

4.0 Mitigation and Conservation Measures

ODOT will take the following measures to avoid environmental impacts, conserve resources, and otherwise minimize environmental impacts as part of the design and construction of the I-5 Willamette River Bridge Project.

4.1 Air Quality

Construction contractors are required to comply with OAR 340-208-0210 and LRAPA 48-015, requiring that reasonable precautions be taken to avoid dust emissions during construction activities.

No long-term operational air quality impacts are anticipated; therefore, no mitigation is required.

4.2 Archaeology

While every effort was made to examine the area of potential effect in a fashion that would reveal buried cultural material, it is possible that some construction activities may affect unknown intact archaeological deposits. In the event that buried cultural resources or deposits are exposed during construction, Oregon State laws (ORS 97.740 – 97.760, 358.905 – 358.955, and 390.235), as well as various federal laws and regulations require that work in the vicinity of such finds immediately be suspended. SHPO and ODOT should be notified, and a professional archaeologist called in to evaluate the significance of the find and recommend a subsequent course of action in consultation with SHPO, ODOT, and the appropriate tribal governments.

4.3 Biology

4.3.1 Species Avoidance

The project does have the potential to impact fish and wildlife species during construction activities. To avoid fish and wildlife species and minimize temporary impacts from construction activities, all applicable OTIA III State Bridge Delivery Program EPS will be implemented to reduce the extent of direct and indirect impacts to fish and wildlife species. These include:

- Fish avoidance, including in-water work timing
- Cessation of work under high flow conditions
- Fish screens for water in-takes or diversions
- Providing for fish passage during and after construction and prepare a Fish Passage Plan for submittal and approval from ODFW
- Hydro-acoustic measures identified in the Noise Attenuation Plan
- Isolation of the work area and release of fish species captured during isolation. .
- Wildlife avoidance to minimize injury and death to wildlife species by incorporating timing restrictions under the MBTA, including no removal of trees being used for nesting during the breeding season.
- Apply exclusionary methods to prevent nesting activities before March 15

- Maintain existing and re-establish connectivity between aquatic and upland habitats for wildlife movement
- Incorporate bat habitat into the design of the new bridges.

4.3.2 Habitat Avoidance and Removal Minimization and Restoration

In addition to affecting fish and wildlife species directly, the project also has the potential to impact fish and wildlife habitat during construction activities. ODOT will coordinate with ODFW through the design process to identify opportunities to minimize habitat disturbance. To avoid and minimize potential impacts to fish and wildlife species habitat during and after construction activities, all applicable OTIA III State Bridge Delivery Program EPS will be implemented to reduce the extent of direct and indirect impacts to habitat. These include:

- Minimize effects to natural stream and floodplain by keeping the work area to the smallest footprint needed.
- Prepare and implement a plan to prevent construction debris from dropping into the Willamette River and to remove materials that may drop with a minimum disturbance to aquatic habitat.
- Prepare site restoration plans for upland, wetland, and streambank areas to include native plant species and noxious weed abatement techniques, and use large wood and rock as components of streambed protection treatments.
- Flag boundaries of clearing limits and sensitive areas to be avoided during construction.
- Coordinate with Willamalane Park and Recreation District and the Eugene Parks and Open Space Division regarding sensitive areas in Alton Baker Park and the Whilamut Natural Area that should be avoided during construction.
- Restore and revegetate disturbed areas.

4.4 Geology

All earthwork will require temporary erosion and sediment control until permanent control is established. Earthwork along the riverbanks should include engineering controls to prevent movement of loose soil into the river. Finished slopes will be constructed under the guidance of an engineer to prevent over-steepening of the slopes and to anchor loose material. In-water work should include construction of cofferdams or similar BMP to control releases of sediment into the river. In-water work will be completed during the in-water work periods agreed to between ODOT and Oregon Department of Fish and Wildlife.

4.5 Hazardous Materials

Construction contractors will remove and properly dispose of hazardous materials, if encountered, such that any remaining material not present a risk to the general public or the environment via subsurface movement away from the source areas. The contractors will also contain demolition waste to prevent potentially hazardous components from entering the environment

4.6 Historic Resources

In accordance with the requirements of Section 106 of the National Historic Preservation Act, ODOT and FHWA consulted with the Oregon State Historic Preservation Office regarding the proposed project's effects of the Mill Race. SHPO concurred with a determination that the project would have no adverse effect on the Eugene Millrace and Dam. ODOT will work with local historical societies to develop and install an interpretive sign in the vicinity of the Eugene Millrace and Dam.

