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## Chapter 6: Proposed Mitigation and Conservation Measures and Tier 2 Activities

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This chapter identifies mitigation measures that can reduce or eliminate adverse impacts identified in this Tier 1 LFEIS. Some of the measures identified refer to changes the project can implement at the current “location-level” analysis, while others would not be developed until Tier 2. This chapter also contains a listing of activities that will be analyzed in Tier 2.

The following sections address mitigation measures for the No Build and Modified 3J (or the selected corridor, if Modified 3J is not selected) for specific resource areas.

### TRANSPORTATION

#### No Build

The No Build does not include mitigation measures.

#### Modified 3J and Other Build Alternatives

No specific mitigation measures are proposed for Modified 3J or any of the other Build Alternatives; however it should be noted that in Tier 1 ODOT has not modeled the effects of constructing the Bypass in phases because it does not have sufficient design information to do so. The conceptual construction phases ODOT discussed with the POST and presented at public meetings are only intended to be used in the event that less than full funding is received. ODOT has stated that phasing the project construction might be required; however, ODOT can not determine if phasing will actually be necessary until a financing strategy is developed for the project. ODOT will base the financing strategy on a specific Bypass design and cost estimate. This will not be developed until Tier 2. ODOT will assess whether or not phasing is required after the financing strategy is developed. The strategy will include specific components of each phase and will meld that information into a development plan. At that point (if necessary) modeling will be done to assess traffic, tolling and other impacts, and be incorporated into the Tier 2 analysis.

### RIGHT OF WAY

#### No Build

The No Build does not include mitigation measures.

#### Modified 3J and Other Build Alternatives

The Tier 1 process enables ODOT to identify, acquire and preserve key pieces of the right of way so that it will not be necessary to displace any development that may otherwise take place on these lands prior to construction of the Bypass. Following ROD on the Tier 1 EIS and prior to an ROD on the Tier 2 EIS, with limited funds, ODOT intends to acquire a limited amount of right of way within the approved corridor with federal funds. The strategy ODOT will use is outlined below. This strategy is based on policy approved by the OTC. The categories I through III below are given equal weight in terms of priority of acquisition.

#### Category I. Throughout the Approved Corridor

##### Hardship Acquisitions

The Agency may approve a request for a hardship acquisition based on a property owner's written submission which:

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- Supports the hardship acquisition by providing justification, on the basis of health, safety or financial reasons, that remaining on the property poses an undue hardship when compared to others; and
  - Documents an inability to sell the property because of the impending project, at fair market value, within a time period that is typical for properties not impacted by the impending project.

An affected property owner must submit a written hardship acquisition request to the Region Right of Way Supervisor who forwards the request to the Right of Way Manager for consideration which will result in a well-documented written approval or denial.

*Category II. Within the Approved Corridor By Phase of the Project*

If during the described period, sufficient funds are available to purchase the right of way for an entire phase or sub-component of a phase, then ODOT will utilize its authority to purchase right of way for the entire Phase 1 of the Phasing Concept Plan.

*Category III. Protective Buying*

If sufficient funds are not available to purchase the right of way required for Phase 1 or a sub-component of Phase 1, the following policy will be applied to protective purchase of properties in selected parts of the approved corridor. To guide protective buying within the time period described above, the following policy and criteria will apply:

ODOT must demonstrate that the sale or development of the property is imminent and such sale or development would limit future transportation choices, thus justifying a protective purchase. The following criteria will be considered in decisions about protective buying:

- Unimproved properties should be acquired as “protective buying” parcels in those cases where a showing can be made that the owner has imminent plans to develop the property within certain time frames or that the property will be available for sale.
- Protective buying is not generally applicable to property already improved to its highest and best use because the only additional money the Agency would pay in the future is inflation value.
- Improved properties should be acquired as “protective buying” parcels in those cases where a showing can be made that:
  - The property owner has plans to sell or remove the existing building improvements and replace them with new building improvements of significantly higher value; or
  - The property owner plans enlargements or renovations that will represent a large increase in ultimate highway right of way acquisition costs; or
  - The enlargement or renovations may require additional land that the Agency will need for transportation improvement projects within approximately 6 years; or
  - The property is strategically located along the Interstate System or other critical high-growth corridors, and is for sale on the open market.

A cost/benefit analysis may be performed to ensure prudent expenditure of funds. Consideration should be given to the avoidance of potential: increased real property values, large damage claims, extraordinary relocation expenses, and extraordinary property management expenses.

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Protective buying should be an opportunity for the Agency to realize a significant financial advantage based on the above criteria.

Within this category, the following priorities by area will be applied to protective buying:

- Within UGBs: within a ¼ mile radius around the interchanges.
- Outside UGBs: within a ½ mile radius around the interchanges.
- In the approved corridor between the East Newberg and Oregon 219 Interchanges (the part of the project area where the most development is currently occurring).

