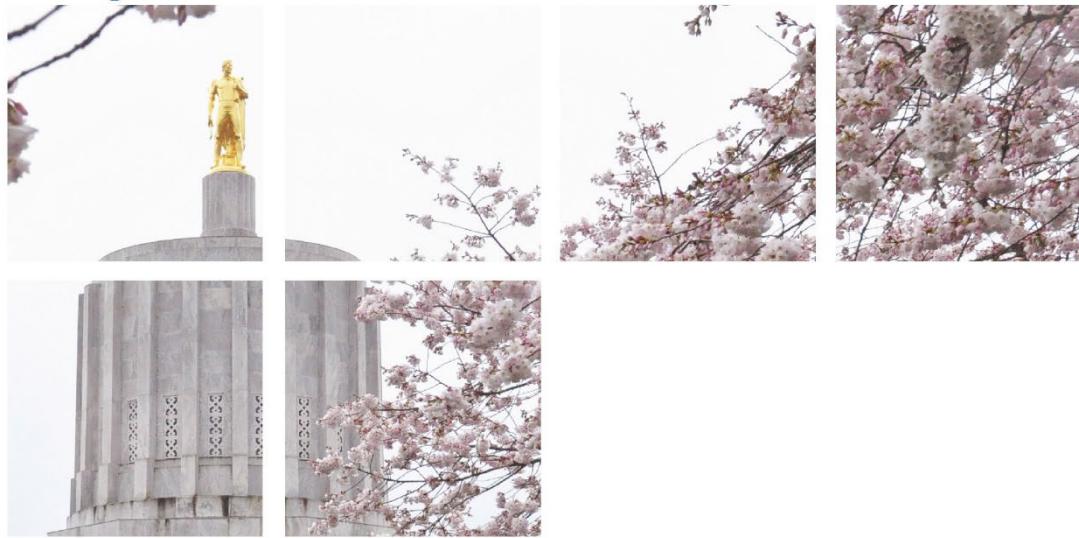




Secretary of State Oregon Audits Division **Advisory Report**



The Columbia River Crossing Project Failure Provides Valuable Lessons for Future Bi-State Infrastructure Efforts

February 2019

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Executive Summary



Source: Cacophony, via Wikimedia Commons.

The Columbia River Crossing, otherwise known as the CRC, was a bi-state megaproject to build a bridge between the cities of Portland, Oregon, and Vancouver, Washington. The new bridge would have replaced and modernized the existing stretch of Interstate 5 (I-5) that currently connects the two cities across the Columbia River. The two states' Departments of Transportation formed a joint CRC project team in 2004 to manage this effort.

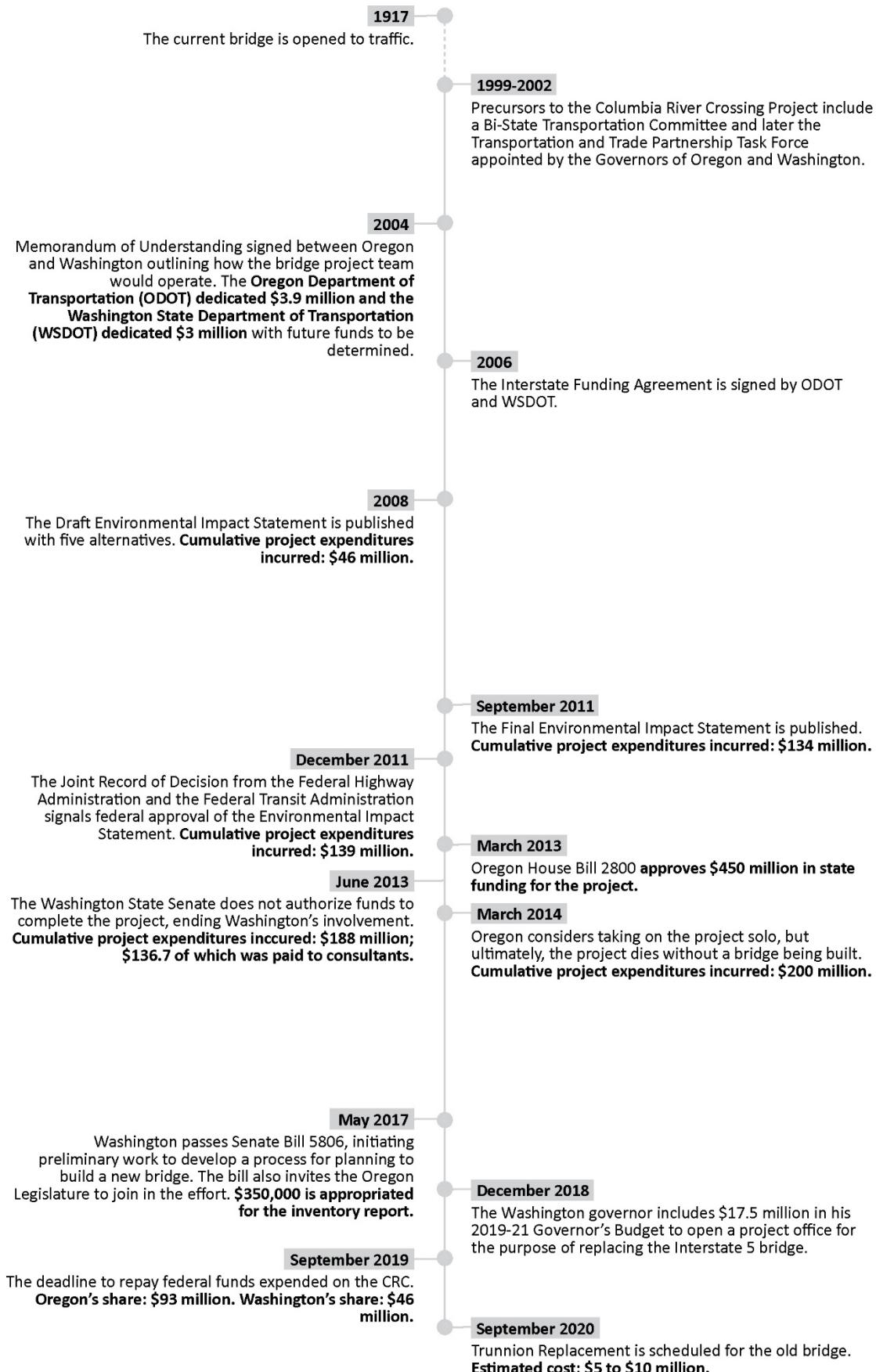
The intent of the project was to improve safety, reduce congestion, and increase mobility of motorists, freight traffic, transit riders, bicyclists, and pedestrians in a notoriously congested section of I-5. To finance the effort, the CRC team developed a plan that relied on federal, state, and toll funding. However, after Oregon passed legislation in 2013 to authorize its \$450 million share, Washington failed to follow suit. As a result, after nine years of planning and millions of dollars spent, the CRC project was terminated in 2014 without any construction.

