



U.S. Department of Transportation
Federal Highway Administration



**Sunrise Project
I-205 to Rock Creek Junction
Clackamas County, Oregon
ODOT Key # 12454, Federal Aid # C005(046)**

U.S. Department of Transportation, Federal Highway Administration
and
Oregon Department of Transportation

February 2011

A. DECISION

This Record of Decision (ROD) describes the Federal Highway Administration's (FHWA's) decision related to the Sunrise Project. The Sunrise Project is an approximately five-mile, east-west oriented limited-access highway from Interstate 205 (I-205) to the Rock Creek Junction in Clackamas County, Oregon. The basis for this decision is provided in the Sunrise Project Draft, Supplemental Environmental Impact Statement and Final Environmental Impact Statement.

The FHWA has determined that the requirements of the National Environmental Policy Act of 1969 have been satisfied for the Sunrise Project. FHWA approved the FEIS on December 16, 2010. The US Environmental Protection Agency published the Notice of Availability in the Federal Register on December 23, 2010 (Volume 75, Number 246, Page 80808). The 1993 Draft Environmental Impact Statement (DEIS), the 2008 Supplemental Draft Environmental Impact Statement (SDEIS), and the 2010 Final Environmental Impact Statement (FEIS) discuss the development of alternatives for the project; narrow the choice of alternatives for environmental evaluation; assess impacts of the alternatives advanced for environmental evaluation; and identify a preferred alternative for the project. These documents, which are incorporated herein by reference, can be viewed and downloaded from: <http://www.sunrise-project.org>.

After considering each proposed alternative's impacts to the human environment using the social and natural sciences to evaluate the impacts and input received from stakeholders, the FHWA selects the "Preferred Alternative" for implementation. The Project Advisory Committee (PAC) and the Policy Review Committee (PRC) for the project, support the selection of the Preferred Alternative.

The following sections contain a description of the preferred alternative, other alternatives considered, and decision criteria. Other sections of this ROD discuss the Section 4(f) finding, measures to minimize harm, and the monitoring of mitigation and conservation measures. Appendix A includes comments received on the FEIS and includes responses to those comments.

DESCRIPTION OF THE SELECTED ALTERNATIVE (PREFERRED ALTERNATIVE)

Chapter 2 of the FEIS provides a complete description of the Preferred Alternative. Two public hearings were held in November 2008 following publication of the DEIS. After public and agency comments were evaluated and considered, FHWA selects the Preferred Alternative, composed of elements of Alternative 2 with Design Options A-2, C-2, and D-3.

Preferred Alternative Evaluated in this FEIS

The Preferred Alternative is Alternative 2 as studied in the SDEIS with Design Options C-2 and D-3 and the Tolbert overcrossing portion of Design Option A-2. The Preferred Alternative also includes several modifications based on stakeholder input and additional design refinements related to analysis of traffic performance and avoidance of environmental resources. The following paragraphs describe the Preferred Alternative from west to east. Figures PA-1 through PA-5 in the FEIS depict the Preferred Alternative alignment.

I-205 Interchange Area

In the I-205 Interchange area, the Preferred Alternative consists of Alternative 2 with the addition of the Tolbert overcrossing from Design Option A-2. This section includes connecting the existing north and south sections of the I-205 multi-use path, adding a third westbound lane on OR 212/224 from I-205 to SE 98th Court, and closing SE Lake Road with a cul-de-sac at SE Johnson Road.

After the publication of the SDEIS, the following modifications were made to the Preferred Alternative in the I-205 Interchange area, based on stakeholder input and refinements based on traffic and environmental analysis:

- The Sunrise Project western transition to the Milwaukie Expressway will be widened to three westbound lanes within the existing right-of-way for OR 224 and will be extended to the west through SE Webster Road.
- The North Lawnfield Extension will be shifted to the east to avoid impacts to the KEX site historic resource (copper ground wire mat) and other cultural and natural resources in the area between the existing SE Lawnfield Road and SE 97th Avenue.
- OR 212/224 will be widened in the westbound direction from SE 98th Avenue to I-205, from existing two lanes to three lanes. A dedicated right-turn lane will be added on westbound OR 212/224 to northbound 82nd Drive.
- A dedicated southbound right-turn lane will be added on 82nd Drive to westbound OR 212/224.
- SE 82nd Drive and its intersection with OR 212/224 will be expanded to improve overall mobility by:
 - Restricting all left turns at this intersection and adding a raised median both north and south of the existing intersection on 82nd Dr.
 - Widening SE 82nd Drive and creating a new signalized intersection at SE 82nd Drive and SE Clackamas Road to accommodate U-turns, including trucks.

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- Widening and reconfiguring the existing signalized intersection at SE 82nd Drive and the northern Fred Meyer access point to accommodate U-turns, including trucks.

Midpoint Area

In the Midpoint area, the Preferred Alternative consists of Alternative 2, the tight diamond interchange with a connection to OR 212/224 at SE 122nd Avenue, and Design Option C-2, the southernmost alignment between the Midpoint and Rock Creek interchanges. In response to stakeholder and agency input, the multi-use path will be extended along OR 212/224, from SE 122nd Avenue to the Rock Creek Junction area.

Rock Creek Junction Area

In the Rock Creek Junction area, the Preferred Alternative consists of Design Option D-3, a Single Point Urban Interchange (SPUI). Design Option D-3 includes the following features, as analyzed in the SDEIS:

- The eastern leg of the SE Goosehollow Drive/OR 224 intersection will be closed.
- Existing OR 212 will become a cul-de-sac just east of SE 162nd Avenue. SE 162nd Avenue will be connected to OR 212 on the north side.
- The Sunrise Project eastern transition will reconnect with OR 212 east of the SE 172nd Avenue intersection with OR 212.
- The Sunrise Project southern transition will reconnect with OR 224 at SE Eckert Lane.

Based on stakeholder input and traffic refinements, the following additions to the Preferred Alternative were made in the Rock Creek Junction area to provide for reasonable community access:

- A right-out-only access at the end of SE Orchard View Lane to northbound OR 224 will be created. Alternative 2 retained existing north Orchard View Lane as a cul-de-sac, with no access to/from OR 224.
- A connection between SE 162nd Avenue and SE Goosehollow Drive south of OR 212 will be created at the northeast corner of the Orchard Lake neighborhood.

Transit, Bikeway, and Pedestrian Improvements

Current regional plans identify SE Sunnyside Road as the primary east-west transit route within the Sunrise Project area. The Preferred Alternative will provide opportunity for initiation of new local transit service by the regional transit agency (Tri-Met) on the new Sunrise Expressway, from Happy Valley to the Springwater area. This new transit service will include more frequent service between Damascus and Gresham; and, new express bus service along the Sunrise Project between the Clackamas Transit Center and Damascus Town Center.

The Preferred Alternative will provide better accommodations for bicycles and pedestrians by filling in gaps in the system, such as on the I-205 multi-use path between SE 82nd Drive and SE Roots Road. A new multi-use path will parallel the Sunrise Project from I-205 on the north side until SE 122nd Avenue, where it will cross under and follow the existing OR 212/224 to SE 152nd Avenue. A separate path will also connect the cul-de-sac of OR 212, just east of SE 162nd Avenue to SE 172nd Avenue.

Cost

The estimated cost to construct the Preferred Alternative is \$1,493 million (2013 dollars). These construction costs include approximately \$216 million for right-of-way.

B. ALTERNATIVES and DESIGN OPTIONS CONSIDERED

In the SDEIS and the FEIS, a No Build Alternative and two Build Alternatives were evaluated, along with six design options to those alternatives, leading to the selection of the Preferred Alternative. These alternatives and design options, as well as other alternatives considered and dismissed from further evaluation, are discussed in Chapter 2 of the FEIS and incorporated into this section of the ROD by reference.

Selection of the Preferred Alternative and Identification of the Environmentally Preferred Alternative

The Preferred Alternative was selected through a collaborative process based on the project Purpose and Need, and identified Goals and Objectives. These broad criteria were refined with the development of screening and evaluation criteria to assess project alternatives. While selection of the Preferred Alternative was driven by the need to provide a safe and efficient transportation system to address a major transportation problem along this corridor (Goal 1), other critical values and goals were applied to the selection of alternatives and design options, to ensure selection of the preferred alternative that causes the least damage to the biological and physical environment. These other goals and values assessed within the study area include: maintaining the industrial and commercial viability of the Clackamas Industrial Area (Goal 2); maintaining the community livability of area neighborhoods (Goal 3); and preserving natural and cultural resources within the corridor (Goal 4).

These values and goals were balanced in their application to specific alternatives, design options, corridor segments, and resources in the selection of the environmentally preferred alternative. As such, the Preferred Alternative selected is also the environmentally preferred alternative. A comparative assessment of the reasons for the selection of the Preferred Alternative follows:

The Preferred Alternative is Alternative 2 as studied in the SDEIS with Design Options C-2 and D-3 and the Tolbert overcrossing portion of Design Option A-2. Figures PA-1 through PA-5 in the FEIS Executive Summary show the Preferred Alternative as a whole and in specific areas.

The only difference between Alternative 2 and Alternative 3 is the midpoint interchange. Goal 1 of the project is to provide a highway that meets existing and future safety, connectivity, and capacity needs. Alternative 2/Preferred Alternative has slightly better volume-to-capacity ratios during peak hours and slightly fewer congested lane miles than Alternative 3. Therefore, Alternative 2/Preferred Alternative does slightly better than Alternative 3 in two out of four evaluation measures of Goal 1, Objective 1 of the screening criteria; the other two evaluation measures have equivalent benefits for Alternatives 2 and 3. The Preferred Alternative's project refinements result in reduced volume on I-205 of more than 1,000 vehicles compared to Alternative 3 (Objective 3 of Goal 1).

Alternative 2/Preferred Alternative supports faster travel times (2 to 3 minutes) and more trips to and from the Clackamas Industrial Areas near SE 122nd Avenue compared to Alternative 3, which reflects improved accessibility for businesses, patrons and employees. Therefore, Alternative 2/Preferred Alternative best meets Goal 2 of the project, which is to support the viability of the Clackamas area for industrial uses.

The midpoint interchange also provides desired redundant emergency access, so Alternative 2/Preferred Alternative also meets Objective 7 and Objective 9 (serving freight travel safely and efficiently) of Goal 1 better than Alternative 3.

Objectives 1 and 3 of Goal 2 call for providing local circulation and access for industrial users and minimizing business displacements and acquisition of industrial land. Alternative 2 and the Preferred Alternative displace more industrial land (133 and 156 acres) than Alternative 3 (117 acres). Alternatives 2 and 3 displace a similar number of displaced jobs (60), which is 20 fewer jobs than the Preferred Alternative will displace. Additional displacements under the Preferred Alternative are primarily caused by the mitigation measures at SE 82nd Drive to alleviate circulation impacts from Alternative 2 (after adopted as the Preferred Alternative).

The Preferred Alternative better meets the objectives of Goal 3, community livability, in generating fewer noise impacts; less impacts to affordable housing; and, less residential displacement (Objectives 2, 3, 4, and 7). The Preferred Alternative also better meets the objectives of Goal 4, natural and cultural resources, by creating less wetland and wildlife corridor impacts than Alternative 2 or 3, and the Build Alternatives with design options (Objectives 1, 2, and 3).

Although the Preferred Alternative will create 127.2 acres of new impervious surface, about 4 acres more than Alternative 2 and about 16 acres more than Alternative 3, all alternatives support Objective 7 of Goal 4 because all alternatives need to meet the same water quality standards. Analysis for the Preferred Alternative has demonstrated (see Figures PA-26 through PA-45 in FEIS Chapter 3) that water quality treatment can be accommodated.

The Tolbert overcrossing (Design Option A-2) was included in the SDEIS as a way to provide access and mobility to the industrial area without building the North Lawnfield Extension, which as evaluated in the SDEIS, had impacts on the KEX radio transmission facility, a Section 4(f) resource, as well as wetland impacts.

Since publication of the SDEIS, the North Lawnfield Extension was modified to avoid any impacts to the historic KEX facility and the copper mats which could affect its radio signal. The modification of the alignment of the North Lawnfield Extension also reduces wetland impacts. The Preferred Alternative incorporates aspects of Design Option A-2, the Tolbert overcrossing, that enhance access to I-205 and Clackamas, as well as the North Lawnfield Extension for truck traffic, without the impacts to the KEX facility Section 4(f) resource, and adjacent wetlands, of that extension.

Public support for Alternative 2 combined with the benefits of redundant access, mobility within and through the industrial areas and shorter travel times to the core of the Clackamas Industrial Area contributed to the development of the Preferred Alternative.

Design Option B-2 was not incorporated into the Preferred Alternative because it tended to have the highest impacts in almost every category of environmental impact and was also the highest cost. For example, the split-diamond interchange requires more right-of-way and displaces more residential and industrial uses compared to the diamond interchange under Alternative 2. The

larger size of the Design Option B-2 interchange creates the most impervious surface of all alternatives, and indirectly affects two additional historic and Section 4(f) resources (Frank A. Haberlach House and Silverthread Kraut and Pickle Works Building). It further constrains the wildlife corridor as compared to Alternative 2.

In short, Design Option B-2 was not recommended as part of the Preferred Alternative, because the split-diamond interchange design has no measurable traffic benefit compared to the Alternative 2 diamond interchange, and Design Option B-2 costs more and has a greater impact on environmental and community resources.

