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Executive Summary: Health Analysis of the Interstate Bridge Replacement Program

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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 is currently undergoing an evaluation through the National Environmental Policy Act (NEPA) to assess potential impacts. The IBR Program is currently (September 20 to November 18, 2024) undergoing 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. **You can provide comment on the DSEIS [on the IBR Program website](https://www.interstatebridge.org/DraftSEIS) through November 18, 2024 (<https://www.interstatebridge.org/DraftSEIS>).**

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 the Cowlitz Indian Tribe, 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 final analysis will be complete and submitted as a public comment by the end of the comment period, November 18, 2024. This summary highlights key takeaways for each topic area and an overview of the project recommendations that will be submitted to the IBR Program. The recommendations in the final health analysis will include 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



Transportation & active transportation



Noise



Climate change and health



Social determinants of health



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. This includes keeping public health partners, community, and Tribal representation at the table in decision-making for the Program.

Impact Area	Health Effects
Construction of the Modified LPA	<ul style="list-style-type: none"> • Access. Construction changes to roads, public transportation, and bike and pedestrian lanes could negatively impact access to employment, health care, and other needed services, particularly for those that do not have car access. • Displacement. The Modified LPA would acquire properties and displace residences and businesses that would disproportionately negatively affect equity priority communities in East Columbia, Rockwood, Esther Short and Rose Village. • Air Quality. The DSEIS does not provide sufficient evidence about projected air quality changes under the Modified LPA to properly assess health impacts to air quality during construction.
Long-Term Effects from Modified LPA	<ul style="list-style-type: none"> • Air Quality. Traffic-related air pollution contributes to negative health impacts including respiratory and cardiovascular disease, increased risk of all-cause mortality, cancer, and cognitive development for children. The DSEIS states that air quality will not be impacted, despite estimated increases in vehicle miles traveled. • Road Safety. The DSEIS states that crashes will increase by 15% under the Modified LPA, mainly due to estimated increases in traffic volumes. No information is provided on how crash frequency would change by travel mode, crash type, severity, location, or for environmental justice communities. • Transit. Mode shift from cars to new transit options under the Modified LPA will likely improve health outcomes related to physical activity. However, transit access to jobs for BIPOC residents, immigrants and refugees, and people under the age of 25 will not increase as much as it is predicted to for white, non-Hispanic residents. • Noise. The DSEIS describes higher levels of noise and vibration will negatively and disproportionately impact communities identified as equity priority communities. • Tolls. The cost of tolls would disproportionately negatively impact low-income community members.

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 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 temperature extremes, 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

Design with health in mind

1. 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. 🚲 🚶
2. Design safety features to reduce injury for active transportation users and vehicle users. 🚶 🚲
3. Improve greenspace and tree canopy cover to improve air and water quality, provide shade, and increase natural spaces. 🌳 🌿 🌳
4. Design with sustainable materials and standards to reduce greenhouse gas emissions. 🌱 🌿
5. Prioritize resilience to extreme weather events, climate change, and seismic events to improve safety. 🌧️ 🚶
6. Maintain and improve good air and water quality in the project area to protect physical and mental health. 🌿 🌿
7. Minimize excess noise in the project area to protect nearby neighbors and populations disproportionately affected by noise. 🗣️
8. Maintain and improve connectivity and community cohesion to promote access to community services. 🚶 🚶
9. Center equity and focus on local businesses in contracting to improve economic opportunities for underrepresented groups. 🗣️
10. Minimize home and business loss, and proactively support displaced residents, businesses, and employees. 🗣️

Construct with health in mind

11. Meet and exceed, where possible, state and local requirements to reduce noise and air pollution to protect the health of workers and community members. 🗣️ 🌿
12. Design and mark routes during construction to protect pedestrians and active transportation users from injury and environmental exposures. 🚶 🗣️
13. Maintain community connectivity through reliable access to transit, neighborhood services, and regular transportation routes. 🚶 🗣️
14. Protect workers and community members on high-risk days for high heat and poor air quality events. 🌧️ 🌿
15. 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. 🗣️ 🗣️
16. Implement workforce development and support programs to develop and retain a diverse workforce. 🗣️

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

17. 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. 🗣️
18. 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

19. Assess how design could increase access to health care in the region. 🚶 🗣️
20. Compile and release to the public more information about demolition plans for the current bridges, including a detailed noise assessment with noise heat mapping, predicted noise levels, and any overlap in noise emitting activities with construction (e.g. if demolition and new construction are happening at the same time). 🗣️ 🗣️ 🌳
21. Expand information about potential air quality, safety, and connectivity impacts of construction. 🗣️ 🚶 🗣️
22. Compile and release to the public additional information about potential air quality, safety, and connectivity impacts of tolling-related traffic diversion through neighborhoods. 🗣️ 🚶 🗣️
23. Develop and release to the public a detailed sampling and analysis plan of riverbed sediment including potential contaminants, hazardous sediments, and toxics. 🌳