

Willamette River Bridge Advisory Committee

October 8, 2008

Meeting Notes

WRBAC Members Present:

Mayor Vera Katz (Chair)
David Knowles, David Evans & Associates (Facilitator)
Thomas Hacker, THA Architecture, Inc.
Art Johnson, KPFF Consulting Engineers
Sue Keil, Portland Department of Transportation
Pat LaCrosse, Oregon Museum of Science and Industry
Guenevere Millius, SRM Architecture and Marketing, Inc.
Ross Roberts, Metro
Karl Rohde, Bicycle Transportation Alliance
David Soderstrom, Portland Opera Board
Chuck Steinwandell, Ross Island Sand and Gravel
Mark Williams, Oregon Health and Science University
Mike Zilis, Walker & Macy

WRBAC Members Absent:

Bob Durgan, Andersen Construction
Christe White, Williams & Dame Development
Rick Williams, BPM Development

Alternates Present:

Kathleen Cosgrove, Skyline Consulting Group (for Mark Williams)
Rick Saito, Insite LLC (for Bob Durgan)

Special Guests:

Bob Sanders, Admiralty and Maritime Law Attorney
Austin Pratt, Coast Guard Bridge Administrator

Mayor Vera Katz (Chair) opened the meeting with a brief welcome and a round of introductions. She shared a note of caution: as the Willamette River Bridge Advisory Committee (WRBAC) continues to narrow down bridge types, some of the important issues that really concerned the WRBAC at the beginning of the process could get lost. She encouraged everyone to be aware of those things along the way and make sure nothing is forgotten.

David Knowles (Facilitator) reminded the WRBAC at the last meeting they confirmed six bridge types for further analysis. The WRBAC also asked for validation of the 600 feet horizontal clearance through an independent review. The two main decision points

for today are to confirm the design assumption for 600 feet horizontal clearance and to confirm the proposed supplemental evaluation criteria to get from “some” to “few” bridge types. The next WRBAC meeting will be on November 13, 2008. Although there is no required number of final bridge types, there should be a recommendation of around 2 to 3 bridge types for the public process in January to March, 2009.

Review of Horizontal Navigational Clearance and Environmental Remediation Issues – Dave Unsworth

Dave Unsworth remarked that staff has continued to meet with a variety of river users to understand operational issues on the Willamette River. An extensive review of the horizontal clearance issue has been conducted as requested at the last WRBAC meeting. Two navigational routes converge in the river between the Ross Island and Marquam bridges. Both wind and current push boats towards the eastern side of the river in this area. At the conclusion of the last WRBAC meeting, the recommendation was made for 600 feet clear as an optimal horizontal span for river users.

Since the last WRBAC meeting, the following steps have been taken to analyze the need for a 600 feet horizontal clearance and will be reviewed today:

- 1) Staff discussions with Bob Sanders and Captain Steven Brown
- 2) Creation of a tug and barge computer simulation
- 3) Ross Island field trip with US Coast Guard Bridge Administrator
- 4) Lower Willamette River Harbor Safety (LWRHS) committee briefing and discussion

Dave Unsworth explained that Bob Sanders (Admiralty and Maritime Law Attorney) and Captain Steven Brown (an experienced tug captain) met with staff and were shown a computer simulation of a tug and barge navigating this section of the river. They confirmed that RISG’s concern about horizontal clearance was valid. They reiterated the potential for a dangerous situation with the current of the river in this area and a small horizontal span. As the tugs and barges come from the Holgate Channel toward the Marquam Bridge through the eastern most span of the Ross Island Bridge they pass under the Ross Island Bridge and a sharp turn is required for RISG vessels to begin lining up to pass through the center span of the Marquam Bridge. Captain Brown described the difficulty in this maneuver. The depth of water below the next span to the west on the Ross Island Bridge is too shallow to use and would require regular dredging. Speed is always an issue with a tug and barge operation. The Captains need enough speed to maintain maneuverability.

Chuck Steinwandel (RISG) elaborated on this point. The tugs must have a certain amount of speed to maintain proper steerage. When river flow is high, steerage issues are compounded. He explained that RISG should continue to process aggregate at this facility for an indefinite amount of time and confirmed that his tugs and barges are bringing material both into and out of this facility.