Recently, there has been renewed interest by some officials in the region to restart CRC discussions, demonstrated by the passage of Washington Senate Bill 5806 in 2017. Elected representatives from both states met in December 2018 for preliminary discussions to determine a process for moving forward. In addition, a number of local government leaders in the region have expressed support.

The purpose for this advisory report is to provide insight into the previous CRC project by providing a brief history and overview of that effort, an update on the current status, and identifying some leading practices for bi-state infrastructure projects. These best practices may prove useful to those involved in ongoing and future crossing discussions.

We sincerely appreciate the courtesies and cooperation extended by officials and employees of the Oregon Department of Transportation as we completed this engagement.

Overview of the CRC



Introduction

The Interstate Bridge was constructed in 1917 to promote commerce and travel between Oregon and Washington

The Interstate Bridge, which connects I-5 over the Columbia River between Portland, Oregon and Vancouver, Washington, opened to traffic in 1917 as a single bridge carrying two-way traffic. A twin bridge to complement the original structure was finished in 1958, along with a lift system to allow larger vessels to pass underneath both bridges. As of 2016, around 135,000 vehicles crossed over the bridges daily and they are still an integral part of regional travel and commerce. However, both structures are considered functionally obsolete and distressed.

The I-5 corridor is a critical component of interstate commerce in the region

I-5 is the only continuous interstate on the West Coast, making it critical to the local, regional, and national economy. This interstate is pivotal to the success of businesses that rely on long-distance travel in the region, as it connects every major city on the West Coast. Locally, it provides connections for two major ports, deep-water shipping, river barges, and two major rail lines.

As of 2016, an estimated 13,600 to 17,800 freight trucks pass through the I-5 corridor daily, making it critical that I-5 function as efficiently as possible.

Regional congestion has a negative impact on both commuters and freight transportation

Congestion in the Portland metropolitan area was a concern that led leaders in both Oregon and Washington to seek a solution for nearly two decades. Regional congestion has continued to grow, negatively impacting transportation for both commuters and freight. The Interstate Bridge is one chokepoint contributing to this congestion.

This regional congestion is costly. One estimate places the cost in fuel, lost time, and freight delays at \$3.9 billion,¹ which equates to nearly \$1,650 per Portland metro resident per year. Business owners have adjusted their scheduling to account for congestion by adding more evening and overnight shifts — but with congestion continuing to increase, these businesses may be nearing the limits of what can be done to work around it.

More than 135,000 vehicles and approximately \$110 million in freight crosses the Interstate Bridge daily. Metro, a regional governing body that encompasses the Portland area, estimates that approximately half of all workers in Clark County commute to Oregon with many using the Interstate Bridge.

