Executive Summary

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Interstate Bridge Replacement Program Overview & Public Comment Information

The Interstate Bridge Replacement (IBR) Program will be one of the largest infrastructure projects in the region for a generation. Because of this scale, it provides tremendous opportunity to positively impact health and advance environmental justice and equity.

The project underwent an evaluation through the National Environmental Policy Act (NEPA) to assess potential impacts. From September 20 to November 18, 2024, the IBR Program held a public comment period on its Draft Supplemental Environmental Impact Statement (DSEIS), a series of draft documents that cover topics studied under the environmental review.

Health Analysis Overview

As part of the planning and implementation of the IBR Program, regional partners requested that a health impact assessment (HIA) be included to understand the project's effects on community health and well-being. State and local health departments in Oregon and Washington, joined by a representative from Cowlitz Indian Tribe Health and Human Services, began meeting in early 2024 to collaborate to complete this request. Time constraints limited the scope of the HIA, and a modified health analysis relying on literature review, existing data, and public health best practices was drafted. The health agencies reviewed readily available information and select DSEIS technical reports to examine the potential health effects of the Modified Locally Preferred Alternative (LPA) – including environmental justice and health equity concerns. The health analysis assesses potential health impacts of the Modified LPA and does not propose an alternative.

The Health Analysis was submitted as a public comment to the IBR Program before the end of the public comment period in November 2024. This summary highlights key takeaways for each topic area and an overview of the project recommendations that were submitted to the IBR Program. The *Recommendations* section of the Health Analysis includes additional detail and implementation suggestions.

For more information about the health analysis, contact EHAssessment@doh.wa.gov.

Topic Areas

The Health Analysis identifies six topic areas of public health interest related to the program. Each topic area is represented by an icon. An icon or multiple icons accompany each of our recommendations to indicate which topic area and associate health outcomes could be improved by implementation of the recommendation:

 Air quality

 Climate change and health

 Transportation & active transportation

 Social determinants of health

 Noise

 Water quality

Key Takeaways

To reduce negative health impacts of the IBR Program, we recommend decision-makers design, construct, and maintain a program that prioritizes human health and safety, ecological health, and environmental justice. There are a number of places throughout the DSEIS where there is insufficient information to determine health impacts. There are also many decisions to be made for the final SEIS, design decisions, and local decisions that could change the assessment of the project having either a positive, negative, or neutral impact to health. We encourage keeping public health partners, community, and Tribal representation at the table in decision-making for the Program.

There is **sufficient evidence** in the DSEIS for the following potential health impacts of the Modified LPA:

- **Potential protective elements and positive health impacts**
    - **Transportation and active transportation:** The extension of light rail services and addition of enhanced pedestrian and bike facilities will likely increase physical activity and improve health. Expanding design and policy decisions that encourage people to walk, roll, bike, or use transit, rather than drive, would increase health benefits.
    - **Access**: Bringing the bridge, and auxiliary connections, up to or exceeding standards under the Americans with Disabilities Act (ADA) would improve access for all. Using inclusive or universal design, which centers around older adults, people with disabilities, and children, would increase benefits.
    - **Heat**: Providing shade and cooling for bridge users, especially active transportation users, could provide protection from heat-related health outcomes.
    - **Employment:** The project would drive a temporary increase in construction-related employment. Increased access to light rail and transit services could increase access to jobs and other essential services. Increasing contracting for Disadvantaged Business Enterprises, Minority Business Enterprises, Women Business Enterprises, and Small Business Enterprises would increase equitable distribution of these benefits.
    - **Access**: The Modified LPA includes plans to expand connections between active transportation networks, trails, and parks. Increased access to greenspace would have a positive impact on health.
    - **Water quality**: Improvements to stormwater infrastructure would have positive health impacts on water quality, and the health of the ecosystem.
    - **Safety:** Replacement of the existing I-5 bridge will result in a structure with greater seismic resilience, minimize the risk of a bridge collapse during an earthquake, and support safety, regional travel, and access to essential services.