Bob Sanders reminded the WRBAC that the entire Willamette River (from bank to bank) is navigable.

Dave Unsworth indicated that during the RISG field trip today the western pier appeared to be too close to the main navigational route and could be problematic if not moved. The Willamette locks are being handed over to another entity to maintain them. A western pier that is too close to the main navigational route between the center spans of the Marquam and Ross Island Bridges is problematic for existing river uses and for the potential future increases in commercial river traffic. He then showed a slide describing tug and barge lengths. The Dalles locks system prohibits tows being longer than 675 feet.

A point of clarification was made about Zidell barges. The barges Zidell manufacturers are ocean going vessels and therefore larger and lighter (because they are empty) than the barges RISG uses for their operations. **Rick Saito** pointed out that because Zidell makes and then delivers barges, each barge has only a one-way trip from their facility.

Dave Unsworth mentioned the video from Dauby tug captain and said it inspired staff to create a computer simulation (shown to WRBAC). In the simulation, the narrower clearance of the concrete segmental bridge type was used to illustrate the potential hazard with the narrower span.

Karl Rohde asked how many collisions there are on the Willamette? **Rob Barnard** indicated that Multnomah County reported around five accidents in this reach of the river over the last five years.

David Knowles stated when standing in the wheelhouse of the Ross Island tug today, he was struck by what an obstacle course these river users have to maneuver through with the current situation.

Karl Rohde requested clarification that if the narrower span existed, would it be more difficult - or impossible - to maneuver? **Bob Sanders** indicated a narrower span would impair the navigation and the Coast Guard permit will be based on not creating impairments for river users.

Karl Rohde asked if the pier in the middle of the river might be reasonable? From the field trip today, **Dave Unsworth** said it appeared the middle pier would not be reasonable. **Austin Pratt** thought navigational issues could be made worse by putting the pier in the middle, however it depends on where the flanking piers are located.

Pat LaCrosse asked if the end of Ross Island could be removed and then the RISG vessels could maneuver one span over on the Ross Island Bridge? He wondered about cost comparisons to do the required dredging vs. a bridge with a narrower horizontal span. **Dave Unsworth** indicated that plan could have environmental issues with hazardous material and shallow water.

Mark Williams confirmed his opinion that the outside validation for the horizontal span had been accomplished. He wanted an indication of how wide the horizontal span needs to be and then suggested the WRBAC move on to other topics.

Dave Unsworth wanted to briefly show the timeline for the various stages in the Portland-Milwaukie Light Rail Project including the bridge study and how the Coast Guard permit fits into the whole scheme of things. The Final Environmental Impact Statement process is completed by issuance of a Record of Decision (ROD). Only after the ROD is issued can the project apply for a US Coast Guard permit. The current schedule anticipates this to occur around the summer of 2010. By this point in the process the project will have completed preliminary engineering and hired a Design – Build team to construct the bridge. If a US Coast Guard permit were not obtained, portions of this several year process would need to be repeated and potentially result in significant delays.

Austin Pratt (Coast Guard Bridge Administrator) indicated that his role in the permitting process is to determine what the reasonable needs of navigation are in this stretch of the river. The Coast Guard is not interested in obstructing commercial operations. Recreational needs are not considered as seriously. The 600 feet horizontal clearance seems reasonable. He is not saying that 600 feet clear is the definite number. This stretch in the river is a slalom course. You need to see all the maneuvering each Captain has to do to get through this reach from the pilot course. A 300-380 feet range for horizontal clearance is inadequate. It is unfortunate that RISG vessels have to come from the lagoon, but that is their course. After the biological assessment and environmental issues have been taken care of, the Coast Guard can issue a permit in a few months. They must go through the 30-day comment period. That is the last hoop to jump through before a permit is issued.

David Soderstrom wondered if most RISG barges go downstream. **Chuck Steinwandel** said although there are a few that go upstream, a majority of RISG operations travels downstream. **Dave Unsworth** reminded the WRBAC that the Oregon City locks may host more upstream commercial traffic in the future.

David Knowles suggested that the concrete segmental bridge type would not work based on the numbers staff is giving the WRBAC. This bridge type could add a significant risk factor to manage in terms of collisions if a narrower span were used.

Dave Unsworth confirmed **David Knowles'** statements.

