Washington State Department of Transportation
Paula J. Hammond, P.E.
Secretary of Transportation

Oregon Department of Transportation
Matthew L. Garrett
Director

August 16, 2012

MEMORANDUM

TO: Rear Admiral Taylor, U.S. Coast Guard
Rick Krochalis, FTA Region 10 Administrator
Dan Mathis, FHWA Washington Division Administrator
Phil Ditzler, FHWA Oregon Division Administrator

FROM: Paula Hammond, Washington State Transportation Secretary
Matt Garrett, Oregon Department of Transportation Director

CC: Col. John Eisenhauer, U.S. Army Corps of Engineers
Capt. Michael Gardiner, U.S. Coast Guard
Kris Strickler, Oregon Director, Columbia River Crossing
Nancy Boyd, Washington Director, Columbia River Crossing

SUBJECT: Columbia River Crossing Project – Work Plan for Finalizing Bridge Height and Submitting Bridge Permit Application

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Thank you for your continued assistance related to the Columbia River Crossing project's development of a work plan to prepare an application for a general bridge permit for the replacement Interstate 5 bridge over the Columbia River. We have intended to reflect your feedback throughout the work plan and look forward to your comments.

The approach taken in our plan is to build on the work to date, including recently completed vessel surveys and technical analysis, while also demonstrating that we have taken the necessary steps to avoid impacts to river users. It outlines what steps will be taken to minimize and mitigate impacts to river users if avoidance is not feasible or reasonable; continued analysis of incremental increases in bridge heights to help assess vessel impacts as well as cost, environmental and community impacts; a thorough review of future river needs; and how we will continue to balance the needs of river users with the other transportation needs in the corridor, including air, freight, transit, and drivers.

We appreciate the cooperation and input from you and believe it will result in a bridge permit application that will allow for a thorough and comprehensive review by your agency at the end of the year.

Thank you again and we look forward to continuing to work with the U.S. Coast Guard on this critical safety and mobility project with national and regional significance.

WORK PLAN FOR FINALIZING BRIDGE HEIGHT AND SUBMITTING BRIDGE PERMIT APPLICATION

August 16, 2012

Introduction

The U.S. Coast Guard (USCG) requires a General Bridge Permit prior to construction of the Interstate 5 replacement bridge across the Columbia River. The following work plan outlines elements for finalizing a bridge height and informing an application for the General Bridge Permit. It starts with a brief project background, followed by USCG policy requirements, a description of technical work elements and a schedule for completion of the work.

Background

Designated in 2008 as a project of national significance, the Columbia River Crossing project is a one of a kind, multi-modal and safety improvement project affecting about 134,000 vehicle trips a day and more than 7,000 vessels a year. Local, regional, state, national and international trade markets depend on moving goods and services over the bridge and through at least one of the seven interchanges connecting the interstate system with access to deep water shipping, up-river barging, two water-level transcontinental rail lines, and the ports of Vancouver and Portland. Trucks carry 67 percent of all freight in the region today, twice as much as the other five modes (rail, ocean, barge, pipeline, and air) combined. By 2030, with another one million people expected in the region and freight movements projected to almost double, studies predict that this five and a half mile stretch will be stuck in congestion at least 15 hours each day, with freight and commuters likely delayed by one of the 750 projected collisions that will occur each year.

Since 1999, citizen groups, business and community leaders, elected officials, transportation and transit agencies, and designers and engineers have studied the project area. As early as 2000, studies of the corridor concluded that a balanced set of improvements to the highway, transit and freight systems was needed to ensure continued economic competitiveness and community livability in the region. Alternatives would need to consider the effects to highway and transit transportation performance as well as safety and access for air travel; cost of bridge lift delays for transit, autos and trucks; and the existing condition of river vessels negotiating multiple bridge piers and calling for a bridge lift.

