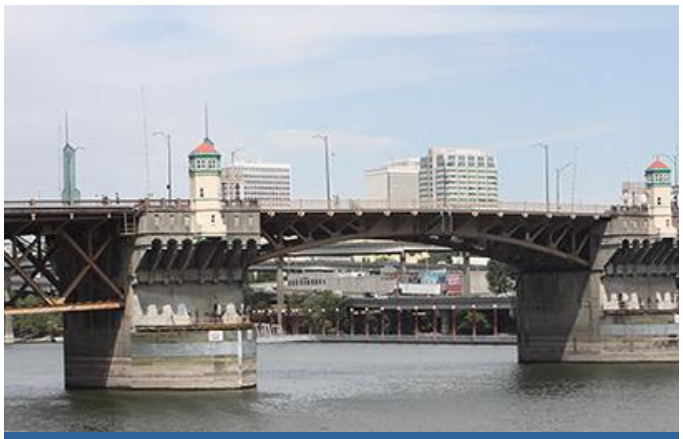

Revised Visual Resources Technical Report

Multnomah County | Earthquake Ready Burnside Bridge Project

Portland, OR

April 22, 2022

EARTHQUAKE READY BURNSIDE BRIDGE

Earthquake Ready Burnside Bridge Revised Visual Resources Technical Report

Prepared for

Multnomah County
Transportation Division – Bridges
1403 SE Water Ave
Portland, OR 97214

Prepared by

HDR
1050 SW 6th Ave, Suite 1800
Portland, OR 97204
T (503) 423-3700

Mayer/Reed, Inc.
319 SW Washington St, Suite 820
Portland, OR 97206
T (503) 223-5953

Contract# DCS-SVCSGEN-857-2019-conv
HDR Project #10144814

CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, as a professional landscape architect licensed to practice as such.

_____ Signature Reserved for Final Version

Prepared by Joshua Carlson (Professional Landscape Architect)

_____ Signature Reserved for Final Version

Checked by Jeramie Shane (Professional Landscape Architect)

_____ Signature Reserved for Final Version

Approved by Steve Drahota (Consultant Project Manager)

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Acronyms, Initialisms, and Abbreviations

AVE	Area of Visual Effect
CSZ	Cascadia Subduction Zone
EIS	Environmental Impact Statement
EQRB	Earthquake Ready Burnside Bridge
FHWA	Federal Highway Administration
I-5	Interstate 5
I-84	Interstate 84
VIA	Visual Impact Assessment

Executive Summary

As a part of the preparation of the Environmental Impact Statement (EIS) for the Earthquake Ready Burnside Bridge (EQRB) Project, this technical report follows the Federal Highway Administration's (FHWA)'s *Guidelines for the Visual Impact Assessment of Highway Projects* published online in 2015[1].

As such, the report outline is unique among the discipline reports. It identifies the type and existing condition of visual resources in the affected environment, the visual preferences of the affected population, and the subsequent perception of visual quality within the Project's Area of Visual Effect (AVE). The document also identifies the adverse and beneficial impacts to visual resources, viewers, and visual quality that would be caused by constructing the proposed project. The report concludes by identifying methods for mitigating adverse impacts and opportunities for enhancement.

[1] The AVE, visual quality, visual impacts, and visual preferences are not intrinsic characteristics of the environment or people, but rather occur as a result of an interaction between viewers and their surroundings. This is because the FHWA VIA process is based on the scientific concept called transactional perception. This is an idea that perception (and therefore visual quality) is the result of an interaction between the viewer and the environment and can be described as a relationship between the viewer and the environment. The FHWA VIA guidelines assume that it is possible to discern what Viewers value in their relationship with their environment and what they would think of the changes a proposed transportation project would create to that relationship (FHWA 2015).

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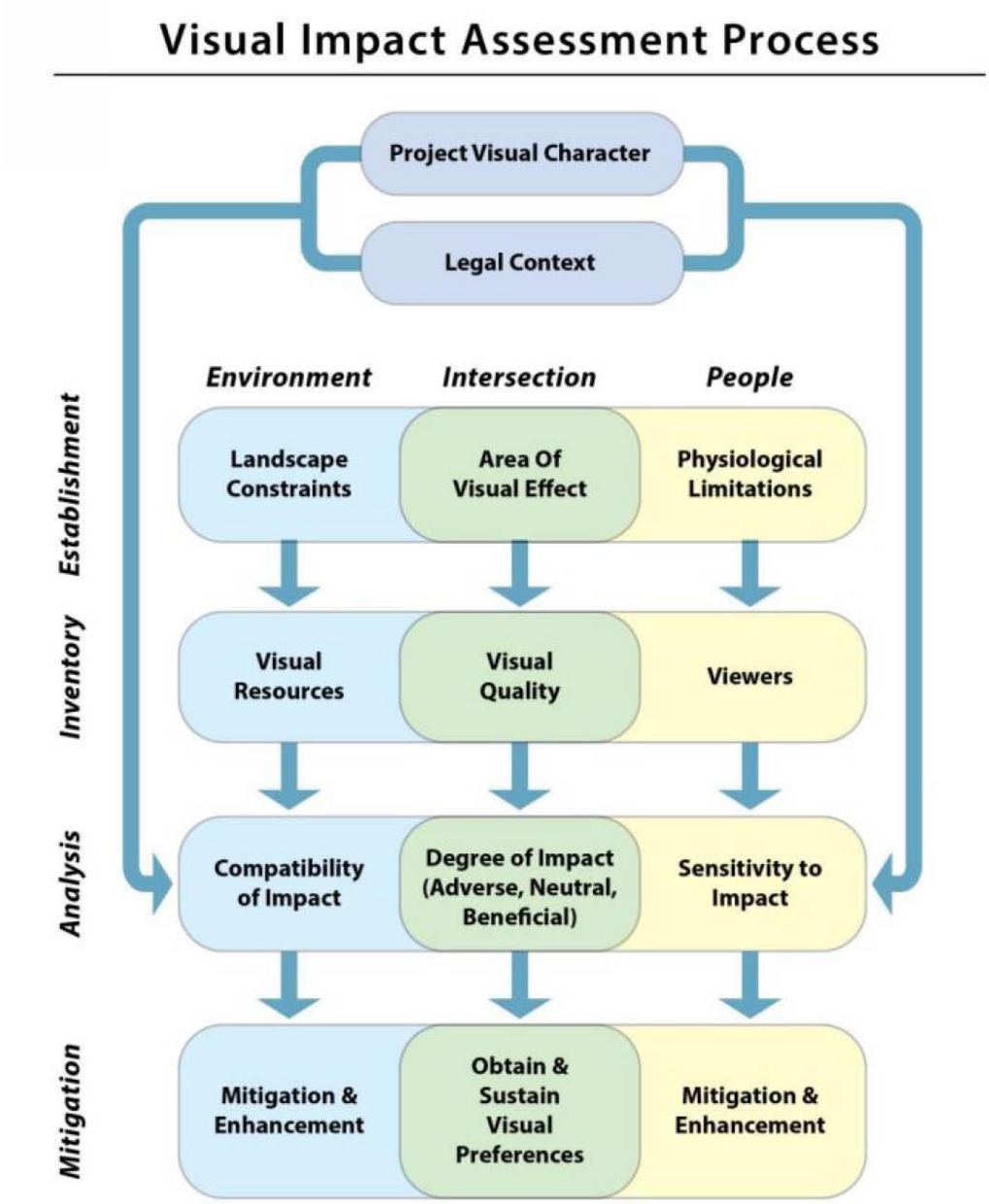
1 Establishment Phase

The FHWA's Visual Impact Assessment (VIA) process has four phases: Establishment, Inventory, Analysis, and Mitigation (Figure 1). Based on the concept of transactional perception, it is the relationship between viewers and visual resources that generates the area of visual effect, visual quality, and the value of visual impacts. To obtain or sustain the visual preferences of the affected population, actions affecting either the environment or viewers can be implemented during the Mitigation Phase.

The first phase, the Establishment Phase, identifies the boundaries – physical, visual, and legal – in which the project will be interacting.

Figure 1. Visual Impact Assessment Process



Source:

FHWA Guidelines for Highway Projects, Figure 3-1, VIA Process Flow Diagram

Visual Impact Assessment Process
Visual Impacts
Earthquake Ready
Burnside Bridge Project

1.1 Project Location

The Project Area is located within the Central City of Portland, Oregon. The Burnside Bridge crosses the Willamette River connecting the west and east sides of the city. The Project Area encompasses a one-block radius around the existing Burnside Bridge and W/E Burnside Street, from NW/SW 3rd Avenue on the west side of the river and NE/SE Grand Avenue on the east side. Several neighborhoods surround the area including Old Town/Chinatown, Downtown, Kerns, and Buckman.

1.2 Project Purpose

The primary purpose of the Project is to create a seismically resilient Burnside Street lifeline crossing over the Willamette River that would remain fully operational and accessible for vehicles and other modes of transportation following a major Cascadia Subduction Zone (CSZ) earthquake. The Burnside Bridge would provide a reliable crossing for emergency response, evacuation, and economic recovery after an earthquake. Additionally, the bridge would provide a long-term, safe crossing with low-maintenance needs.

2 Project Alternatives

The project alternatives are described in detail with text and graphics in the *EQRB Description of Alternatives Report* (Multnomah County 2021b). That report describes the alternatives' current design as well as operations and construction assumptions.

Briefly, the Draft Environmental Impact Statement (EIS) evaluates the No-Build Alternative and four Build Alternatives. Among the Build Alternatives there is an Enhanced Seismic Retrofit Alternative that would replace certain elements of the existing bridge and retrofit other elements. There are three Replacement Alternatives that would completely remove and replace the existing bridge. In addition, the Draft EIS considers options for managing traffic during construction. Nomenclature for the alternatives/options are:

- No-Build Alternative
- Build Alternatives:
    - Enhanced Seismic Retrofit (Retrofit Alternative)
    - Replacement Alternative with Short-span Approach (Short-span Alternative)
    - Replacement Alternative with Long-span Approach (Long-span Alternative
    - Replacement Alternative with Couch Extension (Couch Extension Alternative)
- Construction Traffic Management Options
    - Temporary Detour Bridge Option (Temporary Bridge) includes three modal options:
        - Temporary Bridge: All modes
        - Temporary Bridge: Transit, Bicycles and Pedestrians only

    - Temporary Bridge: Bicycles and Pedestrians only
  - Without Temporary Detour Bridge Option (No Temporary Bridge)

Supplemental Draft EIS

This technical report evaluates potential design refinements to the Draft EIS Preferred Alternative. All of the Project Alternatives evaluated in the Draft EIS are summarized in Chapter 2 of the Draft EIS and described in detail in the *EQRB Description of Alternatives Report* (Multnomah County 2021b). Briefly, the Draft EIS evaluated a No-Build Alternative and four Build Alternatives. One of the Build Alternatives, the Long-span Alternative, was identified as the Preferred Alternative. The potential refinements evaluated in this technical report are collectively referred to as the Refined Long-span Alternative (Four-lane Version) or the Refined Long-span. The Refined Long-span includes Project elements that were studied in the Draft EIS but have been modified as well as new options that were not studied in the Draft EIS. These refinements and new options are intended to provide lower cost and, in some cases, lower impact designs and ideas that could be adopted to reduce the cost of the Draft EIS Preferred Alternative while still achieving seismic resiliency. The potential design refinements, and how they differ from the Draft EIS Long-span Alternative, are described below.

- Bridge width – The total width of the bridge over the river would be approximately 82 to 93 feet (the range varies depending on the bridge type and segment). For comparison, the Draft EIS Replacement Alternatives were approximately 110 to 120 feet wide over the river. The refined bridge width would accommodate approximately 78 feet for vehicle lanes, bike lanes, and pedestrians, which is comparable to the existing bridge.
  - The refined bridge design would accommodate four vehicle lanes (rather than five as evaluated in the Draft EIS). The following lane configuration options are being evaluated:
    - Lane Option 1 (Balanced) – Two westbound lanes (general-purpose) plus two eastbound lanes (one general-purpose and one bus-only lane)
    - Lane Option 2 (Eastbound Focus) – One westbound lane (general-purpose) plus three eastbound lanes (two general purpose and one bus only)
    - Lane Option 3 (Reversible Lane) – One westbound lane (general-purpose) plus two eastbound lanes (one general-purpose and one bus-only) plus one reversible lane (westbound AM peak and eastbound PM peak)
    - Lane Option 4 (General Purpose with Bus Priority) – Two westbound general-purpose lanes plus two eastbound general-purpose lanes, plus bus priority access (e.g., queue bypass) at each end of the bridge.
  - The width of the vehicle lanes would be, at minimum, 10 feet and could vary depending on how the total bridge width is allocated between the different modes.
  - The total width of the bicycle lanes and pedestrian sidewalks would be approximately 28 to 34 feet. This is wider than the existing bridge but narrower than what was proposed in the Draft EIS for the replacement alternatives.

Physical barriers between vehicle lanes and the bicycle lanes are proposed and are in addition to the above dimensions.

  - The refined bridge would allow narrower in-water piers, due to less weight needing to be transferred to the in-water supports.

- Other design refinements being evaluated:
  - West approach – The SDEIS evaluates a refined girder bridge type for the approach over the west channel of the river, Tom McCall Waterfront Park, and Naito Parkway. Compared to the cable-stayed and tied-arch options evaluated in the Draft EIS, this option would not only reduce costs but also avoid an adverse effect to the Skidmore/Old Town National Historic Landmark District. It would have two sets of columns in Tom McCall Waterfront Park compared to just one with the Draft EIS tied-arch option and five with the existing bridge.

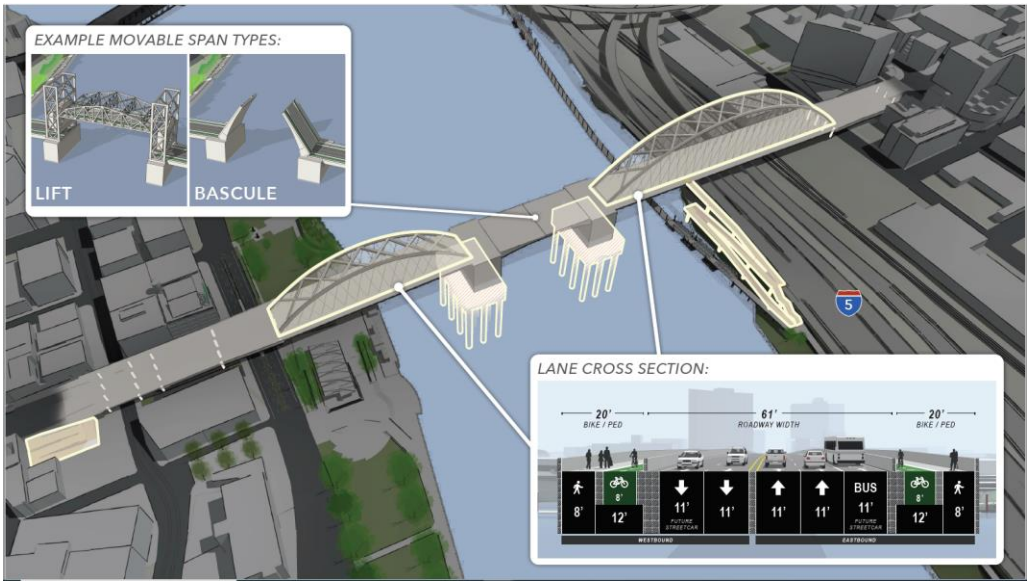
  - East approach – The SDEIS evaluates a potential span length change for the east approach tied-arch option that would minimize the risks and reduce costs associated with placing a pier and foundation in the geologic hazard zone that extends from the river to about E 2nd Avenue. The refined tied-arch option would be about 720 to 820 feet long and approximately 150 feet tall (the Draft EIS Long-span Alternative was the same height and 740 feet long). The refined alternative would place the eastern pier of the tied-arch span either on the east side of 2nd Avenue (Option 1) or just west of 2nd Avenue (Option 2). Increasing the length of the tied-arch span would also reduce the length and depth of the subsequent girder span to the east.

  - Americans with Disabilities Act (ADA) access – The SDEIS evaluates a refined approach for providing direct ADA access between the bridge and the Eastbank Esplanade, as well as between the bridge and W 1st Avenue and the Skidmore Fountain MAX station. The Draft EIS evaluated multiple ramp, stair, and elevator options for these locations. The SDEIS evaluates a refined option that would provide enhanced ADA access at both locations using both elevators and stairs. These facilities would also provide pedestrian and potentially bicycle access. For the west end, there is also the potential for replacing the existing stairs with improved sidewalk access from the west end of the bridge to 1st Avenue.

Figure 3 highlights the elements of the Draft EIS Long-span Alternative that have been modified to create the Refined Long-span Alternative, as described above. Figure 2 shows the Draft EIS Long-span Alternative and Figure 3 shows the Refined Long-span Alternative. Both figures include the tied-arch option for the east approach and the bascule option for the center movable span, but the east span could also be a cable-stayed bridge and the movable span could be a vertical lift bridge. For the west approach, the Draft EIS Long-span Alternative shows the tied-arch option while the Refined Long-span Alternative shows the refined girder bridge. The Refined Long-span Alternative image shows just one of the four possible lane configuration options being studied. All four configuration options, as well as many more graphics of the Refined Long-span Alternative, and how it compares to the Draft EIS Long-span Alternative, can be found in the Chapter 2 of the *EQRB Supplemental Draft Environmental Impact Statement* (Multnomah County 2022a). Figure 3 also shows just one of the possible

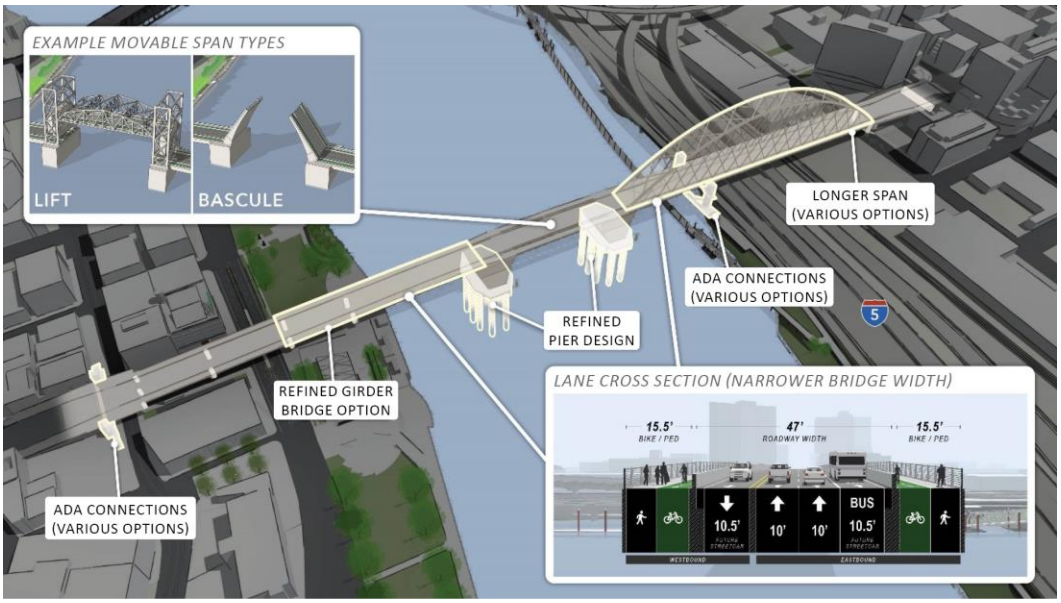
ways to allocate the bridge width between vehicle lanes, bicycle lanes and sidewalks; the total width of the bicycle and pedestrian facilities could range from approximately 28 to 34 feet.

Figure 2. Draft EIS Long-Span Alternative



Note: The Draft EIS Long-span Alternative included multiple bridge types for both the east and west approach. This figure shows only the tied arch option.

Figure 3. Refined Long-Span Alternative



Notes: The Refined Long-span Alternative evaluated in this SDEIS includes both cable-stayed and tied arch options for the east span. This figure shows only the tied arch option. The Draft EIS studied, and SDEIS further studies, a bascule option and vertical lift option for the center movable span. The inset shows both options but the main figure shows the bascule option. This figure also shows just one of the lane configuration options considered in the SDEIS.

- Construction assumptions:
  - Construction duration – The expected duration of project construction is 4.5 to 5.5 years, dependent upon the design option. See Table 1 for more information regarding construction impact extent and closure timeframes.
  - Construction area – Compared to the Draft EIS Long-span Alternative, the main refinement is that the construction area would be smaller for the west approach south of the bridge, including a smaller area within Tom McCall Waterfront Park south of the bridge.
  - Construction access and staging – The construction access and staging is expected to be the same as that described in the Draft EIS.
  - Vegetation – The Refined Long-span Alternative would remove slightly fewer trees and vegetation impacts than the Draft EIS Long-span Alternative, primarily within Tom McCall Waterfront Park south of the bridge.
  - In-water work activity – The in-water work would be similar to that described in the Draft EIS, except that the replacement bridge in-water foundations would consist of a perched footing cap and a group of drilled shafts. Whereas the Draft EIS discussed the use of cofferdams to isolate in-water work, the Refined Long-span Alternative proposes to use a temporary caisson lowered to an elevation about mid-height of the water column to construct footing caps, avoiding additional disturbance of the riverbed that would be needed for a cofferdam. Additionally, the existing Pier 4 would be fully removed, Pier 1 would be partially removed below the mudline and Piers 2 and 3 removed to below the mudline. Existing in-water piles would be removed, subject to the design option advanced.
  - Temporary freeway, rail, street, and trail closures – Temporary closures are expected to be the same as those described in the Draft EIS.
  - Access for pedestrians and vehicles to businesses, residences, and public services – Access is expected to be the same as that described in the Draft EIS.
  - On-street parking impacts – On-street parking impacts are expected to be the same as those described in the Draft EIS.
  - Property acquisitions and relocations – Property acquisitions and relocations are similar to those listed in the Draft EIS, except that they have been modified to reflect a narrower set of bridge design options.
  - Temporary use of Governor Tom McCall Waterfront Park – The park area that would be temporarily closed for construction has changed since the Draft EIS. On the north side of the bridge, the closure area has been reduced to avoid removing ten cherry trees and a berm that are part of the Japanese American Historical Plaza; this change would apply to all of the build alternatives. On the south side of the bridge, the park closure area has also been reduced to include only the area north of the Tom McCall Waterfront Park trellis; this revision applies only to the Refined Long-span Alternative.

Table 1. Construction Impacts, Closure Extents, and Timeframes by Build Alternative

Facility Impacted	Draft EIS Long-Span Alternative	Refined Long-Span Alternative
Tom McCall Waterfront Park	4.5-year closure within boundary of potential construction impacts	Same; Smaller closure area south of the bridge
Willamette River Greenway Trail	Portion of trail within Tom McCall Waterfront Park closed for same duration as park; detours in place for construction duration	Same
Japanese American Historical Plaza	Southern portion of plaza would be closed for same duration as Tom McCall Waterfront Park	Same
Ankeny Plaza Structure	Closure for duration of construction but no impacts to Ankeny Plaza structure	Plaza Structure would not be closed during construction or impacted
Bill Naito Legacy Fountain	No closure of fountain and associated hardscape	Same
Vera Katz Eastbank Esplanade	18 months (this could extend to 3.5 to 4.5 years if project builds ramps rather than elevators and stairs for the ADA/bicycle/pedestrian connection); detours in place for construction duration	Same
Burnside Skatepark	4-month full closure	Same
River Crossing on Burnside Street	4- to 5-year closure	Same
Saturday Market Location	4.5-year closure or use of alternative location	Same
Skidmore Fountain MAX Station	Approximately 5 weeks	Same
Navigation Channel/Willamette River Water Trail	Intermittent closures; 2 to 10 closures; each closure up to 3 weeks	Same
Overall Construction Duration	**4.5 to 5.5 years**	**Same**

3 Definitions

The following terminology will be used in the report (FHWA 2015):

- **Project Area –** The area within which improvements associated with the Project Alternatives would occur and the area needed to construct these improvements. The Project Area includes the area needed to construct all permanent infrastructure, including adjacent parcels where modifications are required for associated work such as utility realignments or upgrades. For the EQRB Project, the Project Area includes approximately a one-block radius around the existing Burnside Bridge and W/E Burnside Street, from NW/SW 3rd Avenue on the west side of the river and NE/SE Grand Avenue on the east side.

- **Project vicinity –** The environs surrounding the Project Area. The Project vicinity does not have a distinct geographic boundary but is used in general discussion to denote the larger area, inclusive of the Old Town/Chinatown, Downtown, Kerns, and Buckman neighborhoods.
- **Area of Visual Effect –** The area of project visibility is referred to as the Area of Visual Effect (AVE). It is determined by the physical constraints of the environment and the physiological limits of human sight. The geographic limits of the AVE are spatially defined in Section 4.5.
- **Landscape Type –** description of the major visual attributes of the landscape that differentiate one landscape unit from others, focusing on overarching characteristics, not specific visual resources
- **Viewers –** the population affected by the proposed project
- **Viewshed -** what people can see in the environment and are the result of the intersection between the physical constraints of the environment and the physiological limits of human perception
- **Visual Character –** description of the physical attributes of the project's constructed elements
- **Visual Identity –** a distinctive "outdoor room" that spatially defines a landscape unit
- **Visual Quality –** describes a viewer's relationship with their environment, and what they like or dislike seeing. Serves as a baseline for determining the degree of visual impacts.
    - **Natural Harmony:** Viewing the visual resources of the natural environment creates a sense of natural harmony in people. People interpret visual resources of the natural environment as being harmonious or inharmonious. Viewers have a concept of what constitutes natural harmony. The greater the degree to which the natural visual resources of the AVE meet the viewer's preferred concept of natural harmony, the higher value the viewer places on those visual resources.
    - **Cultural Order:** Viewing the visual resources of the cultural environment creates in people a sense of cultural order. People interpret the visual resources of the cultural environment as being orderly or disorderly. Viewers have a concept of what constitutes cultural order. The greater the degree to which the cultural visual resources of the AVE meet the viewer's preferred concept of cultural order, the higher value the viewer places on those visual resources.
    - **Project Coherence:** Viewing the visual resources of the project environment creates in people a sense of project coherence. People interpret the visual resources of the project environment as being either coherent or incoherent. Viewers have a concept of what constitutes project cohesion. The greater the degree to which the visual resources of the project environment meet the viewer's preferred concept of project coherence, the higher value the viewer places on those visual resources.
    - **Landscape Composition and Vividness:** People perceive the landscape from or to a highway as a composition; an interplay between nature, culture, and the

highway. The more the composition meets their visual preference and expectations, the more they like it. The more they like it, the more memorable, or vivid, it becomes.

- **Visual Impacts -** simple changes to the environment (measured by the compatibility of the impact) or to viewers (measured by sensitivity to the impacts). Together, the *compatibility* of the impact and the *sensitivity* of the impact yield the *degree* of the impact to visual quality.
    - **Compatibility of the Impact:** Defined as the ability of environment to absorb the proposed project as a result of the project and the environment having compatible visual characters. The proposed project can be considered compatible or incompatible. By itself, compatibility of the impact should not be confused or conflated with the value of the impact.
    - **Sensitivity to the Impact:** Defined by the ability of viewers to see and care about a project's impacts. The sensitivity to impact is based on viewer sensitivity to changes in the visual character of visual resources. Viewers are either sensitive or insensitive to impacts. By itself, the sensitivity of the impact should not be confused or conflated with the value of the impact.
    - **Degree of the Impact:** Defined as either a beneficial, adverse, or neutral change to visual quality. A proposed project may benefit visual quality by either enhancing visual resources or by creating better views of those resources and improving the experience of visual quality by viewers. Similarly, it may adversely affect visual quality by degrading visual resources or obstructing or altering desired views.

4 Legal Framework

The following is a list of federal, state, and local laws, plans, policies, and regulations that guide or inform the procedures required to assess impacts to visual resources, viewers, and visual quality or establish the visual preferences of the affected population.

4.1 Federal

National Environmental Policy Act

Sec 101 states "…in order to carry out the policy set forth in this Act, it is the continuing responsibility of the Federal Government to use all practicable means…to assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings…"

Federal Highway Administration, Guidelines for the Visual Impact Assessment of Highway Projects

In accordance with the National Environmental Policy Act statute, the FHWA provides Guidelines for the Visual Impact Assessment of Highway Projects (FHWA 2015), a four-phase process for conducting a visual impact assessment. The FHWA process:

- Identifies the type and existing condition of visual resources of the affected environment, the visual preferences of the affected population, and the subsequent perception of visual quality.
- Identifies the adverse and beneficial impacts to visual resources, viewers, and visual quality that would be caused by constructing the proposed project.
- Identifies methods for mitigating adverse impacts and opportunities for enhancement.
- Identifies what viewers value in their relationship with the environment and think the proposed transportation changes would bring to that relationship.

4.2 State of Oregon

Department of Transportation

- Oregon Transportation Plan Strategy, Volume 1, September 20, 2006, Section 4.3, Creating Communities. It is the policy of the State of Oregon to integrate into the planning and design of its transportation facilities, "features that support the use of transportation choices," especially those that:
  - 4.3.2 "Promote facility designs that encourage walking and biking."
  - 4.3.4 "Promote transportation facility design, including context sensitive design, which fits the physical setting, serves and responds to the scenic, aesthetic, historic and environmental resources, and maintains safety and mobility."
- Roadside Development Manual: Guidelines for Planning, Design, Construction and Maintenance for Landscape, Hardscape and Visual Resources, Version 2.0 April 1, 2018. This document provides design principles and guidance for development of the roadway corridor, including defining a planning and design process "that results in a thematically cohesive design…that specifically benefits the conservation of visual resources (and) leads to more visual harmony and a more interesting and comfortable experience for road users."

Department of Land Conservation and Development

- Statewide Land Use Planning Goals

  "The comprehensive land use planning system in Oregon begins with a set of 19 Statewide Land Use Planning Goals. These goals address the local process of land use planning, direct the state's resource preservation, give guidance for urban development, and offer direction to cities and counties who need to plan for coastal assets. The outcome of the goals is as unique as each city and county of Oregon – each local government develops a comprehensive plan that addresses the resources, constraints, and opportunities specific to the place." Specifically,
  - Oregon Statewide Planning Goal 5 establishes a process in which Natural Resources, Scenic and Historic Areas, and Open Spaces are inventoried and evaluated for significance.
  - Oregon Statewide Planning Goal 8 requires local governments to plan for the recreation needs of their residents and visitors. The goal places priority on non-

motorized forms of recreation, and recreation areas that serve high-density populations with limited transportation options and limited financial resources. It also places priority on recreation areas that are free or available at a low cost to the public.

- Oregon Statewide Planning Goal 15 requires jurisdictions protect, conserve, enhance, and maintain the natural, scenic, historical, agricultural, economic, and recreational qualities of lands along the Willamette River as the Willamette River Greenway.

4.3 Local Plans and Policies

- Portland 2035 Comprehensive Plan identifies long-term planning goals for the City of Portland.
  - Policy 3.11 – Significant Places - Enhance and celebrate significant places throughout Portland with symbolic features or iconic structures that reinforce local identity, histories, and cultures and contribute to wayfinding throughout the city, including but not limited to parks, bridges, rivers, viewpoints and view corridor locations, historically or culturally significant plans, and neighborhood boundaries and transitions.
- Central City Scenic Resources Protection Plan (2018a) addresses scenic resources that are accessible to the general public.

4.4 Design Standards

The following is a list of the design standards and design review processes required by state and local law, or by agency policy that function to protect visual resources and could apply to the project:

- Oregon Department of Transportation Bridge Design Manual, Section 2 references guidelines for planning, design, construction, and maintenance for landscape, hardscape, and visual resources.
- Oregon Department of Transportation Roadside Development Manual utilizes guidelines on structure, appearance, and aesthetics.
- City of Portland Land Use Review promotes the conservation, enhancement, and continued vitality of the identified scenic, architectural, and cultural values of the Central City and Central City Eastside design districts, and promotes quality development near transit facilities.
- Central City Fundamental Design Guidelines require design and historic review for areas and individual buildings that are important to the City's growth and character to evaluate proposals against the design guidelines applicable to the relevant area and type of proposal.
- City of Portland River Review protects, conserves, and enhances identified resources and functional values in the River Environmental overlay zone; compensates for unavoidable detrimental impact to those resources and

functional values; and ensures the success of mitigation and enhancement activities.

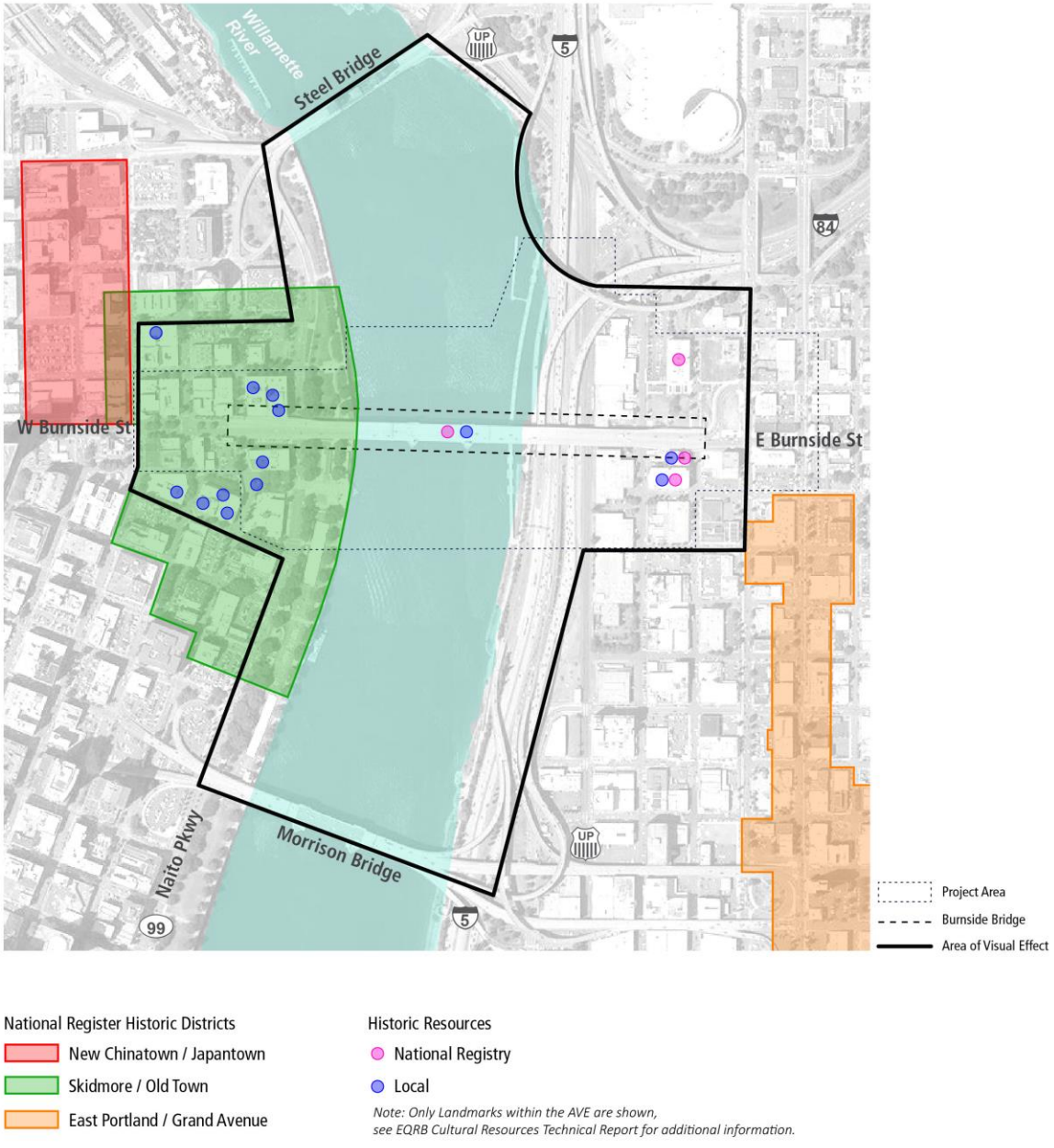
- Scenic Resource Zone protects significant scenic resources that provide benefits to the public as identified by the Central City Scenic Resources Protection Plan.

See *EQRB Land Use Technical Report* (Multnomah County 2021c) for additional information.

4.5 Area of Visual Effect

The AVE is bordered on the north by the Steel Bridge and to the south by the Morrison Bridge (Figure 4). The west boundary varies based on building height downtown with sightlines to the Burnside Bridge. The east boundary generally follows Interstate 5 (I-5) with expanded areas at the east bridgehead and taller buildings with views of bridge. The AVE is the area of Project visibility and is determined by the physical constraints of the environment and the physiological limits of human sight. This geographic area defines the space from which the proposed Project would be seen and the area that would be seen from the proposed Project.

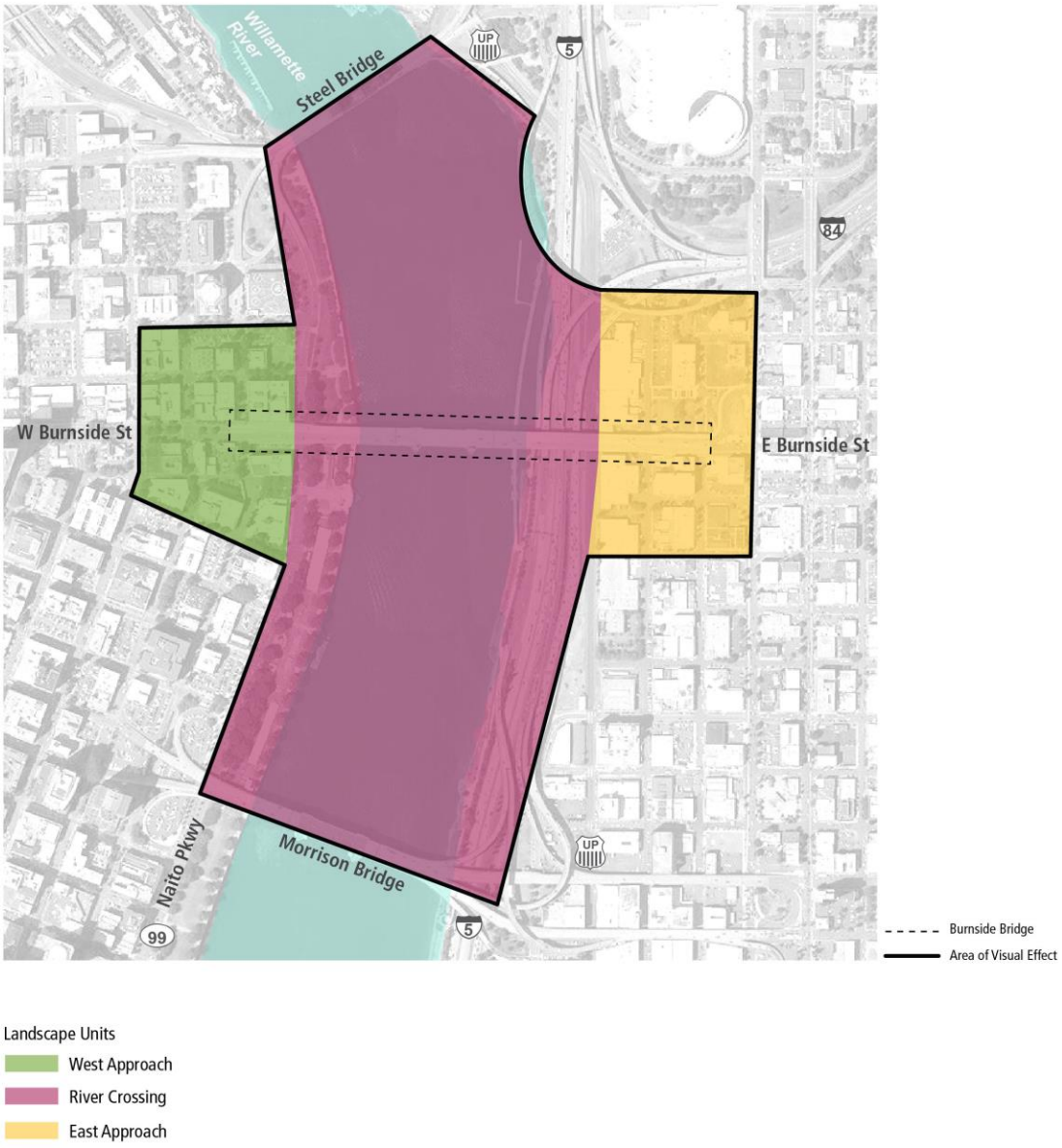
Figure 4. Area of Visual Effect Map



4.5.1 Landscape Units

To describe the existing visual environment and understand the level of visual changes that could occur with the Project area, three distinct landscape units have been defined (Figure 5). These landscape units are defined by viewsheds and landscape type. Each unit has a spatially defined landscape with a particular visual identity.

Figure 5. Landscape Units Map



West Approach

This landscape unit is the urban environment of downtown Portland. It is primarily the viewshed defined by the views from and to the buildings surrounding W/E Burnside Street west of the riverfront.

The architecture in this landscape unit includes New Chinatown/Japantown, and Skidmore/Old Town historic districts, and modern era mixed-use buildings with office space, residential, social services, and higher education.

Skidmore Fountain, surface streets, and pedestrian sidewalks are all located within the West Approach to the Burnside Bridge.

River Crossing

This landscape unit is defined by the area with views from or to the riverfront and river. It extends over the Willamette River, Tom McCall Waterfront Park, Vera Katz Eastbank Esplanade, I-5, the Union Pacific freight and passenger rail corridor, and local roads.

The Burnside Bridge is a concrete and steel double-leaf bascule design with a span of 1,382 ft. The bridge is 74 ft. wide providing 5 motorist lanes, two bicycle lanes, and raised sidewalks on both sides.

The Willamette River is approximately 850 feet from bank to bank measured below the bridge. The west edge of the river is a concrete seawall extending upriver to the Hawthorne Bridge and downriver to the Steel Bridge. The east bank of the river is riprap with volunteer trees and shrubs.

On the west bank of the Willamette River, the Burnside Bridge passes over Tom McCall Waterfront Park. This 36-acre public park includes lawn and trees, a hardscape plaza, Bill Naito Legacy Fountain, and a multi-use path on top of the seawall. The Japanese American Historical Plaza is located directly north of the bridge. The Portland Saturday Market, Skidmore Fountain MAX Station, and parking lots are located under the west bridge span.

On the east bank of the Willamette River, the Burnside Bridge passes over the Union Pacific rail lines, Interstate 5 and the Vera Katz Eastbank Esplanade, a multi-use path between the riverbank and the I-5. Under the bridge, the Vera Katz Eastbank Esplanade drops to the river surface on a floating pedestrian walkway. The Burnside Skatepark, warehouse storage, and parking lots are located under the east bridge span.

East Approach

This landscape unit is the urban environment of the Central Eastside. It is primarily the viewshed defined by the views from and to the buildings surrounding W/E Burnside Street east of the riverfront.

The architecture in this landscape unit includes a mixture of light industrial and manufacturing buildings. Renovated warehouse buildings and modern mixed-use high-rises are also found here. Burnside Bridge/Burnside Street delineates the boundaries between the neighborhoods of Kerns and Buckman neighborhoods.

5 Inventory Phase

During the inventory phase, the existing visual character of the natural, cultural and Project environments for each landscape unit were evaluated to identify key visual elements within the AVE (Figure 6). See photos (Figure 7 through Figure 9).

5.1 Visual Character

West Approach Landscape Unit

Natural Environment

LAND

This landscape unit is highly urbanized and contains no areas of open land.

WATER

This landscape unit contains no bodies of water.

VEGETATION

Mature, well-established deciduous street trees line both W Burnside Street and adjacent surface streets. These trees provide shade to most areas of the pedestrian sidewalks and contribute to the narrowed view aperture towards the bridge.

ANIMALS

Due to the highly urbanized setting, habitat connectivity has been modified by the construction of streets, buildings, and other transportation facilities. Development has reduced vegetation and food sources, thereby decreasing wildlife occurrence. See *EQRB Vegetation, Wildlife, and Aquatic Species Technical Report* (Multnomah County 2021d) for additional information.

ATMOSPHERIC CONDITIONS

Conditions are seasonably variable in this urbanized setting. Sunlight is often intermittent between buildings and wind can increase depending on the street's orientation. Fog tends to stay over the river, leaving the West Approach relatively clear throughout the year.

Cultural Environment

BUILDINGS

The cultural character surrounding W/E Burnside Street on the west side of the Willamette River is distinct mainly due to the architectural style of the district. The west end of the bridge is flanked by New Chinatown/Japantown and the Skidmore/Old Town districts, two nationally registered historic districts. These districts are comprised primarily of three to four story buildings, the majority of which were built between the late 1800s and early 1900s. The area constitutes one of the largest collections of cast-iron buildings in the west. Predominant architectural styles include Italianate, Romanesque,

Late 19th/20th American, 20th Century, and Commercial. Building facades are pedestrian focused with entrances oriented toward the sidewalk and ample storefront windows.