Bridge Rating Terminology

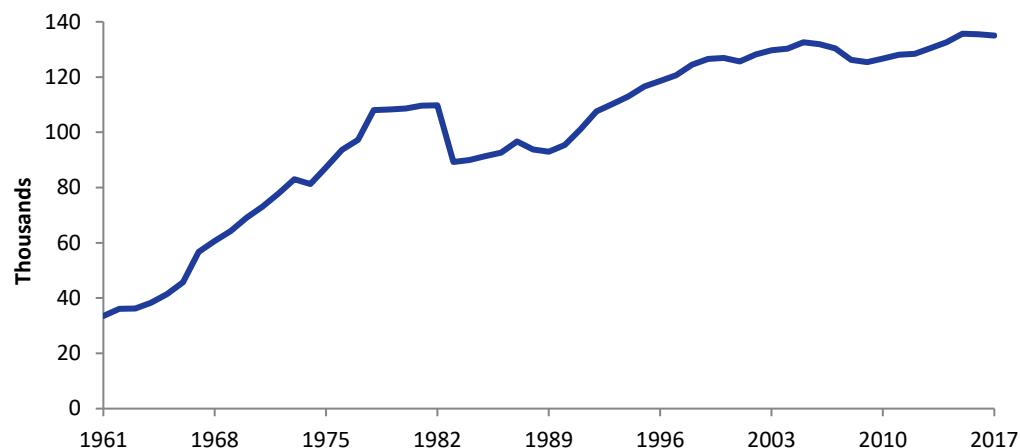
Functionally Obsolete: Used by the Federal Highway Administration to indicate a bridge does not meet current standards. The rating is based on bridge inspection appraisal ratings.

Functionally obsolete bridges are those that do not have adequate lane widths, shoulder widths, vertical clearances, or design loads to serve traffic demand.

Distressed: Used by the Oregon Department of Transportation to indicate that the bridge has been identified as either structurally deficient or as having other deficiencies. A classification of distressed does not imply that the bridge is unsafe.

¹ This estimate comes from Inrix, a global company that specializes in connected car services and transportation analytics.

Figure 1: Vehicle crossings have increased substantially since 1961



Source: Southwest Washington Regional Transportation Council.

The Interstate Bridge contributes directly to this regional congestion. The area surrounding the bridge is a key bottleneck contributing to congestion on I-5 on both sides of the river. On the Oregon side, average afternoon freeway speeds for northbound traffic approaching the bridge are 20 mph or less in an area where the speed limit is set at 50 mph. The bottleneck at the bridge extends roughly 12 miles to the south, exacerbating congestion issues along the way. On the Washington side, southbound morning travel times across the bridge have been increasing dramatically. These results indicate traffic volumes on the bridge have exceeded its capacity.

The I-5 Columbia River corridor poses significant hazards to travel and safety



Source: ODOT.

The Interstate Bridge and the surrounding area suffers from issues related to traffic, seismic, bicycle, and pedestrian safety. Specifically, the crash rate in the area surrounding the bridge in 2011 was two times higher than similar highways in Oregon and Washington.² A recent ODOT analysis identifies the project area as a high crash risk area. The higher rate of collisions can be attributed to short on- and off-ramps, limited space for merging, and poor sight distances on and around the Interstate Bridge. The lanes on the bridge are narrower than freeway design standards and, without safety shoulders, any incidents on the bridge result in blocked lanes.

Additionally, the bridge is founded on liquefiable soils and does not meet current seismic standards. A significant earthquake, such as one caused by the Cascadia Subduction Zone predicted to strike the Northwest, could cause the bridge to bend or collapse.

Bicycle and pedestrian safety has also been a concern for the I-5 crossing, as facilities for cyclists and pedestrians on the bridges are only about four feet wide, less than half the current ten-foot design standard. Direct connectivity for cyclists and pedestrians in the bridge area is also poor.

² This figure comes from the CRC Environmental Impact Statement released in 2011.

Congestion will only continue to worsen as both Portland and Vancouver increase in population. Metro estimates that, by 2040, the regional population will increase by 35%, adding 1.8 million more daily vehicle trips to an already congested system.

Early bi-state efforts were made to address regional congestion

In 1999, Metro and the Southwest Washington Regional Transportation Council created the Bi-State Transportation Committee, charged with reviewing transportation issues across the two metropolitan planning areas. The committee included representatives from the Washington State Department of Transportation (WSDOT) and ODOT as well as representatives from the key local governments and transit organizations. In 2000, the committee's recommendations related to regional congestion were documented in the I-5 Trade Corridor Freight Feasibility and Needs Assessment, which found that, without action, increased congestion would limit the regional economy. One of the committee's recommended improvements included a new crossing over the Columbia River.

