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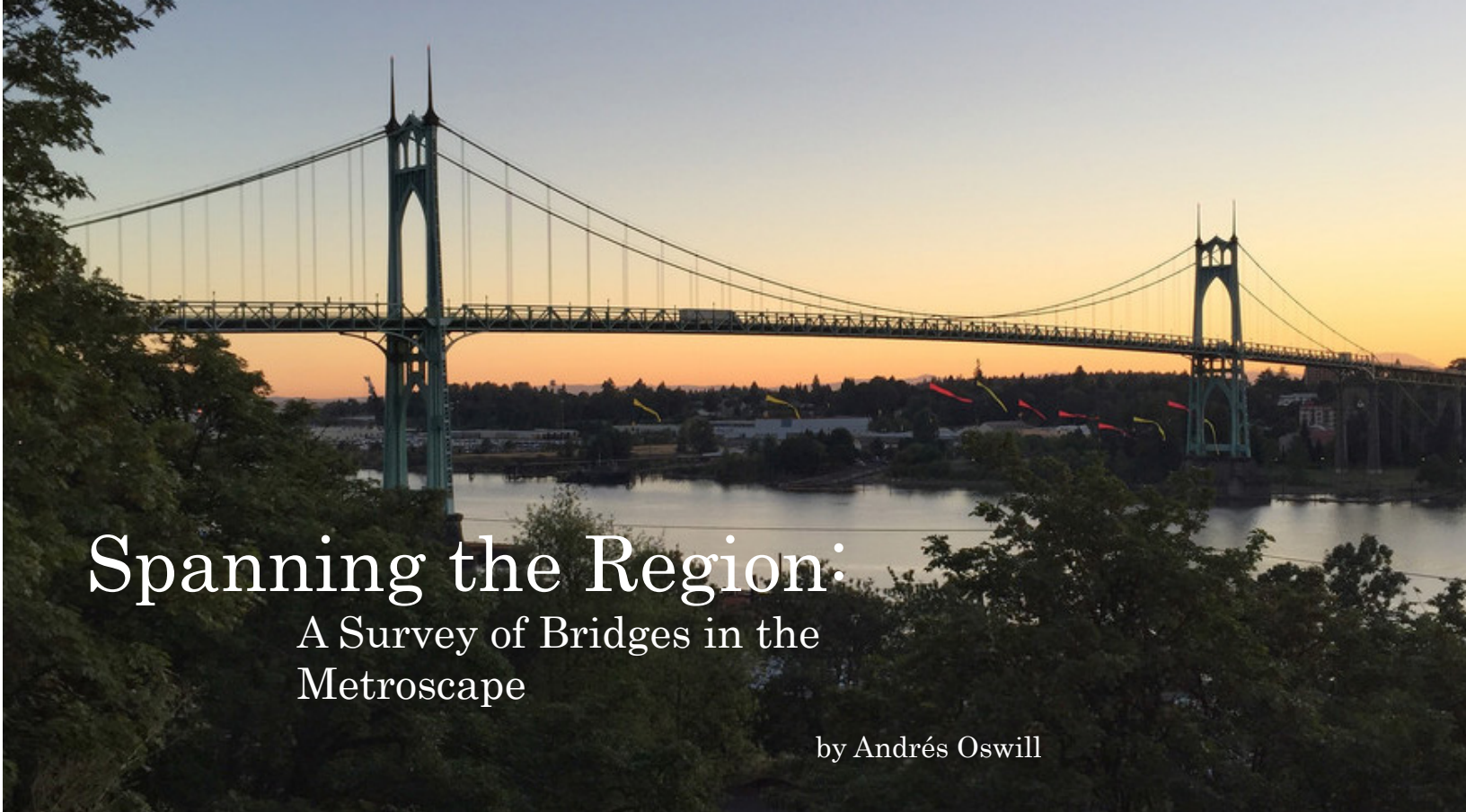
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Spanning the Region: A Survey of Bridges in the Metroscape

by Andrés Oswill

St John's Bridge during the 2015 Greenpeace protest. Source: <https://www.flickr.com/photos/plannerjohn365/20236378381>

Bridges get us where we need to go. They also have character that contributes to a sense of place. Here we profile a selection of bridges in the Portland Metro area to understand the history and logistics of each bridge. When was the bridge built, how was it funded, who maintains it? The bridges we selected reflect the area's wide variations in bridge style and management. Some of the bridges are county owned; others are run by a state or city transportation department. The bridges range in age, but all are inspected every twenty-four months. A bridge's story offers important lessons as we consider the need for seismic retrofit and replacing aging structures. By grounding ourselves in a bridge's past and present, we can spur ideas for addressing our future transportation needs.