Many buildings within these districts not only have a contributing status to their respective National Historic District, but they have also been deemed Local Landmarks by the City of Portland (*EQRB Cultural Resources Technical Report* (Multnomah County 2021a)).

Building facades are directly adjacent to the bridge, which creates a compressed aperture view for motorists and pedestrians as they travel east towards the River Crossing landscape unit. Between 1st and 2nd Avenue some of the original first floor facades and entrances of buildings built prior to construction of the bridge (and the razing of W/E Burnside Street) are at-grade below the bridge structure. Several of these structures were modified when the bridge was reconstructed to accommodate the required width.

Buildings along the west side of Naito Parkway have views of the bridge. This view is uninterrupted on the upper floors which are above the mature trees in Tom McCall Waterfront Park. Views from buildings further west vary depending on height and site lines between other buildings.

See *EQRB Cultural Resources Technical Report* (Multnomah County 2021a) for additional information.

INFRASTRUCTURE

The topography is generally flat allowing long views along streets. Most streets consist of two drive lanes, a bike lane, vehicle parking, and typical curb with raised sidewalk. The main travel corridor, W Burnside Street, has four travel lanes, turn lanes, and periodic bike lanes and parallel parking. East and westbound traffic is divided by a central landscape island with street trees. Surface streets are aligned on a grid pattern; the north-south street grid rotates to a diagonal grid south of W Burnside Street, following the alignment of the Willamette River. The furthest east north-south through street is 2nd Avenue before the western bridgehead elevation change.

A variety of objects are found in the furnishing zone including lights, utilities, signage, trash receptacle, bike racks, and bollards. Portland standard acorn streetlights are painted black in Old Town and painted red in Chinatown.

ARTIFACTS AND ART

The iconic ‘White Stag’ sign, a neon and incandescent-bulb sign, is located directly north of the west bridge landing on the White Stag Building. The sign faces east towards westbound traffic on the Burnside Bridge and the eastside. It was originally installed in 1940, the lettering was changed to read “Portland Oregon” in 2010 when the City of Portland acquired the sign. It is one of the most recognizable elements of the Portland skyline, both in daylight as well as at night.

Skidmore Fountain, located on SW Ankeny St between SW 1st Avenue and Naito Parkway, was built in 1888 at what was then the center of downtown. The fountain is styled after fountains at Versailles and functioned as a drinking fountain for humans and

animals. Portland Parks and Recreation deems this Portland's oldest existing piece of public art.

Project Environment

HIGHWAY GEOMETRICS

The bridgehead and approach align with the East-West orientation of W Burnside Street.

GRADING

The grade and profile of the bridge establishes the bridgehead elevation level with the second story of adjacent buildings along Naito Parkway on the bridgehead.

CONSTRUCTED ELEMENTS

Two pedestrian access points to the Skidmore Fountain MAX Station from a set of stairs on both the north and south sides of the bridge are located at SW 1st Avenue. Concrete balustrade railings complete the remaining guardrail.

VEGETATIVE COVER

Mature street trees line either side of W Burnside Street as well as the center median to SW 1st Avenue. Canopies from the trees below the bridge structure along SW 1st Avenue and Naito Parkway can also be seen from the bridge.

ANCILLARY VISUAL ELEMENTS

Two arched metal gateways mark the entrance of the pedestrian stairs from the Burnside Bridge. Each gateway includes two red metal flags and a sign that reads "Saturday Market Old Town."

Lighting elements are utilitarian in character, including cobra-head streetlights at regular intervals on both sides of the bridge. Traffic signage is found throughout the Project environment.

River Crossing Landscape Unit

The area outside of the Project environment along the waterfront is cultural in character, whereas the Willamette River is dominantly a natural environment.

Natural Environment

LAND

Tom McCall Waterfront Park is the dominant element of the natural environment on the west edge of the river. The park includes a pedestrian path along the seawall, providing expansive, open views of the bridge to pedestrians and cyclists. This space hosts year-round activities under, and adjacent to, the bridge.

The east bank of the river has been heavily modified and reinforced with riprap.

WATER

The Burnside Bridge spans the Willamette River which flows from south to north. The channel is approximately the same width throughout the landscape unit. The water flows in a gentle arc, bending slighting west as it moves downstream at a moderate rate with low turbulence. The level of the river changes seasonally, with high flows occurring in spring and winter seasons as snowmelt and stormwater gathers from higher elevations. During these high flow periods, logs and other debris collect along the river. The river has high turbidity due to sediment deposits from the western side of the Cascades and upper Willamette Valley.

VEGETATION

All vegetation on the west bank of the river is located within Tom McCall Waterfront Park, containing a mixture of mature oak, maple, and cherry trees as well as lawn.

The east bank of the river has volunteer vegetation growing in riprap. Most vegetation is small in stature, yet a small number of trees exist.

See *EQRB Vegetation, Wildlife, and Aquatic Species Technical Report* (Multnomah County 2021d) for additional information.

ANIMALS

The Willamette River is a primary migration corridor to the Columbia River for Endangered Species Act listed Chinook, Coho, and chum salmon as well as steelhead and bull trout. The river is designated as a Special Habitat Area for ESA-listed species. See *EQRB Vegetation, Wildlife, and Aquatic Species Technical Report* (Multnomah County 2021d) for additional information.

The river is also part of the Pacific Flyway used by more than 200 resident and migratory birds. Most birds frequently seen on the river include ducks, geese, and gulls.

Marine mammals, including sea lions, traverse the river under the bridge on their way to and from Willamette Falls downriver.

See *EQRB Vegetation, Wildlife, and Aquatic Species Technical Report* (Multnomah County 2021d) for additional information.

ATMOSPHERIC CONDITIONS

The Burnside Bridge does not have any overhead structures or canopies to protect users from the elements. The long expanse over the river exposes users to sun, wind, and rain. The river and bridge are frequently shrouded in fog during fall and winter months, limiting sightlines to and from the bridge. There are multiple blocks of occupiable space below the bridge which provides cover from the winter rain.

Cultural Environment

BUILDINGS

Directly south of the bridge on the river's west edge, is the Ankeny Pump Station (a municipal sewage pump station built in 1952), Saturday Market pavilion, and the Bill Naito Legacy Fountain.

Under the west span of the bridge is an enclosed structure owned by the University of Oregon, whose frontage is along SW 1st Avenue and the Skidmore Fountain MAX Station.

There are no buildings in this landscape unit on the east side of the river.

See *EQRB Cultural Resources Technical Report* (Multnomah County 2021a) for additional information.

INFRASTRUCTURE

Under the west span of the bridge are a MAX stop, surface parking lots, and Portland Saturday Market. SW Naito Parkway and MAX pass under the bridge. The paving at the MAX station and Skidmore Fountain area is historic Portland cobblestone.

Naito Parkway runs north-south along Tom McCall Waterfront Park and under the Burnside Bridge. It contains two southbound travel lanes with bike lane, one northbound travel lane with two-way bike lane, and a raised concrete center island. There are street trees along the west side and in the central traffic island, while the east side borrows tree canopy from the neighboring park. Street furnishings including bike racks, streetlights, bollards, and bike rentals fill the furnishing zone on the west sidewalk. This traffic corridor separates the waterfront from the Old Town district.

On the east side of the river, the Vera Katz Eastbank Esplanade has both at grade and river grade pedestrian pathways. A floating walkway drops pedestrians under the bridge to river level approximately 100 feet from the east edge of the river. This walkway and the shoreline create an area of the river with slower surface flow. As a result, this section between the walkway and riverbank collects logs and other debris. The Kevin J Duckworth Memorial Dock is north of the bridge. The dock and esplanade are two of the four locations in downtown that give users access onto the river, both in close proximity to the Burnside Bridge. Views to the bridge are uninterrupted with the downtown skyline as a backdrop.

Several large transportation corridors dominate the east side of the river. Interstate 5 (I-5) runs parallel along the east bank of the Willamette River. Nine lanes pass under the Burnside Bridge, providing clear views of the bridge span and east bridgehead to passing motorists. Interstate 84 (I-84) terminates at the junction with I-5 just north of the Burnside Bridge. Multiple ramps from both highways arc at various elevations north of the bridge, providing sweeping views of downtown, the river, and the Burnside Bridge.

Union Pacific Railroad tracks run just east of and parallel to I-5. Two tracks pass under the bridge, increasing to four by the Steel Bridge to the north. This linear transportation corridor provides clear views south for travelers on the Burnside Bridge.

STRUCTURES

On the east side of the river, there is access to the Vera Katz Eastbank Esplanade from one staircase on the south side; it is constructed of painted steel truss and wire mesh in an industrial character reminiscent of the Steel and Hawthorne Bridges.

ARTIFACTS AND ART

Directly north of the bridge on the west side is the Japanese American Historical Plaza, designed by noted landscape architect Robert Murase, Fellow of the American Society of Landscape Architects, and dedicated in 1990. The space is lined with cherry trees along the waterfront path which bloom in spring. The trees can be viewed from the Burnside and Steel bridges and across the river.

The Japanese American Historical Plaza contains sculptures by Jim Gion (1990) titled *Songs of Innocence, Songs of Experience* and twelve granite stones with engraved poetry. Two stainless steel obelisks of the *Friendship Circle* by Lee Kelly and Michael Stirling (1990) sit just south of the Steel Bridge. The *Sculptural Stage*, a stainless-steel art wall, by Bruce West (1976) was re-sited to Ankeny Plaza in 2007. The Battleship Oregon Memorial, between Pine St and Oak St in Tom McCall Waterfront Park, was built in 1956 to honor an 1893 ship and features the mast from the USS Oregon. The Oregon Maritime Museum is directly across the park from the memorial, located on the docked *Portland*, the last steam-powered sternwheel tugboat to be built in the United States. The boat is visible from the Burnside Bridge and also provides clear views of the bridge from the water.

On the east side, several sculptures by RIGGA (2001) line the Vera Katz Eastbank Esplanade: *Alluvial Wall*, a steel and bronze wall sculpture aligned with Oak St; *Stack Stalk*, a steel column with a glass float top marks the northern limits of the cantilevered path near Stark St; *Ghost Ship*, a copper, steel, and glass sculpture marks the southern limits of the cantilevered path near Washington Street.

Project Environment

HIGHWAY GEOMETRICS

The Burnside Bridge has an east-west alignment, perpendicular to the Willamette River. This alignment provides travelers with seasonal views of the sunset and sunrise in-line with the bridge.

GRADING

Roadway elevation starts to rise at 1st Avenue on the west, levels at the western bridge tower, and is fairly level to the eastside due to a higher elevation on the east bank. The bridge deck remains level for the majority of the River Crossing.

Views are clear and open for westbound travelers along the bridge to downtown and the west hills as well as down river to the north to Steel Bridge. Views are blocked for eastbound travelers of the east side until they crest the slope mid-bridge span.

CONSTRUCTED ELEMENTS

The Burnside Bridge was added to the National Register of Historic Places in 2012 and is a City of Portland historic landmark. Built in 1926, it has two Italian Renaissance style towers on the south side, decorative metal railings on the movable spans, and concrete balustrade railings complete the remaining guardrail. The towers, which house the equipment for the bascule spans, are painted green and tan with a red roof and have historical monument signage. These towers are the only above-deck structures that obstruct views from the bridge.

Sidewalks on both the north and south sides of the bridge offer pedestrians and bicyclists views of up and down river, both riverbanks, downtown, central eastside, Steel Bridge, and Morrison Bridge. Concrete comprises the remaining material of the sidewalk and top of deck.

The bridge bascule pits, towers, superstructure, and piers are visible from multiple locations under the bridge, including the heavily used space within Tom McCall Waterfront Park. Concrete piers have cutwaters on the south side with a decorative concrete crenellation connecting to the base of the bridge towers. The steel structure is painted a tan yellow.

VEGETATED COVER

There is no vegetated cover on the Burnside Bridge.

ANCILLARY VISUAL ELEMENTS

Directional traffic signage spans the bridge horizontally on steel structures on either side of the bridge lift along with striped crossing arms. These structures are utilitarian in construction and aesthetics, they both briefly block and frame views for motorists.

Lighting elements are utilitarian in character, including cobra-head streetlights at regular intervals on both sides of the bridge and traffic lights on the overhead signage spans.

East Approach Landscape Unit

Natural Environment

LAND

This landscape unit is highly urbanized and contains no areas of open land.

WATER

This landscape unit contains no bodies of water.

VEGETATION

Street trees vary from mature to newly planted smaller deciduous trees.

See *EQRB Vegetation, Wildlife, and Aquatic Species Technical Report* (Multnomah County 2021d) for additional information.

ANIMALS

Urban wildlife is assumed to populate this area, including but not limited to rats, crows, and pigeons.

See *EQRB Vegetation, Wildlife, and Aquatic Species Technical Report* (Multnomah County 2021d) for additional information.

ATMOSPHERIC CONDITIONS

Conditions are seasonably variable in this urbanized setting. Sunlight is often intermittent between buildings and wind can increase depending on the street's orientation. Fog

tends to stay over the river, leaving the East Approach relatively clear throughout the year.

Cultural Environment

BUILDINGS

The cultural character surrounding the Burnside Bridge on the east side of the Willamette River is a mixture of light industrial, manufacturing, small business and residential. There is a wide variety of architecture, from brick-and-mortar buildings, to modern steel and glass high rises. There is no cohesive style in this district. Building facades are directly adjacent to the bridge, which creates a compressed aperture view for motorists and pedestrians as they travel west towards the River Crossing landscape unit. An adjacent building on the south side of the bridge can be accessed directly from the raised sidewalk.

Buildings between the Union Pacific rail line and E 2nd Avenue are lower than the bridge deck. Any views from these buildings are restricted to the underside of the bridge. East of 2nd Avenue, building heights increase allowing for views of the bridge. Multiple modern mixed-use residential high-rises offer uninterrupted views of the entire bridge. Views from buildings further east vary depending on height and site lines between other buildings.

See *EQRB Cultural Resources Technical Report* (Multnomah County 2021a) for additional information.

INFRASTRUCTURE

The topography is generally flat with a typical curb and raised sidewalk construction. Surface streets are on a grid pattern, with a variety of widths. A variety of objects are found in the furnishing zone including lights, utilities, signage, trash receptacle, bike racks, and bollards.

The Portland Streetcar runs north on SE Grand Avenue and south on MLK Jr Boulevard.

STRUCTURES

The Burnside Skatepark is located below the Burnside Bridge on the east side of E 2nd Avenue. This free public skatepark was a do-it-yourself (DIY) construction by the local skateboarding community. The DIY nature of the skatepark continues to change since it began construction in the early 1990s. The current skatepark is approximately 10,000 square feet and constructed of poured in place concrete. Three columns of the existing bridge have been integrated into the skatepark obstacles. Due to adjacent building construction to the north, natural light was reduced, and lighting was installed. The bridge creates a full overhead cover, protecting the skatepark from rain, and allowing for year-round use.

See *EQRB Cultural Resources Technical Report* (Multnomah County 2021a) for additional information.

Freeway off ramps connect I-84 to I-5 north of the bridge. Several surface streets bridge across I-84.

ARTIFACTS AND ART

The Burnside Skatepark has become a location for murals and graffiti art, particularly on the E 2nd Avenue retaining wall.

Project Environment

HIGHWAY GEOMETRICS

The bridgehead and approach align with the East-West orientation of E Burnside Street for Eastbound Travelers. An S-curve approach links NE Couch Street with the westbound lanes of traffic.

GRADING

The topography below the bridgehead on the east end drops quickly, situating the bridge deck elevation at the first and second floors of the adjacent buildings in the East Approach; the bridge is above roofline on the west side of E 2nd Avenue and the third floor of buildings on the north side of E 2nd Avenue.

CONSTRUCTED ELEMENTS

Landscape unit contains no Project-related visual resources in this category.

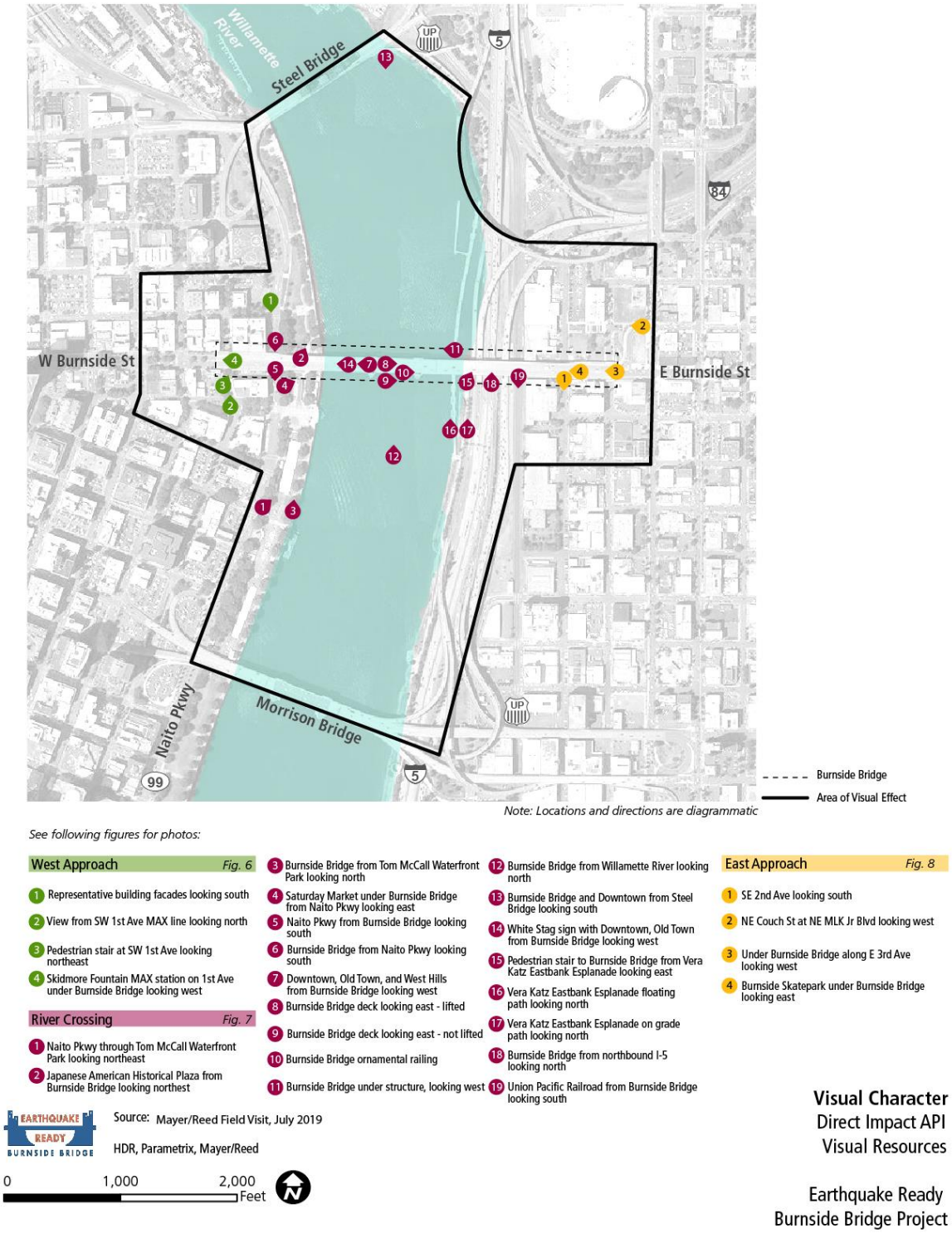
VEGETATIVE COVER

Landscape unit contains no Project-related visual resources in this category.

ANCILLARY VISUAL ELEMENTS

Lighting elements are utilitarian in character, including cobra-head streetlights at regular intervals on both sides of the bridge. Traffic signage is found throughout the Project environment.

Figure 6. Visual Character Map of Landscape Units



Note: Photo locations documenting visually distinctive resources and visual character of the natural, cultural, and project environments for each landscape unit.

Figure 7. West Approach Visual Character Photos

WEST APPROACH

REPRESENTATIVE VISUAL CHARACTER

1. Representative building facades looking south

Viewers: Neighbors
- Institutional, Commercial, Retail, Residential

Tree canopy and similar building form creates a strong sense of cultural order.

2. View from SW 1st MAX line looking north

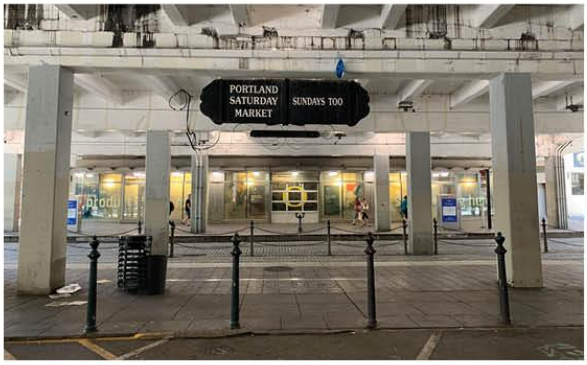
Viewers: Neighbors
- Institutional, Commercial, Retail, Residential

Cohesive form and material palette creates a strong sense of cultural order.

3. Pedestrian stair at SW 1st Ave looking northeast

Viewers: Neighbors
- Recreational, Residential

Defining visual character elements from the West Approach are present here, including cobblestone and brick facades, defining the space as uniquely located on the Westside. A perception of cultural order is derived from this placemaking.



4. Skidmore Fountain MAX Station on 1st Ave under Burnside Bridge looking west

Viewers: Neighbors
- Recreational, Residential, Institutional, Commercial

Defining visual character elements from the West Approach are present here, including bollards and Benson Bubblers, defining the space as uniquely located on the Westside. A perception of cultural order is derived from this placemaking.

Source: All images from Mayer/Reed Field Visit, July 2019

Figure 7. West Approach Visual Character Photos - Cont.

WEST APPROACH

DEFINING VISUAL CHARACTER ELEMENTS

White Stag sign


Standard acorn lights and typical building facade

Old Town signs


Skidmore Fountain


Ankeny Plaza


Ornate, 3-4 story masonry buildings


Large tree canopy


Cobble paving

Light rail tracks

The cohesive visual character of this district creates a strong sense of cultural order, and therefore, vividness. Because of this strong cultural order, any drastic change could be viewed negatively by neighbors.

Defining visual character elements contributing to the vivid visual quality are represented in the images above.

Source: All images from Mayer/Reed Field Visit, July 2019

Figure 8. River Crossing Visual Character Photos

RIVER CROSSING

1. Naito Pkwy through Tom McCall Waterfront Park looking northeast

Viewers: Neighbors
- Recreational

The low profile and low elevation of the Burnside Bridge seems to sit on the horizon when viewed from Naito Pkwy. The bridge acts as the background to Tom McCall Waterfront Park in this layered landscape.

2. Japanese American Historical Plaza from Burnside Bridge looking northeast

Viewers: Neighbors
- Recreational

Low views over the Japanese American Historical Plaza and its cherry trees to the river, Steel Bridge, and Oregon Convention Center spires create a layered composition of iconic Portland elements. This view has a sense of cultural order and natural harmony.

3. Burnside Bridge from Tom McCall Waterfront Park looking north

Viewers: Neighbors
- Recreational

The low profile and low elevation of the Burnside Bridge appears to sit on the horizon above the river when viewed by pedestrians and cyclists along the waterfront. This stature creates a sense of the bridge being part of the surrounding landscape versus being an object in the landscape, lending to a strong sense of cultural order and natural harmony.

4. Saturday Market under Burnside Bridge from Naito Pkwy looking east

Viewers: Neighbors
- Recreational, Retail

The higher elevation of the bridge at this point creates a tall, bright space underneath. The columns of the bridge structure the Saturday Market's vendor layout. This space is experienced by most people in this form, on the weekend, and therefore is has a strong sense of visual quality temporally. At other times during the week the space has less cultural order.

Source: All images from Mayer/Reed Field Visit, July 2019

Figure 8. River Crossing Visual Character Photos – Cont.

RIVER CROSSING

5. Naito Pkwy from Burnside Bridge looking south

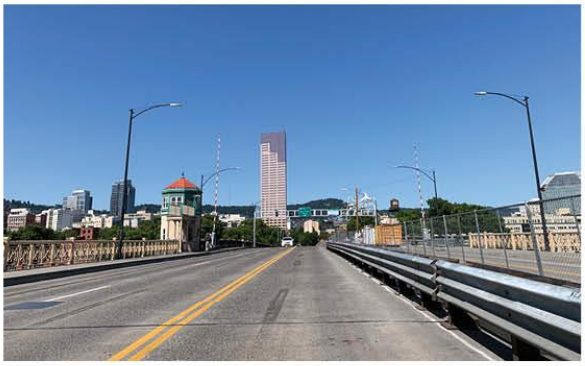
Viewers: Travelers
- Commuting, Touring
- Pedestrian, Bicycling

Travelers have views north and south along Naito. The height of the bridge at this point is at tree canopy, accentuating the visual prominence of the trees.

6. Burnside Bridge from Naito Pkwy looking south

Viewers: Neighbors
- Residential

The bridge understructure on the westside is concrete and utilitarian. It creates an enclosed space underneath with regular columns between lanes of traffic.



7. Downtown, Old Town, and West Hills from Burnside Bridge looking west

Viewers: Travelers
- Commuting, Touring
- Pedestrian, Bicycling, Motoring

The low profile of the bridge allows travelers views of the layered landscape beyond - tree canopy, downtown, and the West Hills.

8. Burnside Bridge deck looking east - not lifted

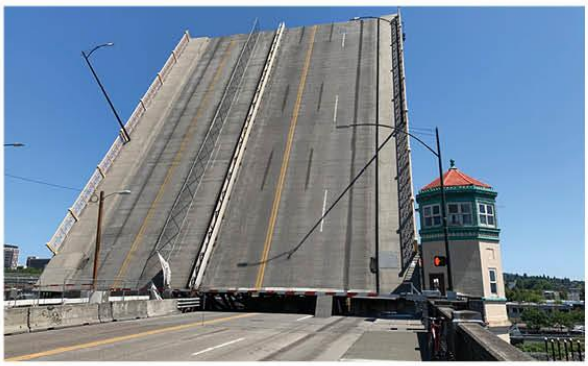
Viewers: Travelers
- Commuting, Touring
- Pedestrian, Bicycling, Motoring

The bridge towers are the only prominent vertical structure on the bridge deck and also mark the portion of the bridge with movable spans. Color, form, and size are distinct contributing to a memorable visual quality.

Source: All images from Mayer/Reed Field Visit, July 2019

Figure 8. River Crossing Visual Character Photos – Cont.

RIVER CROSSING



9. Burnside Bridge deck looking east - lifted

Viewers: Travelers
- Commuting, Touring
- Pedestrian, Bicycling, Motoring

An otherwise low-profile bridge, the view of the opposite bank is blocked while the deck is raised for travelers. Neighbors in surrounding buildings can also view the deck raising.

10. Burnside Bridge ornamental railing

Viewers: Travelers
- Commuting, Touring
- Pedestrian, Bicycling, Motoring

The ornamental tan railings contribute to the Italian Renaissance style of the bridge.

11. Burnside Bridge under structure, looking west

Viewers: Neighbors
- Recreational, Commercial, Industrial

The Burnside Bridge is painted a tan-yellow color making it distinct from other steel bridges in Portland when viewed from below.

12. Burnside Bridge from Willamette River looking north

Viewers: Neighbors
- Recreational, Commercial, Industrial

Source: All images from Mayer/Reed Field Visit, July 2019

Figure 8. River Crossing Visual Character Photos – Cont.

RIVER CROSSING

13. Burnside Bridge and Downtown from Steel Bridge looking south

Viewers: Neighbors
- Residential

An expansive, layered view of the Burnside Bridge with Tom McCall Waterfront Park tree canopy, downtown, Old Town, and the Willamette River. The bridge appears to land in the tree canopy while the downtown sky line ascends from the bridge landing. This composition is vivid.

14. White Stag sign with Downtown and Old Town from Burnside Bridge looking west

Viewers: Travelers
- Commuting, Touring, Shipping
- Pedestrian, Bicycling, Motoring

The combination of low bridge elevation and low building height creates an open view, allowing taller elements to become iconic - such as the US Bancorp building, White Stag sign, and the West Hills.

15. Pedestrian stair to Burnside Bridge from Vera Katz Eastbank Esplanade looking east

Viewers: Neighbors
- Recreational

The stair has a utilitarian, industrial form making its use clear as well as conforming with the industrial nature of the Eastside.

16. Vera Katz Eastbank Esplanade floating path looking north

Viewers Neighbors
- Recreational

A unique experience and viewpoint in the city, this is a memorable and vivid resource.

Source: All images from Mayer/Reed Field Visit, July 2019

Figure 8. River Crossing Visual Character Photos – Cont.

RIVER CROSSING

17. Vera Katz Eastbank Esplanade on grade path looking north

Viewers: Neighbors
- Recreational

The perdindicular orientation of the path to the bridge offers direct views of the bridge from this area, making it an orderly space. The lack of canopy also provides views to the river, increasing the perception of natural harmony.

18. Burnside Bridge from Northbound I-5 looking north

Viewers: Neighbors
- Transit Corridor

The bridge has a low, heavy profile at this location.

19. Union Pacific Railroad from Burnside Bridge looking south

Viewers: Neighbors
- Industrial, Commercial

The trackway provides a long linear view south for travelers crossing the bridge.

Source: All images from Mayer/Reed Field Visit, July 2019

Figure 9. East Approach Visual Character Photos

EAST APPROACH

REPRESENTATIVE VISUAL CHARACTER

1. SE 2nd Ave looking south

Viewers: Neighbors
- Industrial, Commercial, Retail, Residential

Renovated warehouse spaces preserve remnants of the previous cultural order.

2. NE Couch St at NE MLK Jr Blvd looking west

Viewers: Neighbors
- Industrial, Commercial, Retail, Residential

Bold form and color of new development creates a new sense of cultural order.

3. Under Burnside Bridge along E 3rd Ave looking west

Viewers: Neighbors
- Commercial, Industrial

Space under bridge is used for storage and parking for surrounding businesses, therefore, the simple space is perceived as ordered by its Commercial and Industrial viewers.

4. Burnside Skatepark under Burnside Bridge looking east

Viewers: Neighbors
- Recreational

The bridge creates a canopy for the skatepark, lower than the westside, creating a darker space than the westside. This utilitarian concrete space is perceived as ordered by its viewers, Recreational Neighbors.

Source: Mayer/Reed Field Visit, July 2019; Google Street View, 2019

Figure 9. East Approach Visual Character Photos – Cont.

EAST APPROACH

DEFINING VISUAL CHARACTER ELEMENTS


Graphic facades


Large-scale residential development


Renovated warehouses


Glass facades


Active warehouses


Pedestrian and Cyclist facilities


Restricted planting space


Large-scale streets


Contemporary development

The visual character of this district is in flux, and is currently defined by that change. Remnant warehouses and industrial-use buildings are still present, while new, high-density development is increasing. The new development uses bold form, color, and material choices that create a new, novel cultural order that is memorable. The new and changing nature of this area could mean future changes to the area would be seen as positive or neutral by neighbors.

Defining visual character elements contributing to the visual quality are represented in the images above.

Source: Mayer/Reed Field Visit, July 2019; Google Street View, 2019

5.2 Viewer Groups

To analyze the magnitude and value of changes to views, an inventory of viewer groups and their sensitivity to visual change has been identified. Viewer sensitivity considers the activities, values, expectations, and interests of a viewer.

There are two viewer groups that will experience changes from the existing bridge during this project. FHWA guidelines define these groups as “Neighbors” (people with views of the bridge) and “Travelers” (people with views from the bridge). These viewer groups experience the existing bridge and AVE differently.

The following are general definitions of Viewer Groups and not the actual surveyed opinions of these groups. This report uses the FHWA’s “Professional Observational Approach” to describe the visual preference of the Affected Populations.

Figure 10 provides the locations of these affected user groups.

5.2.1 Neighbors

In general, neighbors of the Burnside Bridge enjoy clear, unimpeded views of the surrounding waterfront area. The current Burnside Bridge is low-profile yet memorable with the historic structures and architectural detailing. As the bridge elevation increases between the adjacent building, pedestrian access is interrupted, affecting Neighbors such as Commercial, and could be improved in proposed bridge designs.

Residential Neighbors.

> Residential Neighbors live within viewing distance of the proposed highway [Burnside Bridge]. This includes residents of … condominium and apartment dwellers... Their visual preferences tend toward a desire to maintain the existing landscape as it is - … including how their neighborhood looks … Residential neighbors are often interested in cultural order and natural harmony, with less emphasis on project coherence unless it impacts their ability to appreciate the other two aspects of visual quality (FHWA 2015).

Both the West and East Approaches have Residential Neighbors within the AVE, with the East Approach containing the majority. Most Residential Neighbors are in mixed-use buildings above a commercial ground floor. Residential Neighbors in the East Approach may be more open to change because of the heavy development already taking place within the landscape unit. Taller, more modern buildings are being built, changing the visual character of the landscape unit.

Recreational Neighbors

> Recreational Neighbors provide or participate in recreation within the AVE. Recreation includes … outdoor leisure activities, and cultural events… The visual preferences of recreational neighbors tend to be focused on and associated with their recreational activity. As a whole, neighbors tend to prefer the status quo and are leery of visual encroachments that may cause adverse effects on the setting of their activity…. They may also show willingness to entertain improvements to visual resources that enhance their recreational experience. Depending on the type of recreation, recreational neighbors are very interested in cultural order and

> natural harmony, with some emphasis on project coherence as it impacts their experience traveling to their recreational activity (FHWA 2015).

The West Approach Recreation Neighbors include Skidmore Fountain and bike lanes.

The River Crossing includes multiple Recreation Neighbors in Tom McCall Waterfront Park, personal watercraft on the river, the Vera Katz Eastbank Esplanade, and Burnside Skatepark. Each of these places both benefit and contribute to the landscape's legibility and visual clarity. These locations also enjoy close proximity to the natural harmony of the river.

East Approach Recreational Neighbors include bicycle facilities and pedestrian areas.

Institutional Neighbors

> Institutional Neighbors provide or receive services from a variety of institutions such as schools… located within the AVE, and provide social services to the community. Workers are employees of the institution, and can be permanent; visitors are those who receive the services of the institution and are transitory. Institutions often want to express a public face to travelers adjacent to their facilities for a variety of reasons. The presentation of their buildings and grounds is critical to the impression they are trying to convey, and they often prefer to maintain or improve these impressions or to extend the duration of the views of their buildings and grounds to travelers. Orientation and wayfinding are also critical issues, requiring coordination between transportation and institutional officials. Institutional neighbor's primary interested (sic) is in cultural order but, depending on location; they may have equal interested (sic) in natural harmony. Project coherence can be critical (FHWA 2015).

The West Approach includes an Institutional Neighbor, the University of Oregon Portland. This institutional Neighbor is a strong supporter of the visual character of the West Approach, owning highly visible property including the White Stag Building and other frontages along Naito Parkway facing the river as well as space under the west bridgehead. This neighbor may be open to change that provided them higher visibility to travelers on the bridge and neighbors along Naito Parkway and Tom McCall Waterfront Park or more clear space under the west bridgehead.

Civic Neighbors

> Civic Neighbors … provide or receive services from a government organization, such as a …Federal, State, or local agency. This group comprises workers, who are often permanent, and visitors who are more transitory. Depending on the mission of the particular government organization, views from the road may or may not be desired. Those organizations that allow views from adjacent highways sometimes prefer to maintain the status quo unless the organization believes that visibility is inadequate. If the organization does believe visibility is inadequate, visual preferences are likely similar to institutional or commercial neighbors. If the government organization has substantial interaction with the public, its visual preferences may align more with those of retail neighbors. Civic neighbors are very interested in cultural order and project coherence (FHWA 2015).

The West Approach is the only landscape unit containing Civic Neighbors. This viewer group includes Portland Fire & Rescue, Mercy Corps, Central City Concern, Home Forward, and the Human Services Department, all clustered around the west bridgehead. Portland Fire & Rescue and Mercy Corps may support change that improves project coherence and visibility, while other viewers in this group may desire to maintain or reduce their level of visibility due to providing privacy for their client base.

Retail Neighborhood

> Retail Neighbors sell goods and services to the public, and the public who buy the goods and services. Retail neighbors are merchants and shoppers. Merchants tend to be more permanent than shoppers, although shoppers may frequent the same location. Merchants prefer heightened visibility, free of competing visual intrusions. Shoppers prefer visual clarity to guide them to their destination; once at their destination, they prefer to concentrate on the shopping experience with few distractions. Retail neighbors are dependent on good project coherence and although an interest in cultural order would typically dominate, some merchants use natural harmony as a method for attracting shoppers (FHWA 2015).

The West Approach contains Retail Neighbors in first floor units in adjacent buildings, including those facing W Burnside Street. These Neighbors would most likely support changes that provide greater visibility or access to W Burnside Street.

The River Crossing contains Retail Neighbors in a temporary and seasonal form - the Saturday Market. The event is intentionally aligned physically with Ankeny Plaza and Alley for greater visual clarity and coherence. Any reduction in under-bridge structures would most likely be supported by this viewer group, improving visibility and usable space for the event.

The East Approach has first floor retail in multiple buildings and would most likely have similar feelings toward change as the West Approach.

Commercial Neighbors

> Commercial Neighbors occupy commercial property within the AVE. They include people who occupy or use office buildings, warehouses, and other commercial structures. Workers are often permanent, while visitors and customers are transitory. The visual preferences of commercial interests vary depending on the business. Those with many visitors and customers mimic the visual preferences of retail neighbors. Others are more inclined to align themselves with the visual preferences of institutional or industrial neighbors… [Commercial] neighbors are dependent on good cultural order and project coherence. Some commercial developments use natural harmony as a method for attracting and keeping tenants (FHWA 2015).

Commercial neighbors are found in both the West and East Approach, generally above the first-floor retail. Most are likely to have similar preferences to Retail Neighbors in their respective landscape unit, preferring high visibility at street level or from the bridge or waterfront.

Industrial Neighbors

> Industrial Neighbors … manufacture goods and services, or transport goods, services, and people. They tend to require large amounts of land. They tend to limit the extent to which their activities are exposed to the public. Industrial neighbors tend to be primarily workers with few transitory visitors. Industrial neighbors tend (sic) visual preference is to be left alone unless they want to present a public face indicating that they care about their neighbors' views of their facility. Industrial neighbors may benefit from good cultural order, natural harmony, and project coherence, but may not depend on these attributes (FHWA 2015).

Industrial Neighbors are primarily found in warehouses along the railroad in the East Approach. These industrial areas are currently visible from adjacent residential neighbors as well as travelers of the bridge. These neighbors will most likely be affected greatly by several bridge alternatives.

Transportation Neighbors

Transportation Neighbors are defined by their location and path of travel rather than their social or economic status due to their confinement to transportation corridors. Transportation Neighbors include neighbors utilizing highways, waterways, or railways that pass by or under the Project environment as drivers or passengers. Their interaction with the Project environment is limited due to their speed and linear path of travel. Transportation Neighbors visual preference is strong Project coherence and, to a lesser degree, cultural order. Natural harmony is not a priority to drivers, while it may be more important to passengers.

Transportation Neighbors include I-5, I-84, Union Pacific Railroad, and watercraft on the Willamette River within the River Crossing. Because Transportation Neighbors are moving by or under the bridge, they will most likely only notice moderate to large scale changes to the bridge. They have the potential to have more positive feelings towards a greater degree of change if the change acts as an iconic monument or wayfinding device.

5.2.2 Travelers

In general, Travelers of the Burnside Bridge enjoy clear, unimpeded views of downtown, Westside and Eastside districts, surrounding landscape, and the Willamette River. Architectural details, such as decorative guardrails, are more visible to Travelers than Neighbors.

Commuting Travelers

> Commuters are regular travelers of the same route. The frequency of the travel may vary, but there tend to be peaks—such as morning and evening rush hours and holidays. Most commuting occurs as short trips in urban areas between home and work. These commutes tend to be by single drivers…Commuters, like all travelers, are particularly interested in project coherence. They are also interested in cultural order and natural harmony to the extent that it contributes to wayfinding (FHWA 2015).

The River Crossing is highly legible, therefore is satisfying to Commuting Travelers. Commuting Travelers on the bridge are a mix of Motoring Travelers in personal automobile or public transit, and Pedestrian and Bicyclist Travelers. Pedestrian and Bicyclist Travelers may be able to enjoy the existing natural harmony of the River Crossing more than Motoring Travelers due to their slower speed.

Touring Travelers

> Tourists are people traveling on a highway, primarily for enjoyment, usually to a pre-determined destination. These types of trips tend to be more adventuresome, cover longer distances, and take more time than commuting trips. Touring travelers frequently are traveling in groups with both a driver and passengers. Touring travelers are equally interested in project coherence, cultural order, and natural harmony (FHWA 2015).

The Burnside Bridge is a popular route for touring due to its historical nature, central location, and proximity to other desirable tour destinations. The views from the bridge are highly legible, with distinct character on both riverbanks, and a central corridor of natural harmony along the river, all satisfying elements to Touring Travelers. Westbound Touring Travelers view the iconic layered composition of Willamette River, Tom McCall Waterfront Park, White Stag Sign, US Bank Corp tower, and the west hills beyond. Touring Travelers would most likely be very sensitive to impacts to this view.

Shipping Travelers

> Shippers make a living using a highway primarily to move goods. The type of vehicle and the distance traveled vary. Nonetheless, most shipping travel is routine. Frequently, shipping travelers are only drivers. Shippers' primary interest lies in project coherence, although they will use the resources that create cultural order and natural harmony to help as wayfinding instruments (FHWA 2015).

Shipping Travelers on the Burnside Bridge have clear sight lines and visible traffic signage. These travelers will be sensitive to impacts on these sight lines and traffic signage. However, they may be open to a large-scale change as it may be more visible at higher speeds and could improve wayfinding and project coherence.

Travelers are also subdivided by mode of travel into three different categories:

Pedestrian Travelers

> Pedestrian Travelers are self-propelled. They move using only their feet (or a wheelchair or other personal mobility device) to move them along adjacent to the highway on a sidewalk or trail. They travel at a slower rate than all other modes. It is the most common mode and is the mode that begins and ends all trips that use other means of transport. Pedestrians have a slight preference for cultural order over natural harmony and project coherence (FHWA 2015).

The low profile of the bridge structure provides pedestrian travelers with unobstructed views of the river and the layered landscape beyond on both banks.

Pedestrian Travelers have clear views of the river, city, and distant landscapes such as the west hills and Mt Hood. Because of the slow speed of travel, Pedestrian Travelers

will be more sensitive to change, including smaller-scale visual impacts on the bridge such as material, color, and architectural details.

Bicycle Travelers

> Bicyclists are self-propelled but, the bicycle allows for much greater speeds than pedestrian travel. Bicycling speed is still much slower than motorized travel, except for experienced cyclists in congested urban areas. Bicyclists, like pedestrians, have a slight preference for project coherence over cultural order and natural harmony (FHWA 2015).

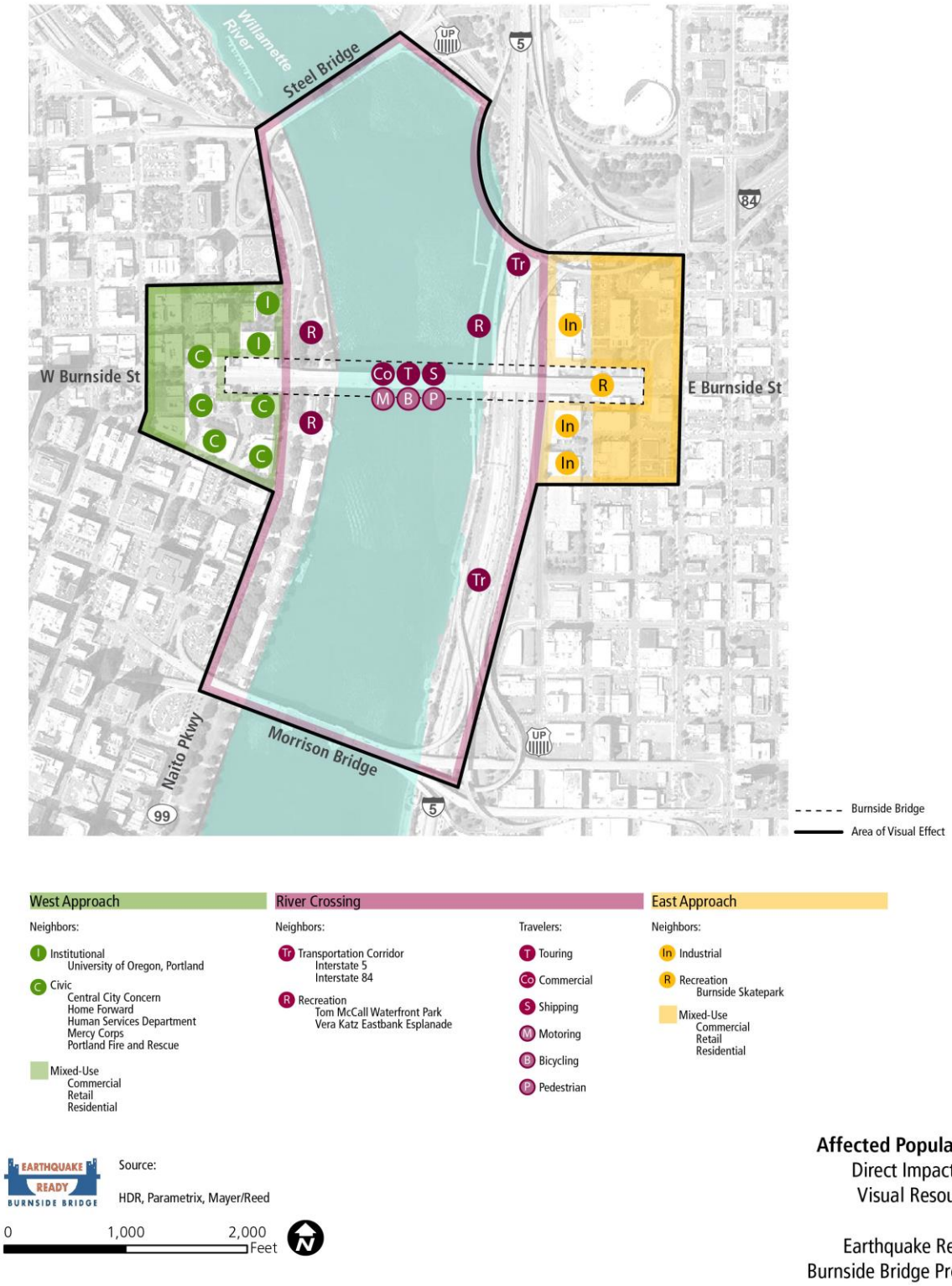
Bicycling Travelers have clear views of the river, city, and distant landscapes such as the west hills and Mt Hood. Because of their moderate speed of travel, Bicycling Travelers will be more sensitive to change, including smaller-scale visual impacts on the bridge such as material, color, and architectural details. Bicycling and Pedestrian Travelers share space on the existing bridge, negatively effecting project coherence. Therefore, these travelers may be open to impacts that improve project coherence by separating modes of transit.