Within this category and its prioritized areas, the following additional priorities by type of development will be applied to guide protective buying:

1. Commercial Development
  - Vacant land zoned for development
  - Developed land being redeveloped
2. Industrial Development
  - Vacant/zoned for development
  - Developed land being redeveloped
3. Residential Development
  - Multi-family housing 15 units and above
  - Estate homes (over \$500,000)
  - Multi-unit Single Family Sub-division development

## **LAND USE**

### **No Build**

The No Build does not include mitigation measures.

### **Modified 3J and Other Build Alternatives**

As described in Chapter 2, Modified 3J and the other Build Alternatives include common transportation management and land use elements to avoid any potentially adverse land use impacts of constructing a Bypass around Newberg and Dundee. The following two features found in Modified 3J and the other Build Alternatives are assured and provide the most effective tools to avoid land use impacts.

#### **Full Access Control Along the Bypass**

Modified 3J and the other Build Alternatives include a four-lane bypass “expressway” as defined by the OHP. The primary function of an expressway is to provide for interurban travel and connections to ports and major recreation areas with minimal interruptions. A secondary function is to provide for long distance intra-urban travel in metropolitan areas.

Oregon’s Bypass Policy<sup>30</sup> specifies that access management features should place priority on enhancing mobility. A bypass on a new alignment is protected from access by abutting property owners by ORS

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<sup>30</sup> OHP, Amendment 03-08, effective date April 16, 2003.

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374.405-415. According to this statute, ODOT has complete control of access rights on any bypass constructed after May 12, 1951 on new alignment. No property owner can connect to the bypass unless ODOT agrees to allow the connection. Where and how connections will be allowed should be part of the planning process. Specifically, the Bypass Policy states:

*A new bypass may be constructed as a freeway or as an Expressway. Freeways are the highest form of arterials and have full access control. A freeway's primary function is to provide mobility, high operating speed and level of service while land access is limited. The full control of access is used to prioritize the needs of through traffic over direct access. Access connections, where deemed necessary, are provided through grade-separated interchanges.*

*Expressways are generally high-speed, limited access facilities whose function is to move inter and intra urban traffic. Access is normally restricted to at-grade signalized and unsignalized public road intersections and interchanges. In rural areas, traffic signals are discouraged. Private property access is discouraged. In areas where there is no other reasonable access, private approach roads may be allowed. The Transportation Commission classifies highways as Expressways by amending the Highway Plan.*

Access to the Bypass will be restricted to four grade-separated interchanges for Modified 3J. No direct access from individual properties will be allowed along the full length of the Bypass. Access from individual properties to the state highway system and local streets will be addressed in Tier 2.

Modified 3J includes an area approximately 3.7 miles long between the UGB of Dundee and Dayton, parallel to the south side of the railroad, with abutting EFU lands. The prohibition of direct access will minimize accessibility of EFU lands from the Bypass and support continued farm use of surrounding lands.

### **Required Interchange Area Management Plans**

Modified 3J is subject to the OHP and administrative rule requirements relating to interchanges. Division 51 of OAR 734 applies to access management. Under this rule (OAR 734-051), an IAMP is required for any new interchange or notable modifications to an existing interchange. The purpose of the IAMP is to protect the function and capacity of interchanges, to provide safe and efficient operations between connecting roadways and to minimize the need for major improvements of existing interchanges. Accordingly, the IAMPs will address local street connections and land use issues around the interchanges. As part of the Tier I process, the cities of Dundee, Dayton, and Newberg and Yamhill County entered into IGAs with ODOT to agree to plan and develop IAMPs during Tier 2 of this project. The IGAs are in Appendix D. The IAMP areas extend at least 1/4 mile from the interchange in the urban areas and at least 1/2 mile from the interchange in the rural areas. These jurisdictions have adopted ordinances which “freeze” the existing zoning until the IAMPs are completed.

In addition, Yamhill County adopted plan amendments and exceptions to the Statewide Planning Goals that included specific land use and transportation mitigation measures to ensure that the planned facility is compatible with affected Very Low Density Residential and EFU lands. Land use mitigation measures for the portions of Modified 3J requiring exceptions are detailed in the Findings of Fact and Statement of Reasons in Support of Exceptions to Goals 3, 11 and 14, prepared by Yamhill County.

In coordination with the Goal Exception process, Yamhill County and the cities of Newberg, Dundee and Dayton adopted amendments to local comprehensive plans and TSPs and entered into IGAs with ODOT. The amendments and IGAs are intended to protect the Bypass interchanges and rural areas surrounding the interchanges from development pressures prior to completion of the IAMPs. Specifically, the adopted amendments and IGAs include the following items:

- Local governments will retain the existing zoning and restrict expansion of UGBs around the four interchanges. Affected parcels will still be able to develop as long as that development conforms to the existing zoning.