This early work identified the Interstate Bridge as a significant bottleneck and called attention to bridge lifts as a contributor to time delays and queuing. Since then subsequent research and technical analyses have confirmed that the lift on the I-5 Interstate Bridge:

- Is the last lift bridge between Mexico and Canada on I-5
- Contributes to congestion
- Is unsafe, creating a 3 to 4 times higher likelihood of a collision
- Disproportionately affects freight traffic

A replacement bridge, rather than building a new, supplemental bridge next to the existing structures, was ultimately recommended as key part of the Locally Preferred Alternative (LPA) by a 39-member bi-state task force and six local and regional governments (Metro, Southwest Washington Regional Transportation Council, C-TRAN, TriMet, cities of Vancouver and Portland). The replacement bridge was selected, in part, because it provides increased safety for river users with fewer piers in the water and elimination of the existing "S" curve maneuver river users must make between the Interstate Bridge and the Burlington Northern Santa Fe railroad bridge.

A mid-height bridge

As the replacement bridge was considered, the project team sought to avoid, minimize and mitigate any potential impacts. Different heights were discussed in relationship to impacts on river users, traffic safety, airspace, transit, downtown Vancouver, Washington, and Hayden Island, Oregon, and overall footprint. Local communities and the states recognized the need to balance these (at times) competing interests as potential solutions were evaluated. The bi-state task force considered the need for:

- improved navigational safety and access
- observing Federal Aviation Administration requirements that obstructions should be avoided for the safe operation of aircraft
- replacement of substandard features and improved sightlines for safety on the Interstate
- improved interstate traffic and freight mobility
- grades that would accommodate transit
- bridge landings that are compatible with local land use and community plans
- improved bicycle and pedestrian access
- safer connections to adjacent state highway system

In 2006, three representative bridge heights were discussed for a replacement bridge: low with a movable span (around 65 feet), mid (95 to 110 feet), and high (around 130 feet). After further study, the bi-state task force recommended:

1) Removing the low level, movable span bridge components from consideration due to negative effects to highway mobility, highway safety, freight movement, maintenance costs and the lack of a significant difference in community impacts when compared to a higher mid-level fixed span bridge.
2) Removing four high-level bridge components (greater than 130 feet) because of safety concerns with Pearson Airfield and 2004 findings that all known commercial and recreational vessels could be accommodated at 125 feet.
3) Advancing the mid-range height component based on the 2004 boat survey findings that a fixed span of 80 feet would accommodate all but six known vessels.

Also in 2006, the USCG accepted "cooperating agency" status and provided critical guidance to the project including offering a public hearing for review and comment of a mid-level replacement bridge. At the Sept. 2006 USCG public hearing, 17 people testified: one construction barge owner requested a bridge with a "high" level of navigation clearance and one fabricator requested 100 feet.

During this same period, the Federal Aviation Administration reported it had "no objections" to the mid-level bridge height provided for the agency's consideration.

The bi-state task force moved the mid-level bridge component forward within different multi-modal alternatives for technical analysis in the Draft Environmental Impact Statement (EIS). About 1,600 public and agency comments were received on the Draft EIS in 2008. Of the comments stating a preference on the bridge element, the majority favored a replacement (mid-level bridge) as compared to no action or a supplemental bridge.

Based on the technical analysis in the Draft EIS and public comment, the bi-state task force and six boards and councils of each local sponsor agency unanimously recommended a replacement bridge at mid-range height with an extension of light rail to Clark College in Vancouver for the LPA.

The development and refinement of the LPA was informed by public input - over 29,000 public contacts at more than 1,000 public events - elected councils and commissions from two states, local, state and federal partners, topic specific peer reviews and two independent reviews with national experts.

In early 2011, the Oregon and Washington governors initiated a three-month bridge type review process and ultimately identified a deck truss bridge for the replacement river crossing structures. More than 250 people and organizations provided comment. Of those, fewer than 10 provided comments on vertical navigational clearance or highway grade. Only one said the mid-level height would potentially impede river navigation. The others suggested that a higher bridge would impact air navigation and bicycle and pedestrian mobility.