Lewis and Clark Bridge

The Longview Bridge (later renamed the Lewis and Clark Bridge) was built in 1929 by Wesley Vandercook, chief engineer for Robert Long, a lumberman and founder of Longview, Washington, in an investment partnership with W. D. Comer of Seattle. It was designed by Joseph Strauss of Golden Gate Bridge fame. Costs of the bridge were originally estimated at \$2.7 million (in 1929 dollars) but ballooned to \$5.8 million, in part due to revisions made in response to significant opposition from Portland interests who felt the bridge would detract from Portland's potential. Opponents of the bridge demanded a high span so



Lewis & Clark Bridge. Photo by Cacaphony, via Wikimedia Commons.

Figure 1 Locations of Featured Bridges



Source: Oregon Geospatial Enterprise Office.

"...the bridge originally required approval from the War Department..."

river traffic would not be blocked. While the bridge originally required approval from the War Department, opposition convinced the government to require approval from the Secretaries of Commerce and Agriculture as well.

Spanning the Columbia River, the bridge connects Longview, Washington, to Rainier, Oregon, (Columbia County) and had the longest cantilevered span of any bridge in North America at the time it was constructed. The bridge opened in 1930 with great fanfare. President Hoover turned a

telegraphic key in Washington, DC, which triggered a knife to drop and cut a chain of daffodils that crossed the bridge as a ceremonial ribbon.¹ The governors then shared a handshake to underscore the significance of the bridge.

The bridge was paid for by tolls that were set at eighty cents per car. However, the bridge's opening coincided with the start of the Great Depression, causing it to fall drastically short of Vandercook's hopes for use and corresponding revenue. By the end of World War II, the bridge was experiencing greater

¹ Priscilla Long, "Longview Bridge (later renamed Lewis and Clark Bridge) spanning the Columbia River opens on March 29, 1930," *HistoryLink.org*, March 13, 2003, <http://www.historylink.org/File/5411>.

traffic, but still generating insufficient funds to pay for looming repair costs. The bridge's owners asked Oregon and Washington to purchase the bridge. While initially hesitant, the State of Washington eventually purchased the structure. It set tolls at one dollar per car, and within 10 years reduced the toll to fifty cents in response to higher than expected bridge traffic.² By 1965, the bridge had raised \$3.8 million in revenue through tolls, which covered the nearly \$3.7 million authorized to purchase and refurbish the bridge in 1947. Subsequently, with bonds fully repaid, the state lifted the toll.

In 1980, Washington renamed the bridge the Lewis and Clark Bridge to commemorate the famous expedition. The bridge was added to the National Register of Historic Places in 1982.

By 2003, the state decided to replace the bridge deck to extend the bridge's lifespan. Changes were also made to improve water runoff and widen the bridge for safety and ease of access. The nearly \$34 million cost of the improvement was split between the Oregon and Washington Departments of Transportation. The bridge was open during construction except at night and during four weekends, and the project was completed ahead of schedule.³ The steel members were painted in 2013, and no preservation projects were planned for the next ten years.⁴ As of 2011, the bridge has experienced average daily traffic of 20,606 vehicles.

Gales Creek Road Bridge

The Gales Creek Bridge, built in 1934, car-

ries a segment of Highway 8 over Gales Creek just south of the post office in unincorporated Gales Creek, Oregon. The bridge is owned by Washington County and sees average daily traffic of 1,568 vehicles.