Motoring Travelers

> Motorists travel in vehicles propelled by engines. Vehicles are cars, trucks, buses, motorcycles, or any other technology that is not self-propelled, regardless of size, fuel source, or other factors which have little effect on the driver's or passenger's ability to see visual resources. Motoring travelers move at higher speeds in comparison to other modes. Groups of motorists within a vehicle are able to discuss what they see from the vehicle. By necessity, the driver of a motor vehicle focuses less on the view outside the vehicle. The driver's primary interest is in project coherence, although natural harmony and cultural order also provide resources used for wayfinding. Good natural harmony and cultural order can increase driver attentiveness. Passengers prefer evidence of good natural harmony and cultural order (FHWA 2015).

The low-profile form influences Motorists experience and views more so than the architectural details due to their speed of travel. Motorists are likely to be most sensitive to impacts to clear views from the bridge. However, they may be open to a large-scale change as it may be more visible at higher speeds and could improve wayfinding and project coherence.

Figure 10. Affected Population Map



Note: Population affected by the proposed Project is referred to as viewers. In the inventory phase, viewers are defined by their relationship to the proposed highway Project and their visual preferences.

5.3 Visual Quality

Using professional observation, visual quality was analyzed and provided herein. Refer to Figure 11 and Figure 12 for key views and their locations.

> Visual quality serves as the baseline for determining the degree of visual impacts—that is, if visual impacts are adverse, beneficial, or neutral. As a preference, visual quality also provides a design and management goal for determining the need to mitigate adverse impacts and the potential for incorporating beneficial impacts into the design of the project…
>
> Different viewers may evaluate visual resources in different way (sic) and come to varying conclusions about visual quality. Neighbors and travelers may in particular (sic), have different opinions on what they like and dislike about an existing scene. What people like and dislike about an existing scene is a function of why they are in a particular location with a view of it.
>
> Visual quality depends on what the eye sees and what the mind wants to see. If people see what their mind wants to see, they are pleased and they consider visual quality as good. If people don't see what they are expecting or desire to see, they are displeased and consider visual quality as poor.
>
> For transportation projects, what people want to see is predictable. These desires relate to their self-interest as a neighbor or a traveler. By defining the self-interest of neighbors and travelers, the visual quality of the existing scene—what people visually like and dislike—can be established.
>
> Self-interest also defines a viewer's visual preferences. A neighbors' self-interest and visual preferences relate to their use of their property. A travelers' self-interest and visual preferences relate to their purpose for using the highway (FHWA 2015).

5.3.1 West Approach Visual Unit

Due to the urban setting, there is no Natural Harmony in the West Approach.

The cohesive visual character of the area creates a strong cultural order and many vivid compositions. The historic buildings generally share a common scale, shape, and material palette. Modern buildings in the area also follow this district design aesthetic. Mature street trees provide a green canopy to many streets in the area, softening the urban structure and offering shade to pedestrians. Historic buildings built to support the predominately pedestrian user group of the time still offer human scale facades today – ample storefront windows, doors at close intervals, façade ornamentation, and awnings. Because of the strong cultural order in this area, any drastic change could be viewed negatively by neighbors.

5.3.2 River Crossing Visual Unit

This Landscape Unit contains elements of natural harmony, cultural order, and project coherence.

The Willamette River is the visual anchor in this landscape unit. It is an important compositional element in most views from each environment type, providing linearity, dynamism, and a sense of openness. The river provides clear, wide views to the landscape beyond. For example - several vivid, or memorable, expansive, layered views include the Burnside Bridge terminating amongst tree canopy of Tom McCall Waterfront Park with the skyline of downtown ascending to the West Hills beyond. Though the bridgeheads differ in length, the bridge towers and piers appear centered in the river crossing, providing a sense of symmetry to the bridge span.

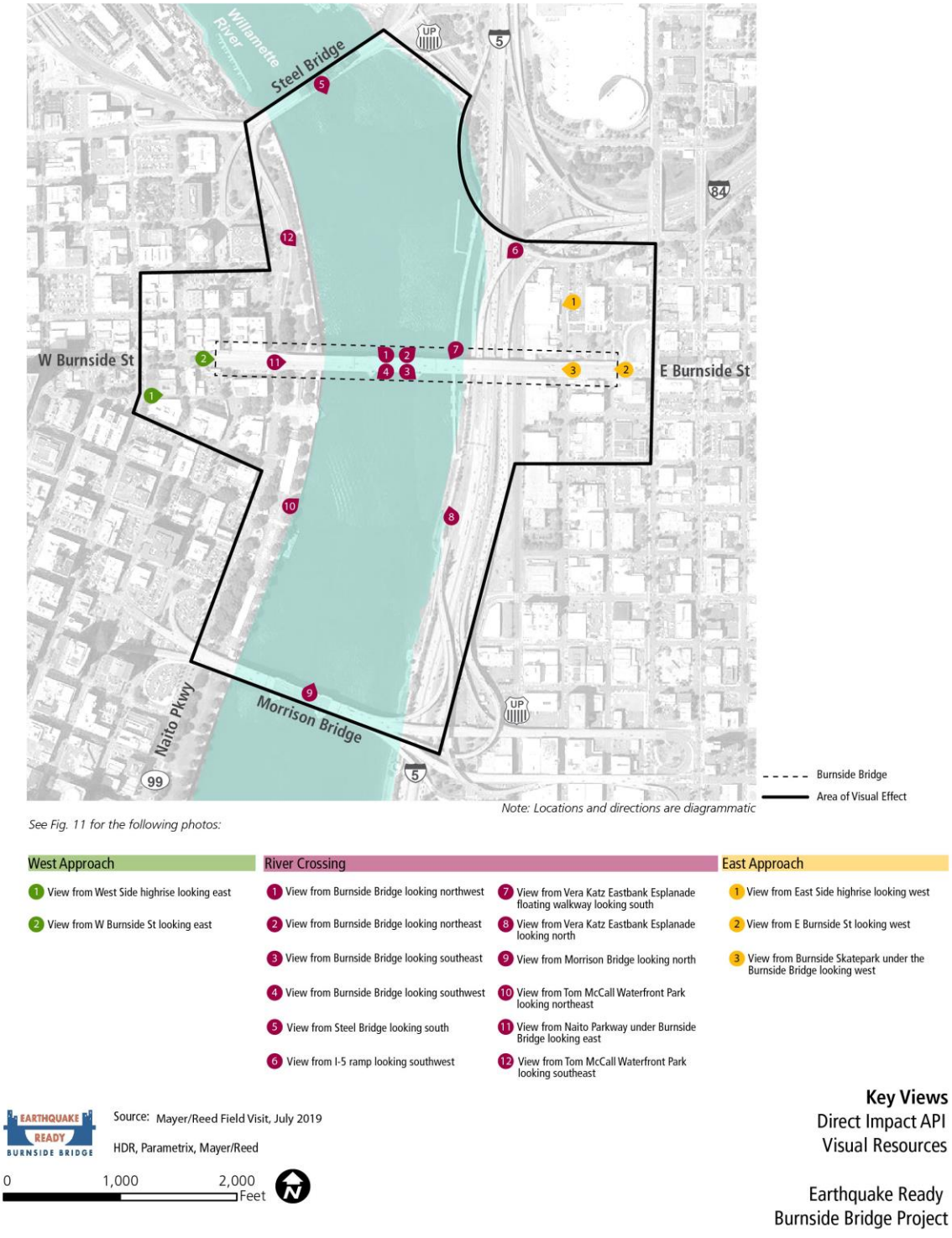
There are uninterrupted views north to the Steel Bridge and south to the Morrison Bridge. These two bridges create a visual barrier to the landscape beyond.

The combination of low bridge elevation and low building height on the west side creates an open view for westbound travelers, allowing taller elements to become iconic, such as the US Bancorp building, White Stag sign, and the West Hills.

5.3.3 East Approach Visual Unit

The east approach is undergoing transition and is currently defined by that change. Remnant warehouses and industrial-use buildings are still present, while new, high-density development is increasing. The new development uses bold form, color, and material choices that create a new, novel cultural order that is memorable. The new and changing nature of this area could mean future changes to the area would be seen as positive or neutral by neighbors. New development in the area has increased building height, creating narrowed views, more shadows, and less tree canopy.

Figure 11. Key Views Map



Note: Photo locations documenting key views from each landscape unit. These static images are intended to show representative views to and from the bridge which will be used to assess the visual impacts of the project.

Figure 12. Key Views Photos

WEST APPROACH

1. View from Westside highrise looking east

2. View from W Burnside Street of Burnside Bridge looking east

RIVER CROSSING

1. View from Burnside Bridge looking northwest

2. View from Burnside Bridge looking northeast

3. View from Burnside Bridge looking southeast

Source: Mayer/Reed Field Visit, July 2019; Google Street View, 2019

Figure 12. Key Views Photos – Cont.

RIVER CROSSING

4. View from Burnside Bridge looking southwest

5. View from Steel Bridge looking south

6. View from I-5 ramp looking southwest

7. View from Vera Katz Eastbank Esplanade floating walkway looking south

8. View from Vera Katz Eastbank Esplanade looking north

9. View from Morrison Bridge looking north

Source: Mayer/Reed Field Visit, July 2019; Google Street View, 2019

Figure 12. Key Views Photos – Cont.

RIVER CROSSING - CONT.

10. View from Tom McCall Waterfront Park looking northeast

11. View from Naito Parkway under Burnside Bridge looking east

12. View from Tom McCall Waterfront Park looking southeast

EAST APPROACH

1. View from Eastside to Burnside Bridge looking west

2. View from E Burnside Street to Burnside Bridge looking west

3. View of Burnside Skatepark under Burnside Bridge looking east

Source: Mayer/Reed Field Visit, July 2019; Google Street View, 2019

6 Analysis Phase

This chapter evaluates bridge alternatives for impacts to the Visual Resources of the Project Environment, Viewer Sensitivity, and their combined influence on Visual Quality(Figure 13). Together, the compatibility of the impact to the visual resource, and the sensitivity of the impact to viewers, yield the degree of the impact on visual quality. Impacts are simply changes to the environment or to viewers.

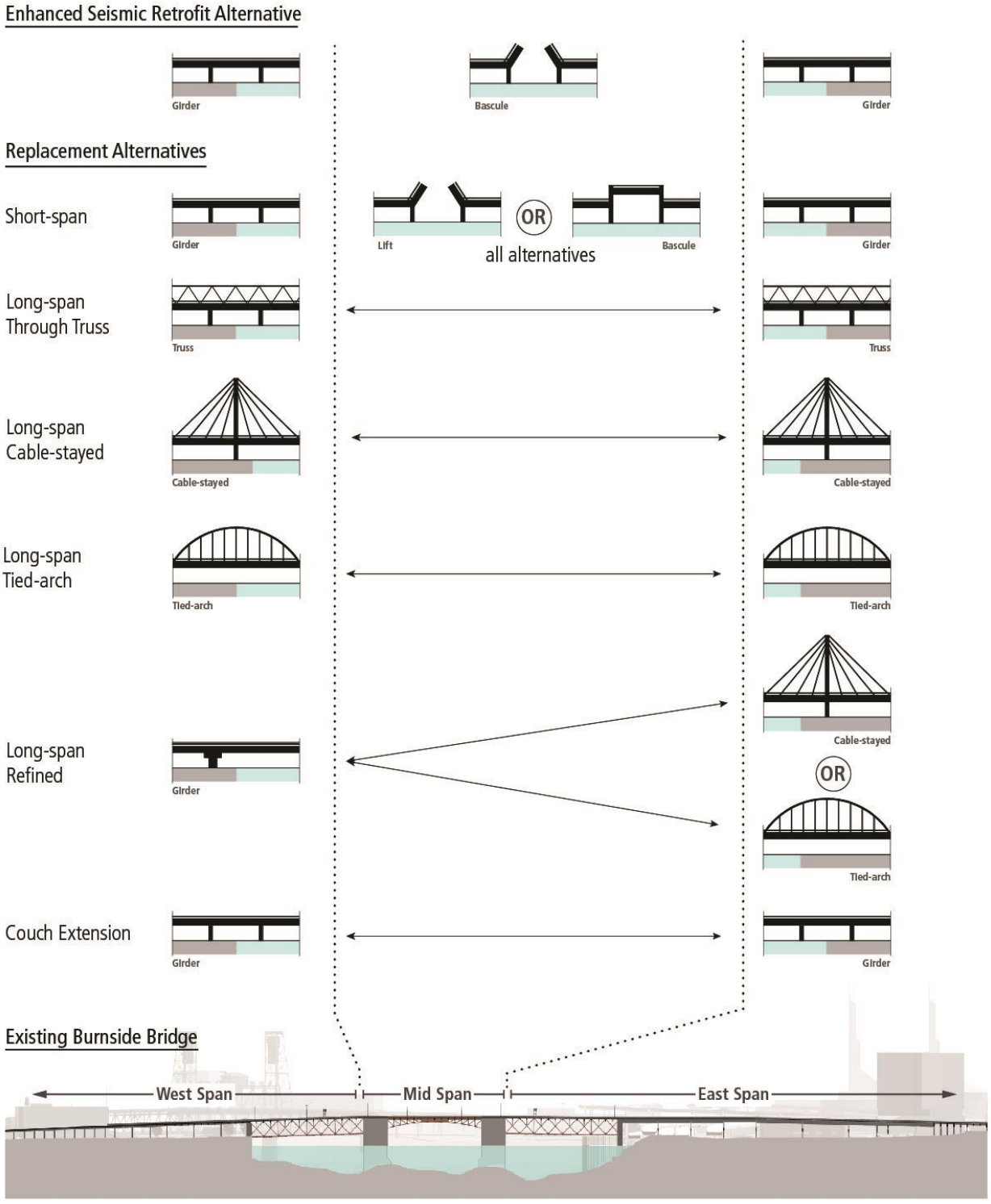
For brevity, this section uses the following short-cuts in naming alternatives and options:

- Short-span Alternative or Couch Extension Alternative.
- Long-span Alternative using a bridge type with medium to tall height vertical elements.[2]
- Refined Long-span Alternative (4-lane Version) is referred to as Refined Long-span, Girder Option, or Refined Alternative.

[2] *Unlike the other alternatives, the Long-span Alternative would require major above-deck structure. This structure could be in the form of three general bridge types: through truss (similar to the Steel and Hawthorne bridges), tied-arch (similar to the Fremont or Sauvie Island bridges) or cable-stayed (similar to the Tilikum Crossing)*.

The Draft EIS analysis of the tied-arch and cable-stayed bridge types (the tallest bridge type options) is based on conceptual designs. The through truss analysis for the Draft EIS is based on precedent bridge examples. The impacts to Visual Resources are based on the level of design completed at the time of this report and the visual sensitivity of viewers is conducted using FHWA's Professional Observation Approach, making the current evaluation of Visual Quality impacts preliminary. The document will be updated based on input from the outreach process and comments received on the draft EIS and will include additional design detail from the Bridge Type Study.

Figure 13. Bridge Component Alternatives



Bridge Component Alternatives
Visual Resources
Earthquake Ready
Burnside Bridge Project

Source:
HDR, Parametrix, Mayer/Reed

6.1 Visual Compatibility

Visual compatibility examines how proposed alternatives impact, or contrast with, the existing visual character of the Landscape Units (Table 2).

Impacts are simply changes to the environment (measured by the compatibility of the impact) or to viewers (measured by sensitivity to the impacts). Together, the *compatibility* of the impact and the *sensitivity* of the impact yield the *degree* of the impact to visual quality (FHWA 2015).

The bridge component alternatives have been organized by span location – West Span, Mid-Span, and East Span – and are evaluated by impacts to landscape units and viewer groups.

The following descriptions are based on the current general bridge component alternatives. As additional design details become available, such as color and material, the assessments will be updated.

6.1.1 West Span

Retrofit Alternative

Scale, form, and materials are comparable to the existing conditions; therefore, it is compatible. Component does not contrast with the existing visual character.

Short-span Alternative

Scale, form, and materials are comparable to the existing conditions; therefore, it is compatible. Component does not contrast with the existing visual character.

Couch Extension Alternative

Scale, form, and materials are comparable to the existing conditions; therefore, it is compatible. Component does not contrast with the existing visual character.

Long-span Alternative

Through Truss

Components would increase vertical elements above deck. Typical “through truss” bridges have vertical massing and generally an industrial aesthetic that may be compatible with the character of the West Approach. Overhead structures may increase enclosed form. The vertical elements may impede Traveler's views of key character defining traits of the West Approach such as White Stag sign, downtown, and Old Town buildings. Addition of medium vertical elements above Tom McCall Waterfront Park may change the character of structure for Recreational, Commuting, and Touring Neighbors.

Tied-arch

Component greatly increases vertical elements above deck. Vertical massing with arched profile contrasts with Project environments in the River Crossing and West Approach. Component moderately/highly contrasts with existing visual character of the

West Approach, particularly Old Town. The vertical elements impede Traveler's views of key character defining traits of the West Approach such as White Stag sign, downtown, and Old Town buildings. Addition of tall vertical elements above Tom McCall Waterfront Park changes character of structure for Recreational, Commuting, and Touring Neighbors. The Long-span design reduces structural bents below the bridge deck in Tom McCall Waterfront Park, and from Naito Parkway to 1st Avenue.

Cable-stayed

Component greatly increases vertical elements above deck. Tall, upright, modern form contrasts with the West Approach's visual character, particularly the Old Town district. The vertical elements impede Traveler's views of key character defining traits of the West Approach such as White Stag sign, downtown, and Old Town buildings. Addition of tall vertical elements above Tom McCall Waterfront Park changes character of structure for Recreational, Commuting, and Touring Neighbors. The Long-span design reduces structural bents below the bridge deck in Tom McCall Waterfront Park, and from Naito Parkway to 1st Avenue.

Girder – Refined Alternative

The below deck support system allows above deck elements to remain low in height, retaining views from, to, and over the bridge. The detailed visual character of the structure is uncertain at this time, materials and future structure design will be important factors in determining how compatible the bridge is with the surrounding landscape unit, particularly the Old Town District. The girder below the bridge deck reduces the columns in Tom McCall Waterfront Park from 5 smaller columns (existing).

In the Refined Alternative, this west span option is paired with a tall vertical element on the east span. The varied, asymmetrical scale of the bridge on either side of the river differs from the existing sense of symmetry centered on the river.

Pedestrian Access Point[3]

There are two proposed options for providing Americans with Disabilities Act (ADA) accessible pedestrian access from the waterfront to the bridge deck. The ramp option is used in all Draft EIS Build Alternatives, while the elevator and stairs option is used in the Refined Alternative.

The ramp option replaces the existing stairs and adds a ramp north and south of the bridge deck. Retaining the ornamental archway reading “Saturday Market Old Town” would not affect the visual character of the area but removing it would affect the visual character. The building demolition on this block would provide a more open pedestrian experience.

The elevator and stairs option replaces the existing stairs with an elevator and stairs north and south of the bridge deck. Retaining the ornamental archway reading “Saturday Market Old Town” would not affect the visual character of the area but removing it would affect the visual character. The building demolition on this block would provide a more

[3] Preliminary evaluation, pedestrian stair, ramp, and elevator is a conceptual design and had not been engineered at the time of this report.

open pedestrian experience. Materials used and the design of the elevator towers will significantly define the visual character of the structure and determine the compatibility with the surrounding historic district. The assumption is that the materials and design will be compatible with the surrounding context due to the requirements of the Skidmore/Old Town Historic District Guidelines. See *EQRB Cultural Resources Technical Report* (Multnomah County 2021a) for additional information.

6.1.2 Mid-Span

Retrofit (Bascule)

Scale, form, and materials are comparable to the existing conditions; therefore, it is compatible. Component does not contrast with the existing visual character.

Replacement with Lift Bridge

Addition of a vertical element impacts the form and scale of the center of the bridge, a location with high visual focus. The lift moderately/highly contrasts with existing visual character of the Project Environment.

Replacement with Bascule Bridge

Scale, form, and materials are comparable to the existing conditions; therefore, it is compatible. Component does not contrast with the existing visual character.

6.1.3 East Span

Retrofit Alternative

Scale, form, and materials are comparable to the existing conditions; therefore, it is compatible. Component does not contrast with the existing visual character.

Short-span Alternative

Scale, form, and materials are comparable to the existing conditions; therefore, it is compatible. Component does not contrast with the existing visual character.

Couch Extension Alternative

Couch Extension includes impacts from a Short-span connection to Burnside Street as well as impacts from a Couch Street connection. Component does not increase vertical elements above deck but doubles area and footprint of the structure. Materials are likely to be similar to existing materials.

Long-span Alternative

Through Truss[4]

Components could increase vertical elements above deck. Typical through truss bridges have vertical massing and generally an industrial aesthetic that may be compatible with the character of the East Approach. Overhead structures may increase enclosed form.

Tied-arch

Component greatly increases vertical elements above deck. Vertical massing with arched profile contrasts with the visual character of Project Environment yet does not contrast with the character of the East Approach. The Long-span design reduces structural bents below bridge deck near freeway and rail lines.

Cable-stayed

Component greatly increases vertical elements above deck. Though the cable-stayed design may be the most visually transparent, it is the tallest component. Streamlined, visually light, modern aesthetic contrasts greatly with existing structure. Component highly contrasts with existing visual character of the Project Environment yet does not contrast with the character of the East Approach. The Long-span design reduces structural bents below bridge deck near freeway and rail lines.

Pedestrian Access Point[5]

There are two proposed options for providing ADA-accessible pedestrian access from the East Span bridge deck to the Vera Katz Eastbank Esplanade. A ramp option is used in all alternatives except the Refined Alternative, which used an elevator and stair option. The existing condition is a single stair structure off the south side of the bridge, with no ADA-accessible option.

All non-refined options evaluated a long ramp which would have a larger footprint and be more visually intrusive. The design of the ramp will be the main determinant of how much it complements or contrasts with the visual character of the East Approach. The footprint required may remove the majority of existing trees in the area, greatly affecting the visual character of the east bank of the river directly south of the Burnside Bridge. The height and scale of the structure will alter views from the Vera Katz Eastbank Esplanade and from the west side of the river to the east.

The Refined Alternative proposes to replace the existing single stair structure on the south side of the bridge with an elevator tower and stair structure on both the south and north sides for ADA/pedestrian access to the Eastbank Esplanade. A structure with a similar form and footprint to the existing stair structure does not contrast with the visual character of the East Approach.

[4] Preliminary evaluation, this bridge type had not been designed at the time of this report.

[5] Preliminary evaluation, pedestrian stair, ramp, and elevator is a conceptual design and had not been engineered at the time of this report.

Table 2. Visual Character Compatibility Matrix

		Project Scale	Project Form	Project Materials	Project Visual Character
West Span					
Retrofit					
Short-span and Couch Extension					
Long-span	Through Truss				
	Tied-Arch				
	Cable-Stayed				
	Girder*				
Pedestrian Access	Ramp				
	Elevator & Stair*				
Mid-Span					
Retrofit	Bascule				
Replacement Alternatives	Lift				
	Bascule				
East Span					
Retrofit					
Short-span					
Couch Extension					
Long-span	Through Truss				
	Tied-Arch*				
	Cable-Stayed*				
Pedestrian Access	Ramp				
	Elevator & Stair*				

*= Refined Alternative

Legend: Degree of Impact | ***Low*** | ***Low/Moderate*** | ***Moderate*** | ***Moderate/High*** | ***High***

6.2 Viewer Sensitivity

Viewer sensitivity examines how aware viewers may be to impacts on existing conditions through the lens of exposure and awareness. Proximity, extent, and duration are used to evaluate Exposure, while attention, focus, and protection are used to evaluate Awareness. Touring Neighbors and Travelers find views novel, making them more sensitive, and Commuting Neighbors and Travelers find views routine, making them less sensitive. Generally, Neighbors dislike change. The existing character of the bridge has a low-profile with few strong focal points and allowing for open views for Travelers (Table 3).

The bridge component alternatives have been organized by span location – West Span, Mid-Span, and East Span – and are evaluated by impacts to landscape units and viewer groups.

The following are general descriptions of Viewer Sensitivity and not surveyed opinions of the User Groups. This report uses the FHWA's "Professional Observational Approach" to describe the visual sensitivity of the Affected Populations.

6.2.1 West Span

Retrofit Alternative

Viewers will need to be in close proximity to see impacts. Travelers moving slowly will be the most likely to see impacts, therefore, a small extent of Travelers will be affected. Neighbors in close proximity or moving slowly are most likely to be affected, such as Recreational Neighbors in Tom McCall Waterfront Park. Travelers include Motoring, Pedestrian, and Bicyclists, all with varying duration on the bridge. Many Neighbors are moving by the bridge, including Touring, Commuting, and Recreational Neighbors, with a shorter duration. Others, such as Residential and Commercial Neighbors have a longer duration of exposure.

Short-span Alternative and Couch Extension Alternative

Viewers will need to be in close proximity to see impacts. Travelers moving slowly will be the most likely to see impacts, therefore, a small extent of Travelers will be affected. Neighbors in close proximity or moving slowly are most likely to be affected, such as Recreational Neighbors in Tom McCall Waterfront Park. Travelers include Motoring, Pedestrian, and Bicyclists, all with varying duration on the bridge. Many Neighbors are moving by the bridge, including Touring, Commuting, and Recreational Neighbors, with a shorter duration. Others, such as Residential and Commercial Neighbors have a longer duration of exposure.

Long-span Alternative

Through Truss

Bridge may be seen by Westbound Travelers from a greater distance from across the river, and Eastbound Travelers from W Burnside Street. Medium height of structure may be seen from a greater distance by Neighbors in all landscape units. Increased height of structure increases the distance from which it is seen, increasing the number of viewers impacted. Bridge may be seen by Westbound Travelers from a greater distance, increasing the time it is seen. Height of structure may increase the distance from which it is seen, increasing the duration of time it is seen. Views from the vehicular lanes on the Burnside Bridge to the White Stag sign may be impeded, and Downtown may be partly obscured by the bridge structure. Structure could frame views of West Hills for westbound traffic. Overhead structures could increase this effect. Sidewalks and bicycle lanes are outboard of the bridge structure, allowing for unimpeded views.

Tied-arch

Bridge can be seen by Westbound Travelers from a greater distance from across the river, and Eastbound Travelers from W Burnside Street. Height of structure is seen from great distance by Neighbors in all landscape units. Height of structure increases the distance from which it is seen, increasing the number of viewers affected. Bridge can be seen by Westbound Travelers from a greater distance, increasing the time it is seen. Height of structure increases the distance from which it is seen, increasing the duration of time it is seen. Views from the vehicular lanes on the Burnside Bridge to the White Stag sign are impeded, and Downtown is partly obscured by the bridge structure. Structure frames view of West Hills for westbound traffic. Sidewalks and bicycle lanes are outboard of the bridge structure, allowing for unimpeded views.

Cable-stayed

Bridge can be seen by Westbound Travelers from a greater distance from across the river, and Eastbound Travelers from W Burnside Street. Height of structure is seen from great distance by Neighbors in all landscape units. Height of structure increases the distance from which it is seen, increasing the number of viewers affected. Bridge can be seen by Travelers from a greater distance, increasing the time it is seen. Height of structure increases the distance from which it is seen, increasing the duration of time it is seen. Views from the vehicular lanes on the Burnside Bridge to the White Stag sign are impeded, and Downtown is partly obscured by the bridge structure. Structure frames view of West Hills for westbound traffic. Sidewalks and bicycle lanes are outboard of the bridge structure, allowing for unimpeded views.

Girder – Refined Alternative

Viewers will need to be in close proximity to see impacts. Travelers moving slowly will be the most likely to see impacts, therefore, a small extent of Travelers will be affected. Neighbors in close proximity or moving slowly are most likely to be affected, such as Recreational Neighbors in Tom McCall Waterfront Park. Most notable impacts to neighbors in Tom McCall Waterfront Park will be the reduction in bridge columns and equal or higher overhead structure. Travelers include Motoring, Pedestrian, and Bicyclists, all with varying duration on the bridge. Many Neighbors are moving by the bridge, including Touring, Commuting, and Recreational Neighbors, with a shorter duration. Others, such as Residential and Commercial Neighbors have a longer duration of exposure.

In the Refined Alternative, this west span option is paired with a tall vertical element on the east span. The varied, asymmetrical scale of the bridge on either side of the river may be viewed as a large impact from existing or viewed as being compatible with the respective sides.

Pedestrian Access Point[6]

For both options, viewers in relatively close proximity will see impacts. Pedestrian Travelers and Neighbors will be the greatest affected due to being users of the facility and their slow rate of movement. The building removal will affect the spatial layout of the area, opening views to both Travelers and Neighbors. Vehicular Travelers will be minimally affected due to their rate of travel. The project scale of the ramp option is larger in footprint, while the scale of the elevator is larger vertically. The scale of the ramp will be noticed more by Neighbors below the bridge where they will see the ramp. The elevator will be noticed more by Travelers and Neighbors on the bridge deck.

6.2.2 Mid-Span

Retrofit Alternative

Viewers need to be in close proximity to see impacts. Travelers moving slowly will be the most likely to see impacts, therefore, a small extent of Travelers will be affected. Neighbors in close proximity or moving slowly are most likely to be affected, such as Recreational Neighbors in Tom McCall Waterfront Park. Travelers include Motoring, Pedestrian, and Bicyclists, all with varying durations on the bridge. Many neighbors are moving by the bridge, including Touring, Commuting, and Recreational Neighbors, with a shorter duration. Others, such as Residential and Commercial Neighbors have a longer duration of exposure.

Replacement with Lift Bridge

Height of structure will be seen from a moderate distance by Neighbors in all landscape units. Neighbors in close proximity or moving slowly are most likely to be affected, such as Recreational Neighbors in Tom McCall Waterfront Park. Bridge will be seen by Westbound Travelers from a greater distance, increasing the duration of time it is seen. Views up and down river as well as downtown are partially impeded. Views across the river from both West and East Approaches are partially impeded. Views to the Lloyd District are partially obscured from Neighbors south of the bridge.

Replacement with Bascule Bridge

Viewers will need to be in close proximity to see impacts. Travelers moving slowly will be most likely to see impacts, therefore, a small extent of Travelers will be affected. Neighbors in close proximity or moving slowly are most likely affected, such as Recreational Neighbors in Tom McCall Waterfront Park. Travelers include Motoring, Pedestrian, and Bicyclists, all with varying duration on the bridge. Many neighbors are moving by the bridge, including Touring, Commuting, and Recreational Neighbors, with a shorter duration. Others, such as Residential and Commercial Neighbors have a longer duration of exposure.

[6] Preliminary evaluation, pedestrian stair, ramp, and elevator is a conceptual design and had not been engineered at the time of this report.

6.2.3 East Span

Retrofit Alternative

Viewers need to be in close proximity to see impacts. Travelers moving slowly will be the most likely to see impacts, therefore, a small extent of Travelers will be affected. Neighbors in close proximity or moving slowly are most likely affected, such as Recreational Neighbors on the Vera Katz Eastbank Esplanade. Travelers include Motoring, Pedestrian, and Bicyclists, all with varying durations on the bridge. Many neighbors are moving by the bridge, including Touring, Commuting, and Recreational Neighbors, with a shorter duration. Others, such as Residential and Commercial Neighbors have a longer duration of exposure.

Short-span Alternative

Viewers need to be in close proximity to see impacts. Travelers moving slowly will be the most likely to see impacts, therefore, a small extent of Travelers will be affected. Neighbors in close proximity or moving slowly are most likely affected, such as Recreational Neighbors on the Vera Katz Eastbank Esplanade. Travelers include Motoring, Pedestrian, and Bicyclists, all with varying durations on the bridge. Many neighbors are moving by the bridge, including Touring, Commuting, and Recreational Neighbors, with a shorter duration. Others, such as Residential and Commercial Neighbors have a longer duration of exposure.

Couch Extension Alternative

Couch Extension contains impacts from a Short-span connection to Burnside Street as well as impacts from a Couch Street connection. Bridge may not be seen by Eastbound Travelers from a greater distance, but the increased footprint of the bridge will be seen by Neighbors across the river. Doubling the footprint of the bridge on the East Span increases the number of viewers impacted as well as the duration in which it is seen. Views from the west may be unaffected due to surrounding transit context, however, Residential Neighbor’s views from the east will be greatly impacted.

Long-span Alternative

Through Truss

Bridge may be seen by Eastbound Travelers from a greater distance from across the river, and Westbound Travelers from E Burnside Street and NE Couch Street. Medium height of structure may be seen from a moderate distance by Neighbors in all landscape units. Increased height of structure increases the distance from which it is seen, increasing the number of viewers affected. Bridge can be seen by Travelers from a greater distance, increasing the time it is seen. Height of structure increases the distance from which it is seen and the duration of time it is seen. Views of the White Stag sign may be impeded, and Downtown may be partly obscured by the bridge structure. Structure could frame views of West Hills for westbound traffic. Overhead structures could increase this effect.

Tied-arch

Travelers are the closest viewers. Bridge can be seen by Eastbound Travelers from a greater distance from across the river, and Westbound Travelers from E Burnside Street and NE Couch Street. Height of structure is seen from great distance by Neighbors in all landscape units. Height of structure increases the distance from which it is seen, increasing the number of viewers affected. Bridge can be seen by Travelers from a greater distance, increasing the time it is seen. Height of structure increases the distance from which it is seen and the duration of time it is seen. The mass of the structures if generally located over the river. Views of the White Stag sign are impeded, and Downtown is partly obscured by the bridge structure. Structure frames view of West Hills for westbound traffic.

Cable-stayed

Travelers are the closest viewers. Bridge can be seen by Eastbound Travelers from a greater distance from across the river, and Westbound Travelers from E Burnside Street and NE Couch Street. Height of structure is seen from great distance by Neighbors in all landscape units. Height of structure increases the distance from which it is seen, increasing the number of viewers affected. Bridge can be seen by Travelers from a greater distance, increasing the time it is seen. Height of structure increases the distance from which it is seen and the duration of time it is seen. The mass of the structures is generally located over the West and East approaches. Views of the White Stag sign are impeded, and Downtown is partly obscured by the bridge structure. Structure frames view of West Hills for westbound traffic.

Pedestrian Access Point[7]

Ramp structure can be seen from the bridge deck, especially by eastbound Travelers. Vehicular Travelers are minimally affected by the structure due to their rate of travel, but Pedestrian and Bicycle Travelers will view the structure for a longer duration. The structure will be seen by Neighbors on the Vera Katz Eastbank Esplanade and Tom McCall Waterfront Park. The increased footprint and height of the structure as well as the alignment along the river increases the distance from which it is seen and the duration of time it is seen.

The elevator structures can be seen from the bridge deck by Travelers. Vehicular Travelers are minimally affected by the structures due to their rate of travel, but Pedestrian and Bicycle Travelers will view the structures for a longer duration. The structures will be seen by Neighbors on the Vera Katz Eastbank Esplanade and Tom McCall Waterfront Park; however, the scale of the structures may not cause large visual impact due to their relative size next to the bridge structure.

[7] Preliminary evaluation, pedestrian stair, ramp, and elevator is a conceptual design and had not been engineered at the time of this report.

Table 3. Viewer Sensitivity Matrix

		Proximity		Extent		Duration		Protection		Total Value of Impact
		T**	N**	T	N	T	N	T	N	
West Span										
Retrofit										
Short-span and Couch Extension										
Long-span	Through Truss									
	Tied-Arch									
	Cable-Stayed									
	Girder*									
Pedestrian Access	Ramp									
	Elevator & Stair*									
Mid-Span										
Retrofit	Bascule									
Replacement Alternatives	Lift									
	Bascule									
East Span										
Retrofit										
Short-span										
Couch Extension										
Long-span	Through Truss									
	Tied-Arch*									
	Cable-Stayed*									
Pedestrian Access	Ramp									
	Elevator & Stair*									

*=Refined Alternative, ** T=Traveler, N=Neighbor

Legend: Degree of Impact | ***Low*** | ***Low/Moderate*** | ***Moderate*** | ***Moderate/High*** | ***High***

6.3 Impacts to Visual Quality

Visual character impacts and viewer sensitivity to impacts determine the degree of impacts to visual quality and are described from adverse to beneficial. Figure 14 through Figure 40 provide representative images selected to illustrate visual impacts (Table 4).

The bridge component alternatives have been organized by span location – West Span, Mid-Span, and East Span – and are evaluated by impacts to landscape units and viewer groups.

The following are general descriptions of Visual Quality and not the surveyed opinions of User Groups. This report uses the FHWA's "Professional Observational Approach" to describe the visual quality of the Project Alternatives.

6.3.1 West Span

Retrofit Alternative

Existing views remain the same. Low-profile structure does not impede views for Travelers or Neighbors. Neighbors are typically believed to have a strong preference to maintain existing conditions; therefore, the similar scale, form, and visual character of the retrofit to existing is thought to please Neighboring viewers. The Retrofit also provides the least opportunity to create a crossing that activates new areas for public use or creates opportunities to provide new views, iconic/demonstrative visual experiences, processional experiences, or new gateways.

Short-span Alternative and Couch Extension Alternative

Existing views remain the same. Low-profile structure does not impede views for Travelers or Neighbors, lending to natural harmony. Open views from the bridge allow Travelers to see landmarks in the West Approach and across the river in the East Approach, facilitating cultural order and project coherence. Neighbors typically have a strong preference to keep existing conditions; therefore, the similar scale, form, and visual character of the retrofit to existing is thought to please Neighboring viewers.

Long-span Alternative

Though these alternatives will impact views, they have the potential to improve or enhance views and viewer experience by creating view frames or thresholds. Tall elements have the potential to create a focal point in the center of the River Crossing or iconic background for viewers in the West Approach. They provide the greatest opportunity to create a crossing that activates new areas for public use, and the greatest opportunities to provide new views, iconic/demonstrative visual experiences, processional experiences, or new gateways.

Through Truss

A medium height structure may partially impede views of the river, downtown, White Stag sign, and hills. Structures may impede views of the river from West Approach Recreational Neighbors. Structure potentially increases vertical mass above Recreational, Commuting, and Touring Neighbors using Tom McCall Waterfront Park. Additional overhead elements would increase impact to views. Typical through truss bridges have an industrial aesthetic that is compatible with the character of the West Approach.

The Long-span Alternative with a medium height provides high opportunity to create a crossing that activates new areas for public use, and high opportunities to provide new

views, iconic/demonstrative visual experiences, processional experiences, or new gateways.

Tied-arch

Structure impedes views for Travelers of the surrounding environment, such as the White Stag sign, downtown, and the river, impacting natural harmony and cultural order. The height of the structure impedes views of the river from West Approach Residential Neighbors. The arched form contrasts with the character of the West Approach and greatly increases vertical mass above Recreational, Commuting, and Touring Neighbors using Tom McCall Waterfront Park. These contrasts could create a sense of Project incoherence; however, the reduction of structural bents under the bridge provides opportunities for greater occupiable space.

Cable-stayed

Structure impedes views for Travelers of the surrounding environment, such as the White Stag sign, downtown, and the river, impacting natural harmony and cultural order. The height of the structure impedes views of the river from West Approach Residential Neighbors. The streamlined, modern form contrasts with the character of the West Approach and greatly increases vertical mass above Recreational, Commuting, and Touring Neighbors using Tom McCall Waterfront Park. These contrasts could create a sense of incoherence; however, the reduction of structural bents under the bridge provides opportunities for greater occupiable space.

Girder – Refined Alternative

The low-profile structure does not impede views for Travelers or Neighbors, lending to natural harmony. Open views from the bridge allow Travelers to see landmarks in the West Approach and across the river in the East Approach, facilitating cultural order and project coherence. Neighbors typically have a strong preference to keep existing conditions; therefore, the similar scale, form, and visual character of the alternative relative to existing is thought to please Neighboring viewers. The girder creates an equal or higher ceiling for users under the bridge such as the Saturday Market.

In the Refined Alternative, this west span option is paired with a tall vertical element on the east span. The varied, asymmetrical scale of the bridge on either side of the river may be viewed as having project coherence with east and west landscape units individually.

Pedestrian Access Point[8]

Views from the bridgehead are altered slightly in both options with the removal of a building adjacent to the sidewalk, reducing the sense of confined aperture, and opening views to the south. Views from the south to the bridgehead are also altered, the bridge deck will be visible to 1st Avenue Neighbors.

[8] Preliminary evaluation, pedestrian stair, ramp, and elevator is a conceptual design and had not been engineered at the time of this report.

The elevator towers will be in views of all westbound Travelers and more pronounced for pedestrian Travelers both directions. Towers will impact views of the bridge from Neighbors below on NW 1st Avenue.

6.3.2 Mid Span

Retrofit Alternative

Existing views remain the same as the existing bridge is a double bascule lift. Low-profile structure does not impede views for Travelers or Neighbors. Neighbors are typically believed to have a strong preference to maintain existing conditions, therefore the similar scale, form, and visual character of the retrofit to existing is thought to please Neighboring viewers.

Replacement with Lift Bridge Option

A vertical element in the center of the bridge contrasts with the existing low-profile form. The same vertical elements of lift structure may provide thresholds or gateways for Travelers as they pass over the bridge, as well as signifying a bridge ahead upon approach, strengthening Cultural Order.

Replacement with Bascule Option

The low-profile structure does not impede views. Clear sightlines at the center of the River Crossing provide views up, down, and across the river for Travelers and Neighbors, preserving the natural harmony of the environment.

6.3.3 East Span

Retrofit Alternative

Existing views remain the same. Low-profile structure does not impede views for Travelers or Neighbors. Neighbors are typically believed to have a strong preference to maintain existing conditions; therefore, the similar scale, form, and visual character of the retrofit to existing is thought to please Neighboring viewers.

The Retrofit Alternative provides little opportunity to create a crossing that activates new areas for public use, or that creates opportunities to provide new views, iconic/demonstrative visual experiences, processional experiences, or new gateways.

Short-span Alternative

Existing views remain the same. Low-profile structure does not impede views for Travelers or Neighbors. Open views from the bridge allow Travelers to see landmarks in the West Approach and across the river in the East Approach. Neighbors have a strong preference to maintain existing conditions, therefore the similar scale, form, and visual character of the retrofit to existing is thought to please Neighboring viewers.

Couch Extension Alternative

Couch Extension contains impacts from a Short-span connection to Burnside Street as well as the new connection to Couch Street. Low-profile structure does not impede views

for Travelers and could potentially improve views. However, impacts to views of adjacent Residential Neighbors may be great. Views from the West Approach may not be impacted due to the surrounding transit context on the east side of the river. A second bridge structure doubles the area of under-bridge space.

Long-span Alternative

Though this alternative may affect views, it has the potential to improve or enhance views and viewer experience by creating view frames or thresholds. Tall elements have the potential to create a focal point in the center of the River Crossing or iconic background for viewers in the West Approach. Typical through truss bridges have an industrial aesthetic that is compatible with the industrial character of the East Approach. They provide the highest opportunity to create a crossing that activates new areas for public use under the bridge, and the highest opportunity to provide new views, iconic/demonstrative visual experiences, processional experiences, or new gateways.

Through Truss

Medium height structure may partially impede views of the river and beyond from Travelers. Structure may impede views of the river and downtown from East Approach Residential Neighbors. Change to the vertical profile of the bridge from existing with the addition of truss, overhead elements would increase impact to views. It may not impede wayfinding. The Through Truss provides high opportunities to create a crossing that activates new areas for public use, and moderate opportunities to provide new views, iconic/demonstrative visual experiences, processional experiences, or new gateways.

