



Multnomah County is creating an earthquake-ready downtown river crossing.

BETTER – SAFER – CONNECTED

December 11, 2019

Evaluation Criteria and Measures

Introduction

In June 2019, the Earthquake Ready Burnside Bridge (EQRB) Community Task Force (CTF) recommended draft evaluation criteria topics, based on information available at the time. Since then, at their July and August meetings, the CTF reviewed the draft criteria as well as draft measures for implementing them, and tentatively approved criteria and measures on 8/19/19.

The project team has since gathered input on the CTF's draft criteria and measures from other agency staff and stakeholders. At the CTF's 10/21/19 meeting, the input on the criteria was reviewed and approved for recommendation to the Policy Group. The Policy Group approved the criteria at their 10/28/19 meeting. The CTF then reviewed recommended changes to the measures from agency staff and stakeholders at their 12/2/19 meeting. The criteria and measures will be used to help select a Preferred Alternative during the preparation of the Draft EIS.

Notes on Measures and Scoring:

- Net Effect and Mitigation: Many criteria refer to “minimizing” impacts while others refer to “maximizing” benefits, whereas a few refer to “net benefits” (a combination of adverse and beneficial effects). For any criterion where the DEIS analysis reveals a meaningful “net effect” this can be included in the way that Measures are applied, even where “net effect” is not specifically mentioned in the criterion. When rating the alternatives, the scoring will consider the net effect, including the potential for, feasibility of, and level of commitment to mitigation that would avoid or reduce adverse impacts.
- Tradeoffs across Criteria: Minimizing adverse impacts to resources evaluated in one criterion could result in increasing adverse impacts to resources evaluated in another criterion. Each Measure for each criterion will be evaluated independently of the other criteria, so that where there are tradeoffs or conflicts, the combined effect across different criteria will be reflected in the total score for a given alternative.
- While some of the evaluation criteria are intended to measure the extent to which alternatives would implement certain regulatory objectives, the evaluation criteria are not intended to replace or supersede any relevant regulatory requirements. It is assumed that any selected alternative would need to comply with relevant regulatory requirements.

Criteria Groups

1. Seismic Resiliency

Long Term	<p>1a.1 Maximize confidence in post-earthquake crossing operability and reparability.</p> <ul style="list-style-type: none"> • Measure: Qualitative assessment for how much reliance on original components is needed for seismic resiliency. • Measure: Ability to implement reliable seismic performance mechanisms and devices. <p>1a.2 Maximize ability for all modes to use the crossing post-earthquake.</p> <ul style="list-style-type: none"> • Measure: Ability to accommodate over-dimensional vehicles and loads. • Measure: Ability to simultaneously accommodate all travel modes. <p>1a.3 Minimize risk that adjacent buildings could damage or block the bridge after a major earthquake, and minimize risk that crossing construction could lessen the seismic resilience of adjacent buildings.</p> <ul style="list-style-type: none"> • Measure: Quantify level of risk exposure from adjacent buildings, weighting those alternatives that are at risk due to URM exposure from adjacent buildings at a higher risk.
During Const.	<p>1b.1 Minimize delay in achieving a seismically resilient crossing.</p> <ul style="list-style-type: none"> • Measure: Estimated duration of construction

2. Community Quality of Life (includes Indirect Land Use Impacts and Community Resources)

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Long Term</p>	<p>2a.1 Minimize long-term noise and light/shadow impacts.</p> <ul style="list-style-type: none"> • <i>Measure: Qualitative assessment of light/shadow impacts due to changes in roadway alignments relative to land uses (e.g., will new alignment direct headlights at or away from residential uses; will it change sunlight/shadow on residential or community spaces?).</i> • <i>Measure: Assessment of noise impacts due to changes in roadway alignments relative to land uses.</i> <p>2a.2 Minimize long-term impacts to community facilities and events under and near the bridge (e.g., Skatepark, Saturday Market, park festivals, parades, organized runs, etc.).</p> <ul style="list-style-type: none"> • <i>Measure: Number of community facilities impacted, as well as magnitude and character of those impacts (Note: metrics for these two measures may include duration of impact, distance to temporary relocation, number of people affected, or other metrics as appropriate to the facility, event, and impact).</i> • <i>Measure: Number of community events impacted, as well as magnitude and character of those impacts. (See note for above Measure).</i>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">During Const.</p>	<p>2b.1 Minimize temporary impacts to community facilities and events under and near the bridge.</p> <ul style="list-style-type: none"> • <i>Measure: Number of community facilities impacted, as well as magnitude and duration of those impacts. (Note: metrics for these two measures may include duration of impact, distance to temporary relocation, number of people affected, or other metrics as appropriate to the facility, event, and impact).</i> • <i>Measure: Number of community events impacted, as well as magnitude and duration of those impacts. (See note for above Measure).</i>

