

**REVIEW OF PORT
ANGELES GRAVING
DOCK PROJECT**

REPORT 06-8



REPORT DIGEST

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PREPARED BY
JOINT LEGISLATIVE AUDIT AND
REVIEW COMMITTEE (JLARC)

CONDUCTED FOR THE
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STUDY MANDATE

In March 2005, the Transportation Performance Audit Board (TPAB) requested that the Joint Legislative Audit and Review Committee (JLARC) conduct a study of the Washington State Department of Transportation's (WSDOT) Hood Canal Bridge east half replacement project, Port Angeles graving dock site. TPAB wanted to review the chain of events which led first to the decision to construct a graving dock at the Port Angeles site, and then to the abandonment of that construction in December 2004 due to the discovery of a historically significant Native American village with extensive archaeological resources and human remains at the site.

JLARC contracted with the firm of Foth & Van Dyke and Associates for this review. Foth and Van Dyke is an established engineering consulting firm headquartered in Green Bay, Wisconsin. They have a specialized practice that focuses on archaeology and cultural resources management associated with large construction projects. Foth and Van Dyke's team for this study included transportation, environmental permitting, and cultural resources specialists who reviewed available project documents and conducted interviews with key project stakeholders. Their attached report provides an analysis of:

- The decision-making that led to the Port Angeles graving dock site selection;
- The impact of the environmental permitting process and permit streamlining on site selection;
- The process used to evaluate archaeological resources and oversight of that work by WSDOT and the state's Department of Archaeology and Historic Preservation (DAHP); and
- The interactions of interested parties, including review of the agreements and consultations between WSDOT and local, state, and federal agencies and tribal governments.

In addition to the work of the consultant, JLARC staff conducted a fiscal review of the Port Angeles graving dock project.

Overview of Hood Canal Bridge Project

The Hood Canal Bridge, a drawspan pontoon bridge that crosses the Hood Canal between the Kitsap and Olympic peninsulas, is an important transportation link in the region. A 1997 WSDOT study reported that the pontoons and anchor system of the east half of the bridge did not meet current engineering standards for seismic forces or severe storms. Due to the condition of the bridge, WSDOT proposed to reconstruct the east half of the bridge by or before 2007.

The reconstruction project required a graving dock site to build the large pontoons and anchors. A graving dock is a shoreline dry dock that is excavated and constructed for the purpose of repairing or building large ships and other water-going vessels. After a large ship or water-going vessel is built, the graving dock is flooded and the vessel is floated away from the dock.

Several environmental factors needed to be addressed in order to accomplish bridge, pontoon, and anchor construction. These included factors dictated by a number of state and federal statutes including the National Environmental Policy Act (NEPA), the State Environmental Policy Act (SEPA), Endangered Species Act (ESA), Section 4(f) of the U.S. Department of Transportation Act, and Section 106 of the National Historic Preservation Act.

The complexity of the project engineering, the environmental factors that needed to be addressed, and the importance of the bridge as a transportation link presented a very challenging undertaking for WSDOT.

Major Study Findings

JLARC and Foth and Van Dyke recognize the complexity of the bridge project and construction of a graving dock facility. We also appreciate the challenges presented to WSDOT, the DAHP, the Lower Elwha Klallam Tribe, and others in the Port Angeles community following the inadvertent discovery of archaeological material and human remains at the Port Angeles site. Our review of the site selection, environmental permitting, archaeological assessment, interactions of interested parties, and fiscal analysis was focused on analyzing the activities that took place and what practices could be strengthened, so that future projects could benefit from the lessons learned from the Port Angeles project.

Foth and Van Dyke's review of the interactions with the Lower Elwha Klallam Tribe was not fully realized because shortly after beginning the audit, the Tribe filed a lawsuit against the State and declined to participate further in the audit. Foth and Van Dyke did have the benefit of one meeting with the Tribe and access to previously existing records. Therefore, limited observations concerning the interactions of interested parties are provided. However, definitive conclusions about the effectiveness of the tribal consultation process could not be made.

Findings – Foth and Van Dyke:

Foth and Van Dyke's findings concerning the Port Angeles graving dock project's site selection, environmental permitting, archaeological assessment, and the interactions of interested parties indicate that those activities were primarily influenced by:

- The professional judgment of WSDOT that the Hood Canal Bridge project had limited alternatives and required pontoon and anchor replacement within a tight project schedule;
- The challenges presented to WSDOT when what seemed a promising graving dock site for the project encountered unexpected difficulties and WSDOT had not fully assessed all other engineering options that it could pursue; and
- The approach used by WSDOT to utilize and assign appropriate technical resources and skill sets on key project activities.