Tied-arch

Tall structure on either side of the bridge deck impedes views of the river and beyond, impacting natural harmony of the project environment, and East Approach Residential Neighbors. Changes to the vertical profile of the bridge from existing likely would not impede wayfinding for Travelers, therefore, would not affect the cultural order, or project coherence of the bridge. However, Neighbors generally dislike change and therefore cultural order and project coherence would likely be greatly impacted in their view. The reduction of structural bents under the bridge provides opportunities for greater occupiable space.

Cable-stayed

Tall structure on either side of the bridge deck impedes views of the river and beyond, impacting natural harmony of the project environment and East Approach Residential Neighbors. Changes to the vertical profile of the bridge from existing likely would not impede wayfinding for Travelers, therefore, would not affect the cultural order, or project coherence of the bridge. However, Neighbors generally dislike change and therefore cultural order and project coherence would likely be greatly impacted in their view. The reduction of structural bents under the bridge provides opportunities for greater occupiable space.

Pedestrian Access Point[9]

The increased vertical profile of this structure alters views from the Vera Katz Eastbank Esplanade eastward and views from the bridge deck southeast. Authors are unable to determine if this impact is negative or beneficial due to lack of design at the time of this report. Blocking views to the freeway beyond may be seen as a beneficial impact. The removal of established trees greatly impacts views from and to the Vera Katz Eastbank Esplanade. The fact there are few trees along the esplanade bestows each tree as a contribution to the visual character of the bank, providing shade and a sense of Natural Harmony to viewers.

The scale of the elevator structure is in keeping with the scale of the existing structure, neutralizing impacts. While the tower on the north side of the bridge is an addition, the scale of the new structure is small in relation to the bridge and does not appear to block important views for any length of time. The design and materials are unknown at the time of this report, but the conceptual design is in keeping with the context and would likely have no adverse effects on project coherence.

[9] Preliminary evaluation, pedestrian stair, ramp, and elevator is a conceptual design and had not been engineered at the time of this report.

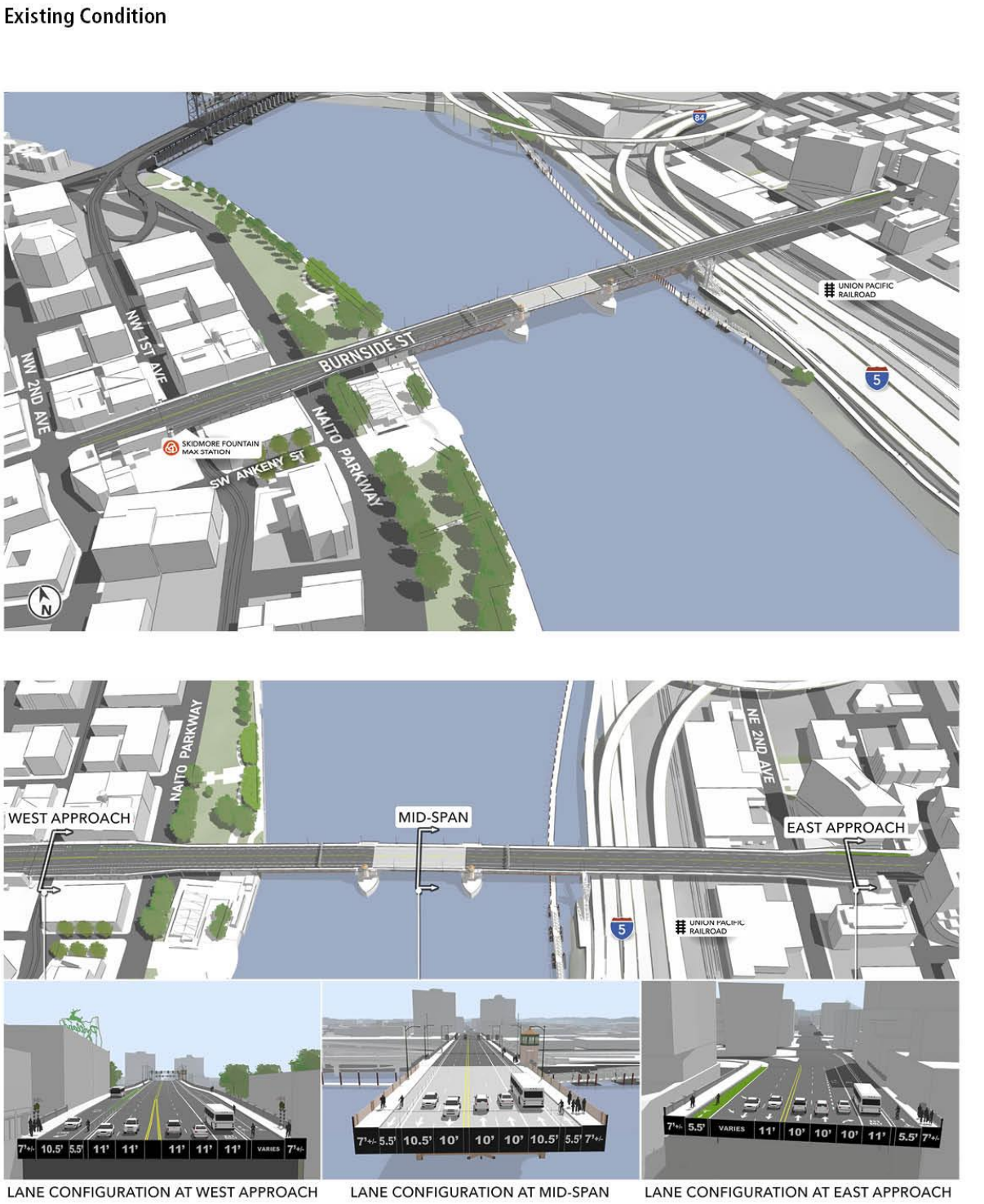
Table 4. Impacts to Visual Quality Matrix

		Natural Harmony		Cultural Order		Project Coherence		Visual Quality
		T*	N*	T	N	T	N	
West Span								
Retrofit								
Short-span and Couch Extension								
Long-span	Through Truss							
	Tied-Arch							
	Cable-Stayed							
	Girder*							
Pedestrian Access	Ramp							
	Elevator & Stair*							
Mid-Span								
Retrofit	Bascule							
Replacement Alternatives	Lift							
	Bascule							
East Span								
Retrofit								
Short-span								
Couch Extension								
Long-span	Through Truss							
	Tied-Arch*							
	Cable-Stayed*							
Pedestrian Access	Ramp							
	Elevator & Stair*							

*=Refined Alternative, **T=Traveler, N=Neighbor

Legend: Degree of Impact	***Low***	***Low/Moderate***	***Moderate***	***Moderate/High***	***High***

Figure 14. Bridge Type Alternatives



Source:

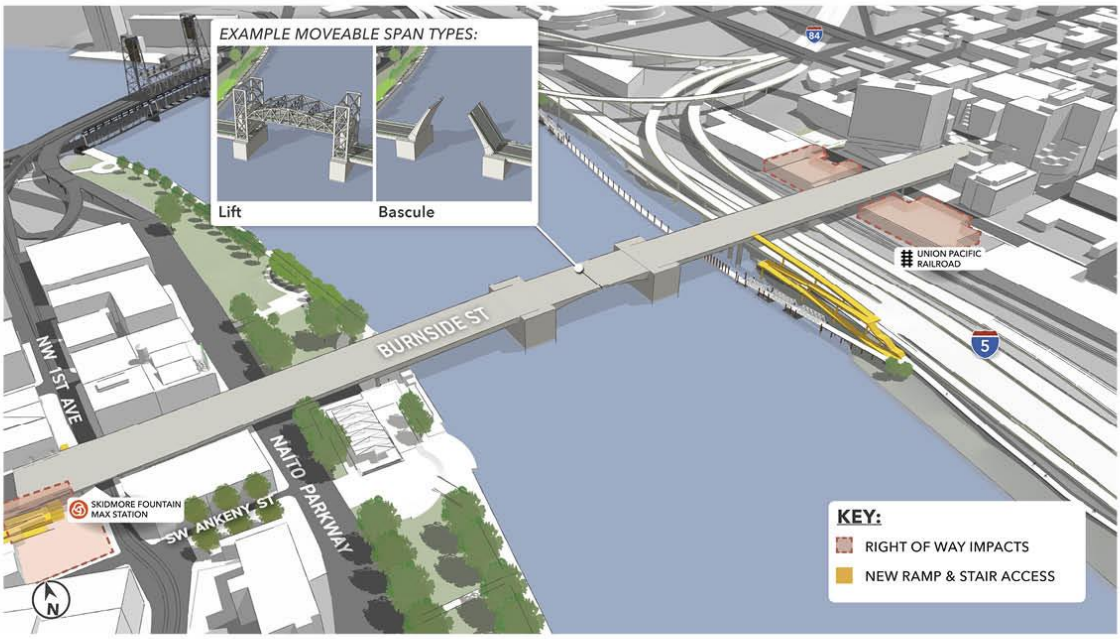
HDR, Parametrix, Mayer/Reed

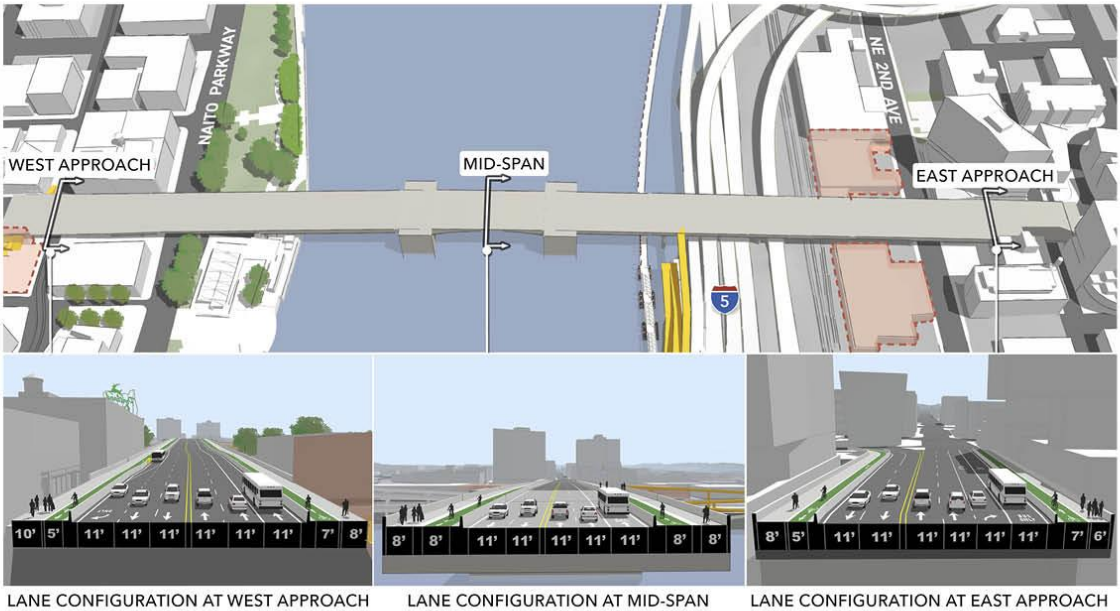
Bridge Type Alternatives
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 14. Bridge Type Alternatives – Cont.

Short-span Alternative

- Enhanced Seismic Retrofit
- Short-span Approach





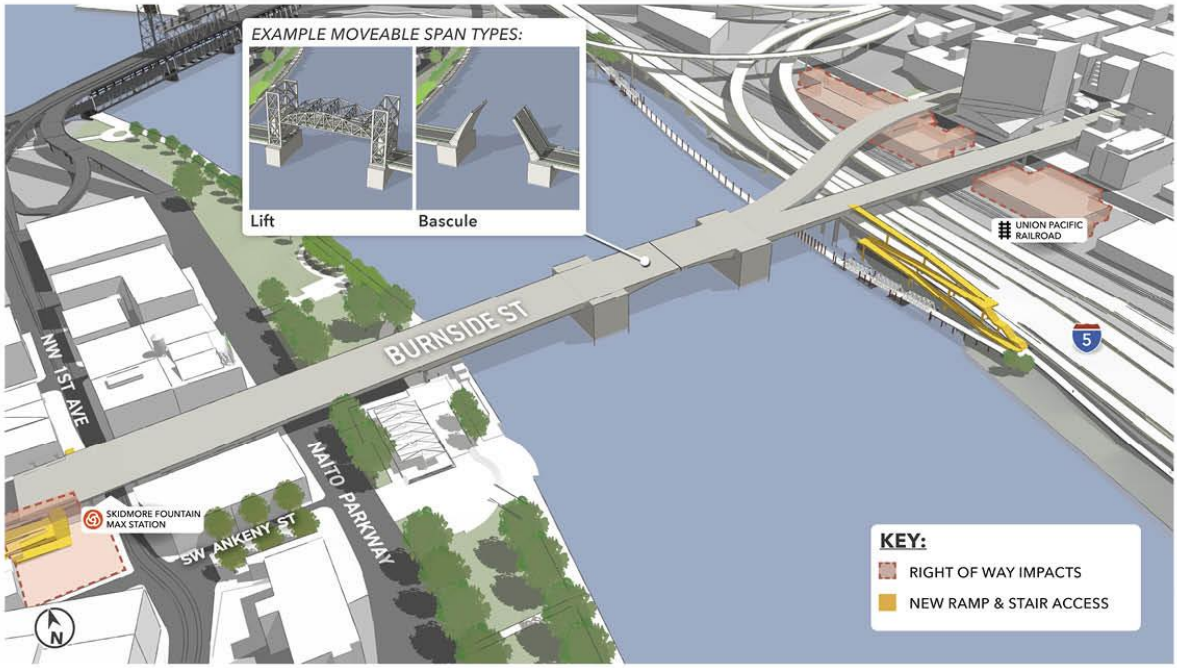
LANE CONFIGURATION AT WEST APPROACH | LANE CONFIGURATION AT MID-SPAN | LANE CONFIGURATION AT EAST APPROACH

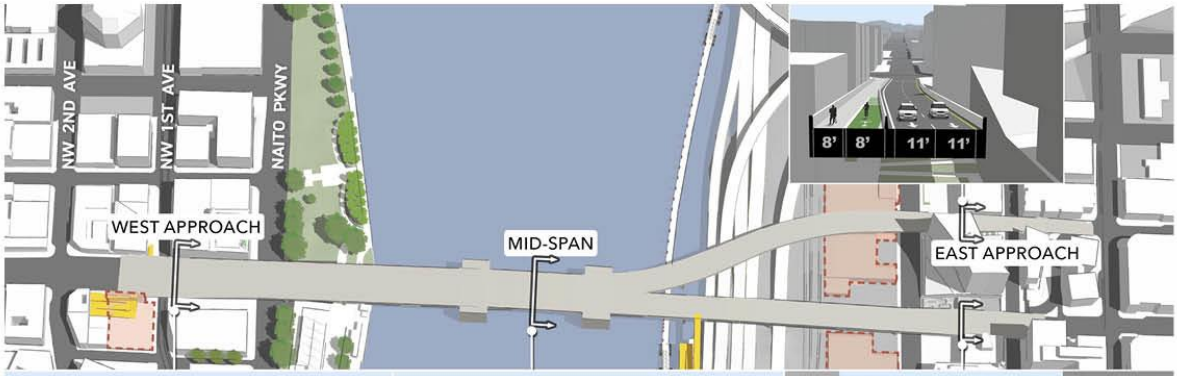
Source:
HDR, Parametrix, Mayer/Reed

Bridge Type Alternatives
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 14. Bridge Type Alternatives – Cont.

Couch Extension Alternative





LANE CONFIGURATION AT WEST APPROACH | LANE CONFIGURATION AT MID-SPAN | LANE CONFIGURATION AT EAST APPROACH

Source:

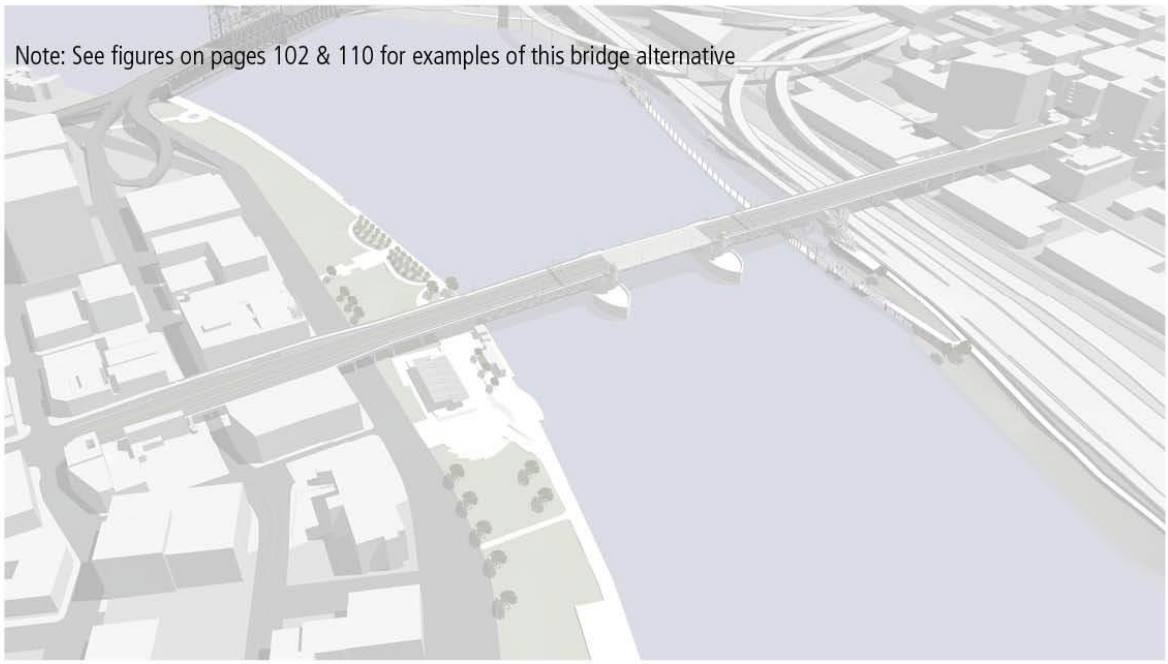
HDR, Parametrix, Mayer/Reed

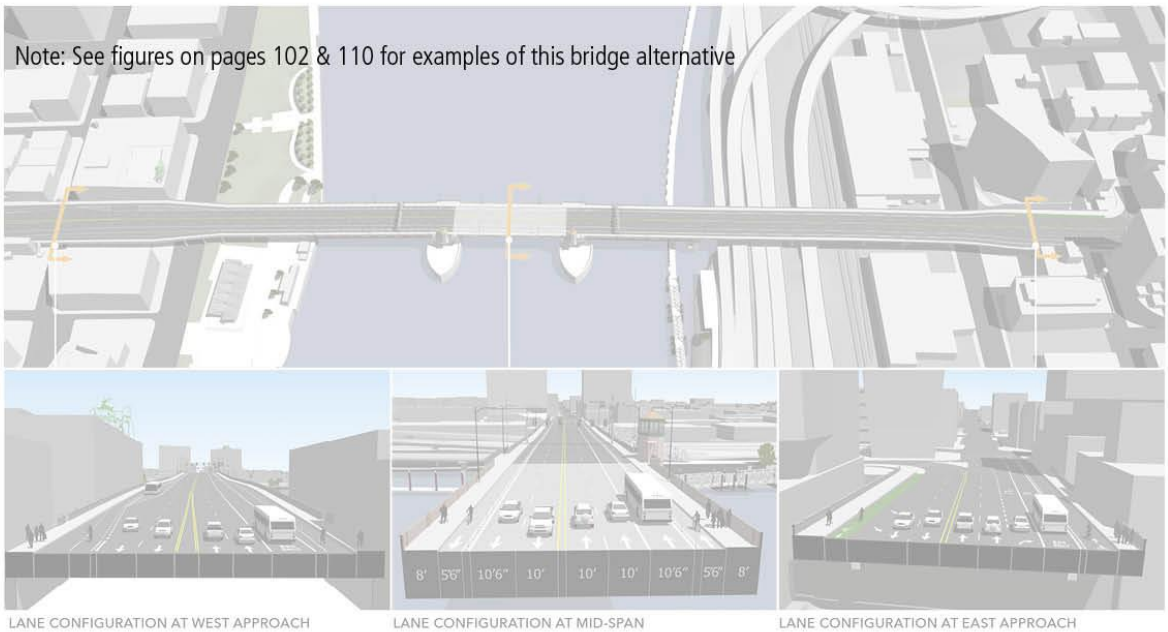
Bridge Type Alternatives
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 14. Bridge Type Alternatives – Cont.

Long-span Alternative

- Through truss





Source:

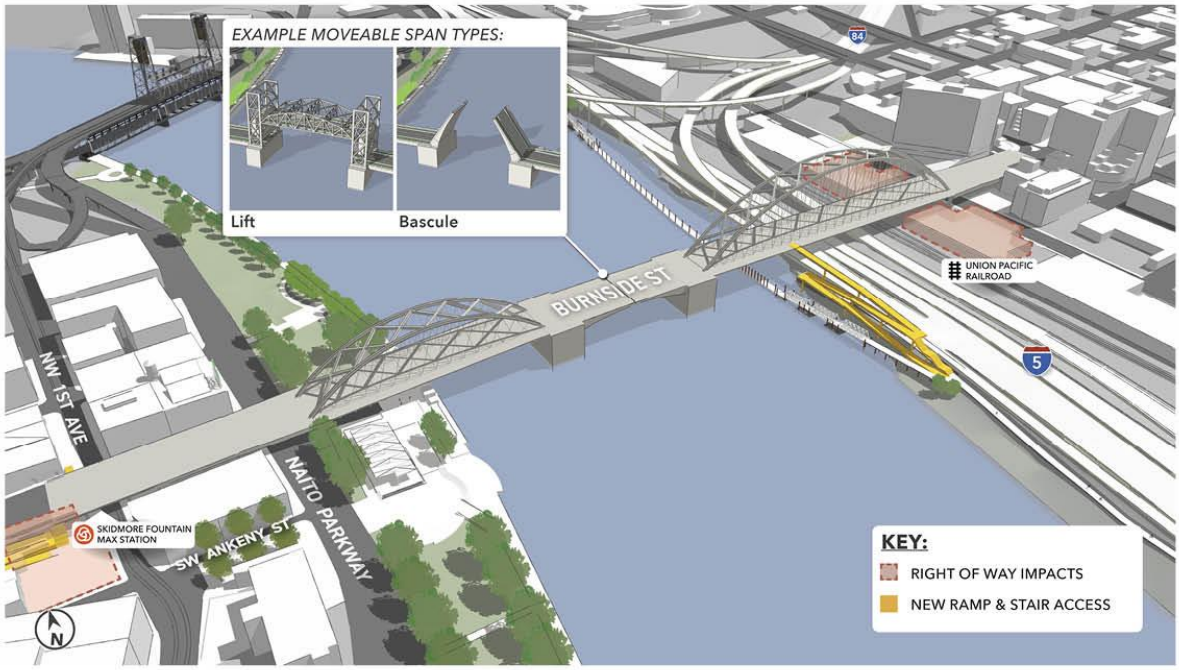
HDR, Parametrix, Mayer/Reed

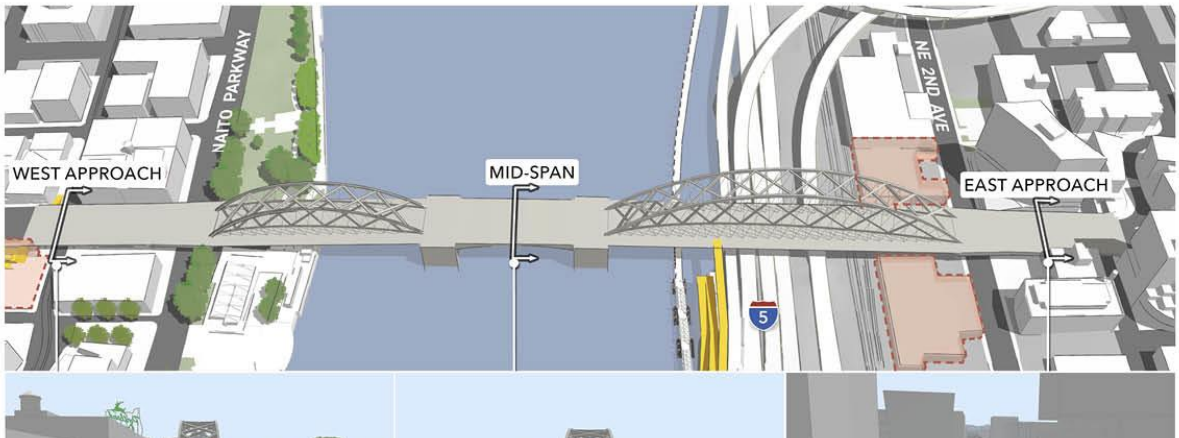
Bridge Type Alternatives
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 14. Bridge Type Alternatives – Cont.

Long-span Alternative

- Tied-arch





LANE CONFIGURATION AT WEST APPROACH | LANE CONFIGURATION AT MID-SPAN | LANE CONFIGURATION AT EAST APPROACH

Source:

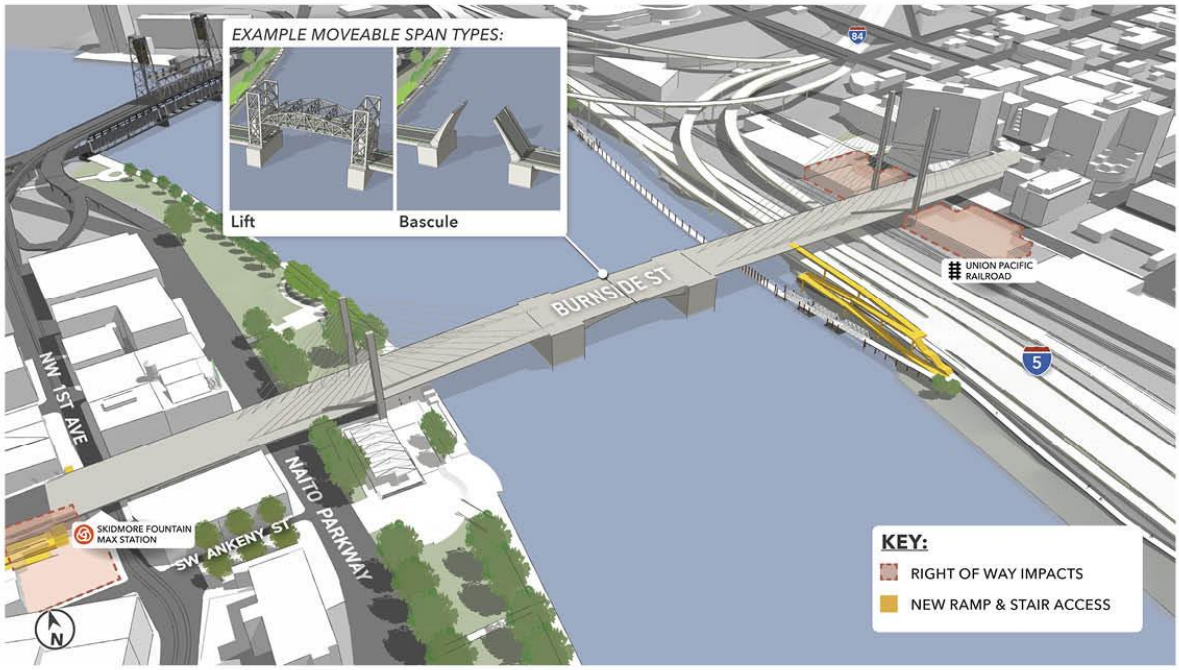
HDR, Parametrix, Mayer/Reed

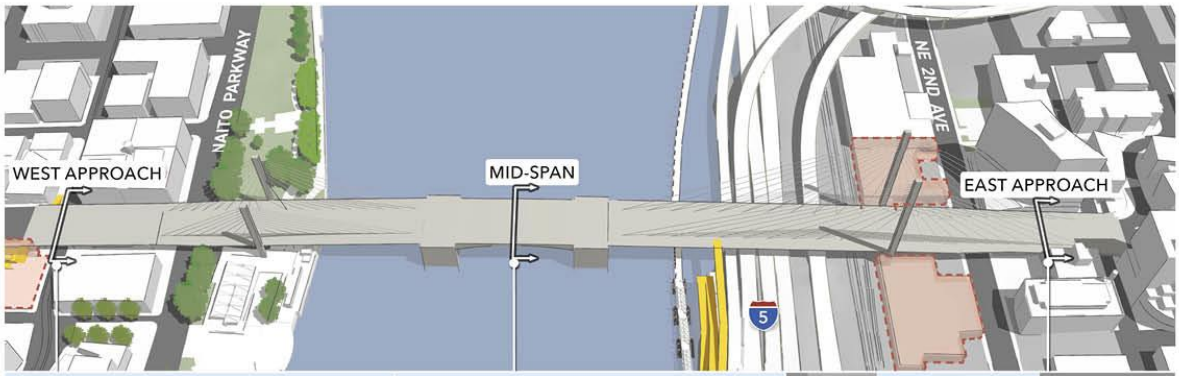
Bridge Type Alternatives
Visual Impacts
Earthquake Ready
Burnside Bridge Project

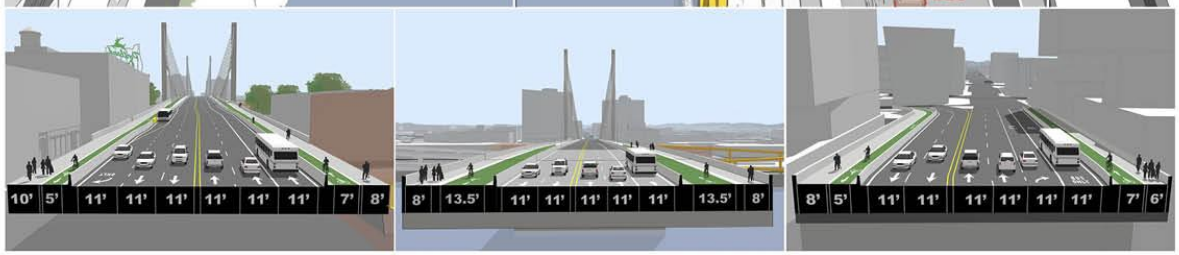
Figure 14. Bridge Type Alternatives – Cont.

Long-span Alternative

- Cable-stayed







LANE CONFIGURATION AT WEST APPROACH | LANE CONFIGURATION AT MID-SPAN | LANE CONFIGURATION AT EAST APPROACH

EARTHQUAKE READY BURNSIDE BRIDGE

Source:

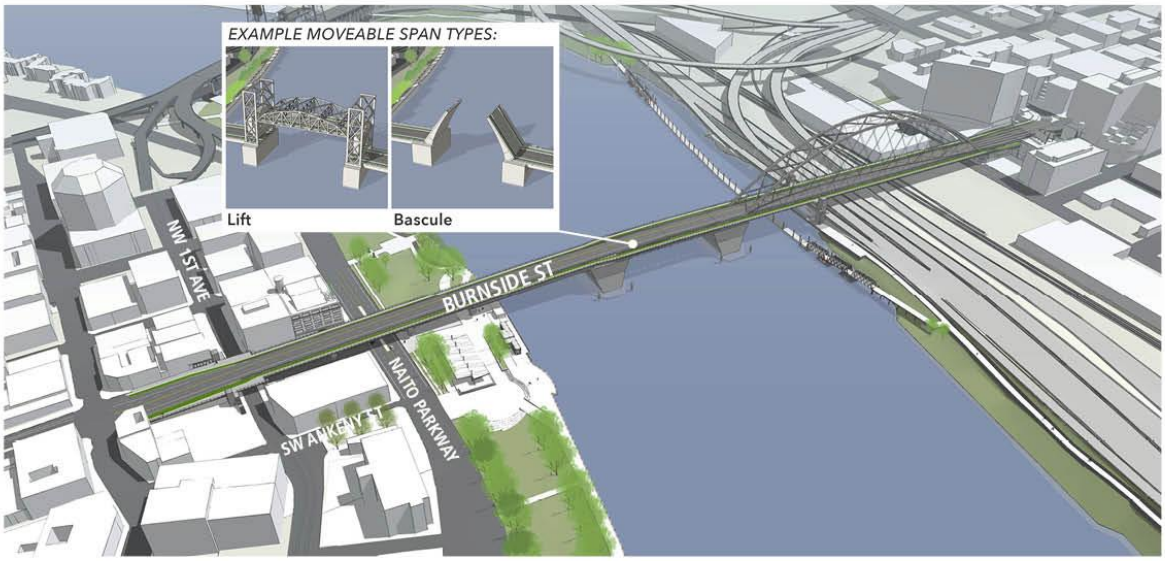
HDR, Parametrix, Mayer/Reed

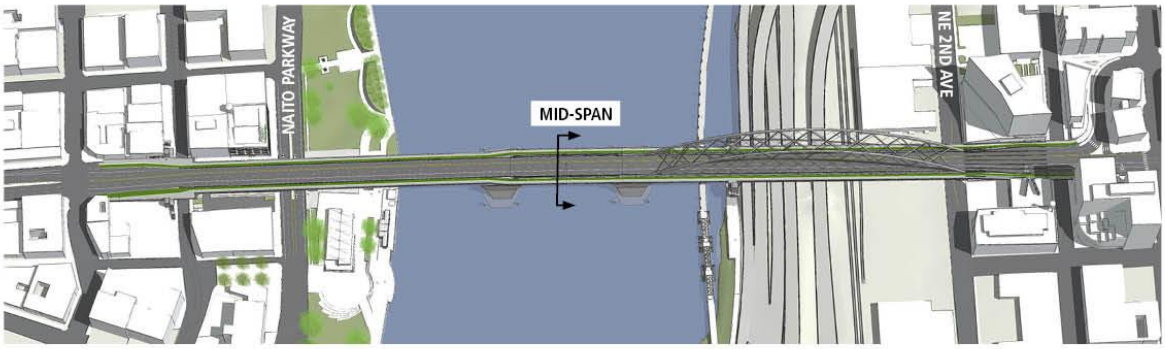
Bridge Type Alternatives
Visual Impacts
Earthquake Ready
Burnside Bridge Project

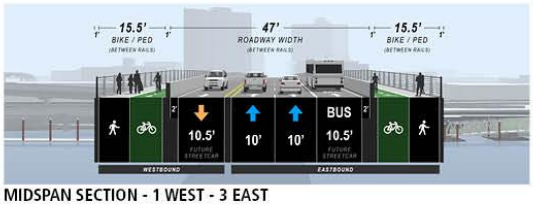
Figure 14. Bridge Type Alternatives – Cont.

Refined Long-span Alternative

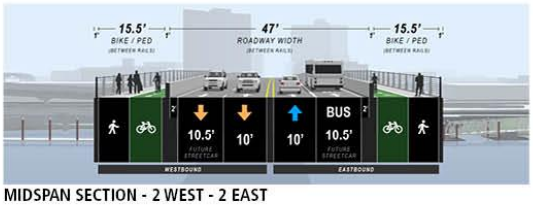
- Tied-arch





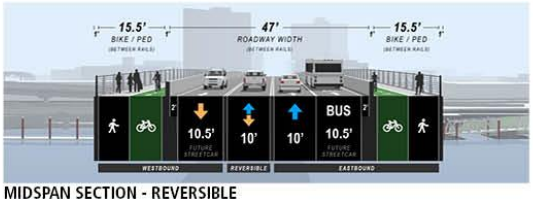


MIDSPAN SECTION - 1 WEST - 3 EAST



MIDSPAN SECTION - 2 WEST - 2 EAST

MIDSPAN SECTION - 2 WEST - 2 EAST - NO BUS



MIDSPAN SECTION - REVERSIBLE

EARTHQUAKE READY BURNSIDE BRIDGE

Source:

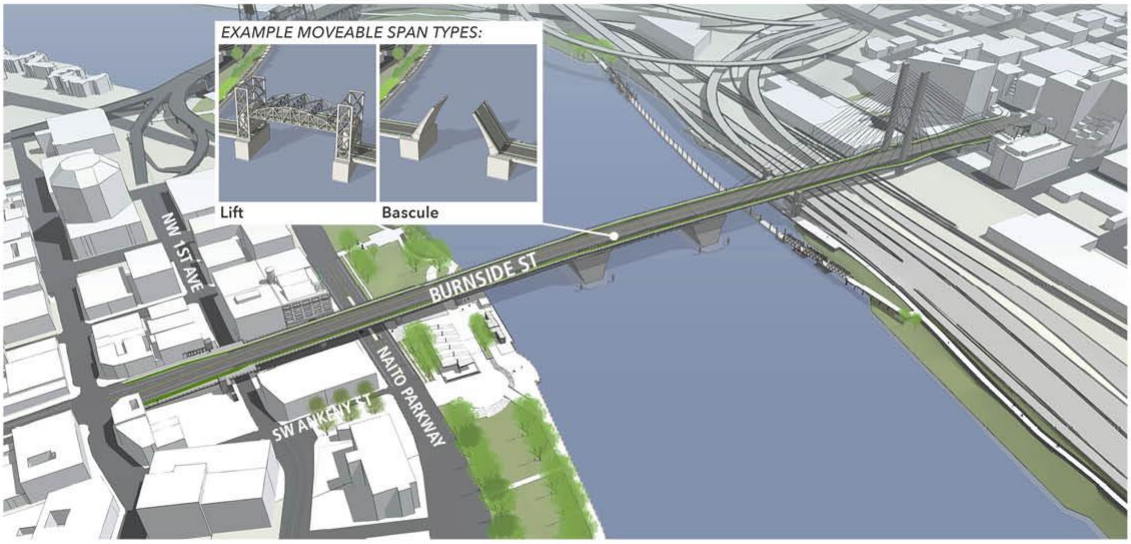
HDR, Parametrix, Mayer/Reed

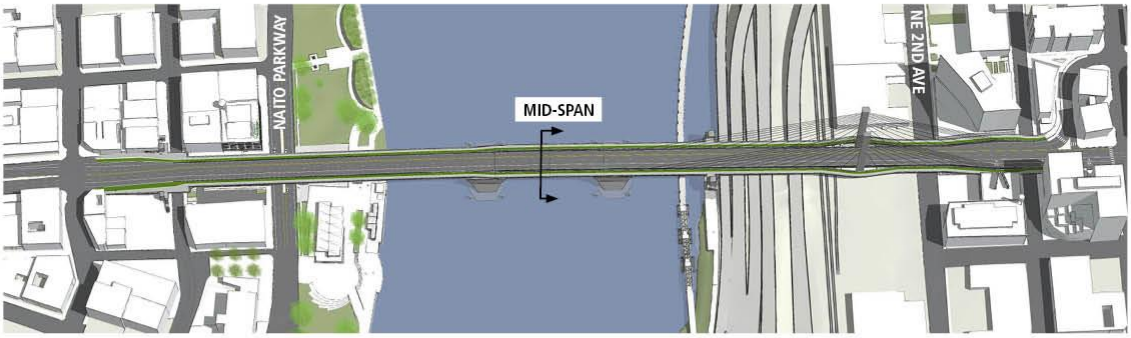
Bridge Type Alternatives
Visual Impacts
Earthquake Ready
Burnside Bridge Project

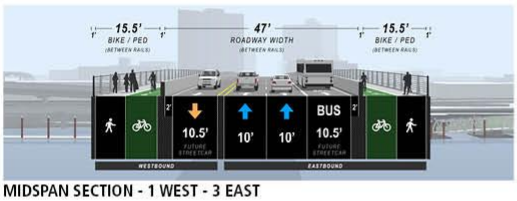
Figure 14. Bridge Type Alternatives – Cont.