4.7 Land Use

ODOT will acquire all required land use permits and approvals prior to beginning construction.

4.8 Noise

4.8.1 Mitigation of Noise During Construction

The following construction noise abatement measures will be included in the project specifications:

- No construction shall be performed within 1,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 10 p.m. and 6 a.m. on other days, without the approval of the ODOT Construction Project Manager.
- All equipment used shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have unmuffled exhaust.
- All equipment shall comply with pertinent equipment noise standards of the U.S. Environmental Protection Agency.
- No pile-driving operations shall be performed within 3,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 8 p.m. and 8 a.m. on other days, without the approval of the ODOT Construction Project Manager.
- The noise from any rock crushing or screening operations, if performed within 3,000 feet of any occupied dwelling, shall be mitigated by strategic placement of material stockpiles between the operation and the affected dwelling or by other means approved by the ODOT Construction Project Manager.
- If a specific noise impact complaint occurs during the construction of the project, one or more of the following noise mitigation measures may be required at the Contractor's expense as directed by the ODOT Construction Project Manager:
 - Locate stationary construction equipment as far from nearby noise-sensitive properties as feasible.
 - Shut off idling equipment.
 - Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
 - Notify nearby residents whenever extremely noisy work will be occurring.
 - Install temporary or portable acoustic barriers around stationary construction noise sources.

- Operate electrically-powered equipment using line voltage power or solar power.

4.8.2 Mitigation of Permanent Noise

The ODOT *Noise Manual* lists a number of noise mitigation measures that can be considered for reduction of noise levels at impacted properties. These include truck restrictions, speed restrictions, alignment changes, and traditional noise barriers. Mitigation of the traffic noise impacts through truck or speed restrictions, or changes in the horizontal or vertical alignment was considered but rejected as inconsistent with the purpose and nature of the project, and because of the importance of I-5 as a freight route.

The ODOT *Noise Manual* contains criteria for both noise reduction effectiveness and cost-effectiveness to be used in analyzing noise walls. For a residence to be considered to be “benefited” by a noise wall, the proposed wall must achieve at least a 5-dBA noise reduction, with a noise-reduction goal of 7 to 8 dBA. The number of residences benefited and the degree by which they are benefited determines cost-effectiveness. The ODOT *Noise Manual* states that a reasonable cost per residence for noise abatement is a maximum of \$25,000. Noise wall costs are calculated using the ODOT standard cost for pre-cast post and panel walls of \$20 per square foot. This cost includes a 30% engineering and contingency cost, but does not include additional costs such as right-of-way acquisition.

Noise walls are generally unable to achieve effective noise reductions when interrupted by driveways. Walls for single, isolated residences are not usually able to meet the ODOT minimum noise reduction goals and also meet the cost-effectiveness criteria. In addition, mitigation in the form of noise barriers is typically not recommended for commercial or industrial areas. Commercial properties often rely on visual exposure to the roadway to attract customers and provide convenient access to their facility.

A discussion of noise abatement is included below for those receptors predicted to have noise impacts under the 2030 Build Alternative. (Locations of the receptors are shown in Appendix B, Figures B-1 through B-6).

Receptors 2, 4, 5, 8, 9, 10, and 11

A noise wall was evaluated to reduce noise impacts predicted in the Anderson Lane subdivision on the east side on I-5 at the northern end of the project area. The noise wall was modeled in the ROW between the freeway and the residences.

A wall in this location was designed to provide the required noise reductions at residences behind the wall. The analysis found that the wall needed to be 13-feet high in order to provide the required noise reductions. A 13-foot wall in this location would be able to provide at least a 5-dBA noise reduction to six residential properties. The cost of the wall on a per benefited-residence basis was calculated to be about \$31,200. The cost of a noise wall in this location exceeds the maximum allowable cost per benefited residence and is therefore not recommended.

A map of the exact location of the noise wall analyzed is shown in Appendix B, Figure B-7.

Receptors 20, 21 and 22

Receptors 20, 21, and 22 fall within the Alton Baker Park and Eastgate Woodlands on the north bank of the Willamette River. Public use areas in this area are predominantly pedestrian pathways. There are no picnic areas, seating areas, or other use areas where members of the public would be expected to spend significant amounts of time. Noise walls were therefore not recommended for the park areas.