The Governors of Oregon and Washington then established the 26-member Portland/Vancouver I-5 Transportation and Trade Partnership Task Force to address congestion concerns between the two cities. A strategic plan released by the task force in 2002 included the following recommendations:

- Expand I-5 to three through-lanes in each direction;
- Introduce light rail to Vancouver;
- Replace or supplement the Interstate Bridge; and
- Improve interchanges between the Interstate Bridge and State Road 500 (SR 500) in Vancouver and Columbia Boulevard in Portland (this area would become the Bridge Influence Area for the CRC).³

The efforts of this task force would become the critical underpinnings of the CRC. As of 2017, all of the widening projects recommended by this task force have either been completed or funded, with the exception of improvements related to the Interstate Bridge.

Figure 2: The CRC is the only remaining I-5 widening project left unfunded or incomplete

Widening Project	Status
Vancouver: 99th St. to 134th St.	Completed-2009
Vancouver: Main St. to 99th St.	Completed 2002
Interstate Bridge Influence Area Improvements	Neither Completed nor Funded
Portland: Victory Blvd. to Lombard St.	Completed 2010
I-405 to I-84 (Rose Quarter)	Funded 2017

The two states coordinated efforts to develop a river crossing solution, but the project failed

Washington and Oregon coordinated efforts to form a joint project delivery team

The CRC was initiated in late 2004 to undertake the recommendations from the task force's strategic plan to replace the Interstate Bridge. The project team was jointly led by ODOT and WSDOT and relied heavily on consultants for much of the project work. Oversight and guidance was

³ The CRC Bridge Influence Area is the five-mile segment of I-5 stretching from SR 500 in Vancouver to Columbia Blvd. in Portland.

provided by a variety of federal, state, and local government stakeholders. The project also included significant input from the community.

Project development and the environmental review process began in 2005 and was jointly led by ODOT and WSDOT, with the regional transportation authorities Tri-Met and C-TRAN taking the lead on the transit portion of the project. Also in 2005, the Governors of Oregon and Washington appointed the 39-member CRC Task Force to provide input into the development of the CRC. This group was comprised of representatives from public agencies, businesses, civic organizations, neighborhoods, freight haulers, commuters, and environmental groups.

The CRC Task Force's purpose was to advise the project team in the development of the project's vision, help establish the purpose and need statements that would guide the project going forward, and to make recommendations. The task force was disbanded in the summer of 2008.

Critical approvals, permits, and preliminary designs were completed by the CRC in an effort to address corridor problems

Key permits obtained by the CRC

- U.S. Coast Guard General Bridge Permit
- Section 401 Clean Water Act certification, Oregon Department of Environmental Quality
- Section 401 Clean Water Act certification, Washington State Department of Ecology

Development of the CRC began in 2004 and continued through the end of the project in 2014. During this period, the environmental review phase was completed, critical permits were pursued, and pre-construction design and planning work was conducted. These activities are interrelated. For example, to understand the environmental impacts, preliminary design and engineering work is required. Likewise, the assessment of environmental impacts can lead to changes in design.

The bridge design process requires the review of a project's impact on the natural and built environment, as well as its social and economic impacts. In order to do this, an

Environmental Impact Statement must be developed. This process took six years at a cost of \$139 million and marked a significant achievement.⁴ As part of the Environmental Impact Statement, the CRC needed to identify the project's purpose and need.

Identifying the purpose and need helps communicate the policy objectives of a project and serves as the critical criteria for assessing project solutions. The purpose and need statement for the CRC was developed using input from prior planning efforts, project stakeholders, and the public. The statement identified the following six key problems:

- Growing travel demand and congestion;
- Impaired freight movement;
- Limited public transportation operation, connectivity, and reliability;
- Safety and vulnerability to incidents;
- Substandard bicycle and pedestrian facilities; and
- Seismic vulnerability.

Preliminary design and engineering efforts were undertaken by the CRC throughout the life of the project, including the Environmental Impact Statement process, cost estimation, and permitting. By the time the project was suspended, the project team had developed design plans of sufficient detail to support cost estimates and began the process of planning for construction procurement.

⁴ A copy of the Final Environmental Impact Statement is available on the State of Oregon website:
<http://library.state.or.us/repository/2011/201109191128141/>

Figure 3: Preliminary design of the CRC bridge structure developed as a solution to corridor problems



Source: WSDOT.

Bridge design challenges added to project delays

Changes in bridge height requirements contributed to design challenges. In April 2010, the Governors of Oregon and Washington convened an Independent Review Panel made up of eight national experts to review key aspects of the CRC project and ensure that project assumptions and methods were reasonable. The proposed bridge type, as well as its proposed height, were notable concerns of the panel. Addressing these two issues added time and cost to the project.

In September 2009, the use of an open web box girder bridge type was approved. This was a unique design for a project with the size and complexity of the CRC. Uncertainty associated with this bridge design and concerns raised by stakeholders, including the Federal Highway Administration, prompted the Independent Review Panel to recommend that the bridge type be revisited in order to avoid potential construction delays and cost increases.