Because there is no difference in traffic mobility benefits among Alternative 2, Design Option C-2, and Design Option C-3, the selection focused on balancing other trade-offs. The alignment of Design Option C-2 avoids the residential displacements that occur under Alternative 2, but Design Option C-2 displaces more businesses. Design Option C-3 was not chosen because while it avoids the business displacements of Design Option C-2, it displaces a similar number of residences as Alternative 2 and has the highest impact on the wildlife corridor. Alternative 2 has a greater noise impact than the Design Options C-2 and C-3. Design Option C-3, on average, is worst for environmental resources because of its highest impacts on the wildlife corridor, the forested slope, and noise impacts on the bluff. Design Option C-2 is the best at reducing environmental and community impacts, because it travels in the straightest line with the least amount of impervious surface.

Design Option C-2 is incorporated into the Preferred Alternative, because on average Design Option C-2 has the fewest residential impacts, has the least amount of impervious surface, is the best option for preserving the wildlife corridor, and has the least impact on wetlands.

Design Option D-2 has a more southerly alignment than Alternative 2, thereby reducing impacts on a wildlife corridor and leaving more land to the north available for future development. Design Option D-3 reduces land use impacts on a proposed medical care center to the north even more than the other alignments, and the interchange design reduces impervious surface and right-of-way needs compared to Design Option D-2 and Alternative 2.

Alternative 2 and Design Option D-2 have the same traffic impacts; Design Option D-3 is not able to serve the same traffic volumes as the other options, but operates similarly under the predicted 2030 demand. Alternative 2, in this area, has the greatest impact on wildlife passage; requires the most right-of-way; and, impacts the most local driveways. Design Option D-3 has fewer noise impacts on residences south of the corridor. Residential and other environmental impacts are similar under all alignments. In response to public comments requesting an extension of the multi-use path beyond SE 122nd Avenue to the Rock Creek interchange, this extension has been included in the Preferred Alternative.

The Preferred Alternative replaces the Alternative 2 alignment and design with Design Option D-3, the single-point Rock Creek Interchange, because of the smaller footprint and southerly alignment, which create fewer impacts on the wildlife corridor and on the industrial property to the north.

C. SECTION 4(F) FINDING

The Sunrise project will use 0.18 acres, or 7,924 square feet (4 percent) of one Section 4(f) property, the Clackamas Elementary School recreation field. The FHWA made a Section 4(f) *de minimis* finding on September 1, 2010, that includes these mitigation measures:

- Construct a noise abatement wall between I-205 and the school, that will reduce noise levels below noise levels present on the recreation field.
- Move the jogging trail to the east.
- Move the softball backstop playing area to the east.

D. MEASURES TO MINIMIZE HARM

This section and Table 1 below present mitigation measures for the project as described in the FEIS and the Biological Opinion. Measures listed in ODOT's *Standard Specifications for Construction* (ODOT, 2008) are incorporated by reference. All practicable measures to minimize harm have been incorporated into the Preferred Alternative for implementation. Measures are grouped by subject area. The Preferred Alternative includes all conservation measures from the Biological Opinion, as shown in Table 1 below.

Unavoidable Noise Impacts

Due to the topography of the mid-section of the Sunrise Project study area, and the physics of sound dispersion, up to 113 single-family and multi-family residences near SE Bluff Drive, between approximately SE 117th Avenue and SE 135th Avenue, will be adversely impacted by traffic noise increases from construction of the Preferred Alternative. The front-line of residences of this neighborhood, located along a tall bluff overlooking the proposed alignment of the Preferred Alternative, are predicted to experience "substantial" (10+ dB increase above existing noise levels, and/or total dBA levels around 70 dBA) increases in noise from the Sunrise Project.

Federal funds may be used for noise abatement measures when: an impact has been identified; the measures would substantially reduce the noise impact (feasibility criteria); and, the overall benefits from abatement outweigh other potential adverse effects and the cost of abatement (reasonableness criteria). "Feasible" mitigation is that which is constructible, and effectively abates noise by at least 5 dBA. "Reasonable" mitigation is that which is cost effective. ODOT considers noise mitigation up to \$35,000 per household "cost effective". ODOT's *Noise Manual* has procedures and guidelines for whether abatement meets the criteria for feasibility and reasonableness, including the following criteria considered in recommending mitigation:

- Noise mitigation must provide a 5 dBA reduction in noise levels with a typical goal of 7 to 8 dBA, or higher, at first row receivers.
- Cost of abatement is typically capped at \$25,000 per benefited residence. Costs up to \$35,000 can be considered under specific circumstances.
- Opinions of impacted residents (property owners).
- Absolute noise levels of 60 dBA L_{eq} or higher.
- Residences constructed after 1996 generally not offered mitigation unless there is an increase of 5 dBA or more.

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- Other environmental impacts from mitigation need to be considered, such as impacts on visual, cultural or wildlife resources.
 - Other sources of noise.

Standard mitigation measures for abating noise impacts to sensitive receptors usually entails the construction of sound walls. However, due to the nature of the topography of the front line residences of the Bluff neighborhood in relation to the proposed alignment of the Sunrise Expressway, utilization of this common mitigation measure was determined to be neither "feasible" nor "reasonable". Extensive evaluation of a wider range of potential mitigation measures was pursued. Fourteen (14) additional mitigation options were evaluated for the Bluff area based on variations of noise wall designs, adjustments to the location or operating characteristics of the highway, roadway surface treatments and compensation. A brief description of these additional mitigation options considered is presented below. A comparison table, with the reasons for rejection as mitigation measures is included in Table D-2, "Evaluation of Noise Impact Mitigation Measures along Bluff" in FEIS Appendix D.

Noise Walls

Option 1: Wall at north edge of proposed Sunrise Project (35 to 60 feet high)

Option 2: Wall in center median (30 to 60 feet high) combined with a north-edge wall (Option 1) which would allow lower height of north-edge wall)

Option 3: Partially cover the proposed Sunrise Project highway (open structure on south side)

Option 4: Construct Concrete Wall at top edge of bluff (12 to 16 feet high)

Option 5: Construct Transparent Acrylic Wall at top edge of bluff (minimum 16 feet high)

Highway Alignment Adjustments

Option 6: Move new Sunrise Project alignment close to existing OR 212/224

Option 7: Build Sunrise Project on top of existing OR 212/224

Option 10: Lower grade of Sunrise Project through bluff area

Limitations of Highway Speeds/Traffic Volumes

Option 8: Reduce speed limit on Sunrise Project

Option 9: Reduce traffic volumes/number of travel lanes

Other Options

Option 11: Apply quiet pavement

Option 12: Purchase homes along the bluff

Option 13: Offer financial compensation to affected property owners

Option 14: Quiet pavement, reduced speed, and reduced traffic volumes

None of the additional options evaluated meet the ODOT noise abatement criteria. All potential mitigation measures studied for the Bluff neighborhood, including the wall at the top of the bluff, were expected to have very high costs, with preliminary estimates in the range of \$100,000 to \$1,000,000 per residence for the 113 predicted homes that are expected to exceed the noise abatement criteria. None of the sound walls considered would provide effective mitigation without excessive heights. The need for additional height and/or right-of-way area would have other potential environmental impacts and add to the costs of these measures.

No other options were identified that would effectively reduce potential noise impacts while also preventing additional project-related impacts, and meeting cost requirements for mitigation under ODOT policy for reasonable mitigation costs. Therefore, it was concluded that no feasible and reasonable methods of noise reduction are available for potential impacts to the Bluff neighborhood north of the proposed project alignment. The results are summarized in the 2010 Sunrise Project FEIS *Noise Technical Report*.

FEIS Mitigation Measures

Table 1 Mitigation Commitments for the Sunrise Project

Transportation

Measures to address potential local access and circulation impacts from the **Preferred Alternative** include the following design refinements:

- SE 162nd Avenue will be extended south of OR 212 to connect with Goosehollow Drive to mitigate the closure of Goosehollow Drive at OR 212.
- A right-out (northbound) only exit from the Orchard Lake neighborhood on Orchard View Lane adds another access point to mitigate the closure of Goosehollow Drive at OR 212.
- To avoid lengthy queues of westbound traffic on the Sunrise Project/OR 212 between the I-205 interchange and Webster Road, a third westbound lane will be added.
- The intersection of SE Johnson Road and Deer Creek Lane will be revised by maintaining the existing intersection location and roadway alignments to minimize impacts to local businesses.
- New frontage roads with driveways will be built for local businesses along OR 212 (south of Rock Creek Junction), near 125th Court, and near SE 82nd Drive. The frontage roads mitigate for closures or turning movement restrictions that will occur at those locations.
- Bike and pedestrian access will be built between SE Adams and SE 82nd Drive to better accommodate the high demand of bicyclists and pedestrians accessing the post office from SE 82nd Drive.
- A connection between SE Ambler Road and SE Jasmine Lane will be built on a structure over the rail corridor to improve circulation for businesses in that area. This allows for the businesses west of I-205 and east of SE 82nd Avenue to have access to their properties. Building the connection on a structure avoids impacting the rail corridor.
- Construction of cul-de-sacs at several locations near Hubbard Road, SE 142nd Avenue, SE 162nd Avenue, and SE 82nd Drive will be provided as parts of new access roads and will mitigate either closure of existing accesses, or provide turn-around points due to closure of existing intersections or roadways.
- A local circulation road will be constructed between SE Adams and SE St. Helens along SE 82nd Drive to mitigate for turning movement restrictions or closures of some driveways and intersections on SE 82nd Drive.
- Prior to construction, traffic analysis will be conducted to determine if signal warrants will be met at SE 82nd Drive at SE Janssen Road.

Land Use

Direct property acquisition and relocation impacts will be mitigated through financial compensation regulated in accordance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act) 42 U.S.C. 4601 et. seq., 49 CFR Part 24, Oregon Revised Statutes, Oregon Department of Transportation guidance, and Federal Highway Administration Federal Aid Policy Guide. Tax lots that become land-locked as a result of the project removing the existing driveway will either receive a new driveway or will be acquired outright.

Table 1 Mitigation Commitments for the Sunrise Project

Parks and Recreation

Three mitigation measures will minimize the impacts on the Clackamas Elementary School recreation field, as follows: (1) move the softball backstop playing area to the east, (2) move the jogging trail to the east, and (3) build a sound wall to buffer the site from the noise of I-205. The combined effect of these measures will minimize the impacts to the school recreation field and improve the quality of the recreational experience overall.

Businesses and Communities

ODOT and KEX/Clear Channel jointly acknowledge existing technology does not allow for the forecasting/modeling of potential future impacts to the radio station signals from construction of elements of the Sunrise Project before construction. Therefore, the mitigation measures reflect commitments to pursue an agreed-upon strategy for assessing potential impacts to Clear Channel radio station signal viability from construction of the Sunrise Project.

Prior to FHWA authorization of construction of major structures near the KEX/Clear Channel transmission site:

- ODOT will retain a radio expert to assess impacts to transmission signal attributable to the construction of the Sunrise Project.
- If adverse impacts on radio transmission signal strength and coverage are realized from project construction, on-site mitigation efforts to address these impacts will be pursued first. On-site mitigation efforts are estimated to cost approximately \$3.5 million to \$7.0 million, and are included in the total project cost estimate.
- If such on-site mitigation efforts do not prove feasible, appropriate off-site mitigation efforts will be pursued. Off-site mitigation efforts are estimated to cost approximately \$15 million to \$25 million, and are included in total project cost estimate.

Temporary Construction Impacts

A construction management plan will be developed that supports the continued operation of business districts and the livability of neighborhoods.

Relocation

Mitigation will be provided to individual businesses and residents by purchase and relocation. This purchase and relocation must follow the requirements of the Uniform Act. The Uniform Act provides protections and assistance for people affected by the acquisition, rehabilitation, or demolition of real property for federal or federally-funded projects. The law helps ensure that people whose real property is acquired, or who move as a direct result of projects receiving federal funds, are treated fairly and equitably, and receive assistance in moving from the property they occupy. Federal law also addresses partial takes of property, addressing how payment and assistance to reconfigure the business and residence must take place.

Business and Neighborhood Access

Multiple mitigation measures related to access have been incorporated into the project as described under Transportation, above.

Community Cohesion

The change in access to Sunnyside Community Church will be mitigated by installing two directional signs on OR 212/224.

Environmental Justice

No mitigation measures suggested beyond the assistance already provided under federal law and mitigation measures suggested for relocation under Land Use and Businesses and Communities and for noise impacts under Noise. All households will be provided relocation assistance if they are renters; and purchase and relocation assistance if they are owners. Sound walls E205N-3 and E205S-5 proposed for the east side of I-205 (see Noise section) will reduce the noise levels in the neighborhood below their current levels after the Sunrise Project is completed. These block groups have higher than state average levels of poverty.

Visual Character and Resources

I-205 Interchange Area

Mitigation Location A (Figure PA-17): Because a noise wall is planned in this location, no mitigation measures are proposed for visual impacts.

Midpoint Area

Mitigation Locations D and E (Figure PA-18): In these locations, vegetation will be planted to screen residential viewers from direct vehicle light and glare. The planting will be done in an appropriate manner consistent with ODOT's Roadside Development Design Manual (ODOT 2006).

Rock Creek Junction Area

Mitigation Location F (Figure PA-18): No noise wall is planned in this location. Thus, as much as possible existing vegetation will be retained in order to maintain the vegetative screen between viewers and the new interchange.

