Wessen. The following are brief biographies of each of the peer reviewers:

Dr. Peter Lape received his Ph.D. in Anthropology from Brown University. He is on the faculty of the Department of Anthropology at the University of Washington, where he is currently an Associate Professor. He also holds a joint appointment as Curator of Archaeology at the Burke Museum of Natural History and Culture. Dr. Lape teaches courses on paleoclimate and cultural resource management. At the Burke Museum he is responsible for managing extensive archaeological research collections, many of which are held in trust for government agencies and tribes. He is also responsible for Native American Graves Protection and Repatriation Act compliance and running an active public archaeology program.

Dr. Philippe LeTourneau received his Ph.D. in Anthropology from the University of New Mexico. He is currently the King County Historic Preservation Program Archaeologist. Dr. LeTourneau has over 22 years of professional experience in archaeology, including 10 years as a cultural resources management consultant in Seattle. He is an Affiliate Curator at the University of Washington's Burke Museum and a Research Associate at the University of New Mexico's Maxwell Museum. Dr. LeTourneau manages the Cultural Resource Protection Project, a long-term effort to improve cultural resource identification, evaluation, and management in the County, and to create tools for more effective compliance with federal, state, and local regulations addressing archaeological resources. He also assists County agencies with cultural resources and represents the County in Section 106 consultation.

Dr. Gary Wessen has a Ph.D. in Anthropology from Washington State University and 41 years of archaeological experience in western North America. The vast majority of this experience has involved archaeological sites of western Washington, where he has operated an archaeological consulting company since 1983. He specializes in the archaeology of coastal and near-coastal forest settings. Dr. Wessen has conducted more than 500 archaeological studies in the region and typically undertakes 20 to 30 such studies each year. He is an on-call archaeologist for the Public Works Departments in Clallam, Mason, Island, and San Juan Counties and has long term working relationships with the Makah,

Skokomish, and Jamestown S'Klallam Indian Tribes, Tacoma Power, the Port of Port Angeles, PUD No. 1 of Jefferson County, and a number of the region's planning, development, and construction firms.

Resumes for the peer review team can be found in Appendix B.

Appendix C lists the project documents reviewed by the peer review team prior to the field component of the review, which took place during December 6–9, 2010 in Seattle and Mukilteo. The field component of the review included a field inspection of the project area, and six (6) interviews. The peer review team interviewed WSDOT and DAHP staff about the project, in addition to individuals who worked on the project in the past but currently are not employed by these agencies. In addition, the peer review team interviewed WSDOT's cultural resource and environmental consultants who had worked or are currently working on the project.

4.2 PROJECT DESCRIPTION

The Mukilteo ferry is part of State Route 525, the major transportation corridor connecting Whidbey Island to the Seattle-Everett metropolitan area (Figure 4.1). It is Washington State Ferries' (WSF) second busiest route for vehicle traffic and has the third largest annual ridership. The existing Mukilteo ferry terminal is aging and needs major repairs to improve safety, reliability, and multimodal connections. Since vehicle traffic is limited by the size of the ferry vessel, creating a terminal with good multimodal connections is critical to meeting future passenger growth. The Federal Transit Authority (FTA) is the lead federal agency involved in the proposed improvements to the ferry, since the improvements require the use of federal funds.

Improvements to the terminal have been discussed in various studies since the 1970s. Based on information from a 2004 EA, the FTA determined that the proposed project had the potential to cause significant impacts to natural resources and historic properties and warranted preparation of an EIS (WSDOT, FWHA, and WSF, 2010). The EIS process began in 2006 and resulted in several refinements of the proposed improvement alternatives. The project was put on hold in 2007 in order to more fully study several environmental issues, including potential impacts to archaeological sites (WSDOT, FWHA, and WSF, 2010).

The EIS begun in 2006 studied two build alternatives. One would move the terminal to the U. S. Air Force's (USAF) tank farm property northeast of the existing ferry terminal. This alternative would integrate ferry, rail, and transit services into a single complex using 6 to 7 acres of the tank farm property. The vehicle holding area would be constructed over the water and encompass 2.6 acres. The second alternative would occupy approximately 12 to 13 acres of the tank farm property. The vehicle holding area would be constructed on land. Both alternatives involve the demolition and removal of the existing tank farm and associated structures and utilities.

Figure 4.1. Mukilteo Multimodal Ferry Terminal Project Area (from Mukilteo Multimodal Project website)

WSF and FTA re-started the project in 2010 (WSDOT, FWHA, and WSF, 2010). The agencies are currently considering modifications to previously identified alternatives to upgrade and improve the Mukilteo ferry terminal. These alternatives will be presented in a Draft EIS to be released for agency and public review in the fall of 2011.

4.3 SUMMARY OF ARCHAEOLOGICAL INVESTIGATIONS

The archaeological investigations reviewed by the peer review team began in 2003. The most extensive investigations, however, occurred in 2006 and 2008. These more recent investigations involved research on the project area and consultation with tribes who once occupied and used the lands encompassed by the project. This research involved examination of records on file at DAHP and review of historical maps and documents on the project area and the vicinity. An important component of this research was the reconstruction of the original landform within the project area, as the area had been clearly filled in over time. This research also documented the presence of a historic property, 45SN108, the Point Elliot Treaty Site, first registered with DAHP in 1974. Records also indicated the presence of Native American sites within the project area, in addition to the potential for underwater archaeological properties along the shore.

In 2005, archaeological fieldwork focused on those locations that would be directly impacted by project alternatives proposed at that time. This work involved hand-dug excavations and monitoring of engineering cores. The cores revealed the presence of a Native American shell midden (a concentration of discarded shell) dating prior to the time of European contact. The site, assigned number 45SN393, was recommended as potentially eligible for listing in National Register. WSDOT's consultant also predicted that other intact archaeological sites might be present in other areas, outside of the footprint of the project alternatives.

In 2006, WSDOT had their consultant conduct an additional assessment of Site 45SN393 to more fully assess if the site was National Register eligible and to investigate whether other archaeological sites existed in the area, including the southern portion of the tank farm. WSDOT's consultant monitored additional cores in addition to mechanical trenching with in the project area. The monitoring confirmed the historical records which indicated that the majority of the project area was originally a spit of land beginning in the northern portion of the project area. A tidal wetland was once located to the east of this spit. The monitoring demonstrated that Site 45SN393 extended east into the tank farm property and located an additional site, 45SN404, the Old Mukilteo Site. Both sites were recommended as National Register eligible. In addition, based on the results of the field investigations and historical research, WSDOT's consultant recommended that the boundary of the Point Elliot Treaty Site (45SN108) should encompass the entire area that was once the spit of land extending into Puget Sound.

Since 2006, four additional archaeological projects have been conducted within and adjacent to the project area by various agencies. In 2008, Sound Transit hired a consultant to conduct an archaeological investigation of the proposed Sounder Commuter rail

station. This investigation identified the Japanese Gulch Site (45SN398), which was recommended as National Register eligible. This site extended into a portion of the ferry terminal project area. Archaeological work on other projects also demonstrated that the size of intact deposits associated with the Old Mukilteo Site (45SN404) was larger than originally defined and that Site 45SN393 extended throughout portions of the terminal project area.

