

Appendix B
Addendum to Individual Section 4(f) Evaluation

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Draft Addendum to Section 4(f) Evaluation

SR 167 Puyallup to SR 509 Replacement of Puyallup River Bridge

Pierce County, WA



Prepared By:

WSDOT Olympic Region

XL-4105

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Prepared For:



**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

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SR 167 Puyallup to SR 509 Replacement of Puyallup River Bridge Draft Addendum to Section 4(f) Evaluation

Introduction

Section 4(f) of the Department of Transportation Act of 1966, codified in Federal Law at 49 U.S.C. §303, declares that it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges and historic sites.

Section 4(f) specifies that the U.S. Secretary of Transportation may approve a transportation program or project requiring the use of publically owned land of a public park, recreation area, or wildlife and waterfowl refuges of national, state or local significance, or land of an historic site of national, state or local significance only if:

- 1) There is no feasible and prudent alternative to using the land; and
- 2) The program or project includes all possible planning to minimize harm to the park, recreation area wildlife and waterfowl refuges and historic sites.

This addendum has been prepared in accordance with Federal Highway Administration (FHWA) guidelines for Section 4(f) evaluation for the Puyallup River Bridge Replacement. The proposed alternative would use the State Route (SR) 167 Puyallup River Bridge.

Project History

The Washington State Department of Transportation (WSDOT) and Federal Highway Administration (FHWA) proposed the SR 167 Puyallup to SR 509 Extension project, also known as the SR 167 Extension project. They are the lead agencies for compliance with NEPA and SEPA. The SR 167 Extension project is in Pierce County, Washington, within the Cities of Fife, Puyallup, Edgewood, Milton and Tacoma. The environmental analysis for this project was completed in two tiers (stages). The Tier I Environmental Impact Statement (EIS) analyzed the location and environmental aspects of different corridor options and selected the environmentally preferred corridor. The Tier II EIS selected the preferred alignment within the corridor and the interchange configuration.

The Tier II Final Environmental Impact Statement (FEIS) along with Section 4(f) evaluation was issued in November 2006. The Federal Highway Administration (FHWA) issued the Record of Decision (ROD) in October 2007. There was not sufficient funding available to construct the project at that time. WSDOT received funding for preliminary engineering and to purchase right of way. WSDOT has acquired 103 properties that comprise 70% of the corridor right of way. WSDOT received additional funding to continue with right of way acquisition and preliminary engineering as part of the 2012 supplemental budget; however construction for the project remains unfunded.

The SR 167 Puyallup River Bridge (167/20E) replacement, which is a phase of the larger SR 167 Extension undertaking, was recently funded. The northbound SR 167 Puyallup River Bridge, a steel truss bridge, is also called the Meridian Street Bridge. Due to deterioration of the steel truss constructed in 1925, the replacement of the bridge has been re-prioritized and fully funded. The Legislature has mandated the design build process for delivery of this project.

Purpose of the Report

This addendum to the Section 4(f) evaluation is being prepared for this phase of the SR 167 Puyallup to SR 509 Freeway Extension project as discussed above. The original report is provided as Appendix 1 of this addendum. The 4(f) evaluation of the Meridian Street Bridge was not conducted during the Tier II EIS because at the time of the original Section 4(f) evaluation, this bridge was determined not eligible for listing on the National Register of Historic Places (NRHP).

During a recent review of the status of the Meridian Street Bridge, WSDOT determined the bridge is now eligible for listing in the NRHP. The State Historic Preservation Officer (SHPO) has concurred with WSDOT's determination. The documentation is provided as Appendix 2. The Historic Inventory Report is also provided in Appendix 2.

This report will be an addendum to the original Section 4(f) evaluation and will document the impact of the project action. This documentation will be used to modify the NEPA process that was completed for the SR 167 Extension undertaking.