In 2016, when signs of decay prompted concerns of structural deficiency, a project was undertaken (with projected completion in spring 2017) to restore structural integrity, add storm water facilities, and widen the bridge, including widening the shoulder for cyclists. Although the bridge's early history



Gales Creek Bridge. Photo by Michael Goff.

is not well documented, recent events have been recorded through community participation and a page on the county website devoted to bridge improvement efforts.⁵

The \$2.9 million cost of design and construction for the improvements is being funded through Washington County's Major Streets Transportation Improvement Program (MSTIP), which is funded through county property taxes. MSTIP projects are selected by the Board of County Commissioners in a process that allows for

² Robert W. Hadlow, *Historic American Engineering Record for Longview Bridge* HAER No. WA-89 (National Park Service, Department of the Interior, August 1993), <https://cdn.loc.gov/master/npn/habshaer/wa/wa0400/wa0430/data/wa0430data.pdf>.

³ Lee Scopel, "Longview Bridge Deck Replacement Out for Bid," *DJC Oregon*, October 25, 2002, <http://djcoregon.com/news/2002/10/25/longview-bridge-deck-replacement-out-for-bid/>

⁴ The website of the Washington State Department of Transportation, "SR433 Lewis and Clark Bridge (WSDOT)," 2017, <https://www.wsdot.wa.gov/Bridge/Reporting/BorderBridges.htm>

⁵ The website of Washington County, Oregon, "Gales Creek Road Bridge Over Gales Creek," <http://www.co.washington.or.us/LUT/TransportationProjects/gales-creek-road-bridge-replacement.cfm>



*Gales Creek Bridge stonework.
Photo by Michael Goff.*

local funding and decision making with the potential to leverage other local, state and federal funds.

Oregon City Bridge

This bridge was built in 1922 by the Oregon Department of Transportation, for \$300,000. ODOT continues to own and manage the bridge, which connects Oregon City and West Linn in Clackamas County. While it originally replaced a pedestrian suspension bridge, today it carries average daily traffic of 13,500 vehicles. The bridge is listed on the National Register of Historic Places, and has been praised by the Oregon State Highway Commission as the most artistic-looking large bridge in the state.⁶ It is one of a series of concrete-arch highway bridges designed by Conde McCullough throughout the state. It is noteworthy for the gunite casing that was chosen to protect the bridge's paint from corrosion by sulfur dioxide fumes from nearby paper factories.

The narrow two-lane bridge has been a challenge for large vehicles. In 2009,

structural concerns led to a weight restriction on vehicles over fourteen tons, and TriMet discontinued using the bridge.⁷ From mid-2010 to 2012, the bridge was closed for an expansive \$14.9 million improvement project that repaired or replaced the deck, joints, rails, lighting, and protective coating and added steel seismic cables. Nearly 90 percent of the funding came from the federal government while the state contributed 10 percent. The project addressed major structural concerns, but was unable to address concerns about capacity.

Fifth Plain Creek Bridge

Built in 1933, the Fifth Plain Creek Bridge carries average daily traffic of 1,285 vehicles (the least traffic of the bridges we profiled). The bridge was notable as the last Clark County-owned bridge with wooden supports, and was the only bridge in the county to be deemed structurally deficient.⁸ Until recently,

"...the most artistic-looking large bridge in the state"



*The Oregon City Bridge viewed from a fishing dock in the Willamette River, located to the west of the bridge.
Source: Wikimedia Commons.*

⁶ Michael Goff, "Oregon City Bridge," *Bridgehunter.com Historical and Notable Bridges of the U.S.* (blog), October 17, 2014, <https://bridgehunter.com/or/clackamas/35700301143/>

⁷ Oregon Department of Transportation, "New Restrictions on Oregon City Arch Bridge: Restrictions for Commercial Vehicles," news release, March 2, 2009, http://www.oregon.gov/ODOT/HWY/REGION1/news/hwy43archbridgerestriction_030209.pdf

⁸ The website of Clark County Washington Public Works, "Public Bridges," 2017, <https://www.clark.wa>

four wooden pilings held up NE 88th Street across Fifth Plain Creek. But after signs that the supports were rotting, Clark County replaced the bridge.