In 2007, WSDOT's archaeological consultant monitored off-shore geotechnical drilling (Miss et al., 2008); however, the report discussing this work is not clear on what was learned from this monitoring. The off-shore area had been initially investigated during an early underwater archaeological survey in 1981, associated with the first effort to replace the Mukilteo Terminal (Green, 1981). It should be noted that no underwater archaeological investigations involving side-scan sonar or other types of remote sensing have been conducted off-shore to date.

4.4 EVALUATION OF PERFORMANCE

4.4.1 Scopes of Work and Work Plans

WSDOT's good working relationship with their CRM consultants resulted in high quality archaeological investigations within the project's APE. Though the archaeological work was of a high quality, it is the opinion of the peer review team that the scopes of work and work plans that guided the archaeological investigations (which were developed by FTA and WSDOT in consultation with WSDOT's consultants) were not effective in meeting the project goals. This is discussed further in the following section.

4.4.2 Identification of Archaeological Sites

It is the peer review team's opinion that FTA and WSDOT did not conduct sufficient historical and archaeological investigations during early project development, beginning in 2005. A comprehensive study, involving historical research, oral history, and some archaeological fieldwork across the entire APE as defined in 2005 would have revealed two historic property "red flags." These "red flags" were the Point Elliot Treaty Site and the Native American shell midden site (45SN393). During the interviews, the peer review team learned that both of these sites may have religious and cultural significance to Native American tribes. The identification of these "red flags" might have guided both FTA and WSDOT to drop the alternatives retained for detailed study in the 2006 Draft EIS at the preliminary alternative screening phase, since these alternatives had the potential to impact two properties protected under Section 4(f) of the Department of Transportation Act. The agencies would have then considered other build alternatives that avoided or minimized impacts to these significant sites.

Section 4(f) of the Department of Transportation Act states that federal Department of Transportation agencies, such as FTA and FHWA, cannot use lands from a property listed in or eligible for listing in the National Register unless the agency demonstrates

that there is no prudent or feasible alternative to the use of lands from the property, and that the agency has done all possible planning to minimize harm to the property (*10*). Archaeological sites that are of religious and cultural significance to tribes are protected under Section 4(f). Therefore, as required by Section 4(f), if there is a prudent and feasible alternative that does not use land from this type of site, FTA and other federal Department of Transportation agencies must select that alternative for the proposed project, unless the use of this land can be demonstrated to have a minimal impact on the protected site. Given the requirements of both Section 4(f) and Section 106, after the discovery of the shell midden in 2005, the next step in the archaeological assessment of the APE should have been a geoarchaeological investigation across the entire APE to define the extent of the site below the current surface. This would have allowed FTA and WSDOT to identify alternatives that might have avoided or minimized impacts to this significant and protected site very early in the project development process.

4.4.3 National Register Evaluation of Identified Sites

Based on the review of available project documentation, it is unclear as to whether or not the uppermost portions of site 45SN393 are intact or have been truncated. Even if the upper portion of the site is truncated, this would not alter the site's National Register eligibility [Note: WSDOT's consultants recommended that the site was National Register eligible]. A truncated site, however, reduces the likelihood of having an archaeological record associated with the 1855 treaty event (i.e., site 45SN108), as these later, upper archaeological deposits may no longer exist.

The peer review team understands that the FTA will not evaluate the National Register eligibility of site 45SN393 because part of the site extends onto USAF property. The peer review team was told by WSDOT staff that FTA will not evaluate the site until the USAF permits FTA to do so or until the USAF transfers this land to the Port of Everett. The peer review team was told by WSDOT staff that FTA believes it cannot evaluate the eligibility of a site that extends onto the lands of another federal agency. This is not correct. FTA has the responsibility to identify National Register properties within the APE of their undertaking, no matter who owns the land. By taking this position, FTA may potentially delay their NEPA and Section 106 process associated with the terminal project.

Site 45SN108, as currently defined, is not an archaeological site. This property needs to be evaluated in terms of National Register eligibility, since this will affect the decisions about alternatives retained for detailed study carried through the Draft EIS that was re-started in 2010.

The peer review team feels that the boundaries of 45SN404 and 45SN398 within the APE (see Section 4.3 above) need to be better defined prior to evaluating their National Register eligibility. Data recovery at 45SN398 conducted in 2008 should guide what further work needs to be done at the site within the Mukilteo Ferry project area. Additional boundary definition is also needed for the eastern end of 45SN393.

Nevertheless, the peer review team agrees with project reports that the sites are probably National Register eligible.

During the interviews, the peer review team heard several individuals discuss the potential to avoid impacts to the 45SN393 by placing additional fill over the site. The review team agrees that this is a potential means to avoid site impacts and to address tribal concerns. The consequences of using this approach, however, are not clear at this time. If site burial is to be considered in the future, the peer review team recommends a thorough engineering analysis of potential impacts to the site from placement of fill over the site. An important component of this analysis would be an assessment of previous impacts from fill that currently covers the site and from the construction of the tanks in the USAF property, comparing these data with an analysis of the proposed project.

The team also heard from several individuals that placing fill on the site will limit and restrict future archaeological access to the site and, as a result, would have an adverse effect on the site. This position is contrary to the ACHP's position that limiting future access to a site is not an adverse effect under Section 106.

Finally, the peer review team heard contradictory information during the interviews about hydrocarbon contaminants within site 45SN393. The team was told that the site contained no dangerous contaminants; however, the team was also told that hydrocarbon contaminants were observed and measured during 2007 archaeological work within the APE. The potential presence of hydrocarbons will have an impact on future archaeological work in the APE with regard to the safety and level of effort. The presence of these contaminants may also impact radiocarbon dates obtained from sites during future archaeological data recovery efforts.

4.4.4 Reporting

The peer review team found no problems with any of the archaeological reports associated with the project.

4.4.5 Program Management and Administration

Of all of the mega-projects, this was the only project where WSDOT staff directly managed all environmental work, including archaeology. Consultants managed the day-to-day environmental work associated with the other mega-projects. As a result, Mukilteo had a clearer line of authority and decision-making compared to the other mega-projects. In addition, the WSDOT archaeologists noted that they were more highly valued and used more effectively compared to WSDOT staff assigned to the other mega-projects. This resulted in a more positive work environment for the WSDOT archaeologists assigned to the Mukilteo Ferry project. The peer review team also heard that there was a positive working relationship among WSDOT and the CRM consultants conducting the archaeological investigations.

4.4.6 Public Outreach

The peer review team was told that public outreach was not allowed by FTA and the USAF for non-tribal archaeological resources. This is unfortunate since the local community would have been interested in the results of historical research and the archaeology of the Japanese Gulch Site and the Old Mukilteo archaeological site.

