Bridge Study Working Group Meeting

July 15, 2008

Meeting Notes

Attendees:

**WRBAC** – Bob Durgan

**Consultant team** – David Calver (HNTB), Greg DeMond (HNTB), Virginia Ferriday (Rosales + Partners), David Knowles (David Evans & Associates), Carol Mayer Reed (Mayer/Reed, Rosales + Partners team), Etty Padmodipoetro (Rosales + Partners), Miguel Rosales (Rosales + Partners), Semyon Treyger (HNTB)

**Technical Staff** – Teresa Boyle (PDOT), Patrick Sweeney (PDOT)

**TriMet** – Rob Barnard, Sean Batty, Ann Becklund, Dan Blocher, Calvin Lee, DeeAnn Sandberg, Claudia Steinberg, Dave Tertadian, Dave Unsworth

____________WELCOME / VISION / CORE VALUES / PRINCIPLES____________

**Rob Barnard** - Everyone in the room needs to have a common understanding of the vision, core values and guiding principles.

**VISION**

- Deliver a bridge that embodies the Portland aesthetic, is functional and affordable.
- The bridge design should balance aesthetic, function and cost.
  - Aesthetic – right bridge for the context (space, time, and for this particular community)
  - Function – right bridge for the site, use (bus, light rail, streetcar, bikes, peds) and environment
  - Cost – right bridge for the budget

**Carol Mayer-Reed** – Let’s not forget the environmental aspect. That is a key issue.

**David Knowles** – We are helping to create a Science and Technology corridor connecting OMSI, OHSU and PSU.

**Patrick Sweeney** – This bridge needs a great design for the right cost. We don’t want to put other parts of the project at risk because of a monumental bridge. There is other infrastructure – like stations needing pedestrian bridges – that will need attention and funding.
People experiencing the bridge (walking, cycling, transit riders) will have the time and ability to really experience the bridge at a different speed.

David Calver - Let’s create objectives and goals that we can all agree on and then later check off the list and come to consensus that we were successful and did what we agreed to do.

Teresa Boyle – At the Bridge Basics meeting, the idea that a bridge can be used for community gathering was a key concept mentioned which really gave me an “ah-hah” moment. Should there be opportunities for a dedicated viewpoint on the bridge?

Sean Batty – Let’s design a series of experiences, not just a bridge.

Carol Mayer-Reed – When you think about the idea of different views/different perspectives from the bridge, we have the ability to create a new experience for people in a city they’ve lived in their whole lives.

Rob Barnard – Currently, there are 24 feet of space on the bridge deck allocated to bikes and pedestrians.

Dave Tertadian – I believe the measure of success for this group will be to take results of this working group to the public and get a final bridge type decision from the public. If we do our job here well, then we won’t have too many surprises (in terms of costs) down the line.

David Calver – We have the opportunity to create a wonderful structure, but also an opportunity to bring into the project students from the region to be a part of the process. We can really make this process participatory. This is a once in a lifetime opportunity to take it to the public in a unique way. I hope we find a way to take advantage of that opportunity.

Etty Padmodipoetro – While working in Boston on the “big dig”, we worked with the science museum to create an exhibit to educate public on the project. It was quite a success.

Rob Barnard – One particular core value to note is that although Portland is a river city or a bridge town, this is also a transit only bridge. The transit only aspect really speaks to who this community is and how we define ourselves. Portland is a platinum cycling city, has a tram, expanding the streetcar, and has had continuous transit ridership increase.

Dave Unsworth – The transit connection to land use is very important in this region and especially for this project.

Teresa Boyle – I’m not sure this needs to be a “signature” structure. The journey on the bridge is important, but it doesn’t need to be overstated in terms of design.
Patrick Sweeney – From a user perspective (as a platinum cycling city), there needs to be a seamless flow from uses on the land to the bridge.

David Calver – In terms of stakeholder responsibility, we need to find a way to delicately push back in order to be responsible to all stakeholders. Is there somewhere we can go to get some help? (LID)

Dave Unsworth – There is a strong coalition that wants to go to Park Avenue and money is an issue. If we do this well, we can build a beautiful bridge without jeopardizing the project terminating further south than Lake Road.

