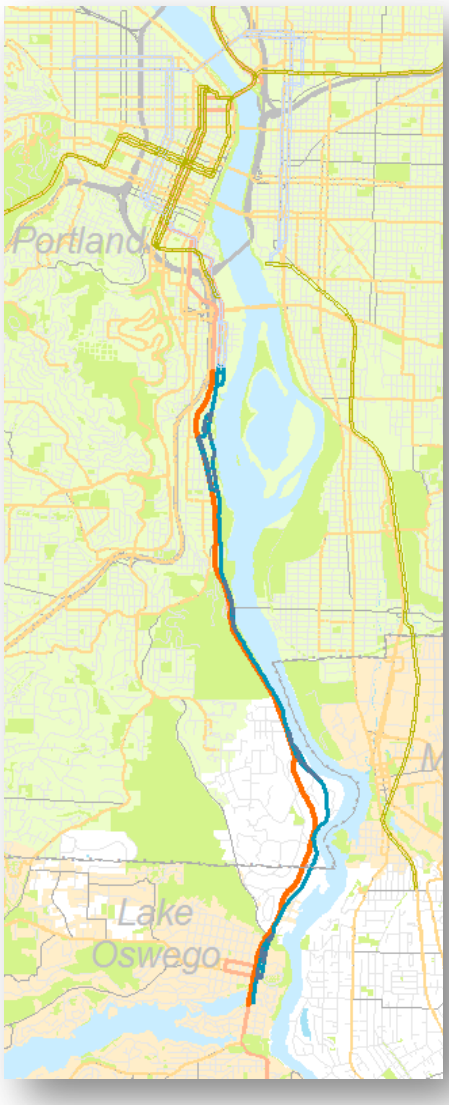
Lake Oswego to Portland Transit Project Health Impact Assessment

Summary

Health Impact Assessment (HIA) is an emerging practice that evaluates the impact of specific plans, policies, and projects on the health of individuals and population groups, and suggests ways to improve the health outcomes of the policy, plan, or project in question. HIA analyses can inform decision makers as they make choices that affect the communities in which they work. In winter, 2009, Oregon Public Health Institute (OPHI) received a grant from the National Network of Public Health Institutes and the US Centers for Disease Control and Prevention to conduct some HIAs in the Portland metro region. In spring, 2010, OPHI and Metro, the Portland area's tri-county regional government, agreed to partner on a pilot HIA focusing on the Lake Oswego to Portland Transit Project and the three transit alternatives—no-build, enhanced bus service, and streetcar—being considered in the Draft Environmental Impact Statement (DEIS) recently released by Metro.



As with many Environmental Impact Statements (EIS) prepared in conformity with the requirements of the National Environmental Protection Act (NEPA), the DEIS for this project contains substantial information useful for understanding how the different scenarios directly and indirectly impact the health of individuals and populations. However, the connections between the DEIS information and health outcomes are not always identified or fully assessed, particularly with respect to indirect impacts on health

via direct impacts on health determinants. Health determinants refer to those features of the built, social, and natural environment that are known to impact the overall mental and physical health outcomes of a particular population, as well as influence the distribution of health outcomes within a population. The primary goal of this HIA is not to recommend the selection of a particular alternative, but to complement the DEIS information by more explicitly and more fully assessing the impacts of the different DEIS transit scenarios on known health determinants. In cases where adverse impacts are identified, this HIA will also offer recommendations for mitigating adverse impacts.

Based on the anticipated outcomes of the three transit scenarios being considered in the Transit Study, on available evidence in the DEIS and from other sources, and on input from the HIA Advisory Committee and Project Team, this HIA focused on assessing the study outcome's probable impacts on the following four health determinants:

- Opportunities for physical activity
- Air quality
- Access to health supportive resources
- Safety from traffic crashes

Below are the summary findings and recommendations for each of these four subjects. Lists of more detailed findings are provided in the assessment chapters of the main report. Copies of the full report can be downloaded from OPHI's website, www.orphi.org/healthy-community-planning/health-impact-assessments. Hard copies will be mailed out on request by contacting Steve White at steve@orphi.org, or (503) 227-5502 x228.

Opportunities for Physical Activity

Physical activity levels are associated with multiple health outcomes, and an individual's physical activity level can be influenced by a wide number of personal, social, and environmental variables. There are three primary pathways through which the different transit scenarios are likely to variously impact opportunities for physical activity: 1) by providing transit destinations for walking; 2) by improving or impeding physical access to parks and trails in the study corridor; and 3) by providing additional bicycle and pedestrian infrastructure.

Based on an assessment of the three scenarios' impacts on these pathways, this report finds that both of the build scenarios increase opportunities for physical activity when compared to the no-build scenario. When comparing the enhanced bus scenario to the streetcar scenario, the streetcar scenario would provide the greatest improvement in

opportunities for physical activity because of its higher level of service, greater improvements in park and trail accessibility, and provision of greater amounts of bicycle and pedestrian infrastructure in the corridor.