During 2011, the USCG forwarded an amended height request from an existing river user, and a new river user was also identified with concerns about the bridge height. In September 2011, the Final EIS was published and available for review and comment. During this time, the USCG expressed formal concern with the proposed 95-foot bridge height based on comments received from river users and notified the project that 125 feet clearance would be given serious consideration during their review.

As part of responding to the Final EIS comments from USCG, the project provided very preliminary information to federal agencies on the 125-foot clearance with the understanding that an updated vessel assessment, impact analysis, and engineering evaluation would be necessary to fully explore 125-feet clearance. The early analysis on 125 feet-bridge height concluded that:

- Major items amount to approximately $150-$200 million in increased cost for a higher bridge.
- There would be a steeper profile grade for the Interstate and would exceed the 4 percent in AASHTO guidance, and deviate from state standards.
- Increasing grades may require connecting on and off ramps on the main river crossing with an auxiliary lane.
- The light rail transit maximum grade of 6 percent lengthened from 500 to 1,200 feet in Washington, impacting maintenance and operations.
- In Vancouver, 5th Street would be closed, and the Columbia Park and Ride would be accessed solely from Columbia Street, causing operational issues.

- The increased elevation of 30 to 40 feet of the Interstate in downtown Vancouver results in additional impacts to downtown, including closed 6th Street access to southbound I-5.
- Bicycle and pedestrian grades would steepen and lengthen on both sides of river.
- It is likely that one or more light rail stations would need to be re-evaluated and redesigned.

After seven years of planning, public involvement and technical analyses this work culminated in December 2011 with a Record of Decision (ROD) issued by the Federal Highway Administration and Federal Transit Administration validating the project's purpose and need, public process and technical work. With the ROD the project moved into the next phase of design, construction planning, funding, and permitting.

USCG Permit Requirements

The USCG has statutory authority to approve the location and clearances for all bridges over navigable waterways. That authority is rooted in the Commerce Clause of the US Constitution and further defined in numerous laws.[1] Congress' intent in enacting the legislation has been to retain exclusive jurisdiction for all bridges over navigable waterways of the United States. Under that exclusive jurisdiction, the USCG is responsible to preserve the public right of navigation, and bridges are permitted only when they serve the needs of land transportation. Inherent in that responsibility is the obligation "to accommodate, to the greatest practical extent, the needs of all surface transportation modes."[2] In considering a permit application, the USCG must "promote and expedite projects that facilitate national and international commerce and provide for the reasonable needs of present and prospective land and marine transportation."[3] In that context, bridge statutes require that in issuing a bridge permit the USCG must provide for the reasonable needs of navigation, not all needs. The CRC project is preparing to apply for a USCG bridge permit that complies with the requirements. The application must demonstrate a balanced approach to meeting the needs of all modes of transportation. It is the obligation of the project, which has demonstrated substantial proposed benefits to land-based modes of transportation, to also provide the analyses and documentation needed for the USCG to determine that the reasonable needs of current and future marine navigation are addressed.

Work Plan to Finalize Bridge Height and Submit Bridge Permit Application

The following lays out a comprehensive work plan designed to inform the application for a USCG bridge permit for the main span crossing the Columbia River, a necessary step prior to the start of bridge construction, which is scheduled to begin in 2014 if funding is available. It fully incorporates and respects the requirements of the USCG, was developed in cooperation with USCG staff, and specifically addresses the following issues raised in USCG correspondence:

[1] The laws relating generally to the protection, preservation, and safety of the nation's navigable waterways are found in Section 9 of the Act of March 3, 1899, as amended, 33 U.S.C. 401; the Act of March 23, 1906, as amended, U.S.C. 491; the Act of June 21, 1940, as amended (Truman-Hobbs Act), 33 U.S.C. 511-523; the General Bridge Act of 1946, as amended, 33 U.S.C. 525; the International Bridge Act of 1972, 33 U.S.C. 535; and the Ports and Waterways Safety Act of 1972; as amended by the Port and Tanker Safety Act of 1978, 33 U.S.C. 1221-1225

[2] U.S. Coast Guard Bridge Administration Manual, p. 1-2

[3] Ibid.

