Understanding this Draft Document:

The following Purpose and Need language is a WORKING DRAFT and reflects comments and feedback from Interstate Bridge Replacement (IBR) program agency partner staff and preliminary Community Advisory Group and Equity Advisory Group discussion to-date. This is a draft for initial discussion by the Equity Advisory Group, Community Advisory Group, and agency partner staff. A draft Community Vision and Values document will be sent separately to the Equity Advisory Group, Community Advisory Group, and agency partner staff for discussion.

The IBR program team used Federal Highways Administration (FHWA) criteria to frame this draft document, and further discussion of placement of concepts in purpose and need or community vision and values will occur over the coming months. Future iterations will reflect additional comments and feedback from the public, Community Advisory Group, Equity Advisory Group, Interstate Bridge Replacement program agency partner staff, and the Executive Steering Group. Preliminary feedback from the community engagement and outreach efforts in February 2021 confirmed that the previously identified program needs remain relevant today. This is an initial draft and until reviewed by federal partners should be considered conceptual.

Updating the Purpose and Need and defining the Community Vision and Values are a crucial step in designing and evaluating alternatives. The Purpose and Need identifies the transportation problems that must be addressed, and the approach to addressing them. The Community Vision and Values identifies regional values and goals related to potential transportation improvements. Together, the Purpose and Need and Community Vision and Values set the foundation for screening alternatives that will be analyzed to establish the program's locally preferred alternative. Extensive stakeholder engagement, inclusive community outreach and a transparent public process are fundamental to identify the transportation solutions and community values that will help identify a bridge replacement alternative.

More than a decade of planning and prior studies have evaluated transportation deficiencies and identified a variety of transportation problems in the program area. Regional leaders identified the need to address the I-5 corridor, including the Interstate Bridge, through previous bi-state, long-range planning studies. Prior studies included the Federal Transit Administration/Metro South/North Corridor Project (1998) and a bi-state task force Final Strategic Plan (2002). In 2004, the Washington and Oregon Departments of Transportation formed the bi-state Columbia River Crossing (CRC) project that successfully received a federal Record of Decision in December 2011. However, the CRC project did not secure adequate state funding to advance to construction.

The IBR program will utilize and update past work to support efficient decision making, while making sure that current community priorities and changes since the previous planning effort concluded are reflected.

DRAFT PURPOSE AND NEED

One of the first and most important steps of any major project is to define why the project has been initiated and what problem(s) it seeks to address. The Purpose and Need statement provides this definition for projects complying with the National Environmental Policy Act (NEPA) and serves as the basis for defining how project alternatives will be developed and evaluated. A reasonable alternative must address the needs specified in the Purpose and Need statement for the alternative to be considered in a NEPA analysis; thus, the Purpose and Need is an influential statement that guides future development of the project.

PROJECT PURPOSE

The purpose of the proposed action is to improve Interstate 5 (I-5) corridor mobility by addressing present and future travel demand and mobility needs in the IBR program area that equitably benefits all travelers. The program area extends from approximately Columbia Boulevard in the south to State Route 500 (SR 500) in the north (*Exhibit 1*). Relative to the No-Build Alternative, the proposed action is intended to achieve the following objectives: a) improve the Interstate Bridge's resiliency to a seismic event; b) improve travel safety and traffic operations on the Interstate Bridge and associated interchanges while reducing greenhouse gas emissions; c) improve connectivity, reliability, travel times, and operations of public transit options in the program area; and d) improve highway, rail, and marine freight mobility and address interstate travel and commerce needs in the program area.

Exhibit 1. Program Area

PROJECT NEED

The specific needs to be addressed by the proposed action include:

Seismic vulnerability increases risk of disrupted interstate travel

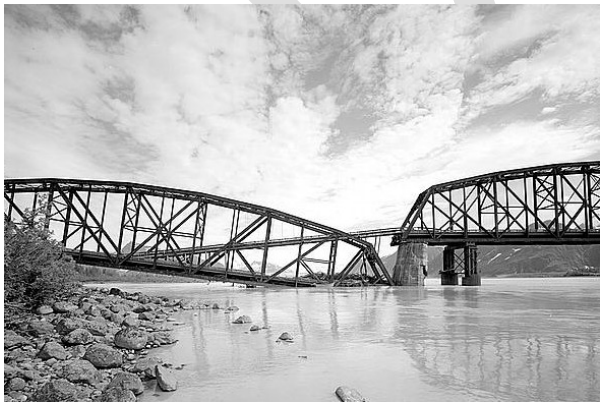
The Interstate Bridge consists of two spans, which were constructed in 1917 (northbound) and 1958 (southbound); both spans are seismically deficient. Scientific research over the past quarter century reveals Western Oregon and Washington are located in a region of high seismicity. Earthquakes from faults both near and far contribute to a level of seismic hazard that was not considered by designers of the Interstate Bridge.

As one of only two bridges across the Columbia River that connects the greater Portland area and Vancouver/Clark County, the Interstate Bridge provides a critical connection for people to access jobs and services, interstate commerce, and freight movement. The Interstate Bridge's vulnerability to failure in an earthquake presents a risk of severe disruption to the region, particularly to those who depend on the bridge as their primary route, including residents that would be isolated on Hayden Island, as well as in emergency response and region recovery. Replacing the structures with a resilient bridge will go far to support a healthy community, environment, and economy.

Seismic deficiencies of the Interstate Bridge

- The structures lack the ductility of similar, modern bridges. Ductility allows a structure to move back and forth without catastrophic failure and is an important defense against collapse. The trusses, towers, and piers of the Interstate Bridge are brittle elements, and simply do not have the ability to move without ripping apart.
- Both bridge spans are supported by hundreds of timber piles that sit within loose sand that will liquefy during a strong earthquake (CRC 2006). In such an event, sandy, saturated soils become fluid-like and unstable, causing the piles to sink and move horizontally.
- The combined effect—settlement and lateral movement—would prove devastating to the bridge spans, likely triggering their collapse even if the bridge managed to somehow survive the shaking mentioned above. *Exhibit 2* shows an example of such a collapse.

Exhibit 2. Soils liquified and caused the collapse of the Million Dollar Bridge, Copper River, Alaska, during the M9.2 1964 Good Friday Earthquake



Traffic congestion limits mobility and travel reliability while contributing to greenhouse gas emissions and inequity of transportation costs

The population of the Portland-Vancouver metro region is expected to grow from 2.5 million residents in 2018 to over 3 million in 2040 (23 percent) and over 3.5 million in 2060 (43 percent), further increasing travel demand and worsening existing congestion problems (Census Reporter 2018; Metro 2016). Daily traffic demand over the I-5 crossing has increased steadily over the last decade and is projected to increase in the future by more than <TBD> percent during the next 25 years, with congestion at the Interstate Bridge increasing from 10 hours daily in 2019 to approximately <TBD> hours daily in 2045.

Congestion on a highway occurs when average speeds are below 35 mph.

The duration of congestion on the Interstate Bridge has roughly doubled over the past 14 years. In 2005, there were 4 to 6 hours of congestion daily. By 2019 this had increased to approximately 10 hours.

Congestion in the program area limits mobility and travel reliability within the region and local communities, adversely affecting freight truck, bus, and personal vehicle travel. I-5 at the Interstate Bridge has been identified as one of the region's top recurring bottlenecks during the morning and evening commute periods <citation>.

Travel demand in 2019 exceeded capacity during peak periods on the Interstate Bridge on weekdays and weekends (IBR 202x). In 2019, the total number of vehicles using the bridge was 139,000 average weekday daily traffic (AWDT). Congestion has also steadily increased, with recurring congestion lasting approximately 10 hours each weekday approaching the Interstate Bridge (approximately 3 hours in the morning and 7 hours in the afternoon/evening). The peak periods have also spread into the mid-day period, impacting more bridge users. Other events causing congestion and decreasing travel reliability in the corridor include vehicle crashes, vehicle breakdowns, and bridge lifts (*Exhibit 3*). The cost of congestion on I-5 increased by 18 percent between 2015 and 2017 <to be verified>, increasing to nearly three quarters of a million dollars each day in 2017 (ODOT 2018).