Refined Long-span Alternative

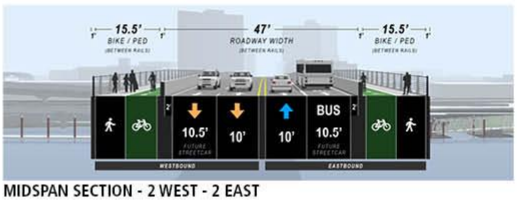
- Cable-stayed



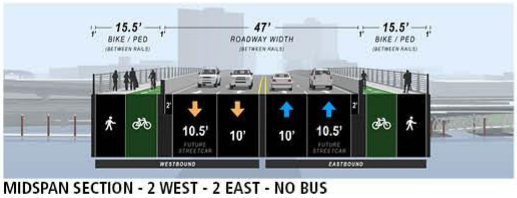




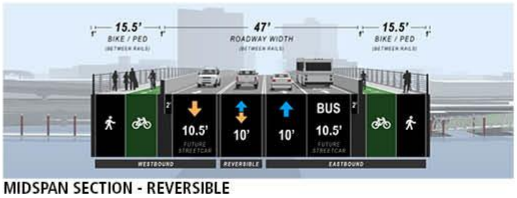
MIDSPAN SECTION - 1 WEST - 3 EAST



MIDSPAN SECTION - 2 WEST - 2 EAST



MIDSPAN SECTION - 2 WEST - 2 EAST - NO BUS



MIDSPAN SECTION - REVERSIBLE

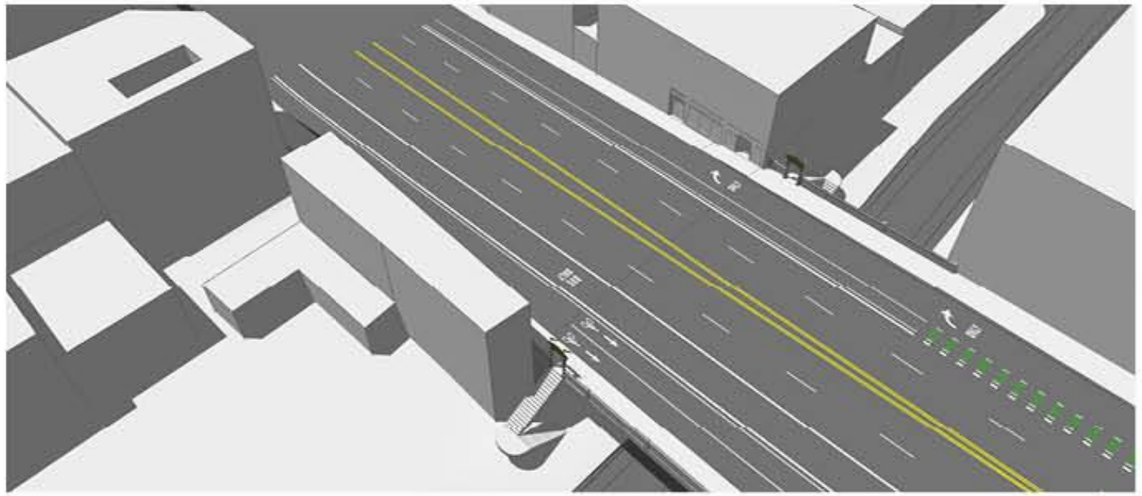
Source:

HDR, Parametrix, Mayer/Reed

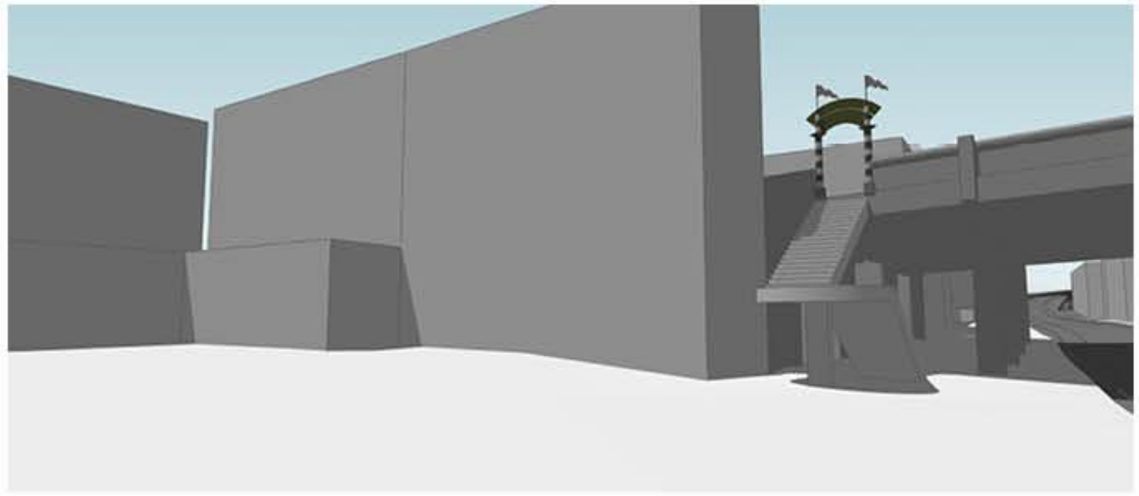
Bridge Type Alternatives
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 15. Pedestrian Access – West - Ramp

Existing condition aerial looking northwest

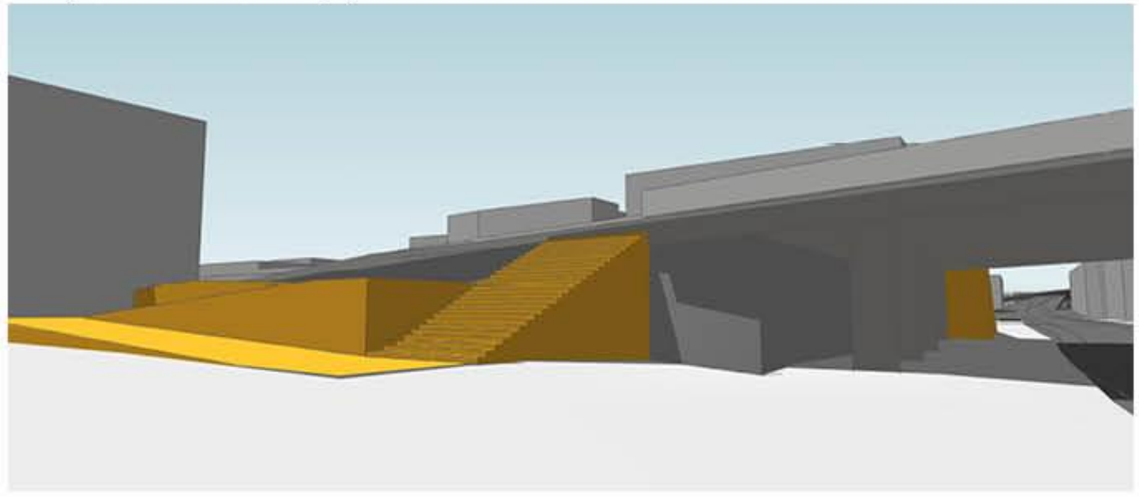


Existing condition looking northwest from SW 1st Ave



Short-span, Couch Extension, and Long-span Alternatives

Short-span, Couch Extension, and Long-span Alternatives

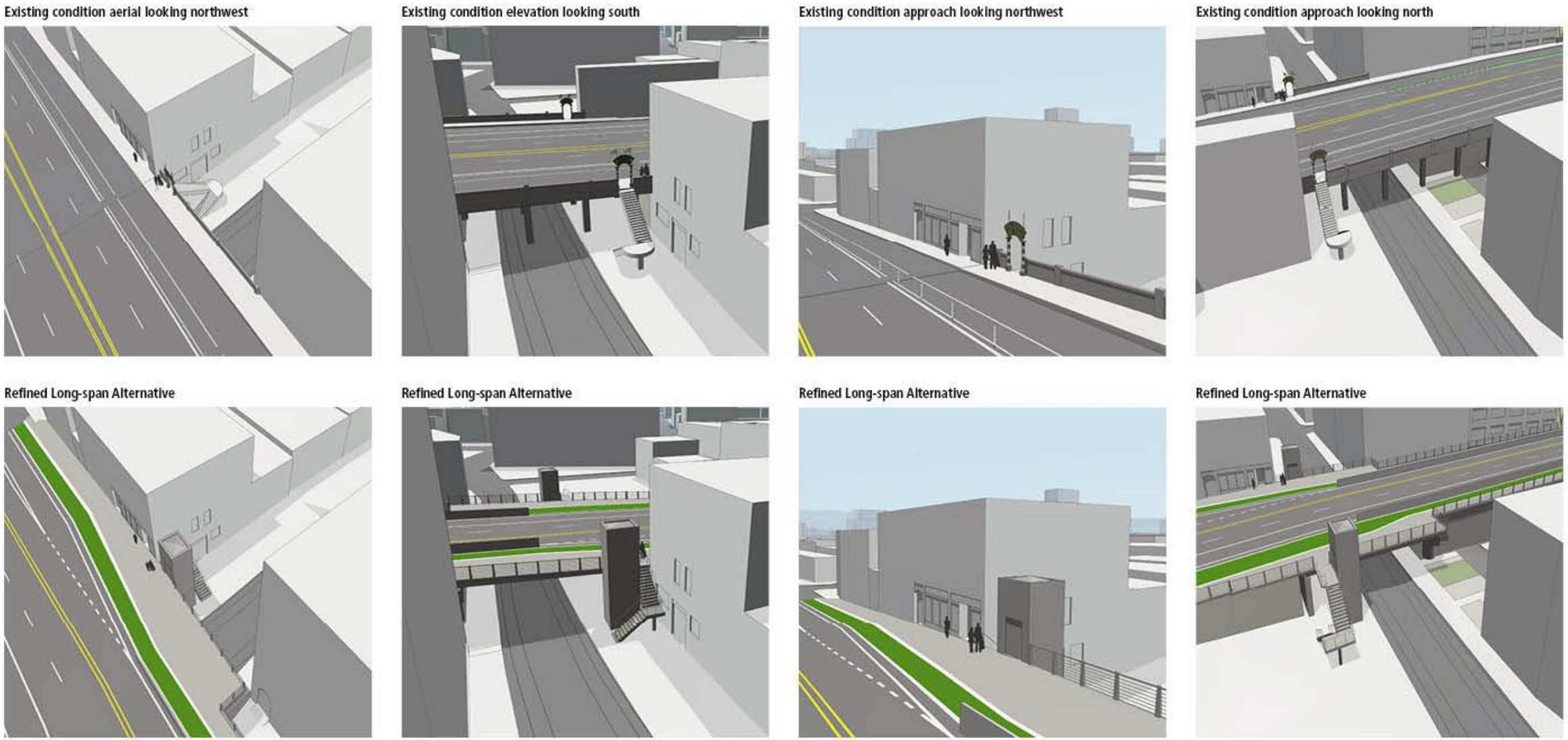


Note: Renderings are conceptual. Stair and ramp components had not been designed at the time of this report.

Source:
HDR, Parametrix, MayerReed

Pedestrian Access on west side - ramp
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 16. Pedestrian Access – West - Elevator



Note: Renderings are conceptual. Stair and elevator components had not been designed at the time of this report.

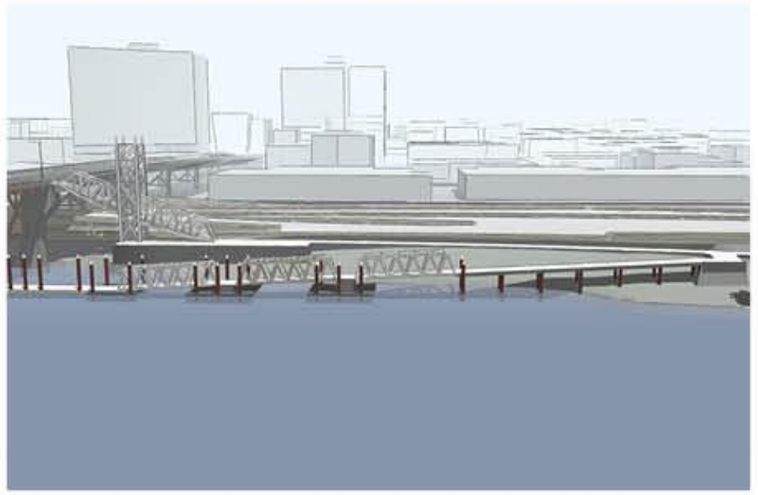
Source:
HDR, Parametrix, Mayer/Reed

Pedestrian Access on west side - elevator
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 17. Pedestrian Access – East - Ramp

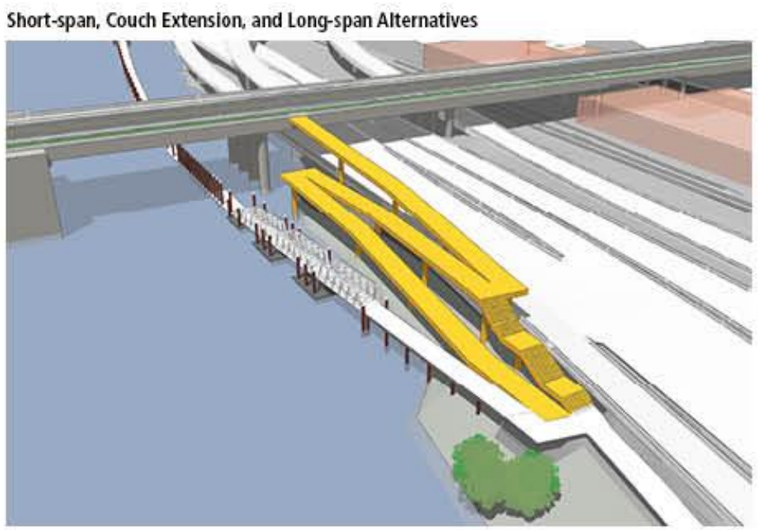
Existing condition aerial looking northeast

Existing condition elevation looking east



Existing condition approach looking north

Short-span, Couch Extension, and Long-span Alternatives



Short-span, Couch Extension, and Long-span Alternatives

Short-span, Couch Extension, and Long-span Alternatives

Note: Renderings are conceptual. Stair and ramp components had not been designed at the time of this report.

Source:
HDR, Parametrix, Mayer/Reed

Pedestrian Access on east side - ramp
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 18. Pedestrian Access – East - Elevator

Existing condition aerial looking northeast

Refined Long-span Alternative

Note: Renderings are conceptual. Stair and elevator components had not been designed at the time of this report.

Source:
HDR, Parametrix, MayerReed

Pedestrian Access on east side - ramp
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 19. Bridge Precedents – Through Truss

Broadway Bridge, Portland, Oregon

Hawthorne Bridge, Portland, Oregon

Tower Bridge, Sacramento, California

Main Street Bridge, Jasksonville, Florida

Triborough (Harlem River) Bridge, New York, New York

Note: Precedent images are representative of bridge type only and not intended to be comprehensive.

Source:
HDR, Parametrix, Mayer/Reed

Bridge Precedents – Through Truss
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 20. Bridge Precedents – Tied-arch

Hastings Bridge, Hastings, Minnesota

Tacony-Palmyra Bridge, New Jersey

Torikai Ohashi Bridge, Osaka, Japan

Siuslaw River Bridge, Florence, Oregon

Note: Precedent images are representative of bridge type only and not intended to be comprehensive.

Source:
HDR, Parametrix, Mayer/Reed

Bridge Precedents – Tied-Arch
Visual Impacts
Earthquake Ready
Burnside Bridge Project

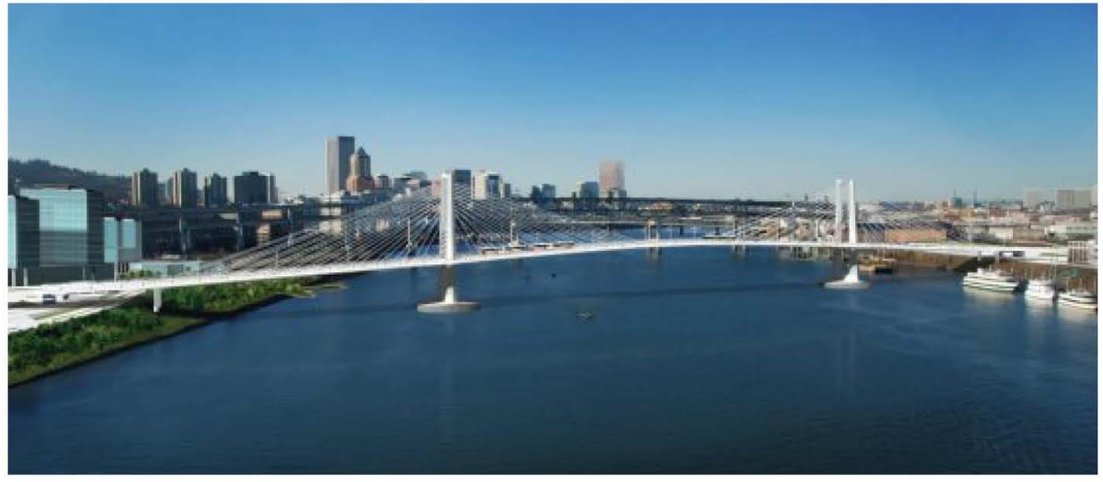
Figure 21. Bridge Precedents – Cable-stayed

Chonqing Expressway Project, Chonqing, China

Arthur Ravenel Jr. (Cooper River) Bridge, Charleston, North Carolina

Indian River Inlet Bridge, Sussex County, Delaware

Tilikum Crossing, Portland, Oregon



Note: Precedent images are representative of bridge type only and not intended to be comprehensive.

Source:
HDR, Parametrix, Mayer/Reed

Bridge Precedents – Cable-Stayed
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 22. Bridge Precedents – Girder

Unknown Location

Source:
HDR, Parametrix, Mayer/Reed

Bridge Precedents – Girder
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 23. Bridge Precedents – Bascule and Lift

Bascule - Harbor Bridge, Barcelona, Spain

Lift - Harbor Bridge, Barcelona, Spain

Bascule - South Park Bridge, Seattle, Washington

Lift - Fore River Bridge, Quincy, Massachusetts

Note: Precedent images are representative of moveable lift spans and not intended to be comprehensive.

Source:
HDR, Parametrix, Mayer/Reed

Bridge Precedents – Bascule and Lift
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 24. Visual Impacts – View from West Side high-rise looking east

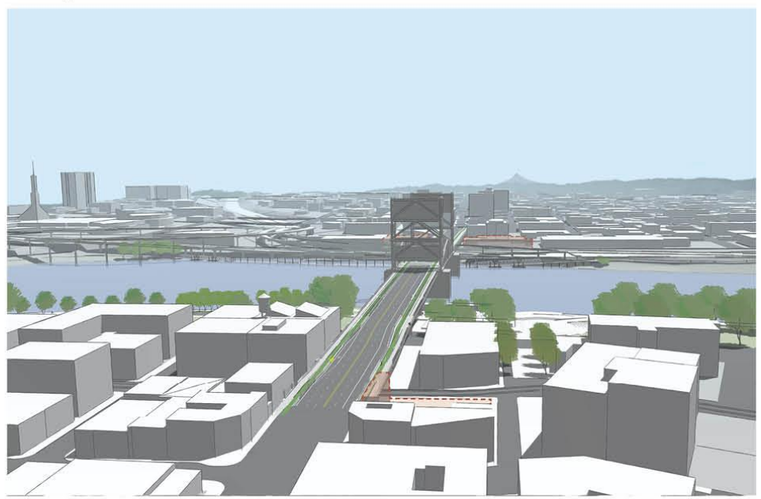
Existing Condition

Short-span Alternative / Bascule

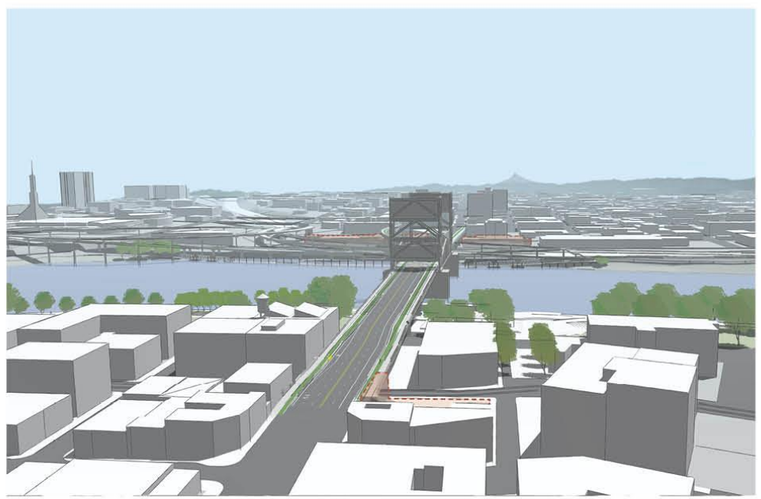
Couch Extension / Bascule

Enhanced Seismic Retrofit Alternative

Short-span Alternative / Lift



Couch Extension / Lift



Note: Location of view is representative of West Side Neighbor. Views will vary based on elevation and sight lines.

Source:
HDR, Parametrix, Mayer/Reed

View from West Side high-rise looking east
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 24. Visual Impacts – View from West Side high-rise looking east – Cont.

Long-span Alternative / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Bascule

Long-span Alternative / Cable-stayed / Bascule

Long-span Alternative / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Lift

Long-span Alternative / Cable-stayed / Lift

Note: Location of view is representative of West Side Neighbor. Views will vary based on elevation and sight lines.

Source:
HDR, Parametrix, Mayer/Reed

View from West Side high-rise looking east
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 24. Visual Impacts – View from West Side high-rise looking east – Cont.

Refined Long-span Alternative / Girder / Tied-arch / Bascule

Refined Long-span Alternative / Girder / Cable-stayed / Bascule

Refined Long-span Alternative / Girder / Tied-arch / Lift

Refined Long-span Alternative / Girder / Cable-stayed / Lift

Note: Location of view is representative of West Side Neighbor. Views will vary based on elevation and sight lines.

Source:
HDR, Parametrix, MayerReed

View from West Side high-rise looking east
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 25. Visual Impacts – View from W Burnside Street looking east

Existing Condition

Short-span Alternative / Bascule

Couch Extension / Bascule

Enhanced Seismic Retrofit Alternative

Short-span Alternative / Lift

Couch Extension / Lift

Source:

HDR, Parametrix, Mayer/Reed

View from W Burnside Street looking east
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 25. Visual Impacts – View from W Burnside Street looking east – Cont.

Long-span Alternative / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Bascule

Long-span Alternative / Cable-stayed / Bascule

Long-span Alternative / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Lift

Long-span Alternative / Cable-stayed / Lift

Source:
HDR, Parametrix, Mayer/Reed

View from W Burnside Street looking east
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 25. Visual Impacts – View from W Burnside Street looking east – Cont.

Refined Long-span Alternative / Girder / Tied-arch / Bascule

Refined Long-span Alternative / Girder / Cable-stayed / Bascule

Refined Long-span Alternative / Girder / Tied-arch / Lift

Refined Long-span Alternative / Girder / Cable-stayed / Lift

Note: Location of view is representative of West Side Neighbor. Views will vary based on elevation and sight lines.

Source:
HDR, Parametrix, Mayer/Reed

View from W Burnside Street looking east
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 26. Visual Impacts – View from Burnside Bridge looking northwest

Existing Condition

Short-span Alternative / Bascule

Enhanced Seismic Retrofit Alternative

Short-span Alternative / Lift

Source:

HDR, Parametrix, Mayer/Reed

View from Burnside Bridge looking northwest
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 26. Visual Impacts – View from Burnside Bridge looking northwest – Cont.

Couch Extension / Bascule

Long-span Alternative / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Couch Extension / Lift

Long-span Alternative / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

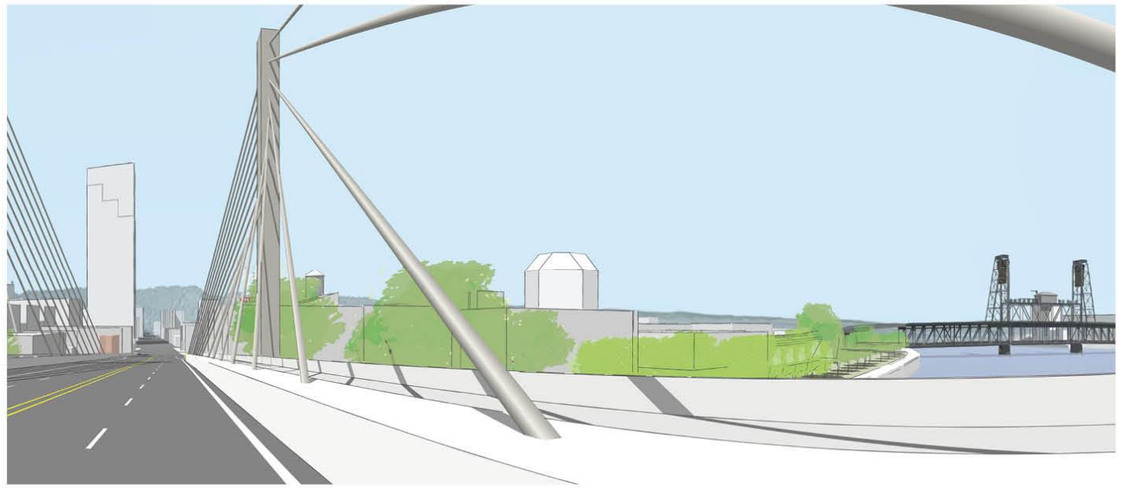
Source:
HDR, Parametrix, Mayer/Reed

View from Burnside Bridge looking northwest
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 26. Visual Impacts – View from Burnside Bridge looking northwest – Cont.

Long-span Alternative / Tied-arch / Bascule

Long-span Alternative / Cable-stayed / Bascule



Long-span Alternative / Tied-arch / Lift

Long-span Alternative / Cable-stayed / Lift

Source:

HDR, Parametrix, Mayer/Reed

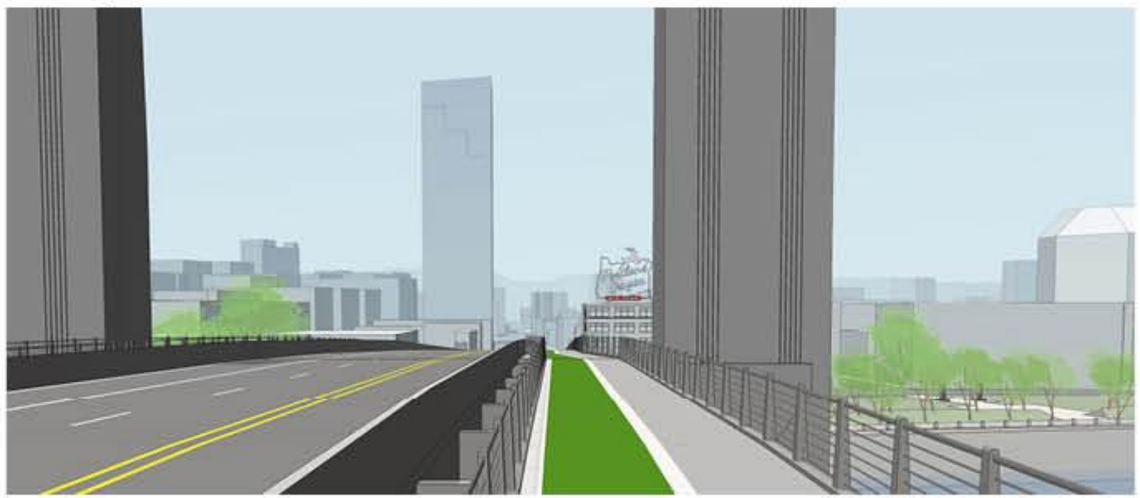
View from Burnside Bridge looking northwest
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 26. Visual Impacts – View from Burnside Bridge looking northwest – Cont.

Existing

Refined Long-span Alternative / Girder / Bascule

Refined Long-span Alternative / Girder / Lift



Source:
HDR, Parametrix, Mayer/Reed

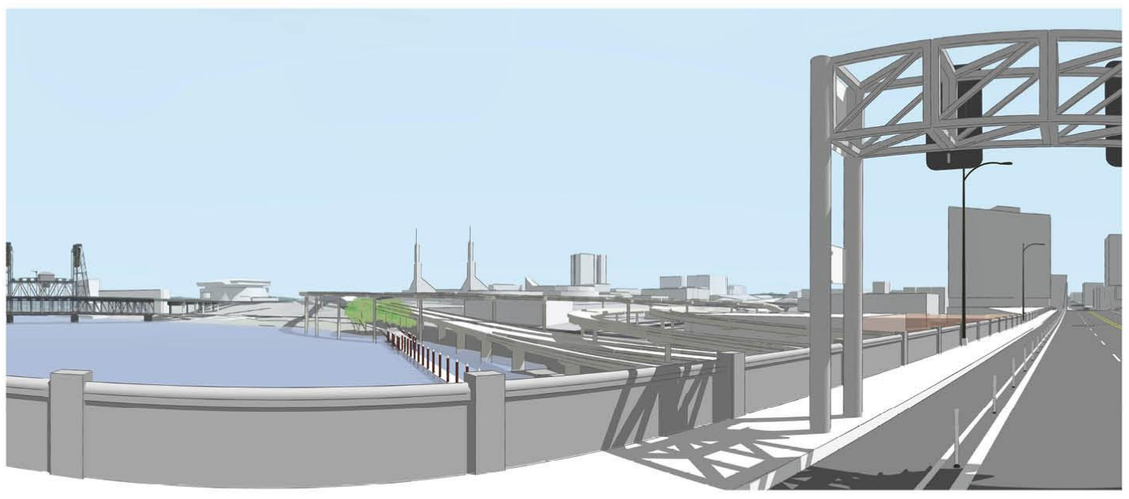
View from Burnside Bridge looking northwest
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 27. Visual Impacts – View from Burnside Bridge looking northeast

Existing Condition

Short-span Alternative / Bascule

Enhanced Seismic Retrofit Alternative



Short-span Alternative / Lift

Source:

HDR, Parametrix, Mayer/Reed

View from Burnside Bridge looking northeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 27. Visual Impacts – View from Burnside Bridge looking northeast – Cont.

Couch Extension / Bascule

Long-span Alternative / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Couch Extension / Lift

Long-span Alternative / Through truss / Lift

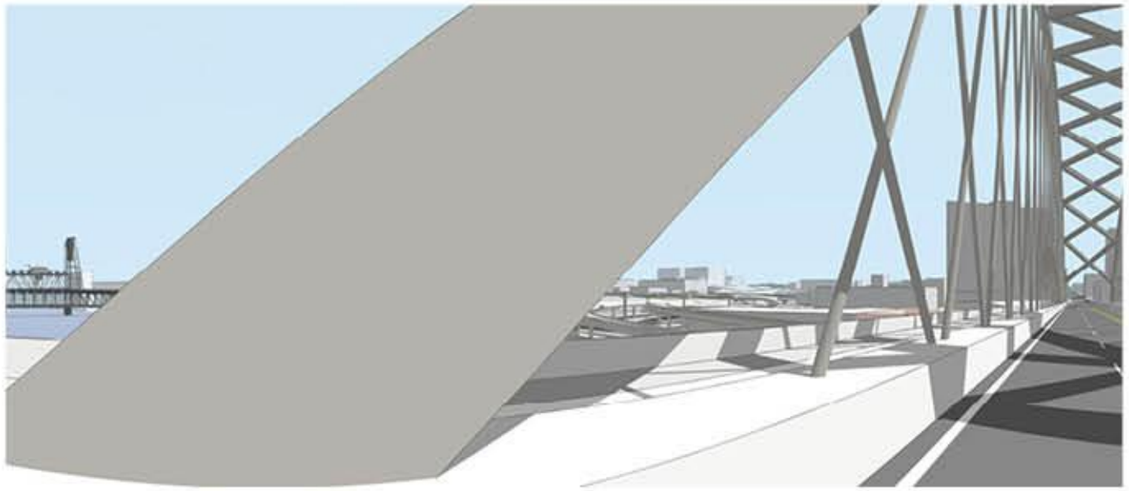
Note: See Figures 31 & 35 for examples of this bridge alternative

Source:
HDR, Parametrix, Mayer/Reed

View from Burnside Bridge looking northeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

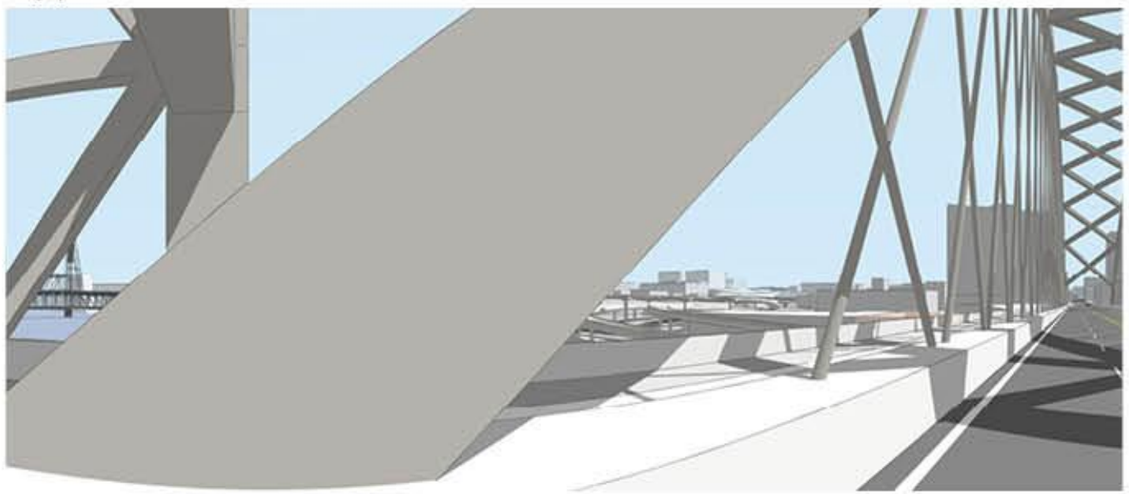
Figure 27. Visual Impacts – View from Burnside Bridge looking northeast – Cont.

Long-span Alternative / Tied-arch / Bascule*



Long-span Alternative / Cable-stayed / Bascule*

Long-span Alternative / Tied-arch / Lift *



Long-span Alternative / Cable-stayed / Lift*

*The Refined Long-span Alternative with this support and lift type is similar to this view

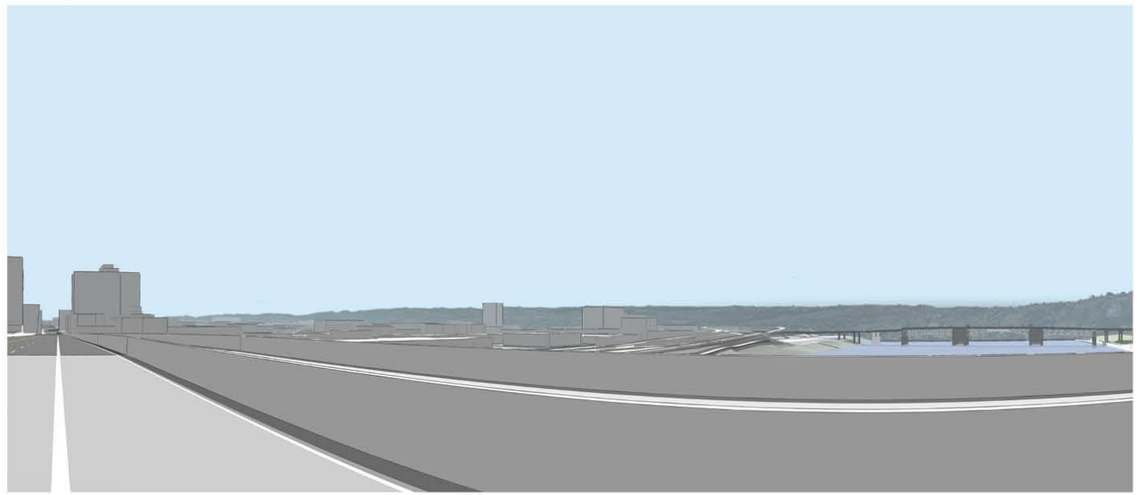
Source:
HDR, Parametrix, Mayer/Reed

View from Burnside Bridge looking northeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 28. Visual Impacts – View from Burnside Bridge looking southeast

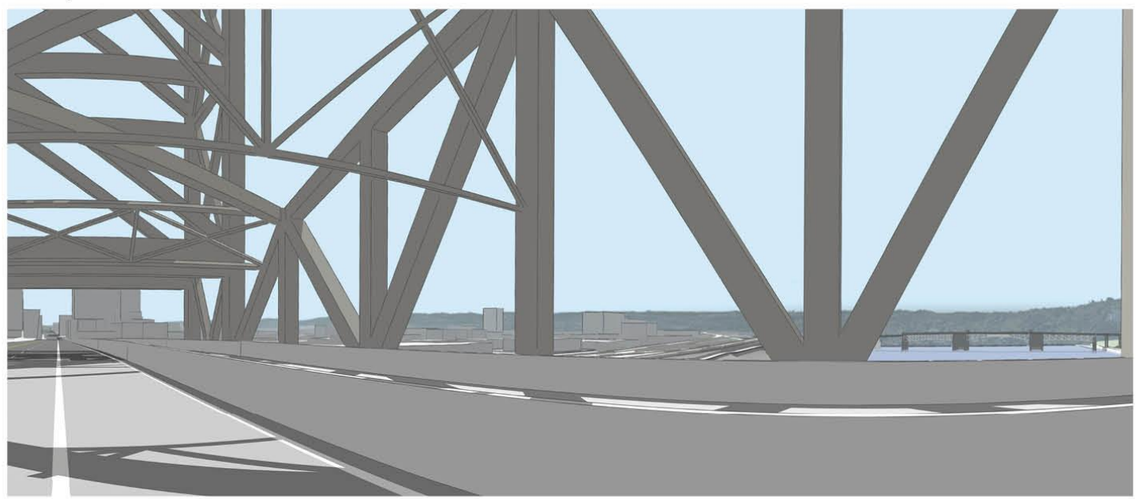
Existing Condition

Short-span Alternative / Bascule



Enhanced Seismic Retrofit Alternative

Short-span Alternative / Lift



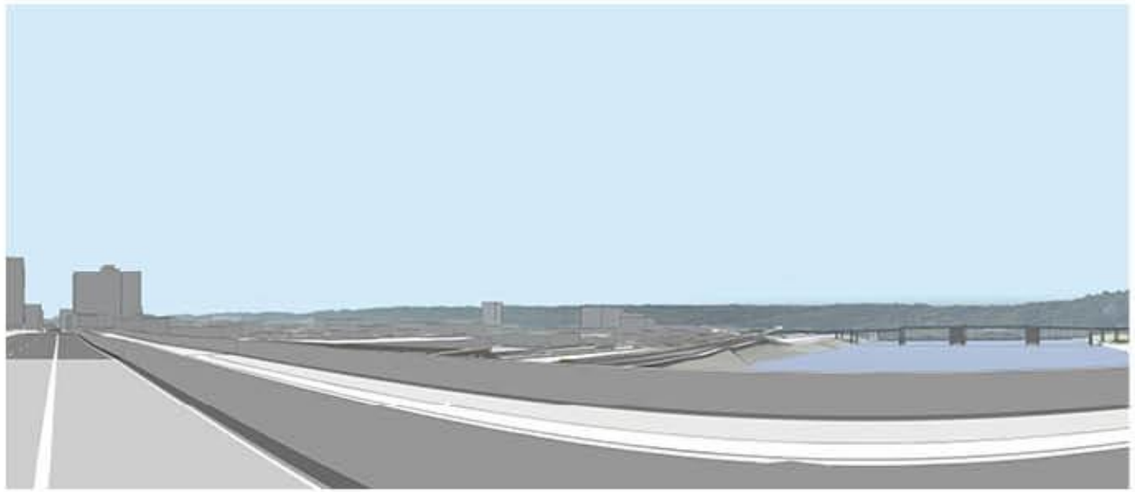
Source:

HDR, Parametrix, Mayer/Reed

View from Burnside Bridge looking southeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 28. Visual Impacts – View from Burnside Bridge looking southeast – Cont.

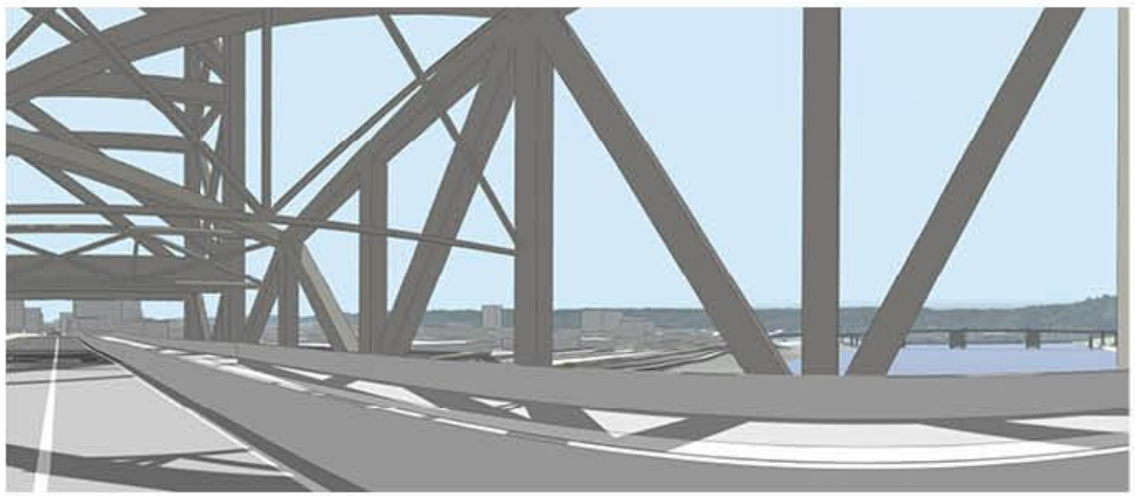
Couch Extension / Bascule



Long-span Alternative / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Couch Extension / Lift



Long-span Alternative / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

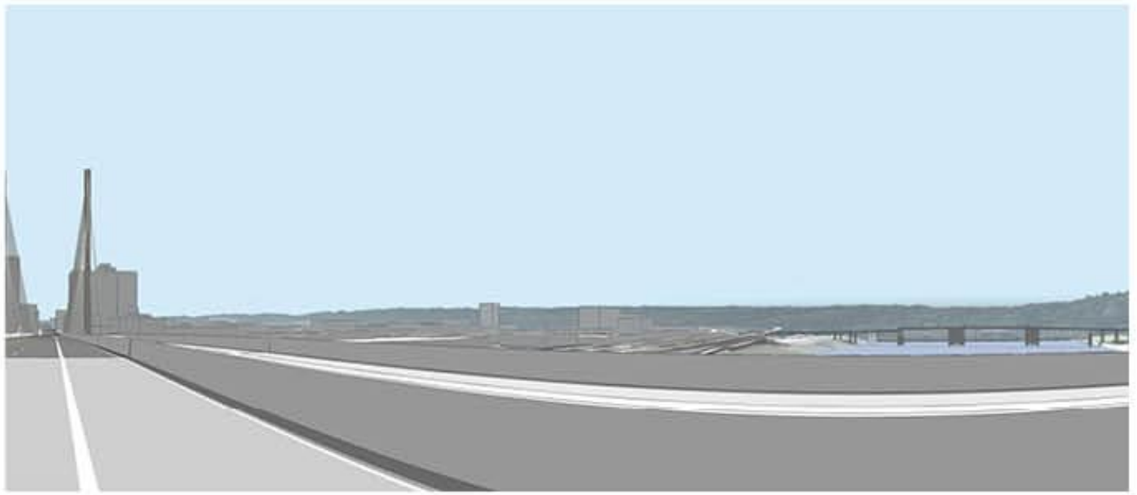
Source:
HDR, Parametrix, MayerReed

View from Burnside Bridge looking southeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 28. Visual Impacts – View from Burnside Bridge looking southeast – Cont.

Long-span Alternative / Tied-arch / Bascule*

Long-span Alternative / Cable-stayed / Bascule*



Long-span Alternative / Tied-arch / Lift*

Long-span Alternative / Cable-stayed / Lift*

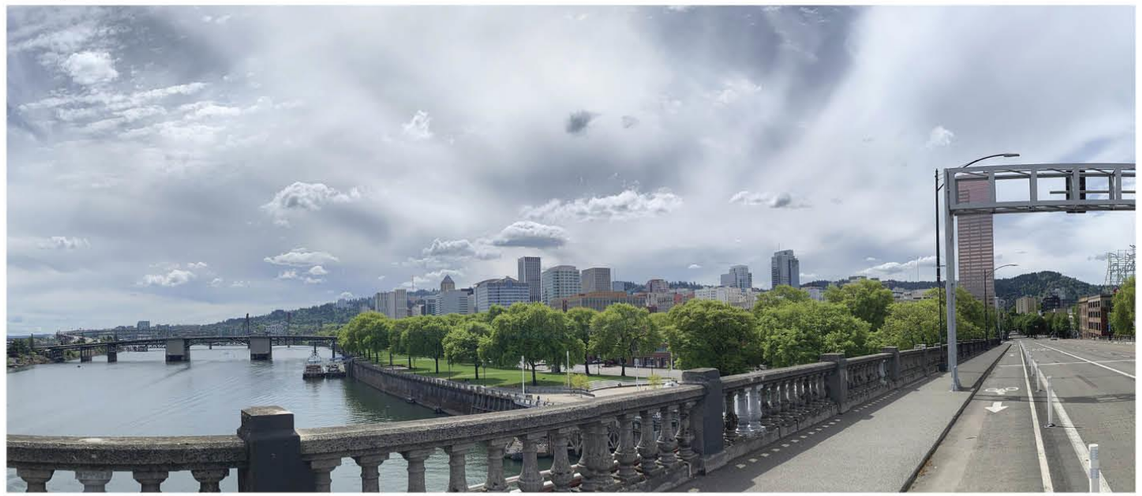
*The Refined Long-span Alternative with this support and lift type is similar to this view

Source:
HDR, Parametrix, Mayer/Reed

View from Burnside Bridge looking southeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 29. Visual Impacts – View from Burnside Bridge looking southwest

Existing Condition



Short-span Alternative / Bascule

Enhanced Seismic Retrofit Alternative

Short-span Alternative / Lift

Source:

HDR, Parametrix, Mayer/Reed

View from Burnside Bridge looking southwest
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 29. Visual Impacts – View from Burnside Bridge looking southwest – Cont.

Couch Extension / Bascule*

Long-span Alternative / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Couch Extension / Lift*

Long-span Alternative / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

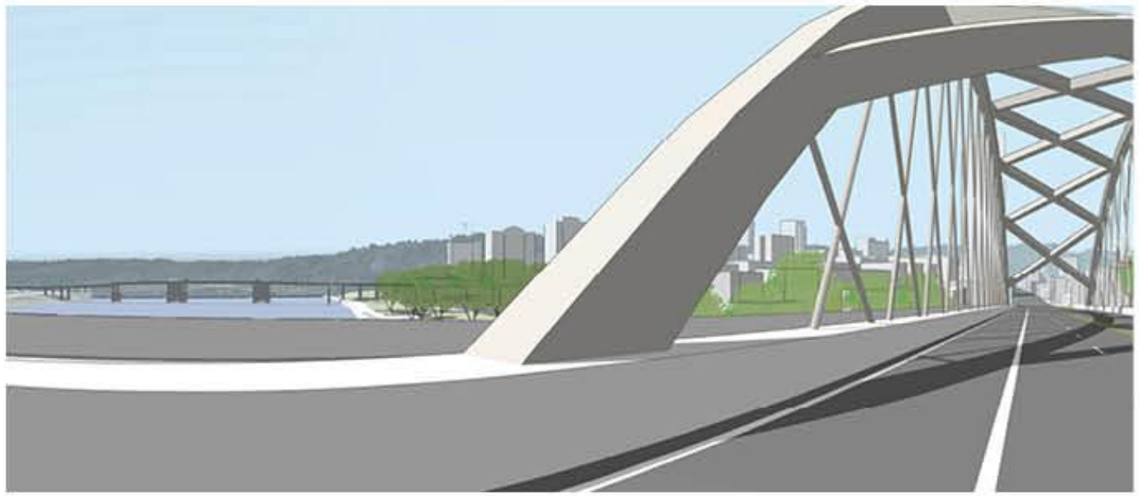
*The Refined Long-span Alternative with this lift type is similar to this view

Source:
HDR, Parametrix, Mayer/Reed

View from Burnside Bridge looking southwest
Visual Impacts
Earthquake Ready
Burnside Bridge Project

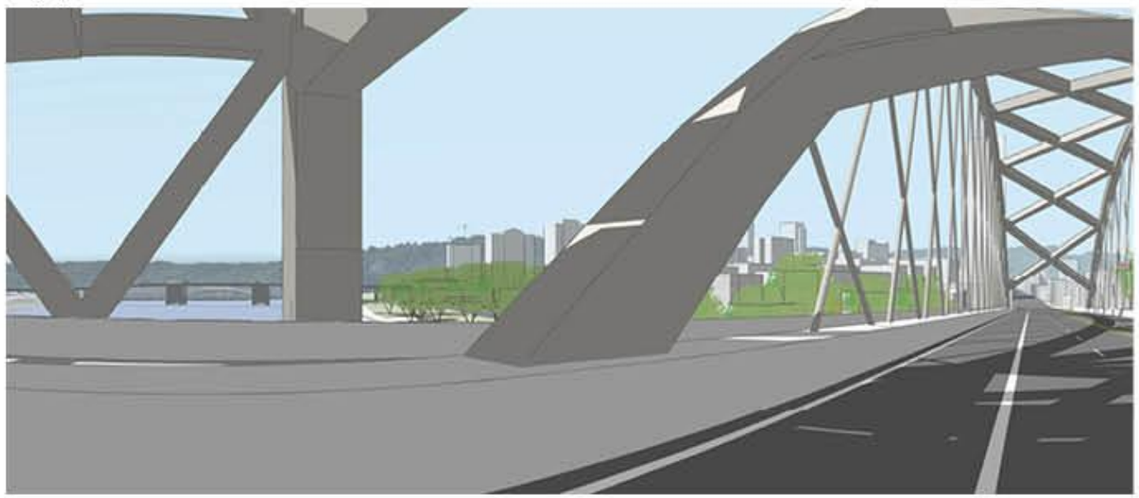
Figure 29. Visual Impacts – View from Burnside Bridge looking southwest – Cont.