Mitigation Location G (Figure PA-18): In this location, vegetation will be planted to screen residential viewers from direct vehicle light and glare. The planting will be done in an appropriate manner consistent with ODOT's Roadside Development Manual (ODOT 2006) and bridge design will be consistent with ODOT's Bridge Design and Drafting Manual (ODOT 2004).

Table 1 Mitigation Commitments for the Sunrise Project

Mitigation Locations H and J (Figure PA-18): In these locations, vegetation will be planted to screen residential viewers from direct vehicle light and glare. The planting will be done in an appropriate manner consistent with ODOT's Roadside Development Manual (ODOT 2006).

There are no mitigation measures proposed for locations B, C, and I. See Visual Character and Resources section in FEIS Chapter 3 for visual conditions at those locations.

Noise

The project will comply with the construction noise abatement measures contained in ODOT's Standard Specifications, Section 00290.32.

Permanent noise impacts will be mitigated through construction of noise walls where they meet ODOT's reasonable and feasible criteria. Based on existing modeling and current design for the **Preferred Alternative**, the following noise walls are proposed (as shown in Figures PA-19 through PA-20, FEIS):

- Noise Wall W-2
- Noise Wall J-1
- Noise Wall J-2
- Noise Wall E205N-3
- Noise Wall W205S-4
- Noise Wall E205S-5
- Noise Wall ZM-6

If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision of the noise abatement will be made upon: completion of the project design, which occurs following the ROD; and the completion of the public involvement processes as outlined in ODOT's Noise Manual.

Air Quality

No long-term mitigation is required or included. Construction contractors are required to comply with Division 208 of OAR 340 which addresses visible emissions and nuisance requirements and with ODOT standard specifications, Section 290.30 (c) for air emissions during construction, including new 2008 controls on diesel-powered vehicles.

Greenhouse Gas

No long- or short-term mitigation is required or included.

Energy

No long- or short-term mitigation is required or included.

Biology

Wildlife

To minimize long-term wildlife access impacts and reduce animal-vehicle collisions:

- a. Where 'full wildlife access' (meaning access to all species, regardless of size) is specified in the bulleted lists below and on Figures PA-2 through PA-5, it will have a minimum 10-foot-wide horizontal and vertical clearance (or greater, with some bridges), with adjacent exclusionary fencing (either along the highway and/or connected to wing walls of crossings) that will 'direct' wildlife away from the highway and towards crossings.
- b. Where culverts to allow for 'medium wildlife (e.g., smaller than deer) passage' are specified in the bulleted lists below and on Figures PA-2 through PA-5, they will be culverts with a dry bench (earthen, concrete, or metal grate; above two-year flood elevation) at least three feet wide and tall, or an adjacent dry culvert at least three feet in diameter. They will include a 'ramp' sufficient for access onto the bench or into the dry culvert.

See Figures PA-2 and PA-3 for locations of exclusionary fencing and wildlife passage locations in the I-205 area.
SE 82nd Avenue (OR 213)/Mount Scott Creek and Railroad Bridge

- Exclusionary fencing along SE 82nd Avenue and the freeway will be installed.

SE 82nd/Ambler Road/Dean Creek Culverts

- New culverts (including replacement or extended culverts) will allow for medium wildlife passage.
- New culverts longer than 80 feet will have roadbed grates for natural light and ventilation.
- Exclusionary fencing along SE 82nd Avenue and the freeway will be installed.

I-205/Dean Creek Crossing

- The crossing will provide for full wildlife access.
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Table 1 Mitigation Commitments for the Sunrise Project

I-205/Mount Scott Culvert and Vicinity

- The interior of the existing culvert will be modified to include a bench (concrete or metal grate) that allows medium-wildlife passage through the culvert above the two-year flood elevation, including a sufficient 'ramp' for access onto the bench.
- Existing right-of-way fencing along the south side of I-205 between Dean and Mount Scott Creeks will be removed and new right-of-way fencing will allow for full wildlife access.

See Figures PA-4 and PA-5 for exclusionary fencing and wildlife passage in the Midpoint and Rock Creek Junction areas.

Clackamas Bluffs (Camp Withycombe to Rock Creek)

- Maintain full wildlife access, along the northern right-of-way of the new highway.
- Avoid right-of-way fencing along the northern right-of-way boundary to maintain connectivity with existing forested habitat.
- Direct highway lighting away from the forested bluffs.

Culverts at Sieben, Graham, and Trillium Creeks

- New culverts (including any replacements for existing culverts) shall be designed to allow for medium wildlife passage.
- New culverts longer than 80 feet will have roadbed grates for natural light and ventilation.

Rock Creek Bridge

- The bridge and embankments underneath the bridge will be designed to span the existing terraced landscape along west side of the stream.
- Full wildlife passage will be ensured through the two bridged crossings in the Rock Creek area (OR 212/224 and OR 224) by one or more of the following measures: minor hand-grading to create a path (where geologically stable and where does not require tree removal), clearing invasive weeds, revegetation with native plants or shrubs to help prevent re-growth of weeds.

Plants

Because there are no sensitive plant impacts, no mitigation measures related to sensitive plants are proposed.

To address noxious weeds, as part of construction and post-construction landscaping, the contractor will be required to remove invasive weeds and landscape with natives to discourage infestation of weeds.

Fish Habitat

Project will comply with all terms and conditions of the NMFS Biological Opinion as detailed below.

Water Quality

Best management practices in accordance with ODOT Standard Specifications (in Sections 280 and 290) will be used to control or prevent the movement of sediments.

The project will treat runoff from 247 acres of impervious surface (all but 16 acres of total 263 acres) within the project area including existing and new as well as contributing areas. The project will compensate for 16 acres of untreated on-site stormwater runoff by treating stormwater runoff from equal areas of impervious surface at off-site locations. These off-site locations are two existing segments of I-205 located immediately north of the project area and south of the project area, from which stormwater is not currently collected and treated (see Figures PA-45A through PA-45C).

Endangered Species NMFS Biological Opinion Terms and Conditions/Fish Habitat

The project will implement all terms and conditions from the NMFS Biological Opinion as follows.

I. To implement draft conservation measure #1 (general construction, riparian disturbance, and in-water work), the FHWA shall ensure that:

- a. Timing of In-water Work. Work within the active channel of the Trillium Creek will be completed during the period of July 15 – August 31. Work within the active channel of the Phillips Creek will be completed during the period of July 15 – September 30. All in-water work must be completed within these dates unless otherwise approved in writing by NMFS. Work done outside of this period must be fully isolated and contained.
- b. Minimize Impact Area. Confine construction impacts to the minimum area necessary to achieve project goals.
- c. Cessation of Work. Operations will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
- d. Pollution and Erosion Control Plan. A pollution and erosion control plan will be prepared and carried out to prevent pollution related to construction operations. The plan must be available for inspection on request by FHWA or NMFS, contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations:
 - i. Practices to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.

Table 1 Mitigation Commitments for the Sunrise Project

- ii. A description of any hazardous products or materials that will be used, including procedures for inventory, storage, handling and monitoring.
- iii. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.
- iv. Practices to prevent construction debris from dropping into any stream or waterbody and to remove any material that does drop with a minimum disturbance to the streambed and water quality.
- v. Turbidity monitoring shall be conducted and recorded as described below. Monitoring shall occur each day during daylight hours when in-water work is being conducted. An appropriately and regularly calibrated turbidimeter is recommended, however, visual gauging is acceptable. Turbidity that is visible over background is considered an exceedance of the standard.
 - (1) **Representative Background Point:** a sample or observation must be taken every two hours at a relatively undisturbed area approximately 100 feet upcurrent from in-water disturbance to establish background turbidity levels for each monitoring cycle. Background turbidity, location, date, and time must be recorded prior to monitoring downcurrent.
 - (2) **Compliance Point:** Monitoring shall occur every two hours approximately 100 feet downcurrent from the disturbance and be compared against the background measurement or observation. The turbidity, location, date and time must be recorded for each sample.
- vi. **Turbidity compliance:** Results from the compliance points should be compared to the background levels taken during each monitoring interval. Exceedances are allowed as follows:

MONITORING WITH A TURBIDIMETER

ALLOWABLE EXCEEDANCE TURBIDITY LEVEL	ACTION REQUIRED AT 1 ST MONITORING INTERVAL	ACTION REQUIRED AT 2 ND MONITORING INTERVAL
0 to 5 NTU above background	Continue to monitor every 2 hours	Continue to monitor every 2 hours
5 to 29 NTU above background	Modify BMPs & continue to monitor every 2 hours	Stop work after 4 hours at 5-29 NTU above background
30 to 49 NTU above background	Modify BMPs & continue to monitor every 2 hours	Stop work after 2 hours at 30-49 NTU above background
50 NTU or more above background	Stop work	Stop work

If an exceedance occurs at: 50 NTU or more over background; 30 NTU over background for 2 hours; or 5-29 NTU over background for 8 hours, the activity must stop immediately for the remainder of the 24-hour period.

VISUAL MONITORING

ALLOWABLE EXCEEDANCE TURBIDITY LEVEL	ACTION REQUIRED AT 1 ST MONITORING INTERVAL	ACTION REQUIRED AT 2 ND MONITORING INTERVAL
No plume observed	Continue to monitor every 2 hours	Continue to monitor every 2 hours
Plume observed	Modify BMPs & continue to monitor every 4 hours	Stop work after 4 hours with an observed plume

- a. **Inspection of Erosion Controls.** During construction, all erosion controls must be inspected daily during the rainy season and weekly during the dry season to ensure they are working adequately.¹
 - i. If inspection shows that the erosion controls are ineffective, work crews must be mobilized immediately to make repairs, install replacements or install additional controls as necessary.
 - ii. Sediment must be removed from erosion controls once it has reached 1/3 of the exposed height of the control.
- b. **Construction Discharge Water.** All discharge water created by construction (e.g., concrete washout, pumping for work area isolation, vehicle wash water) will be treated as follows:
 - i. **Water quality treatment.** Design, build and maintain facilities to collect and treat all construction discharge water, using the best available technology applicable to site conditions, to remove debris, nutrients, sediment, petroleum products, metals and other pollutants likely to be present.
 - ii. **Return flow.** If construction discharge water is released using an outfall or diffuser port, velocities may not exceed four feet per second, and the maximum size of any aperture may not exceed one inch.
 - iii. **Pollutants.** Do not allow pollutants such as green concrete, contaminated water, silt, welding slag, sandblasting abrasive, or grout cured less than 24 hours to contact any waterbody, wetland or stream channel below OHWL.

¹ 'Working adequately' means no turbidity plumes are evident during any part of the year.

Table 1 Mitigation Commitments for the Sunrise Project

- c. Pre-construction Activity. Before significant² alteration of the project area, the following actions are completed:
- i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
 - ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.
 - a. A supply of sediment control materials (e.g., silt fence, straw bales³).
 - b. An oil-absorbing floating boom whenever surface water is present.
 - i. Erosion controls. Erosion controls must be in place and appropriately installed downslope of riparian areas to be disturbed until site restoration is complete.
- d. Select Heavy Equipment with Care. Use of heavy equipment will be restricted as follows:
- a. Choice of equipment. When heavy equipment must be used, the equipment selected must have the least adverse effects on the environment (e.g., minimally-sized, rubber-tired).
 - b. Vehicle staging. Vehicles must be fueled, operated, maintained, and stored as follows:
 - i. Vehicle staging, cleaning, maintenance, refueling, and fuel storage must take place in a vehicle staging area 150 feet or more away from any stream, waterbody or wetland. All vehicles operated within 150 feet of any stream, waterbody or wetland must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected must be repaired in the vehicle staging area before the vehicle resumes operation. Inspections must be documented in a record that is available for review on request by FHWA or NMFS.
 - ii. All equipment operated instream must be cleaned before beginning operations below the bankfull elevation to remove all external oil, grease, dirt and mud.
 - c. Stationary power equipment. Stationary power equipment (e.g., generators, cranes) operated within 150 feet of any stream, waterbody or wetland must be diapered to prevent leaks, unless otherwise approved in writing by NMFS.
- e. Site Preparation. Native materials will be conserved for site restoration.
- a. If possible, native material must be left where they are found.
 - b. Materials that are removed, damaged, or destroyed must be replaced with a functional equivalent during site restoration.
 - c. Any large wood,⁴ native vegetation, weed-free topsoil and native channel material displaced by construction must be stockpiled for use during site restoration.
2. To implement draft conservation measure #2 (work area isolation and fish salvage), the FHWA shall ensure that:
- a. Isolation of In-water Work Area. The work area will be well isolated from the active flowing stream using inflatable bags, sandbags, sheet pilings or similar materials.
 - i. After completion of the project, the existing isolation area should be re-watered in a way that will not degrade water quality or cause fish stranding.
 - ii. An ODOT or ODFW biologist shall be on site to monitor for fish stranding during this process.
 - iii. The existing flow downstream from the action area will be maintained throughout the construction.
 - iv. Turbidity monitoring shall be conducted and recorded as described below. Monitoring shall occur each day during daylight hours when in-water work is being conducted. An appropriately and regularly calibrated turbidimeter is recommended, however, visual gauging is acceptable. Turbidity that is visible over background is considered an exceedance of the standard.
 - b. Capture and Release. Fish will be captured and released from the isolated area using trapping, seining, electrofishing or other methods as are prudent to minimize risk of injury.
 - i. A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish must conduct or supervise the entire capture and release operation.
 - ii. If electrofishing equipment is used to capture fish, the capture team must comply with NMFS' electrofishing guidelines.⁵
 - iii. The capture team must handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of

² 'Significant' means an effect can be meaningfully measured, detected or evaluated.