The \$1.9 million project was funded by a mix of county and federal funds.⁹ Clark County contributed 20 percent and 80 percent came from the Federal Highway Administration's Highway (FHWA) Bridge Program. In the approval of grant funding, the FHWA noted the bridge's multiple seismic deficiencies and high truck volume despite a low weight limit as a motive for the project's funding. The grant supported a vision for a "modern single-span concrete structure" to replace the old bridge. The project was completed without substantial complications and opened to the public in January 2016. The new bridge generated uncommon fanfare, with the rebuild featured at ODOT's Bridge Design Conference.¹⁰

St Johns Bridge

Before construction of the St. Johns Bridge in 1931, the river was traversed by a ferry established in 1852 by James John, the founder of the city of St. Johns. Today, the St. Johns Bridge is seen as one of Portland's most iconic structures. It was designed for Multnomah County by David Steinman, the famed bridge architect. At the time of its construction, it was the longest suspension bridge west of the Mississippi River. The original construction cost \$4.2 million, and was paid for through a construction bond.



Placing the deck for the new Fifth Plain Creek Bridge.
Source: Clark County

The bridge's construction process was almost as interesting as its architecture.¹¹ St. Johns was an independent town until it was annexed by Portland in 1915. At the time of the bridge's construction, many neighborhoods in Portland were interested in bringing a bridge to their community. These other neighborhoods were home to more affluent and better connected residents than the blue-collar factory workers of St. John's. To win support for their bridge, and the construction bond used to fund it, the residents of Linnton and St. Johns formed the Peninsula Bridge Committee. The committee went to every school and grange in Multnomah County to put on vaudeville acts portraying their need for a bridge to replace the ferry service. The campaign was successful, leading county voters to approve a \$4.25 million bond in 1928.

In 1975, Multnomah County asked the state to take ownership of the bridge due to growing maintenance costs and no clear funding stream for needed repairs. Today the bridge stands as a high volume bridge with average traffic of 20,700 vehicles each

"...the last Clark County-owned bridge with wooden supports."

[.gov/public-works/public-bridges](http://www.oregon.gov/public-works/public-bridges)

9 Eric Florip, "County-Owned Wood-Supported Bridge Slated for Removal," *The Columbian*, August, 5, 2015, <http://www.columbian.com/news/2015/aug/05/fifth-plain-creek-bridges-wood-slated-removal/>

10 "Fifth Plain Creek Bridge," PowerPoint presentation, ODOT Bridge Design Conference, May 9, 2016, ftp://ftp.odot.state.or.us/bridge/16_br_dsgn_conf_pdf/Session_5/5D_Fifth_Plain_Crk_Br_G_Mines.pdf

11 PdxHistory.com, "St Johns: Gateway to the Portland Harbor," October, 28, 2016, http://www.pdxhistory.com/html/st_johns.html.

"...vaudeville acts portraying their need for a bridge to replace the ferry service"

day. The last substantial repair for the bridge came in 2003 with a multiyear project to build a new drainage system, rebuild the metal rails, replace the lights, and waterproof the main cables. By the time it was completed in 2005, the project cost the Oregon Department of Transportation \$42 million. Through its extensive and distinguished history, the bridge has become a source of community pride and identity for the St. Johns neighborhood.

Conclusion

The bridges we've looked at have varied in size and scale. While larger projects, and even the relatively small Fifth Plain Creek Bridge, required state and federal funding, some notably did not. The Gales Creek Road Bridge was funded through county

property tax. Even the St. Johns Bridge was originally funded through a county bond. Of all the bridges constructed, only the Lewis and Clark Bridge had tolls as a major component of its funding. As conversations continue for the inevitable replacement Columbia River Crossing project, and needed retrofits to existing bridges, perhaps these stories can inspire us to find funding solutions moving forward.

Andrés Oswill is graduating Master of Urban and Regional Planning Student specializing in implementing equity through Housing and Land Use. His background is in policy crafting and is the Youth Commissioner on Portland's Planning and Sustainability Commission. He grew up in the Bay Area in California before studying Politics, and Women and Gender Studies, at Willamette University in Salem, OR.



A view of the St. Johns Bridge from Cathedral Park.

Source: Wikimedia Commons