Long-span Alternative / Tied-arch / Bascule



Long-span Alternative / Cable-stayed / Bascule

Long-span Alternative / Tied-arch / Lift



Long-span Alternative / Cable-stayed / Lift

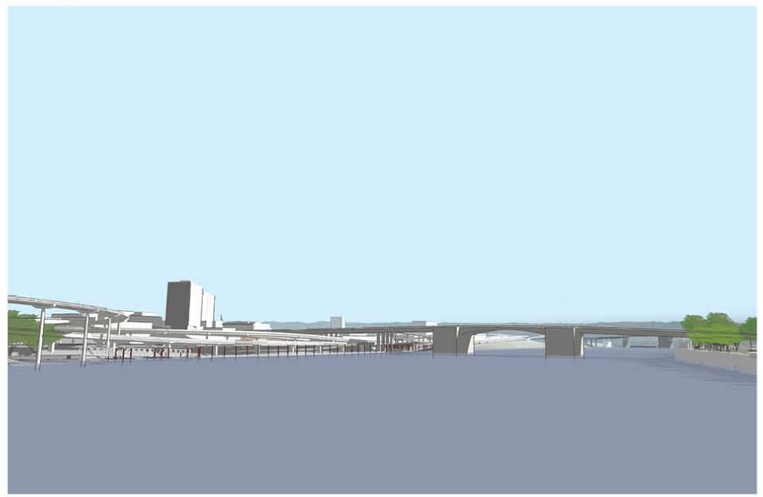
Source:
HDR, Parametrix, Mayer/Reed

View from Burnside Bridge looking southwest
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 30. Visual Impacts – View from Steel Bridge looking south

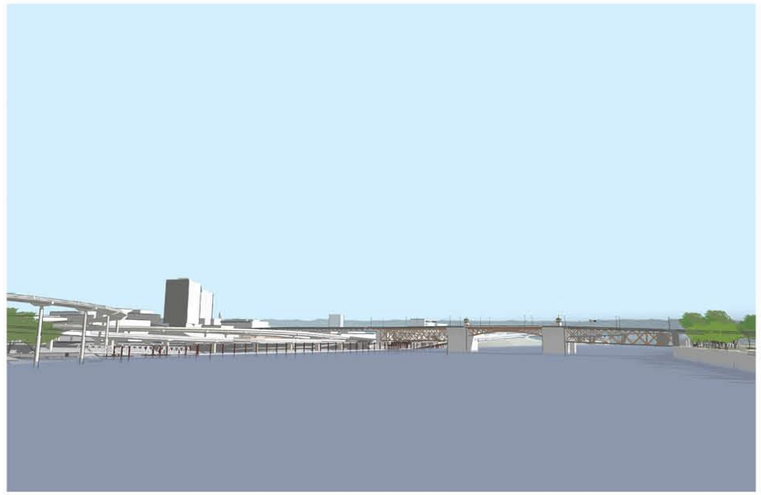
Existing Condition

Short-span Alternative / Bascule

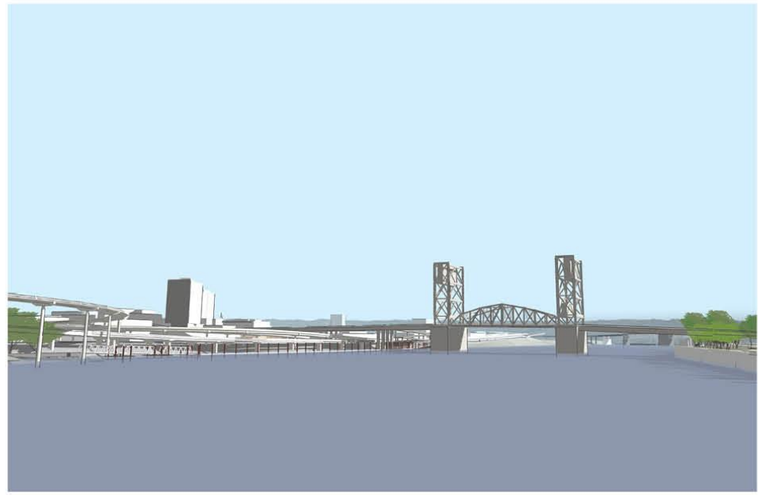


Couch Extension / Bascule

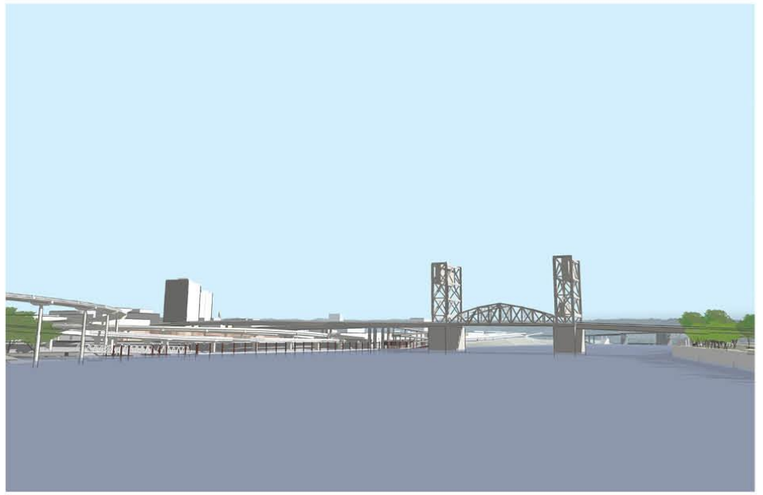
Enhanced Seismic Retrofit Alternative



Short-span Alternative / Lift



Couch Extension / Lift



Source:

HDR, Parametrix, Mayer/Reed

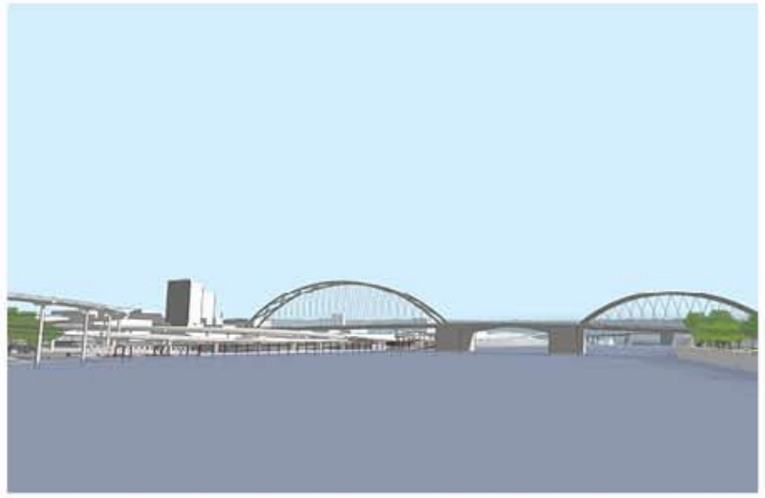
View from Steel Bridge looking south
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 30. Visual Impacts – View from Steel Bridge looking south – Cont.

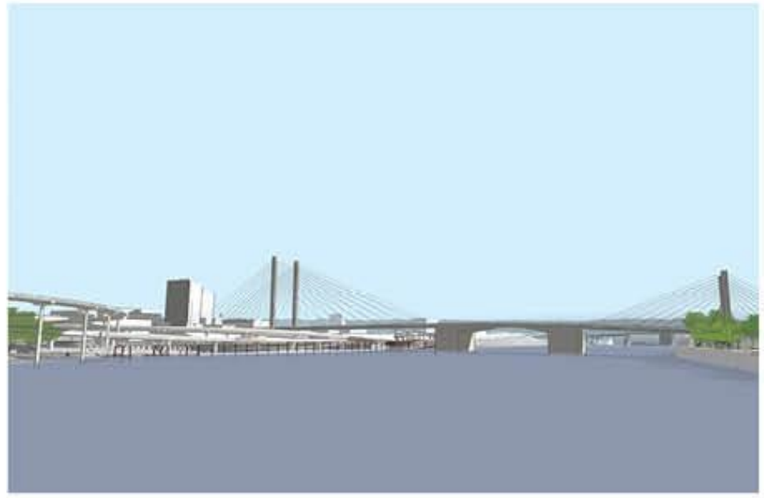
Long-span Alternative / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Bascule



Long-span Alternative / Cable-stayed / Bascule

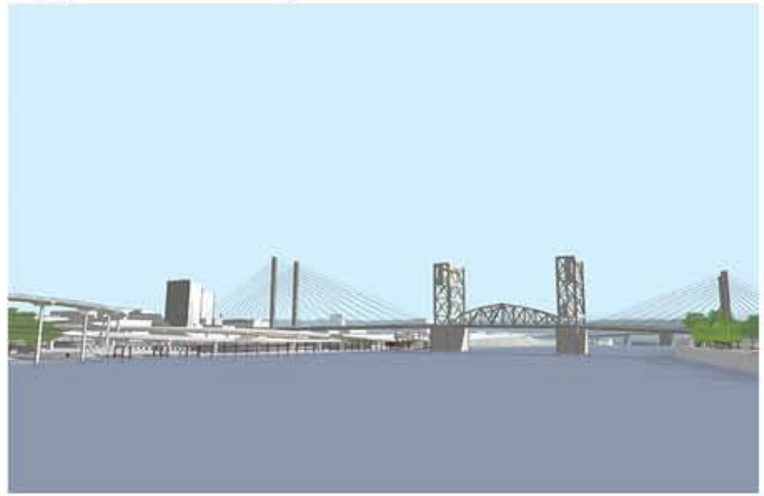


Long-span Alternative / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Lift

Long-span Alternative / Cable-stayed / Lift



Source:
HDR, Parametrix, Mayer/Reed

View from Steel Bridge looking south
Visual Impacts
Earthquake Ready
Burnside Bridge Project

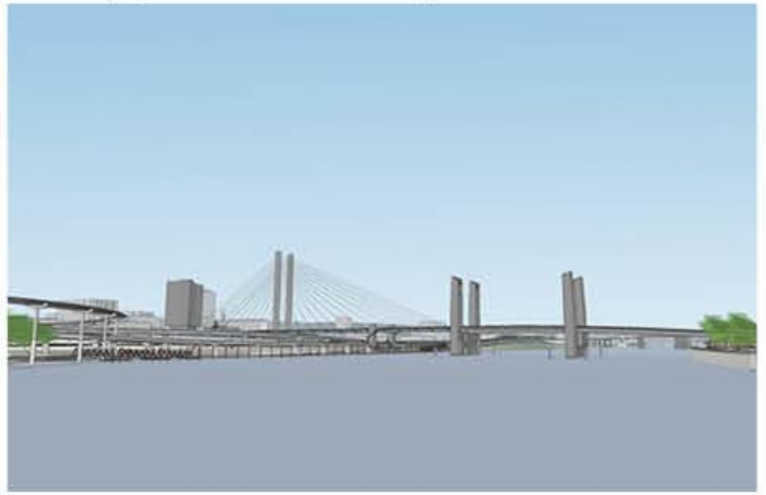
Figure 30. Visual Impacts – View from Steel Bridge looking south – Cont.

Refined Long-span Alternative / Girder / Tied-arch / Bascule

Refined Long-span Alternative / Girder / Cable-stayed / Bascule

Refined Long-span Alternative / Girder / Tied-arch / Lift

Refined Long-span Alternative / Girder / Cable-stayed / Lift



Source:
HDR, Parametrix, Mayer/Reed

View from Steel Bridge looking south
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 31. Visual Impacts – View from I-5 ramp looking southwest

Existing Condition

Short-span Alternative / Bascule

Couch Extension / Bascule

Enhanced Seismic Retrofit Alternative

Short-span Alternative / Lift

Couch Extension / Lift

Source:

HDR, Parametrix, Mayer/Reed

View from I-5 ramp looking southwest
Visual Impacts
Earthquake Ready
Burnside Bridge Project

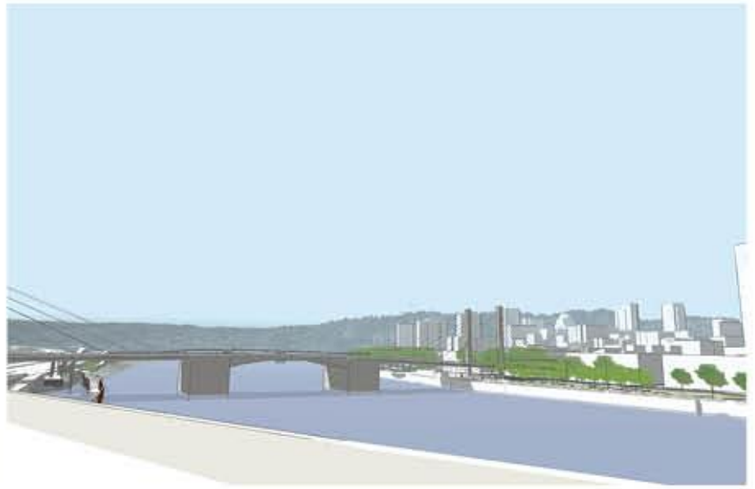
Figure 31. Visual Impacts – View from I-5 ramp looking southwest – Cont.

Long-span Alterntiave / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Bascule

Long-span Alternative / Cable-stayed / Bascule

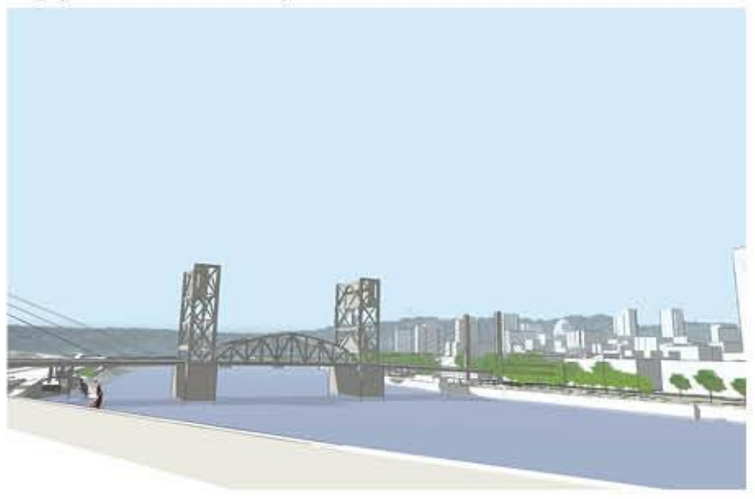


Long-span Alternative / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Lift

Long-span Alternative / Cable-stayed / Lift



Source:
HDR, Parametrix, MayerReed

View from I-5 ramp looking southwest
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 31. Visual Impacts – View from I-5 ramp looking southwest – Cont.

Refined Long-span Alternative / Girder / Tied-arch / Bascule

Refined Long-span Alternative / Girder / Cable-stayed / Bascule

Refined Long-span Alternative / Girder / Tied-arch / Lift

Refined Long-span Alternative / Girder / Cable-stayed / Lift

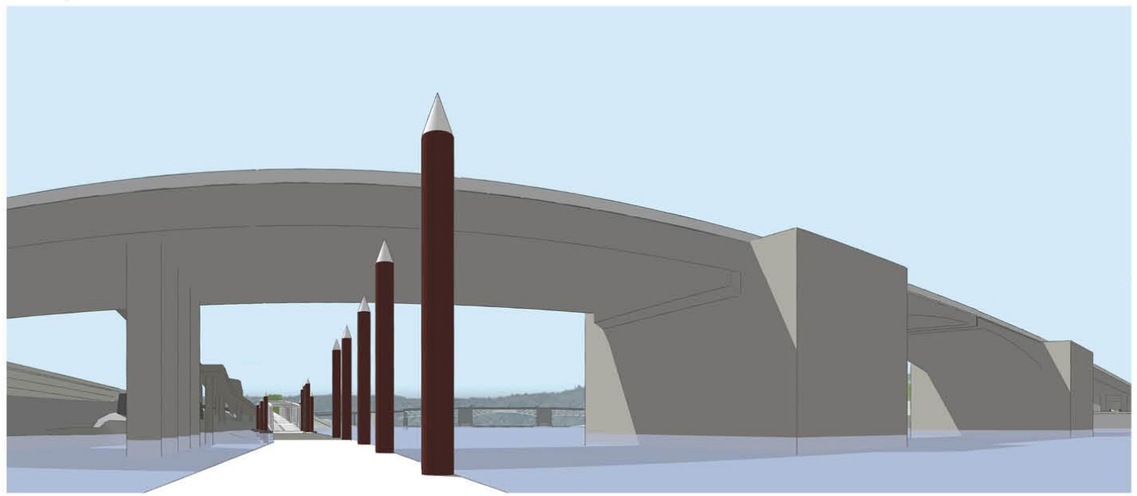
Source:
HDR, Parametrix, Mayer/Reed

View from I-5 ramp looking southwest
Visual Impacts
Earthquake Ready
Burnside Bridge Project

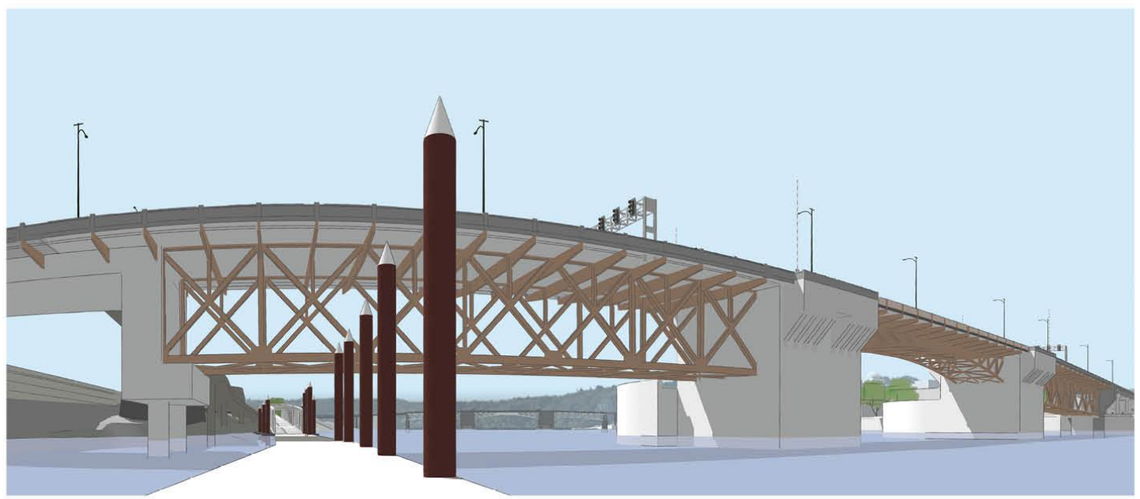
Figure 32. Visual Impacts – View from Vera Katz Eastbank Esplanade floating walkway looking south

Existing Condition

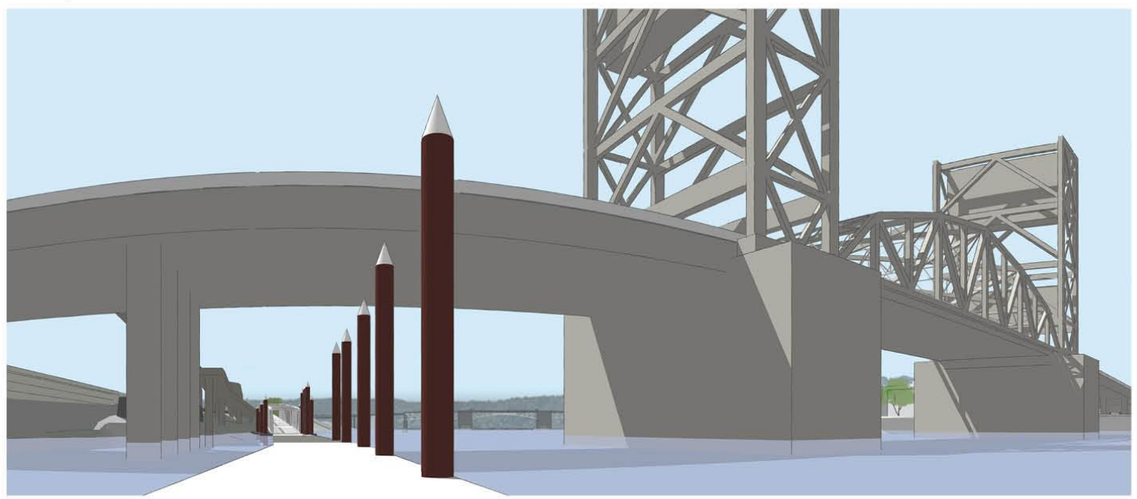
Short-span Alternative / Bascule



Enhanced Seismic Retrofit Alternative



Short-span Alternative / Lift



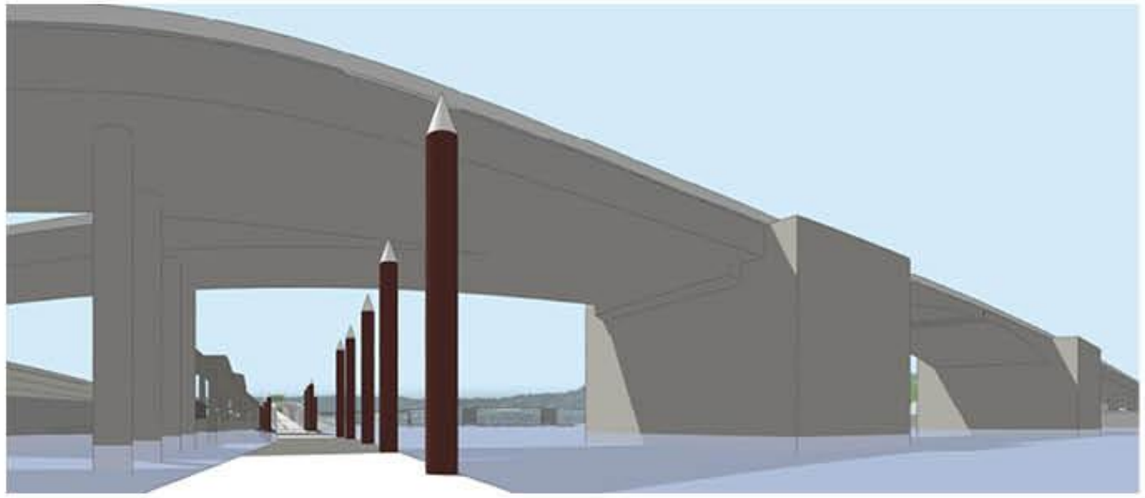
Source:

HDR, Parametrix, Mayer/Reed

View from Vera Katz Eastbank Esplanade floating walkway looking south
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 32. Visual Impacts – View from Vera Katz Eastbank Esplanade floating walkway looking south – Cont.

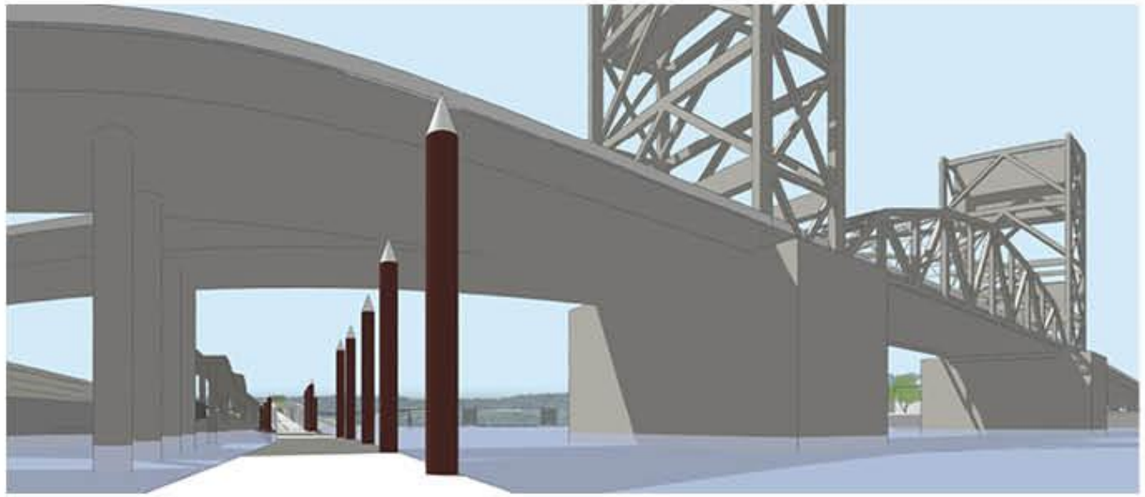
Couch Extension / Bascule



Long-span Alternative / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Couch Extension / Lift



Long-span Alternative / Through truss / Lift

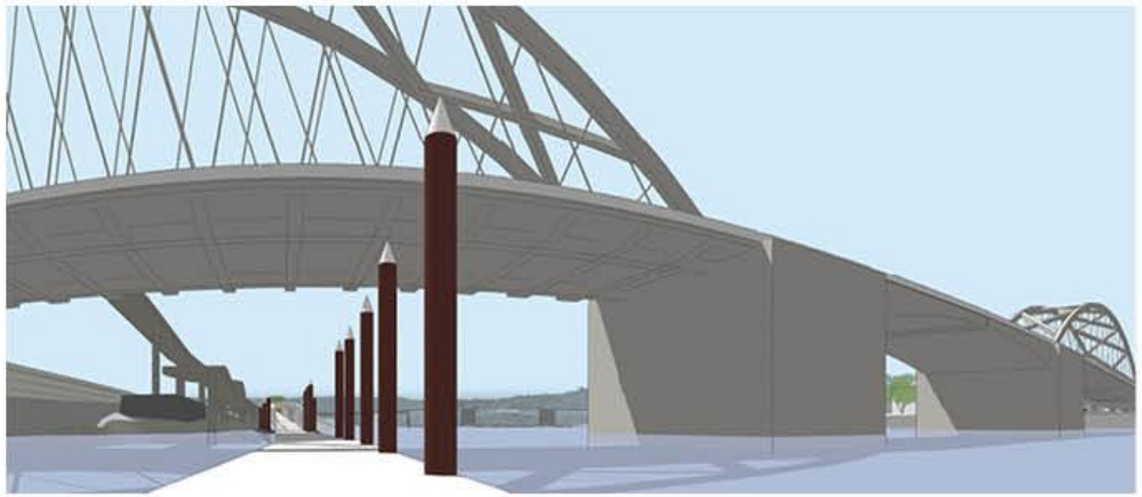
Note: See Figures 31 & 35 for examples of this bridge alternative

Source:
HDR, Parametrix, Mayer/Reed

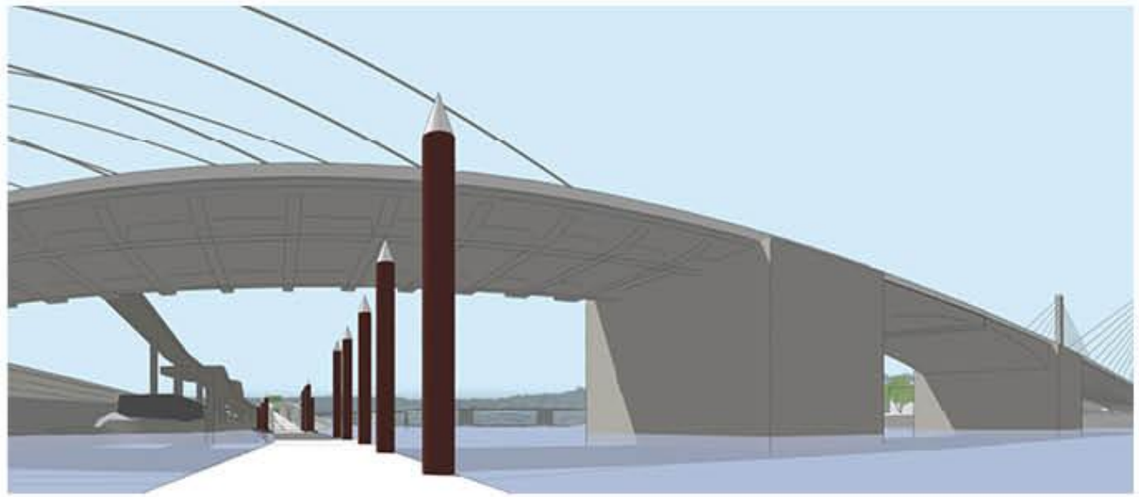
View from Vera Katz Eastbank Esplanade floating walkway looking south
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 32. Visual Impacts – View from Vera Katz Eastbank Esplanade floating walkway looking south – Cont.

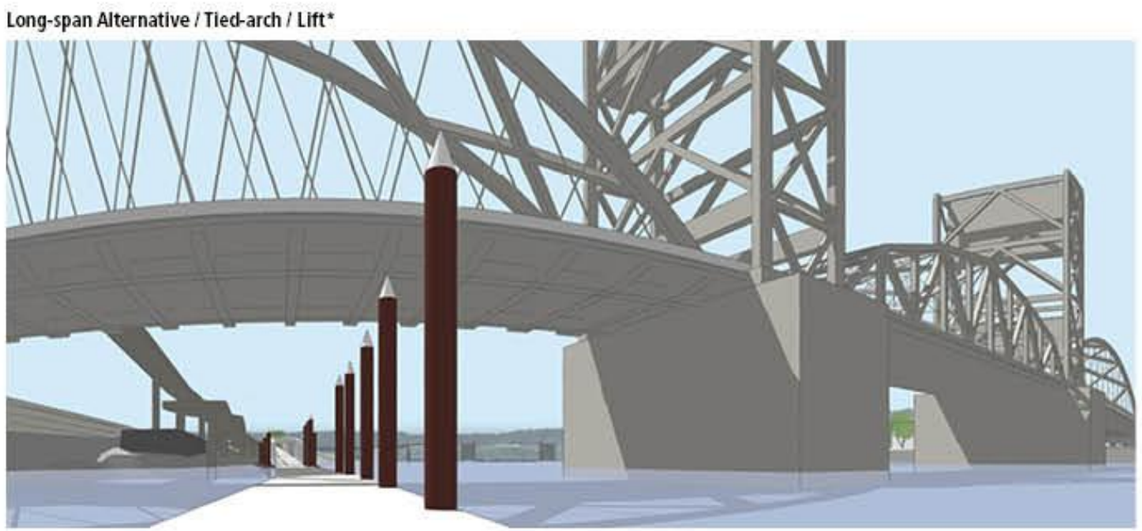
Long-span Alternative / Tied-arch / Bascule*



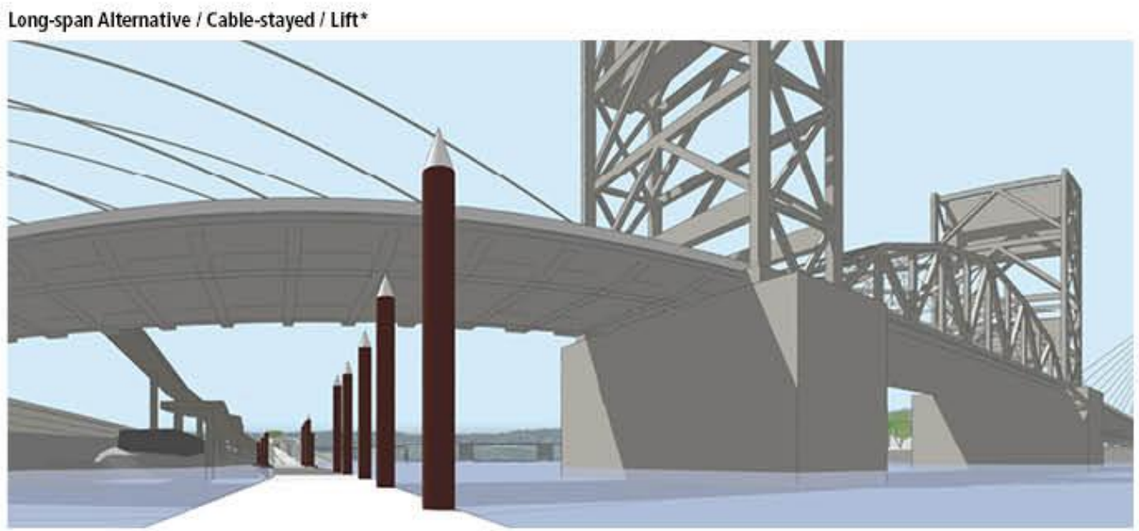
Long-span Alternative / Cable-stayed / Bascule*



Long-span Alternative / Tied-arch / Lift*



Long-span Alternative / Cable-stayed / Lift*



*The Refined Long-span Alternative with this support and lift type is similar to this view

Source:
HDR, Parametrix, Mayer/Reed

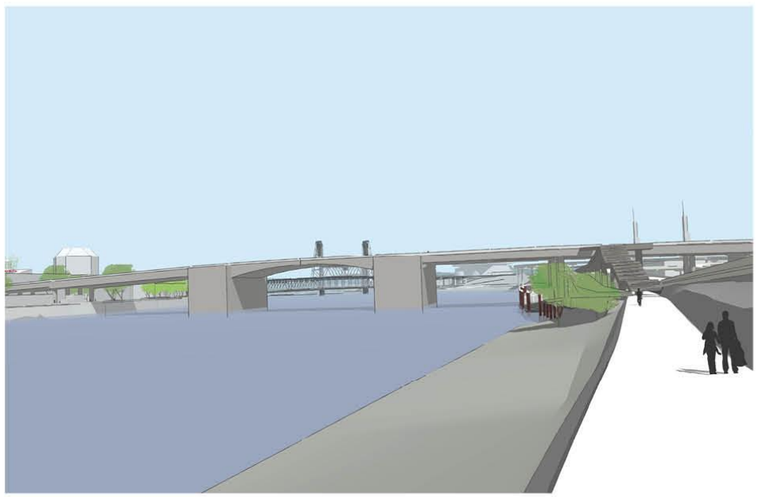
View from Vera Katz Eastbank Esplanade floating walkway looking south
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 33. Visual Impacts – View from Vera Katz Eastbank Esplanade looking north

Existing Condition

Short-span Alternative / Bascule

Couch Extension / Bascule



Enhanced Seismic Retrofit Alternative

Short-span Alternative / Lift

Couch Extension / Lift

Source:

HDR, Parametrix, Mayer/Reed

View from Vera Katz Eastbank Esplanade looking north
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 33. Visual Impacts – View from Vera Katz Eastbank Esplanade looking north – Cont.

Long-span with MEDIUM vertical elements / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Bascule

Long-span Alternative / Cable-stayed / Bascule

Long-span with MEDIUM vertical elements / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Lift

Long-span Alternative / Cable-stayed / Lift

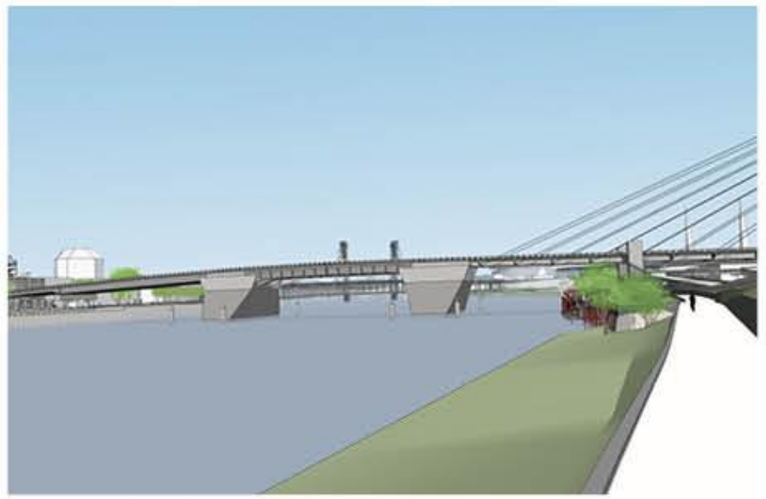
Source:
HDR, Parametrix, Mayer/Reed

View from Vera Katz Eastbank Esplanade looking north
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 33. Visual Impacts – View from Vera Katz Eastbank Esplanade looking north – Cont.

Refined Long-span Alternative / Girder / Tied-arch / Bascule

Refined Long-span Alternative / Girder / Cable-stayed / Bascule



Refined Long-span Alternative / Girder / Tied-arch / Lift

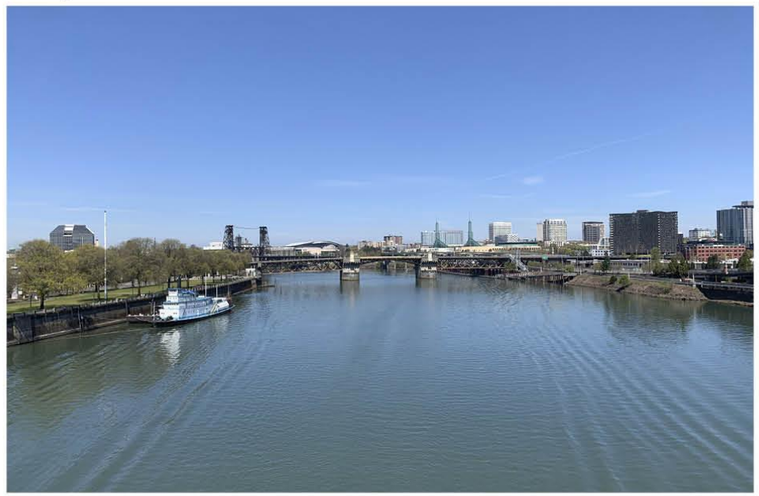
Refined Long-span Alternative / Girder / Cable-stayed / Lift

Source:
HDR, Parametrix, Mayer/Reed

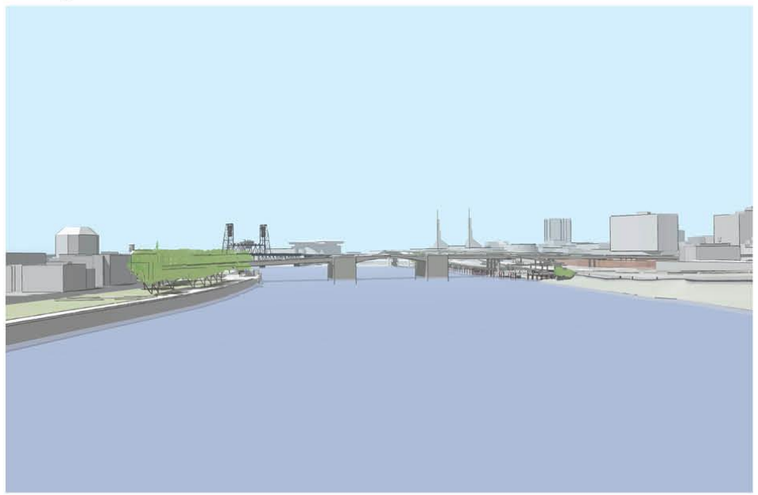
View from Vera Katz Eastbank Esplanade looking north
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 34. Visual Impacts – View from Morrison Bridge looking north

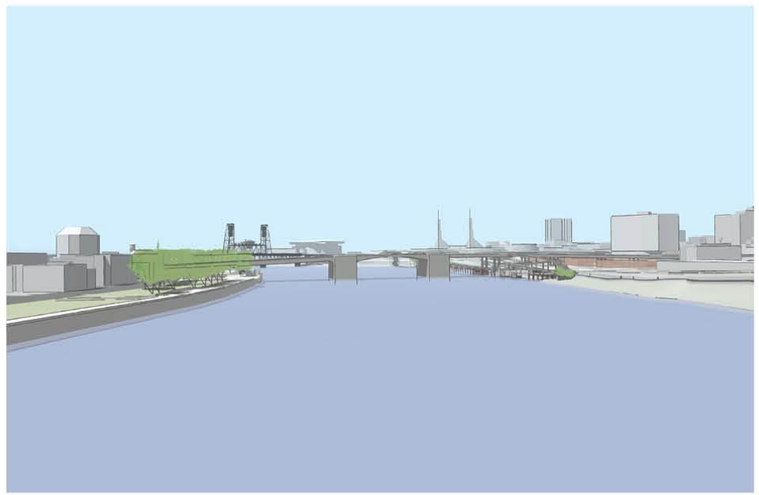
Existing Condition



Short-span Alternative / Bascule



Couch Extension / Bascule



Enhanced Seismic Retrofit Alternative

Short-span Alternative / Lift

Couch Extension / Lift

Source:

HDR, Parametrix, Mayer/Reed

View from Morrison Bridge looking north
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 34. Visual Impacts – View from Morrison Bridge looking north – Cont.

Long-span with MEDIUM vertical elements / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

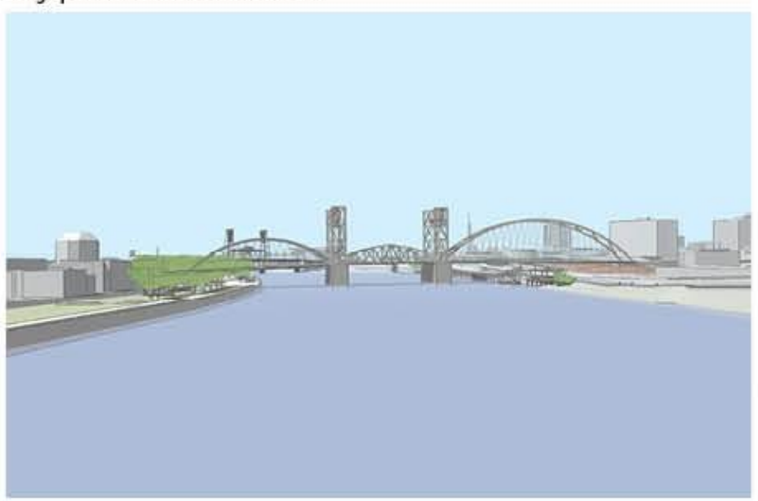
Long-span Alternative / Tied-arch / Bascule

Long-span Alternative / Cable-stayed / Bascule

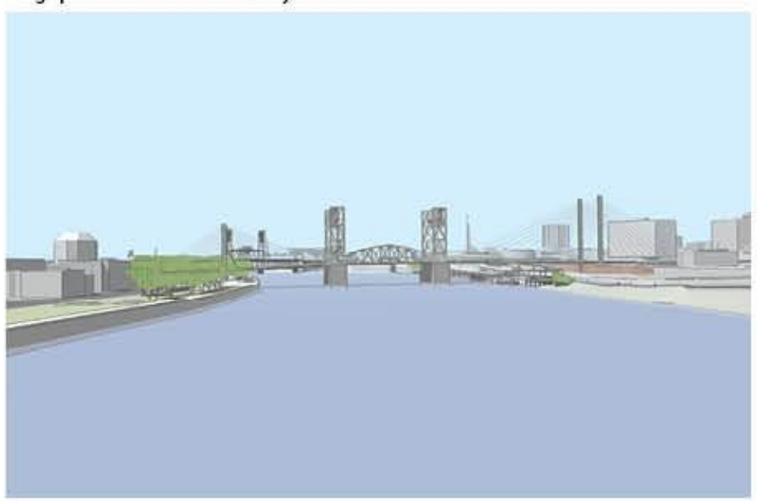
Long-span with MEDIUM vertical elements / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Lift



Long-span Alternative / Cable-stayed / Lift



Source:
HDR, Parametrix, Mayer/Reed

View from Morrison Bridge looking north
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 34. Visual Impacts – View from Morrison Bridge looking north – Cont.