³ When available, certified weed-free straw or hay bales must be used to prevent introduction of noxious weeds.

⁴ For purposes of this Opinion only, 'large wood' means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and other support aquatic habitat function, given the slope and bankfull width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

⁵ National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (NMFS 2000) (<http://www.nwr.noaa.gov/salmon/salmesa/pubs/electrog.pdf>).

Table 1 Mitigation Commitments for the Sunrise Project

- vi. out-of-water handling.
 - vii. Captured fish must be released as near as possible to capture sites.
 - viii. ESA-listed fish may not be transferred to anyone except NMFS personnel, unless otherwise approved in writing by NMFS.
 - ix. Other Federal, state, and local permits necessary to conduct the capture and release activity must be obtained.
 - ix. The NMFS or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the team's capture and release records and facilities.
3. To implement draft conservation measure #3 (monitoring), the FHWA shall ensure that FHWA and ODOT shall provide a report to NMFS with the results of the hydroacoustic monitoring program.
- a. Prepare a Project Completion Report. Prepare and submit a project completion report to NMFS describing the FHWA's success in meeting the terms and conditions contained in this Opinion. The content of the project completion report will include:
 - i. Project identification.
 - (1) Project name.
 - (2) Type of activity.
 - (3) Project location by 6th field United States Geological Survey (USGS) HUC and by latitude and longitude as determined from the appropriate 7-minute USGS quadrangle map.
 - (4) FHWA contact person(s).
 - (5) Starting and ending dates for work completed.
 - ii. Photo documentation. Photos of habitat conditions at the project site before, during and after project completion.⁶
 - (1) Include general views and close-ups showing details of the project and project area, including pre- and post-construction.
 - (2) Label each photo with date, time, project name, photographer's name and the subject.
 - iii. Other data. Include the following specific project data in the project completion report:
 - (1) A summary of pollution and erosion control inspection results, including a description of any erosion control failure, contaminant release, and efforts to correct such incidences.
 - (2) Dates work ceased due to high flows.
 - (3) Total cleared area (riparian and upland).
 - (4) Isolation of in-water work area and fish capture and release.
 - (5) Supervisory fish biologist – name and contact information.
 - (6) Methods of work area isolation and take minimization.
 - (7) Stream conditions before, during, and within one week after completion of work area isolation.
 - (8) Means of fish capture.
 - (9) Number of LCR Chinook salmon, LCR steelhead, and LCR coho salmon captured.
 - (10) Location and condition of LCR Chinook salmon, LCR steelhead, and LCR coho salmon released.
 - (11) Any incidence of observed injury or mortality.
 - (12) A summary of the hydroacoustic monitoring results.
 - b. Site Restoration.
 - i. Finished grade slopes and elevations.
 - ii. Planting composition and density.
 - c. Monitoring for Extent of Take. Complete riparian removal monitoring as follows: The extent of take is covered for up to 3.4 riparian acres removed on the projects streams with ESA-listed species.
 - d. Reporting. Prepare and submit a summary of the turbidity monitoring, including a photograph of the baseline and compliance sites; a copy of turbidity measurements or observations with the date and time that each was taken; other relevant sampling conditions; and description of any sediment control failure, sediment release, and correction efforts. Copies of daily logs for turbidity monitoring shall be available to DEQ, USACE, NMFS, USFWS, and ODFW upon request. The log must include: background NTUs or observation, compliance point NTUs or observation, comparison of the points in NTUs or narrative, and location, date, time, and tidal stage (if applicable) for each reading. Additionally, a narrative must be

⁶ Relevant habitat conditions may include characteristics of stream channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually-discernable environmental conditions at the project area, and upstream and downstream from the project.

Table 1 Mitigation Commitments for the Sunrise Project

- prepared discussing all exceedances with subsequent monitoring, actions taken, and the effectiveness of the actions.
- e. Submit Reports. To submit the project completion monitoring report, or to reinstate consultation, contact:
Oregon State Habitat Office
National Marine Fisheries Service
Attn: 2010/01606
1201 NE Lloyd Blvd., Ste. 1100
Portland, Oregon 97232-1274
- f. NOTICE. If a sick, injured or dead specimen of a threatened or endangered species is found in the project area, the finder must notify NMFS through the contact person identified in the transmittal letter for this Opinion, or through NMFS Office of Law Enforcement at 1-800-853-1964, and follow any instructions. If the proposed action may worsen the fish's condition before NMFS can be contacted, the finder should attempt to move the fish to a suitable location near the capture site while keeping the fish in the water and reducing its stress as much as possible. Do not disturb the fish after it has been moved. If the fish is dead, or dies while being captured or moved, report the following information: (1) The NMFS consultation number (found on the top left of the transmittal letter for this Opinion), (2) the date, time, and location of discovery, (3) a brief description of circumstances and any information that may show the cause of death, and (4) photographs of the fish and where it was found. The NMFS also suggests that the finder coordinate with local biologists to recover any tags or other relevant research information. If the specimen is not needed by local biologists for tag recovery or by NMFS for analysis, the specimen should be returned to the water in which it was found, or otherwise discarded.

Wetlands

Wetland impacts will be mitigated through the purchase of 22.9 credits at an approved wetland mitigation bank. The project area lies entirely within the service area of the Foster Creek Mitigation Bank. The mitigation bank currently has sufficient credits to cover the needs of the project. If available credits from the Foster Creek wetland mitigation bank are insufficient to mitigate all impacts when the project goes to construction, ODOT will identify a site where an ODOT-developed wetland mitigation site will be provided to accommodate mitigation for the Sunrise Project.

Geology and Soils

Groundwater

Where present, impacts to shallow groundwater will be mitigated with dewatering. Dewatering will either be temporary, to accommodate temporary excavations, or permanent with the installation of drainage, in areas where the natural drainage paths are blocked by the addition of embankment fill. Details of any permanent drainage improvements/modifications will be developed during final design with input from the civil engineer.

Erodible Soils

Erosion will be mitigated during construction by compliance with ODOT's Standard Specifications, Section 280 and Clackamas County erosion protections/control requirements.

Stability of Cut Slopes and Excavation

Avoid impact to the toe of the existing slopes at landslide areas (i.e., the Camp Withycombe and Eastern landslides) and local slopes located between Camp Withycombe and SE 135th Avenue (See Figure PA-47). Filling along the toe of the slope may be possible provided further evaluation of the mapped landslides and steep slopes indicates that doing so will improve stability. If grading along the slopes cannot be avoided, slope drainage (dewatering) will be installed, excavation (cut) will be limited to short segments, and temporary and permanent retaining structures, or rock buttresses will be installed. Such measures will require further detailed evaluation of the mapped landslides and steep slopes and development of appropriate mitigation recommendations during preliminary engineering design.

Embankment Fill and Settlement

A site-specific geotechnical investigation will be performed to estimate the potential damage and required mitigation resulting from embankment dead loads.

Soft, compressible soils will be removed or replaced and ground/soil improved with either deep soil mixing or installation of displacement piles or reamed aggregate piers.

Seismically-Induced Liquefaction

Liquefaction settlement, where present, will be mitigated under embankment fills with ground improvement methods such as installation of rammed stone piers, stone columns, and removal and replacement of soft and potentially liquefiable soils. Bridge foundations will be supported on pile foundations bearing on dense gravels that are present beneath potentially liquefiable deposits, as appropriate.

Cultural Resources: Archaeological Resources

Table 1 Mitigation Commitments for the Sunrise Project

The following measures were approved as part of SHPO concurrence (letter dated June 1, 2010) with an evaluation of archaeological site 35CL330. A copy of the documentation for the site is included in Appendix B of the FEIS.

To minimize impacts to site 35CL330, ODOT adjusted the design of the flyover structure to relocate the concrete footings (piers) outside of the portion of the site that is recommended eligible for listing in the National Register of Historic Places. Two pier locations were moved to the southwest to avoid the significant portion of 35CL330. The piers will be constructed by first drilling deep shafts measuring 1.2 to 1.8-meters (4 to 6-feet) in diameter, which anchor the concrete piers in the ground. The depth of the drilled shafts will depend upon the results of the geotechnical borings. Spoils from the drilling will be placed outside of the eligible portion of site 35CL330, and all equipment necessary for drilling the shafts and constructing the piers will be directed to stay outside of the eligible portion of site 35CL330.

Geotechnical borings will be used to test the soil at site 35CL330 for suitability for construction. The methods of constructing the scaffolding and falsework within the eligible portion of site 35CL330 will depend upon the suitability of the soil. ODOT will direct contractors to develop a falsework plan that does not extend below the ground surface within the eligible portion of site 35CL330. Based on the results of the geotechnical borings, if it is determined that the soil is suitable for being built upon, then one or more of the following options will be used for construction of the falsework:

- Geotextile fabric and a layer of crushed rock could be placed over the eligible portion of site 35CL330 for construction of the falsework. The layer of rock will be later removed.
- An above-ground cribbing plan could be developed to support the falsework.

If soil is not suitable for construction, then the following options will be possible:

- A falsework construction plan, supported by beams that span the site
- An alternative structure span, possibly steel, to span the eligible portion of site 35CL330

During construction, the following measures will be implemented for site 35CL330:

- Archaeological monitoring of construction activities; ODOT will notify the Confederated Tribes of the Grande Ronde prior to construction activities so they may elect to have a tribal representative present on-site during any ground disturbing fieldwork by project consultant archaeologists
- Fencing will be placed outside of the significant portion of the site and will include a 5-meter (16-foot) buffer wherever possible.
- Where vehicles and equipment will travel over the eligible portion of site 35CL330, construction mats and/or geotextile cloth and/or layers of crushed gravel or fill dirt will be installed.
- Development of a vegetation management plan, in consultation with the Confederated Tribes of the Grand Ronde Community of Oregon, to prevent future disturbance and looting of site 35CL330. Mature plant roots should not extend below a depth of 30 centimeters (12 inches) below the ground surface, which is the depth to which the site has been previously disturbed. Placement of a layer of shallow fill may be another option to allow for deeper plantings.

Surveys on seven privately-owned parcels were not completed. Right-of-Entry to six of these parcels was denied by the property-owner. They are located near SE 142nd Avenue, SE Morning Way, OR 212, and near or abutting OR 212/224 (west of 152nd Avenue and north of the highway, and west of 122nd Avenue south of the highway). If the parcels are acquired by local or state agencies, a State of Oregon Archaeological Permit, issued by the State Historic Preservation Office, will be necessary to conduct exploratory excavations to determine if buried archaeological deposits are present on public land. A Memorandum of Agreement (MOA) has been prepared to address an identified archaeological site on one property where survey work was not completed. A copy of the MOA is provided in Appendix B of the FEIS. No previously-recorded resources are on the unsurveyed parcels.

No mitigation measures are required for the proposed project related to historic resources because no adverse impacts are anticipated to historic resources located on tax lots in or adjacent to the Preferred Alternative (see Appendix B of the FEIS for a copy of the letter of concurrence from SHPO, dated July 26, 2010).

Hazardous Materials

Plans and surveys will be developed to mitigate exposure to potential hazardous materials issues during construction, in accordance with ODOT's Standard Specifications, Section 00280 - Erosion and Sediment Control, and Section 00290 - Environmental Protection.

ODOT will prepare site-specific Hazardous Material Assessments (Phase I Environmental Site Assessments) prior to the purchase of private and public land for new right-of-way. The preparation of Hazardous Material Assessments will assist in the identification of environmental liabilities associated with a particular parcel. Additionally, Hazardous Material Assessments are required prior to the purchase of new right-of-way when federal funding is involved and by ODOT internal policy. ODOT will prepare a Phase II Environmental Site Assessment (Phase II ESA) for all properties requiring one, as determined during the Hazardous Materials Assessment site reconnaissance.

Camp Withycombe Contaminated Media Management Plan

Table 1 Mitigation Commitments for the Sunrise Project

Although lead-containing soils have been remediated at Camp Withycombe, the cleanup criterion was 400 mg/kg. It is possible that areas planned for the Preferred Alternative construction will involve the disturbance of soil that can contain up to 400 mg/kg lead. Therefore, a Contaminated Media Management Plan that addresses the procedures for proper soil management and proper worker health and safety training with regard to lead-containing soil will be prepared for the construction activities. Pedestrian access to surface soils will be limited (e.g., covering surface with clean fill, installing fencing) where trails cross the areas of lead-containing soils.

Consent Decree and Easement and Equitable Servitude for the Northwest Pipe & Casing Site.

The Preferred Alternative crosses a National Priority List facility, Northwest Pipe & Casing, which is currently under a Consent Decree between ODOT and the United States of America. The Consent Decree has established ongoing obligations for the long-term management of this property that include institutional controls, not interfering with the remedy at the site, and retaining the integrity of the remedy at the site. The Easement and Equitable Servitudes agreement was recorded with Clackamas County (Clackamas County Official Records, 2009) and establishes legal requirements for ODOT in relation to the Northwest Pipe & Casing property. In particular, the document references the "Sunrise Corridor Project" where ODOT "shall integrate the Sunrise Corridor Project with investigative and remedial activities initiated or planned by ODEQ or EPA to the maximum extent feasible, as required by Section 6 of the Consent Decree." The reader should refer to the Easement and Equitable Servitudes and the Consent Decree documents attached in Appendix D of the FEIS for details.