4.5 RECOMMENDATIONS

The peer review team concluded that the quality of archaeological investigations and analyses conducted to date was very good. The team voiced concerns, however, about how, when, and where the archaeological work was done in relation to the project's NEPA process. The approach used by FTA and WSDOT resulted in unnecessary project costs and delays in the project development schedule.

The peer review team recommends that future archaeological investigations should involve coring in all untested areas within APE, even those outside the footprint of current alternatives in order to provide full flexibility in the ultimate location and design of the project alternatives. Mechanical trenching should also be used where appropriate. Coring does not need to be done in those locations where WSDOT knows there be will no disturbance from the project given existing constraints. In addition, there needs to be an investigation of hydrocarbon contamination within the APE. The presence of hydrocarbons has an impact on workers safety and how and where archaeological subsurface testing can be safely done. The peer review team also recommends conducting a side-scan sonar survey as a first step in investigating the off-shore locations of the current project alternatives.

SECTION 5.0: SR 520 PROGRAM: BRIDGE REPLACEMENT AND HOV PROJECT

5.1 PEER REVIEW TEAM

The SR 520 Program peer review team included Dr. Roy Carlson, Dr. Peter Lape, and Dr. David Brauner. The following are brief biographies of each of the peer reviewers:

Dr. Roy Carlson received his B.A and M.A. degrees from the University of Washington and his Ph.D. in Anthropology from the University of Arizona. He is Professor Emeritus in the Department of Archaeology at Simon Fraser University in Burnaby, British Columbia. Dr. Carlson is a specialist in the archaeology and prehistory of northwestern North America, has published widely in this field, and has served as a consultant on a number of projects requiring archaeological data recovery. He also has served on the Archaeological Site Advisory Board and the Heritage Board in British Columbia and has been involved in drafting provincial heritage legislation. He directed two major Northwest excavation projects: Namu and Pender Canal, both on the coast of British Columbia. In addition to his archaeological research in the Northwest, he has worked in the Southwestern United States, Siberia, and north Africa.

Dr. David Brauner received his Ph.D. at Washington State University (WSU). His research at WSU focused on the prehistory of the southern Columbia Plateau and western Alaska. Dr. Brauner has been with the Department of Anthropology at Oregon State University (OSU) since 1976. Although he continued to develop his research interests in the Native American history of the Pacific Northwest, he has built one of the largest programs in historical archaeology in the region. His major research interests have included Civil War and pre-Civil War military archaeology in Oregon and Washington, late fur trade archaeology in western Oregon, and Klondike Gold Rush archaeology in Alaska. He has contributed to the development of a graduate program in Applied Anthropology at OSU known for its training in cultural resources management and historical archaeology. Dr. Brauner is a strong advocate for public archaeology and archaeological site conservation in the Pacific Northwest and Alaska.

Dr. Peter Lape received his Ph.D. in Anthropology from Brown University. He is on the faculty of the Department of Anthropology at the University of Washington, where he is currently an Associate Professor. He also holds a joint appointment as Curator of Archaeology at the Burke Museum of Natural History and Culture. Dr. Lape teaches courses on paleoclimate and cultural resource management. At the Burke Museum he is responsible for managing extensive archaeological research collections, many of which are held in trust for

government agencies and tribes. He is also responsible for Native American Graves Protection and Repatriation Act compliance and running an active public archaeology program.

Resumes for the peer review team can be found in Appendix B.

Appendix C lists the Program documents reviewed by the peer review team prior to the field component of the review, which took place during August 2–5, 2010 in Seattle. The field component of the review included a field inspection of the Program's project areas, with the exception of the Grays Harbor area, and nine (9) interviews. The peer review team interviewed WSDOT and DAHP staff about the Program, in addition to individuals who worked on the Program in the past but currently are not employed by these agencies. In addition, the peer review team interviewed WSDOT's environmental and cultural resource consultants who had worked or are currently working on the Program.

5.2 PROGRAM DESCRIPTION

The State Route (SR) 520 Bridge Replacement and HOV Program is one of the region's highest transportation priorities. SR 520 connects major population and employment centers on either side of Lake Washington. Each day, approximately 115,000 vehicles cross Lake Washington via the Evergreen Point Bridge, which is a floating pontoon bridge. The bridge, built in 1963, currently carries nearly twice as many vehicles as it was designed for originally. It is vulnerable to strong winds and high waves. Its east and west approaches, along with the Portage Bay Bridge, are vulnerable to earthquake damage. The SR 520 Program is designed to improve mobility for people and goods across Lake Washington within the SR 520 corridor in a safe, reliable, and cost-effective manner, with a minimum of environmental impacts.

The SR 520 Program was originally conceived as a single project. FHWA and WSDOT subsequently divided the project area into four independent projects within the context of the overall SR 520 corridor program. Each project has its own purpose and need, and each project benefits the region independently. The peer review examined three projects (I-5 to Medina, Medina to SR 202, and the Pontoon Construction Project in Grays Harbor). The review did not consider the Lake Washington Congestion Management Project because this project did not involve any archaeological investigations. The following is a brief description of each project and their associated alternatives.

5.2.1 I-5 to Medina

The I-5 to Medina Project would replace the SR 520 bridges and make other transit, HOV, and community enhancements (Figure 5.1). The project begins at SR 520's interchange with I-5 on the west and extends to Evergreen Point Road on the east. The original Draft EIS (FHWA, WSDOT, and Sound Transit, 2006) evaluated two build alternatives: the 4-Lane Alternative and the 6-Lane Alternative. After the release of the Draft EIS, FHWA, WSDOT, and other agencies re-evaluated the alternatives, and

produced a Supplemental Draft EIS (WSDOT and FHWA, 2010c) that evaluated the no build alternative and the 6-Lane Alternative, which consisted of three options (Options A, K, and L).