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- The restriction on zone changes and expansion of UGBs near the interchanges is in effect for approximately 3 years (from the time of the agreement) until more detailed IAMPs are prepared and adopted in Tier 2. IAMPs will keep interchanges operating safely and will identify policy, plan, and zoning requirements for properties near interchanges (within at least 1/4 mile from the interchange in the UGBs and at least 1/2 mile from the interchange outside of the UGBs).

In September 2004, Yamhill County adopted the plan amendment for the exceptions and several mitigation measures to reduce impacts of transportation improvements on rural lands. ODOT supports these measures as mitigation. These measures are intended to:

- Keep the Bypass alignment as close to the railroad right of way as feasible west of Dundee.
- Adjust the horizontal alignment in preliminary engineering of the roadway as appropriate to minimize the fragmentation of farm operations.
- Assure that farm operations have reasonable access to the local road system to reach processing facilities and farm markets.
- Explore design options (such as oversized culverts) for moving farm vehicles, machinery and irrigation pipe across farm units that are divided by the Bypass.

Specific Yamhill County policies adopted to address mitigation for impacts to rural lands are included with this LFEIS in Appendix D.

In addition, the City of Newberg restricted some of the commercial type uses associated with high traffic generation in the industrial zone around the interchanges.

As outlined in the IGAs and in accordance with OAR 734-051, the IAMPs will be developed in coordination with the affected local government and will be developed no later than the time the interchange is designed or being redesigned. The plans shall include the following:

- Current and future traffic volumes and flows.
- Roadway geometry.
- Traffic control devices.
- Current and planned land uses and zoning.
- Location of all current and planned approaches.

The study area for the interchange area management plan shall be sufficient to provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years. The interchange area management plans shall address roadway improvement actions, including local street network improvements and construction as well as driveway consolidations and shared approaches (OAR 734-051-0200).

If selected, Modified 3J will have four interchanges, described as follows:

- A **Dayton Interchange**, located at the junction of Oregon 99W and Oregon 18, which represents the western terminus of the Bypass. This interchange will be a directional interchange providing free flow connections westbound onto Oregon 99W and Oregon 18 and eastbound from those highways onto the Bypass<sup>31</sup>. The interchange will replace the existing Oregon 18/Oregon 99W intersection at McDougal Corner.

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<sup>31</sup> The Dayton Interchange is directional and would not provide for movements between eastbound Oregon 18 to westbound Oregon 99W nor from the eastbound Oregon 99W to westbound Oregon 18.

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- An **East Dundee Interchange**, located on rural land between Dundee and Newberg that is predominantly designated Very Low Density Residential in the Yamhill County Comprehensive Plan. The interchange will be located at the Bypass, and a new connector road will link the Bypass and Oregon 99W. The connector road will have no intermediate access points between the Bypass and its intersection with Oregon 99W. The connector road intersection with Oregon 99W will include a grade separation across the railroad tracks located just south of Oregon 99W.
  - An **Oregon 219 Interchange**, located in south Newberg along Oregon 219. This interchange will be located inside Newberg's UGB and offer full turning movements.
  - An **East Newberg Interchange** located southwest of Rex Hill. Like the Dayton Interchange, the East Newberg Interchange will be a directional interchange, providing free flow connections from the Bypass onto Oregon 99W eastbound and from Oregon 99W westbound onto the Bypass<sup>32</sup>. This is the eastern terminus of the Bypass.

IAMPs will be completed for each of these interchanges during Tier 2 preliminary engineering. As appropriate, the IAMPs will include provisions addressing access management, road connections, local circulation, design and capacity controls, land uses near interchanges, and agency coordination. A primary purpose of the IAMPs will be to protect the function of the Bypass and its associated interchanges to accommodate predominantly long-distance through traffic and regional trips with either an origin or destination outside of the project area. The IAMPs also are intended to minimize accessibility from the Bypass to surrounding rural lands and to support the continued rural use of those lands.

The affected local jurisdictions will adopt the IAMPs following review and approval by the OTC. The IAMPs will require amendments to the local comprehensive plans or TSPs. The nature of these amendments, as well as the other components of the IAMPs, is identified in Tier 1 phase IGAs entered into by ODOT, Yamhill County, and the Cities of Newberg, Dundee, and Dayton. The IGAs can be found in Appendix D.

### **Statewide Tools to Avoid or Limit Land Use Impacts**

Oregon's land use planning rules direct that lands inside UGBs can be developed for urban uses but that lands outside UGBs should be reserved for rural uses. New roadways are considered an urban use. As described in Chapter 4 of this LFEIS, modified 3J and all of the other Build Alternatives require exceptions to Statewide Planning Goals for transportation improvements on land outside UGBs. Land use regulations implementing the exception will include standards for specific mitigation measures to minimize accessibility to rural lands and to assure compatibility with adjacent uses. ODOT will work to avoid the expansion of UGBs along the Bypass and around interchanges through the use of IAMPs, as described above.