Refined Long-span Alternative / Girder / Tied-arch / Bascule

Refined Long-span Alternative / Girder / Cable-stayed / Bascule

Refined Long-span Alternative / Girder / Tied-arch / Lift

Refined Long-span Alternative / Girder / Cable-stayed / Lift

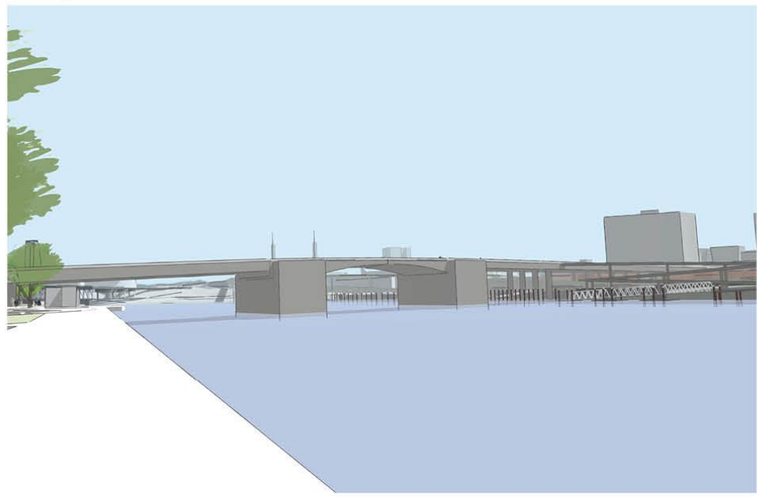
Source:
HDR, Parametrix, Mayer/Reed

View from Morrison Bridge looking north
Visual Impacts
Earthquake Ready
Burnside Bridge Project

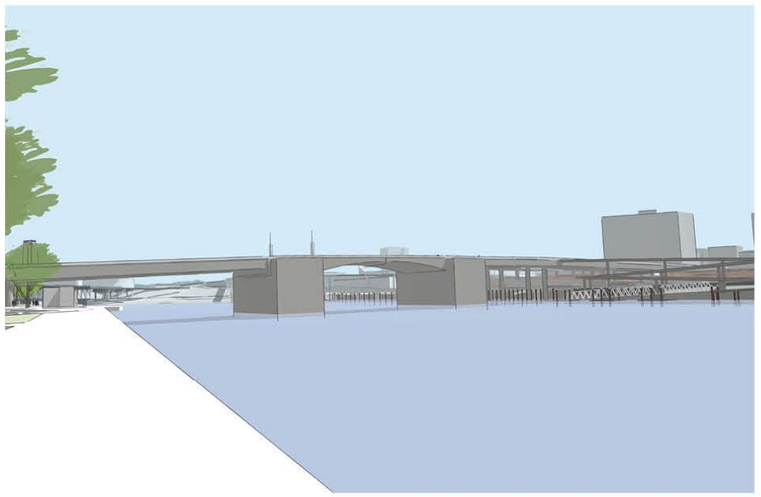
Figure 35. Visual Impacts – View from Tom McCall Waterfront Park looking northeast

Existing Condition

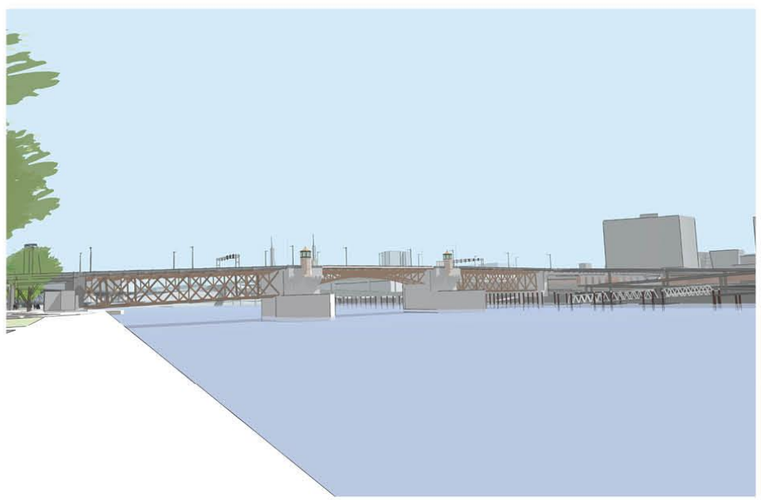
Short-span Alternative / Bascule



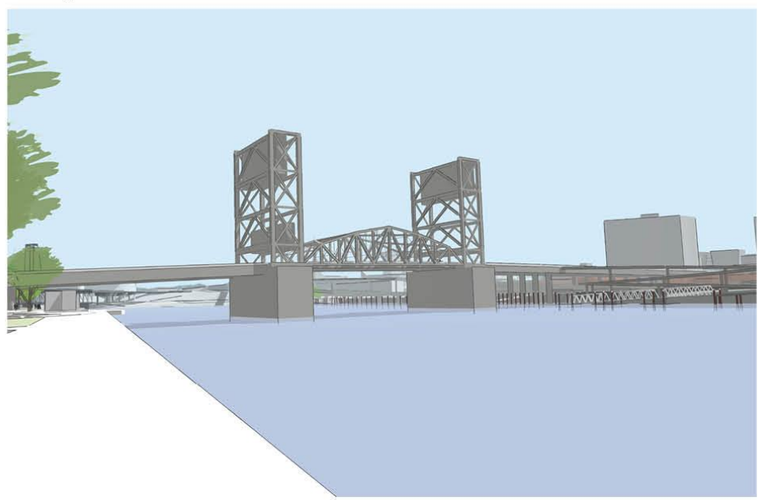
Couch Extension / Bascule



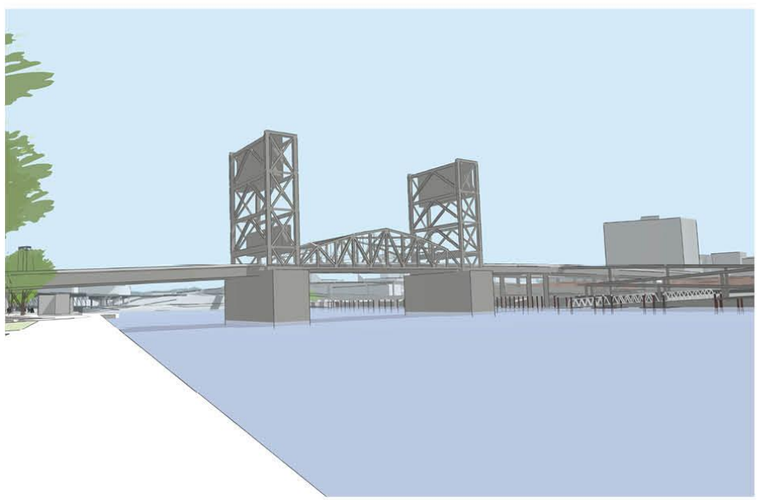
Enhanced Seismic Retrofit Alternative



Short-span Alternative / Lift



Couch Extension / Lift



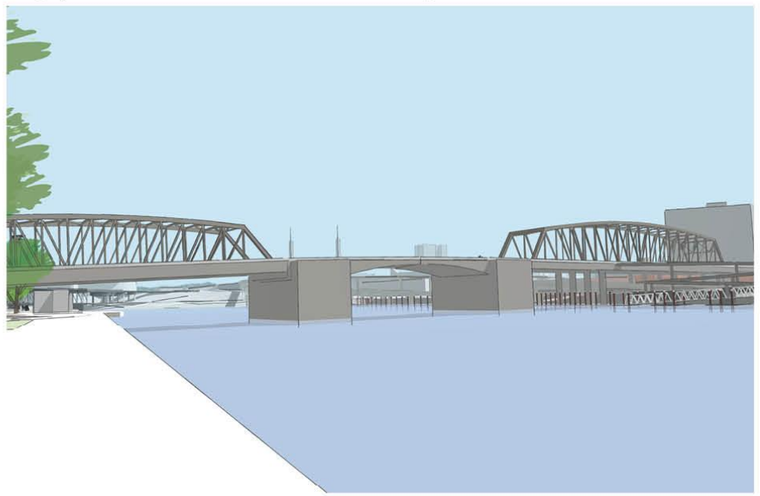
Source:

HDR, Parametrix, Mayer/Reed

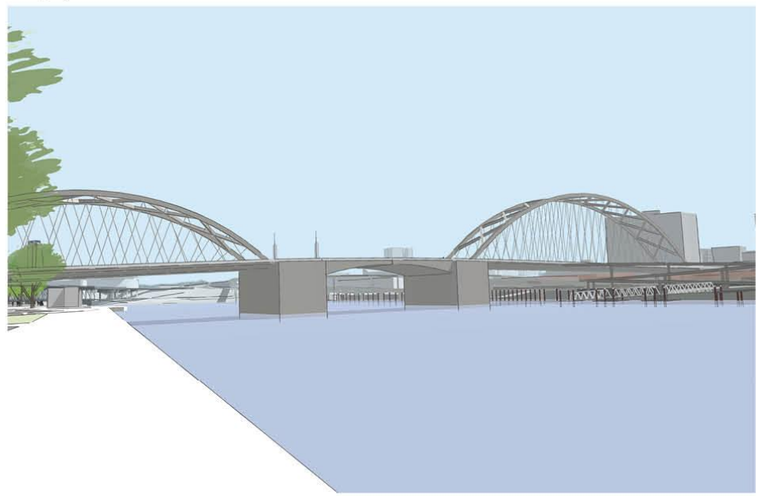
View from Tom McCall Waterfront Park looking northeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 35. Visual Impacts – View from Tom McCall Waterfront Park looking northeast – Cont.

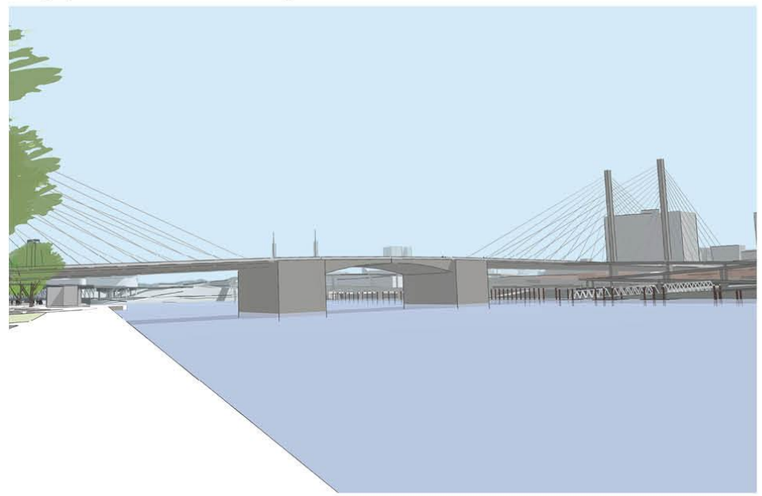
Long-span with MEDIUM vertical elements / Through truss / Bascule



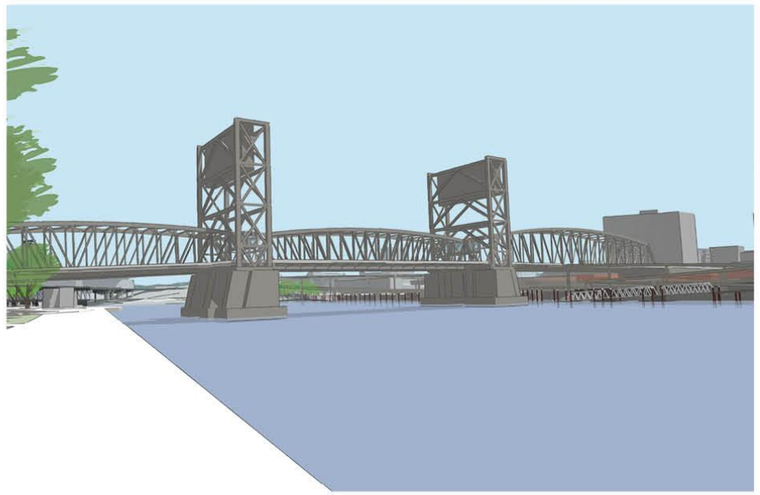
Long-span Alternative / Tied-arch / Bascule



Long-span Alternative / Cable-stayed / Bascule



Long-span with MEDIUM vertical elements / Through truss / Lift



Long-span Alternative / Tied-arch / Lift

Long-span Alternative / Cable-stayed / Lift

Source:

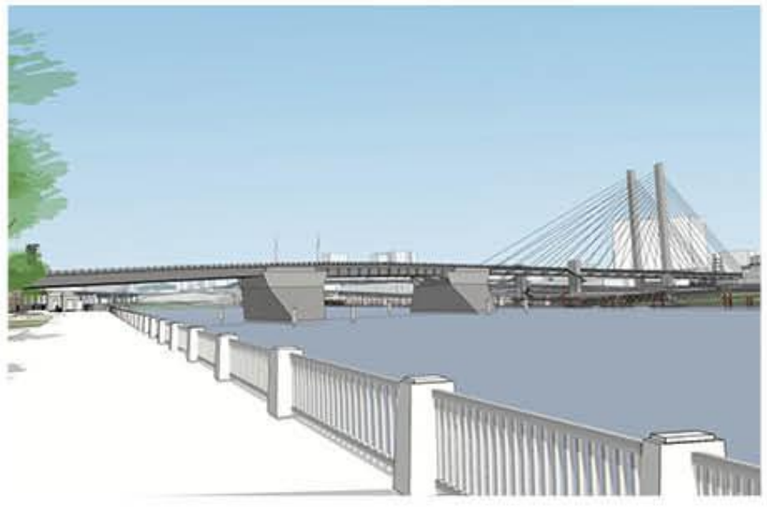
HDR, Parametrix, Mayer/Reed

View from Tom McCall Waterfront Park looking northeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

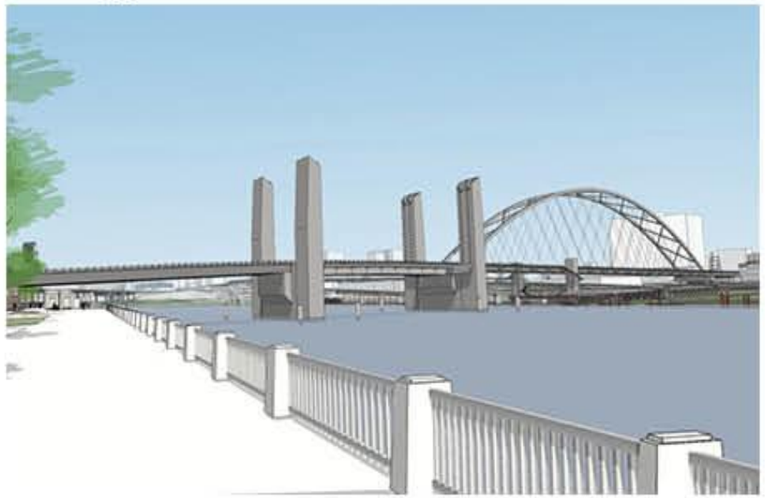
Figure 35. Visual Impacts – View from Tom McCall Waterfront Park looking northeast – Cont.

Refined Long-span Alternative / Girder / Tied-arch / Bascule

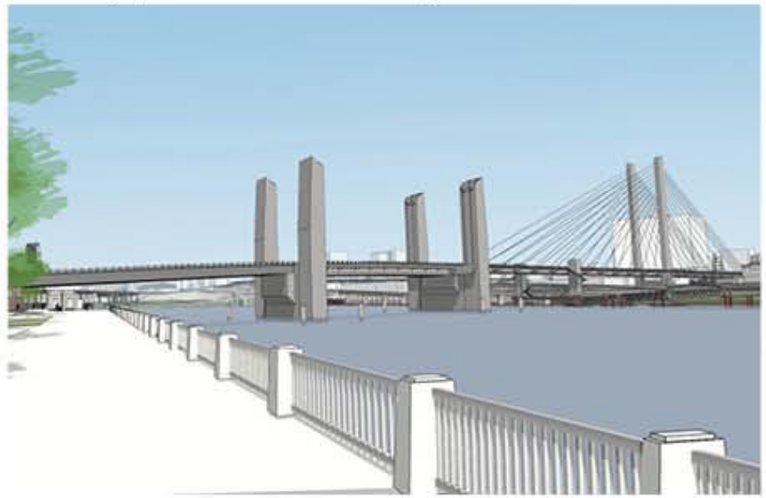
Refined Long-span Alternative / Girder / Cable-stayed / Bascule



Refined Long-span Alternative / Girder / Tied-arch / Lift



Refined Long-span Alternative / Girder / Cable-stayed / Lift

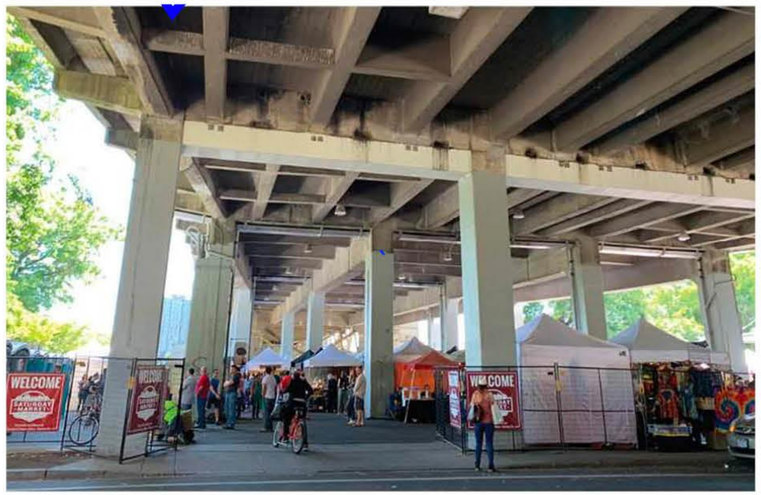


Source:
HDR, Parametrix, Mayer/Reed

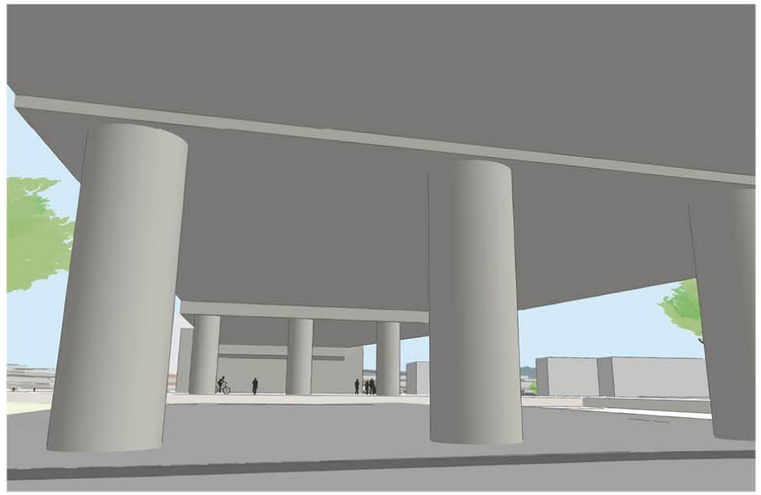
View from Tom McCall Waterfront Park looking northeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 36. Visual Impacts – View from Naito Parkway under Burnside Bridge looking east

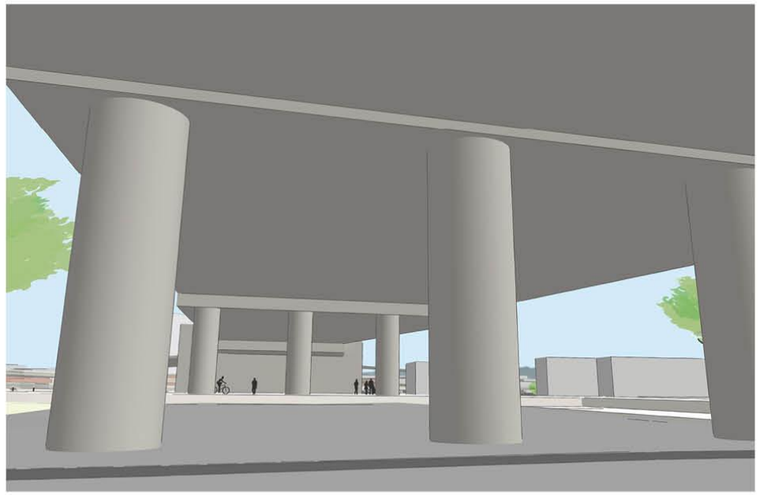
Existing Condition



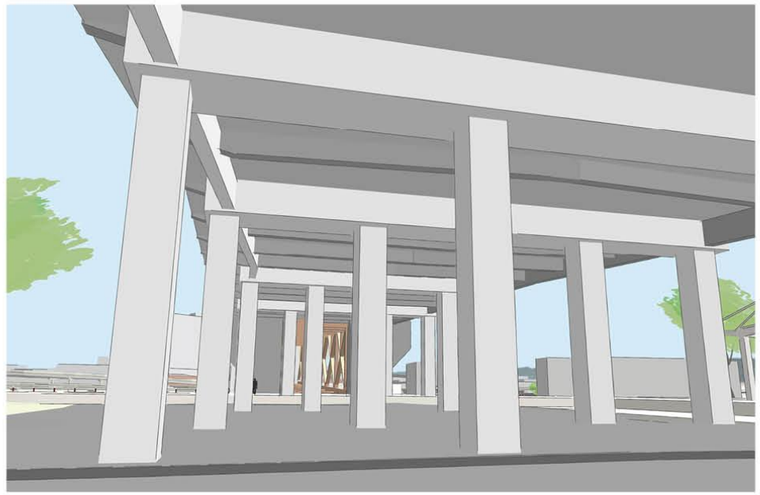
Short-span Alternative / Bascule



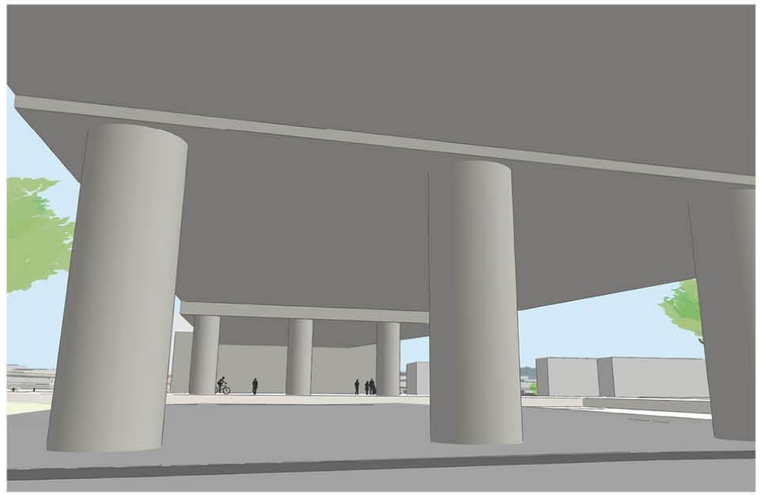
Couch Extension / Bascule



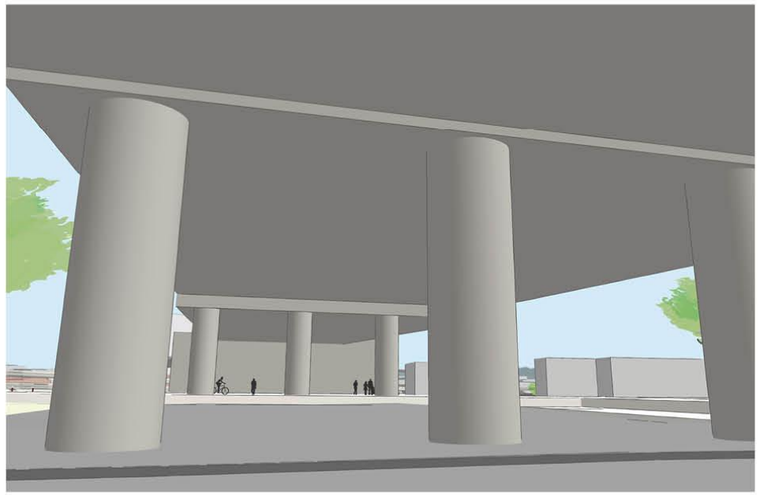
Enhanced Seismic Retrofit Alternative



Short-span Alternative / Lift



Couch Extension / Lift



Source:

HDR, Parametrix, Mayer/Reed

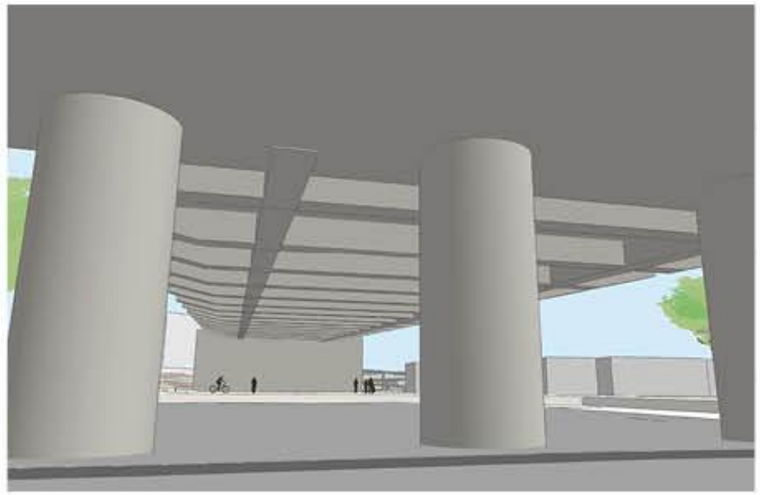
View from Naito Parkway under Burnside Bridge looking east
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 36. Visual Impacts – View from Naito Parkway under Burnside Bridge looking east – Cont.

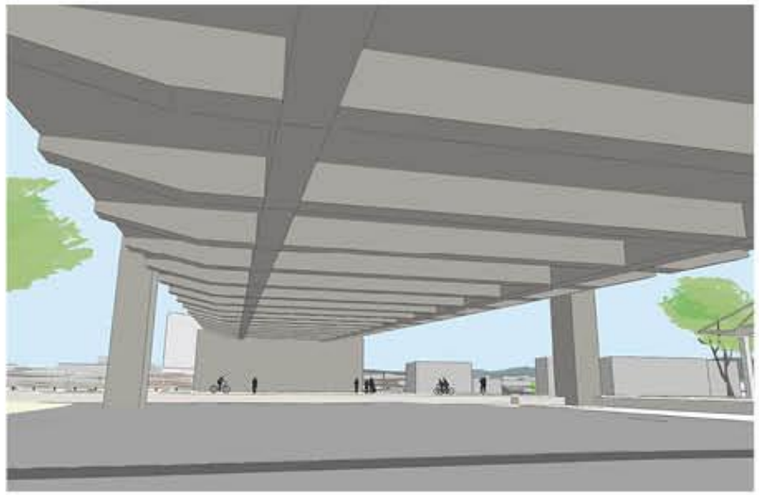
Long-span with MEDIUM vertical elements / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Bascule



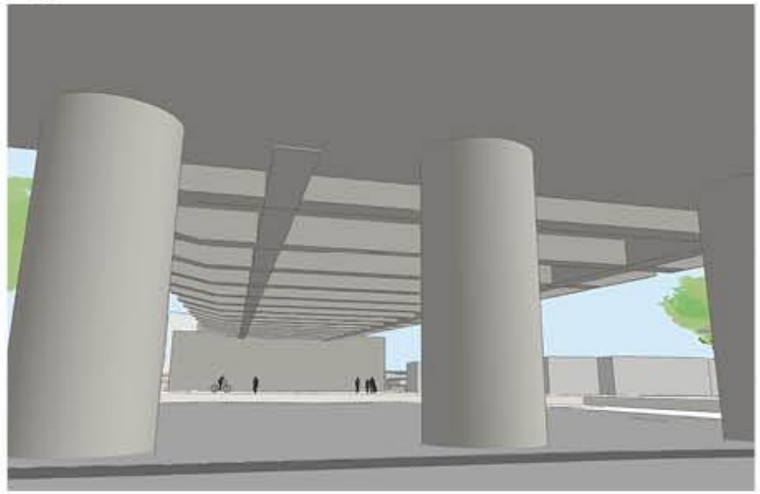
Long-span Alternative / Cable-stayed / Bascule



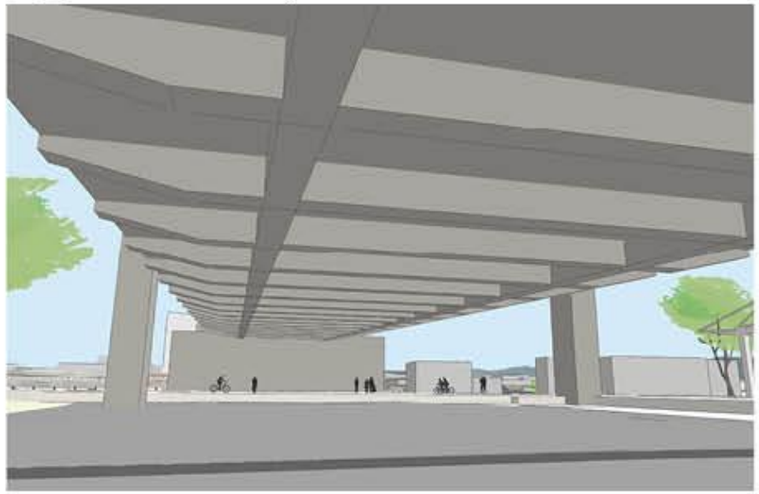
Long-span with MEDIUM vertical elements / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Lift



Long-span Alternative / Cable-stayed / Lift

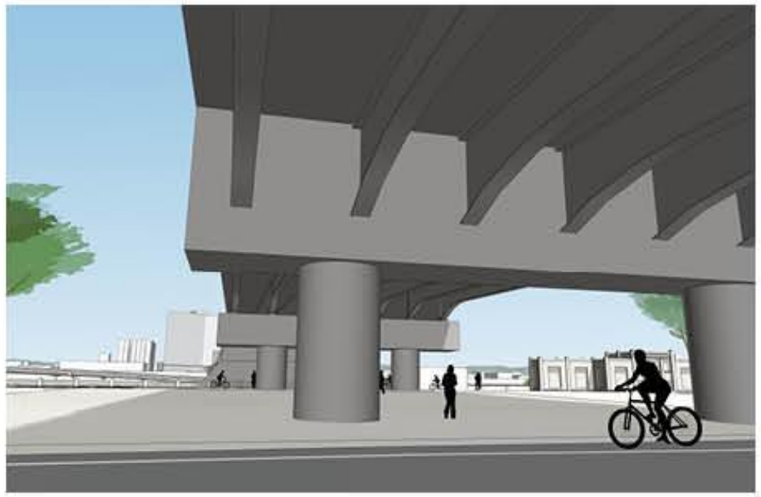


Source:
HDR, Parametrix, Mayer/Reed

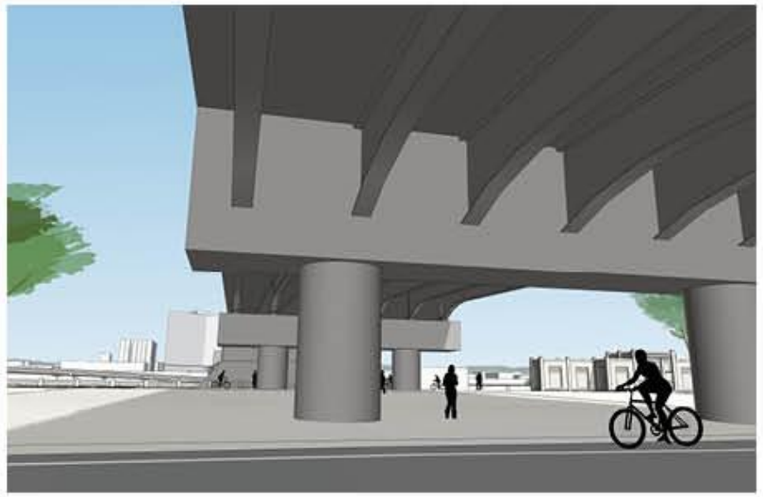
View from Naito Parkway under Burnside Bridge looking east
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 36. Visual Impacts – View from Naito Parkway under Burnside Bridge looking east – Cont.

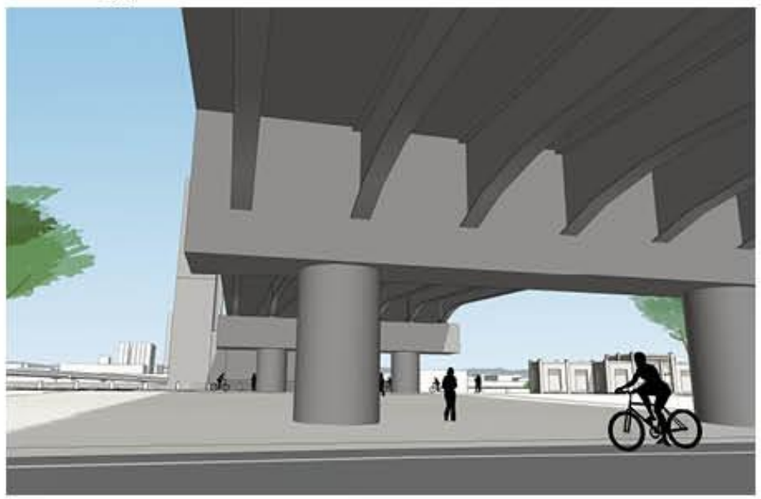
Refined Long-span Alternative / Girder / Tied-arch / Bascule



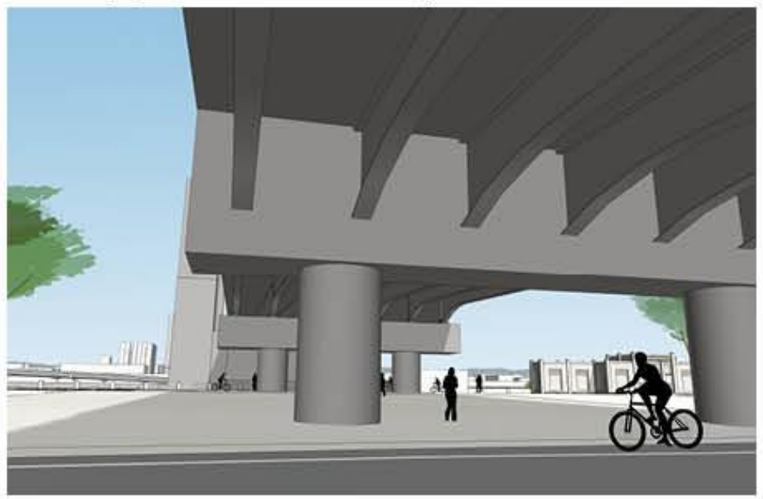
Refined Long-span Alternative / Girder / Cable-stayed / Bascule



Refined Long-span Alternative / Girder / Tied-arch / Lift



Refined Long-span Alternative / Girder / Cable-stayed / Lift



Source:
HDR, Parametrix, Mayer/Reed

View from Naito Parkway under Burnside Bridge looking east
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 37. Visual Impacts – View from Tom McCall Waterfront Park looking southeast

Existing Condition

Short-span Alternative / Bascule

Couch Extension / Bascule

Enhanced Seismic Retrofit Alternative

Short-span Alternative / Lift

Couch Extension / Lift

Source:

HDR, Parametrix, Mayer/Reed

View from Tom McCall Waterfront Park looking southeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 37. Visual Impacts – View from Tom McCall Waterfront Park looking southeast – Cont.

Long-span with MEDIUM vertical elements / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

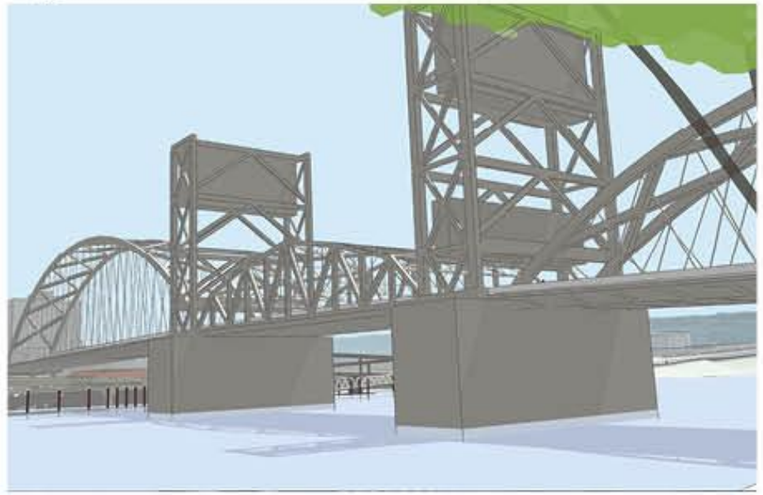
Long-span Alternative / Tied-arch / Bascule

Long-span Alternative / Cable-stayed / Bascule

Long-span with MEDIUM vertical elements / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Lift



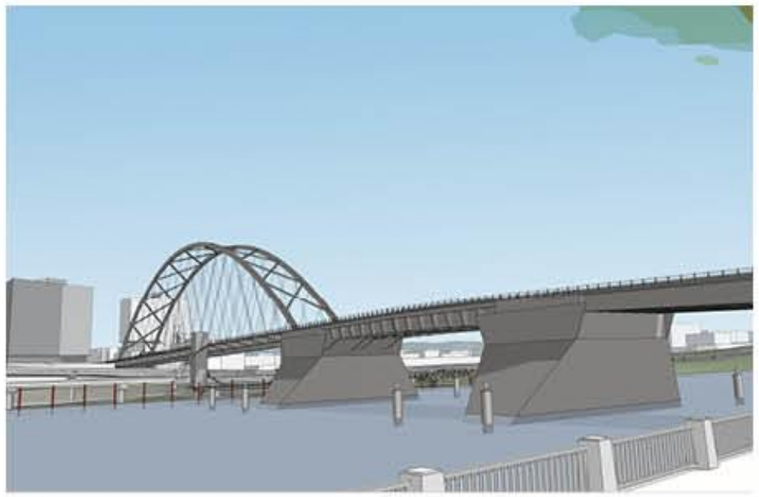
Long-span Alternative / Cable-stayed / Lift

Source:
HDR, Parametrix, Mayer/Reed

View from Tom McCall Waterfront Park looking southeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 37. Visual Impacts – View from Tom McCall Waterfront Park looking southeast – Cont.

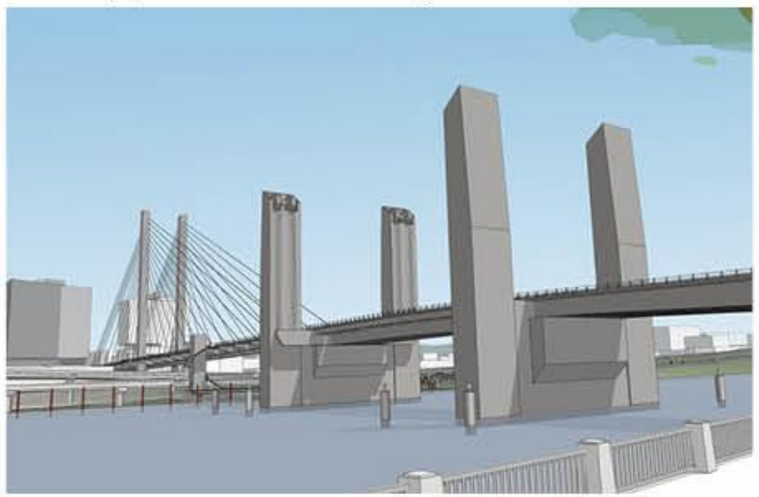
Refined Long-span Alternative / Girder / Tied-arch / Bascule



Refined Long-span Alternative / Girder / Cable-stayed / Bascule

Refined Long-span Alternative / Girder / Tied-arch / Lift

Refined Long-span Alternative / Girder / Cable-stayed / Lift



Source:
HDR, Parametrix, Mayer/Reed

View from Tom McCall Waterfront Park looking southeast
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 38. Visual Impacts – View from East Side high-rise looking west

Existing Condition

Short-span Alternative / Bascule

Couch Extension / Bascule

Enhanced Seismic Retrofit Alternative

Short-span Alternative / Lift

Couch Extension / Lift

Note: Location of view is representative of East Side Neighbor. Views will vary based on elevation and sight lines.

Source:

HDR, Parametrix, Mayer/Reed

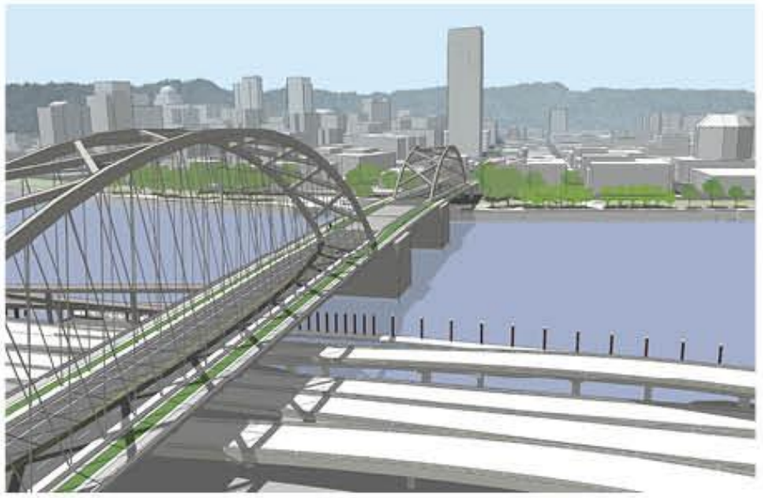
View from East Side high-rise looking west
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 38. Visual Impacts – View from East Side high-rise looking west – Cont.

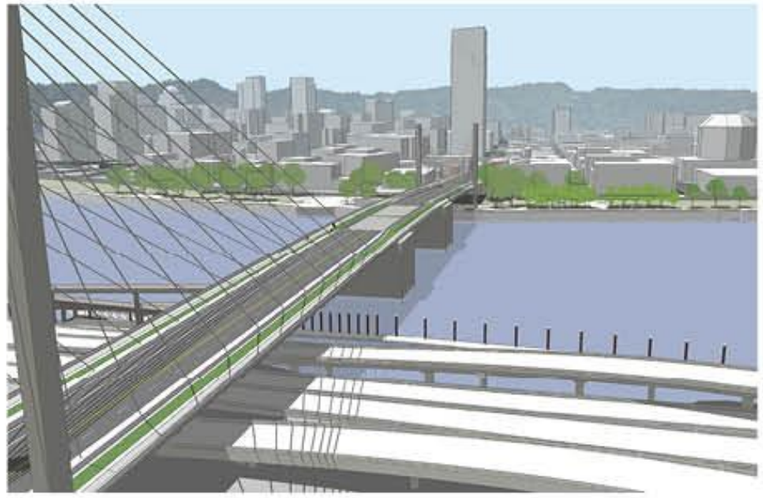
Long-span with MEDIUM vertical elements / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Bascule



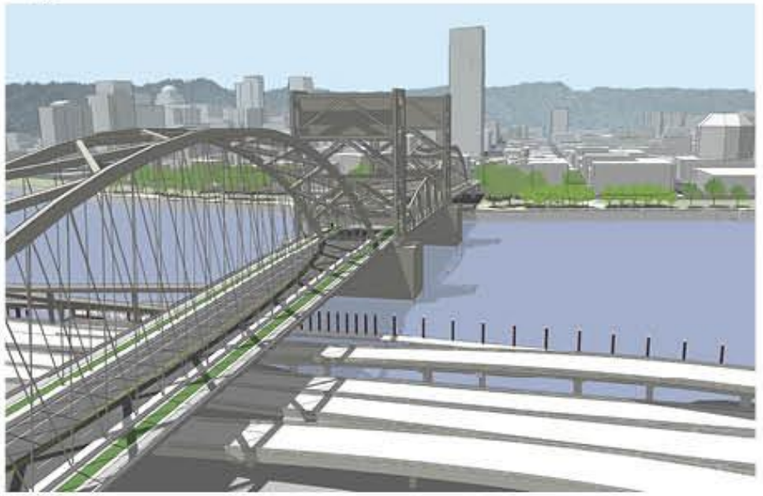
Long-span Alternative / Cable-stayed / Bascule



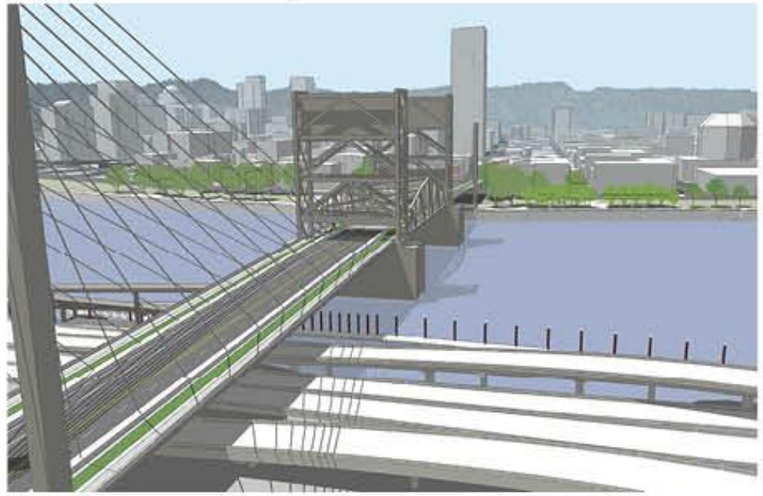
Long-span with MEDIUM vertical elements / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Lift



Long-span Alternative / Cable-stayed / Lift



Note: Location of view is representative of East Side Neighbor. Views will vary based on elevation and sight lines.

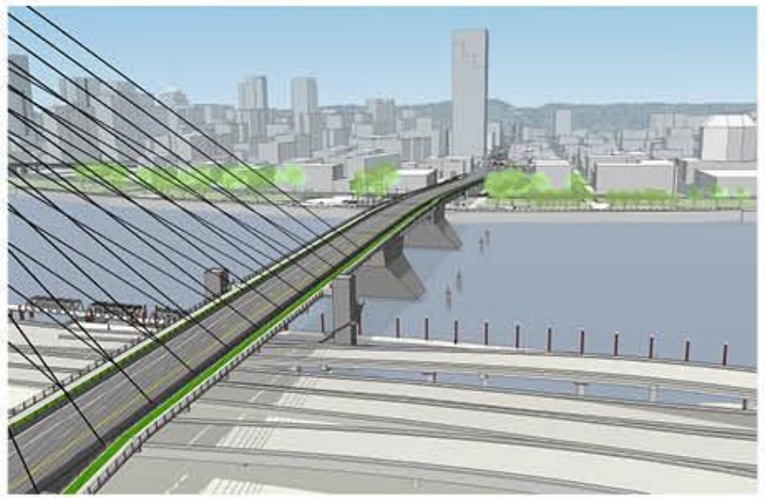
Source:
HDR, Parametrix, Mayer/Reed

View from East Side high-rise looking west
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 38. Visual Impacts – View from East Side high-rise looking west – Cont.