1. Updating the study of river users to accurately document the number of vessels that may be affected by a change in existing vertical clearance at the I-5 bridge;
2. Identifying potentially impacted vessels and developing strategies to avoid, and if that is not possible, then minimize or mitigate those impacts;
3. Working collaboratively to avoid, minimize and mitigate impacts to upstream fabricators that rely on access to the Columbia river system to ship large industrial assemblies by finding creative and cost-effective solutions; and
4. Assessing current and future impacts to waterway users resulting from alternative vertical clearances for the I-5 Bridge.

This work plan also acknowledges and respects the years of work from local, state, and federal partners developing the LPA with a recommendation for a mid-range bridge height and the corresponding ROD issued in December 2011. The plan intentionally recognizes the importance of developing strategies to avoid and minimize potential impacts to river users first and then focus on mitigation as necessary. The results of the work plan will provide a thorough and detailed analysis of the mid-range bridge height alternatives and potential impacts on river users, freight, transit, aviation, and local communities. It will evaluate vertical clearance alternatives to document the trade-offs at different clearances between surface transportation, land use, and river navigation needs.

In addition to developing strategies to avoid and minimize impacts to current river users, the work plan specifically addresses questions about potential future river uses, future navigation needs, and corresponding impacts. This analysis combined with an analysis of the project's economic impacts will provide a more complete context for informing the bridge permit application.

The following seven tasks will be undertaken to complete the data collection and technical analyses, coordinate with all state and federal partners, and prepare the NEPA re-evaluation and bridge permit application.

1. **Coordination between USCG/USACE/ODOT/WSDOT/FHWA/FTA/FAA.** Develop and implement a plan for communication between all the federal and state partners. Elements of the plan will include:
    a. Permit oversight team (WSDOT, ODOT, project staff) meetings.
    b. Coordination meetings with FTA, FHWA, project staff.
    c. Coordination meetings with USCG staff.
    d. Coordination with FAA regarding obstructions to aviation (see task 5 below).
    e. Principals meetings between USCG, FTA, FHWA, WSDOT, and ODOT at key milestones.
    f. Briefings at key milestones to FHWA Administrator Mendez and FTA Administrator Rogoff pursuant to meetings with USCG Commandant Papp.

2. **Avoidance and Minimization.** To support a permit decision that will result in impacts to vessels, the USCG administrative record must demonstrate that the applicant has considered reasonable alternatives to avoid and minimize impacts to marine navigation.
    a. **Demonstrate that the vertical clearance to be proposed in the permit application avoids impacts to navigation as much as is reasonably practicable.** The impact analyses currently

underway will consider design alternatives consistent with the ROD supporting a mid-level bridge that demonstrate trade-offs between alternative navigation clearances and landside transportation and land use impacts. A review of design assumptions and analyses to date will confirm and validate conclusions about viable alternative bridge heights. Design criteria, functional requirements, costs, and prior environmental studies will be considered to determine whether alternative vertical profiles for the bridge are practicable, and whether impacts to vessels have been reasonably avoided and/or minimized while protecting the functionality of the proposed crossing.

b. **Vessel Impact Analysis.** A detailed description of potential impacts to current and future river users resulting from the construction of the new main span bridges will be prepared. Specific vessels and owners that are potentially impacted will be identified, and potential effects to their historic and planned operations will be described. The seasonality of use vis-à-vis historic river elevation data will be considered. Alternative vessel operating scenarios that could potentially minimize impacts from vertical clearance limitations created by the new bridges will be described.
    i. Use field surveys and interviews with owners/operators to verify the data gathered to date to better understand the extent of impact, including vessel height, air gap requirement, frequency and time of year, and past history from bridge log data.
    ii. Analyze data by type of vessel, user and user class/type.
    iii. Conduct an analysis of future river user needs, addressing currently anticipated user needs, including future uses identified by current river users, and currently known plans by port districts and industrial users upriver of the I-5 Bridge. This work will be supplemented by an analysis of potential changes in land use along that portion of the river that might affect future maritime traffic.
    iv. Conduct a vessel-by-vessel impact analysis for each alternative clearance above 0 Columbia River Datum considered under 2.a.