- **Potential harmful elements and negative health impacts**
    - **Air quality:** Given the existing high traffic volumes along the I-5 interstate bridge, people who live nearby are subjected to greater concentrations of air toxics and are at risk of experiencing additional air quality burdens. The DSEIS estimates a 33% increase in VMT under the Modified LPA by 2045 and increase in freight traffic volumes, which could increase particulate matter and negatively impact air quality.
    - **Transportation and active transportation:** Transit access to jobs for BIPOC residents, immigrants and refugees, and people under the age of 25 did not increase as much as it did for white, non-Hispanic residents. This indicates disparities would continue to remain, likely reinforcing disparities in opportunities for physical activity.
    - **Tolling**: Tolling would have a disproportionate impact on low-income community members and could negatively impact access to essential services like health care and culturally specific health care.

- **Access**: The IBR Program could negatively impact access to traditional cultural activities, culturally specific health care, and access to ancestral lands for American Indian and Alaska Native communities.
- **Access:** Construction delays on roads, delays to bus routes and light rail service, and closures of sidewalks and active transportation paths may negatively impact access to homes, jobs, schools, health care facilities, and other essential destinations. These impacts may be greater for those that do not have car access.
- **Noise**: The Modified LPA would approach or exceed noise abatement criteria at 65 locations in Portland and 135 locations in Vancouver, including Discovery Middle School. Children and their learning comprehension are particularly affected by noise. The DSEIS describes higher levels of noise and vibration will negatively and disproportionately impact communities identified as equity priority communities.
- **Displacement**: The IBR Program will acquire land displacing 43 homes and could also displace houseless residents in the project area. Between 32-35 businesses and 600-742 employees could be impacted due to property acquisitions. Equity priority communities of East Columbia, Rockwood, Esther Short, and Rose Village would be disproportionately impacted.

There is **insufficient evidence** for several topic areas to determine potential health impacts of the Modified LPA.

- **Climate change and health:** The DSEIS anticipates the Modified LPA will reduce greenhouse gas emissions (GHG) compared to the No-Build Alternative. Construction of the Modified LPA will produce GHG emissions. Several climate-related hazards are projected to impact the region throughout the construction and operation of the Interstate Bridge, including heat, wildfire smoke, severe weather and flooding. The health effects of climate change are not equally distributed, and several communities are disproportionately affected by climate change - including IBR Equity Priority communities. More information is needed about how the Program will mitigate climate change impacts to Equity Priority Communities and what protective elements for health and climate justice will be included in final design and construction plans.
- **Air quality:** Due to the large geographic area used to conduct the air quality analysis, and the statement in the DSEIS that localized health impacts due to air quality cannot be reliably quantified, more information is needed to reliably assess air quality impacts. This is the basis of our recommendation for air quality monitoring and further air quality assessment, including dispersion modeling. Air dispersion modeling incorporates data appropriate for analyzing potential health impacts on a local scale.
- **Road safety:** The DSEIS states that crashes will increase by 15% under the Modified LPA, mainly due to estimated increases in traffic volumes. The DSEIS does not provide clear information about how crash frequency would change by travel mode, crash type, severity, location, or for environmental justice communities. There is insufficient evidence in the DSEIS to conclude to what degree severe injury and fatalities would be reduced for active transportation users.
- **Fugitive dust**: There is insufficient information about mitigation plans for fugitive dust during construction and how that could impact air quality and water quality.
- **Water quality**: There is insufficient information in the DSEIS regarding a plan to sample and analyze hazardous sediments and toxic contamination prior to in-water work.