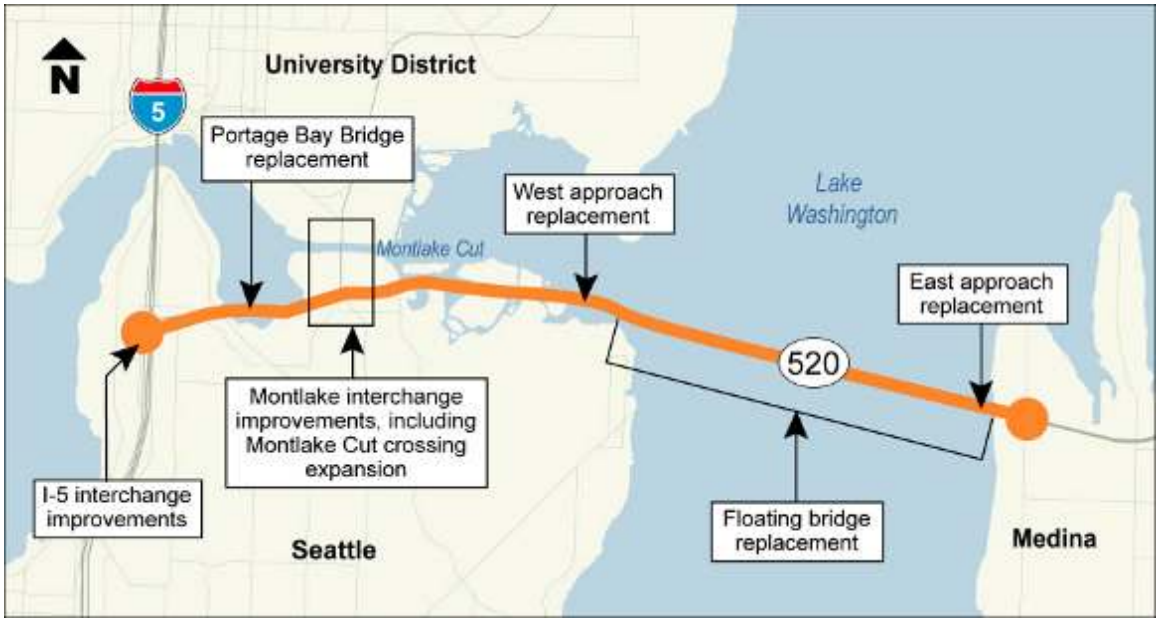

Figure 5.1. I-5 to Medina Project Area (from the SR 520 Program website)

The 6-Lane Alternative would widen the SR 520 corridor to six lanes from I-5 in Seattle to Evergreen Point Road in Medina. It would restripe and reconfigure the lane channelization in the corridor from Evergreen Point Road to 92nd Avenue NE in Yarrow Point. It also would replace the vulnerable Evergreen Point Bridge, Portage Bay Bridge, and west approach with new structures. The 6-Lane Alternative would complete the regional HOV lane system across SR 520, as called for in regional and local transportation plans.

5.2.2 Medina to SR 202: Eastside Transit and HOV Project

This project would complete the SR 520 HOV system by supporting existing demand and planned improvements in transit use (Figure 5.2). The build alternative for the project would complete the eastbound HOV lane from Lake Washington to the existing eastbound HOV lane west of the I-405 interchange. It would restripe HOV lanes from the outside lanes to the inside lanes from Lake Washington to SR 202 and construct HOV direct access ramps at 108th Avenue NE. The alternative calls for adding transit stops and a regional bicycle/pedestrian path within the project area. It would rebuild some interchanges, build lids over the roadway, and provide noise walls in portions of the project area. Finally, it would improve and enhance stream habitat by making culverts fish-passable and realigning Yarrow Creek, a salmon-bearing stream. An EA was prepared for this project (WSDOT and FHWA, 2010d). On May 21, 2010, FHWA issued a FONSI for the project (WSDOT and FHWA, 2010b).

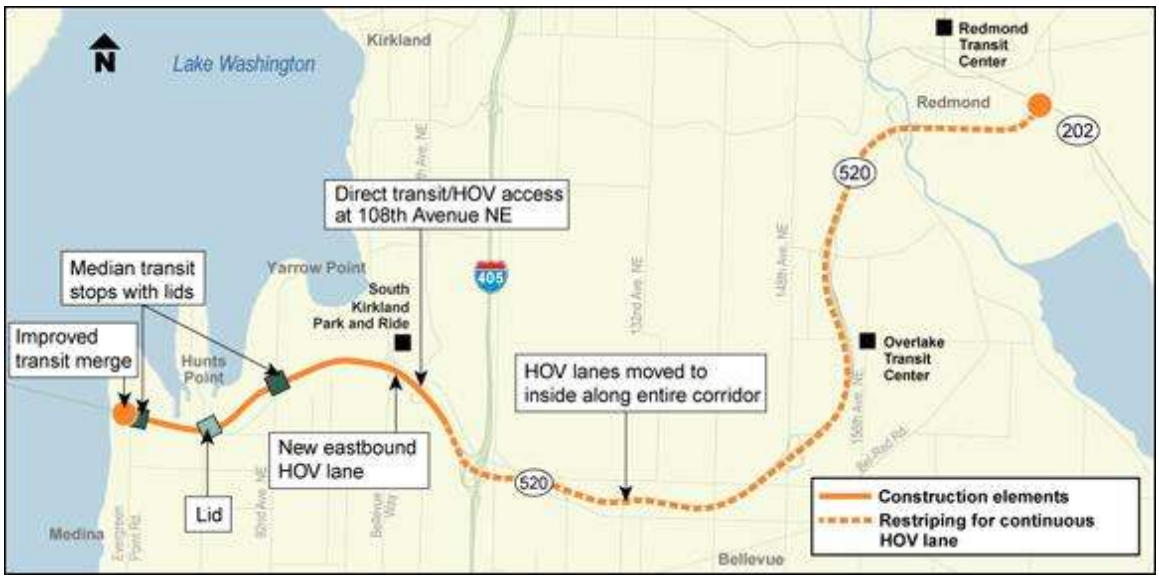

Figure 5.2. Medina to SR 202 Project Area (from the SR 520 Program website)

5.2.3 Pontoon Construction Project

The Pontoon Construction Project will construct pontoons in Grays Harbor for the SR 520 Program (Figure 5.3). Two build alternatives were considered for the possible pontoon construction site: the Anderson & Middleton Alternative in Hoquiam, Washington, and the Aberdeen Log Yard Alternative in Aberdeen, Washington (WSDOT and FHWA, 2010a).

Figure 5.3. Pontoon Construction Project Area (from the SR 520 Program website)

Each build alternative would involve constructing a new casting basin facility, constructing the 33 pontoons needed to replace the existing capacity of the Evergreen Point Bridge. Each build alternative also would include storing and/or mooring the 33 pontoons built for this project and transporting pontoons from the casting basin to approved moorage locations in Grays Harbor. Finally, the build alternatives would include maintaining the Grays Harbor casting basin facility while owned by WSDOT. To support pontoon construction activities at the casting basin, both build alternatives would require several support facilities, such as access roads, a concrete batch plant where concrete for the casting basin and pontoons would be produced, large laydown areas, stormwater handling and water treatment areas, office space, a rail spur, and a designated parking area for workers.

The Anderson & Middleton Alternative site is located about 2,000 feet west of the Hoquiam River on the north shore of Grays Harbor in Hoquiam. It is a privately owned 105-acre parcel and primarily vacant. WSDOT would purchase 95 acres of this property, and the casting basin and support facilities would occupy about 55 acres. The Aberdeen Log Yard Alternative site lies on the north shore of Grays Harbor in Aberdeen near the mouth of the Chehalis River. Weyerhaeuser Corporation owns and uses this site for log storage. The site is mostly flat and relatively undeveloped. The casting basin and support facilities would occupy the entire 51-acre site.

Each build alternative would require construction and design modifications tailored to the unique physical characteristics of the selected site. For example, the soils and geology of each site are different, which would influence foundation type, pile length, and construction approaches. The topography and near-shore characteristics of each site are also different and would influence launch channel dimensions and shoreline armoring. Local regulations and codes unique to each site would also influence the design of both the casting basin facility and support facilities.