Proposed Action

The subject project proposes to construct a new two-lane bridge across the Puyallup River on SR 167 and to remove the Meridian Street Bridge. The project is located in the City of Puyallup in Sections 21 and 22, Township 20 North Range 4 East. WSDOT will remove, store, and maintain the Meridian Street Bridge until the local jurisdictions, King and Pierce Counties, can install it as a pedestrian bridge on the Foothills Trail or WSDOT will develop a marketing plan for the bridge and actively seek other preservation uses until 2019.

Existing Facility

The SR 167 Puyallup River Bridge is designated Bridge Number 167/20E by WSDOT and it is located at milepost 6.40 just outside the City of Puyallup. The Meridian Street Bridge, which is a steel truss bridge, was built in 1925. It was determined through inspection to be structurally deficient; the steel members are exhibiting severe corrosion and the concrete deck and piers are delaminating.

The Puyallup River Bridge is 371 feet long. The traveled lane width on the bridge is 21 feet from curb to curb with a five foot wooden sidewalk structure attached to the right side of the bridge. In January of 2011, WSDOT implemented a load restriction requiring vehicles larger than 10,000 pounds gross vehicle weight to use the right lane only. This was due to floor beam deterioration detected during a routine bridge inspection. In addition, the width of the bridge does not meet current standards for lane and shoulder widths, which is problematic due to the high volume of truck traffic that utilizes the bridge.

The structure is rated as *structurally deficient* based on the floor beam deterioration. Due to the magnitude of deterioration of the structure, annual maintenance costs will begin to rise unless major rehabilitation of the structure occurs.

Since original construction of the bridge, two major projects have taken place to lengthen the life span of the bridge. The first project occurred in 1951, and it replaced the approach spans with new wooden truss structures. In 1991 a second project took place that added new horizontal members to the main steel truss structure, replaced the end bearings, replaced the expansion joints and overlaid the slab. Since those projects have occurred, routine maintenance has occurred with repairs consisting mainly of replacing sheared rivets and spalled concrete.

In addition to the bridge's structural deficiency rating, the two-lane one direction bridge has sub-standard lane and shoulder widths. As a result, the bridge is consistently damaged due to traffic impacts to the barriers and sides of the structure. The floor beams also experience damage due to high vehicular loads. The damage is shown in Exhibits 1 and 2.

Exhibit 1 - Existing Puyallup River Bridge – Concrete Spalling



Exhibit 2 – Puyallup River Bridge –Typical rust in Beams



Section 4(f) Property

WSDOT, on behalf of FHWA, has determined that the Meridian Street Bridge is eligible for inclusion in the NRHP. The Department of Archaeology and Historic Preservation has concurred in this determination, as documented in Appendix 2. This bridge is currently the longest, simply supported, *steel riveted Warren through truss span* built prior to 1940 remaining on the Washington State highway system. The bridge is also significant for its unusual and unique truss configuration.

Alternatives Analysis

The purpose of this alternatives analysis is to evaluate the impacts associated with various alternative design strategies for the project and select the alternative that best meets the project purpose while minimizing adverse impacts to the historic steel truss bridge.

The *purpose and need* of the SR 167 Puyallup River Bridge Replacement project is to provide a structure that meets current standards for lane and shoulder widths and to address the structural deficiency of the existing bridge in order to preserve the SR 167 crossing over the Puyallup River as a part of the SR 167 corridor.

The SR 167 Puyallup River Bridge Replacement project must also address the *purpose and need* of the SR 167 Extension project undertaking. The undertaking will construct a new SR 167 / SR 161 interchange as a part of the SR 167 Freeway Extension. **(See Exhibit 3)** This new interchange will require five northbound lanes and two southbound lanes across the Puyallup River. Currently, there are two lanes for each direction on the adjacent existing steel truss and

concrete bridges that cross the river. The current bridge replacement project is the first phase of the larger undertaking, and it will address the deficiencies of the Meridian Street Bridge.