Topic Areas Summary

Air quality + health concerns + potential project impacts

- Transportation is a significant contributor to air pollution-related illness and premature death. Emissions from vehicles, including carbon monoxide, nitrogen oxides, and particulate matter, can lead to respiratory, cardiovascular, neurodegenerative, and metabolic diseases, as well as cancer and reproductive issues.
- The DSEIS projects that the Modified LPA would result in a 33% increase in vehicle miles traveled (VMT) by 2045 compared to the 2015 baseline. Despite the expected increases in VMT, the DSEIS predicts that vehicular emissions will decrease compared to the 2015 baseline. The DSEIS estimates this using modeling from EPA's MOVES model, which assumes that emissions will decrease due to the 2007 EPA Control of Hazardous Air Pollutants from Mobile Sources. This modeling was run on a geographic scale (including Clark, Multnomah, Clackamas, and Washington counties) that is too large to understand local health and environmental impacts in the project area.
- The DSEIS states that concentration of air toxics from mobile sources would likely be more pronounced on road segments where traffic would increase under the Modified LPA compared to the No-Build Alternative due to diversion to avoid tolls. However, many of these road segments were not included in the air quality analysis.
- Modified LPA policy decisions which minimize mobile sources of air toxics during the operation of the project and design elements which mitigate the coinciding health impacts, like green infrastructure and indoor air filtration, would reduce potential public health burdens.

Transportation and active transportation + health concerns + potential project impacts

- Physical activity improves a wide range of health outcomes across the lifespan. Transportation planning and design features influence the opportunities available to community members to be physically active by walking, biking, or using transit.
- Project construction may create travel barriers or delays to essential destinations, regardless of mode.
- The extension of the light rail line and addition of enhanced walking and bike facilities will likely increase physical activity and support improved community health.
- Traffic volumes are projected to increase under the Modified LPA. Design and policy options that encourage more people to walk, bike, or use transit, rather than drive, would yield additional health benefits through increased physical activity.
- The DSEIS projects that the Modified LPA will result in a 15% increase in crashes on the freeway network and negligible change in crash frequency on the local road network. No information is provided on projected changes in crash type or severity.
- Tolls have the potential to further encourage mode shift to transit. This could improve health outcomes related to physical activity and air quality. However, tolls could also have a disproportionate impact on low-income community members.

Noise + health concerns + potential project impacts

- Harmful traffic noise levels can contribute to chronic and cardiovascular disease, disturb sleep, and reduce cognitive functioning. Older adults, shift workers, and people with preexisting sleep disorders are more sensitive to noise-induced sleep disturbance, and children are particularly sensitive to noise-induced health effects and learning disruptions.
- The Modified LPA would approach or exceed noise abatement criteria at 65 locations in Portland and 135 locations in Vancouver, including residences, offices, and one school. Noise walls are the only proposed noise mitigation for the project.
- Noise monitoring during construction, and re-examination of noise mitigation would yield greater protection from harmful noise exposure for community members in the project area.

Climate change and health + health concerns + potential project impacts

- Climate change is associated with many adverse health outcomes, including but not limited to heat-related illness, respiratory illness, cardiovascular failure, adverse perinatal outcomes, mental health impacts, injury, and death. The health impacts of climate change are not equal, and several populations are disproportionately affected.
- The DSEIS *Climate Change Technical Report* projects several climate change scenarios with impacts in the region over the project period, including higher temperatures and more extremely hot days, more fires and severe smoke, changes in precipitation, and increased risks of flooding.
- Workers, pedestrians, bicyclists, transit users, and adjacent communities may be exposed to heat, wildfire smoke or poor air quality, and other severe weather events during bridge construction and operation.
- Modified LPA design and construction operations that prioritize reducing the urban heat island effect, increasing shade and respite from heat, mitigating flooding risks, and planning for heat, wildfire smoke, and other severe weather and climate (flooding, extreme precipitation) events could improve resiliency and yield more protection from climate change-related illness and injury in the project area.
- The DSEIS *Climate Change Technical Report* anticipates the Modified LPA would result in a reduction of greenhouse gas emissions compared to the No-Build Alternative.