The TPR, OAR 660-012-0000 *et seq.* requires notice and coordination provisions in local comprehensive plans for ODOT and provides a tool for ODOT and local jurisdictions to protect the function and capacity of the Bypass and interchanges.

## **SOCIOECONOMICS**

### **No Build**

The No Build does not include mitigation measures.

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<sup>32</sup> The East Newberg Interchange provides no connection from the Bypass onto Oregon 99W westbound or from Oregon 99W eastbound onto the Bypass.

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## Modified 3J and Other Build Alternatives

The following mitigation measures are recommended for Modified 3J.

### **Residential and Business Displacements**

Federal and state laws govern property acquisitions and relocation for highway projects. Relocation assistance will be provided to residential and business displacements. Appendix H, Summary of ODOT Relocation Policies and Benefits, describes this assistance in more detail. ODOT will conduct property acquisition, relocation assistance, and compensation procedures in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended, the Code of Federal Regulations (49 CFR 24), Federal Law 91.646, 42 U.S.C. 4601, et seq., and pertinent state laws including OAR 35.500-35.530.

During Tier 1 of this project, ODOT has maintained a website with current information on the project, including maps of the Preferred Alternative. These corridor maps are superimposed over an aerial photo of sufficient detail to enable interested parties to identify specific properties. This information has enabled the public to know if their property is within the proposed corridor, with an understanding that in many areas, the corridor is wider than the actual roadway width.

During the period following an ROD on the LFEIS, and prior to an ROD on the Design EIS – Tier 2 of the project, ODOT may acquire certain properties within the approved corridor in accordance with the strategy discussed earlier in this chapter. All of the relocation benefits and assistance described in Appendix H will apply to acquisitions made during this period. Other measures taken by ODOT to ensure that the public is aware of right of way acquisition regulations and procedures and relocation benefits described in Appendix H include the following:

- At all public meetings, ODOT will endeavor to have its Right of Way Project Manager or other knowledgeable Right of Way staff member available to distribute informational pamphlets and answer questions about acquisition policies and relocation benefits.
- ODOT will include contact information for ODOT Region 2 Right of Way staff on all printed documents for public distribution.
- ODOT will include information about Tier 2 and a section on right of way acquisition policies and relocation benefits in quarterly updates to a project website.
- ODOT will make available all printed documents produced for public distribution and the project website in Spanish. ODOT will also make available Spanish interpreters at Tier 2 NEPA public hearings and at neighborhood public meetings that concern issues affecting the south Newberg Riverfront Plan district.

Regarding available replacement housing within the area served by Modified 3J, there are two general time periods to be addressed as follows:

- After completion of an ROD on the LFEIS and prior to an ROD on the Design EIS.  
There is sufficient housing land and building inventory within Yamhill County to address residential and business relocation needs anticipated by right of way acquisition pursuant to strategy described earlier in this chapter.
- Following an ROD on the Design EIS.  
There may be insufficient low income housing and/or prefabricated housing to accommodate relocation needs generated by right of way acquisitions for Phases 2 and 3 of the project. The Tier 2 (Design) EIS will address the need for project phasing, if required, and will contain a relocation plan for Housing of Last Resort, if needed.

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### **Changing or Eliminating Access**

Project engineers will make efforts to maintain reasonable access to properties. Under Oregon law<sup>33</sup>, closure of access is a compensable item only when there is closure of an existing reservation or grant of access, there is no reasonable alternative access. Other closures, restrictions, and relocations of access are handled by means of ODOT's regulatory authority, and are non-compensable.

### **Reductions in Drive-By Traffic to Some Businesses**

During Tier 2, the project team will determine the appropriate placement of tourist-oriented directional signs and logo signs to assist businesses that could be adversely affected by a reduction in drive-by traffic.

### **School Route Disruption**

ODOT will look for ways to reduce or eliminate neighborhood segmentation during Tier 2. Sidewalks on pedestrian routes to schools will be considered for those areas affected by the Bypass.

### **Changes in Neighborhood Cohesion**

During Tier 2 of the project, the Bypass will be modified to reduce or eliminate neighborhood segmentation. Pedestrian circulation should be provided in the project area during and after construction of the Bypass.

### **Displacement of Scott Leavitt Park**

Modified 3J direct Right of Way impacts to Scott Leavitt Park have been avoided by adjusting the corridor so its northern edge goes no further north than the Right of Way for 11th Street.

### **Potential Impacts to Scott Leavitt Park**

During Tier 2, the project team will work with park managers to minimize or mitigate indirect impacts to Scott Leavitt Park.

### **Termination of Local Streets by a Bypass**

ODOT will work with Newberg, Dundee, and Yamhill County to ensure that adequate local street and pedestrian/bicycle connections are provided across and along the Bypass.