Foth and Van Dyke acknowledge that WSDOT's own tight project schedule, a welcoming attitude from the community at Port Angeles, and a perceived lack of alternatives all contributed to WSDOT's selection of the Port Angeles site with limited additional investigation of that site compared to other alternatives. The findings, recommendations, and professional suggestions in the Foth and Van Dyke report can help WSDOT avoid being in this position again in the future.

Further, divergent opinions and limited documentation on the tribal consultation process make it difficult to draw conclusions regarding the interaction with interested parties on the project. Nonetheless, from the evidence obtained, JLARC's consultant offers recommendations to improve the method of consultation and communication with interested parties on future projects.

Summary of Foth and Van Dyke's Findings

The following is a summary of the specific findings Foth and Van Dyke present in their more detailed review, which follows Chapter 2 of this report. It is important to note that the audit reviews the activities relating to the Port Angeles graving dock project through December 2004. Since that time, WSDOT and DAHP have undertaken a number of activities that may help to address some of the findings presented below. Despite the gaps in performance identified, Foth and Van Dyke also make the following positive findings:

- The WSDOT Bridge team and the Port Angeles Office did excellent engineering design work within a compressed schedule;
- WSDOT's communications section did an excellent job working with the public concerning bridge closure mitigation and notification; and
- The State Historic Preservation Officer participated within the requirements of Section 106 of the National Historic Preservation Act.

Key Findings Relating to Study Objective 1 – Site Selection

- For the Hood Canal Bridge project, WSDOT's project management and project development schedules were inadequate, and a fast-tracked project schedule reduced the time available for analysis of alternative graving dock sites and options.
 - Documentation of certain aspects of the project process with plans and schedules was lacking.
 - Analysis of using alternative state- or privately-owned graving dock sites was limited and poorly documented.

Key Findings Relating to Study Objective 2 – Environmental Permitting

- The legislatively-mandated Transportation Permit Efficiency and Accountability Committee's (TPEAC) inter-disciplinary team process for permit streamlining entered the project late. Also, the compressed project time schedule limited the ability of permitting agencies to fully consider proposed site alternatives for the graving dock. In addition:
 - Resource agencies on the inter-disciplinary team (IDT) focused the team's efforts primarily on Endangered Species Act concerns, particularly concerns about listed salmon

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species. As a result, site alternatives presented by WSDOT were summarily dismissed due to these concerns.

- WSDOT did not use expertise to either confirm or contradict the regulatory agencies' positions and the IDT's mostly verbal approval or disapproval of alternative sites.
- The review of the archaeology, socioeconomics, and geology of site alternatives, and experts in those disciplines were not represented in IDT discussions.

Key Findings Relating to Study Objective 3 – Archaeological Assessment

- WSDOT did not follow a consistent documented protocol for addressing compliance with cultural resources assessment and consultation requirements of Section 106 of the National Historic Preservation Act.
 - The initial graving dock archaeological site assessment of the Area of Potential Effect started late in the overall Hood Canal Bridge timeline. WSDOT carried out this assessment using an on-call consultant contracting process. Although WSDOT's Cultural Resources Program Specialist recognized the need for "deep-site" testing of the Port Angeles construction location and suggested that it be included in the consultant's scope of work for the initial archaeological assessment, a number of factors described below hampered identification of the archaeological resources on the site.
 - The Area of Potential Effect was not adequately defined prior to the initial site assessment in November 2002. WSDOT provided incomplete information to its consultant about the site's Area of Potential Effect: the vertical and horizontal dimensions of the graving dock, the depth of installation for the sheet piling, the location of the on-site stormwater ponds and bioswales (typically vegetated stormwater biofilters), the location and depth of piping, and a description of access roads and staging areas were not defined in WSDOT's request for proposals. Additionally, the indirect effects of dewatering, compaction, and vibration on archaeological resources were not defined as part of the construction project's Area of Potential Effect. The indirect effects should have been evaluated per Section 106 of the National Historic Preservation Act.
 - The scope of work developed by the consultant was based on this incomplete information from WSDOT. The task descriptions of the archaeological consultant's scope of work were brief and did not demonstrate that the consultant understood the specific project objectives. The field investigation/testing approach, laboratory methods, and designation of a repository were not identified by the archaeological consultant in their scope of work. The consultant's absence of incorporation of geotechnical data into their report, and the lack of well-documented procedures and field data, demonstrated a lack of understanding of geological methods and coastal processes in near-shore environments, despite a self-proclaimed "geomorphology expertise." Such expertise should have been required, given the historic and ethnographic evidence that pointed to that general vicinity as the location of Tse-whit-zen village. Despite these gaps in the consultant's scope of work, WSDOT utilized this consultant.
 - The consultant's budget for the initial archaeological investigation included five days of fieldwork to be conducted by the Principal Investigator and the Project Manager.