3. Equity and Environmental Justice (includes Social Services)

Long Term

- 3a.1 Minimize displacements of emergency beds.**
 - *Measure: Shelter beds displaced.*
- 3a.2 Maintain social service providers' long-term ability to provide current level of service and potential for enhancement.**
 - *Measure: Social service provider functions (not including beds) displaced (measured in square feet displaced, number of clients served by displaced function, and availability and quality of replacement functions; quality of replacement includes ability to replace the function within the affected service provider, transit access, walking distance/time and dependence of remaining services on being proximate to the services that would be displaced).*
 - *Measure: Permanent access impacts (number and significance), and availability and quality of alternative access (distance/convenience to alternative access).*
 - *Measure: Impact on ability of existing services to be enhanced, compared to No-build.*
- 3a.3 Avoid disproportionate adverse impacts to vulnerable and Environmental Justice communities.**
 - *Measure: Based on qualitative analysis of impacts to low income and minority populations as measured in the analysis of compliance with the Exec Order on Environmental Justice.*
 - *Measure: Based on qualitative analysis of impacts to other vulnerable populations as identified during outreach conducted for the Diversity, Equity, and Inclusion program outreach.*

During Const.	<p>3b.1 Minimize temporary impacts to social service providers.</p> <ul style="list-style-type: none"> • <i>Measure: Social service provider functions temporarily displaced (measured in square feet displaced, number of clients served by displaced function, and availability and quality of temporary replacement functions; quality of replacement includes ability to replace the function within the social service provider affected, transit travel time, walking distance/time and dependence of remaining services on being proximate to the services that would be temporarily displaced).</i> • <i>Measure: Temporary access impacts (number, duration, and significance), and availability and quality of alternative access (walking distance/time to alternative locations).</i> <p>3b.2 Avoid temporary disproportionate adverse impacts to vulnerable and Environmental Justice communities.</p> <ul style="list-style-type: none"> • <i>Measure: Based on qualitative analysis of impacts to low income and minority populations as measured in the analysis of compliance with the Exec Order on Environmental Justice.</i> • <i>Measure: Based on qualitative analysis of impacts to other vulnerable populations as identified during outreach conducted for the Diversity, Equity, and Inclusion program outreach.</i> <p>3b.3 Ensure that design and construction approach allow ample opportunities for DBE firms to be involved in the construction/contracting process.</p> <ul style="list-style-type: none"> • <i>Measure: Approximate percentage of the construction work that could potentially be done by DBE (small) firms, relative to DBE goals.</i>
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4. Crime Reduction and Personal Safety

Long Term	<p>4a.1 Maximize personal safety and crime reduction by following principles of Crime Prevention Through Environmental Design (CPTED).</p> <ul style="list-style-type: none"> • <i>Measure: Qualitative assessment of consistency with the CPTED principle of Natural Surveillance.</i> • <i>Measure: Ability of design to allow activated spaces and improved sightlines beneath the bridge.</i>
During Const.	N/A