5.3 SUMMARY OF ARCHAEOLOGICAL INVESTIGATIONS

The archaeological investigations associated with each of the SR 520 Program projects are summarized below.

5.3.1 Interstate 5 to Medina

WSDOT's archaeological consultants conducted historical research and a records search of the project area, followed by a field investigation. The latter included inspection of exposed ground surfaces and placement of hand-dug excavations (one-foot diameter holes dug with shovels) within the project area where possible. Mechanical trenching was also used. These investigations confirmed the location the Miller Street Landfill site (which was documented in historical records). The landfill dates to the early twentieth century. Both hand-dug and mechanical excavations were placed within the portion of the site extending into the project area. Initial archaeological investigations by a WSDOT consultant suggested that the site was potentially National Register eligibility (Blukis

Onat and Kiers, 2007). WSDOT then contracted with a second consulting firm to conduct additional documentary research on the landfill in order to fully explore the site's National Register eligibility status. Based on the results of this subsequent work (Schneyder et al., 2010), the site was determined not eligible for listing in the National Register, and DAHP concurred with this determination.

WSDOT consultants also conducted a survey in Lake Washington portion of the project area, searching for sunken historic vessels. This survey involved the use of side-scan sonar followed by inspection of possible sunken vessels by divers. Three vessels were located during the survey. Two were barges or scows and one was a schooner or wooden steamer, and all showed evidence of being salvaged before being scuttled in the lake. None was determined to be National Register eligible since the vessels did not possess any particular historical significance.

Foster Island, located west of the Evergreen Point Bridge, was identified as having a high potential for archaeological sites and also Native American human remains, based on historical research and consultation with tribes. As a result, WSDOT's consultants conducted hand-excavations within all areas on Foster Island that were to be impacted by project construction.

5.3.2 Medina to SR 202

The records search on this project area indicated the presence of several small pre-contact Native American sites in the vicinity, but none was documented within the boundaries of the project area. WSDOT's archaeological consultant placed hand-dug excavations (one-foot diameter holes dug with shovels) at 30- to 60-foot intervals along the project corridor, in addition to many test excavations within the Kellar Farm area. Hand-dug auger holes were also used in the project area to locate deeply buried archaeological sites.

No Native American archaeological sites were found within the project area. Considerable fill containing modern trash was encountered, in addition to two historic structures: a log bridge at the Kellar Farm and sections of the historic Lake Washington Boulevard. Neither of these structures was determined to be eligible for listing in the National Register. WSDOT's consultant did recommended that WSDOT monitor construction activities in case deeply buried archaeological sites were present, since the hand-dug excavations often did not extend to the area's original historic ground surface, and there was the potential for archaeological sites on this surface, given the history of this area.

5.3.3 Pontoon Construction Sites

Based on the locations of Native American archaeological sites in other locations within the region, there was the potential for Native American sites within the pontoon construction sites. In addition, the present communities of Aberdeen and Hoquiam are themselves historic, and their waterfronts were the sites of historic industrial and commercial enterprises and residences for over a hundred years.

Archaeological investigations within the two Grays Harbor build alternative properties involved extensive coring and mechanical trenching. The coring was used to characterize the soils within both build alternatives and to assess the likelihood of encountering deeply buried archaeological sites. Systematic archaeological trenching at intervals of around 90 feet was then placed across both project areas. A combined total of 483 trenches was excavated at the Aberdeen Log Yard and Anderson & Middleton properties.

The remnants of an early twentieth-century industrial sawmill were identified within the Aberdeen Log Yard property. WSDOT's consultant recommended the site as eligible for listing in the National Register as they felt the site represented a rare, intact example of a poorly documented industrial complex within the region. WSDOT, acting on behalf of FHWA, however, determined that the site was not National Register eligible. WSDOT archaeologists noted that additional investigations of the site would not result in important new information that is not already available in writing and oral history records, and that the site was not unique or rare. DAHP concurred with WSDOT's determination that the site was not National Register-eligible.

Investigations at the Anderson & Middleton site resulted in the identification of a second early twentieth-century industrial sawmill. As with the sawmill site within the Aberdeen Log Yard property, WSDOT's consultant recommended the site as eligible for listing in the National Register; however, WSDOT, acting on behalf of FHWA, determined that the site was not National Register eligible. The Aberdeen Log Yard property also contained the remains of a Native American cedar stake fish weirs. The sawmill and fish weirs were recorded as separate components of a single site (45GH179). The fish weir features dated to around 650 years ago, based on radiocarbon dating of several of the stakes. WSDOT determined that only the Native American component of the site was eligible for listing in the National Register, and DAHP concurred with this determination.

5.4 EVALUATION OF PERFORMANCE

5.4.1 Scopes of Work and Work Plans

Since the inception of the SR 520 Program, WSDOT and DAHP collaborated to some extent on defining the scopes of work and work plans for the Program's cultural resource consultants, and this collaborative effort seems to have worked well, as did the resulting archaeological resource identification efforts. The peer review team noted, however, that the respective roles and responsibilities of WSDOT and DAHP needed further clarification. For example, there was confusion as to whether or not DAHP should be involved in reviewing strategies for archaeological site identification. In some cases, DAHP was not involved in the review, but in other cases they were, especially when mechanical trenching and other deep testing methods were employed. This inconsistency was confusing to WSDOT staff and their CRM consultants.

5.4.2 Identification of Archaeological Sites

Reporting on the Program's identification efforts met professional standards. The identification efforts started with ethnohistoric, historic, and geomorphological investigations, and then moved to archaeological testing to locate sites, if present. The peer review team noted that attempts at making some of the archaeological technical reports associated with the Program's NEPA documents understandable to non-specialists (WSDOT's "Reader Friendly" format) caused some problems, resulting in a loss of important technical information (along with information that is needed for meeting the requirements of Section 106 reviews).

The peer review team concluded that the deep testing program at Grays Harbor, at first appearance, seemed to be excessive in terms of the number of trenches excavated within the proposed pontoon construction sites. Given the history of past projects (e.g., Port Angeles), however, this was an appropriate approach for coastal locations with industrial fill that may overlay potentially intact soils containing pre-contact Native American archaeological sites.

The archaeological work plan for Foster Island sets up a process for identifying pre-contact sites and human remains. The strategy involves 100 percent excavation of the construction footprint. This level of investigation at an identification stage of a project is unprecedented. This strategy is appropriate, however, given tribal concerns and the high probability for human remains, based on tribal tradition and ethnographic research. The latter generally involves studies of peoples and their cultures through interviews, observation, and consultation of historical records.

During the interviews, the peer review team learned about Troost Geology, Inc.'s on-going geotechnical analyses on changing Lake Washington shorelines during the time of early human occupation of this region of the state. The team recommends that WSDOT review Troost's findings to identify currently submerged areas that might have been exposed and available for habitation in the past, and therefore may contain very old and significant archaeological sites. There is the potential that proposed project bridge pilings may be located in areas that were once dry land.