Rob Barnard – The following are some basic guiding principles:
- A public involvement process that leads to consensus building.
- A process to evaluate alternatives using all scales (on bridge, near bridge, looking at the bridge).
- We need to conduct an impartial process.
- This must be a collaborative effort with all partners.

Teresa Boyle – We have agency representation that feeds up to the higher levels, but we don’t have cycling or pedestrian or environmental representation. Should we open it up to a larger group? Will we lose some valuable information if we don’t consult them until later?

Dave Unsworth – The idea is to report out over time to all those other stakeholder groups.

Teresa Boyle – If this is the structure, then let’s make a guiding principle that spells out who reports to whom, etc. The agency folks are covered, but there are other public groups who should perhaps be involved in the technical process.

Rob Barnard – Please suggest folks whom might be missing. Risk mitigation is important, so we don’t want to get to the end of this process and have missed something important and need to go back to square one. That could affect the region’s ability to fund the project.

Teresa Boyle – I think that the pedestrian, cycling and environmental voice all needs better representation. We need participants that are outside of partner agencies.

**Action:** April Bertelsen and Roger Geller will be added to Working Group for technical support on bike and pedestrian issues. There will be a parallel public process to involve non-agency stakeholders.

Rob Barnard – The goal of this bridge study is to get 2-4 viable bridge type options, start the conversation with NOAA fisheries early, have what we need for a successful biological assessment, and create a roadmap to regulatory approval.
In the bridge study process, these working meetings are where the “rubber hits the road.” This group will work from 9:00 a.m. - 3:30 p.m. and then we will summarize our efforts from 3:30-5 p.m. The next day the consultants will report back to the WRBAC in their meetings from 3-5 p.m.

Here is a summary of the basic working meeting agendas:
Working Group meeting #2 – Go from universe of options to “many” bridge types
Working Group meeting #3 – Screening options to “some”
Working Group meeting #4 – Continue screening option to “some”
Working Group meeting #5 – Screening options to “few”
Working Group meeting #6 – Costs and risks for “few” bridge types
Working Group meeting #7 – Verify final bridge types; environmental input for biological assessment

At end of this process, there will be a larger public process to give input on the final bridge type decision. The final bridge type decision should be made by March 2009.

David Knowles – I think we need to add another WRBAC meeting between 9 to 6 bridge types, so that the committee won’t get a report back at 9 and then 3 thereby skipping 6 bridge types entirely.

Action: Process has been refined to add another WRBAC check-in. Details to follow at next WRBAC and Working Group meetings.

Patrick Sweeney – When we present 9 bridge types to WRBAC, perhaps we could ask them for help in narrowing the bridge types to 6 instead of having the committee see 9 bridge types and then 3 without any input in the middle.

Greg DeMond – Both the pedestrian experience and the interconnectivity continue coming up in discussions. These seem to be some of the foremost considerations.

David Knowles – Although this process is focused on the bridge design, how it operates at either end is VERY important.

Calvin Lee – Can you please define “bridge type” as you’re using it?

Miguel Rosales – You can call “bridge types” alternatives.

Rob Barnard – For example, you have a cable stay bridge type, but you can build 1 or 2 towers. For the truss bridge type, you could have through truss or deck truss. Those are alternatives. The word “alternatives” is better than “bridge types”; it’s a more specific term.
Dave Tertadian – This group and this process will determine the bridge type (or alternative), but the bridge will not be fully engineered at the end of the bridge study, correct?

Rob Barnard – Correct.

Dave Unsworth – For the biological assessment, we’ll need some specific information (staging, construction, etc).

Dave Tertadian – There are also some specific aspects that might affect the design that will need to be defined in order to move forward with the biological assessment.

Semyon Treyger – For example, cable spacing, tower height, and preliminary foundation information for piers will be part of the end result of this bridge study.

