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A public following

Project delivery keeps the community involved during the design and construction of Sellwood Bridge

Portland, Ore., is a national leader in its commitment to using public-engagement processes to shape its communities and corresponding infrastructure.

But even by Portland's high standards, the community involvement processes used to develop the Sellwood Bridge project are unprecedented.

Opened in 1926, Portland's Sellwood Bridge carries 30,000 vehicles per day across the Willamette River, making it the most heavily traveled two-lane bridge in Oregon. Originally constructed on geologically unstable fill, the bridge has sustained damage over time due to an ongoing landslide at its west end, earning it a sufficiency rating of 2 on a 100-point scale, according to the National Bridge Inventory System.

Since 2005, the bridge has been weight-restricted to 10 tons, preventing its use by buses and commercial trucks. A narrow, 24-ft travel way provides no shoulders for emergency access vehicles, and a single 4-ft-wide sidewalk inadequately accommodates bicyclists and pedestrians.

Even with these serious issues, Multnomah County knew that replacing the Sellwood Bridge would be a challenge. The bridge evokes intense community interest and passion. People who live and work close to it have been highly vocal about the effects a new structure could have on their neighborhoods and properties.

The Sellwood community, a historic area at the bridge's east end, was concerned about additional traffic entering their neighborhood if the bridge was widened; the bridge is the only Willamette River crossing within a 10.5-mile span—and bridge commuters worried about increasing traffic congestion if the bridge was not widened. A very active bicycle/pedestrian community has long lobbied for a more user-friendly facility.

Faced with a variety of needs and wants to consider, and with safety and connectivity as top priorities, owner Multnomah County committed to delivering a solution that would give the public a high level of involvement in the process. This approach was soon embraced by neighboring residents, business owners and affected jurisdictions.

"In the end, consensus formed around what people most wanted," said Mike Pullen, Multnomah County Communications Office.

They're all in

The county selected a consultant design team, comprising T.Y. Lin International and CH2M Hill, first for development of an environmental impact statement, then again for final design. The method of project delivery chosen was contractor manager/general contractor (CMGC) with the Slayden/Sundt Joint Venture. Compared with the traditional design-bid-build method, CMGC allows for active public involvement all the way through construction.

Starting out with no preconceived solution, the county and design team asked the community what it wanted from the project and used the results to design a comprehensive and ambitious process that literally put the bridge's design, alignment, width and aesthetic details in the hands of the community.

"We wanted the replacement bridge to be context-sensitive," said John Ferguson, P.E., project manager for T.Y. Lin International. "Who better to define context than the people who use the facility every day? We asked the public, citizens groups, multimodal advocacy groups, politicians and other stakeholders many questions. We then used their responses to craft a context profile and incorporate it into the design. The community was the most important member of the design team."

To represent the public's interest in key milestone decisions, the county formed a Community Advisory Committee (CAC), whose members included river users, business owners and local residents. Providing guidance to the CAC was a Public Stakeholder Committee (PSC), which included officials of local agencies and jurisdictions either interested in or with regulatory responsibility for the project. This was highly unusual in that although this was a county project, all PSC members had an equal voice in defining project criteria.

The CAC and PSC collaborated for more than five years, gathering information and making joint decisions about the final alignment, number of lanes, structure type and aesthetic treatments. This process was facilitated through monthly CAC meetings, frequent open houses, a virtual open house and numerous workshops.

"The PSC folks really listened to what the CAC was saying," said Laura Jackson, CAC member. "And the design team and county really cared what people thought."

The county's public-involvement effort included an award-winning website, www.sellwoodbridge.org, which provided up-to-date information on project progress, as well as opportunities to provide design input through online surveys. Communications efforts like these helped maintain strong public support for the project.

The resulting final design features a steel deck arch with two 12-ft travel lanes, two 12-ft shared-use sidewalks and two 6.5-ft bike lanes/emergency shoulders. The number of lanes selected was based on the community's request to have the bridge reflect the scale of the Sellwood neighborhood and underscore the area's commitment to sustainability and alternative modes of transportation. Also, at the community's request, aesthetic treatments will be applied to the structure, including multiuse path surface treatments, belvederes, decorative lighting, benches and fencing.

Aesthetics played a part in addressing safety issues as well. Concerned that a new bridge would bring additional, higher-speed traffic into their community, Sellwood residents asked that traffic-calming measures be incorporated into the design. The solution proposed by the design team "narrows" the perception of roadway width using plazas and vertical features, encouraging traffic to slow down as it enters the neighborhood.

