



**SR-35 Design Workshop Notes**  
**5:00 to 7:00 p.m. January 27, 2011**  
**Port of Hood River**  
**1000 East Port Marina Drive, Hood River, OR**

**Stakeholders:**

Bart Gernhart, WSDOT  
 Sharon Zimmerman, WSDOT  
 Rich Watanabe, ODOT  
 Rex Johnston, Klickitat County  
 Maui Meyer, Hood River County  
 Larry Douglass, Skamania County  
 Betty Barnes, City of Bingen  
 Arthur Babitz, City of Hood River  
 Kevin Liburdy, City of Hood River  
 Linda Shames, Port of Hood River  
 John Arens, MCCOG

Scott Turnoy, MCEDD  
 Katie Crafts, CGWA  
 Jerry Grossnickle, Tow Operators

**Staff:**

Dean Lookingbill, RTC  
 Dale Robins, RTC  
 Noel Shamble, T.Y. Lin  
 Michael Fitzpatrick, T.Y. Lin  
 Matt Miller, PB  
 Mark Hirota, PB

**5:00 PM Welcome and Introduction- Dale Robins-RTC**

Welcome, workshop purpose

- Brief description of the SR-35 TS&L Study Project
- The current study does not imply that a new bridge will be constructed in the near future. A new bridge probably won't be constructed for "20 years"

Introduction of attendees. See Sign-In Sheet

**5:15 PM Project background and update- Dale Robins-RTC**

Project History / Background

- Brief history of the bridge
- The Port of Hood River is the owner/operator/maintainer
- Studies for a new river crossing began in the mid-1990s were performed by some of the same Consultant team members. These studies resulted in completion of a DEIS document in 2004.
- The DEIS preparation efforts included a public involvement elements (e.g. surveys).
- Recommendations from the DEIS included:
  - A new fixed span bridge on a new alignment immediately west of the existing bridge.
  - Automated toll facility
  - Pedestrian and bicycle facilities

- Improvements at approach intersections (e.g. traffic signals and/or roundabouts)
- Since the DEIS was completed, some improvements have been made, such as traffic signals at the approach intersections.
- The TS&L Study began in 2010, the goal of which is to further the DEIS bridge type recommendations.
- Brief description of the economic impact of the bridge to the local community.

5:20 PM Bridge Design: - Mark Hirota-PB

Elements advanced from the DEIS

- The three bridge types considered in the TS&L study are consistent with the recommendations of the DEIS. The bridge types are: tied arch, concrete segmental, and an open girder type.
- The navigational clearance envelope requirements have been validated; 450' horizontal, 80' vertical.
- The design speed for the new facility will be 40 mph.
- The aesthetics of the new bridge will be in line with the Columbia River Gorge Management Plan.

Work completed to date for the TS&L Study includes the following:

- Establishing a horizontal and vertical roadway alignment
- Preparing preliminary span layouts for each of the bridge types based on material types, member sizes and their transportation considerations.
- Land Survey.
- Soil borings and testing
- Geophysical survey
  - Results indicate that the soil layer above bedrock is deeper than expected, through a study of the existing information.
  - Since foundations can cost 30-40% of the total bridge cost, these results are of particular importance in establishing a reasonable cost estimate for construction of the new bridge. Preparing a cost estimate is within the scope of the TS&L Study.
- Bathymetric survey

Comments:

- Regarding the economic effects pamphlet distributed: Technically, "this bridge is not the most dangerous crossing of the River. It is the second most dangerous." It was requested to correct this language. The RR bridge west of the Interstate bridge is considered the most dangerous.
- Question: How relevant will the design of the new bridge be in 20 years? Answer: Although there will be material advances over the next 20 years, the bridge types considered during this study will be relevant 20 years from now. Changes in materials and design requirements over this period of time, may lead to changes in detailing practices.
- Question: Was data from the existing bridge useful at all in completing the work to date? Answer: Yes, it was useful to determine geotechnical boring locations.

**Action:**

**Mark: Make correcting in the Economic Analysis Report and folio, regarding this being the “most dangerous crossing of the river”.**

5:40 PM Architectural Elements- Michael Fitzpatrick-TY Lin

(Note: The following notes were attempted to be organized by discussion related to each of the presentation boards. Discussion did not necessarily follow the board order.)

### **Board 1: Site Analysis**

The design process followed is referred to as Context Sensitive Design. Important elements of the design process for this bridge include:

- What does the community want from this bridge?
- What is the theme of the bridge?
- What does the bridge look like from important view sheds?
  - From above (e.g. hills)
  - From below (e.g. river bank)
  - Driving through/over the bridge

Various bridge styles were reviewed. One style highlighted was by noted engineer Conde McCullough, who designed several famous bridges in Oregon.

Details reflecting the style of bridge can be captured in the structural form and details in the pedestrian elements.

### **Roll Plot: Bridge Alternatives elevation and cross sections.**

This graphic (also in their handout package) was referred to throughout the workshop, but not specific questions were raised on the contents of this graphic.

### **Board 2: Samples of recent construction on I-84.**

Examples of recent bridge construction on I-84 and particular details incorporated within those bridges were discussed.

- EB Moffett Creek Bridge:
  - Vertical elements from substructure to superstructure show connectivity at the piers.
  - Concrete form liner was used to give the visual appearance of stone.
  - All concrete surfaces were stained with colors chosen from a color wheel created for structures within the Gorge.
- Sandy River Bridge:
  - Concrete form liner and stain similar to Moffett Creek Bridge.
  - The pedestrian railing detailing is similar to historic rail elements found on other bridges within the Gorge.