_____________________________________________________DESIGN CONSIDERATIONS_____________________________________________________

Bridge Section

• The current pedestrian width and configuration assumption is 24 feet total (12 feet on either side).
• We are assuming 2 transit “lanes” with 13 feet of deck width for each direction (inbound and outbound), and that this will accommodate all three modes of transit (LRT, bus, streetcar).
• The deck thickness is assumed to be 6 feet (for cable-stay bridge).
• The high point of the bridge, as currently assumed in the LPA drawings, is not where the navigational route is currently.
• Our preference is for the space between the transit lanes of the deck to be clear. This gives us the ability for buses to maneuver around the light rail and streetcar.
  o LPA section assumes that 2 planes of stay cables, light poles, and OCS poles could reside on either side of transit lanes.
• Question – How do we handle maintenance and inspection with this lane configuration? The bridge design needs to accommodate these activities and be strong enough for the load. Do we add as criteria that both inspection and maintenance need to occur from the pedestrian path? (close only one side at a time)
• Question - How do we give access to emergency vehicles? Is an evacuation walkway of 2 ½ feet at platform level on either side of the train as assumed in the LPA section adequate? Emergency services will want to have access to the bridge via the trackway, not the pedestrian path.
• Assignment - Teresa Boyle will acquire info about fire bureau criteria for emergency situations – especially when the emergency is on the bridge.
• For concrete segmental, the OCS poles could be on the barrier between the ped/bike paths and transit lanes.
• This is TriMet's structure to maintain, so the City won't have criteria for lighting for the bridge (asserted by Boyle). TriMet’s preference for lighting maintenance is to have lights on poles and keep them out of people’s way.
  o Will there be lighting for the trackway? There is an allowance for lighting.
  o The light fixtures that go on the poles are really more of a PE/FE issue.
• For a cable-stayed bridge type, whether the cables are in the center or the side is a fundamental point.
• If the cables are in the middle, can we narrow the deck width? Is there a way to cut costs by minimizing the square feet?
• Both the weight and width are fundamentals of cost.
• I’m not sure the design criteria are specific enough for the pedestrian pathway. **Assignments** - Carol Mayer-Reed will get us the criteria used for the Eastbank Esplanade and Rob Barnard has some information on path lighting.
• There needs to be a separation between the official pedestrian path and the train emergency evacuation path. The evacuation path will be an uncontrolled pedestrian environment. **Assignment** - We need to have TriMet safety review bridge section.
• The side railing for the pedestrian path is only 3 ½ feet tall. It should be 4 ½ feet tall for bicycle safety. This was noted as not a fundamental bridge study issue, but it will be compiled in the criteria list.
• The deck widths assumed in the SDEIS designs for the cable stay bridge is 66 feet and 59 feet for concrete segmental. Because this was the basis of the impact analysis, 66 feet should be considered the maximum section width.
• SDEIS is a hard bracket in terms of maximums and minimums for criteria.
• **Assignment** – We need to produce some information about why/whether 12 feet is the right criterion for the width of the pedestrian area and/or discuss options for arrangements of the 24 feet of pedestrian/bike area. For example, could this be a single 24’ wide path? Would that be better?
• **Assignment** - Let’s do some work to see what a two-way path for pedestrians and bikes looks like in 12 feet (including shy).
• The Hawthorne bridge pedestrian path is 10 feet wide. (10.5’ each side per Rosales measurement on 7.19.08)
• Could pedestrians and bikes be put in the “box” of the concrete segmental bridge? No, there are other elements inside the box. You could put a truss alongside the box, but then you’re stuck with a truss.
• **Assignment** – We need further consideration of the stacked bridge arrangement.
• 6.75% is maximum slope for light rail, but TriMet does not want to push that slope. The desirable maximum slope is 4.75%.
• Would a stacking arrangement be advantageous to cyclists and pedestrians? Would the lower profile be outside of the minimum clearance?
• What does the ground connection look like for modes that are not transit?
  o If a feature currently exists, the project has to deal with it.
  o If a feature will exist in the future, the project can’t preclude it.
• SDEIS assumption is that access to east side of bridge from the greenway would be from Water Avenue.
• Does the deck of the bridge have to be at the same height for pedestrians and cyclists as it does for light rail and bus?
• A stacked bridge arrangement can be great over the river, but it can get really messy on the landing. The Marquam Bridge is a good example.
• There are 2 bridges being considered in this town – the Milwaukie and CRC (Columbia River Crossing) – The public will likely want/need to compare and contrast the two bridges. We should be ready to explain why something works for one and not the other.
• It is important for us to know where pedestrians and cyclists are coming from and going to as they use the bridge.
• The scope of the Bridge Study work is from abutment to abutment, so we won’t solve all issues of connectivity during this bridge study process.
• Perhaps there will be some suggestions/opportunities that could be made at the end of this process to help solve these issues in the future.
• There are operational ways to help solve this problem including signage (bikes only in left lane, etc.) but who enforces the rules?