5. Business and Economics

Long Term	<p>5a.1 Minimize business displacements and permanent access impacts.</p> <ul style="list-style-type: none"> • Measure: Number of business displacements (measured in number of businesses, square feet, or number of employees). • Measure: Qualitative assessment of permanent access impacts that do not result in full displacement of business (includes number, duration and magnitude of access impacts, and availability and quality of alternative access). <p>5a.2 Support redevelopment potential consistent with local plans.</p> <ul style="list-style-type: none"> • Measure: Qualitative assessment of the extent to which newly vacant land is able to support uses that are consistent with local plans (vs creating landlocked parcels or supporting changes in use that are not consistent with local plans).
During Const.	<p>5b.1 Minimize temporary access impacts to businesses.</p> <ul style="list-style-type: none"> • Measure: Qualitative assessment of short-term access impacts (includes number, duration and magnitude of short-term access impact, and availability and quality of alternative access). <p>5b.2 Minimize temporary regional economic impacts.</p> <ul style="list-style-type: none"> • Measure: Estimated impact of construction on regional economic indicators (e.g., jobs, income, and cost of delay). • Measure: Estimated temporary direct and indirect impacts to navigation during construction. <p>5b.3 Minimize loss of economic benefits (includes businesses and charities) from temporary impacts to major community events under and near the bridge.</p> <ul style="list-style-type: none"> • Measure: Estimated loss of participation (# of people) in community events that would be impacted; if possible/reliable, estimate the financial impact such as total loss of spending/earnings, or provide qualitative assessment).

6. Parks and Recreation Resources

Long Term	<p>6a.1 Minimize park displacements and adverse functionality impacts (include impacts to river recreation).</p> <ul style="list-style-type: none"> • Measure: Assessment of adverse impacts to parks and recreation (e.g., magnitude (square feet) and qualitative assessment of impacts on functions, events, and access (for maintenance, events, etc.). • Measure: Qualitative assessment of beneficial impacts (e.g., access, functions, potential to increase Parks revenues, increase resiliency, etc.).
During Const.	<p>6b.1 Minimize temporary impacts to parks.</p> <ul style="list-style-type: none"> • Measure: Magnitude (square feet) of temporary parkland displacements. • Measure: Assessment of temporary impacts to parks (e.g., magnitude (square feet) and qualitative assessment of impacts on functions, events, access (for maintenance, events, etc.). • Measure: Impact of displaced events on Parks revenue.

7. Historic Resources

Long Term	<p>7a.1 Minimize historic resource impacts.</p> <ul style="list-style-type: none"> • Measure: Number of resources displaced or damaged (include National Register resources and districts and local historic landmarks and districts) and magnitude/character of impacts. • Measure: Number of resources with access, and context, and indirect impacts, and magnitude/character of impacts. • Measure: Character and magnitude of impacts to historic districts.
During Const.	<p>7b.1 Minimize temporary impacts to historic resources.</p> <ul style="list-style-type: none"> • Measure: Qualitative assessment of construction-related (direct and indirect) impacts to historic resources.

8. Visual and Aesthetics

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Long Term</p>	<p>8a.1 Minimize adverse impacts to existing views and view corridors.</p> <ul style="list-style-type: none"> • <i>Measure: Qualitative assessment of potential impacts on existing views and view corridors (consider historic districts' design criteria and City-designated view corridors).</i> • <i>Measure: Qualitative assessment of potential compatibility/conflicts with existing urban design features.</i> <p>8a.2 Maximize-aesthetic experience for all users approaching, on, and under the bridge.</p> <ul style="list-style-type: none"> • <i>Measure: Qualitative assessment of visual and aesthetic opportunities (based on conceptual designs) for users on and under the bridge during both daytime and nighttime hours. Consider opportunities related to scale, forms and materials, viewing, wayfinding, transitions to and from public spaces, lighting/shade/shadows, and activating areas for public use (consider Portland design guidelines).</i> <p>8a.3 Create opportunity for a crossing that provides an iconic/demonstrative visual experience.</p> <ul style="list-style-type: none"> • <i>Measure: Qualitative assessment of potential to develop gateways, new views, processional experiences, and demonstrative and/or iconic visual experiences of and on the bridge.</i>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">During Const.</p>	<p>N/A</p>