Receptor 24

Receptor 24 represents a single residential property with direct driveway access onto Franklin Boulevard. Noise walls are generally unable to achieve effective noise reductions when interrupted by driveways. In addition, walls for single, isolated residences are not usually able to meet the ODOT minimum noise reduction goals while also meeting the cost-effectiveness criteria.

Noise walls are unlikely to be effective in this location and are therefore not recommended in this case.

Receptors 45 and 67

Receptors 45 and 67 both represent single light industrial/commercial properties. Noise mitigation is not usually recommended for commercial properties.

Receptors 31, 32, 35, 36, 37, 39, 40, 42, 43, 44, 48, 49, 50, 51, 53, 54, 55, 56, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 69, 71, 72, 73, 74, 75, and 76

These receptors are located in the Laurel Hill residential neighborhood on the west side of I-5, south of the southbound on-ramp to I-5 from Franklin Boulevard. A noise wall located on the south edge of the southbound on-ramp to I-5 from Franklin Boulevard was evaluated to reduce noise levels in the Laurel Hill neighborhood. The location of this noise wall is shown in Appendix B, Figures B-8 through B-11.

Noise wall panel heights in this location were optimized to between 12 and 16-feet in height to provide the required noise reductions at residences behind the wall. A 12- to 16-foot wall in this location would be able to provide between 5- and 9-dBA noise reductions to thirty residential properties. The cost of the wall on a per benefited-residence basis was calculated to be about \$18,000. A wall in this location meets the ODOT noise reduction effectiveness and cost-effectiveness criteria.

The final decision on noise mitigation will be made after public input and during the final design process. Should the project design significantly change, or should the noise impacted residents be in opposition to the recommended noise mitigation, the proposed noise mitigation may not be incorporated into the project.

Receptors 77 and 79

Receptors 77 and 79 fall within the Laurel Hill Cemetery. There are no defined public use or seating areas within the cemetery grounds, and the property line facing I-5 is about 1,000 feet long. Providing a 1,000 foot noise wall would entail significant cost and is therefore not recommended.

4.9 Right-of-way

To minimize potential temporary impacts from the construction staging on park land to the extent practicable, the contractor should stay within ODOT easement or right-of-way and not encroach into the park or wetland areas.

If construction staging is located in any park, the contractor will be required to develop a traffic management plan for continued use of the trails.

4.10 Section 4(f) and 6(f)

ODOT will consult with and develop a documented agreement with the Willamalane Park and Recreation District and with Eugene Parks and Open Space Division regarding the measures taken to avoid and minimize impacts such that the temporary occupancy of the park areas during construction would not be considered a “use” of the Section 4(f) property. Potential measures to avoid and minimize impacts during construction include:

- The construction contractor will minimize the areas used for material storage and staging to the extent practicable.
- Trails will, to the maximum extent practicable, be kept open, safe, and useable during construction. A continuous route across ODOT right-of-way for the bicycle/pedestrian pathways would be maintained on both the north side and the south side of river during construction. The construction contractor will, in coordination with park officials, prepare a traffic control plan for the park trail system.
- The construction contractor will coordinate with park officials and community groups on any temporary detours of trails.
- Areas disturbed by construction will be restored to their preconstruction conditions, or enhanced where degraded conditions exist prior to disturbance by construction.
- Any reconstruction and/or realignment of trails will be done in accordance with applicable design standards.

In addition, if affected park areas are determined to be encumbered under Section 6(f) of the Land and Water Conservation Act, temporary occupancy of the park areas would be considered a conversion of a 6(f) property to non-recreation use. ODOT will consult with the park agencies and Oregon Parks and Recreation Department and National Park Service to confirm the area’s status under Section 6(f) and regarding necessary actions to address any conversion.

4.11 Socioeconomics

To avoid and minimize the potential impacts of the project, measures such as the following will be incorporated into the project and implemented during construction and operation of the project.

4.11.1 Measures during Construction

A Traffic Management Plan (TMP) will be prepared and implemented. If local streets must be temporarily closed during construction, detour routes will be provided and clearly marked with signs. The TMP will include an emergency vehicle routing plan to minimize the risk of increased response times during construction.