In summary, the restrictions on the site are:

- Groundwater use restrictions (does not apply to dewatering activities related to construction, development, or the installation of sewer or utilities at the site).
- Maintaining the functional integrity of the soil cap on Parcel B (map is attached to the Consent Decree, attached in Appendix D of the FEIS).
- Access restrictions (security of groundwater treatment system from damage by third parties).
- Land use restrictions that prohibit residential and agricultural uses.
- New construction and the evaluation of whether vapor intrusion controls must be implemented to prevent migration of site contaminants into on-site buildings.
- Notice of transfer of the site to other parties.
- Development (such as the Sunrise Corridor Project) and written approval after plan and activity review by ODEQ.
- Zoning changes.
- Partition.

Utilities

No short- or long-term mitigation is required or proposed.

Monitoring of Mitigation and Conservation Measures

In addition, to complying with the Biological Opinion, FHWA and ODOT will prepare a project completion report. The report will include project identification; photo documentation before, during, and after completion; data results from monitoring stream conditions and fish capture and release activities; site restoration; and results of monitoring the extent of the fish take as well as turbidity monitoring. All mitigation measures from the FEIS and the Biological Opinion have been entered into the ODOT Environmental Commitment Tracking System.

E. RECORD OF DECISION APPROVAL

Based on the systematic, interdisciplinary analysis contained in the Sunrise Project SDEIS and FEIS; careful consideration of the social, economic, and environmental factors; and input received from other agencies, organizations, and the public; FHWA has approved selection of the Preferred Alternative as the Selected Alternative for the Sunrise Project.

F. COMMENTS ON THE FEIS

Two comment letters were received on the FEIS, one from the City of Damascus and another from the US Environmental Protection Agency. The letter from the City of Damascus is supportive of the project and requires no response. Appendix A contains copies of each comment letter and responses to the comments submitted by the US Environmental Protection Agency.

REFERENCES

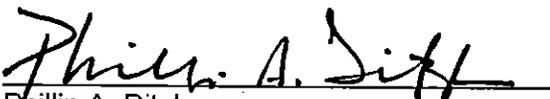
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Federal Highway Administration (FHWA), Oregon Department of Transportation (ODOT), and Clackamas County. 2010. *Sunrise Project, I-205 to Rock Creek Junction, Final Environmental Impact Statement*.

National Marine Fisheries Service. December 17, 2010. *Biological Opinion*.

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Phillip A. Ditzler
FHWA Oregon Division Administrator

2/22/2011
Date

APPENDIX A

Mayor Steve Spinnett

City of Damascus
Damascus City Hall
19920 SE Highway 212
Damascus, Oregon 97089
(503) 312-3450
stevespinnett@gmail.com

January 7, 2011

Governor John Kitzhaber
Portland State Office Building
800 NE Oregon Street
Portland, OR 97232
Email: [Through website:] www.governor.state.or.us

Re: Sunrise Project, I-205 to Rock Creek Junction
Final Environmental Impact Statement, Dated December 2010

Dear Governor Kitzhaber:

On January 3, 2011, I took office as the newly elected Mayor of the City of Damascus, Clackamas County, Oregon. During my campaign for Mayor, I met and spoke with many citizens of Damascus. I believe that I am familiar with the concerns of my fellow citizens. I write you today to address the Sunrise corridor road construction project and its affect on my fellow citizens of Damascus.

In December of 2010, the Sunrise Project, I-205 to Rock Creek Junction Final Environmental Impact Statement was published. On page 1 of that document states, in part:

"The Oregon Department of Transportation (ODOT) and Clackamas County plan to build a new, east-west oriented, limited-access highway -- called the Sunrise Project -- from Interstate 205 (I-205) to the Rock Creek Junction in Clackamas County, Oregon. . . .

"The Sunrise Project Preferred Alternative will be part of the state highway network (as defined in the Oregon Highway Plan), connecting I-205, the Milwaukie Expressway, and OR 212/224. The highway will have six through-lanes plus two auxiliary lanes. The Sunrise Project will become the designated OR 212/224, with the existing OR 212/224 becoming a county arterial.

"Major benefits from the project are significantly slowing the growth of traffic congestion and improving safety on I-205 and OR 212/224.

Building the project will support planned growth in the northwest area of Clackamas County. . . .

"Construction is planned to begin in 2012 and total project costs (consisting of right-of-way acquisition and construction costs) are estimated to be \$1.49 billion (in 2013 dollars). Project construction is likely to be phased."

The Sunrise Project has been discussed and planned for far too long. It is time for construction to begin. The citizens of Damascus and, indeed, our neighbors in this area of Clackamas County, needed this road years ago. Construction of this road will not only relieve traffic congestion, but will promote economic growth in this area. Oregon needs jobs, Clackamas County needs jobs, and Damascus needs jobs. Beginning the Sunrise Project now will have an immediate effect of creating jobs now and in the future.

If I can answer any questions or be of any assistance, please do not hesitate to contact me.

Sincerely,



Steve Spinnett, Mayor
City of Damascus

Cc: See Below

Director Matthew Garrett
Oregon Department of Transportation
1158 Chemeketa St., NE
Salem, OR 97301
Email: matthew.l.garrett@odot.state.or.us

Manager Jason A. Tell
Region 1, Oregon Department of
Transportation
123 NW Flanders Street
Portland, OR 97209
Email: jason.a.tell@odot.state.or.us

Chair Lynn Peterson
Clackamas County Board of Commissioners
2051 Kaen Road
Oregon City, OR 97045
Email: lynnpet@co.clackamas.or.us

Commissioner Jim Bernard
Clackamas County Board of Commissioners
2051 Kaen Road
Oregon City, OR 97045
Email: bcc@co.clackamas.or.us

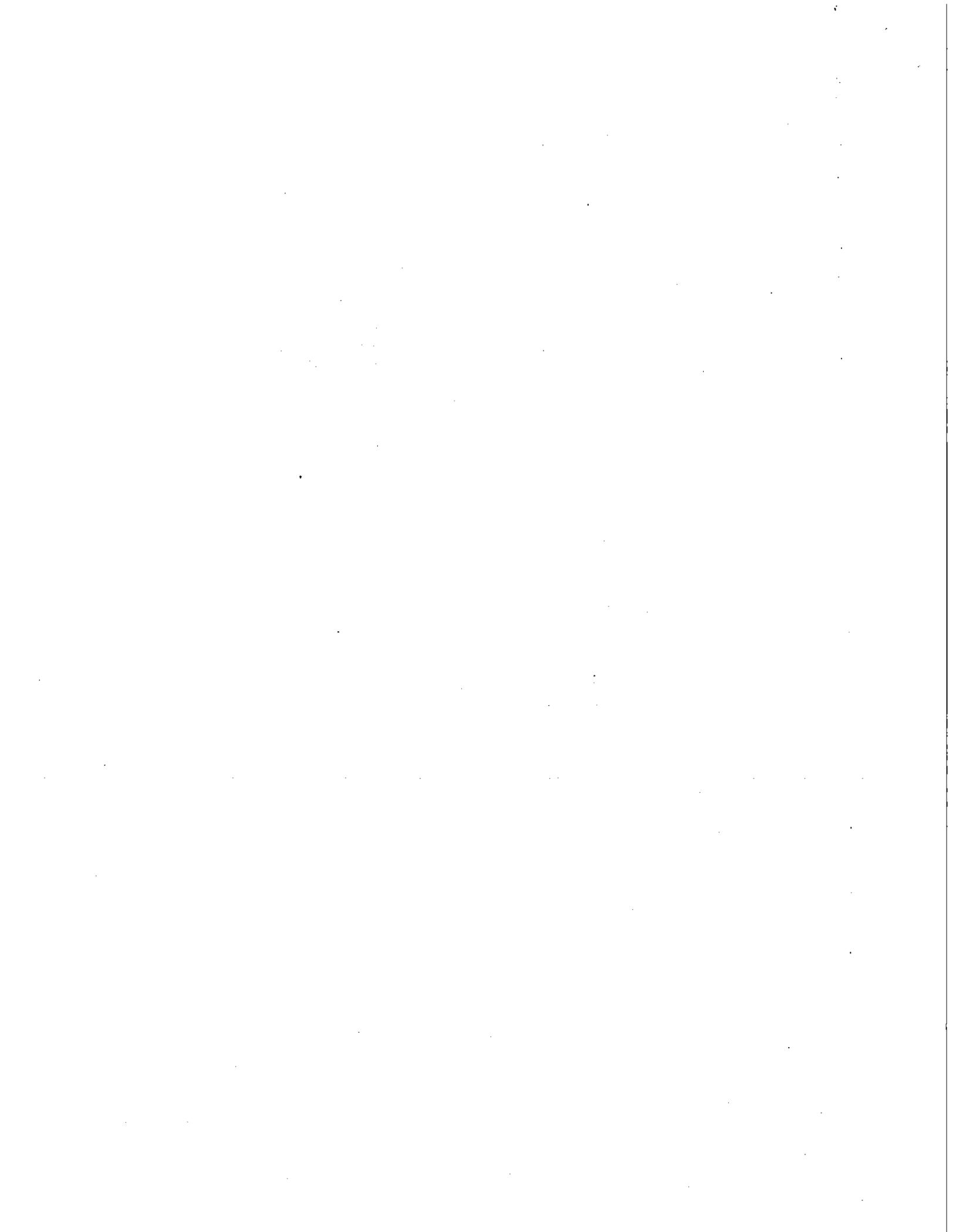
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Governor John Kitzhaber
January 7, 2011
Page 3

Commissioner Ann Linger
Clackamas County Board of Commissioners
2051 Kaen Road
Oregon City, OR 97045
Email: bcc@co.clackamas.or.us

Commissioner Charlotte Lehan
Clackamas County Board of Commissioners
2051 Kaen Road
Oregon City, OR 97045
Email: bcc@co.clackamas.or.us

Commissioner Paul Savas
Clackamas County Board of Commissioners
2051 Kaen Road
Oregon City, OR 97045
Email: bcc@co.clackamas.or.us



Eraut



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10

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OREGON DIVISION January 24, 2011

OFFICE OF
ECOSYSTEMS, TRIBAL AND
PUBLIC AFFAIRS

Ms. Michelle Eraut
Federal Highway Administration
Oregon Division Office
530 Center Street N.E., Suite 100
Salem, Oregon 97301

Mr. Thomas Picco
Oregon Department of Transportation, Region 1
123 NW Flanders Street
Portland, Oregon 97209-4012

Re: Sunrise Project, I-205 to Rock Creek Junction
EPA Region 10 Project Number 93-038-FHW

Dear Ms. Eraut and Mr. Picco:

The U.S. Environmental Protection Agency has reviewed the Sunrise Project, I-205 to Rock Creek Junction Final Environmental Impact Statement (FEIS). We are submitting comments in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Thank you for the opportunity to offer comment.

The FEIS identifies a Preferred Alternative that is a modification of Alternative 2 from the Supplemental Draft EIS. This Preferred Alternative is to construct a new limited access highway with six through-lanes plus two auxiliary lanes with a midpoint interchange coupled with Design Options C-2, D-3, and a portion of Design Option A-2 (Tolbert overcrossing that links Lawnfield area and SE 82nd Drive businesses). The Preferred Alternative also includes an array of local access roads, additional transition lanes, and other refinements to increase capacity, enhance mobility, and where feasible, reduce impacts.

We appreciate the efforts made to respond to our comments and recommendations on the Supplemental Draft EIS. While the existing wildlife corridor in the project area would be narrowed by the proposed project, we are grateful that it would be conserved as much as possible and that a number of crossing structures and needed fencing would be provided. We are also pleased that the bicycle/pedestrian path would be extended approximately two miles east to Rock Creek Junction. Wetland impacts, while still substantial, have been reduced to 22.9 acres. The extent to which these losses can be adequately mitigated via the Foster Creek Mitigation Bank is not yet known, but a contingency plan is being developed.

In general, we remain concerned about the size of the project. Several changes made since the Supplemental Draft EIS would expand rather than contract the roadway footprint

resulting in additional impacts, including losses of upland and riparian habitats. We are concerned about the magnitude of the project's potential effects to local ecosystems and communities and that the proposed mitigation would not sufficiently address these impacts. We offer the following specific comments and recommendations below.

Aquatic Resources

Stormwater management. While there are plans to treat and manage stormwater from project and non-project areas, we are concerned that, as stated in the FEIS (p. 183-188), the Preferred Alternative would create a net increase of 113.3 acres of new impervious surface that would potentially affect seven major drainages, all included on ODEQ's 303(d) list of waters not meeting standards, with increased runoff and pollutant loadings. The FEIS does not quantify the residual (post-treatment) pollutant loadings nor calculate/estimate effects on water quality, including for storm events that exceed the capacity of the treatment and detention systems. Projections should also consider how the number and severity of such events may increase with changing climate.

The most significant impacts from runoff would be to Cow Creek Basin, particularly the more intact reaches downstream of the project. This is because the percent of impervious area would increase from 10% to 26% in the Cow Creek basin, thereby crossing the general threshold for significant basin degradation (p. 185).

Recommendations: We encourage more and continued efforts to reduce project impacts from runoff and pollution and to retain or restore ecological functions within the project area. Efforts could include:

- incorporating a diversity of additional project and non-project related low impact development features, such as pervious pavements, rain gardens, eco-roofs, and pocket parks;
- increasing the number of acres for removal of existing impervious surfaces;
- expanding/restoring diminished riparian areas;
- restoring stream channels and floodways where ditches currently exist; and
- ensuring that the large patch of contiguous habitat/wetland complex, for which Design Option C-2 avoids and minimizes impacts (p. 182), is protected from future development.