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However, the work was conducted by a field archaeologist rather than a Principal Investigator. A non-systematic sampling pattern, malfunctioning equipment, wet weather conditions, and the consultant's lack of applied experience impacted the field investigation and limited it to three days. Despite these difficulties, the contract and approach to the field investigation were not adjusted.

Key Findings Relating to Study Objective 4 – Interactions with Interested Parties

- WSDOT's consultation for the graving dock, with the State Historic Preservation Officer and the Lower Elwha Klallam Tribe as required by Section 106 of the National Historic Preservation Act, began late in the Port Angeles graving dock project site selection process.
 - The State Historic Preservation Officer (SHPO) was not consulted when the Port Angeles project locale was under consideration for use as the graving dock. The SHPO learned of the Port Angeles graving dock project upon review of the initial archaeological assessment report.
 - Consultation with the Tribe on the Port Angeles site was initiated through a form letter on the same day the on-call archaeology consultant was selected to conduct the initial archaeological assessment in October 2002.
 - In accordance with the site monitoring plan, WSDOT consulting archaeologists were supposed to be on site for the monitoring of the graving dock if construction went below four feet. No archaeologist was at the graving dock site when Tse-whit-zen was discovered on August 16, 2003.
 - Face-to-face meetings with the Tribe occurred after the initial discovery of human bone fragments in August 2003. Multiple meetings and correspondence were generated subsequent to the discovery, and the parties executed a Memorandum of Agreement and site treatment plan in March 2004 so that archaeological recovery and construction could continue.
 - Meetings among the parties continued throughout 2004, and it appears that the parties made good faith attempts at communicating. However, there are divergent opinions about the nature of these communications. Because Foth and Van Dyke was precluded from additional discussions with the Lower Elwha Klallam Tribe after the filing of the lawsuit, the effectiveness of the consultation cannot be determined.
 - The compressed bridge project schedule dictated many actions in the field such as changes in archaeological methodologies. Before methodological changes were made, the signatories to the archaeological Memorandum of Agreement should have been consulted as part of the agreement, and the agreement should have been formally updated to reflect these changes.
 - In order for construction to proceed, WSDOT and the Tribe continued to try to mitigate the site. However, the discovery of a large number of human remains and substantial archaeological features led to a December 10, 2004, request by the Tribe that WSDOT permanently halt construction and abandon the site. Later that month, WSDOT announced a decision to stop work at the Port Angeles graving dock.

Findings – JLARC

The following is a summary of the specific findings JLARC staff identified in their review presented in Chapter 2 of this report.

Key Findings Relating to Study Objective 5 – Fiscal Review

- WSDOT’s internal auditor identified \$86.8 million in expenditures related to the Port Angeles graving dock project. This total includes \$60.5 million for construction at the now abandoned site, and \$26.3 million of inefficiencies to the bridge project caused by the shut down of the site.
- WSDOT’s expenditures for archaeological mitigation were made consistent with agency authority and procedures. In comparison to the overall budget for the entire Hood Canal Bridge project, and the anticipated benefits WSDOT expected the Port Angeles site to provide, these costs were small.
- WSDOT did not develop complete benefit and cost information for utilization of the Port Angeles site for multiple construction projects. It should be noted that the site appeared to offer significant benefits for another bridge project, but these benefits were never quantified, and therefore were not available to assess the value of investing in the location.
- Budget and expenditure information for the project is complicated. This information is not maintained in a standardized way; therefore, project budget and expenditures cannot be readily compared.

Conclusions and Recommendations

Foth and Van Dyke concluded that WSDOT’s project and contract management, geological and cultural resources assessments, and communication and consultation practices were lacking on this project and fell short of industry standards for best management practices. They also concluded that the Department of Archaeology and Historic Preservation could pursue a more active role to work with stakeholders to revise archaeological guidelines and standards, deep site testing protocols, and mapping of potential deeply buried sites in the state.

Foth and Van Dyke’s report includes 29 recommendations and several professional suggestions for ways to:

- Strengthen project management, planning, leadership and decision-making;
- Improve the integration of cultural and environmental resources permitting, and consultation and assessment activities into construction project planning; and
- Enhance cultural resource and geological assessment capabilities, including improving contract management of these services when provided by outside consultants.

Foth & Van Dyke recognizes many actions WSDOT has already taken, as well as those underway to address some of the findings identified in their report.