- ODOT will coordinate with school districts prior to beginning construction activities.
- ODOT will coordinate with emergency services prior to beginning construction activities.
- ODOT will coordinate with the Lane Transit District to minimize potential effects on bus services.
- Access to businesses will be maintained throughout the construction period through careful planning of construction activities, and through an awareness of the need to provide adjacent properties with reasonable access during business hours. Appropriate signs will be posted communicating to potential customers that businesses are open during construction.
- Daytime street closures will be kept to a minimum to provide access to businesses during regular business hours. Where possible, construction near residences will be restricted to daytime hours. Construction will be restricted on legal holidays (see Section 4.6). Any exception will require approval by the ODOT construction Project Manager.
- Trails, bicycle lanes and sidewalks will, to the maximum extent practicable, be kept open, safe, and useable during construction. A continuous route across ODOT right-of-way for the bicycle/pedestrian pathways would be maintained on both the north side and the south side of river during construction. Where detours of trails, bicycle lanes, or sidewalks may be necessary, signing and/or flagging will be provided to direct users through the detour.
- Removal of mature vegetation will be limited to the minimum area necessary for construction and staging activities.
- OTIA III CS³ measures regarding regional economic stimulus, diversity, and public involvement will be implemented and measured.

4.11.2 Measures during Operation

To minimize the potential impacts of operation, ODOT may implement the following mitigation measures:

- Place additional lighting only in areas deemed necessary for safety. Use directional lighting when feasible to minimize nighttime glare to surrounding areas.
- Any reconstruction and/or realignment of trails will be done in accordance with applicable design standards.

4.12 Transportation

A Traffic Management Plan (TMP) will be prepared and implemented as described in section 4.9 above.

4.13 Visual Quality

ODOT will continue to work with the community, through the CAG and other outreach, throughout the design process to get input on the bridge type and specific bridge design features, such as architectural treatments, textures, color, illumination and landscaping. Outreach to and involvement of the community in the bridge type selection and other

design issues may include: on-line surveys, public workshops, newsletters, and web-site updates.

4.14 Water Resources

Effects to water resources during construction and operation of the project will be minimized through the implementation of mitigation outlined in the OTIA III State Bridge Delivery Program Environmental Performance Standards.

Potential temporary impacts to water quality during construction will be mitigated through project-implemented measures. Standard BMPs and erosion control practices will be implemented during construction to minimize water quality impacts to water resources. These measures will follow the ODOT Hydraulics Manual, ODOT Special Specifications, and local stormwater requirements. The following measures will be implemented to minimize potential impacts to water resources:

Prepare a Pollution and Erosion Control Plan that contains the elements outlined in Sections 280.00 and 290.30 of ODOT's *Standard Specifications for Construction* (2002) and that meets requirements of all applicable laws and regulations. The Pollution and Erosion Control Plan will include all applicable water quality measures as outlined in the OTIA III State Bridge Delivery Program Environmental Performance Standards.

- Schedule excavation, grading, and paving activities for dry weather periods, if possible.
- Comply with the requirements of the ODOT's Regional DEQ1200CA National Pollutant Discharge Elimination System (NPDES) permit for all construction runoff.
- Limit staging areas to the minimum size necessary to complete the project.
- Follow the terms and conditions of ODOT's most recent drilling programmatic biological opinion.
- Obtain and comply with all required permits and facility approvals for discharges to surface water, storm drains, or sanitary sewers or for land application.
- Prepare and implement a Stormwater Management Plan that slows the entry of water into the soil and improves the long-term water quality conditions associated with pollutant loading from the project.

4.15 Wetlands

4.15.1 Wetland and Water Impacts (Temporary and Permanent)

A Compensatory Mitigation Plan and Site Restoration Plan will be developed so the project meets regulatory requirements of the OTIA III Statewide Bridge Delivery Program as approved by regulatory agency staff.

Compensatory mitigation will be consistent with all program-specific EPS and regulatory requirements, and may include:

- Re-establishment or rehabilitation of natural or historic habitat functions or wetlands functions and values when self-sustaining, natural processes are used to provide the functions.

- Coordination of proposed restoration in Alton Baker Park with local park agencies.
- Participation in ODOT's conservation banks, as approved in writing by the Services (NMFS and USFWS), DSL, and USACE.
- Participation in federally-approved mitigation banks and regulatory or authority-approved ODOT Comprehensive Mitigation/Conservation Strategy (CMCS) mitigation sites.

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