Summary findings: Transit Destinations for Increased Walking

- The average amount of time transit users spend walking to and from transit each weekday is almost 24 minutes.
- About 23% of bus riders get all of their recommended physical activity solely from walking to and from transit.
- About 30% of street car riders get all of their recommended physical activity solely from walking to and from transit.
- The different build scenarios and design options have potential to directly impact physical activity levels by increasing transit use and increasing the distance that some people walk for transit.
- Compared with the no-build scenario, the **enhanced bus** scenario would result in:
    - 1,800 more people in the corridor and an additional 300 people in the region getting an average of 24 minutes of daily physical activity from transit use.
    - an additional 205 people in the corridor and 294 people in the region who would be getting all of their recommended physical activity solely from transit use.
- Compared with the no-build scenario, the **streetcar** scenario would result in:
    - 3,100-3,400 more people in the corridor and an additional 500-800 people in the region getting an average of 24 minutes of daily physical activity from transit use, depending on which alignment was chosen.
    - an additional 353-388 people in the corridor and 660-710 people in the region who would be getting all of their recommended physical activity solely from transit use, depending on which alignment was chosen.
- The Willamette Shore Line alignment for the streetcar option would produce the highest physical activity rates from walking to and from transit.

Summary findings: Physical Access to Parks and Trails

- Parks and trails provide numerous opportunities for physical activity.
- The physical accessibility of parks and trails can influence their level of use.
- The two build scenarios have the potential to impact park and trail accessibility in two ways:
    - By changing the number and location of transit stations;
    - By changing park and trail access points and routes.

- The **enhanced bus** scenario would produce minimal overall changes in park and trail access. It would result in the loss to two transit stations that currently provide access to portions of the Willamette River Greenway Trail and Willamette Park, but also in the addition of a park-and-ride access road which would also improve access to Foothills and Roehr Parks and the Kincaid Curlicue Trail in Lake Oswego.
- The **streetcar** scenario would improve overall access to parks and trails in the corridor as a result of many of the station's closer proximity to parks and trails, and of the accompanying construction or improvement of new formal access routes serving multiple parks, particularly in the Lake Oswego section.

Summary findings: Access to Bicycle and Pedestrian Infrastructure

- Improvements in bicycle and pedestrian infrastructure correlate with higher rates of physical activity via walking and biking.
- Relative to the no-build scenario, the **enhanced bus** scenario would add a small amount of bicycle and pedestrian infrastructure related to the construction of new park-and-ride facilities in Lake Oswego, including bike parking and a new access route between the park-and-ride and State Street.
- Relative to the no-build scenario, the **streetcar** scenario would add or improve bicycle and pedestrian facilities at numerous points along its route, and would result in the most improvements to bicycle and pedestrian infrastructure in the corridor.

Air Quality

The impact of air quality on multiple health outcomes is well-documented. Each of the build scenarios has the potential to impact the level of air pollutant-related health outcomes in the short-term and the long-term. In the short term, construction activities can produce substantial amounts of air pollutants that increase the health risks of construction workers and nearby area residents and users. In the long term, local and regional amounts of pollutant levels will likely be variously impacted by the different transit scenarios because of their potential to produce differing levels of passenger vehicle use and related emissions.

Based on an assessment of construction activities related to the two build scenarios, this report finds that, while both build scenarios would result in temporarily elevated levels of certain hazardous air pollutants, the streetcar scenario would produce the greatest temporary increases in air pollutants as a result of the relatively high magnitude of construction activities related to infrastructure construction. In addition, this assessment

also found that the amount of air toxics produced during construction for either scenario can vary greatly depending on the age and condition of construction equipment used.

Based on an assessment of anticipated long-term changes in air quality, this report finds that the two build scenarios would produce modest improvements in future air quality as a result of decreased vehicle miles traveled. Because the streetcar would produce the greatest increase in transit use, it would also produce the greatest reductions in future air pollutant levels.

Summary findings: Construction Impacts

- Ambient concentrations of multiple air toxics in the corridor, including those produced by construction equipment, are higher than established health-based benchmarks.
- Construction activities related to the two build scenarios will produce temporarily elevated concentration levels of multiple hazardous air pollutants in and around construction areas.
- The amount of hazardous air pollutants varies greatly depending on the age and condition of the equipment used.
- Predominant use of the newest (Tier 4) generation of equipment could lower construction activity emissions of some hazardous air pollutants by up to 80%.