5.4.3 National Register Evaluation of Identified Sites

5.4.3.1 Miller Street Landfill. The peer review team heard there was a concern that a twentieth-century landfill site in Washington State might be recommended as eligible for listing in the National Register. Given this concern, WSDOT's consultant was directed to conduct very detailed archival research as part of the National Register evaluation of the site. WSDOT determined that the site was not National Register eligible based on this detailed research, and DAHP concurred with this determination. The peer review team did not learn why there was a concern about the site being potentially eligible for the National Register. It should be noted that only a small portion of the landfill site will be affected by the project. The majority of the site is outside the project's impact area.

The peer review team concluded that WSDOT, DAHP, and WSDOT's consultant may not have fully evaluated the research potential of this landfill site. The site has the potential to contribute significant information to material science investigations, which could be retrieved from the site through a focused and targeted data recovery effort. The peer review team recommends that the state develop a historic context or treatment protocol for this category of archaeological site. This historic context or protocol can then be used to guide future projects where late nineteenth- and early twentieth-century landfills are encountered within a project's APE. The purpose of a historic context or protocol is to establish a standard framework for evaluating the National Register eligibility of these types of sites, and for treating these sites in the context of Section 106 compliance.

5.4.3.2 Archaeological Sites within the Medina to SR 202 Project Area. WSDOT's consultant identified sections of the old Lake Washington roadway, in addition to a road and log bridge on the Keller Farm. These properties were recorded as archaeological sites, and the consultant recommended that they were not eligible for listing in the National Register. DAHP and WSDOT concurred with the consultant's recommendations. The peer review team felt that these evaluations were appropriate.

5.4.3.3 Underwater Archaeological Resources. Underwater archaeological resources in the I-5 to Medina project area included two barges and a wooden schooner or steamer. One of the barges was determined to be the "Forest #2" built in 1924 in Hoquiam. Names or vessel numbers could not be identified for the other two vessels. All three vessels were determined not to be National Register eligible based on vessel type and their very poor condition. The peer review team concurred with this evaluation.

5.4.3.4 Anderson-Middleton Site. This archaeological site contains a portion of intact Native American fish weirs and the remains of an early twentieth-century lumber mill. In consultation with DAHP, WSDOT determined that the entire site was National Register eligible, but the historic mill remains were determined to be non-contributing to the significance of the site. The peer review team was concerned about the evaluation of the mill site given the absence of a comprehensive historic context for this property type in this region of the state. To avoid looking at these types of sites in isolation, as done here, WDOT and DAHP should consider developing a historic context on saw mills in the region. This historic context needs to include, as one of the evaluation criteria, consideration of the association of these sites with important individuals and engineering technology.

5.4.3.5 Aberdeen Log Yard. This property included the remains of another lumber mill. This archaeological site was determined to be ineligible for listing in the National Register. The peer review had the same concerns about this evaluation as with the Anderson-Middleton property discussed in the previous section. It should be noted that the consultant working on the Aberdeen Log Yard and Anderson-Middleton Site recommended that the saw mills at both locations were National Register eligible, but WSDOT determined that they were not eligible (or non-contributing), and DAHP concurred with WSDOT's determination. WSDOT kept the consultant's recommendation

in the cultural resource report and included the Department's finding alongside the consultant's. The peer review team noted that this was a very appropriate way for WSDOT to handle the eligibility discussions on these two saw mills.

5.4.4 Reporting

The peer review team found no problems with the Program's archaeological reports, except as noted above in the use of a reporting style for non-specialists. These reports are reviewed by technical and historic preservation experts and should be written for these experts. Reports for the non-specialist should be prepared as a separate endeavor and be included as part of the Program's public outreach and educational efforts.

5.4.5 Management and Administration

During the interviews with WSDOT and DAHP staff and WDOT's cultural resource consultants, the peer review team consistently heard that the staff and consultants involved in the SR 520 Program did not understand the complex, multi-layered, and often overlapping administrative structure of the SR 520 Program. The peer review team did hear that communication among the Program participants did, at times, not function well because of this structural/administrative complexity. There was also a lack of continuity in implementing the Program's archaeological investigations as a result of rapid staff turn-over within WSDOT and among WSDOT's consultants. It is the peer review team's opinion, however, that the Program's archaeological investigations were executed following accepted national and regional archaeological standards despite the Program's administrative and management complexities.

One administrative area that needs clarification for future projects is the relationship between archaeological work conducted under Section 106 and work conducted under DAHP's archaeological permitting process. The peer review team observed that WSDOT staff and WSDOT consultants were not clear on when the requirements of these two separate processes need to be followed on a project, and if and when the Section 106 process superseded the state's permitting process. The peer review team also had some concerns that the archaeologists working on the SR 520 Program were not from the region and lacked a comprehensive knowledge of the regional archaeological record.

Finally, the peer review team was surprised to hear that WSDOT's consultants thought DAHP did not have in-house historical archaeological expertise and were therefore not qualified to review the investigation and evaluation of historical archaeological sites in the Program area. This is clearly not the case. The Washington SHPO is an industrial/historical archaeologist, and DAHP's primary WSDOT liaison is also a historical archaeologist.

5.4.6 Public Outreach

There was no formal public outreach efforts associated with the Program's archaeological investigations beyond normal NEPA-related public involvement activities. The peer

review team noted that both Grays Harbor and Miller Landfill sites produced historical information that could be shared with the public, particularly with members of the public who would be interested in these types of sites, even though the sites were determined not to be National Register eligible. The peer review team understood why information on work on Foster Island was not made public, given the potential for human remains and tribal concerns and sensitivities.

5.5 RECOMMENDATIONS

Overall, the SR 520 Program's archaeological investigations met, and in some cases exceeded professional, state, and national standards. WSDOT's proposed monitoring of the Aberdeen Log Yard property for the presence of intact fish weir elements as the Program proceeds is very appropriate. Monitoring along portions of the Medina to SR 202 section of the Program is also appropriate given the possibility of identifying additional archaeological sites in deeply buried contexts.

The peer review team, however, does have some recommendations. As noted in previous sections, WSDOT, in consultation with DAHP, should develop a historic context on saw mills located within the coastal/Puget Sound region of the state. The purpose of this historic context is to provide an agreed-upon framework for evaluating the National Register eligibility of these types of sites encountered on future projects. The state should also develop a historic context or treatment protocol for late nineteenth- and early twentieth-century landfills.

The outcome of the Port Angeles Graving Dock project appears to have been the catalyst for how WSDOT implements current archaeological investigations. The negative aspects of the Port Angeles project have had the greatest impact on procedures regarding archaeological site identification. This has resulted in increased emphasis on ethnographic research to guide archaeological identification efforts, as well as increased emphasis on deep testing (coring and trenching), geomorphology, and research on pre-contact, historic, and recent land-use activities. The peer review team recommends that WSDOT consider having a WSDOT staff ethnographer, in addition to WSDOT staff archaeologists, who can oversee the work done by WSDOT's consultants. The need for this type of position within WSDOT was raised by WSDOT staff during the interviews. The peer review team agreed that having such an individual within WSDOT was appropriate given the direct and critical link between the state's Native American history and the methods used to identify archaeological sites across the state.