9. Natural Resources, Climate Change and Sustainability

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Long Term</p>	<p>9a.1 Minimize impacts to water quality and flooding.</p> <ul style="list-style-type: none"> • Measure: Estimated changes in treatment of stormwater generated from impervious surface compared to No-build. • Measure: Estimated long-term changes in flood levels. • Measure: Estimated area of disturbance of potentially contaminated river substrate. <p>9a.2 Minimize impacts to fish and wildlife.</p> <ul style="list-style-type: none"> • Measure: Estimated changes to aquatic habitat (due to change in pier area below OHW and above the critical scour depth - differentiate habitat quality: higher quality (<20' deep) and lower quality (>20' deep)).
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">During Const.</p>	<p>9b.1 Minimize temporary impacts to water quality and flooding.</p> <ul style="list-style-type: none"> • Measure: Estimated area of disturbance in proximity to the Willamette River. • Measure: Estimated temporary change in flood levels during construction (reasonable worst-case during construction). <p>9b.2 Minimize temporary impacts to air quality, greenhouse gas emissions and carbon sequestration.</p> <ul style="list-style-type: none"> • Measure: Qualitative assessment of effects on emissions due to traffic diversions/detours. • Measure: Change in carbon sequestration (based on change in tree cover). <p>9b.3 Minimize temporary impacts to fish and wildlife.</p> <ul style="list-style-type: none"> • Measure: Extent of pile driving. • Measure: Size of cofferdams and extent of temporary fill in the river. <p>9b.4 Minimize resource consumption and waste production during construction.</p> <ul style="list-style-type: none"> • Measure: (TBD, based on information provided by Greenroads analysis).

10. Pedestrians, Bicyclists and People with Disabilities (ADA – Americans with Disabilities Act)

Long Term	<p>10a.1 Maximize City’s Vision Zero principles for safety and comfort for bicyclists, pedestrians, and other low-impact vehicles (e.g., scooters, skateboards).</p> <ul style="list-style-type: none"> • Measure: Width of bike path, potential for future bicycle climbing lanes, and safety at intersections and crossings. • Measure: Width and slope of pedestrian and ADA facilities on bridge. • Measure: Quality of protection from motor vehicles. <p>10a.2 Maximize access/connectivity for bicyclists and other low-impact vehicles.</p> <ul style="list-style-type: none"> • Measure: How well the bike facility on the bridge connects to existing and planned bike networks. • Measure: Quality and quantity of accesses to transit stops and other destinations. <p>10a.3 Maximize access/connectivity for pedestrians and ADA.</p> <ul style="list-style-type: none"> • Measure: How well the pedestrian and ADA facilities on the bridge connect to existing and planned pedestrian and ADA networks. • Measure: How well the pedestrian and ADA facilities on the bridge connects to social services and other frequent destinations for users. • Measure: Quality and quantity of accesses to transit stops and other destinations.
During Const.	<p>10b.1 Minimize temporary travel time and access/connectivity impacts to bicyclists.</p> <ul style="list-style-type: none"> • Measure: Extent of out-of-direction travel, or travel time change, for bicyclists during construction (reflect information, if available, on origins and destinations of trips using the Burnside Bridge; may require quantitative or qualitative assessment and professional-judgment; possibly consider the duration of temporary changes in access/connectivity). <p>10b.2 Minimize temporary travel time and access/connectivity impacts to pedestrians.</p> <ul style="list-style-type: none"> • Measure: Extent of out-of-direction travel, or travel time change, for ADA users and pedestrians during construction (reflect information, if available, on origins and destinations of trips using the Burnside Bridge; may require quantitative or qualitative assessment and professional judgment; possibly consider the duration of temporary changes in access/connectivity). <p>10b.3 Maximize City’s Vision Zero principles for safety and comfort for bicyclists, pedestrians, and other low-impact vehicles (e.g., scooters, skateboards).</p> <ul style="list-style-type: none"> • Measure: Quality of protection of bicycle and pedestrian paths from other modes. • Measure: Width of temporary bicycle and pedestrian paths. • Measure: Qualitative safety assessment of temporary ADA and pedestrian facilities. • Measure: Quality and quantity of accesses to transit connections.