"The stakeholders, including the local community, have not just had input; they have been advocates shaping the project, from the width of the bridge to the design features that travelers will see every day," said CAC member Heather Koch. "It's not always easy for the [design team] to be flexible on all that a project impacts, but they have listened and done a good job explaining why things have to be a certain way."

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Sliding right in

Public comments showed that mobility during construction was a key concern. The design team, together with the project's CMGC Slayden/Sundt Joint Venture, addressed this by formulating an innovative solution that minimizes traffic and neighborhood impacts. It begins by constructing a temporary substructure immediately downstream and "sliding" the existing main span deck trusses from the current alignment to a new detour alignment. This minimizes the closure of the bridge to seven days. The new bridge will then be constructed on the existing footprint.

"This technique is of note due to its size and complexity," said Scott Nettleton, P.E., detour bridge engineer of record for T.Y. Lin International. "The consultant team will be sliding four continuous deck truss spans—1,000 ft of

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bridge—into a new alignment to provide a detour structure during construction."

This solution has the advantage of allowing the main river spans of the replacement structure to be constructed in a single stage. The original plan involved building the new bridge in two halves, due to the limited space. Building the new bridge in one stage will be faster, less costly, safer and provide a better design that is easier to maintain.

Yet innovation involves unique technical challenges. These have included finding appropriate ways to install piling to support the detour structure, given the in-water work restrictions for the protection of migratory fish species. To expedite the project, the CMGC and design team collaborated with the regulatory agencies to complete low-impact work during the supplemental in-water work period. By installing piles using vibratory methods instead of impact driving, the work will have a minimal effect on fish.

Since construction began in December 2011, county staff and the CMGC have held weekly meetings with the public, where key concerns such as noise and mobility impacts during construction and closure dates have been discussed. The information gathered during these meetings has been used to adjust the schedule accordingly to minimize impacts to the public.

Tremendous outreach

The county is using the Sellwood Bridge project as an opportunity to engage additional people and groups in the process. Two examples of how they are achieving this is through the development of School-Based Outreach and Disadvantaged Businesses Outreach programs.

The School-Based Outreach Program uses interactive educational events to engage local elementary, middle and high school students in the bridge project. The program gives students a hands-on opportunity to understand its technical elements and learn about a variety of career paths related to the project, such as construction, engineering, design and public service.

Bridge-related class projects include having the students simulate the detour bridge translation using a scale model, constructing "bat box" wildlife habitat structures and building gumdrop bridges made from real bridge plans.

The Disadvantaged Businesses Outreach Program provides mentoring and educational opportunities to historically disadvantaged businesses. The goal is to assist minority-owned, woman-owned and emerging small businesses (M/W/ESB) in their development. The design team has held training events that are open to the public, including a recent workshop titled "How to Market to Public Agencies and Primes," which prepares M/W/ESB firms for work opportunities that will become available with construction of the bridge. According to the project's diversity plan, 20% of the construction budget is dedicated to M/W/ESB businesses.

Strong consensus

More than 10,000 citizens have provided input on the project, with many of their concerns and ideas being incorporated into the final design. When the Sellwood Bridge opens in 2015, the county will have delivered a community-supported signature bridge for Portland.

"Allowing the public to help choose the solution has been key to the project's success," said Deborah Kafoury, Multnomah County commissioner. "We began by inviting every interest group to help us solve the problem. The public participation was amazing and eventually led to consensus."

In January of this year, Multnomah County and its partner agencies in the Sellwood Bridge project received an award from FHWA for the public process conducted during the planning phase. The Exemplary Human Environment Initiative Awards recognize outstanding projects that make our transportation system work better for the people who use it while also protecting the natural environment. Honored in the process-improvements category, the Sellwood Bridge project was cited for "building public and agency consensus around improvements for a multimodal, community-driven and environmentally sensitive infrastructure project."

Through an inclusive and imaginative process involving the county, design team and members of the public, the Sellwood Bridge project heralds a new era in transportation design. Safer and more livable environments are created through a collaborative effort, and the entire community serves as a vital member of the team. **R&B**

Hisaw is with T.Y. Lin International.

For more information about this topic, check out the Bridge Channel at www.roadsbridges.com.