## **HISTORIC AND CULTURAL RESOURCES**

Potential impacts to historic properties will be avoided to the degree possible during Tier 2 when the Bypass alignment is located within the corridor. For properties that are still within the area of potential impact, the State Historic Preservation Office (SHPO) will review data and determine whether they are eligible for listing on the National Register of Historic Places (NHRP). ODOT will take additional steps to avoid or minimize impacts to these properties, including changes to project design and screening with landscaping. The Section 106 process also requires Findings of Effect, possible Memoranda of Agreement, and, if USDOT funds are used, Section 4(f) may be applicable.

Following selection of preliminary engineering alternatives for Tier 2, an archaeological survey will be conducted to determine the presence of archaeological sites within the project area. Survey and testing may be used to determine whether the archaeological site would be eligible for listing on the NHRP.

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<sup>33</sup> See *State Dept of Transportation v. Shoppert*, 82 Or App 311, 728 P2d 80 (1986), *Curran v. State, by and through its Dept. of Transportation*, 151 Or App 781, 951 P2d 183 (1997), *ODOT v. Hansen*, 162 Or App 38, 987 P2d 538 (1999), *Deupree v. State of Oregon*, 173 Or App 623, 22 P3d 773 (2001). Quote from this last case: "Lawful regulatory action by the state does not result in legal damage - - even if that action interferes with an abutting property owner's access to a highway from the property - - unless the owner is deprived of all substantial beneficial or economically viable use of the property.' "

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Eligible sites will be avoided to the extent feasible. Archaeological surveys and any needed testing or data recovery will be done during the design phase.

## **AIR QUALITY**

Potential air quality hot spots will undergo air quality modeling during the Tier 2 phase of the project. If modeling shows that hot spots would occur, design changes at the intersection(s) will be conducted to reduce air pollution to acceptable levels.

## **NOISE**

During Tier 2 Bypass design alternatives will undergo a noise study. If specific noise impacts resulting from design alternatives exceed ODOT noise abatement criterion, the following mitigation measures will be considered in impacted areas:

- Construction of noise walls or berms.
- Lowering the Bypass to below grade.
- Lowering the speed of the Bypass.

## **VISUAL ENVIRONMENT**

The following mitigation measures will be considered during Tier 2:

- Reduce form, texture, and/or color contrasts in large cut or fill slopes by varying slope lines, texturing and re-planting slopes.
- Decrease visual impacts of retaining walls, sound walls, and structures by using materials with colors that blend with the environment, and consider appropriate textures.
- Preserve and enhance existing visual characteristics.
- If sound walls are included, decrease visual impacts of sound walls by:
  - Staggering the alignment and varying height of walls where possible.
  - Placing walls on top of an earthen berm.
  - Incorporating color, texture, and other design elements to create contrasts.
  - Designing returns and/or transitions where a wall begins and ends.
  - Including plant material along with walls.
- Preserve, limit the removal of, replace, and/or plant vegetation to shield viewers from modified and negative visual elements.
- In rural areas consider wider landscaped medians that enable the roadway to better blend in with the landscape.

## **WATER RESOURCES AND BIOLOGICAL RESOURCES**

The CETAS representatives developed an agreement, “Collaborative Environmental and Transportation Agreement for Streamlining, Record of Agreement/Consensus for Newberg-Dundee Transportation Improvement Project,” dated February 10, 2004”, with ODOT regarding mitigation of potential environmental impacts resulting from the project. The agreement allows for interagency concurrence on the selected alternative, and is summarized below. (See Appendix B for a copy of the agreement.)

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- A. Direct and indirect impacts to streams, riparian zones, floodplains, wildlife, wildlife habitat, and wetlands by the Bypass and the associated areas will be mitigated by protecting and enhancing major tributaries to the Willamette River and its floodplain in the project area.
  - B. ODOT will incorporate other measures to avoid, minimize, and mitigate project impacts to streams, riparian zones, floodplains, wildlife, wildlife habitat and wetlands, including minimizing and strategically locating interchanges to be consistent with the Purpose and Need of the project, avoiding sensitive or irreplaceable habitats to the extent possible, and requiring that bridge crossings over streams fully span the width of their respective floodplains.
  - C. ODOT will work with the agencies to identify and implement ways to maintain or improve water quality in the adjacent stretch of the Willamette River and its tributaries.
  - D. ODOT will work with the agencies to develop a stabilization strategy for the bank adjacent to Chehalem Creek.
  - E. Mitigation for project-related impacts will be commensurate with the area and severity of the impact. Mitigation should be implemented in advance of or within the same year of the project-related construction activities. As part of this effort, ODOT might establish a mitigation bank in an ecologically significant area, such as Ash Island.

Activities to satisfy the agreement might include land purchase, leveraging opportunities with other conservation partners, conservation easements, or land donations to conservation groups or agencies with a resource mission.