3. Mitigation options and costs. For each potentially impacted vessel, continue to develop and evaluate alternatives for mitigating the impacts if those impacts cannot be avoided. Alternatives will vary depending on the type of vessel and use:

a. Barges carrying large fabricated assemblies. Discussions with fabricators will be conducted to develop an understanding of their operations, including the extent to which their current and predicted future business activities will be impacted. Working with the fabricators, alternative mitigation strategies will be developed. Such strategies may include (but are not necessarily limited to) partial assembly of the modules in their existing yards with full assembly downstream, or the relocation of part or all of their operations to a site that could accommodate the height of their shipments. The technical team working with the fabricators will include marine/industrial engineers and a business economist to support development and evaluation of mitigation alternatives.

b. Dredges, construction barges, and commercial/government vessels. Discussions with owners/operators and field inspections of vessels by a naval architect will be conducted to evaluate seasonality of operations, frequency of passage, and potential changes in operating

procedures. If anticipated operations cannot be supported by operational changes, re-configuring the vessel superstructure or equipment to permit passage under the proposed clearances will be considered.

c. Recreational sailboats. Anticipated seasonality of use and frequency of passage will be discussed with the vessel owner. If projected passage requirements cannot be accommodated, mitigation options will be evaluated such as minor changes to antennas or masts, or potential relocation to a downstream slip.

4. **Document economic impacts of the project. T**he project provides improvements to safety, mobility, congestion relief, and freight movement for land and water transportation modes. It is important context to consider overall economic benefits when evaluating impacts to river users. This analysis will describe the overall effects of the project to the region relative to the no build alternative:
   a. Describe the value or economic benefit in terms of: improvements in safety and efficiency for all modes (landside, rail, river, and air); future economic growth from improved access and mobility (job creation, tax revenue, etc.); and jobs from construction.
   b. Quantify economic benefits of improved river navigation resulting from construction of the proposed bridge, such as improved horizontal clearance, and no bridge lifts or time of day restrictions.
   c. Consider incremental benefits or costs from higher bridge clearance alternatives.

5. **Coordination with FAA regarding obstructions to aviation.** For the CRC project, a balanced approach to addressing the needs of marine and land transportation must also consider the potential impacts to aviation, due to the close proximity of Pearson Airfield and Portland International Airport. CRC will need to file notice with the FAA Administrator of the potential for a conflict with aviation airspace. Once that notice has been filed, FAA will conduct aeronautical studies and make a determination of whether or not the project is a hazard to air navigation. In advance of filing the notice, CRC staff will schedule informal discussions with the FAA to coordinate the notice and the FAA review.

6. **NEPA Re-evaluation**. Conduct a NEPA re-evaluation on new information generated in this permit process, using information from the river users survey and potential impacts resulting from alternative bridge heights considered. FHWA and FTA stated in a letter to the USCG on August 3 that this approach will address the USCG requirement to satisfy NEPA for their federal action of issuing a permit.

7. **General Bridge Permit application.** Prepare draft permit application for submittal to USCG in compliance with permit application guide COMDTPUB P16591.3C (dated October 2011). Coordinate to ensure that all relevant data is submitted. Prior to submittal, work closely with USCG staff to ensure that the application is comprehensive and provides the data needed for a permit decision.

Work to Date with Draft Findings

Concurrent with the development of the work plan, the project identified critical technical work and analysis that would be timely and provide essential information. Preliminary work and findings are outlined below. This work is still in draft form and will be incorporated as part of the work plan above.

1. The project completed preliminary bridge, highway and transit engineering analyses to assess technical feasibility, cost, and environmental impacts associated with vertical clearance alternatives of 95, 100, 105, and 110 feet in order to avoid some impacts to users. Similar work will be conducted on additional five foot increments with results expected by mid to late September. This work will update and expand upon the preliminary findings shared with FHWA and FTA prior to the ROD in 2011.