The design alternatives analyzed in this addendum are: Alternative 1 – No Build, Alternative 2 – Rehabilitation of the Existing Steel Truss, Alternative 3 – Preserve Steel Truss / Construct New Bridge & Alignment, Alternative 4 – Remove Steel Truss / Construct New Bridge and Alternative 5 – Construct New Bridge & Alignment / Remove Steel Truss. These alternatives are discussed below under *avoidance alternatives*, that completely avoid the Section 4(f) resource and *least harm discussion*, where those alternatives that have Section 4(f) resource impacts are discussed and the alternative that has the least overall impact is identified.

Avoidance Alternatives

Alternative 1 – No Build

This alternative would maintain the existing steel truss Puyallup River Bridge as it currently exists. No work would be performed except for routine maintenance. Due to the anticipated continued deterioration of the bridge, at some point routine maintenance will not be sufficient to keep the bridge open to vehicular traffic. Considering the structure is currently load restricted, it is in need of rehabilitation now.

This alternative was rejected during the 2006 FEIS as not prudent. The Preferred Alternative included replacing the steel truss bridge with a new five-lane concrete bridge. The No-Build Alternative would not meet the *purpose and need* of the project or the undertaking. Maintaining the existing steel truss would not provide a bridge that is structurally sufficient, it would not provide a bridge that meets current standards, and it would not accommodate the new freeway interchange to be constructed. In the near term, the No-Build alternative would prohibit truck traffic from traveling southbound across the Puyallup River on SR 167 which would create significant issues for this important freight route.

This alternative would result in long term maintenance issues, would not be consistent with the long term solution for maintaining the SR 167 corridor, and would not allow the Undertaking to be successfully completed. This alternative would not meet the *purpose and need* of either the current project or the undertaking.

Alternative 3 – Preserve Steel Truss / Construct New Bridge & Alignment

This alternative would construct a new bridge on an alternate alignment, and preserve the existing steel truss bridge in-place. This strategy would construct a new bridge adjacent to the existing structures on a new alignment to allow vehicular traffic to be re-routed onto the new bridge while maintaining the steel truss in its current location.

Preserving the steel truss in its current location would present challenges related to the structural integrity of the bridge for an extended period of time. The structural floor beam members have severe corrosion issues. Unless the floor beams are replaced, they would continue to deteriorate to the point of not being able to support the bridge deck. If these floor beams are replaced, the

new beams would impact the historical features of the bridge. Additionally, there is no funding to maintain the bridge at this time.

There also exists the issue of the need to displace the steel truss to construct the ultimate SR 167/161 interchange. The steel truss bridge lies within the footprint of the future five-lane bridge for the undertaking. Moving the future five-lane bridge outside the footprint of the existing bridges (to the east) would entail additional project impacts (right of way, business, water quality, etc.). If the steel truss bridge were to be maintained in its current location, it would need to be moved once funding for the undertaking was secured. The first order of work for the undertaking would be to remove the steel truss and to seek an alternate location for preservation of the structure. This would also require duplication of the environmental documentation and permitting process to allow the removal of the steel truss to occur, requiring additional time and money. Therefore, there is no advantage to leaving the bridge in place during this phase of work.

This alternative could meet the needs of the current project, but it would not meet the *purpose and need* of the undertaking because ultimately, the bridge needs to be removed. Additionally, this alternative is not prudent due to the challenges of preserving the steel truss and because this alternative would not meet the *purpose and need* of the undertaking.

Least Harm Discussion

Alternative 2 – Rehabilitation of the Existing Steel Truss

This alternative would rehabilitate the existing steel truss to the point that it would be structurally sufficient to support freight traffic and would meet current seismic code. The rehabilitation effort would require that the steel members for the floor beams be replaced along with the removal and replacement of the concrete deck. The rehabilitation would also require significant repairs to be done to the foundations and bridge bearing pads to enable the structure to meet current seismic code.