The following sections generally describe the other identified mitigation strategies for water and biological resources.

### **Stormwater**

The following mitigation measures to protect water quality and quantity will be incorporated into Tier 2 for the Modified 3J:

- Landscape-based mitigation approaches such as minimizing new impervious surface, preserving mature vegetation, planting native trees and plants, minimizing construction in designated floodplains, incorporating low-impact development concepts and maximizing infiltration.
- Permanent engineered methods to supplement landscape-based methods, including but not limited to vegetated or grass-lined swales, infiltration ponds and swales, detention/retention ponds, human-created wetlands, combined treatment, and other permanent Best Management Practices (BMPs).
- Construction techniques that include temporary and permanent BMPs for erosion and sediment control (point and non-point sources) and spill control and prevention.
- Construction and post-construction stormwater treatments will be designed to meet pre-project water quality, quantity and seasonality, with a preference for upland stormwater treatment sites.
- ODOT will enhance water quality to the Willamette River through measures such as land purchase, leveraging enhancement opportunities with other conservation partners, and stormwater treatment for the Bypass, new interchanges, and state roads currently without treatment.

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## **Floodplains**

The following mitigation measures to protect floodplains will be incorporated during Tier 2 for Modified 3J:

- Avoid and minimize construction in designated floodplains where possible.
- Conduct permit and flood studies and a FEMA revision study, if necessary, in the event that floodplain avoidance is not possible.
- Bridges spanning creeks will fully span the width of their respective floodplains.

## **Stream Geomorphology**

The following mitigation measures to protect stream geomorphology will be incorporated during Tier 2 for Modified 3J:

- Develop a stabilization strategy for Chehalem Creek that uses geomorphology analysis to minimize channelization of the stream, impacts to stream-forming processes, and any other adverse alterations of stream geomorphology resulting from the project.

## **Wildlife Ecology**

The following specific mitigation measures to protect wildlife resources will be incorporated during Tier 2 for Modified 3J:

- Modify or shift the roadway alignment when possible to avoid removal of high-quality native vegetation. If this is not feasible, in areas where vegetation is removed replant with native species, wherever practical.
- Minimize impacts to wildlife corridors by:
  - narrowing the roadway width to the extent feasible, consistent with ODOT design and safety standards and public comment on design;
  - using bridges whenever possible at wildlife crossings;
  - considering wildlife use in the design of bridges and culverts.
- Minimize impacts in more valuable habitats such as oak forest and riparian zones by narrowing the roadway width to the extent feasible, consistent with ODOT design and safety standards and public comment on design.
- Use BMPs to control erosion and reduce sediment in streams.
- Retrofit existing wildlife crossing blockages on Oregon 99W in the project area to allow for successful wildlife crossings.

## **Fish Ecology**

The following mitigation measures to protect fish and aquatic resources will be incorporated during Tier 2 for Modified 3J. Many of these elements are the same as those for protecting water resources, wetlands and wildlife:

- Minimize or shift the project footprint when possible, consistent with ODOT design and safety standards and public comment on design, to avoid removal of native, mature or riparian vegetation. If this is not feasible in areas where vegetation is removed, replant with native species.

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- Avoid impacts to higher quality aquatic habitats wherever possible, and minimize number of stream crossings.
  - Maximize use of bridges rather than culverts for water-crossing structures. If culverts must be used for smaller crossings, utilize natural bottom culverts and stream simulation designs that allow for natural stream processes and provide wildlife habitat connectivity. All streams with the potential to be fish-bearing will include fish-passable designs for culverts. This will include retrofitting of existing fish crossing blockages on Oregon 99W to allow for successful fish crossings.
  - Maximize use of landscape-based stormwater mitigation. Use appropriate engineered designs when landscape-based approaches are not possible (see Water Resources above).
  - Use appropriate construction techniques to minimize temporary erosion (see Water Resources above).

### **Threatened and Endangered Species**

As described in previous chapters, the terms Listed species and Threatened and Endangered species refers to state and federal listed, threatened, and endangered species, species proposed for listing, candidate species and species of concern, and state sensitive species.

When preliminary engineering reaches the appropriate stage during Tier 2, ODFW and federal ESA Section 7 consultation with NMFS and USFWS on potential impacts to listed species will take place. This will be followed by a Joint 404/removal-fill permit obtained from the U.S. Army Corps of Engineers (USACE) and the DSL for jurisdictional wetlands and streams proposed to be filled. The design will meet the permit standards. These processes will result in Conservation Measures and a Wetland and Habitat Mitigation Plan detailing additional measures to mitigate for impacts to listed species and their habitats. Identification of potential locations for compensatory mitigation sites and corresponding compensatory mitigation strategies will take place at that time.

#### **Listed Fish**

Same as Water Resources and Fish Ecology mitigation measures located above.