Social determinants of health + health concerns + potential project impacts

- The construction and operation of the Interstate bridge replacement will influence other factors that affect health, including housing, income, employment, and access to greenspace and health care.
- The IBR Program could negatively impact access to traditional cultural activities, culturally specific health care, and access to ancestral lands for American Indian and Alaska Native communities.
- The Modified LPA requires the acquisition of land that would displace 43 homes. Construction could also displace houseless community members residing in the project area.
- The Modified LPA will have varied economic impacts. Between 32-35 businesses and 600-742 employees are projected to be impacted due to property acquisitions required for construction. The project will also drive a temporary increase in construction-related employment while the bridge is being built.
- The IBR Program will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act to provide relocation assistance to displaced residents and businesses. Additional supports to lessen the emotional impact of displacement for all, like investments to support homeless individual relocation, workers affected by business displacement, and the return of displaced individuals or businesses, could support greater health and well-being.

Water quality + health concerns + potential project impacts

- Safe and clean water is essential for the health of humans, animals and the entire ecosystem. Impacts to the health of the Columbia River and surrounding waterways, including the Troutdale Aquifer, could not be more consequential.
- Construction, specifically in-water construction, will have impacts on turbidity of the water, and can disturb hazardous sediments and toxic contamination. There are already waterways in the project area with pollutants that have required monitoring.
- Fugitive dust from construction and demolition can settle into the water and impact water quality. Climate change and drought can increase concentrations of contaminants in water.
- The IBR Program will implement stormwater infrastructure which will help improve water quality. Continuing to adapt to emerging issues such as 6PPD contamination, which is lethal for salmon, could positively impact water quality and ecosystem health.
- The DSEIS *Water Quality Technical Report* and the DSEIS *Hazardous Materials Technical Report* discuss the need to sample and analyze the levels of hazardous sediments and toxic contamination, but no plan to conduct sampling or report on the results prior to in-water work.

Recommendations

Prioritize sustainability, transparency, communication and health for the lifetime of the project

1. Institute accessible systems for real-time two-way communication about project design and construction impacts to keep community members informed of project impacts, and the program informed of community impacts.
2. Prioritize health in program policies and decision-making throughout the lifetime of the program by incorporating regular engagement with community members, health department staff, and Tribal governments.

Provide additional information and modeling to better understand potential health impacts

3. Compile and release to the public more information about demolition plans for the current bridge infrastructure, including potential air quality, noise, and water quality impacts.
4. Expand information about potential air quality, safety, and connectivity impacts of design and construction.
5. Compile and release to the public additional information about potential air quality, safety, and connectivity impacts of tolling-related traffic diversion through neighborhoods.
6. Develop and release to the public a detailed sampling and analysis plan of riverbed sediment including potential contaminants, hazardous sediments, and toxics.

Design with health and equity in mind

7. Design active transportation (bike lanes, sidewalks, and multi-use trails) and public transportation that is accessible to all to improve air quality and physical activity.
8. Design safety features to reduce injury for active transportation users and vehicle users.
9. Improve greenspace and tree canopy cover to improve air and water quality, provide shade, and increase natural spaces.
10. Design with sustainable materials and standards to reduce greenhouse gas emissions.
11. Prioritize resilience to extreme weather events, climate change, and seismic events to improve safety.
12. Maintain and improve good air and water quality in the project area to protect physical and mental health.
13. Minimize noise in the project area to protect nearby neighbors and populations disproportionately affected by noise.
14. Improve connectivity and community cohesion to promote access to community and essential services.
15. Center equity and focus on local businesses in contracting to improve economic opportunities for underrepresented groups.
16. Minimize home and business loss, and proactively support displaced residents, businesses, and employees.

Construct with health and equity in mind

17. Meet and exceed, where possible, state and local requirements for noise, air quality, and water quality to protect the health of workers, community members, and the ecosystem.
18. Design and mark routes during construction to protect pedestrians and active transportation users from injury and environmental exposures.
19. Maintain community connectivity through reliable access to transit, neighborhood services, and regular transportation routes.
20. Protect workers and community members on high-risk days for high heat and poor air quality events.
21. Establish systems for continuous monitoring for noise and air quality during and after program construction, ensuring that pre-construction conditions are measured as a baseline.
22. Implement workforce development and support programs to develop and retain a diverse workforce.