There were two more issues **Dave Unsworth** wanted to raise to the WRBAC. In some areas, there is a sediment cap in this reach of the river (in the Zidell remediation area). Staff is working with a hazardous material consultant to determine proximity of the proposed piers to these areas. And finally, staff is analyzing shallow water habitat acknowledging the environmental preference and discussing pier placement and how it affects wildlife habitat.

Update on Bridge Span Refinements – Miguel Rosales

Miguel Rosales reminded the WRBAC of the “many” bridge types from the beginning of the Bridge Study and why some bridge types have been eliminated during the process. The Steel I-Girder and Steel Box were not favored in terms of aesthetics and when the span widened, the deck thickness was too deep. The Sail Blade and Extradosed bridge types were also eliminated when the larger horizontal span was introduced because they could not meet that requirement. Cost issues and operational issues (transit reliability and maintenance) removed the movable and double deck bridge types.

Miguel Rosales went over the 6 bridge types confirmed at the last WRBAC meeting and indicated that the consultants worked to optimize their spans. He discussed the details for the 6 bridge types including the length of spans, depth of decks, height of towers, etc. (presentation found on TriMet.org/WRBAC). During this optimization process, the Extradosed bridge type was replaced with a 4-pier Cable Stay bridge to optimize the span. Miguel also showed renderings of the bridge types with various views, photos and simulations.

Mark Williams asked if the renderings are accurate in terms of placement on each bank? **Miguel Rosales** indicated that the renderings are all computer generated, so they are accurate. **Sean Batty** clarified that the height is based on profiles shown during the Willamette River Partnership process. **Miguel Rosales** stated that the goal is to keep the piers out of the greenway and out of shallow water.

Miguel Rosales explained that the 4 pier Cable Stay has a “diamond tower” (instead of the “A” tower shown previously) and the cables have been moved to the outside of the structure. Also, the railing would not be as transparent because it needs something more substantial to anchor the cables. The 2 pier Cable Stay has the longest span and the cables are anchored in the middle, so the is more transparent.

Mark Williams asked how far back from the greenway do the bridge types hit grade on the west side? **Sean Batty** reminded him that the abutment is at a 100 feet setback. **David Knowles** stated that the design assumption is 14 feet above existing grade and the diagrams shown use that design assumption.

Miguel Rosales showed abutment and greenway pier placement and how that affects the greenway experience for each bridge type.

Thomas Hacker requested an explanation of the difference between the two Cable Stay bridge types. **Miguel Rosales** indicated that the height of the towers are different, the shape of towers are different, the number of piers are different, the position of cables are different, and the railing transparency is different.

Miguel Rosales explained that staff was able to expand the path one foot on each side of the deck all the way across all bridge types by moving the rails to the outside of the structure. Some of the consultants next steps will be to analyze cost, risk and

constructability. The Wave Frame bridge as shown has never been built before, so there may be more cost risk associated with that bridge type. Balancing cost, engineering and aesthetics continues to be very important.

Mayor Katz requested additional night views next time with lighting from different places.

Next Steps for Engineering Evaluation – Semyon Treyger

Semyon Treyger showed a PowerPoint presentation depicting the various engineering studies being conducted (structural performance, construction sequence, computer models, service loads, seismic loads, video models).

Semyon Treyger indicated that the National Constructors Group (NCG) (a group of contractors with extensive experience building major infrastructure project) will take a look at cost cases, certainty, constructability, and risk assessment. So far the consultants have been looking at square foot costs of bridge types. NCG will take it to the next level. They will look at local labor rates and take into consideration cost inflation as well. The WRBAC will hear from NCG at the November 13 meeting.

Proposed Screening Criteria from “Some” to “Few” (Rob Barnard)

Rob Barnard reviewed the basic evaluation criteria used from past bridge type screenings. The Working Group, staff and the consultants are proposing supplemental criteria to screen the remaining bridge types to get from “some” to “few”.

The supplemental criteria are:

- Risk (cost escalation, design, constructability, schedule, in water work construction)
- Greenway (depth of span, width of span, user experience, flexibility, etc.)
- Environmental / Sustainability (carbon footprint, resource use, etc.)
- Bridge Operations (line of sight, OCS integration, emergency response, inspections)
- Miscellaneous (utility duct bank, pier proximity to utilities, navigational maneuvering)
- Opportunities (stormwater, wildlife habitat, fish habitat, habitat enhancement, alternative energy)

Sue Keil asked how the “uniqueness” of a bridge type is captured in the risk analysis?
Rob Barnard indicated that the supplemental criteria should address that concern.