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JLARC's fiscal review concluded that WSDOT's expenditures for the Port Angeles graving dock were made consistent with the Department's authority and, at the time, were not unreasonable given the anticipated benefits the site offered. JLARC did conclude that the absence of standardized budget, cost, and benefit information hindered the Department's ability to explain its selection of the Port Angeles site for pontoon construction as well as justify the investments in archaeological mitigation. JLARC makes two recommendations to address our findings:

- Continue efforts to improve the financial reporting structure for transportation projects.
- Develop and implement policies and guidelines for the appropriate application of different levels of economic analysis for proposed projects, including benefit-cost analysis, depending on the complexity of the proposed project.

Conduct of the Audit

JLARC began the audit in June 2005 and, consistent with government auditing standards for performance audits, utilized consulting services to obtain specialized expertise relevant to the study scope. After a competitive procurement process, JLARC contracted with the firm of Foth and Van Dyke to fulfill the objectives identified by TPAB.

As discussed above, shortly after beginning the audit, the Lower Elwha Klallam Tribe filed a law suit against the state of Washington and withdrew from participation in the audit interview and discovery process. JLARC notified TPAB that the Tribe's withdrawal from participation would limit the ability of the audit team to fully address the study objective relating to interactions of interested parties. TPAB reviewed this matter at their October 7, 2005, meeting and decided to continue with the project, recognizing the limitations on addressing one of the study objectives.

Audit Timeline

The audit was originally scheduled to be completed in December 2005. In October 2005, TPAB approved a change in the audit timeline, extending the completion of the audit to March 2006 in order to accommodate delays associated with the additional time WSDOT indicated was needed to respond to information requests from the audit team.

In January 2006, JLARC began its technical review process with the audited agencies, which was scheduled to be completed by February 10, 2006. WSDOT notified JLARC on January 20, 2006, that the agency needed additional time for its technical review. TPAB approved a request by WSDOT to extend the technical review to February 17, and the audit was rescheduled for completion by April 7, 2006. JLARC received technical comments from WSDOT on March 27, 2006, and TPAB adjusted the audit timeline again, in order to accommodate this delay. TPAB approved a revised audit completion schedule of June 2, 2006, for the preliminary report with the proposed final report scheduled for June 30, 2006.

Summary of Recommendations – JLARC Fiscal Review

Recommendation 1 – WSDOT should continue its efforts to improve the financial reporting structure for transportation projects so that in the future, project budget and expenditure information is presented in a format that is consistent and meaningful to decision-makers and the public.

Recommendation 2 – WSDOT should establish and implement policies and guidelines for the appropriate application of different levels of economic analysis for proposed projects, including benefit-cost analysis, depending on the type and complexity of the proposed project.

Summary of Recommendations – Foth and Van Dyke

Recommendation 1 – Every new WSDOT process or improvement to an existing process should be accompanied by a mandatory implementation plan and followed by an evaluation plan.

Recommendation 2 – WSDOT should require the use of critical path scheduling of the project development processes used on complex projects.

Recommendation 3 – WSDOT should require all project managers to have project leadership, management and responsibility training.

Recommendation 4 – WSDOT should utilize “strategic partnering” to improve both intra- and inter-agency relationships.

Recommendation 5 – WSDOT should continue to expand the utilization of consulting firms for both project and program management.

Recommendation 6 – WSDOT should encourage and support the development of internal subject matter experts.

Recommendation 7 – WSDOT should develop greater project oversight by its headquarters’ design, project management, and construction services.

Recommendation 8 – WSDOT should incorporate ESA and fisheries considerations at the earliest possible opportunity for any transportation project with the potential for impact.

Recommendation 9 – WSDOT should promote stronger inter-agency permitting team leadership by finding someone who can not only provide a balance between the developer and regulator, but a focus for the overall team.

Recommendation 10 – WSDOT and other State agencies should scope early in the inter-agency permitting team set-up process for the expertise needed and secure these team members for the inter-agency permitting team via an active, ongoing and collaborative form of communication.

Recommendation 11 – WSDOT needs to ensure that objectivity and fairness are maintained and that knowledgeable reviewers assess the On-Call Contract proposals. WSDOT should record the full names and positions of every evaluator. More importantly, documentation of the consultant selection process, including the consultant submittals and evaluator score sheets, must be retained in accordance with the State’s retention schedules.

Recommendation 12 – WSDOT should add a geoarchaeology/geomorphology specialty, including deep site testing, to the list of services in the Cultural Resource On-Call Contract scope of work for two reasons— 1) to enhance the multi-disciplined approach to archaeology and 2) to reduce the chances of identifying significant resources late in the project, particularly during the construction phase, which could impact both the project budget and schedule.

