EARTHQUAKE READY BURNSIDE BRIDGE

Multnomah County is creating an earthquake-ready downtown river crossing

Multnomah County

BETTER – SAFER – CONNECTED February 2021

Technical Report Summary: Soils and Geology

This summarizes the key findings of the *Draft Environmental Impact Statement* detailed in the *EQRB Soils and Geology Technical Report*.

Affected Environment

The study area established for the soils and geology analysis includes an approximately one-half mile buffer from the centerline of the project area to allow for a comprehensive review of potential conditions that could have soil and geologic impacts. Analysis also included larger regional seismic hazards that are applicable to the geologic impact analysis. Groundwater conditions within the study area were also investigated, but no infiltration to groundwater is proposed, and no impacts to groundwater related to geology are anticipated.

Comparison of shafts needed for each build alternative

Alternative (movable span option)	Number of Shafts	Shaft Diameter (feet)	Shafts in Water
Enhanced Retrofit	78	8–12	52
Short-Span (bascule lift)	99	3–12	40
Short-Span (vertical lift)	91	3–12	32
Long-Span (bascule lift)	91	3–12	36
Long-Span (vertical lift)	83	3–12	28
Couch Extension (bascule lift)	106	3–12	40
Couch Extension (vertical lift)	98	3–12	32

Mitigation

Drilling excavations would address how to manage and control poor-strength soil and generally saturated earth-material while bridge foundations and other structures are constructed. Prior to the start of construction, an approved erosion and sediment control plan would be required. During construction, best management practices listed in the current version of the City of Portland Erosion and Sediment Control Manual would be implemented to prevent runoff from reaching drainage systems or the Willamette River.

More information on this topic is available in the *Draft Environmental Impact Statement* and in the *EQRB Soils and Geology Technical Report* and the *EQRB Geotechnical Report*.

Impacts from the Bridge Alternatives

No-Build Alternative

Soils and geology would not be disturbed under the No-Build Alternative; therefore, it would not be different from existing conditions.

Impacts Common to all Build Alternatives

All build alternatives would include earthwork and installation of deep foundation structures on the riverbanks and in the water. While each of the build alternatives would require different amounts of earthwork and shaft drilling, impacts would be similar.

Enhanced Seismic Retrofit Alternative

Would require increasing and improving the existing bridge foundations where soil is weak and has potential for liquefaction during an earthquake. Drilling would be performed during construction to install deep foundation structures. This alternative would require the fewest drilled shafts of all the build alternatives but would require the most within the river.

Replacement Alternative with Short-Span Approach

Would require new drilled shafts and earthwork to construct the support structure for a replacement bridge. Its vertical- and bascule-lift options would require more drilled shafts than the Retrofit and the Long-Span Alternatives but fewer than the Couch Extension Alternative.

Replacement Alternative with Long-Span Approach

Would require less shaft drilling and earthwork than the Short-Span Alternative. Both of its movable-span options would have fewer in-water shafts than the Retrofit or the other replacement alternatives. Additionally, with the fewest number of supports within geotechnical hazard zones, it may perform better during a seismic event than the other build alternatives.

Replacement Alternative with Couch Extension

Would require additional support structures within geotechnical hazard zones on the east side which may have additional seismic performance risk compared to the Short-Span Alternative. There is also increased risk because of the Couch Extension's proximity to additional buildings.

Impacts from Construction Traffic Management

Without a Temporary Bridge

No additional impacts beyond those described above are anticipated.

With a Temporary Bridge

Soils and geology impacts would be similar to those identified for the main bridge, but with additional volume and magnitude due to the added columns and foundation work. For example, a temporary bridge would require up to 180 additional temporary piles in the river.

For information about this project in other languages, please call 503-209-4111 or email burnsidebridge@multco.us.

Para obtener información sobre este proyecto en español, ruso u otros idomas, llame al 503-209-4111 o envíe un correo electronico a burnsidebridge@multco.us

Для получения информации об этом проекте на испанском, русском или других языках, свяжитесь с нами по телефону 503-209-4111 или по электронной почте: burnsidebridge@multco.us.

More information

Help shape the future of the Burnside Bridge and visit **BurnsideBridge.org** for more information.

For more information, contact:
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BurnsideBridge.org

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