David Knowles asked if the consultants could provide the WRBAC with examples of the various bridge types? **Semyon Treyger** remarked that there are quite a few Cable Stay bridges all over the world. The two things you need to price a bridge are cost history and recent cost history. There are three Cable Stay bridges under construction

currently in the U.S. (two completed last year, and two the year before). That is a good cost basis; you don't need hundreds of examples.

Mayor Katz wondered how cars will be kept off this bridge? **Rob Barnard** remarked that there will be portals that will help to control that issue.

Rob Barnard asked the WRBAC if there is anything missing from the supplemental criteria?

Mayor Katz said it appears staff has covered all the issues that the WRBAC has raised.

David Knowles indicated that at this point the WRBAC should be able to confirm the design assumption about 600 feet horizontal navigational clearance.

Pat LaCrosse asked if a bridge type has a wider horizontal span naturally, then does it still have the \$30 million premium? **Dave Unsworth** said it would not.

Thomas Hacker asked if the Cable Stay spans are exactly the same? **Miguel Rosales** stated that the 2 pier Cable Stay span is 860 feet and the 4 pier Cable Stay span is 795 feet.

Thomas Hacker asked if there can be cables in the middle on both types of Cable Stay bridge types and maintain that slimmer profile? **Miguel Rosales** said most likely that is possible and staff can study that possibility.

Karl Rohde wondered if it would be cheaper to buy out RISG and not have to deal with this horizontal navigational issue? **Guenevere Millius** stated that it might be a bit short sighted to cut out future commercial barge operations. Barge operations are efficient and economical.

Art Johnson remarked that all bridge types appear to be symmetrical. **Miguel Rosales** confirmed that staff decided to keep all spans from abutment to abutment at 1,720 feet in order to help facilitate cost comparison and analysis.

Rick Saito wanted confirmation that the WRBAC had accepted the verification of the horizontal navigational issue? **Mayor Katz** said it had been confirmed.

Rick Saito also wanted to confirm that the concrete segmental should be eliminated. **Mayor Katz** asked the WRBAC if they were comfortable dropping it and the committee members indicated that they were comfortable with that decision. **Sue Keil** remarked that if it can't achieve the necessary clearance, then why continue studying it?

Thomas Hacker asked why the Tied Arch bridge type was not being rendered? **Sean Batty** indicated that the Tied Arch is similar to the Sauvie Island Bridge, a well known bridge type in the area.

Mayor Katz asked the WRBAC to think about design adjustments each person would like to make to the one or two you think will pass the next stage of narrowing.

Rob Barnard indicated that the Working Group will meet October 28 and November 12 to concentrate on reranking the bridge types and then review the cost and risk analysis. November 13 will be the time the Working Group makes its final recommendation to the WRBAC.

Mike Zilis asked if the WRBAC could have the Working Group and consultant rankings in advance so they can see the outcome before November 13 meeting? **Sue Keil** agreed that the assessment using the supplemental criteria would be helpful to have in advance. **Rob Barnard** agreed that staff would send out information in advance, but any report out would be draft because some things will change as the process continues.

Mayor Katz asked if the WRBAC might need to add another meeting? **David Knowles** indicated that between the November 13 and December 11 meetings another one could be added if absolutely necessary, but that all efforts would be made to complete the process with the meetings currently scheduled.

Thomas Hacker wanted an explanation of how the Wave Frame bridge type behaves structurally? **Miguel Rosales** said the Wave Frame is a girder bridge in reverse with the structural members on top instead of underneath. There is a beam, which connects the structural members underneath at each pier. The span is a cantilever.

David Knowles closed the meeting by thanking the WRBAC for their hard work and letting them know about upcoming meetings.

WRBAC members are invited to attend the October 28 AIA Downtown Urban Design Panel meeting from 12-1:30 p.m. at the AIA Center, 403 NW 11th Avenue.

Next WRBAC meeting will be November 13, 2008 from 3-5 p.m. in the Portland Building, Room B on the second floor.