We would encourage you to explore implementing activities in partnership with Clackamas County to improve livability within the project area.

Groundwater. The information contained in the Geology and Soils Technical Report is helpful, but does not go far enough to characterize the project area groundwater resources, to provide understanding of the ecological functions supported by these groundwater supplies, and to convey the vulnerabilities to potential project impacts. We continue to believe this information is necessary for NEPA disclosure and avoidance/minimization of impacts. For example, the Technical Report indicates that underlying gravels contain groundwater at levels that fluctuate with Clackamas River levels and rainfall. This may indicate the presence of a hyporheic zone associated with the Clackamas River, which could provide an array of ecological

functions that should be disclosed and protected to the extent possible. Because the Clackamas River serves as the area drinking water supply, its connection to groundwater is relevant to drinking water quality and quantity as well as to the support of aquatic organisms, and other ecosystem functions.

The FEIS and Technical Report provide no discussion of groundwater quality, quantity, flow rates and direction, recharge areas, aquatic connectivity and ecological function, or how the project would affect these features. Dewatering is anticipated (Appendix A, p. 20) where trenches or below-grade cut slopes occur in areas of shallow groundwater, but there is no information regarding the estimated volume and/or duration of dewatering or discussion of construction/building design that could reduce or avoid the need for dewatering.

Recommendation: Provide supplemental information as described above to improve characterization of groundwater resources, ecological functions, vulnerabilities, and potential project impacts. Commit to appropriate measures in the Record of Decision (ROD) that would avoid, minimize, or otherwise mitigate direct and indirect project impacts.

Air Quality

We appreciate that the FEIS includes discussion of air toxics and the Portland Air Toxics Assessment. However, the FEIS does not apply what is known about these pollutants to the proposed project. There is no assessment of the existing localized air quality conditions in the project area that includes air toxics, and no quantitative estimate of how conditions would be changed with the Sunrise project. Consequently, the conclusion in the FEIS (Table 12, p. 25) that no air quality impacts would occur because the Preferred Alternative would not cause exceedance of the NAAQS is misleading since impacts may manifest as local effects. There is still need to identify sensitive receptors that may be affected by localized emissions hotspots and/or near roadway effects.

Recommendation: Provide the information as described above, and propose any feasible mitigation where needed to minimize emissions and exposure to elevated levels of MSATs during construction and operation of the proposed project.

We appreciate that construction contractors would be required to comply with Division 208 of OAR 340 and ODOT Section 290.30 (c) for air emissions during construction (p. 171-172). An additional measure to address preventative maintenance of construction equipment could further strengthen these standard specifications.

Recommendation: Consider adding a specification for construction contractors to incorporate preventative maintenance on construction equipment and vehicles.

Environmental Justice, Health and Safety of Children

The FEIS states that there are high concentrations of children, the elderly, and the disabled surrounding the Sunrise project area (p. 114). These are vulnerable populations that should be considered in the analysis and disclosure of and mitigation for project impacts.

Executive Order 13045 on Protection of Children from Environmental Health Risks and Safety Risks directs that FHWA make it a high priority to identify, assess, and address environmental health risks and safety risks from the proposed action that may disproportionately affect children. Similarly, elevated risks to the elderly and disabled should be identified, assessed, and addressed to mitigate impacts as directed by the CEQ NEPA implementing regulations at Section 1502.14(f).

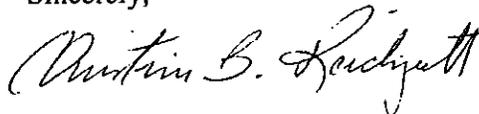
As stated in our comments on the SDEIS, there is an array of potential impacts associated with project construction and operation that could affect populations in close proximity to the proposed project. The FEIS focuses heavily upon displacement in answering the five questions on page 120. In particular, we believe the response to Question c should be addressed more broadly to consider that vulnerable populations, such as low income, elderly, disabled, and children, could potentially suffer project related adverse impacts more severely or to a greater magnitude than less vulnerable populations.

Recommendation: Take a closer look at how project impacts (e.g. air pollution; noise and vibration; construction and operation safety risks from traffic and machinery; and access to schools, work, community activities, and businesses) may affect these vulnerable populations. Include any health related information that would characterize existing vulnerabilities among these populations, such as incidence of asthma or other respiratory ailments. Commit to appropriate mitigation.

We appreciate the efforts to produce this FEIS, and thank you for the helpful features it incorporates. There are many useful figures and tables to illustrate affected resources and impacts, and the use of green font for the new text additions in the FEIS is an especially helpful practice. We hope it will be continued in future NEPA documents.

Thank you for the opportunity to participate in the Sunrise Project. If you have questions or would like to discuss these comments, please contact Elaine Somers of my staff at (206) 553-2966, or by electronic mail at somers.elaine@epa.gov.

Sincerely,



Christine B. Reichgott, Manager
Environmental Review and Sediment Management Unit

Sunrise Project – Responses to EPA Comments

Aquatic Resources – Stormwater Management

We are concerned that, as stated in the FEIS (p. 183-188), the Preferred Alternative would create a net increase of 113.3 acres of new impervious surface that would potentially affect seven major drainages, all included on ODEQ's 303(d) list of waters not meeting standards, with increased runoff and pollutant loadings.

Stormwater treatment and mitigation analysis for water quality and quantity issues was conducted for the Preferred Alternative. A series of stormwater treatment/detention ponds and LID treatment options have been proposed, from contributing surfaces as well as new impervious surfaces, consistent with Best Management Practices identified collaboratively by ODOT, FHWA, and natural resource agencies (NMFS, DEQ, USFWS, EPA, ODFW), as provided in ODOT *Geo-Environmental Stormwater Management Guidelines (GE09-02[B]*; January 27, 2009. A copy of these guidelines is provided as an attachment.

On-site water quality and quantity mitigation of impervious surface created by the project, or contributing to the project from adjacent county and state roadways, is included within the project footprint, except for 16 acres that is treated off-site. Runoff is not expected to affect any of the creeks morphology or water quality (*Sunrise Project Water Quality Technical Report*, p. ii and p. 93). For the 16 acres that will be mitigated off-site, the project will treat stormwater runoff from equal areas of impervious surface. Specifically, ODOT identified additional locations where 24 acres of currently untreated impervious surface on the much more heavily-traveled I-205 can be treated for water quality as part of the Sunrise Project (*Final EIS*, p.194).

The FEIS does not quantify the residual (post-treatment) pollutant loadings nor calculate/estimate effects on water quality, including for storm events that exceed the capacity of the treatment and detention systems.

The annual Minimum and Maximum pollutant loadings, and once-in-three-year exceedance concentrations were calculated for the Preferred Alternative, with water quality and quantity control mitigation measures using the FHWA-RD-88-006 methodology, based on post-project conditions on local streams. The results of this analysis are presented for the lowest impact scenario (Minimum) and the highest impact scenario (Maximum). Tables 76 – 88 of the *Sunrise Project Water Quality Technical Report* (p. 100) provide the change in annual loadings between Baseline conditions and Preferred Alternative, with mitigation.

Treatment and detention options were designed using Clackamas County standards, which in this case were more conservative than ODOT design standards. Clackamas County requires two-thirds of the 2-year storm to be used for water quality, and the 25-year post developed runoff rate be reduced to the 2-year pre development rate. ODOT requires one-half of the 2-year storm for water quality, and detention of 42% of the 2-

year storm through the 10-year storm for water quantity. In all cases, the water quality and quantity volumes were calculated separately, and added together. The project team then increased these calculations by 10% in order to establish even more conservative treatment and detention targets. This volume was then used to size the proposed treatment options.

The *Sunrise Project Water Quality Technical Report* provides the results of the pollutant loading analysis in several tables (Table 79 to Table 87) for the Preferred Alternative, with mitigation. The results show that the Clackamas River will have the largest increase in annual pollutant loading, followed, in descending order, by Dean Creek, Phillips Creek, Mount Scott Creek, Kellogg Creek, and Cow Creek. The proposed treatment options, as identified in the *Sunrise Project Final EIS*, will help ensure that the Preferred Alternative will not have adverse effects downstream on either water quality or quantity issues, such as channel morphology or ecology, and effects on stream riparian zones and wetlands will be minimal. As indicated above, the proposed treatment and detention systems would be designed to meet the appropriate standards as required by Clackamas County and increased by approximately 10%. It is expected that this increase in volume would help address some storm events beyond the County standards, however, it is not possible to design for every event.

Projections should also consider how the number and severity of such events may increase with changing climate.

NEPA requires analysis of the effects of a proposed action that are “reasonably foreseeable” (40 CFR 1508.8). Given the current lack of consensus on accepted methodologies for calculating the affects of climate change, it is considered too speculative, at this time, to reasonably foresee the number and severity of future storms.

The *Sunrise Project Final EIS*, Appendix D does include information on ODOT’s efforts to address climate change. Internally, ODOT has a Climate Change Executive Group and a Climate Change Technical Advisory Committee both of which are analyzing interrelationships between greenhouse gas production, climate change, and transportation systems. Externally, ODOT provides financial and technical support to Metropolitan Planning Organizations engaged in efforts to reduce reliance upon Single Occupant Vehicles, a contributor to greenhouse gas emissions. ODOT is also a key participant in the Oregon Modeling Steering Committee promoting state-of-the-art modeling to analyze land use and transportation relationships to support land use-transportation modeling by federal, state, regional, and local agencies.

Additionally through Senate Bill 1059, ODOT is working with the Oregon Department of Land Conservation and Development to develop a framework for analyzing climate change and transportation to reduce greenhouse gas emissions. ODOT is also looking forward to the findings of the *Pacific Northwest Climate Change Collaboration* among federal agencies to further define efforts to understand impacts associated with climate change. Thus, while clear direction on the appropriate methods for addressing climate change are not yet available for the Sunrise Project, ODOT is actively engaged in

developing programmatic guidelines for assessing future transportation project impacts. Insights and strategies developed from these guidelines may provide opportunities to reduce potential impacts associated with changes to the climate that could appear in the future.

The most significant impacts from runoff would be to Cow Creek Basin, particularly the more intact reaches downstream of the project. This is because the percent of impervious area would increase from 10% to 26% in the Cow Creek basin, thereby crossing the general threshold for significant basin degradation (p. 185).

The Cow Creek Basin presents particularly difficult conditions, as it drains the most heavily developed portion of the Sunrise Project area. Of its 781 acre drainage basin, ALL is under private ownership, and 97% of the basin is already “developed” or planned for future development (353 acres zoned industrial; 329 acres residential; 69 acres commercial; 7 acres office). As noted in Table 57 (p. 81) of the *Sunrise Project Water Quality Technical Report* Cow Creek Basin will experience a relatively minor increase (13%) in pollutant loadings. (26.4 lbs/yr baseline/pre-project vs. 29.9 lbs/yr Preferred Alternative) This basin is already greatly affected by development and has no natural component remaining, except within the lower reach. Therefore, the least relative change in condition caused by runoff from the Preferred Alternative would be in the Cow Creek Basin (see *Sunrise Project Water Quality Technical Report*, p. 78).

Recommendations: We encourage more and continued efforts to reduce project impacts from runoff and pollution and to retain or restore ecological functions within the project area. Efforts could include:

- *incorporating a diversity of additional project and non-project related low impact development features, such as pervious pavements, rain gardens, eco-roofs, and pocket parks;*
- *increasing the number of acres for removal of existing impervious surfaces;*
- *expanding/restoring diminished riparian areas;*
- *restoring stream channels and floodways where ditches currently exist; and*
- *ensuring that the large patch of contiguous habitat/wetland complex, for which Design Option C-2 avoids and minimizes impacts (p. 182), is protected from future development.*

We would encourage you to explore implementing activities in partnership with Clackamas County to improve livability within the project area.

While many of these recommendations would be beneficial enhancements to addressing the management of stormwater runoff in the project area, they often exceed the authority of ODOT to achieve with this specific transportation project. ODOT has worked with other agencies to identify stormwater Best Management Practices, that may help reduce potential stormwater impacts. See ODOT Technical Bulletin on Stormwater Management Guidelines (GE09-02B), attached. ODOT will continue to partner with Clackamas County, where appropriate, to implement these activities.

- Consideration of the use of pervious pavement, where appropriate, is currently being studied. In February 2011, the ODOT GeoEnvironmental unit began assembling a comprehensive, multi-disciplinary committee to develop statewide guidance on the use of pervious pavements. Decisions resulting from the committee's work will be discussed and documented through ODOT's Technical Bulletin process. Trial use of pervious pavement on inside shoulders of recent projects on I-5, Tualatin River to Willamette River, and US 26, Cornell Road to SW 185th Ave., will be evaluated for its effectiveness, durability, and maintenance/life-cycle costs, and may be a part of this larger study effort.
- Net calculations in the FEIS of total impervious surface under Preferred Alternative (new impervious surfaces less removal of existing impervious surfaces) reflect identified removal of all existing impervious surfaces not needed as a part of project. Consideration will be given for increasing the number of acres for removal of existing impervious surfaces when those are identified and found to be practical.
- All impacts to riparian areas from the Preferred Alternative have been mitigated. Consideration will be given to expanding/restoring diminished riparian areas, in conjunction with Clackamas County and regional agencies, where appropriate.
- The stormwater design work for the Preferred Alternative includes consideration of stream channel, ditch and floodway restoration and the Final EIS contains mitigation commitments to address stormwater impacts. Additional consideration will be given to restoring stream channels and floodways where ditches currently exist, and where appropriate and practical.
- Consideration may be given to ensuring that, where possible, contiguous habitat/wetland complexes (e.g., wetlands complex in Design Option C-2) are protected from future development, by retention within project public right-of-way. There are limitations, however, on the use of project funds for property acquisition not required for construction of the Preferred Alternative transportation facility.