#### **Listed Wildlife**

Measures identified under Water Resources, Fish Ecology and Wildlife Ecology will benefit bald eagles. Specifically, measures to protect water quality and aquatic habitats will protect bald eagle prey resources such as fish, waterfowl and aquatic mammals such as beaver and muskrat. Measures that protect native vegetation and wildlife corridors will protect bald eagle roosting and foraging habitat such as perch trees that overlook foraging habitat, potential future nest trees and sources of nest material.

#### **Listed Plants**

During Tier 2 a biologist will review the preliminary engineering alternatives for the habitat of special status species (including ESA listed) such as Nelson's checker-mallow. If individuals or populations are identified, a determination will be made if avoidance through design change is possible, or if relocation to or seeding of suitable habitat is appropriate.

#### **Noxious Weeds**

As part of the Bypass construction, the following measures will be implemented:

- Remove and/or treat noxious weeds and locally invasive non-native vegetation (e.g., Himalayan blackberry, English ivy) listed by the Oregon Department of Agriculture if found growing within the right of way during the construction phase of the project.

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- Revegetate with appropriate native species wherever practical.
  - Control noxious weeds by reducing/eliminating transport of noxious weeds during construction by washing equipment, vehicles and tires prior to accessing the construction site and using “seed-free” material (like straw) and plant specifications for soil amendments and erosion control.
  - After construction, control and treat noxious weeds during routine maintenance activities.

## **Wetlands**

Mitigation measures for wetlands include the reduction of adverse effects, including avoidance and minimization of impacts. As mentioned above, a Joint 404/removal-fill permit would need to be obtained from the USACE and the DSL for jurisdictional wetlands and streams proposed to be filled. The design will meet the permit standards. The primary goal is to avoid impacts to wetlands. Where impacts are unavoidable, efforts will be made to minimize impacts. For all remaining impacts, ODOT will mitigate for function and value. The following mitigation measures to protect wetland resources will be incorporated into Tier 2. Many of these elements are the same as those for protecting water resources, fish, vegetation and wildlife. Specifically, measures to address potential wetland impacts should be considered in the following sequence:

- Avoid wetland impacts altogether when siting the project design (e.g., by moving the location of a proposed structure or roadway to avoid filling wetlands).
- Minimize wetland impacts by limiting the degree or magnitude of the project and its implementation (e.g., bioengineering and non-structural streambank stabilization techniques, such as bank sloping and revegetation, should typically be used instead of solutions relying primarily on concrete and riprap).
- Rectify impacts by repairing, rehabilitating, or restoring the affected wetlands (e.g., restoring site conditions along the roadway corridor after construction is complete).
- Reduce or eliminate wetland impacts over time by preservation and maintenance operations during the life of the project and by monitoring and taking appropriate corrective measures (e.g., assure that site restoration methods have effectively revegetated the site).
- Compensate for wetland impacts by replacing or providing comparable substitute wetlands. Compensation measures include restoration of former wetlands, creation of new wetlands, and/or enhancement of existing wetlands to replace lost wetland area, value, and function. These compensatory mitigation measures will be based on the hydrogeomorphic methodology (HGM) plus acreage calculations from DSL. The DSL rules require replacement at a 1:1 ratio for restoration, 1.5:1 ratio for creation, and 3:1 ratio for enhancement. This could be accomplished by developing a project-specific mitigation site or by purchase of credit from a mitigation bank, if one is available.

## **GEOLOGICAL HAZARDS**

To account for landslide risk, ODOT will conduct a more detailed geotechnical investigation for Modified 3J during Tier 2. Mitigation might include roadway alignment shifts or designed solutions within the Modified 3J corridor.

## **HAZARDOUS MATERIALS**

Exposure scenarios for hazardous materials include contact with skin, ingestion, and inhalation of vapors and airborne dust. Use of personal protective equipment (gloves, coveralls, etc.), personal hygiene (hand washing before eating), and monitoring for heavy metals, organic compounds and dust are measures that could easily be implemented to minimize exposure of workers or the public to hazardous materials.

Surface and groundwater management of hazardous materials sites disturbed during construction and handling of potential spills need to be included in project plans and specifications during future phases of the project.

## ENERGY

ODOT will consider ways to reduce cost and increase energy efficiency of project construction during future phases of the project.

If tolling becomes part of the project, ODOT will explore use of technologies that would not substantially delay the flow of traffic.