In response to the Independent Review Panel determination, ODOT and WSDOT convened an expert Bridge Review Panel that recommended three conventional bridge types. Building on this recommendation, in April 2011 the Governors of Oregon and Washington directed the project team to use a traditional composite deck truss bridge design. This was a less costly and less risky option, which would still meet the needs of the project (see Figure 4).

The Independent Review Panel also recommended that the project team revisit the height of the proposed bridge based on feedback from local marine contractors. At the time of their review, the proposed bridge had a clearance height of 95 feet, approximately 80 feet lower than the current bridge with the lift span raised. However, several river users had loads of 110 feet with planned loads as tall as 140 feet. This concern led to further design revisions.

The CRC team had worked closely with the Coast Guard, including holding a public meeting in 2006, to establish the minimum bridge height. After the publication of the Final Environmental Impact Statement, the Coast Guard suggested increasing the bridge height to 125 feet, which introduced significant uncertainty in the final design and permitting phase. After additional review and analysis, the project team arrived at a height of 116 feet, which the Coast Guard approved when it issued the General Bridge Permit for the project.

Figure 4: The initial open-web box bridge design was replaced by a more traditional composite deck truss bridge



Source: WSDOT.

A complex financial package was developed to fund the project

The financial package for the CRC evolved throughout the project planning process as fund source availability and the scope of the project changed. By the conclusion of the environmental planning phase, the total estimated cost to complete the CRC project was between \$3.1 billion and \$3.5 billion. Financing options included a range of costs and toll capacity estimates based on traffic forecasts. Initially, the project team anticipated \$400 million in discretionary highway funds would be secured in the reauthorization of federal transportation funding. However, these funds were not obtained and the finance plan was adjusted.

Ultimately, the financial package identified construction funding from three major sources: the federal government, state funding, and bridge tolls. Funding from each source would account for approximately one third of the total project cost. Figure 5 identifies the targeted funding sources and amounts for construction of the CRC.

Figure 5: Three primary sources of funding were used to support the CRC

Funding Source	Amount	Description
Federal Transit Administration New Starts Grant	\$850 million	Anticipated to construct light rail and associated stations and park and rides. The multi-year application process for these funds contains specific requirements at key milestones. The CRC began the process of applying for this funding in 2008 and made progress toward securing a grant that would have funded light rail construction.
Oregon and Washington	\$900 million (\$450 million each)	In 2013, the Oregon Legislature passed House Bill 2800, which would have provided \$450 million in funding for construction of the Oregon elements of the CRC project, provided a number of milestones were reached, including a commitment from Washington by September 30, 2013. However, no such commitment from Washington occurred.

Tolls	\$900 million - \$1.57 billion	Toll revenues were expected to repay bonds and/or a low-interest federal Transportation Infrastructure Finance and Innovation Act loan that would finance construction as well as cover debt service and operation and maintenance costs. In 2014, the Oregon Treasurer released the results of an analysis that concluded the tolls were sufficient to service project bonds.
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Oregon and Washington shared project costs but used federal funds differently

As with other joint transportation efforts, Oregon and Washington intended to equally share the costs incurred by the CRC project team. However, in order to supplement planning costs, both states relied on federal aid funds from the Federal Highway Administration. Due to differences in how state funds were available in both states, Oregon used more than twice as much federal aid funding than Washington. Oregon also temporarily pursued a single-state effort after Washington's exit from the project in June 2013, which led to Oregon's overall higher contribution.

Figure 6: Both states expended roughly the same amount on the CRC but Oregon used more federal funding

Entity	State Funds	Federal Funds	Total
Oregon	\$12,415,091	\$93,265,688	\$105,680,779
Washington	\$48,008,535	\$46,097,592	\$94,106,127
Total	\$60,423,626	\$139,363,280	\$199,786,906

Source: ODOT.

Approximately \$139 million was expended on the multi-year effort through receipt of the federal Record of Decision for the Environmental Impact Statement. An audit conducted by the Washington State Auditor's Office found this amount to be reasonable with respect to projects of similar size. Project work after this milestone included engineering and design refinements, procurement planning, permitting, and continuing the application process for the Federal Transit Administration grant funding. By the time Washington exited the project, roughly \$188 million had been spent by both states. Oregon expended an additional \$11.6 million in pursuit of a single-state solution after Washington's departure.

Figure 7: The majority of CRC expenses related to the process that led to the Environmental Impact Statement

Milestone	Date	Cumulative Expenditure
Draft Environmental Impact Statement	May 2008	\$45,910,247
Locally Preferred Alternative	Jul 2008	\$52,673,931
Final Environmental Impact Statement	Sep 2011	\$133,820,175
Record of Decision	Dec 2011	\$139,373,078
WSDOT Departure	Jun 2013	\$188,212,254
Total at Oregon Closeout	May 2014	\$199,786,906

Source: ODOT.