Vehicle trips (2019)
Of the 305,000 vehicle trips that crossed the Columbia River daily in 2019, 139,000 vehicles utilized the Interstate Bridge while 166,000 used the I-205 Bridge. This total includes trips made in single-occupancy vehicles (SOV), high-occupancy vehicles (HOV), trucks, and transit vehicles (buses).

Exhibit 3. Crash on the Interstate Bridge (or Interstate Bridge Lift)

<insert photo>

The increased number of cars using the corridor and idling vehicles sitting in congestion conditions contribute to increasing greenhouse gas emissions. The Oregon Governor's executive order signed in March 2020 directs the state to take actions to reduce greenhouse gas emissions 45% below 1990 levels by 2035 and 80% below 1990 levels by 2050. The Washington RCW 70A.45.020 directs the state to take actions to reduce greenhouse gas emissions 45% below 1990 levels by 2030 and 95% below 1990 levels by 2050.

Congestion on I-5 leads to increased traffic and safety concerns on local roads. This reduces travel reliability as regional I-5 traffic detours to local arterials on both sides of the river, such as Martin Luther King Jr. Boulevard, Interstate Avenue, Main Street, and other city streets. Due to the duration of congestion on I-5, some travelers and freight trucks detour to the longer, alternate I-205 route across the Columbia River. Still, the I-5 corridor is the roadway of choice for many travelers in the area due to its convenient location and proximity to jobs, commerce, housing, ports, and other popular destinations. <augment with demographics>

The longer the distance of travel in congestion, the greater delay in reaching destinations, increased exposure to emissions, and reduced travel reliability. As affordable housing becomes scarcer, people experiencing low income have moved farther away from major job centers in the region, which lengthens distances traveled, increases time spent commuting to work or obtaining services, and introduces greater risks of job insecurity with less travel reliability. Inequity occurs as those experiencing low income more often have greater transportation costs compared to other travelers that can afford housing closer to job centers thereby reducing the time spent in congestion.

Recent demographic trends

- Median gross rent has increased 35% in Portland and 31% in Multnomah County compared to 22% in Vancouver and 24% in Clark County between 2000 and 2019 (adjusted for inflation) (US Census 2000: 2015-19 ACS)
- The black, indigenous and people of color (BIPOC) population has grown 20% in Portland and 29% in Multnomah County compared to 60% in Vancouver and 62% in Clark County between 2000 and 2019 (US Census 2000: 2015-19 ACS)
- Median household income has increased 15% in Portland and 9% in Multnomah County in contrast to a decrease of 3% in Vancouver and flat growth in Clark County between 2000 and 2019 (US Census 2000: 2015-19 ACS)

"Vancouver has experienced an influx of new residents in recent years with a population growth of 19.3% since 2000. As the cost of living has escalated throughout the region, people have migrated further from Portland's urban core in search of more affordable places to live."

--Reside Vancouver: An Anti-Displacement Plan (City of Vancouver, 2019)

Freight growth and congestion impair movement of goods

I-5 is part of the National Truck Network and is the most important freight highway on the West Coast, linking regional, national and international markets in Canada, Mexico and the Pacific Rim with destinations throughout the western United States. In the center of the project area, I-5 intersects with the Columbia River's deep water shipping and barging marine corridor as well as two river-level, transcontinental rail lines. In addition, the program area provides direct and important highway connections to the Port of Vancouver and Port of Portland facilities located along the Columbia River, as well as the majority of the area's freight consolidation facilities and distribution terminals. The area has seen an increase in freight traffic, freight tonnage, and E-commerce logistics in the past decade due to bi-state and regional logistics activity, including increased traffic from other local ports, major

<Add a sidebar showing CRC freight volumes vs IBR 2019 freight volumes to support statement in text>

logistics operations at Delta Park, Centennial Industrial Park, and changes in tenancy and operations at the Port of Vancouver and the Port of Portland.

The heavy, daily congestion in the I-5 corridor impairs the reliable movement of truck freight. The movement of truck freight is also unpredictable due to crashes on I-5, limited shoulders, and bridge lifts, which ranged from 150-350 lifts per year between 2015 and 2019.