Due to the significant work required, the rehabilitation effort would impact the historical integrity of the steel truss. The new steel members and revisions to the bridge's sub-structure would cause adverse impacts to the historic bridge.

The rehabilitation alternative would not meet the *purpose and need* of the project or the undertaking. Rehabilitation of the steel truss would not provide a bridge that meets current standards for lane and shoulder widths. The current bridge width is too narrow to safely carry two lanes of traffic, particularly considering the high volume of truck traffic. To widen the structure, virtually all of the horizontal steel members would need to be replaced and the layout of the members would also change. This drastic change to the steel truss would compromise its historic integrity.

This alternative would result in expenditures equivalent to the construction of a new bridge, and it would also create significant impacts to traffic and the environment for the duration of the rehabilitation effort. This alternative would also require displacement of the steel truss to occur in the future as a part of the undertaking to allow the new interchange to be constructed. The

rehabilitated steel truss would not be compatible with the new freeway interchange to be constructed as a part of the undertaking. This would result in additional adverse impacts to the historical bridge and the efforts to upgrade the structure and seismically retrofit the bridge foundations would ultimately be lost.

This alternative would not meet the *purpose and need* of either the current project or the undertaking.

Alternative 4 – Remove Steel Truss / Construct New Bridge

This alternative would construct a new bridge in place of the existing steel truss. This plan would require the removal of the steel truss as a first order of work. The new structure would be a two-lane bridge due to the limitations of current funding. The new bridge would meet current standards for lane and shoulder widths, and it would meet current seismic code.

Because current funding limits the project to constructing a two-lane bridge, the new bridge would need to accommodate future widening to five lanes to meet the *purpose and need* of the new SR 167 Extension project undertaking.

Removing the steel truss as a first order of work would constrain the amount of time WSDOT would have to locate a site to preserve the bridge and secure the necessary funding from a third party. Constructing only two lanes of a future five lane bridge would also introduce the risk of the ultimate design dictating revisions to the new structure to be compatible with future design and/or seismic criteria.

Additionally, Alternative 4 would entail greater environmental impacts than Alternative 5. For instance, to remove the steel truss bridge in Alternative 4 a temporary work bridge would need to be constructed over the Puyallup River to accommodate construction equipment, while the existing concrete bridge handles traffic during the construction phase. This would result in more work below the ordinary high water line (OHWL) than Alternative 5, where a temporary work bridge would not be required. Also, this alternative would require purchasing more right of way than Alternative 5.

This alternative, despite the challenges identified, would meet the *purpose and need* of both the project and the new SR 167 Extension project undertaking.

Alternative 5 – Construct New Bridge & Alignment / Remove Steel Truss

This alternative would construct a new bridge and roadway alignment for southbound traffic, and remove the steel truss as a last order of work. **Exhibit 4** details the alignment for the proposed bridge. This plan would successfully accommodate the future new interchange by providing a two-lane structure for southbound traffic, which matches the planned configuration of the new interchange. Northbound traffic would be shifted from the steel truss onto the existing adjacent concrete bridge. Once traffic is moved off of the steel truss, the truss would be removed. In the future, the SR 167 Extension project will remove the existing concrete bridge and construct a

new five lane structure for northbound traffic in the footprint of the existing steel truss and concrete bridges. **(See Exhibit 3)**

Alternative 5 would have less of an environmental impact than Alternative 4. It would require purchasing less right of way, no temporary work bridge would be required and less work below the OHWL would occur under Alternative 5.

Removing the Meridian Street Bridge as a last order of work would provide additional time to identify a site for long term preservation of the steel truss, and it would allow more of an opportunity to identify sources of funding for long term preservation of the structure.

This alternative would meet the *purpose and need* of both the project and the SR 167 Extension project undertaking.