The Washington Legislature's failure to fund its obligation led Oregon to consider a single-state solution

Funding from the Legislatures in both states was necessary for the project to continue. While the Oregon Legislature approved funding during the 2013 session, its counterpart in Washington failed to do the same. The Washington House of Representatives did pass a comprehensive transportation package, including CRC funding; however, the bill failed in the Senate. This led to Oregon considering moving forward with the project as a single-state solution.

By mid-2013, Oregon's Governor instructed ODOT to evaluate options in the Interstate Bridge project area that would achieve the same objectives set forth by the CRC. This eventually led to a proposal that would use phased construction of the project. A joint interim committee proposed legislation to fund construction of the CRC that did receive some legislative support, but ultimately died in committee during the 2013 session. As a result, the director of ODOT released a statement that the CRC project office would archive its materials and shut down by May 31, 2014, officially ending the CRC Project.

Due to Federal Highway Administration guidelines, the roughly \$139 million in federal funds used for project planning was to be repaid by each state in 2014 after funding did not result in a completed project. However, the states collaborated to receive a five-year repayment extension. As a result, if progress is not made toward restarting the project by September 2019, repayment of these funds may be necessary. In this event, Oregon is responsible for repayment of roughly \$93 million and Washington \$46 million. A breakdown of total project expenditures can be found in Figure 6.

Ongoing problems in the I-5 corridor rekindle discussion among Oregon and Washington officials to revisit the project

Problems identified by the CRC remain unresolved and are worsening

The goal of the CRC was to address six key issues related to safety and congestion that exist with the current bridge. With the failure of the project, all six issues remain unresolved and unaddressed. For example, the bridge remains seismically vulnerable to a major earthquake and the bicycle and pedestrian facilities remain inadequate.

The congestion issue, meanwhile, has only worsened. Travel demand continues to exceed capacity on the I-5 corridor surrounding the bridge and the duration of congested conditions on both sides of the bridge continue to increase in length and severity. This congestion impacts on-time freight deliveries, affecting business efficiency and productivity. Mass transit service is also negatively affected. Express buses operated by C-TRAN that share lanes with regular traffic continue to be the only mass transit service that crosses the bridge. Morning transit travel times across the bridge, for example, have nearly doubled since 2011 to over an hour and ridership has declined by 11%. Finally, traffic accidents and collisions in the I-5 corridor have increased with congestion, and the safety issues related to interchange spacing and inadequate space for merging have not been addressed.

The failure of the project also means that costly maintenance for the current, functionally obsolete bridge must be completed. Capital maintenance projects for the existing bridge, such as bridge



A northbound trunnion will require replacement in 2020.
Source: ODOT.

painting and deck replacements, are estimated to cost \$282 million over the next 20 years. In 2020, a cracked trunnion will be replaced on the northbound bridge. While this project is only expected to cost between \$5 million and \$10 million, the northbound bridge will need to be closed for two weeks and all traffic will be diverted to the southbound bridge.

Project development constraints affect available solutions

Those constraints that made delivering the past project difficult still exist. These include constraints related to the physical environment of the project location, the inherent difficulty of delivering a megaproject, and regional disagreement on mass transit solutions. Understanding the way these constraints impacted the CRC will be important for any future efforts to replace the Interstate Bridge.

The airspace required by Portland International Airport and Pearson Field in Vancouver constricts the maximum height of any replacement bridge, limiting the types of bridges that can be constructed. In addition, the Columbia River is a navigable waterway, which requires the bridge to provide clearance for river vessels. These restrictions leave a narrow envelope of space available for a new bridge.



Source: Steve Morgan, via Wikimedia commons.

Megaprojects require significant coordination among a large number of federal, state, and local stakeholders whose interests do not always align. Lack of effective coordination between the Washington and Oregon Legislatures, and Washington's failure to commit to project financing, ultimately led to the CRC's failure. Another facet adding to megaproject complexity is the level of public outreach required. The Independent Review Panel found that CRC public outreach efforts lost their effectiveness and momentum after the Draft Environmental Impact Statement was prepared.

Effective coordination between stakeholders and sustained, high quality public engagement will be critical in any future bi-state effort.

The selection of light rail as the mass transit option for the project was contentious and may have contributed to its failure. Even though each of the local government sponsoring agencies in Clark County ultimately approved the selection of light rail, a vocal segment of the population strongly opposed, and continues to oppose, bringing light rail into Vancouver.

These are not the only constraints the CRC faced that would still affect a renewed Interstate Bridge effort, but they help to illustrate the difficulty presented by a project of this size, scope, and complexity.

Current bi-state transportation commitments complicate project funding

Oregon and Washington recently passed legislation funding large transportation investment packages, which could hamper future efforts to fund a renewed Interstate Bridge effort. Additionally, there may be less federal funding available.

In 2015, the Washington Legislature passed "Connecting Washington," a 16-year, \$16 billion investment in the state's transportation system. This program, funded primarily by a \$0.119 increase in the state's gas tax, provides funding for projects intended to reduce congestion, improve freight mobility, support multimodal transportation options, and addresses needs for bridges.