Aquatic Resources – Groundwater

The information contained in the Geology and Soils Technical Report is helpful, but does not go far enough to characterize the project area groundwater resources, to provide understanding of the ecological functions supported by these groundwater supplies, and to convey the vulnerabilities to potential project impacts. We continue to believe this information is necessary for NEPA disclosure and avoidance/minimization of impacts.

Preparation of the Sunrise Project EIS included considerable coordination with resource agencies through the CETAS process. The *Sunrise Project Final EIS* includes analysis of all relevant issues related to water resources identified by participating agencies including EPA, NMFS, USFW, ODFW, DEQ, and DSL. Additionally, the Final EIS provides responses to comments on the Supplemental Draft EIS received from the resource agencies. Considerable attention has been given to environmental concerns raised by the agencies related to water resources, and plant and animal species, in the project area. Impacts on sensitive plant and animal species that could be affected by changes in water quality have been addressed.

Insofar as there are *no* identified critical groundwater areas or groundwater limited areas within the project area, nor any critical recharge areas (per information from Oregon Water Resources Department), a more extensive groundwater characterization was not initiated in the Final EIS. No other regulatory agencies identified the need to have conducted this analysis. The Final EIS analysis of water resources in the project area was sufficient, to adequately assess the impacts of stormwater runoff of new impervious surfaces. This information also contributed to analysis of project impacts to water quality, wetlands, and fish and wildlife habitat, to identify appropriate avoidance, minimization, and mitigation strategies.

Because the Clackamas River serves as the area drinking water supply, its connection to groundwater is relevant to drinking water quality and quantity as well as to the support of aquatic organisms, and other ecosystem functions.

The Clackamas River is the primary source of public drinking water supplies in the Sunrise Project area (Clackamas Water District and Sunrise Water Authority). It is the sole source of drinking water supplies for all residences and businesses between SE Webster Rd. and SE 152nd Avenue (Clackamas Water District). That portion of the project area to the east of SE 152nd Avenue relies primarily on the Clackamas River for drinking water supplies, with occasional use of groundwater well supplies depending on need (Sunrise Water Authority). In addition to the information presented in the above response, it should be noted that much of the project area is industrial in character and highly developed. It is acknowledged that the Preferred Alternative would contribute to on-going development in the project area, including additional impervious surface area. The Preferred Alternative's contribution to these changes, however, is not expected to result in substantial differences in water supply to the Clackamas River. Clackamas County was an integral member of the project development team, attending project meetings on at least a monthly basis since the project's inception. Clackamas County has not raised concerns with the SDEIS or FEIS impact analysis for resources, including the drinking water supply.

The FEIS and Technical Report provide no discussion of groundwater quality, quantity, flow rates and direction, recharge areas, aquatic connectivity and ecological function, or how the project would affect these features.

See previous response, a full groundwater characterization was not prepared on the project for the reasons noted above. Depths to groundwater are highly variable along the Preferred Alternative alignment, although it is anticipated to generally occur at relatively shallow depths along the project area. Estimated groundwater depths range from approximately 5 – 30 feet below the ground surface, except in designated wetland areas. The depth to the groundwater is generally shallower at the western portion of the project area than at the eastern portion. Shallow groundwater and groundwater seeps are present along slopes north of the alignment.

The Biological Opinion (BiOp) issued by National Marine Fisheries Service (NMFS, December 15, 2010; available in the Sunrise Project Final EIS, Appendix D) also

addresses water quality and quantity issues in the project's Construction Impact Area. The BiOp addresses floodplain storage and connectivity, fluvial changes, riparian vegetation and other characteristics relevant to in-stream and streamside water availability.

The BiOp notes the developed nature of the project area, and in examining cumulative impacts, assumes that future private and public actions will continue and increase as the population density of the project area increases. The BiOp concludes that "NMFS is not aware of any specific future activities that would cause greater effects to a listed species or a designated critical habitat than presently occurs (p. 30)." The BiOp further concludes that because the functional floodplain would be fully spanned by proposed bridges and culverts, effects to critical species and habitats "would not substantially reduce the conservation value of existing critical habitat," And "this project should have no effect on floodplain connectivity (p. 29)." These conclusions provide additional examples of consideration of ecological functions and values during the project's environmental review process.

The BiOp's conclusions also include statements that "water quantity and quality will be improved over pre-project conditions," "stormwater treatment will improve water quality," and "natural cover will be restored with native vegetation at a greater density" than existing conditions (pp. 30-31). These conclusions provide additional support to the Final EIS analysis that indicates the proposed project would not substantially impair surface or groundwater conditions in the project area, or the plant and animal species dependent upon them.

Dewatering is anticipated (Appendix A, p. 20) where trenches or below-grade cut slopes occur in areas of shallow groundwater, but there is no information regarding the estimated volume and/or duration of dewatering or discussion of construction/building design that could reduce or avoid the need for dewatering.

Runoff from the project will be collected, treated, and routed to natural surface drainages – not infiltrated back into the groundwater. Where present, impacts to shallow groundwater will be mitigated with dewatering. Dewatering will either be temporary, to accommodate temporary excavations, or permanent with the installation of drainage, in areas where the natural drainage paths are blocked by the addition of embankment fill. Details of any permanent drainage improvements/modifications will be developed during final design with input from civil engineers. Additional exploration will be necessary to determine groundwater depths to support the design and construction of structures, such as bridge foundations, culverts, luminaries, retaining walls, embankment fills, and earthwork activities. Use of a permanent de-watering system is not presently anticipated. It is too early to determine at this time, given the approximately 5% level of preliminary engineering conducted in the Final EIS, whether permanent de-watering is expected to necessitate a pumped, de-watering system. If future explorations identify potential negative impacts to groundwater, additional mitigation measures will be proposed to address such impacts.

Recommendation: Provide supplemental information as described above to improve characterization of groundwater resources, ecological functions, vulnerabilities, and potential project impacts. Commit to appropriate measures in the Record of Decision (ROD) that would avoid, minimize, or otherwise mitigate direct and indirect project impacts.

See previous response, above. The *Sunrise Project Final EIS* complies with Council on Environmental Quality (CEQ) *Regulations for Implementing NEPA* (40 CFR 1502) and FHWA's *Environmental Impact and Related Procedures* (23 CFR 771). All appropriate mitigation measures have been described in the Final EIS.

Air Quality

We appreciate that the FEIS includes discussion of air toxics and the Portland Air Toxics Assessment. However, the FEIS does not apply what is known about these pollutants to the proposed project. There is no assessment of the existing localized air quality conditions in the project area that includes air toxics, and no quantitative estimate of how conditions would be changed with the Sunrise project. Consequently, the conclusion in the FEIS (Table 12, p. 25) that no air quality impacts would occur because the Preferred Alternative would not cause exceedance of the NAAQS is misleading since impacts may manifest as local effects. There is still need to identify sensitive receptors that may be affected by localized emissions hotspots and/or near roadway effects.

Modeling for the Sunrise Project included overall travel demand modeling, air quality conformity modeling and Mobile 6 hot spot modeling. This modeling is consistent with the approved air quality model for the project region. The Preferred Alternative has been determined to not cause an exceedance of the NAAQS for the Portland metro area. The project will not delay timely implementation of Transportation Control Measures (TCMs) included in the Portland CO Maintenance Plan.

The Sunrise Project Socioeconomics Technical Report sections on Community Cohesion and Environmental Justice Effects identify sensitive receptors within the project area, including parks, schools, religious or fraternal organizations, or service centers for low-income, elderly, or disabled populations. No identified air quality impacts from the Preferred Alternative would cause a high adverse effect on the community at large or on sensitive populations. (p.vi)

A CO hot spot analysis was conducted for the Sunrise Project. This analysis included evaluation of localized impacts at the three worst performing intersections affected by the project alternatives (*Air Quality Technical Report* [December 2010], p. 46). These intersections include: OR 224 (Milwaukie Expressway) x SE Webster Rd., SE 82nd Dr. x SE Evelyn (Jennifer) St., and OR 212/224 x SE 135th Ave. The EPA dispersion model CAL3QHC was used to estimate CO concentrations near selected intersections. None of the three intersections demonstrated an exceedance of CO. Tables 7a and 8a (p.67) of the *Air Quality Technical Report* provide a comparison of CO concentrations (ppm) for each of the three intersections to established NAAQS standards, for 1-hr and 8-hr

periods. NAAQS standard for 1-hr concentrations are 35 ppm, and for 8-hr concentrations are 9 ppm. CO concentrations for each hot spot for a 1-hr period ranged from 4.3 to 5.4 ppm (2012), and from 4.1 to 4.7 ppm (2030). CO concentrations for each hot spot for an 8-hr period ranged from 3.7 to 4.4 ppm (2012), and from 2.6 to 4.1 ppm (2030).

The air toxics analysis required and conducted for this project was a qualitative analysis, as outlined in the *Interim Guidance on Air Toxic Analysis in NEPA Documents* (September 2009) from FHWA. The *Sunrise Project Air Quality Technical Report* indicates that "Overall, future MSAT emissions are predicted to be lower than existing emissions due to vehicle emission controls that will come into effect over the next 25 years (p. 63)." No adverse impacts for MSAT emissions are expected to result from the Preferred Alternative. The project will follow Oregon Administrative Rules (OAR) 340 regulations, and ODOT standard specifications, Section 290.30(c) to address air quality impacts during construction.

Recommendation: Provide the information as described above, and propose any feasible mitigation where needed to minimize emissions and exposure to elevated levels of MSATs during construction and operation of the proposed project.

See previous response, above. No impacts were noted in the hot spot analysis for the Preferred Alternative and no additional mitigation measures, beyond those already included in the Final EIS, related to air quality are proposed.

We appreciate that construction contractors would be required to comply with Division 208 of OAR 340 and ODOT Section 290.30 (c) for air emissions during construction (p. 171-172). An additional measure to address preventative maintenance of construction equipment could further strengthen these standard specifications.

Recommendation: Consider adding a specification for construction contractors to incorporate preventative maintenance on construction equipment and vehicles.

ODOT standard specifications (Section 290.30 Pollution Control) do include a measure to address appropriate operational conditions (preventative maintenance) for contractor vehicles and equipment as follows:

"290.30 (a) 3. Equipment Fueling, Repair and Maintenance:

- Promptly correct or repair operational procedures, leaks, or equipment problems that may cause pollution at the Project Site. If soils or other media become contaminated as a result of operational procedures or equipment problems, remove and dispose of them according to applicable Laws and 00290.20(g).
- Locate areas for parking, refueling and servicing mobile equipment and vehicles at least 150 feet away from any waters of the State and U.S. or storm inlet, unless otherwise approved by the Engineer.

- For large equipment that is not easily moved, prevent fuel and operating fluids from reaching any waters of the State and U.S. or storm inlet by, at a minimum, using spill containment systems designed to completely contain potential spills during all refueling and equipment repair operations.” (*Standard Specifications for Construction, Volume 2* (ODOT, 2008))

Environmental Justice, Health and Safety of Children, Elderly, and Disabled

The FEIS states that there are high concentrations of children, the elderly, and the disabled surrounding the Sunrise project area (p. 114). These are vulnerable populations that should be considered in the analysis and disclosure of and mitigation for project impacts.

The *Sunrise Project Final EIS* identifies potential impacts to minority and low-income environmental justice groups consistent with Executive Order 12898 providing direction to consider environmental justice analyses prepared under NEPA regulations. Because the Preferred Alternative would not have direct impacts on other vulnerable population groups in the general area, the Final EIS does not explicitly discuss those groups. However, in recognition of these vulnerable populations, additional information is provided for children, elderly and disabled groups identified closest to the Preferred Alternative alignment. Indirect effects on environmental justice communities addressed in the analysis include changes to view, additional noise levels, increased stormwater runoff, and potential exposure to air emissions and hazardous materials (Final EIS, p. 122). This analysis did not result in identifying substantial adverse impacts from these potential indirect effects.

Specific public outreach efforts conducted for the Sunrise Project are noted in the *Sunrise Project Socioeconomics Technical Report* (p. 164+), and include the following efforts:

- Met with or offered to meet with manufactured home park managers during stakeholder interviews, and at selected decision points during the EIS process. Some residents of these home parks are elderly or disabled. Issues and concerns raised by three managers about possible impacts on their residents were conveyed to project team.
- Distributed project flyers and meeting invitations door-to-door within manufactured home parks.
- Presented project information at a Clackamas County Community Action Board meeting. (County agency involved with low-income housing assistance, elderly care, disabled care).
- A project citizen advisory committee (Project Advisory Committee) position was specifically designated to be filled from a member of EJ protected population (low-income and disabled) to help the project consider EJ issues and concerns.

Executive Order 13045 on Protection of Children from Environmental Health Risks and Safety Risks directs that FHWA make it a high priority to identify, assess, and address

environmental health risks and safety risks from the proposed action that may disproportionately affect children. Similarly, elevated risks to the elderly and disabled should be identified, assessed, and addressed to mitigate impacts as directed by the CEQ NEPA implementing regulations at Section 1502.14(f).

Executive Order 13045 applies only to rulemaking actions. The NEPA/EIS process is not a rulemaking action. However, in recognition of these vulnerable populations, additional information is provided below for children, elderly and disabled groups within the project area identified closest to the Preferred Alternative alignment.