Least Harm Determination

23 CFR 774.3(c)(1) requires that FHWA approve the alternative that causes the least overall harm in light of the statute's preservation purpose. The following factors must be balanced in making this determination:

- (i) The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
- (ii) The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
- (iii) The relative significance of each Section 4(f) property;
- (iv) The views of the official(s) with jurisdiction over each Section 4(f) property;
- (v) The degree to which each alternative meets the purpose and need for the project;
- (vi) After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
- (vii) Substantial differences in costs among the alternatives.

In the following discussion the two alternatives that meet the project's *purpose and need* are discussed. They are **4** and **5**.

The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);

Alternative 5 would provide additional time to identify a site for long term preservation of the Meridian Street Bridge and would allow more of an opportunity to identify sources of funding for long term preservation of the structure.

The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;

Alternative 5 would allow for the NRHP-eligible steel truss structure to be removed, stored and maintained; and provides the best chance for it to be preserved for an alternate use. For further detail, see the Measures to Minimize Harm section below.

The relative significance of each Section 4(f) property;

There is only one Section 4(f) property used by the project.

The views of the official(s) with jurisdiction over each Section 4(f) property;

SHPO has concurred with WSDOT's determination that the project, as proposed, will have an adverse effect on the NRHP eligible Meridian Street Bridge and is consulting on the revision of the project MOA to address this adverse effect.

The degree to which each alternative meets the purpose and need for the project;

Alternatives 4 and 5 both meet the *purpose and need* of the SR 167 Puyallup River Bridge Replacement project. However, Alternative 5 would better accommodate the future new interchange by providing a two-lane structure for southbound traffic, which matches the planned configuration of the new interchange. In the future, the SR 167 Extension project (the undertaking) will remove the existing concrete bridge and construct a new five-lane structure for northbound traffic in the footprint of the existing steel truss and concrete bridges. Alternative 4 would construct only two lanes of a future five-lane bridge because current funding limits the project to constructing a two-lane bridge. Constructing only two lanes of a future five-lane bridge would introduce the risk of the ultimate design dictating revisions to the new structure to be compatible with future design and/or seismic criteria, potentially adding additional cost to the project.

After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and

Alternative 4 would result in more work below the OHWL and would require purchasing more right of way than Alternative 5.

Substantial differences in costs among the alternatives.

Alternative 4 would have increased costs, as compared to Alternative 5, requiring the purchase of additional right of way and requiring a temporary work bridge not needed for Alternative 5.

Based on the factors above, FHWA has made a preliminary finding that Alternative 5 is the least harm alternative.

Summary

The goal of this project is to provide bridges and a roadway profile compatible with the SR 167 Extension project, which is currently in the preliminary engineering stage and for which right of way has been acquired. The No-Build alternative and refurbishing the steel truss alternative would not meet the *purpose and need* of the undertaking. To ensure forward compatibility with the SR 167 Extension project undertaking, constructing a new bridge in the present location of

the steel truss or constructing a new alignment while preserving the steel truss in place do not satisfy the *purpose and need* of the undertaking. The alternative of constructing a new bridge in place of the existing steel truss bridge could satisfy the *purpose and need* of the undertaking and would meet the needs of the current project. However, current funding would limit the new structure to a two-lane bridge. The new structure would need to accommodate future widening to five lanes to meet the *purpose and need* of the new SR 167 Extension project undertaking. Constructing only two lanes of a future five-lane bridge would introduce the risk of the ultimate design dictating revisions to the new structure to be compatible with future design and/or seismic criteria. Also, because the steel truss would have to be removed as a first order of work, WSDOT would be constrained in the amount of time available to locate a site to preserve the bridge and secure the necessary funding. By constructing a two-lane bridge on a new alignment and then removing the existing steel structure as a last order of work, WSDOT would have additional time to identify a site for long term preservation of the steel truss and to secure sources of funding for long term preservation of the structure. Also, by utilizing the existing concrete bridge to handle north-bound traffic the future SR 167 Extension project undertaking would be able to remove this structure and construct a new five-lane bridge in the footprint of the existing steel truss and concrete bridges. The existing concrete bridge will not meet future design and/or seismic criteria and will have to be removed during the future SR 167 Extension project undertaking.