SECTION 6.0: EVALUATION OF PROGRAM-WIDE PERFORMANCE AND RECOMMENDATIONS

As noted in Section 1.0, the objectives of the peer review of the four mega-projects' archaeological investigations were twofold:

- To determine if the archaeological investigations were done to professional and regulatory standards; and
- To assist WSDOT in developing specific practices or methodologies to ensure that the development of archaeological data recovery plans, curation methods, and public benefit/education strategies meet professional and regulatory standards.

In addition, the peer review was to focus on three aspects of each project:

- Was the approach (i.e., methods) used reasonable?
- Was the scope of work and level of effort reasonable for the size of the project?
- Were the conclusions (findings) reasonable?

The previous report sections addressed these issues for each mega-project. This final report section provides an evaluation of WSDOT's overall archaeological program as reflected by these four mega-projects. As noted in Section 1.0, the peer review revealed common themes among the four projects. These common themes, in relation to the above peer review objectives, are presented below.

6.1 FEDERAL, STATE, AND PROFESSIONAL STANDARDS

In almost all cases, WSDOT's archaeological investigations were done to national, state, and professional standards. Some of the investigations, in fact, exceeded national and general professional standards. The peer review teams found, however, that when these investigations were conducted was problematic, especially in terms of linking these investigations with the timing of Section 106 and NEPA compliance. The peer review teams also disagreed with some of the investigations' findings and conclusions in terms of the National Register eligibility of identified archaeological sites. In addition, it was the opinion of the peer review teams that the public outreach efforts associated with these mega-projects did not reflect national professional standards. These general observations are described in more detail below.

6.2 IDENTIFICATION AND EVALUATION OF ARCHAEOLOGICAL SITES

First, the peer reviewers' observed that investigations to identify archaeological sites often began too late in the project development process, resulting in conflicts between the investigation schedules and the NEPA review schedules (i.e., the scheduled release of a Final EIS and/or ROD). These scheduling conflicts would have been avoided if the archaeological work was done earlier and in a more comprehensive manner during early project development. This was especially the case for the I-5 Columbia River Crossing and the Mukilteo Ferry Terminal projects.

As noted in Section 4.2, WSF and FTA re-started the Mukilteo Ferry Terminal project's NEPA process in 2010. This was done, in part, as result of the presence of two potentially National Register archaeological/historical sites that are protected under Section 4(f) of the Department of Transportation Act. A more comprehensive, project-area-wide, archaeological investigation during the early stages of the preparation of the 2006 Draft EIS would have revealed the location and extent of these two historic properties (i.e., a Native American shell midden and a historic Native American treaty site). If these two properties had been fully identified and evaluated earlier in the NEPA process, both FTA and WSDOT might have dropped the build alternatives subjected to detailed study in the 2006 Draft EIS at the time of the preliminary screening of alternatives. FTA and WSDOT would have then considered other alternatives for detailed study that avoided or minimized impacts to these two significant sites.

Second, programmatic approaches to archaeological site identification would have been more appropriate than the methods used on the Alaskan Way Viaduct Replacement Program and the CRC project. In terms of the former, a comprehensive, programmatic approach would have more effectively met the Program schedules in terms of NEPA compliance and the delivery of individual projects, and would have focused on those archaeological resources within the Program corridor that were the most significant and whose investigation would have had the greatest public benefit. It was the peer reviewers' opinion that such a programmatic approach was appropriate given the nature of the archaeological deposits and features within the Program area. These deposits and features extended across multiple, individual AWV project areas. The peer review team also noted that FHWA, WSDOT, and DAHP did not take into account how these programmatic approaches have been successfully applied in similar, complex, urban locations across the country. In terms of the CRC project, the peer review team found that the methods used to conduct archaeological investigations within the project area, and the approaches used to evaluate National Register eligibility, were inefficient and in some cases unnecessary. These problems would have been avoided through the use of an early, programmatic approach to these archaeological investigations.

The lesson learned from the AWV Program and the CRC project is for FHWA, FTA, WSDOT, and DAHP to fully consider the value of more programmatic approaches to future archaeological investigations within similar urban environments. The use of these programmatic approaches is now standard among other federal and state transportation agencies.

The peer review teams, for the most part, agreed with the approaches used to evaluate the National Register eligibility of identified archaeological sites. Based on the results of the SR 520 Program, the peer review team recommended the development of regional historic contexts to serve as a framework for future evaluations of problematic archaeological site types (i.e., early twentieth-century landfills and saw mills). The National Register evaluations on the CRC project were, however, more problematic. It was the peer review team's opinion that there was insufficient information to evaluate the National Register eligibility of identified sites outside of NPS's Vancouver National Historic Reserve, and this resulted in an inappropriate application of National Register evaluation criteria by FTA, FHWA, WSDOT, DAHP, and WSDOT's consultant. The methods used by NPS to evaluate sites within the Reserve also involved an inappropriate use of National Register criteria.

6.3 MANAGEMENT AND ADMINISTRATION

Some of the problems discussed above may have been, in part, the result of not having a dedicated WSDOT staff archaeologist assigned to each of the mega-projects when these projects were initiated. A dedicated WSDOT archaeologist with a strong grounding in the region's archaeology and a background in the complexities of conducting archaeological investigations in urban settings, such as the AWV Program and the CRC project areas, and environmental settings similar to the one associated with the Mukilteo Ferry Terminal project, might have been able to anticipate and avoid the problems encountered on each of these mega-projects.

The peer reviewers heard during the interviews that, in several cases, the recommendations of WSDOT staff archaeologists were ignored by senior project environmental and engineering staff. What is unfortunate is that the WSDOT staff archaeologists had made recommendations that might have avoided some of the problems discussed in this peer review report. So, even if a dedicated WSDOT staff archaeologist was assigned to a project during its early stages, there was no guarantee that the WSDOT's archaeologists' recommendations would have been fully considered. A solution is for the WSDOT project archaeologists to work directly for WSDOT headquarters. The WSDOT project archaeologists would not be supervised by a project engineer or environmental staff person, since these archaeologists need some autonomy and must have a mechanism to elevate their recommendations when not appropriately considered by environmental and engineering project staff.

6.4 PUBLIC OUTREACH

The one area in which the four mega-projects did not come up to national professional standards was in terms of public outreach. In most cases, there was no public outreach during the execution of the mega-project archaeological investigations that shared the results of these investigations with the public in an on-going, engaging, and educational

format. Rather, public outreach was done (or is planned to be done) only as part of archaeological data recovery efforts. All of the peer review teams noted that public outreach should have been a continuous component of all projects. Every reasonable effort should have been made to allow public access to archaeological field investigations either physically (to the degree feasible under WSDOT's health and safety plans) and/or virtually using web-based programs such as blogs or websites. Many federal and state transportation agencies across the country include direct and continuous public outreach as an integral component of all of their major archaeological investigations.