Key draft finding: Bridge heights at 95, 100, 105 and 110 feet appear to be technically feasible at moderately increasing costs and without significant additional environmental impacts that would require supplemental environmental studies. The technical analysis has identified that at some height above 110 feet the substructure would need to be modified significantly in order to sustain the additional weight and seismic load on the structure. Such modifications will be costly, and likely have greater impacts which would require additional environmental review. Further work will identify the height at which substantially increased substructure costs will be incurred.

2. The project has completed an extensive outreach effort to update the assessment of vessels potentially affected by the construction of the replacement bridge over the Columbia River. The outreach, which included public notices, letters to registered vessel owners, phone calls and in-person interviews, identified a total of about 170 vessels that report a history or plans to transit the river at the I-5 Bridge. From that total, the work documents vessels potentially impacted at a range of vertical clearances consistent with a mid-level fixed span bridge as determined by the Record of Decision.

Key draft finding: A mid-level bridge has the potential to address navigation needs for all but a small number of river users (the exact number will depend on the final height of the bridge).

3. The Army Corps of Engineers dredge *Yaquina* was identified as a potentially impacted vessel. A naval architect inspected the vessel and has prepared a conceptual mitigation plan for review by the Corps.

Key draft finding: The conceptual mitigation plan for the *Yaquina* appears to provide a cost-effective solution that would allow the Corps unimpeded transit under a 95-foot bridge. The project has also identified potential alternatives that avoid impacts to the Yaquina within the mid-range. The project will work with the Corps to reach concurrence on an acceptable mitigation plan if the impacts cannot be avoided.

4. A preliminary analysis of current river users' future needs has been completed. This includes those future uses identified by current river users, and currently known plans by port districts and industrial users upriver of the I-5 Bridge, taking into account the designated Columbia River Gorge National Scenic

Area which begins a few miles upriver from the bridge. This work will be supplemented by an analysis of potential changes in land use along the river that might affect future maritime traffic, which will be completed in the next several weeks.

Key draft finding: Currently anticipated future river uses are generally consistent with the existing types of vessels and clearance requirements associated with existing river uses.

5. CRC project engineers have completed a preliminary assessment of the technical feasibility and cost of adding a lift span to the proposed deck truss bridge. Additional work is underway to further document the effects of adding a lift span.