The most prudent alternative would be to move forward with Alternative 5; constructing a two-lane bridge on a new alignment, and remove the existing steel structure. This alternative meets the *purpose and need* of the undertaking, resolves the imminent issue of the structural deficiency of the steel truss, and positions WSDOT for the best opportunity to preserve the Meridian Street Bridge at a new location.

FHWA and WSDOT have concluded that there is no feasible and prudent alternative to the use of the bridge and therefore proposes to replace the bridge and remove the existing steel truss.

Exhibit 3 - SR 167 / 161 Ultimate Interchange

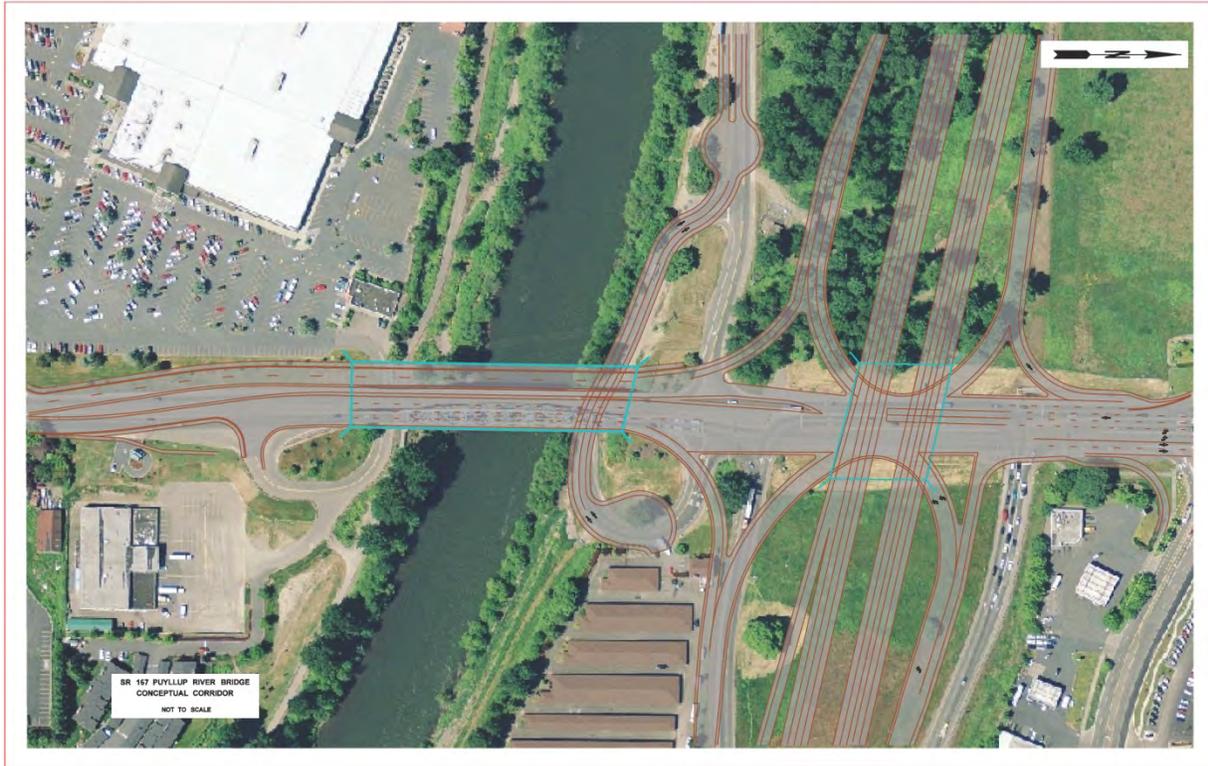


Exhibit 4 - Proposed New Bridge Alignment



Measures to Minimize Harm

The project includes all possible planning to minimize harm and to provide necessary mitigation of Section 4(f) property as detailed below:

1. The project team investigated the surrounding area to determine if the Meridian Street Bridge could be moved upstream and utilized as a pedestrian facility. There are no pedestrian facilities or destinations on the north side of the river, so it is not likely the bridge would be utilized by pedestrians in the vicinity of its present location. In addition, there would be significant right of way costs associated with moving the bridge to a nearby location. An additional challenge would be to secure a local or private entity that would take on the long term maintenance and liability responsibility for a crossing at a nearby location.
2. By removing the structure as a part of the current project, the Meridian Street Bridge will be available to any organization interested in preserving the bridge without the need to obtain environmental permits or to mobilize expensive equipment that would be necessary to work over the river. The steel truss bridge will be inspected, dismantled, and re-furbished on land and will be available as soon as a location for long term preservation is found.
3. WSDOT will arrange to remove, store and maintain the NRHP-eligible steel truss structure to preserve it for an alternate use. WSDOT is working with King and Pierce Counties regarding the potential for use of the Meridian Street Bridge on the Foothills Trail between Enumclaw and Buckley across the White River. King and Pierce Counties are receptive to the potential preservation of the bridge on their trail system. The counties and WSDOT partnered to complete an engineering analysis to confirm that the structure can be successfully refurbished and relocated to the trail crossing. The engineering study has been completed, and the results are that refurbishing the steel truss and relocating it to the Foothills Trail would cost more than constructing a new pedestrian bridge. WSDOT and the counties are investigating to see if there are grant opportunities available for preserving transportation facilities that could be utilized to close the funding gap. Concurrent with these efforts, WSDOT is seeking alternative partners that may have a need and/or interest in the re-use of the historical steel truss bridge. Preservation and re-use of the steel truss as a pedestrian facility would be a positive result for the project.
4. Documentation of the Meridian Street Bridge will be completed in accordance with the Historic American Engineering Record (HAER) standards.
5. Agreement between SHPO and FHWA has been reached through the Section 106 process of the National Historic Preservation Act (NHPA), and a Memorandum of Agreement (MOA) will be signed which details measures to minimize harm. The final MOA is expected by February 2013.

6. In the event a partner is not found to re-use and preserve the steel truss, WSDOT is prepared to store the bridge and market its availability for preservation. The advertisement of the availability of the bridge would occur as soon as it became apparent that the current plan for re-use on the Foothills trail is not feasible. The steel truss would remain in-place until the end of the current project in late 2015, being advertised the entire duration. If no alternative interested parties came forward during that time, WSDOT would remove the steel truss from its current location and store it until June of 2019 at which time funding for further storage and maintenance of the bridge would be evaluated.

Public and Agency Coordination

The public was involved in the SR 167, Extension project in the Tier I EIS and the Tier II EIS with public meetings, newsletters, e-mail notifications, project websites and open houses. The Citizen's Advisory Committee was formed to assist in recognizing local issues and concerns. The project team frequently made presentations to Chambers of Commerce, business associations and civic organizations. The public will now be invited to participate in the SR 167, Puyallup River Bridge Replacement Project by reviewing the Supplemental EIS and providing comments on the information. The input from the public will be carefully considered in agency decision making.

Conclusion

There is no feasible and prudent alternative to the use of the Puyallup River Steel Bridge. WSDOT has incorporated all measures to minimize harm to the Section 4(f) resource. The enclosed MOA demonstrates that the requirements of Section 106 of the NHPA (16 U.S.C. 470) have been satisfied.

Enclosure and Reference

1. Memorandum of Agreement between SHPO and FHWA
2. Appendix 1: SR 167, Tier 2 EIS Section 4(f) Evaluation
3. Appendix 2: DAHP concurrence letter & Historic Inventory Report

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