## FUTURE TIER 2 ACTIONS

The following is a summary of the future Tier 2 activities referenced throughout the LFEIS.

| Resource Area  | Tier 2 Activity  |
|----------------|--|
| Transportation | <ul style="list-style-type: none"> <li>▪ <b>Develop preliminary engineering (roadway alignment)</b></li> <li>▪ <b>As needed, conduct modeling to assess traffic, tolling and other impacts (if project phased)</b></li> <li>▪ <b>Conduct a jurisdictional transfer analysis for the section of Oregon 99W being bypassed, consistent with the OHP Policy 2C and Action 1G.5 and Bypass Policy Action 1H.4.g</b></li> <li>▪ <b>Develop refinement plans for Oregon 99W that respond to projected traffic after construction of the Bypass</b></li> <li>▪ <b>Develop plans for transit and bicycle facilities</b></li> <li>▪ <b>Determine the need for and feasibility of tolling</b></li> <li>▪ <b>Develop plans for improvements to local transportation network, including:</b> <ul style="list-style-type: none"> <li>- Means to potentially reduce potential impacts to Wilsonville Road</li> <li>- Access to Willamette Riverfront (esp. as grade and crossings may affect)</li> <li>- Development of a local circulation plan</li> </ul> </li> <li>▪ <b>Solicit proposals for a private development partner and approve development agreements</b></li> <li>▪ <b>Prepare phasing plan (see Cost, below) if needed.</b></li> <li>▪ <b>Consider sidewalks on pedestrian routes to schools for those areas affected by the Bypass</b></li> </ul> |
| Land Use       | <ul style="list-style-type: none"> <li>▪ <b>Develop Interchange Area Management Plans to be adopted by the OTC and the affected jurisdictions,</b></li> <li>▪ <b>Confirm that Modified 3J is consistent with local, regional, and state plans, in accordance with the State Agency Coordination administrative rule</b></li> </ul>   |
| Socioeconomics | <ul style="list-style-type: none"> <li>▪ <b>Prepare a detailed outreach and communication plan for Hispanic, minority, and low-income residents</b></li> <li>▪ <b>Analyze and mitigate to the extent possible, potential effects to neighborhood cohesion</b></li> <li>▪ <b>Consider appropriate placement of tourist-oriented directional signs and logo signs to assist businesses that could be adversely affected by a reduction in drive-by traffic</b></li> </ul>  |

| <b>Resource Area</b>            | <b>Tier 2 Activity</b>  |
|---------------------------------|---|
| Cultural and Historic Resources | <ul style="list-style-type: none"> <li>▪ Follow Section 106 of the National Historic Preservation Act guidelines for protecting historic and archaeological resources, including preparation of a Determination of Effect and Finding of Effect, as needed</li> <li>▪ Conduct archaeological survey to determine presence of archaeological sites within the project area</li> <li>▪ Conduct Tier 2 level 4(f) analysis</li> </ul>  |
| Air Quality                     | <ul style="list-style-type: none"> <li>▪ Conduct air quality modeling for potential air quality hot spots (CO)</li> </ul>   |
| Noise                           | <ul style="list-style-type: none"> <li>▪ Conduct noise study of design alternatives</li> <li>▪ Analyze and mitigate noise-related impacts to residences and other noise-sensitive properties</li> </ul>   |
| Visual Environment              | <ul style="list-style-type: none"> <li>▪ Analyze potential visual and aesthetic impacts of design alternatives</li> <li>▪ Consider visual mitigation measures, as described above</li> </ul>  |
| Water Resources                 | <ul style="list-style-type: none"> <li>▪ Conduct any required hydraulic study</li> <li>▪ Obtain a Joint 404/removal-fill permit from the USACE and DSL for jurisdictional wetlands and streams proposed to be filled</li> </ul>   |
| Biological Resources            | <ul style="list-style-type: none"> <li>▪ Conduct detailed analysis of wildlife corridors</li> <li>▪ Conduct site visits during the flowering season for endangered and threatened botanical species that potentially occur in the project area</li> <li>▪ Conduct Federal ESA Section 7 consultation (including potential impacts to Chinook salmon in Chehalem Creek and the Willamette River Basin)</li> <li>▪ Investigate and implement mitigation measures for fish and wildlife</li> </ul> |
| Hazardous Materials             | <ul style="list-style-type: none"> <li>▪ Conduct further analysis of the South River Road Sludge Site</li> </ul>  |
| Energy                          | <ul style="list-style-type: none"> <li>▪ If tolling is used, investigate technology options that would not result in substantial delays</li> <li>▪ Investigate possible negative direct or indirect impacts that could result from the fuel consumed to construct the alternatives</li> </ul>   |
| Cost                            | <ul style="list-style-type: none"> <li>▪ Revise cost estimates of design alternatives based on preliminary engineering</li> <li>▪ Consider potential phasing of project based on financing options</li> </ul>   |
| Public Involvement              | <ul style="list-style-type: none"> <li>▪ Update public website with current project information</li> <li>▪ Consult with the public and POST on scoping design alternatives and design features (CSS process)</li> <li>▪ Consult with the POST on the Preferred Alternative</li> <li>▪ Conduct public hearing(s) on the Draft Tier 2 EIS</li> <li>▪ Conduct detailed outreach and communication plan for Hispanic, minority, and low-income residents</li> </ul>                                 |

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