In 2017, the Oregon Legislature passed House Bill 2017, which will provide an estimated \$5.3 billion for transportation investments over 10 years, including road and bridge maintenance,

congestion reduction, public transportation, bicycle and pedestrian infrastructure, and freight service enhancements. The package is funded by a combination of sources, including an increased gas tax and tolls in the Portland metropolitan area. The funding committed by this bill could complicate a new crossing effort, as gaining public support for additional funding may be problematic. For example, tolls were a critical source of funding for replacing the Interstate Bridge.

Furthermore, there is no guarantee that a future project would be able to secure major federal funding, such as the \$850 million New Starts Grant the prior project was likely to receive. While there may be other sources of federal funding, they are unlikely to be as generous. As a result, a future project may need to rely on additional tolling or state revenues or be smaller in scale than the CRC.

Renewed support expressed by regional leadership to address the ongoing concerns of the I-5 Columbia River corridor

Key stakeholders have expressed interest in exploring new crossing

- Peter DeFazio, U.S. Representative, OR (District 4)
- Kate Brown, Governor, OR
- Jay Inslee, Governor, WA
- Ted Wheeler, Mayor, Portland, OR
- Anne McEneny-Ogle, Mayor, Vancouver, WA

In 2017, the Washington Legislature passed Senate Bill 5806, which authorized preliminary work to develop a process for planning a new bridge. While the act invited Oregon to participate in a joint Legislative Action Committee, Oregon has yet to take the legislative action required to appoint members. The bill directed WSDOT to develop a robust inventory of prior work completed

that could be leveraged in future efforts. This inventory was presented to the committee during a joint meeting attended by Washington and Oregon legislators.⁵

As an additional show of support, Washington Governor Jay Inslee included a \$17.5 million appropriation in the 2019 state budget for the sole purpose of opening a project office to replace the Interstate Bridge. The appropriation includes language that assumes both tolls and light rail will be part of the solution.

Moving forward, the two states will have to collaborate to resolve the funding, design, permitting, and Environmental Impact Statement challenges previously addressed by the CRC.

Best practices for bi-state infrastructure projects should be applied to renewed CRC efforts

Despite the failure of the CRC to deliver a new bridge, some elements of the process were praised for their overall effectiveness. Future project attempts may benefit from efficiencies gained by building upon these successes. Specifically, CRC staff told us a collocated project team greatly improved their ability to get work done. By providing a separate physical workspace for the cross-functional, bi-state team, collaboration was enhanced. Additionally, staff noted regular communication and estimation of costs allowed for timely projection of expenditures. This also allowed the team to more accurately adjust project plans and communicate potential gaps in funding in a timely fashion.

The CRC was also praised by the Independent Review Panel for its deployment of the Interstate Collaborative Environmental Process group to deliver the Environmental Impact Statement. This team consisted of a comprehensive body of state and federal agencies that had permitting and approval authorities. This group's work was recognized for its effectiveness in working on the

⁵ Presentation to Joint Legislative Action Committee on I-5 Planning Inventory on December 11, 2018.

Environmental Impact Statement. Future efforts should revisit the approach deployed by this team when pursuing a Record of Decision.

Additional best practices may provide valuable insight for consideration

In addition to building upon the successful aspects of the previous project, Oregon and Washington can leverage best practices from similar projects when navigating the process in the future. In particular, the two states can:

- Build upon what has worked in their previous bridge building efforts;
- Create a more robust set of policies surrounding bi-state bridge projects;
- Focus on improving public engagement;
- Improve negotiation of engineering constraints; and
- Look to other states as models for success.

Build upon prior bi-state bridge project success. Washington and Oregon should consider leveraging the approach used for their successful bi-state bridge efforts in the past. Historically, for each bridge, the two states assign design, construction, operations, and maintenance authority to one state and require the other to contribute 50% of the cost. This approach was successfully deployed for bi-state crossings including the Interstate Bridge, Glenn Jackson Memorial Bridge, and Umatilla Bridge. This method was also used by other states such as Iowa for the Mississippi River Bridge into Illinois and Maryland for the Woodrow Wilson Bridge into Delaware. This approach should be considered as an option moving forward.

Develop documented bi-state bridge procedures. We also found that neither state has detailed, documented procedures for how new bi-state bridge construction should be approached. Detailed policies and procedures are an important mechanism to ensure management directives are carried out. Examples of such guidance may be leveraged from other states such as Texas. The Texas Department of Transportation has documentation that outlines procedures for plan development, contracting, construction, and post-construction activities for bridges with adjacent states. While we recognize all bridge projects are different, detailed policies and procedures may serve as foundational guidance for each effort.