Movement of people and goods is critical to sustain the ability of local businesses to compete in the national economy and support a growing economy. Over 13,500 medium and heavy trucks crossed the Interstate Bridge daily in 2019, accounting for just under 10 percent of daily traffic across the bridge. The freight commodity value crossing the Interstate Bridge in 2017 is $71 million <to be confirmed>. Freight tonnage in the Portland region is expected to double by 2040, with 75 percent of total freight tonnage moved by truck (Metro 2018). Growing demand and congestion will result in increasing delays, costs and uncertainty for all businesses – large and small – that rely on this corridor for freight movement.

Congestion reduces current public transit service reliability and limited infrastructure hinders efficient transit connectivity

Due to limited facilities to support bi-state public transit connectivity and reliability within the program area, a number of economic markets are not well served. These limitations complicate and reduce strategies to implement climate actions. In addition, those who rely most heavily on public transit, including individuals experiencing low-income, people with disabilities, people of color, young people, and older adults, face barriers to accessing living wage jobs, health care, education, and other essential services.

<Add a sidebar with relevant housing/transportation costs to support statement in text>

Travel times for public transit using general purpose lanes on I-5 in the program area are expected to increase substantially by 2040. Growing congestion in the corridor reduces public transit service reliability and travel speed, which can discourage reliance on transit and increases overall transportation costs for people seeking more affordable housing and living wage jobs. Southbound bus travel times in 2019 were up to four times longer during parts of the morning peak period compared to off-peak periods. Northbound bus travel time <TBD>.

Infrastructure to support efficient access, connections and movement of transit is lacking in the program area. Key transit infrastructure is needed to promote and encourage local, regional and state climate actions and to provide equitable access to transportation options.

Safety Issues

Vehicle crashes can cause injuries and fatalities, damage to vehicles and infrastructure, and contribute to non-recurring congestion. The program area experiences crash rates nearly three times higher than statewide

averages for comparable facilities. There were six fatal crashes in the I-5 corridor between 2015 and 2019. Crashes are attributed to traffic congestion, narrow lanes, limited sight distance, and bridge lifts that stop traffic on I-5. In addition, crashes result from the short merging, short diverging, and weaving movements associated with closely spaced interchanges. Due to the lack of shoulders on the Interstate Bridge and narrow shoulders in portions of the I-5 corridor, even minor traffic crashes or incidents cause congestion and chain-reaction crashes. In 2019, crashes were more than twice as likely to occur during peak travel periods compared to off-peak periods.

Other safety issues in the program area include increased traffic on local roads as travelers look for ways to avoid congestion, and active transportation and transit considerations. Inadequate walking/biking/rolling facilities is another safety issue within the program area. Pedestrians and bicyclists face safety concerns on the existing bridges due to the narrow (3.5 to 4 feet wide) shared use paths, a low barrier between the path and the river, and close proximity to vehicle travel lanes. Limited connectivity on either side of the bridge increases the potential for conflicts between vehicles and bicyclists and pedestrians. In addition, transit agencies require adequate facilities to support safety and encourage ridership.

Inadequate bicycle and pedestrian facilities

The existing bridge hinders cross-river active transportation due to lack of connectivity, rider unease, safety issues, and bridge lifts. The shared use paths on the bridges are about 3.5 to 4 feet wide, which is narrower than current standards and not compliant with the Americans with Disabilities Act. Furthermore, the shared use paths are in close proximity to traffic lanes, which increases bicyclist and pedestrian exposure to vehicular traffic, noise and emissions (*Exhibit 5*). The bridge facilities are not accessible for all ages and abilities.

Deficient pedestrian and bicycle facilities in the program area limit modal choice. The facilities lack direct connectivity to pedestrian and bicycle facilities on either side of the river, are complicated by complex, substandard and difficult wayfinding, and constrain active transportation access to development along the Columbia River. In addition, there is currently no way for pedestrians or bicyclists to travel to and from Hayden Island without using the substandard bicycle/pedestrian facilities. Current constraints on walking, biking, and rolling limit access to public transit, increasing the burden of transportation costs and decreasing effective local opportunities to reduce greenhouse gas emissions.

Exhibit 4. Bicycle and Pedestrian Path on the Interstate Bridge

<insert photo>