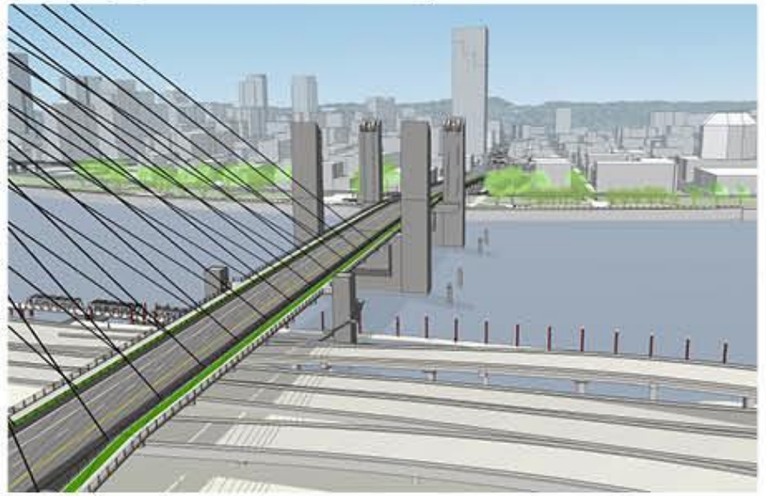
Refined Long-span Alternative / Girder / Tied-arch / Bascule

Refined Long-span Alternative / Girder / Cable-stayed / Bascule



Refined Long-span Alternative / Girder / Tied-arch / Lift

Refined Long-span Alternative / Girder / Cable-stayed / Lift



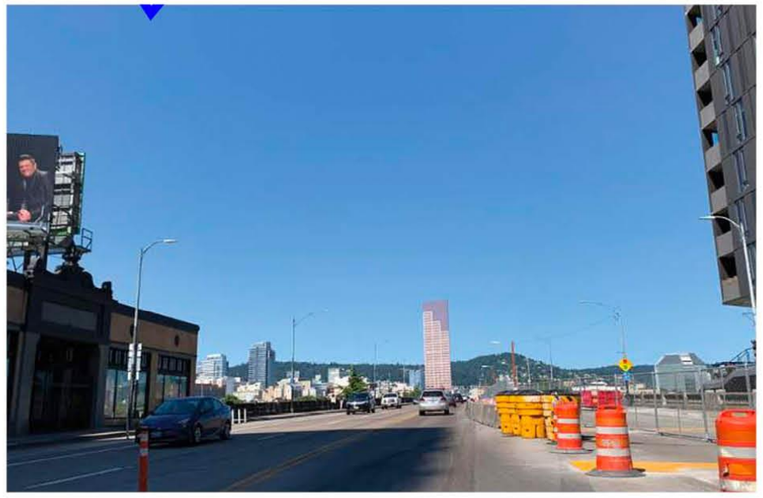
Note: Location of view is representative of East Side Neighbor. Views will vary based on elevation and sight lines.

Source:
HDR, Parametrix, Mayer/Reed

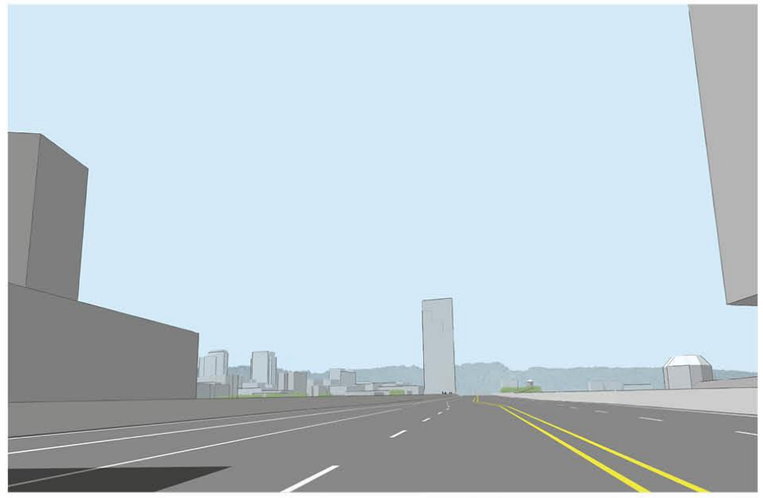
View from East Side high-rise looking west
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 39. Visual Impacts – View from E Burnside Street looking west

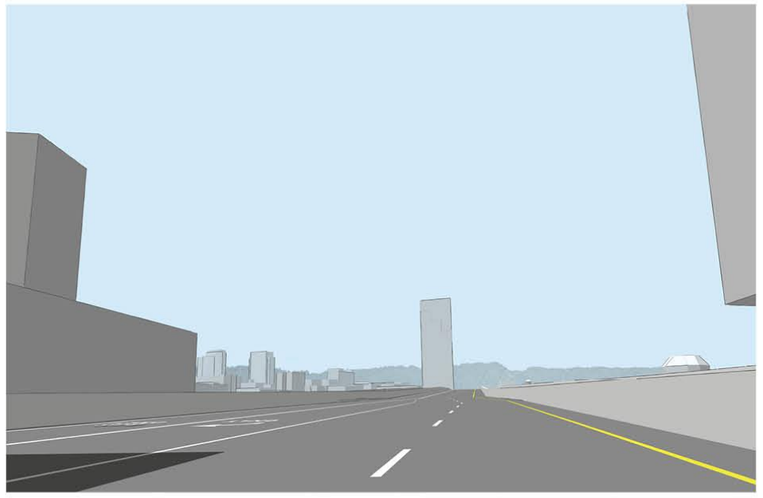
Existing Condition



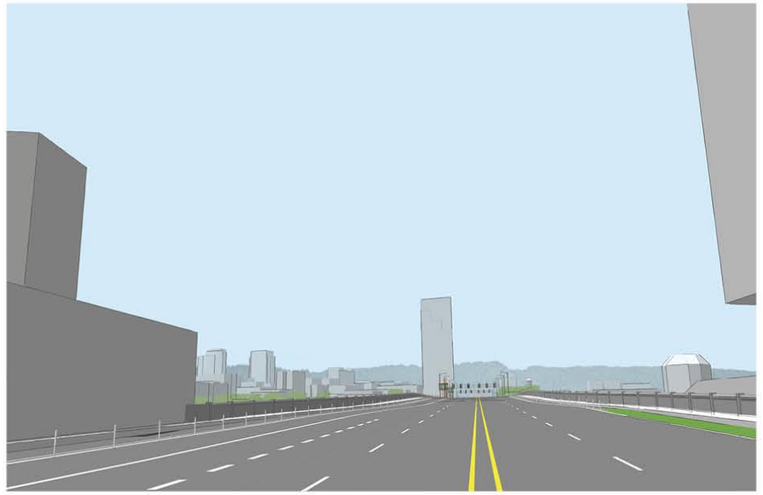
Short-span Alternative / Bascule



Couch Extension / Bascule



Enhanced Seismic Retrofit Alternative



Short-span Alternative / Lift

Couch Extension / Lift

Source:
HDR, Parametrix, Mayer/Reed

View from E Burnside Street looking west
Visual Impacts
Earthquake Ready
Burnside Bridge Project

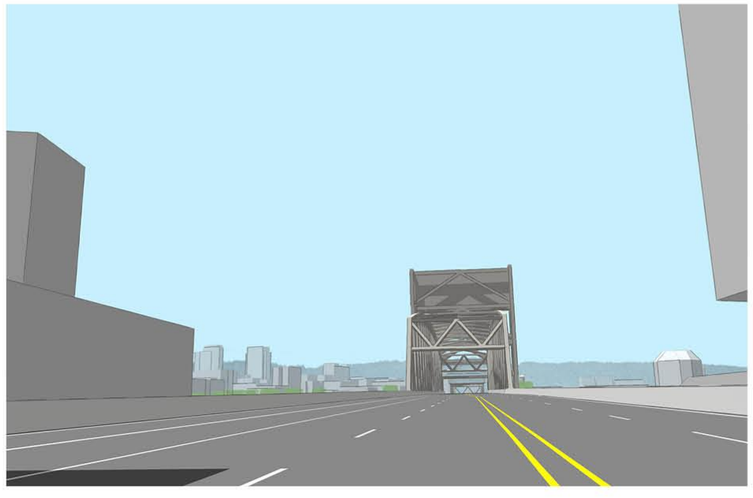
Figure 39. Visual Impacts – View from E Burnside Street looking west – Cont.

Long-span with MEDIUM vertical elements / Through truss / Bascule

Long-span Alternative / Tied-arch / Bascule

Long-span Alternative / Cable-stayed / Bascule

Long-span with MEDIUM vertical elements / Through truss / Lift



Long-span Alternative / Tied-arch / Lift

Long-span Alternative / Cable-stayed / Lift

Source:

HDR, Parametrix, Mayer/Reed

View from E Burnside Street looking west
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 39. Visual Impacts – View from E Burnside Street looking west – Cont.

Refined Long-span Alternative / Girder / Tied-arch / Bascule

Refined Long-span Alternative / Girder / Cable-stayed / Bascule

Refined Long-span Alternative / Girder / Tied-arch / Lift

Refined Long-span Alternative / Girder / Cable-stayed / Lift

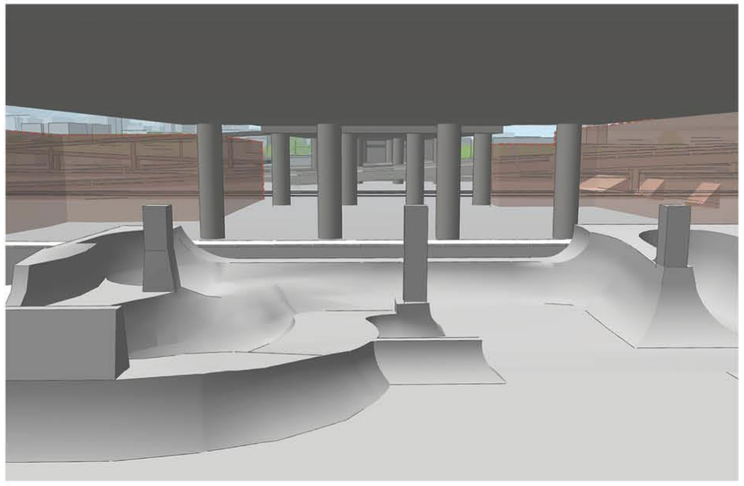
Source:
HDR, Parametrix, Mayer/Reed

View from E Burnside Street looking west
Visual Impacts
Earthquake Ready
Burnside Bridge Project

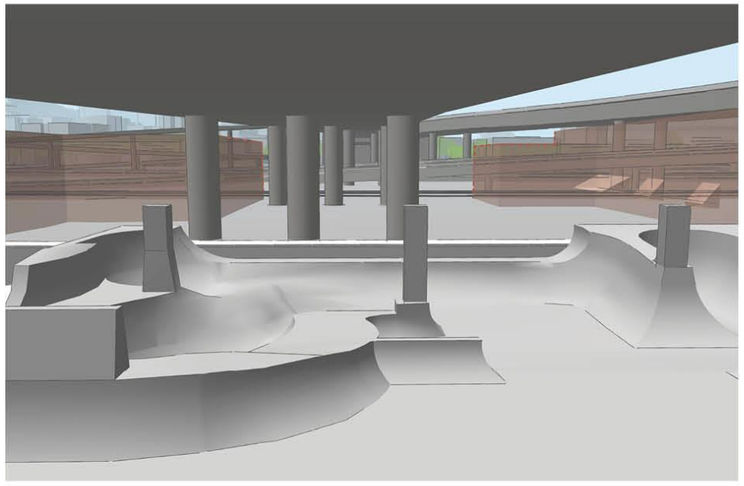
Figure 40. Visual Impacts – View from Burnside Skatepark under the Burnside Bridge looking west

Existing Condition

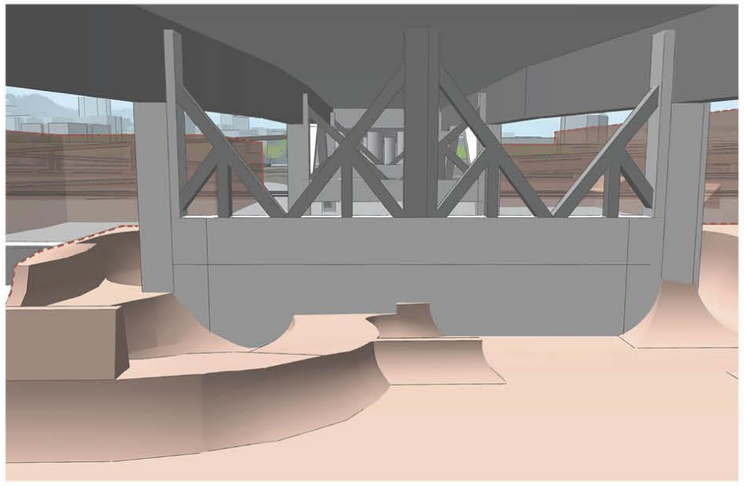
Short-span Alternative / Bascule



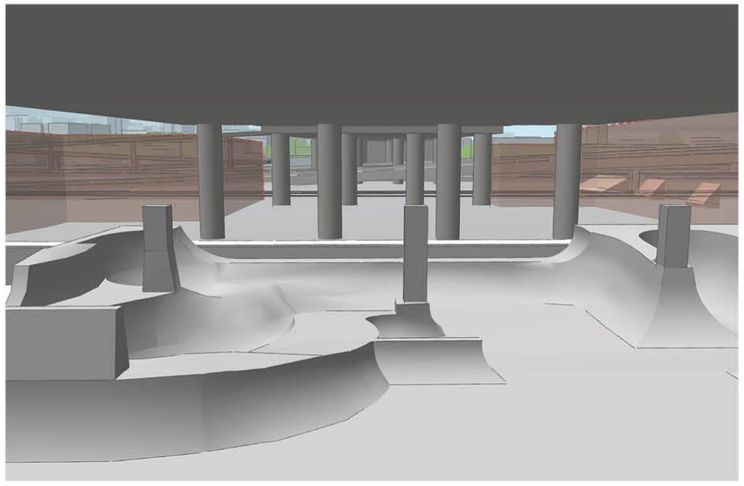
Couch Extension / Bascule



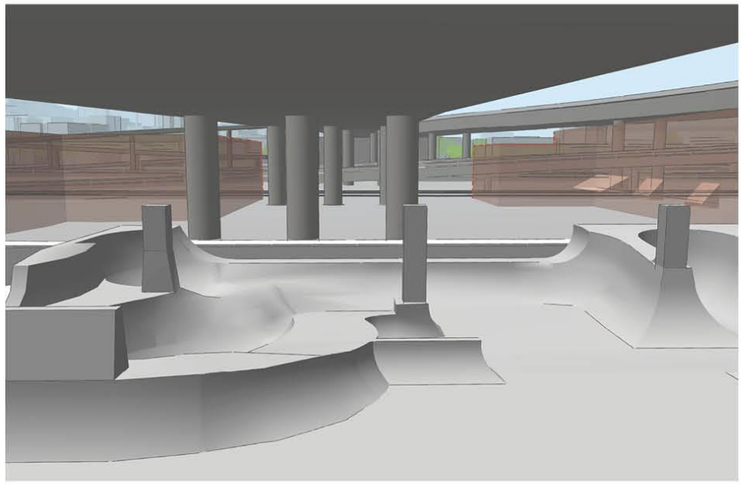
Enhanced Seismic Retrofit Alternative



Short-span Alternative / Lift



Couch Extension / Lift



Source:
HDR, Parametrix, Mayer/Reed

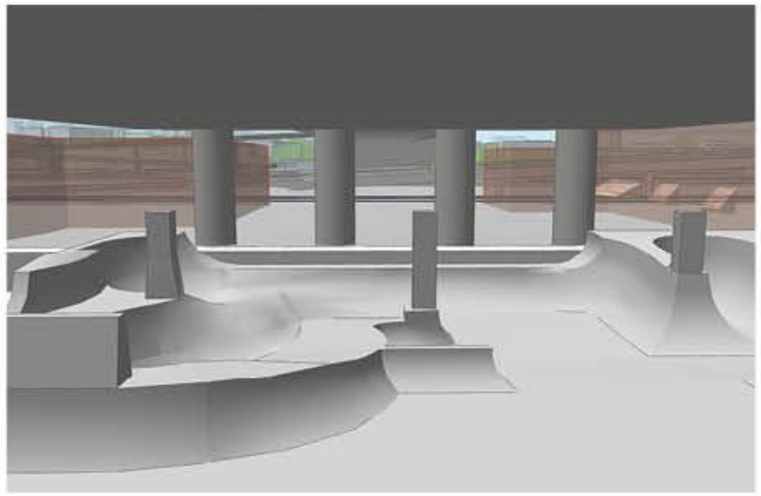
View from Burnside Skatepark under the Burnside Bridge looking west
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 40. Visual Impacts – View from Burnside Skatepark under the Burnside Bridge looking west – Cont.

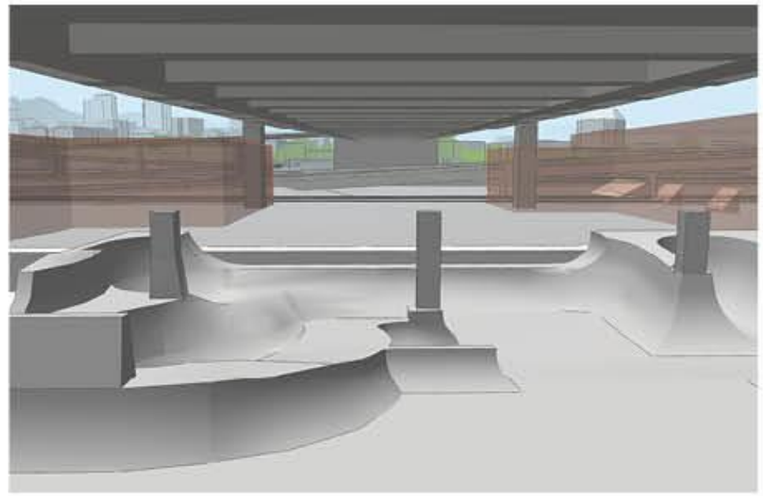
Long-span with MEDIUM vertical elements / Through truss / Bascule

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Bascule



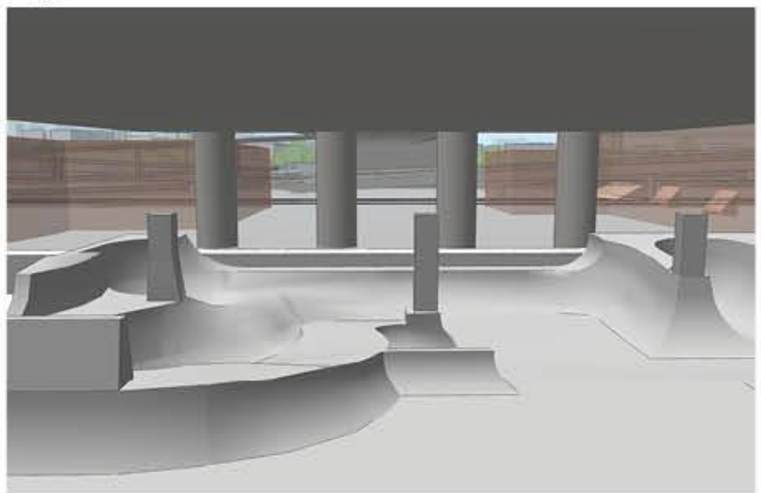
Long-span Alternative / Cable-stayed / Bascule



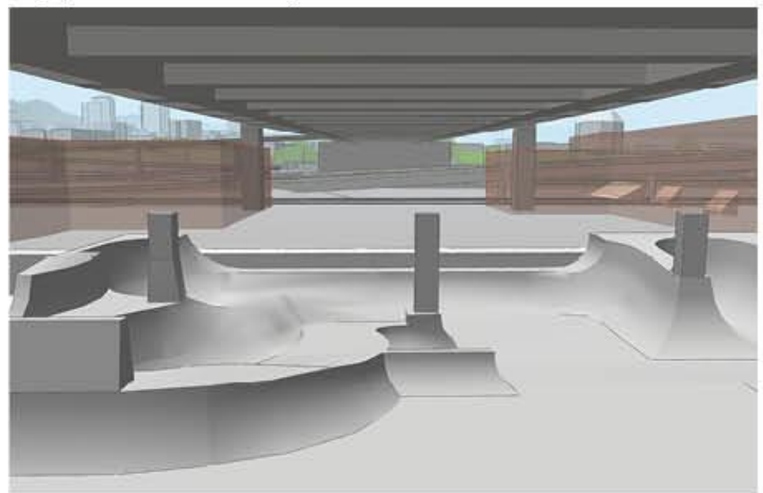
Long-span with MEDIUM vertical elements / Through truss / Lift

Note: See Figures 31 & 35 for examples of this bridge alternative

Long-span Alternative / Tied-arch / Lift



Long-span Alternative / Cable-stayed / Lift

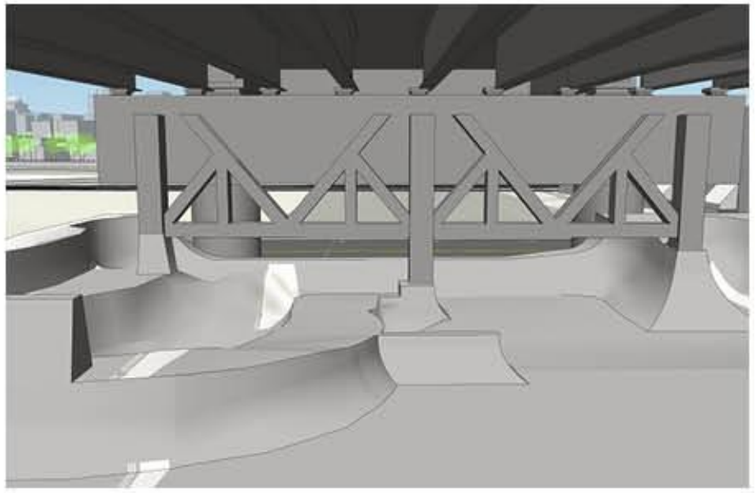


Source:
HDR, Parametrix, Mayer/Reed

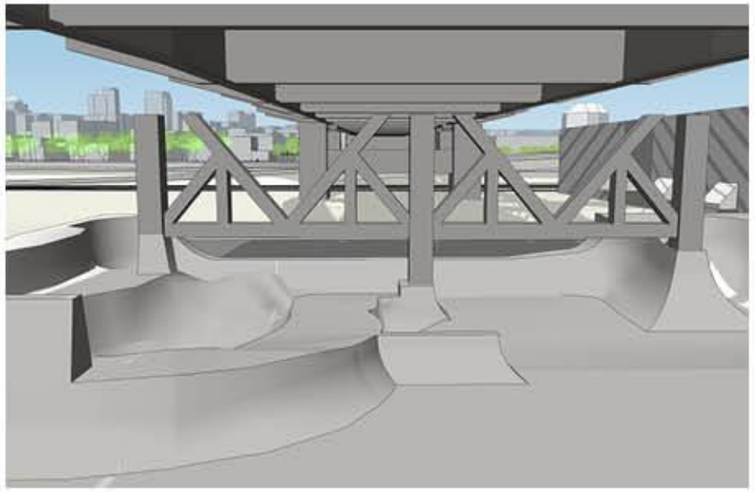
View from Burnside Skatepark under the Burnside Bridge looking west
Visual Impacts
Earthquake Ready
Burnside Bridge Project

Figure 40. Visual Impacts – View from Burnside Skatepark under the Burnside Bridge looking west – Cont.

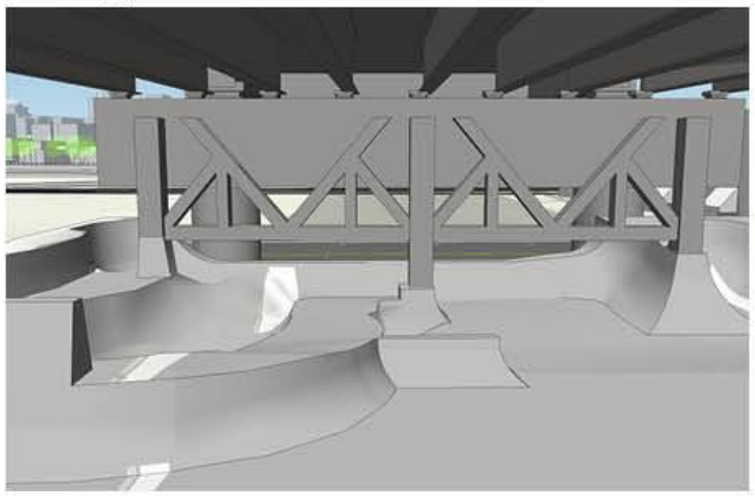
Refined Long-span Alternative / Girder / Tied-arch / Bascule



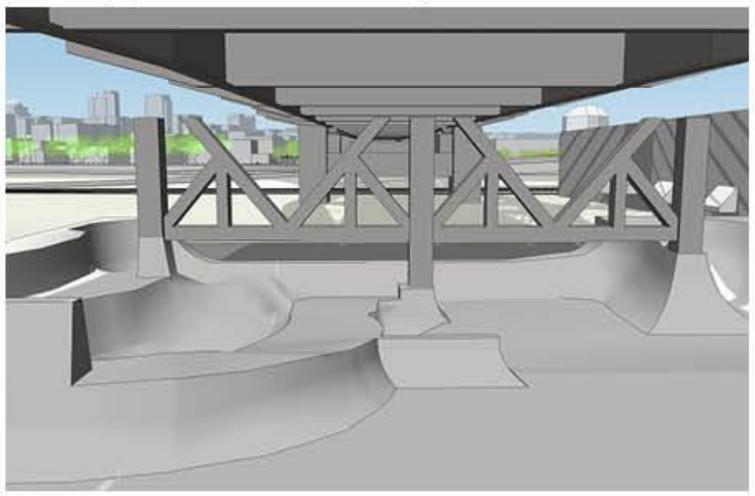
Refined Long-span Alternative / Girder / Cable-stayed / Bascule



Refined Long-span Alternative / Girder / Tied-arch / Lift



Refined Long-span Alternative / Girder / Cable-stayed / Lift



Source:
HDR, Parametrix, Mayer/Reed

View from Burnside Skatepark under the Burnside Bridge looking west
Visual Impacts
Earthquake Ready
Burnside Bridge Project

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7 Mitigation Phase

During the mitigation phase, National Environmental Policy Act requires consideration of design to minimize the overall impact of a project on the natural and built environment, including on people. Types of mitigation include the following:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

7.1 Mitigation Measures

Visual and aesthetic considerations would be incorporated into all phases of Project planning, including the EIS, the Bridge Type Study, and later phases of design and construction. The following measures can be considered, where possible, in the selection of a preferred alternative and/or during later Project phases:

- Protect and maintain street and park trees where feasible.
    - Replace any trees removed during the project.
- Protect or replace pedestrian areas, including but not limited to:
    - Saturday Market
    - Japanese American Historical Plaza
    - Tom McCall Waterfront Park
    - Burnside Skatepark
    - Vera Katz Eastbank Esplanade
- Minimize adverse impacts to existing views and view corridors by considering historic districts' design criteria and City-designated view corridors.
- Maximize aesthetic experience for all users approaching, on, and under the bridge by considering opportunities related to scale, forms and materials, viewing, wayfinding, transitions to and from public spaces, lighting/shade/shadows, and activating areas for public use. This includes the experience of using any access facility to the bridge, such as the ramp, or elevator/stairs from the Eastbank Esplanade, ramp or elevator/stairs on the west side, or any other access point or structure. These features need to be designed and aesthetically integrated with the bridge user experience.

- Create opportunity for a crossing that provides an iconic/demonstrative visual experience by developing gateways, new views, processional experiences, and demonstrative and/or iconic visual experiences of and on the bridge and any access structure connected to the bridge such as a ramp, elevator, stair, path, or other access facility integral to the bridge user experience.

Generally, options that introduce elements of height (cable-stayed and tied-arch, and to a lesser extent through truss) impact a larger number of viewer groups than any other design components due to Viewer Exposure. Special care should be taken to mitigate adverse impacts through careful bridge type selection, design of form, and overall structure scale. At the same time, the options that introduce elements of height also provide greater opportunity to create new or enhanced visual experiences.

On a finer scale, material and color selection may help mitigate visual impacts to surrounding Neighbors.

The mitigation measures outlined above are based on the current general bridge component alternatives. Future mitigation measures will be further assessed and advanced ahead of selection and further refinement of a preferred alternative.

8 Contacts and Coordination

Project work will include an extensive public involvement and agency coordination effort including local jurisdictions and neighborhoods within the Project Area.

At the appropriate time, agencies and organizations will be notified of the intent to prepare an EIS through the Federal Register and other Project outreach activities. Interested organizations will have the opportunity to review and comment on the Visual Resources analysis through the course of the Project, including during the public comment period for the Draft EIS.

During the impacts analysis, the following agencies will be contacted for data and other information related to Visual Resources:

- Oregon Department of Transportation
- Regional and local transportation agencies
- Multnomah County
- City of Portland Bureau of Development Services
- City of Portland Bureau of Planning and Sustainability
- City of Portland Parks and Recreation
- Portland Urban Design Panel
- Willamette Light Brigade
- Neighborhood Associations:
    - Old Town Chinatown
    - Pearl District

- Portland Downtown
- Kerns
- Buckman

9 Preparers

Name	Professional Affiliation [form or organization]	Education [degree or certification]	Years of Experience
Jeramie Shane	Mayer/Reed, Inc.	Bachelor of Landscape Architecture	26
Josh Carlson	Mayer/Reed, Inc.	Bachelor of Landscape Architecture	14
Gini Piercy	Mayer/Reed, Inc.	Master of Landscape Architecture	5

10 References

City of Portland, Bureau of Planning and Sustainability

2018a Central City 2035: Scenic Resources Protection Plan. https://www.portlandoregon.gov/bps/article/689702

2018b Central City 2035: Scenic Resources Inventory. https://www.portlandoregon.gov/bps/article/689702

2018c Central City 2035: Willamette River Central Reach Natural Resources Protection Plan. https://www.portlandoregon.gov/bps/article/689702

2019 Historic Resources and Preservation Interactive Web Map

FHWA (Federal Highway Administration)

2015 Guidelines for the Visual Impact Assessment of Highway Projects. https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.aspx.

Multnomah County

2021a EQRB Cultural Resources Technical Report. https://multco.us/earthquake-ready-burnside-bridge/project-library.

2021b EQRB Description of Alternatives Report. https://multco.us/earthquake-ready-burnside-bridge/project-library.

2021c EQRB Land Use Technical Report. https://multco.us/earthquake-ready-burnside-bridge/project-library.

2021d EQRB Vegetation, Wildlife, and Aquatic Species Technical Report. https://multco.us/earthquake-ready-burnside-bridge/project-library.

2022a EQRB Supplemental Draft Environmental Impact Statement. https://multco.us/earthquake-ready-burnside-bridge/project-library.

Appendix A. FHWA VIA Comparative Matrix

Project Character by VIA Level				
Item	**Assessment Level**			
	Memorandum	**Abbreviated**	**Standard**	**Expanded**
Landscape Units	One	One	Multiple	Multiple
Controversy	None	None/Limited	Local, perhaps state-wide	State-wide or nationally organized opposition
Alteration of Visual Environment	None or Minor	Minor	Moderate	Substantial, even significant
Viewer Groups	Neighbors and travelers	Neighbors and travelers	Neighbors and travelers	Some to many specific types of neighbors and travelers
Key View Points	None or Few	One or Few	Few to Multiple	Multiple
Viewer Sensitivity	None or Low	Low to Moderate	Moderate to High	High to very high
Compatible with Local Plans	Compatible	Typically compatible	May be compatible	May conflict
Impacts on Scenic Resources	None	None or limited	Potentially substantial or even significant	Substantial or significant
Cumulative Impacts	None	None significant	Potentially substantial or significant	Substantial or significant
Permits affected by visual issues	None	Unlikely	Perhaps	Perhaps
Legal Challenge	Unlikely	Unlikely	Unlikely or may be challenged	May be or likely to be challenged
Use of Simulations	None	Unlikely	Stills of key views potentially used	Multiple stills; animations for certain complex or controversial projects

Note: Yellow highlight indicates approach taken.

Source: FHWA Guidelines for Highway Projects, Table 3-2 Comparative Matrix.

Appendix B. FHWA VIA Scoping Questionnaire

Visual Impact Assessment Scoping Questionnaire

Project Name: Earthquake Ready Burnside Bridge	Site Visit Date: Friday, 12/06/2019
Location: Portland, Oregon	Time: 2:08 p.m.
Special Conditions/Notes:	Conducted By: Mayer/Reed

Environmental Compatibility

1. *Will the project result in a noticeable change in the physical characteristics of the existing environment?*
(Consider all project components and construction impacts - both permanent and temporary, including landform changes, structures, noise barriers, vegetation removal, railing, signage, and contractor activities.)

☐ High level of permanent change (3) ☑ Moderate level of permanent change (2)

☐ Low level of permanent or temporary change (1) ☐ No Noticeable Change (0)

2. *Will the project complement or contrast with the visual character desired by the community?*
(Evaluate the scale and extent of the project features compared to the surrounding scale of the community. Is the project likely to give an urban appearance to an existing rural or suburban community? Do you anticipate that the change will be viewed by the public as positive or negative? Research planning documents, or talk with local planners and community representatives to understand the type of visual environment local residents envision for their community.)

☐ Low Compatibility (3) ☑ Moderate Compatibility (2)

☐ High compatibility (1)

3. *What level of local concern is there for the types of project features (e.g., bridge structures, large excavations, sound barriers, or median planting removal) and construction impacts that are proposed?*
(Certain project improvements can be of special interest to local citizens, causing a heightened level of public concern, and requiring a more focused visual analysis.)

☑ High concern (3) ☐ Moderate concern (2)

☐ Low concern (1) ☐ Negligible Project Features (0)

4. *Is it anticipated that to mitigate visual impacts, it may be necessary to develop extensive or novel mitigation strategies to avoid, minimize, or compensate for adverse impacts or will using conventional mitigation strategies, such as landscape or architectural treatment adequately mitigate adverse visual impacts?*

☐ Extensive Non-Conventional Mitigation Likely (3) ☑ Some non-conventional Mitigation Likely (2)

☐ Only Conventional Mitigation Likely (1) ☐ No Mitigation Likely (0)

5. *Will this project, when seen collectively with other projects, result in an aggregate adverse change (cumulative impacts) in overall visual quality or character?*
(Identify any projects [both state and local] in the area that have been constructed in recent years and those currently planned for future construction. The window of time and the extent of area applicable to possible cumulative impacts should be based on a reasonable anticipation of the viewing public's perception.)

☐ Cumulative Impacts likely: 0-5 years (3) ☐ Cumulative Impacts likely: 6-10 years (2)

☑ Cumulative Impacts unlikely (1)

Viewer Sensitivity

1. *What is the potential that the project proposal may be controversial within the community, or opposed by any organized group?*
(This can be researched initially by talking with the state DOT and local agency management and staff familiar with the affected community's sentiments as evidenced by past projects and/or current information.)

☐ High Potential (3) ☑ Moderate Potential (2)

☐ Low Potential (1) ☐ No Potential (0)

2. *How sensitive are potential viewer-groups likely to be regarding visible changes proposed by the project?*
(Consider among other factors the number of viewers within the group, probable viewer expectations, activities, viewing duration, and orientation. The expected viewer sensitivity level may be scoped by applying professional judgment, and by soliciting information from other DOT staff, local agencies, and community representatives familiar with the affected community's sentiments and demonstrated concerns.)

☐ High Sensitivity (3) ☒ Moderate Sensitivity (2)

☐ Low Sensitivity (1)

3. *To what degree does the project's aesthetic approach appear to be consistent with applicable laws, ordinances, regulations, policies, or standards?*

☐ Low Compatibility (3) ☐ Moderate Compatibility (2)

☒ High compatibility (1)

4. *Are permits going to be required by outside regulatory agencies (i.e., Federal, State, or local)?*
(Permit requirements can have an unintended consequence on the visual environment. Anticipated permits, as well as specific permit requirements - which are defined by the permitter, may be determined by talking with the project environmental planner and project engineer. Note: coordinate with the state DOT representative responsible for obtaining the permit prior to communicating directly with any permitting agency. Permits that may benefit from additional analysis include permits that may result in visible built features, such as infiltration basins or devices under a storm water permit or a retaining wall for wetland avoidance or permits for work in sensitive areas such as coastal development permits or on Federal lands, such as impacts to Wild and Scenic Rivers.)

☒ Yes (3) ☐ Maybe (2)

☐ No (1)

5. *Will the project sponsor or public benefit from a more detailed visual analysis in order to help reach consensus on a course of action to address potential visual impacts?*
(Consider the proposed project features, possible visual impacts, and probable mitigation recommendations.)

☒ Yes (3) ☐ Maybe (2)

☐ No (1)

Determining the Level of Visual Impact Assessment

Total the scores of the answers to all ten questions on the Visual Impact Assessment Scoping Questionnaire. Use the total score from the questionnaire as an indicator of the appropriate level of VIA to perform for the project. Confirm that the level suggested by the checklist is consistent with the project teams' professional judgments. If there remains doubt about whether a VIA needs to be completed, it may be prudent to conduct an Abbreviated VIA. If there remains doubt about the level of the VIA, begin with the simpler VIA process. If visual impacts emerge as a more substantial concern than anticipated, the level of VIA documentation can always be increased.

The level of the VIA can initially be based on the following ranges of total scores:

☐ **Score 25-30**
An *Expanded VIA* is probably necessary. It is recommended that it should be proceeded by a formal visual scoping study prior to beginning the VIA to alert the project team to potential highly adverse impacts and to develop new project alternatives to avoid those impacts. These technical studies will likely receive state-wide, even national, public review. Extensive use of visual simulations and a comprehensive public involvement program would be typical.

☒ **Score 20-24**
A *Standard VIA* is recommended. This technical study will likely receive extensive local, perhaps state-wide, public review. It would typically include several visual simulations. It would also include a thorough examination of public planning and policy documents supplemented with a direct public engagement processes to determine visual preferences.

☐ **Score 15-19**
An *Abbreviated VIA* would briefly describe project features, impacts and mitigation requirements. Visual simulations would be optional. An Abbreviated VIA would receive little direct public interest beyond a summary of its findings in the project's environmental documents. Visual preferences would be based on observation and review of planning and policy documents by local jurisdictions.

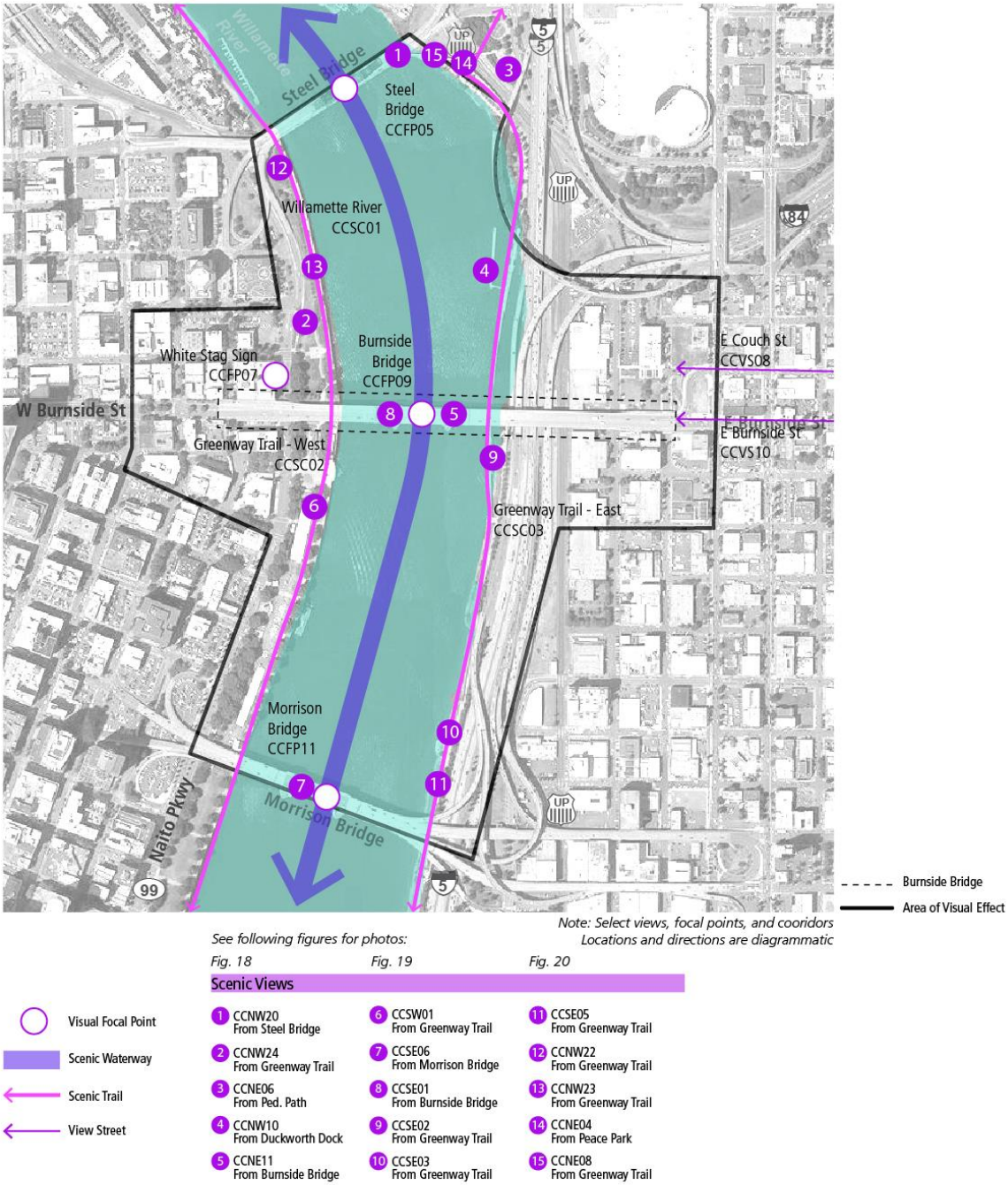
☐ **Score 10-14**
A *VIA Memorandum* addressing minor visual issues that indicates the nature of the limited impacts and any necessary mitigation strategies that should be implemented would likely be sufficient along with an explanation of why no formal analysis is required.

☐ **Score 6-9**
No noticeable physical changes to the environment are proposed and no further analysis is required. Print out a copy of this completed questionnaire for your project file to document that there is no effect. A *VIA Memorandum* may be used to document that there is no effect and to explain the approach used for the determination.

Source: FHWA Guidelines for Highway Projects, Appendix C. VIA Scoping Questionnaire.

Appendix C. Scenic Resources Inventory Map

The City of Portland's Central City 2035 Plan has performed a Scenic Resources Inventory. This document includes select Visual Focal Points and Scenic Corridors that include the Burnside Bridge. The selected views and scenic corridors have been consolidated for reference on the Scenic Resources Inventory Map and photos provided in Appendix D.



Source: Scenic Resources Inventory, Scenic Resources Protection Plan, Central City 2035 Plan, 2018
HDR, Parametrix, Mayer/Reed

0 1,000 2,000 Feet

Scenic Resources Inventory
Direct Impact API
Visual Resources

Earthquake Ready
Burnside Bridge Project

Appendix D. Scenic Resources Inventory Photos

1. CCNW20: Steel Bridge - South Side (Upper Deck), Center

2. CCNW24: Greenway Trail West - At NW Couch Street

3. CCNE06: Mid-Ramp on Bike/Pedestrian Path to Steel Bridge

4. CCNE10: Duckworth Dock - South End

5. CCNE11: Burnside Bridge - North Side, Center

Source: Scenic Resources Inventory, Scenic Resources Protection Plan, Central City 2035 Plan, 2018; Google Street View, 2019

Scenic Resources Inventory Photos – Cont.

6. CCSW01: Greenway Trail West - At SW Ankeny Street

7. CCSE06: Morrison Bridge - North Side, East

8. CCSE01: Burnside Bridge - South Side, Center

9. CCSE02: Eastbank Esplanade - South of Burnside Bridge

10. CCSE03: Eastbank Esplanade - At SE Washington Street

Source: Scenic Resources Inventory, Scenic Resources Protection Plan, Central City 2035 Plan, 2018; Google Street View, 2019

Scenic Resources Inventory Photos – Cont.

11. CCSE05: Eastbank Esplanade - At SE Alder Street

12. CCNW22: Greenway Trail West - South of Steel Bridge

13. CCNW23: Greenway Trail West - Stairs Near NW Everett Street

14. CCNE04: Greenway Viewpoint at Peace Park

15. CCNE08: Eastbank Esplanade - South of Steel Bridge

Source: Scenic Resources Inventory, Scenic Resources Protection Plan, Central City 2035 Plan, 2018; Google Street View, 2019, Mayer/Reed Field Visit, Novemeber 2019