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LIST OF ACRONYMS

ACHP	Advisory Council on Historic Preservation
APE	Area of potential effects
AWV	Alaska Way Viaduct
CE	Categorical Exclusion
CRC	Columbia River Crossing Project
CRM	Cultural Resource Management
C-TRAN	Clark County Public Transit Benefit Area Authority
DAHP	Department of Archaeology and Historic Preservation
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FTA	Federal Transit Authority
H2K	South Holgate Street to South King Street Viaduct Replacement Project
HBC	Hudson Bay Company
I-5	Interstate 5
ITS	Intelligent Transportation System
LPA	Locally Preferred Alternative
MOA	Memorandum of Agreement
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
ODOT	Oregon Department of Transportation
PA	Programmatic Agreement
PSC	Project Sponsors Council
ROD	Record of Decision
SHPO/SHPO	State Historic Preservation Officer/Office
SR	State Route
USAF	United States Air Force
WSDOT	Washington State Department of Transportation
WSF	Washington State Ferries

GLOSSARY OF SELECTED TERMS

APE, Area of potential effects
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 area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking. (36 CFR Part 800, http://www.achp.gov/regs-rev04.pdf)

Archaeological data recovery
The physical removal of deposits and artifacts from an archaeological site. Involves detailed and careful archaeological excavations to obtain information about an archaeological site.

Archaeological site
A geographic locality in Washington, including but not limited to, submerged and submersible lands and the bed of the sea within the state's jurisdiction, that contains archaeological objects. (RCW 27.53.030, in DAHP, 2010, *Washington Standards for Cultural Resource Reporting*: 36, http://www.dahp.wa.gov/)

Artifact
Any object manufactured, modified, or used by humans. (DAHP, 2003, A Field Guide to Washington State Archaeology, http://www.dahp.wa.gov/)

Bent
Part of a bridge substructure. A rigid frame commonly made of reinforced concrete or steel that supports a vertical load and is placed transverse to the length of a structure. Bents are commonly used to support beams and girders. An end bent is the supporting frame forming part of an abutment. (AASHTO, Bridge Terms Definitions, http://www.iowadot.gov/subcommittee/bridgeterms.aspx)

Buried surface
A surface covered by younger natural or cultural deposits or soils.

Core
A soil sample obtained by placing a long narrow metal tube into a soil layer, below the ground surface, removing the sample for inspection and analysis.

Coring
The act of obtaining a core.

Cultural resource

Any resource (i.e., a thing that is useful for something) that is of a cultural character. Examples include historic places and artifacts. (King, Thomas F. 1998, *Cultural Resource Laws & Practice: An Introductory Guide*. Alta Mira Press, Walnut Creek)

Cultural Resource Management

The management both of cultural resources and of effects on them that may result from land use or other activities. (King, Thomas F. 1998, *Cultural Resource Laws & Practice: An Introductory Guide*. Alta Mira Press, Walnut Creek)

Curation

The process of managing and preserving a collection according to professional museum and archival practices. (36 CFR 79.4(b), http://www.nps.gov/archeology/tools/36cfr79.htm#794)

Feature

Non-portable objects or relationships produced by human activity. (DAHP, 2003, A Field Guide to Washington State Archaeology, http://www.dahp.wa.gov/pages/Archaeology/documents/FieldGuidetoWAArch_000.pdf)

Fish weir

A fish trap, often made of wood, placed across a tidal flat, river, or stream.

Geotechnical drilling

Drilling to obtain soil samples for testing in a laboratory, to check for the stability of soils prior to the construction of a structure into and/or on top of the soils.

Historic context

A body of thematically, geographically, and temporally linked information that provides for an understanding of a property's place or role in prehistory or history. For a ... archaeological property, the historic context is the analytical framework within which the property's importance can be understood and to which a historical archaeological study is likely to contribute important information. (Townsend, Jan, John H. Sprinkle, Jr., and John Knoerl, 1999, *National Register Bulletin: Guidelines for Evaluating and Registering Historical Archaeological Sites and Districts*)

Historic property

Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. 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. (36 CFR Part 800, http://www.achp.gov/regs-rev04.pdf)

Indian tribe

An Indian tribe, band, nation, or other organized group or community, including a native village, regional corporation or village corporation, as those terms are defined in section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians. (36 CFR Part 800, http://www.achp.gov/regs-rev04.pdf)

Landform

Natural features such as hills, shorelines, tidal flats, and valleys.

Midden

Archaeological deposits consisting of refuse from human activities. Middens are usually composed of a mixture of soil, charcoal and various food remains such as bone, shell, and carbonized plant remains. (DAHP, 2003, A Field Guide to Washington State Archaeology, http://www.dahp.wa.gov/pages/Archaeology/documents/FieldGuidetoWAArch_000.pdf)

Multimodal, Multi-modal

Using at least two modes of transport, such as highways, ferries, buses, and trains.

National Register criteria for evaluation

The criteria established by the Secretary of the Interior for use in evaluating the eligibility of properties for the National Register. (36 CFR Part 60, http://www.nps.gov/nr/regulations.htm)

National Register of Historic Places (National Register)

The official Federal listing of significant historic, architectural, and archaeological resources, maintained by the Secretary of the Interior. (DAHP website, National and State Register, http://www.dahp.wa.gov/pages/historicsites/register.htm)

Official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. (McClelland, Linda, 1997, *How to Complete the National Register Registration Form*. National Register Bulletin 16A)

Pre-contact period

A period in the past dating to before the time of contact or influence of Euroamerican culture.

Prehistoric

The time period before written records. (DAHP, 2003, A Field Guide to Washington State Archaeology,

http://www.dahp.wa.gov/pages/Archaeology/documents/FieldGuidetoWAArch_000.pdf)

Projectile point

Chipped stone artifact used to tip arrows or spears. (DAHP, 2003, A Field Guide to Washington State Archaeology, http://www.dahp.wa.gov/pages/Archaeology/documents/FieldGuidetoWAArch_000.pdf)

Shell midden

Midden deposits that contain high frequencies of shellfish remains. (DAHP, 2003, A Field Guide to Washington State Archaeology, http://www.dahp.wa.gov/pages/Archaeology/documents/FieldGuidetoWAArch_000.pdf)

Side-scan sonar survey (side scan sonar survey)

Sonar that can look sideways, using sound echoes. The sonar signals are sent in a wide angular pattern down to the sea bottom, revealing objects on the sea bottom such as shipwrecks. (Åkesson, Per, 1999, Underwater Archaeology Glossary, www.abc.se/~pa/uwa/glossary.htm, accessed May 31, 2011)

Scope of Work

A formal document that describes work activities, deliverables, and a timeline a consultant will execute in performing work for a client.

Stone tool

A tool produced by chipping away pieces of stone to produce an implement such as a projectile point.