Enhance public engagement efforts. Any future project teams should also focus on increased public transparency and engagement. Former CRC staff noted that while a great number of individual contacts were made with the public, the quality of those contacts could have been improved. For example, while a large number of contacts may be engaged in settings such as booths at local fairs, staff that operate those booths often lacked the capability to field some of the questions. More training for individuals responsible for public engagement could improve these efforts. Well-trained staff will be able to field questions from the public and provide meaningful engagement. Additionally, those charged with engagement should work to explain the benefits in terms that matter to the public. For example, it may be beneficial for staff to explain how the bridge matters to an individual in southern Oregon in terms of the overall economic benefit to the state and what that could mean for their region.

Improve negotiation with stakeholders. Those charged with future bridge crossing efforts should also consider negotiating proactively with federal stakeholders such as the Federal Aviation Administration to obtain more leeway in bridge height. Project constraints surrounding Pearson and Portland International Airports limit the engineering options for a bridge span in the I-5 corridor. CRC staff and bridge engineers noted that early negotiation may have allowed for additional solutions.

Figure 8: The Ohio River Bridges Project used a bi-state bridge authority to complete construction



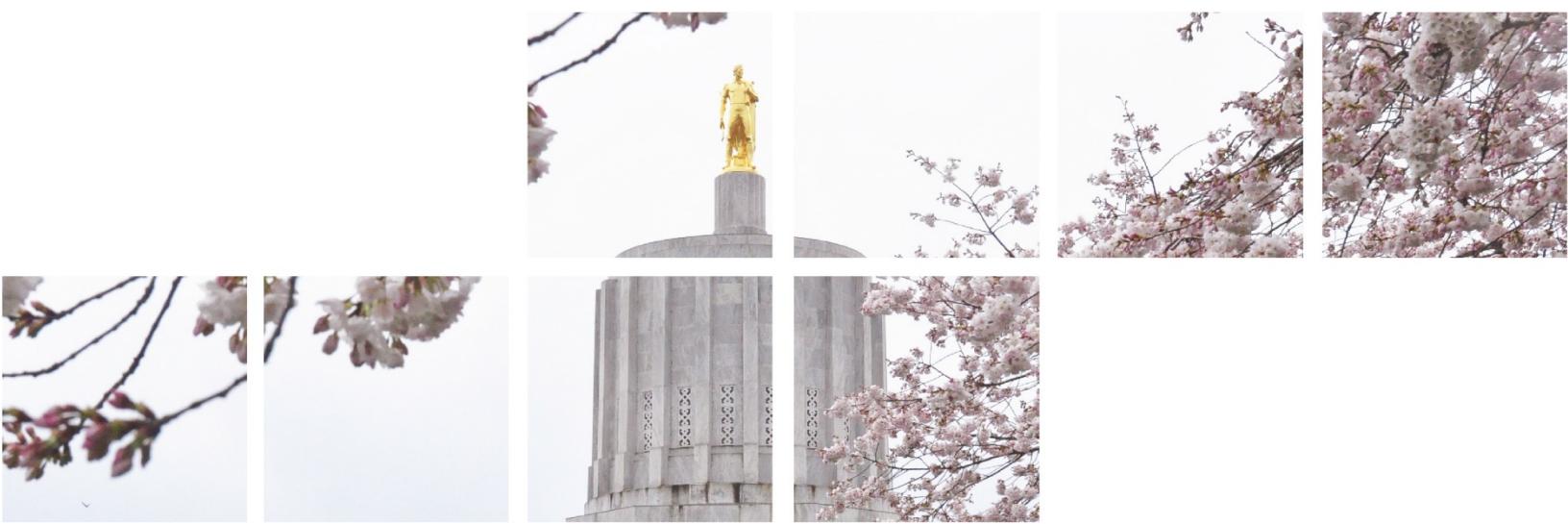
Source: Indiana Department of Transportation.

Leverage other states' megaproject approaches. The two states should also consider approaches used by other states to successfully complete joint megaprojects. Specifically, the states of Kentucky and Indiana recently completed the Ohio River Bridges Project, a multi-year megaproject similar to the CRC in terms of overall cost and scope. To complete the project, the two states formalized their approach with legislation and an executive order to establish the Louisville-Southern Indiana Bridge Authority, a bi-state agency charged with developing and delivering the bridges, as well as maintenance and tolling going forward. The established Bridge Authority operates as an independent entity rather than a committee of external agencies. This more formal approach resulted in significant commitment from both states and serves as a successful model for such projects.

Successful bi-state projects will require close collaboration

Although the previous effort to find a solution for the I-5 Columbia River Crossing was unsuccessful, Oregon and Washington have expressed renewed interest working together to try again. While talks between the two states are preliminary, they recognize the critical role the corridor plays for the entire region. Representatives from both states must also understand that as talks move carefully forward, collaboration and commitment are essential.

As talks carefully progress, the states should keep in mind lessons learned from the CRC failure while leveraging best practices from other states. By recognizing the successes and failures of the prior project, and building upon best practices, leaders from both states can work together toward future success.



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