

Milwaukie to Lake Oswego Willamette River Pedestrian Bridge

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Our objective is to determine whether a cantilevered bike and pedestrian trail bridge on the railroad bridge connecting Lake Oswego and Milwaukie would work. Currently, there are no pedestrian crossings over the Willamette River between the Sellwood and I-205 bridges resulting in a high volume of commuters using these two routes. An additional route would not only alleviate pedestrian traffic on the Sellwood Bridge, but would also tie these two communities together, connect bus lines on either side of the river, and extend the existing park and trail systems. Using the existing railroad bridge would cost less than building a new one.

In assessing the feasibility of this project, we attempted at length to contact members of Portland & Western Railroad, Union Pacific, ODOT Rail, Metro and Alta Planning. This was ultimately an exercise in futility as most of our contacts were reluctant to speak or meet with us. Those we did contact were not encouraging: Union Pacific informed us that, while they have no authority on the project, they believe Portland & Western (who leases the bridge until 2015) will not accept the project due to liability. Our contact at ODOT Rail reiterated this, saying there was “no way” that Portland & Western would accept the project. The people we spoke with at City of Lake Oswego had no knowledge of the plan and Alta Planning (which specializes in such projects) failed to follow through with plans to meet with us.

The biggest obstacle to implementing this project will be convincing the Portland & Western Railroad company to accept it. Portland & Western Railroad’s main concern is liability- a footbridge would involve hazards for anybody crossing it including: easier access to the tracks which could result in injury or death from a passing train, rocks and other debris that could fly off the tracks or the train itself as it passes commuters, the

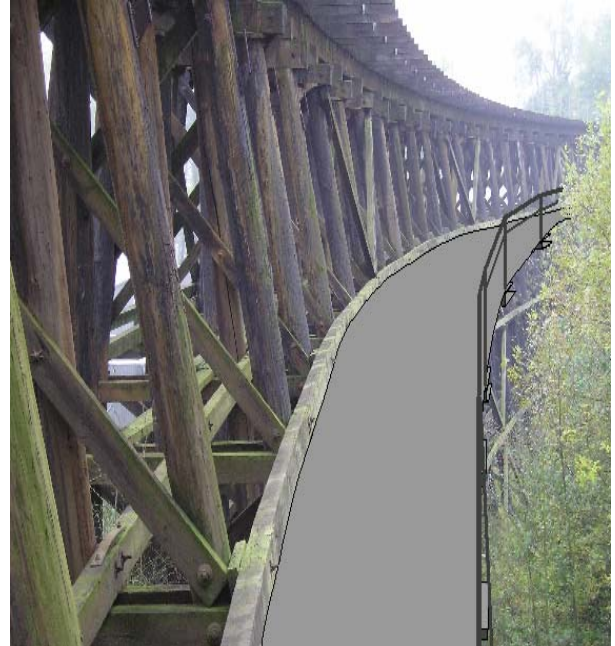
bridge is about 100 feet high and a fall could be fatal, and vibrations and other effects of a train passing at close proximity could be unsettling, especially for senior citizens of which many reside in a nearby retirement center. For these reasons, Portland & Western Railroad opposes the project. To go forward with the project, it will be necessary to partially, or completely absolve Portland & Western Railroad of liability. This could be done by buying the bridge (at a high cost) or by restricting access to the bridge while a train is crossing.

We did a basic assessment of the footbridge structure and found that it could be done in several ways. Our suggestion is to cantilever steel I-beams from the bottom of the bridge, connect a steel frame consisting of I-beams running lengthwise with the bridge, and to cover the frame with a light-weight grating and a polymer surface similar to those used on outdoor tracks (right). We also



studied the existing footbridge cantilevered from the Steel Bridge which has a design similar to our own. Our bridge could incorporate the same type of connections which consist of C-clamps bolted to both sides of large girders that span the bridge every 32 feet. We also have two suggestions for the portions of the walkway accessing both sides of the bridge where the structure is a large wooden truss (over). It would be possible to simply extend the walkway along the structure, cantilevering steel supports off the heavy

timber beams and columns that compose the trestle. Also, a spiraling ramp made of concrete could lead commuters from the steel portion of the bridge directly to the ground.



How commuters access the bridge is another potentially costly issue as it may involve buying land at either end of the bridge from the railroad company and other property owners. City parks exist at both ends of the bridge (lower right); these parks could serve as access points to the walkway. If this were done, it would be necessary to buy long stretches of land adjacent to the railroad which the railroad company would be reluctant to sell.

Parking lots and road repair would also be needed on both sides of the bridge and in order to access the north end of the bridge, the path would need to be supported by piles or a retaining wall due to the steep grade on either side of the tracks.



Table 1 shows our cost estimate of materials. Though we did some analysis to determine the size of structural members, this should be considered a very rough estimate.

Table I

Materials Cost Estimate

	Description of Material	Quantity of Material	Cost of Material	Total Cost of Material
600 ft Span	Cantilever Members W12 x 35	190 ft	\$ 24.50 / ft	\$4,655
	Longitudinal Members W16 x 40	1800 ft	\$ 28.00 / ft	\$50,400
700 ft Span	Cantilever Members C8 x 11.5	980 ft	\$ 4.40 / ft	\$4,312
	Longitudinal Members W12 x 40	2100 ft	\$28.00 / ft	\$60,000
1000 ft Span	Steel Sheet Piles & Fill 6' x 10'	167 piles	\$ 179 / sheet pile	\$30,000
	Pavement	16000 ft ²	\$ 3.16 / ft ²	\$51,000
Other	Exterior Lighting Walkway Luminaer High Pressure Sodium 75 Watt	139 lights	\$ 760 / light	\$105,000
	Road Improvement of Courtney Ave., Bluff Rd. and Air Oaks St.	32125 ft ² of asphalt 10300 ft ² of Concrete	Concrete Curbs 1.35 / ft ² Asphalt Paving 4.32 / ft ²	\$153,000
	Floor Grating Reinforced Polymer 1.5" thick	14000 ft ²	\$15.63 / ft ²	\$219,000
	Walkway Surface	27000 ft ²	\$ 3.16 / ft ²	\$86,000
	Lake Oswego Parking Lot	Asphalt, Bumper, Striping, Signage, ADA access, Lighting, Swales, Catch Basins, Bike Rack, and other		\$33,000
				\$796,367

An in depth feasibility analysis of this project must be conducted before any further steps can be taken. The central issue is Portland & Western's reluctance to allow pedestrian trails adjacent to their tracks. Metro and the City of Lake Oswego will need to investigate how they can absolve Portland & Western of liability and how much it will cost to do so. While researching this project, we found that Metro has been considering this bridge as a future light rail connection between Lake Oswego and Milwaukee. This indicates that a pedestrian bridge is only a small part of a large scale, long term community development plan that will involve a considerable investment of time and money.