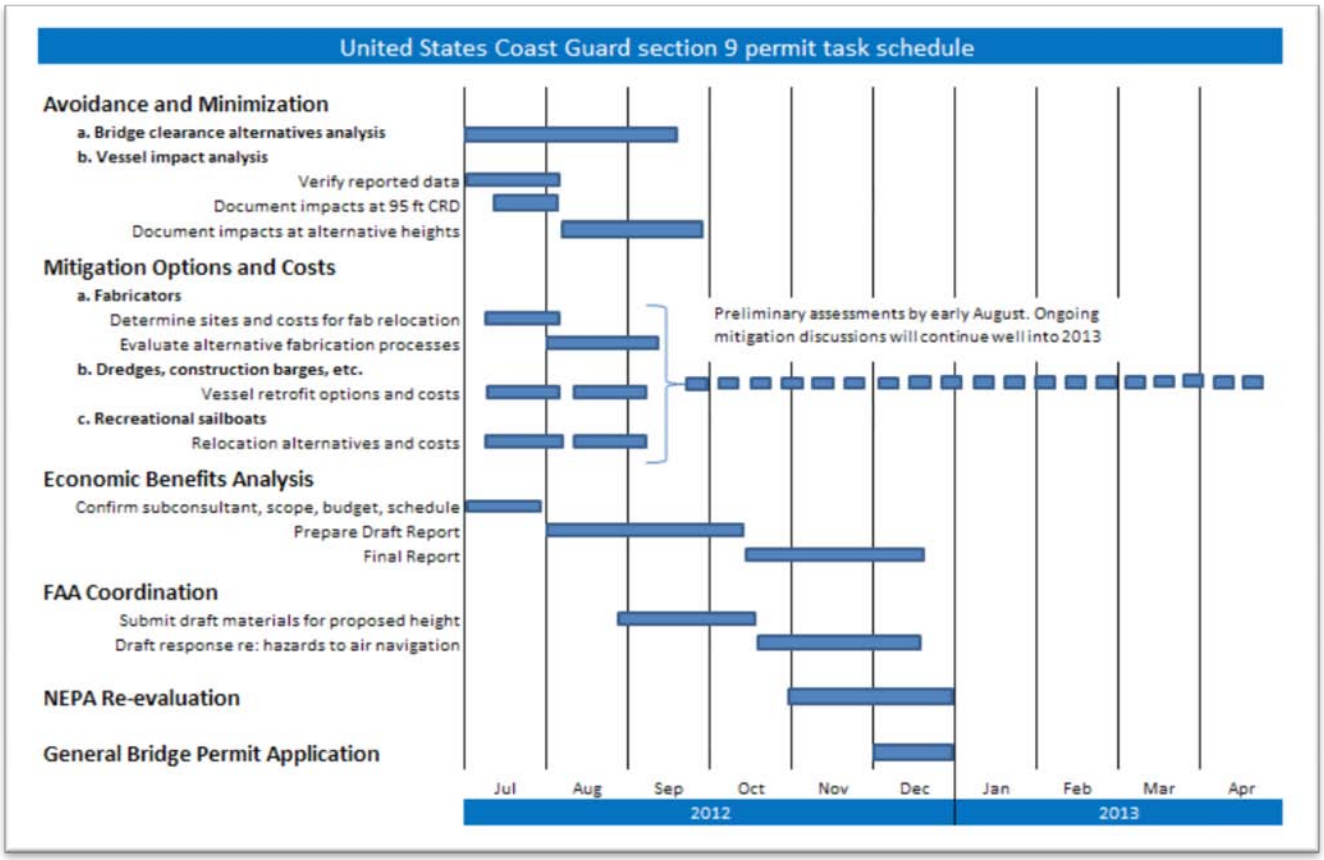
Key draft finding: To date, it appears that adding a lift span to the proposed deck truss bridge and alignment would result in a structure of unprecedented complexity with the associated technical challenges. A lift span would increase the cost of the project by approximately $250 million. The technical challenges of placing a lift span on the proposed bridge would require a re-evaluation of the bridge type, configuration, and alignment, which would also open up the project to additional environmental reviews and approvals and further costs associated with delay.

6. Outreach to fabricators and property owners (on-going).

- Project staff members have met with all three fabricators (Thompson Metal Fab, Greenberry, Oregon Iron Works).
- Discussions are underway to address the confidential use of proprietary information, and will start in the next several days to develop and analyze potential mitigation strategies.
- Industrial engineers (BergerABAM) and business economists (BST Associates) have been added to the technical staff to support the development and evaluation of mitigation strategies.

Schedule

In support of an anticipated start of bridge construction in 2014, it is the intent of the project to submit a permit application in late December 2012, with a goal to achieve a general bridge permit issued by the Coast Guard in mid to late 2013. We anticipate that mitigation discussions with potentially impacted river users will continue into 2013, and will need to be substantially completed prior to the Coast Guard completing action on the bridge permit.


United States Coast Guard section 9 permit task schedule
Avoidance and Minimization
a. Bridge clearance alternatives analysis
b. Vessel impact analysis
Verify reported data
Document impacts at 95 ft CRD
Document impacts at alternative heights
Mitigation Options and Costs
a. Fabricators
Determine sites and costs for fab relocation
Evaluate alternative fabrication processes
b. Dredges, construction barges, etc.
Vessel retrofit options and costs
c. Recreational sailboats
Relocation alternatives and costs
Preliminary assessments by early August. Ongoing mitigation discussions will continue well into 2013
Economic Benefits Analysis
Confirm subconsultant, scope, budget, schedule
Prepare Draft Report
Final Report
FAA Coordination
Submit draft materials for proposed height
Draft response re: hazards to air navigation
NEPA Re-evaluation
General Bridge Permit Application
Jul
Aug
Sep
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2012
2013