# Why does a $500 million bridge replacement cost $7.5 billion?

By Joe Cortright ⋮ 8-10 minutes ⋮ 3/8/2023

*The "bridge replacement" part of the Interstate Bridge Replacement only costs $500 million, according to new project documents*

*So why is the overall project budget $7.5 billion?*

*Short answer: This is really a massive freeway-widening project, spanning five miles and seven intersections, not a "bridge replacement"*

*Longer (and taller) answer: The plan to build half-mile long elevated viaducts on both sides of the river, and the need to have interchanges raised high into the air make the project vastly more complex and expensive.*

In November of 2022, the Interstate Bridge Replacement team (a collaboration of the Oregon and Washington highway departments), released a document called the "River Crossing Option Comparison" sketching out the advantages and disadvantages of several different alternatives crossing the Columbia River. The alternatives examined included tunnels under the river, and a series of bridge designs—two different moveable span bridges, and two fixed spans, a high level and and mid-level (116 foot clearance crossing.)

Here's the bottom line of the report—buried away on page 50 of a 68-page PDF file—the IBR's preferred design, a mid-level fixed span, is supposed to cost $500 million.

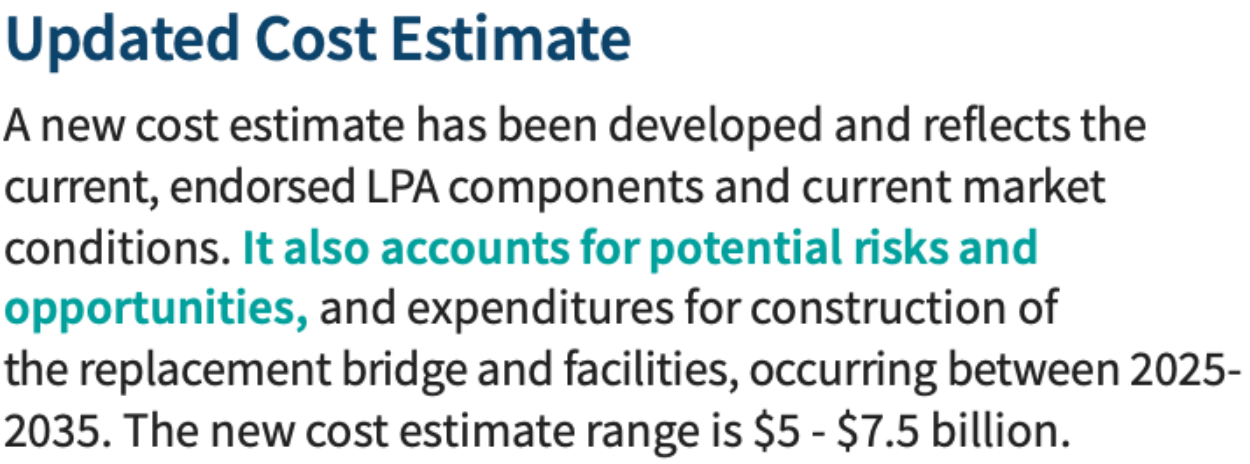
Interstate BRIDGE Replacement Program

**Mid-level Fixed**

- Construction cost of two 450-foot fixed spans: $70 million
- Total bridge cost (Pier 1-8): **$500 million**

That's a fascinating number, because in December, the IBR team released another document, a long-awaited financial plan describing the total cost of the project. It told a joint committee of legislators from Oregon and Washington that the project's budget had increased from a maximum of $4.8 billion (estimated in 2020) to a

new “maximum” of $7.5 billion (although the two agencies still maintain that they’re trying to bring it in for a mere $6 billion).




All this raises a fascinating question: **Why does this project cost $7.5 billion when the price tag for actually replacing the bridge is only $500 million?**

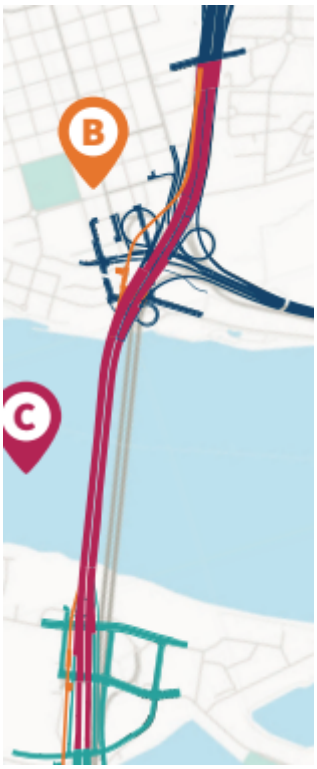
### Most of the project cost is highway widening, not the bridge

More recently, the project has offered a few additional details, summarized in the graphic below. As we’ve noted at City Observatory, the name “bridge replacement project” is clearly misleading. The IBR is really a five-mile long freeway widening project that requires rebuilding seven closely spaced interchanges. According to the IBR, the cost of the four major segments of the project is about 1 to $1.5 billion each for the Oregon and Washington interchanges and highway widenings (segments A and D), about 1.3 to $2 billion for the transit portion of the project, and about 1.6 to 2.5 billion for the bridge and approaches (segment C).