Comments:

- Question: What are the funding sources for this bridge? Answer: In the DEIS, it was assumed that 1/3 would be locally funded, 1/3 would be state funded, and 1/3 would be federally funded.
- Question: Why should we spend time on what the bridge should look like? Since all the funding sources are broke, the bridge just needs to be functional. The bridge needs to be practical. Answer: The aesthetic features presented on the boards will have only a small influence on the total cost of the bridge (<1%). The cost is more directly

influenced by elements such as the foundations. Span lengths/number of piers needs to be optimized to minimize total cost.

For this bridge, elements such the pier shape can be formed to express the theme of the bridge with adding significant additional cost.

**Board 3: Process**

No specific items of note.

**Board 4: Main Span**

The structure types recommended in the DEIS are not considered costly types for the required span lengths.

The structure types considered are the tied arch, concrete segmental box girder, and steel girder.

An example of a concrete segmental box girder is the Glen Jackson Bridge (I-205), built in the early 1980s. An example of the tied arch is the Fremont Bridge in Portland, built in the early 1970s.

Comments:

- “Don’t like the arch for this bridge due to the length of the bridge...it looks lonely.”
- Do not like the look of the tied arch; it is inconsistent with the historical aspects of the Gorge.
- Like the concrete box for maintenance reasons.

**Board 5: Piers**

Pier shape will be one of the most influential elements of this bridge from an aesthetic perspective.

The types of themes developed for consideration in conceptualizing pier shape:

- “Delta” (e.g. delta frame)
- “Natural” (e.g. waterfall ribbon)
- “Contemporary”
- “Historic”

Pier shape and shadows can make columns look more slender.

Comments:

- Worried that the superstructure will look too thin. The delta shaped pier appears to add a sense of thickness to the structure which may be good to make sure the superstructure doesn’t look too thin.
- Vertical piers are better for barge traffic.
- Pile caps should either be submerged such that they cannot be hit by a tow or they should be above the waterline so they are visible.
- Regarding pier shape and the use of texture/shadows: “Like something that changes throughout the day.”

- The “historic” theme is consistent with the historical aspects of the Gorge. Do not like the “contemporary” theme and the tied arch for this location.
- Prefer simplicity of straight columns.

**Board 6: Bridge railing**

Barrier shape cannot be modified on the roadside face.

Architectural features can be added to the pedestrian path side face (e.g. pilasters for lighting).

**Board 7: Overlooks-Tollbooths.**

Other opportunities for aesthetic features:

- Toll booths
- “Street furniture”
- Overlooks

Comments:

- The most important area of the bridge for aesthetic applications is the pedestrian pathway.
- People will want to linger at the outlooks.
- The overlooks are good, as it gives people another opportunity to experience the Gorge.
- Like “bubble” overlook shape.
- The overlooks will have heavy pedestrian use.
- The overlooks will be used by people using energy (e.g. bicyclists), therefore, should be evenly spaced.
- One large overlook near the navigation channel is preferred over two smaller overlooks. Ideally this would be at the center of the bridge.

**Board 8: Lighting-Color-Texture.**

Use of light/shadow

- Spacing of lighting standards on each of the roadway could be offset or aligned. Offsetting them would provide a “highway” feel. Aligning them would provide a “boulevard” feel.
- Shadows can be used to influence the appearance of the superstructure, making it looking thinner or drawing the eye to particular locations. The amount of shadow is influenced by the overhang length.

Use of color/texture

- Relatively inexpensive aesthetic treatments, although coloring concrete can become expensive if done in a large scale application.
- Relief required for concrete texturing of superstructure and piers will need to be 3-4” to be seen from a reasonable distance.
- Texturing of pedestrian scale elements (e.g. pedestrian path) can be done with less relief.
- Any painted elements will require additional maintenance as compared to non-painted elements.
- Weathering steel will be considered for steel elements. Weathering steel is a reddish-brown color and does not require painting. Painted steel would need to be re-painted at 20-25 year intervals.

Comments:

- “We are very sensitive to maintenance given the nature of the existing bridge.”
- Lighting will be important for people looking down at this bridge from the surrounding hills.
- Would like to limit the amount of lighting in other place than where required in order to reduce “light spill”.
- Illuminating the bridge will “not fly” here.

**General Comments:**

- Not looking for a stereotypical “iconic” structure.
- The bridge should “age gracefully” and “become like an old friend of ours” over time. It should be become “comfortable” over time, like a “good pair of shoes”.
- “The simpler, the better.”
- There is a good chance of encountering artifacts (Native American) on the Washington shore.

7:05 PM Wrap up and Concluding Remarks- Dale Robins

Over Arching Themes that emerged from the Workshop include:

**No aesthetic issues with moving the 3 bridge types forward.**

- Generally, Stakeholders are willing to give the consultant team great leeway to design the bridge. They (stakeholders) did not dictate any particular element.
- There was some discussion that indicated the Tied arch was the least desirable bridge type; some indicated that it “didn’t fit”. After the meeting others indicated that they liked the tied arch. Several favored a “thinner” bridge.

**Fit the Bridge to the Community**

- Bridge elements that are shaped to cast shadows are preferred. People liked the bridge looking different at different times of the day and year.
- Keep it low cost to build and maintain. The bridge needs to be cost effective. Low cost to build and maintain. “The simpler, the better.”
- This group is not looking for a stereotypical “iconic” structure. The bridge should “age gracefully” and “become like an old friend of ours” over time. It should be become “comfortable” over time, like a “good pair of shoes”.
- There was much discussion about the locations of the view points with many expressing differing views. The common direction was that the most interesting views are near the mid-span.

**Apply architectural elements to multi-use path and not necessarily the bridge girders and piers.**

- Architectural elements were favored for the multi-use path instead of the bridge girders and piers because of the scale.