Recommendation 13 – WSDOT should require continuing education and training for all their cultural resources specialists to ensure continuation of the Department’s core competency. This training should be taken through the Advisory Council on Historic Preservation (ACHP), the National Highway Institute (NHI), or other qualified institution (e.g., university).

Recommendation 14 – WSDOT should require their project managers to contact their Cultural Resources Program for all of their Section 106 compliance issues. Have a WSDOT cultural resources expert review the project, scope of work, and Area of Potential Effect (APE) before the project is completely designed, and consult early with stakeholders.

Recommendation 15 – WSDOT should implement methods to monitor a consultant’s progress between major project milestones.

Recommendation 16 – WSDOT should divide management tasks between a project manager and technical expert on large and complex projects.

Recommendation 17 – WSDOT should have a standard protocol for project documentation that includes writing monthly summaries and recording meeting minutes.

Recommendation 18 – WSDOT should provide a detailed written description of the Area of Potential Effect (APE) to the consultant, and require that a detailed scope of work be submitted from the consultant as part of their proposal back to WSDOT. Any subsequent changes to the APE should be formally documented and discussed with regulatory agencies, Section 106 consulting parties, WSDOT’s in-house experts, and WSDOT’s archaeological consultant(s) performing the work.

Recommendation 19 – WSDOT should continue to develop deep-site testing protocols to lessen the chances of missing a buried site in the future.

Recommendation 20 – WSDOT should initiate Section 106 consultation early because consultation lies at the core of the Section 106 process. Detailed project information and project changes, such as changes to the APE, need to be submitted to the SHPO as well as tribes, and other federal agencies and stakeholders to maintain an informative dialogue. Meeting minutes should be taken and distributed to the consultants and other stakeholders

for eliciting further comments, making corrections, and for future reference should disputes or other needs arise.

Recommendation 21 – WSDOT should consider coordinating with the FHWA to revise WSDOT’s Programmatic Agreement to help ensure that FHWA meets its responsibilities for undertakings pursuant to Sections 106 and 110 of the National Historic Preservation Act; and that these changes should include several key stipulations that are based on current best practices promoted by other state DOTs and FHWA divisions.

Recommendation 22 – WSDOT should continue to pursue the implementation of a formal plan as required by the Millennium and Centennial Accords signed by both the State of Washington and the State of Washington’s federally recognized tribes. WSDOT has already developed a formal plan as outlined in Executive Order 1025.00 and we recommend that they continue to build on this plan as they continue to implement procedural Programmatic Agreements with tribes living in or having ancestral homelands in Washington. WSDOT should consider coordinating with the FHWA when and where possible with continuing to develop procedural Programmatic Agreements with tribes who have ancestral homelands in Washington and live in or outside of the state.

Recommendation 23 – The DAHP and possible interested stakeholders such as WSDOT should adopt or amend a set of guidelines for the application of geology in all archaeological investigations and evaluations. Trained earth scientists should be required or highly recommended in all phases of archaeological investigations. The DAHP, should revise the archaeological guidelines and standards on how to perform fieldwork, laboratory work, and report writing. Geologic field work and documentation both need to be standardized between projects that are presented to the DAHP.

Recommendation 24 – WSDOT, FHWA, and DAHP should work together to secure resources (funding and labor) to help produce some standardized geologic mapping/modeling across areas that are expected to have a large developmental need for archaeological surveys in the next five to ten years

Recommendation 25 – DAHP and consulting archaeologists should begin a dialog with geologists knowledgeable of Washington to discuss interpreted areas of high potential for deeply buried sites.

Recommendation 26 – WSDOT, when defining the Area of Potential Effect on behalf of the lead federal agency, needs to consider what the impacts are to an archaeology site if subjected to vibration, settling/compaction, liquefaction, stress-strain, shearing, dewatering, flooding, oxidation, etc., caused by the undertaking. An archaeologist, other pertinent technical experts, and the SHPO and THPO, need to be consulted on the possible effects that might take place at and to the “site” given a set of circumstances predicted by the designers.

Recommendation 27 – WSDOT should require well-documented and standardized field notes, maps, figures, progress reports, final reports, etc. of their archaeological consultants.

Recommendation 28 – Future WSDOT projects should identify a lead Principal Investigator (e.g., federally qualified archaeologist) and define his/her role in detail.

Recommendation 29 – WSDOT should make certain that signatories to an archaeological Memorandum of Agreement are consulted and agree to any archaeological method changes in writing.

Agency Comments

Agency comments are included in Appendix 2, and are summarized in Appendix 2A along with the Legislative Auditor’s response.