Recommendations for mitigating adverse impacts from construction activities:

If either of the build scenarios is chosen, TriMet should:

- *Work with the State DEQ Clean Diesel program to develop more stringent emissions-based equipment fleet requirements or incentives for contractors and sub-contractors working on the project;*
- *Work with DEQ to identify and apply for grants to improve construction equipment emissions;*
- *Develop information and outreach programs to alert area residents and users of construction schedules and locations, and inform them of the potential health effects of being close to construction activities. Particular efforts should be made to reach the corridor's significant elderly population, as well as children, and the users of the corridor's parks since these groups are more likely to suffer adverse health impacts as a result of elevated pollutant concentration levels;*

- *Work with county health departments to educate area residents and users on how to avoid exposure to air toxics generated by construction; and*

- *Work with DEQ and OSHA to develop monitoring programs to better assess construction site concentrations of air toxics.*

Summary findings: Changes in Vehicle Miles Traveled

- On-road vehicles are one of the primary sources of hazardous air pollutants on both the corridor and region.
- Ambient concentrations of multiple air toxics in the corridor, including those produced by on-road vehicles, are higher than established health-based benchmarks.
- Despite anticipated increases in VMT between 2010 and 2035, total amounts of many air toxics in both the corridor and region being produced by on-road vehicles under the no-build scenario will be 23-30% lower as a result of recently enacted equipment and gasoline standards. However, the ambient concentrations of these air toxics will still exceed established health-based benchmarks.
- Annual VMT in the corridor for the **enhanced bus** scenario will be 1.5% lower than the no-build scenario which will result in 0.7-1.3% reductions in the amount of toxics produced in the corridor by on-road vehicles, depending on the toxic.
- Annual VMT in the corridor for the **streetcar** scenario will be 3.9-4.5% lower than the no-build scenario, depending on which alignment is chosen. This will result in 1.7-3.8% reductions in the amount of certain toxics produced in the corridor by on-road vehicles, depending on the toxic.
- Unless other sources of these air toxics are also addressed, the emissions reductions resulting from reduced VMT for both the enhanced bus and streetcar scenarios will still not be sufficient for lowering ambient concentration levels of most air toxics to benchmark levels.

Access to Health Supportive Resources

Good health requires access to resources such as healthy food retail, healthcare, employment, education, parks and recreation facilities, publicly accessible gathering spaces, and social services. Research has shown that a person's ability to access each of these resources can influence their health. While the three scenarios would not directly change what services and resources are easily accessible via transit, they would impact the level of transit service connecting people to these resources.

Based on an assessment of the relative levels of transit service provided by the three scenarios, this report finds that the enhanced bus and streetcar scenarios would provide improved access to health supportive resources relative to the no-build scenario. Since the streetcar scenario would provide the highest level of service, it would also provide the greatest improvement in access to health supportive resources.

Summary findings: Access to Health Supportive Resources

- There are numerous health supportive resources either in the corridor or in the nearby central business district, including full-service grocery stores, medical and social services, parks and recreation facilities, community gathering spaces, and educational and employment opportunities.
- Both the enhanced bus and streetcar scenarios will likely improve access to health supportive resources as a result of their higher levels of transit service.
- The streetcar scenario would likely produce the greatest improvements in access because of its frequency, reliability, and speed relative to the bus scenarios.

Safety from Traffic Crashes

Traffic crashes are one of the leading causes of injury and death, both locally and nationally. There are a wide variety of conditions that have been identified as influencing motor vehicle-related crash rates. Two of these that would likely be impacted by the Transit Project are 1) transit ridership rates and levels of bicycle and 2) pedestrian and bicycle activity. Transit ridership rates impact injury and death rates because transit is a much safer mode of transportation; as people switch to public transit, they lower their chances of getting injured. Bicycle and pedestrian rates influence crash rates because crash rates for these modes generally decrease as bicycle and pedestrian activity increases.

Based on an assessment of the relative levels of transit ridership and bicycle and pedestrian activity resulting from the different scenarios, this report finds that the two build scenarios would reduce traffic crash rates as a result of increased transit use and increased bicycle and pedestrian activity relative to the no-build scenario. Since the streetcar would generate the highest levels of transit ridership and bicycle and pedestrian activity, it would provide the greatest reduction in traffic crash rates.

Summary findings: Safety Impacts from Increased Transit Use

- People who use public transit experience much lower rates of injury and death resulting from crashes.

- Both the enhanced bus and streetcar scenarios will likely improve safety from crashes in the corridor as a result of increased transit use.
- The streetcar scenario would likely produce the greatest safety improvements because of its higher ridership rates.

Summary findings: Safety Impacts from Increased Pedestrian/Bicycle Rates

- Higher rates of walking and biking produce lower crash rates for these modes.
- Both the enhanced bus and streetcar scenarios will likely improve safety from crashes in the corridor as a result of increased pedestrian activity in the corridor.
- The streetcar scenario would likely produce the greatest safety improvements because of the additional amount of walking and biking activity in the corridor it would induce as a result of multiple improvements to the corridor's bicycle and pedestrian infrastructure.

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