11. Motor Vehicles, Freight and Emergency Vehicles

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Long Term</p>	<p>11a.1 Maximize safety for motor vehicles and freight.</p> <ul style="list-style-type: none"> • Measure: Qualitative assessment of motor vehicle safety based on design (factors including but not limited to: elements that affect operating speed such as lane width and other cross section details, curve radii, as well as potential conflicts with other modes, sideswipes, property damage, and others) <p>11a.2 Maximize emergency service operations and responsiveness.</p> <ul style="list-style-type: none"> • Measure: Qualitative assessment of emergency service responsiveness independent of a major earthquake (factors including but not limited to: lane width and other cross section details, curve radii, potential conflicts with other modes, and others)
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">During Const.</p>	<p>11b.1 Minimize temporary access and travel time impacts to freight and emergency vehicles.</p> <ul style="list-style-type: none"> • Measure: Travel time for motor vehicles from point X to point Y (quantitative if travel model provides reliable estimate). • Measure: Duration of temporary closure/capacity reduction. • Measure: Quantify number and duration of temporary road closures due to construction. <p>11b.2 Minimize temporary safety, impacts to motor vehicles, freight, and emergency vehicles.</p> <ul style="list-style-type: none"> • Measure: Qualitative assessment of the safety of construction phase detours and reroutes relative to existing conditions. <p>11b.3 Minimize temporary access and travel time impacts to motor vehicles.</p> <ul style="list-style-type: none"> • Measure: Travel time for motor vehicles from point X to point Y (quantitative travel model provides reliable estimate). • Measure: Duration of temporary closure/capacity reduction. • Measure: Quantify number and duration of temporary road closures due to construction.

12. Transit

Long Term	<p>12a.1 Maximize Streetcar readiness.</p> <ul style="list-style-type: none"> Measure: Qualitative assessment of impacts to future Streetcar and bus operations (factors including but not limited to: may include lane width and other cross section details, curve radii, potential conflict with other modes, and others).
	<p>12a.2 Maximize bus accessibility.</p> <ul style="list-style-type: none"> Measure: Qualitative scale considering presence of dedicated bus pullouts, transit stops, transfer points to other modes (LRT).
	<p>12a.3 Minimize transit collision vulnerability.</p> <ul style="list-style-type: none"> Measure: Qualitative assessment for whether the bridge options create differing intersecting geometries and lane width variations, and how those may increase or decrease the likelihood of motor vehicle collisions with bus, and northbound and southbound Streetcars on MLK and Grand Avenues. (factors including but not limited to: may include lane width, curve radii, intersection cross section, potential for conflicts between modes, anticipated weave motions, and likelihood of sideswipe collisions).
During Const.	<p>12b.1 Minimize temporary impacts to transit access, safety, travel times, and ridership.</p> <ul style="list-style-type: none"> Measure: Frequency and duration of LRT, Streetcar, and bus disruptions.

13. Fiscal Responsibility

Long Term	<p>13a.1 Minimize total Project cost.</p> <ul style="list-style-type: none"> Measure: Estimated total project cost (including design, right-of-way acquisition, construction, temporary bridge, mitigation, utility relocation, etc.). <p>13a.2 Minimize long-term maintenance needs/costs.</p> <ul style="list-style-type: none"> Measure: Number and cost of major maintenance projects expected over life of the bridge, including the necessary bridge repairs following a major earthquake.
During Const.	N/A



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Topics for evaluation/decision-making in later project phases:

While developing the draft criteria groups, the CTF identified a number of topics that cannot be adequately or fully evaluated with the level of design and information that will be available during the DEIS phase. These are listed below with the recommendation that they be applied in later project phases such as during design or construction:

Seismic Resilience	Include equipment on bridge to create additional resilient functions after a major earthquake
Personal Safety	Maintain a safe construction site Implement design that minimizes risk of attempted suicide from the structure
Ped, ADA, Bicyclists	Maximize pedestrian/bicycle aesthetic experience on the bridge
Sustainability	Waste reduction and use of sustainable materials in design and construction. Energy sustainability in design
Navigation	Bridge lighting and signals do not adversely affect navigation safety
Aesthetics	Bridge lighting does not increase night sky impacts Provide a structure that instills a sense of community pride