At between $2 and $3 billion, it's clear that the interchange rebuilding and roadway widening is more expensive than the river crossing. And an earlier expert review of the Columbia River Crossing version of this same project, commissioned by the two state highway departments and the behest of the then Governors, recommended strongly that the project eliminate one or more interchanges, to save cost, improve safety and performance, and enable a better bridge design. By rebuilding these too closely spaced interchanges, the panel warned, the DOTs were repeating–at enormous cost–a decades old design error..

## A high bridge requires long, steep approaches

The IBR budget breakdown unhelpfully combines the cost of the "bridge" and its "approaches." As this illustration shows, what IBR calls the combined "bridge and approaches"—shown in red—extend for about a half a mile on either side of the river: to Evergreen Boulevard (more than half a mile north of the riverbank on the Vancouver side of the river, and almost all the way across Hayden Island (a bit less than half a mile) on the Oregon side of the river.




We know from the “River Crossing Options” report that the actual bridge itself—that is the portion between the north and south river banks—would cost approximately $500 million to build. What the IBR doesn’t talk about is the “approaches” which are actually elevated viaducts that have to reach 100 feet or more into the air in order to connect to the high level crossing. These are vastly higher (and wider) than the existing bridge approaches, which are fully at grade on the Oregon and Washington sides of the river with the current low-level lift bridge.

The mile of elevated freeway that IBR plans to build to connect its high level bridge to the existing freeway at either end of the red-shaded area is what is driving the cost of this segment of the project. If, as IBR says, the bridge structure costs $500 million, this means that most of the cost of this part of the project—as much as $1.5 to $2.0 billion—are the lengthy, elevated approaches. What IBR has failed to do is consider how much less expensive the approaches could be if it chose one of the alternate bridge designs (either a moveable span or immersed tube tunnel). Either of these designs would allow approaches to be built mostly or entirely at grade, eliminating the expense and environmental impact of elevated viaducts. The lower level would also greatly simplify and reduce the expense of the SR 14 interchange, which currently involves convoluted spiral ramps with grades of 6 or 7 percent.

It’s also worth noting that the IBR project hasn’t itemized the cost of demolishing the existing I-5 bridges. Because these structures cross over sensitive river habitat, and because the bridges themselves have toxic lead paint and other environmental contaminants, the cost of bridge removal could be enormous.

## Engineers gone wild, said then-Congressman DeFazio

Clearly, what’s going on here is that highway engineers at ODOT and WSDOT see this project as their opportunity to build the project of their dreams. Not just a giant bridge, but massive new interchanges, wider freeway lanes, and if people insist, a short light-rail extension. The bigger, the better. The grandiose and costly bias of the state highway departments has been long known to key local leaders. Former Congressman Peter

DeFazio (until last year, Chair of the House Infrastructure Committee), in a characteristically frank admission said:

> "I kept on telling the project to keep the costs down, don't build a gold-plated project," a clearly frustrated DeFazio said. "How can you have a $4 billion project? They let the engineers loose, told them to solve all the region's infrastructure problems in one fell swoop… They need to get it all straight and come up with a viable project, a viable financing plan that can withstand a vigorous review."
> (Manning, Jeff. "Columbia River Crossing could be a casualty of the federal budget crunch", *The Oregonian*, August 14, 2011).

Later, DeFazio told Oregon Public Broadcasting:

> "I said, how can it cost three or four billion bucks to go across the Columbia River? . . . The Columbia River Crossing problem was thrown out to engineers, it wasn't overseen: they said solve all the problems in this twelve-mile corridor and they did it in a big engineering way, and not in an appropriate way."
> "Think Out Loud," *Oregon Public Broadcasting*, August 18, 2011.

At long last, there are some signs that the problems with their super-sized design are dawning on IBR staff. Project director Greg Johnson recently let slip that IBR is now looking at a "single-level" design—something they ruled out more than a decade ago. This may mean the states are actually going to consider a lower level crossing. IBR has also conducted a "Cost Estimate Validation Process" or CEVP—which they've declined to reveal to the public. This engineering review likely highlights the cost and risk of the project's current bloated design.

There's no reason a $500 million bridge replacement should cost $7.5 billion. If this project were right-sized—simply replacing the bridge structure, and maintaining a low-level crossing that could connect to existing approaches, and eliminate the need to rebuild seven different intersections and widen miles of freeway, the cost could be brought down substantially.