

1 Recommendation to Remove the Fixed Bridge 2 Alternative from Further Consideration

Project: Earthquake Ready Burnside Bridge NEPA

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cc: Heather Catron, HDR

3 Introduction

4 In 2018, Multnomah County completed the Earthquake Ready Burnside Bridge (EQRB)
5 Feasibility Study¹. This study evaluated over 100 options for replacing or repairing the Burnside
6 Bridge. The study concluded with advancing four bridge alternatives, including one fixed bridge
7 alternative with a vertical clearance of 97 feet, for further study in an Environmental Impact
8 Statement (EIS). During the Feasibility Study, bridges with a vertical clearance over 97 feet
9 were dismissed due to their impacts on nearby buildings, residents, cost, traffic, and local street
10 closures.
11

12 In 2019, the Project began the environmental review phase. To help determine the navigational
13 clearance required for the bridge alternatives advancing into the EIS, a Preliminary Navigation
14 Study was conducted during the summer of 2019 in coordination with the U.S. Coast Guard.
15 Through the navigational survey, Multnomah County learned that a minimum vertical clearance
16 of 147 feet would be required to comply with U.S. Coast Guard navigation guidance (33 CFR
17 Subchapter J). As noted above, bridges with a vertical clearance higher than 97 feet were
18 previously dismissed during the Feasibility Study. Due to the findings from the Preliminary
19 Navigation Study that a vertical clearance of 147 feet would be required, Multnomah County is
20 recommending that the Fixed Bridge alternative not be advanced for further study. Therefore, all
21 alternatives to be evaluated in the EIS would be movable span alternatives. See below for
22 additional explanation of the background and rationale of these recommendations.

23 Feasibility Study Findings

24 Fixed Bridge Heights Considered

25 From 2016 to 2018, Multnomah County Bridge Division, in coordination with FHWA, ODOT, and
26 project partners, evaluated over 100 alternatives and options, including movable bridges, fixed
27 bridges, tunnels, and other options such as ferries and trams. Fixed bridge alternatives were
28 divided into two types, one with a vertical clearance of 97 feet under the lift span, and one with
29 120 feet of vertical clearance under the lift span. Vertical clearance is measured from the water
30 surface to the underside of the bridge overhead. The two heights are based on the minimum
31 and maximum height needed to avoid locating the bridge touchdowns where they would

¹ Source: <https://multco.us/earthquake-ready-burnside-bridge/feasibility-study>

1 substantially impact major roadways and transit facilities (i.e., TriMet MAX lines on NW 5th
2 Avenue/NW 6th Avenue in downtown Portland and the Portland Streetcar on SE Martin Luther
3 King Boulevard/SE Grand Avenue on the east side).

4 97 feet of vertical clearance is the maximum height for a bridge that would touch down before
5 reaching (and thus avoid impacting) the existing transportation facilities listed above. To assess
6 the impacts of a bridge with a clearance greater than 97 feet, a 120-foot vertical clearance
7 bridge was evaluated because it approximates the height for a bridge that would touch down
8 just after the existing transit facilities. Grades were limited to a maximum of five percent while
9 meeting the other vertical clearance criteria for City of Portland streets, ODOT freeways, Union
10 Pacific Railroad tracks, and TriMet/Streetcar facilities.

11 **Eliminating 120-foot Vertical Clearance Bridge Alternatives**

12 Through the Feasibility Study's screening and evaluation process, and stakeholder input, bridge
13 alternatives at or above 120 feet of vertical clearance were determined to be unreasonable due
14 to substantial adverse impacts to historic resources, parks and local system connectivity, as well
15 as higher costs and little public support, compared to other alternatives that could meet the
16 purpose and need with substantially lower impacts and costs.

17 The 97-Foot-High Fixed Existing Alignment option scored much higher than the 120-foot high
18 bridge alternatives, yet was the lowest scoring of the four alternatives recommended for further
19 consideration. It scored lower than the movable span alternatives primarily because of higher
20 impacts on land use, social service providers and historic districts, as well as lower bicycle
21 safety and convenience. Social service providers expressed concern about how this option
22 would adversely impact access to some of their facilities located on Burnside Street adjacent to
23 the existing bridge. It was advanced though, in part, based on the possibility that a future
24 Navigation Study might allow the U.S. Coast Guard to approve a lower vertical clearance, which
25 would reduce the impacts and cost.

26 **Navigation Study Results**

27 Since the completion of the Feasibility Study, the project initiated and completed a River User
28 Survey and Preliminary Navigation Study² to identify the navigational and horizontal clearance
29 requirements of river users. This information was then used to inform navigational and
30 horizontal clearance recommendations consistent with U.S. Coast Guard guidance to enable
31 100 percent of vessel traffic to safely transit the bridge.

32 The survey contacted or researched 83 river users (including recreational, commercial and
33 government vessels) that could potentially be affected by restricting the Burnside Bridge vertical
34 clearance (currently the existing bridge provides infinite vertical clearance). Users without
35 significant marine assets in the project area or who declined response, or who were
36 unresponsive were omitted from further study. Navigational and horizontal clearance
37 requirements were ultimately obtained for 46 river users. The survey identified seven different
38 vessels with navigational clearance requirements over 90 feet that have transited the Burnside
39 Bridge at various times over the past decade, including several with requirements over 120 feet

² Source: Glosten. (June 2019). *Earthquake Ready Burnside Bridge Project Preliminary Navigation Study*. Portland, OR.

1 and two (classified as “visitors” and Fleet Week vessels) had requirements over 145 feet. Tall
2 vessels transiting the Burnside Bridge take advantage of large vessel moorage immediately
3 upstream, including the Seawall and Riverplace Marina.

4 The Navigation Study concluded that based on historical precedent, it is reasonable to assume
5 that visitors and Fleet Week vessels will continue to transit the Burnside Bridge in the future.
6 Therefore, the recommended minimum vertical clearance of 147 feet (equating to an elevation
7 of 167 feet using the NAVD 88 datum) is required, to enable all known river users to safely
8 transit the bridge. This is in compliance with Code of Federal Regulations 33 CFR Part 329
9 Subchapter J.

10 Conclusion and Recommendation

11 The following are the key findings leading to the recommendation:

- 12 a) The Feasibility Study found a fixed bridge with vertical clearance higher than 120 feet is
13 not reasonable due to substantial impacts and costs, and
14 b) U.S. Coast Guard guidance requires that any new bridge enable 100% of vessel traffic
15 to safely transit the bridge, and
16 c) The River User Survey identified multiple vessels transiting the Burnside Bridge
17 requiring more than 120 feet of vertical clearance.

18 Based on these findings, the project team recommends that that all fixed bridges, including the
19 97-foot vertical clearance alternative that advanced from the Feasibility Study, be eliminated
20 from further consideration.

21 Attachments

- 22 • Navigation Study/River User Survey
23 • U.S. Coast Guard Communications

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25 *The information presented here, and the public and agency input received, may be adopted or*
26 *incorporated by reference into a future environmental review process to meet the requirements of the*
27 *National Environmental Policy Act.*