Environmental Issues
• Due to the range studied in the SDEIS, the bridge will have no more than 4 piers.
• We believe that a pier placed in 20 feet of water might be a problem for NOAA fisheries. Assignment – Semyon Treyger, Alonzo Wertz and Parametrix to get some clarity on this issue.
• How do we answer the question “Why not zero piers”? The cost is one issue (3x more per square foot). If the piers are on the banks, your alignment changes. Assignment – Semyon Treyger to write up a couple of paragraphs on this topic.
• How do we answer the question “Why not 1 pier”? (and so on) It makes things difficult in terms of the navigational route. Assignment – Semyon Treyger to look at this issue also. Perhaps a matrix could be created showing 0-4 piers and the pros/cons of each option.
• The faces of abutments are where you begin your open span.
  o The scope of the bridge study is to look at back of abutment to back of abutment.
• The greenway setback is 100 feet. We also need evaluation criteria for which bridge types would lend themselves to more than just the minimum setback because 140 feet greenway setback is the Parks staff evaluation criteria.
• The “top of bank” is difficult to define (it was surveyed in 2002) even if the top of bank is laid back on itself.
  o The city will help us determine if we got all our assumptions right.
• There is a vocal minority who does not cherish the greenway. Most property owners along the river are embracing the greenway, but not all.
• The vertical clearance from the bridge to the greenway is 18 feet desired, 12 feet required, and 10 feet minimum. It’s a narrow bridge so you are only under it for a short amount of time.
At least one WRBAC member believes that 10 feet is too low (Zilis).

- Is there any noise criteria associated with this bridge? Not that we know of at this time.

Movable Bridge
- A major issue with movable bridges has to do with the OCS wires. No one could name a light rail (OCS) bridge that is movable and not a vertical lift.
- The basic criterion for light rail operation on a movable bridge may be that the OCS must be kept hot.
  - We don’t know how to keep the OCS hot and have a swing bridge.
- The only movable bridge we can consider would be vertical lift and that is the most expensive movable bridge.
- We need a drawing of a vertical lift bridge. Assignment – Batty to provide vertical and horizontal criteria for movable bridges to HNTB
  - Possible case 1 - Use the criteria for Steel Bridge. Assignment – Rob Barnard to give criteria to Semyon Treyger.
  - The high lift for the Steel Bridge happens twice a month.
  - We need to capture the trade offs between service disruption with a movable bridge and cost savings.
  - There needs to be some consistency amongst the criteria

Bridge Clearance
- Where is the high point of the bridge versus the navigational route?

Horizontal Alignment
- The current assumption is that all curves occur off the bridge.
- Making the bridge as straight as possible gives us the greatest flexibility for bridge type.
- The cable-stay bridge doesn’t respond very well to curves (not impossible, but costly).
- Any curved bridge will cost you more than straight.

HOMEWORK

- Provide input on other design considerations – Due 8/1/08
- Provide list of bridge types that should be explored at next meeting.
  - Due 8/1/08
- Possible screening criteria that might be used to reduce list from 9 to 6+/- – Due 8/15/08
- Possible screening criteria that might be used to reduce list from 6 to 3+/- – Due 9/2/08

NEXT STEPS

- Next Working Group Meeting: August 7, 2008 from 9:00 a.m. to 5:00 p.m. at TriMet’s Holladay Street office, Room 1.