We believe the response to Question c should be addressed more broadly to consider that vulnerable populations, such as low income, elderly, disabled, and children, could potentially suffer project related adverse impacts more severely or to a greater magnitude than less vulnerable populations.

Throughout the project area there are pockets of sensitive populations, including children, the elderly, and disabled. While there will be impacts of the Preferred Alternative on all population groups in the project area, these impacts are not expected to be appreciably more severe or greater in magnitude than those suffered by non-sensitive populations. EIS analysis of impacts of specific environmental elements on sensitive populations, include the following:

- Air quality/health: no identified air quality impacts from the Preferred Alternative would have an adverse impact on community at large or sensitive populations. The Preferred Alternative will not cause exceedance of NAAQS standards within project area.
- Noise: Under the Preferred Alternative with mitigation (noise walls) sensitive populations along the east side of I-205 will experience noise levels 8 – 10 dBA lower than existing or future No Build conditions.
- Visual: visual impacts occur along the entire project alignment and are not expected to disproportionately impact sensitive populations. The largest decline in view quality would occur on the eastern end of the project, where few sensitive populations have been identified near the project alignment.
- Community resources: there are no religious or fraternal organizations, service centers for low income populations, assisted-living facilities, nursing homes, retirement centers, or residential care facilities within the project area.
- Traffic/congestion/access: there would not be disproportionate impacts to sensitive populations with regard to traffic and congestion. Under the Preferred Alternative delay in the OR 212/224 corridor would be reduced, therefore improving congestion and safety for all area populations.

Additional information, from the *Sunrise Project Socioeconomics Technical Report*, follows on the vulnerable populations of children, elderly, and disabled,

Children: One Census Tract/Block Group (CT 221.03/BG 3) exceeds the County-wide average of 26%, with a population proportion of 31%. However, this CT/BG, while

located within the Sunrise Project Land Use Study Area, is located to the south of the Preferred Alternative, and is not directly impacted by the Preferred Alternative. There are only three (3) schools within the project area (Clackamas Elementary – 92nd Ave. x Church St.; Alder Creek Middle School – OR 224 x Webster Rd., and Sabin-Schellenberg Skills Center – OR 224 x Johnson Rd.). Only one of these (Clackamas Elementary) is directly impacted by the Preferred Alternative. Mitigation has been provided for all impacts to Clackamas Elementary School identified in the Final EIS.

Elderly: Two Census Tracts/Block Groups contain concentrations of elderly that exceed the County-wide average of 6%: CT 215/BG 1 with an elderly population proportion of 8% is located at the far western edge of the Preferred Alternative, and outside of the Sunrise Project Land Use Study Area, and the location of two retirement facilities. This population is not directly impacted by the Preferred Alternative. CT 221/BG 3 is located to the south of OR 212/224, and south of the Preferred Alternative. The land-use in this area is predominately industrial and commercial. The location in this CT/BG of a manufactured home park (Shadow Brook) that accepts only residents 55+, combined with the overall low population in the area, results in an elderly concentration of 17%. Shadow Brook Mobile Home Park is located approximately 600' east of the intersection of SE 135th Ave. x OR 212/224, and is not directly impacted by the Preferred Alternative. There are no retirement centers, senior centers, residential care facilities, assisted-living facilities, or nursing homes in the project area.

Disabled: Two Census Tracts/Block Groups contain concentrations of disabled that exceed the County-wide average of 14%: CT 221.04/BG 3 is located to the south of OR 212/224, and south of the Preferred Alternative, and is the location of five manufactured home parks, including Shadow Brook Mobile Home Park (residents 55+ only). CT 221.04/BG 2 is located in the midst of the Preferred Alternative, and is impacted by the Preferred Alternative. However, a number of mitigation measures, such as sound walls, have been identified to reduce the impacts of the Preferred Alternative on the existing residential areas. These residential areas are the remnants of an existing residential area that existed before I-205 was constructed. The residential area contains at least one small special needs housing project (SE 90th between Janssen St. and Tolbert St.), and several scattered housing authority units.

Recommendation: Take a closer look at how project impacts (e.g. air pollution; noise and vibration; construction and operation safety risks from traffic and machinery; and access to schools, work, community activities, and businesses) may affect these vulnerable populations.

- Air pollution: no identified air quality impacts from the Preferred Alternative would have an adverse impact on community at large or sensitive populations. The Preferred Alternative will not cause exceedance of NAAQS standards within project area. Clackamas Elementary School is located adjacent to I-205. Construction of the Sunrise project will not result in significant changes in traffic levels along I-205. Construction of the Sunrise project is not expected to cause detrimental impacts to air

- quality or any resultant health issues, anywhere along the project, or specifically at Clackamas Elementary School.
- Noise and vibration: Under the Preferred Alternative with mitigation (noise walls) sensitive populations along the east side of I-205 will experience noise levels 8 – 10 dBA lower than existing or future No Build conditions.
 - Construction and safety risks: Construction impacts would be temporary and borne equally throughout the project alignment, with no disproportionate impacts to sensitive populations. Under the Preferred Alternative delay in the OR 212/224 corridor would be reduced, therefore improving congestion and safety for all area populations.
 - Access to schools, work, and community activities: All of the residences, facilities, and services utilized by children, elderly, and disabled facilities within the project area are already established and located on existing transportation facilities. There are few service facilities for the elderly and disabled within the project area. Insofar as the Sunrise Project is a *new* highway alignment, that largely avoids direct impacts to these population groups, there should be limited conflict with existing area roadways and bike/pedestrian facilities during construction, except for possible delay at some intersections at certain times of the day.

Currently transit service within the project area is provided by three Tri-Met bus lines (line #30 to Estacada via 82nd Ave./I-205/OR 212/224/ and OR 224; line #79 to Oregon City, via 82nd Ave. and 82nd Dr.; and line #156 Mather Road, via Sunnyside Rd./ SE 97th Avenue/ Mather Rd./SE 122nd Avenue/OR 212/224/ and SE 152nd Avenue). Access/service to these bus lines by sensitive population groups within the project area, should experience minimal adverse impacts on access or service due to construction or operation of the Sunrise project. New express bus service will be initiated on the Sunrise Expressway upon its completion, which should provide enhanced transit service to all population groups in the project area. Transit agencies have been facing declining revenues, and may independently institute service cuts with no relation to construction or operation the Sunrise project.

Increased traffic and congestion, and access and safety issues, are discussed in the travel patterns and accessibility section of the Environmental Justice chapter, and in the Transportation section of the Final EIS.

Include any health related information that would characterize existing vulnerabilities among these populations, such as incidence of asthma or other respiratory ailments. Commit to appropriate mitigation.

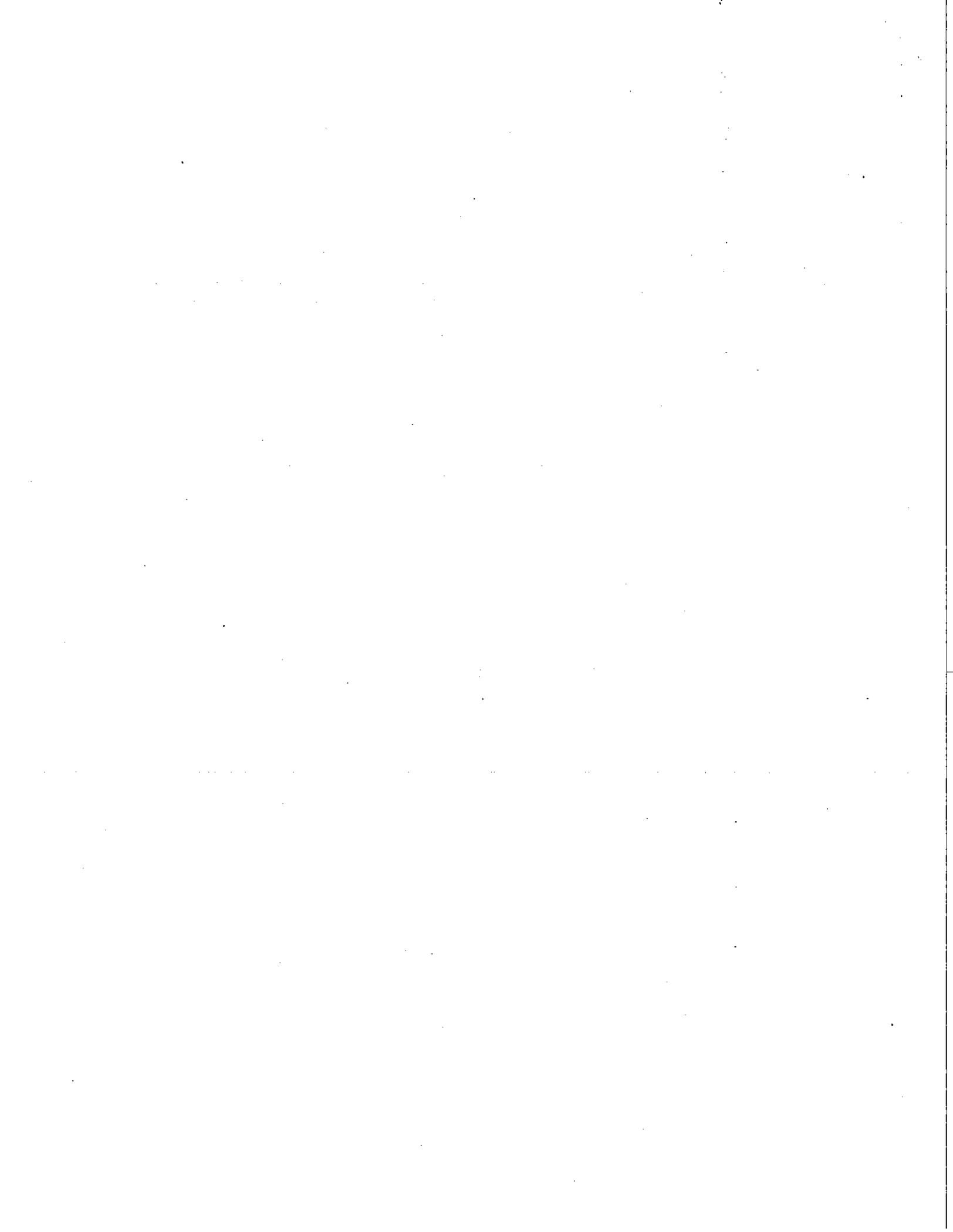
Asthma is a common chronic inflammatory disease of the airways characterized by variable and recurring symptoms, reversible airflow obstruction, and bronchospasm. Symptoms include wheezing, coughing, chest tightness, and shortness of breath.

Data on asthma rates for adults and children by County (2002 – 2005) and by State of Oregon indicate no significant disproportional differences between residents of Clackamas County and state-wide.

Location	Children (8 th Grade)	Children (11 th Grade)	Adults
Clackamas County	9.7%	10.9%	9.6%
State of Oregon	10.2%	10.4%	9.3%

Source: *The Burden of Asthma*, Oregon Department of Human Services, Public Health Division, February 2009.

The analysis for this project did not identify any new asthma impacts and additional mitigation is not proposed. Additional related information is provided in the response to air quality comments.



 OREGON DEPARTMENT OF TRANSPORTATION TECHNICAL SERVICES				
Geo-Environmental BULLETIN				
SUBJECT Stormwater Management Program	FINAL NUMBER GE09-02(B)	EFFECTIVE DATE 01/27/2009	VALIDATION DATE 00/00/0000	SUPERSEDES GE07-02(B)
	WEB LINK(S) http://www.oregon.gov/ODOT/HWY/TECHSERV/technicalguidance.shtml			
TOPIC/PROGRAM Hydraulics, Environmental	APPROVED SIGNATURE Original signed by H.A. (Hal) Gard, RPA Geo-Environmental Manager			

PURPOSE

The purpose of this technical bulletin is to provide stormwater water quality and flow control guidance for Oregon Department of Transportation (ODOT) projects.

GUIDANCE

ODOT manages its stormwater discharges to:

- Protect water quality by reducing pollutant loads and concentrations.
- Prevent or reduce peak runoff rate increases caused by urban development.
- Address downstream drainage capacity problems.
- Meet Endangered Species Act (ESA) requirements related to duration and frequency of discharges to streams.

Project teams are required to follow this guidance for any project that will

- i. Produce new impervious surface,
- ii. Result in a change in the total contributing impervious area (CIA),
- iii. Result in a change to the stormwater conveyance (e.g., type, location, direction, distance, or endpoint) in the project limits,
- iv. Replace or widen stream crossing structures, or
- v. A project requiring a Clean Water Act (CWA) 404 permit affects impervious surface that drains untreated to waters, wetlands, or groundwater.

This guidance provides the implementation strategy of stormwater management and guidelines for water quality and flow control facilities. This guidance addresses the natural resource concerns of regulatory and resource agencies (see *Background/Reference* section below).

Design Strategy

The implementation strategy of stormwater management is outlined in the following steps:

- Step 1: Prior to the Design Acceptance Phase (DAP) of Statewide Transportation Improvement Program (STIP) projects or during design of Maintenance projects, evaluate the feasibility of hydrologic attenuation and low impact development (LID) best management practices (BMPs), such as minimizing and disconnecting impervious cover, conserving or restoring natural areas, or mimicking natural drainage patterns (e.g., using sheet flow, dispersion or infiltration techniques, and retrofitting existing open channels). This may eliminate the need for or reduce the size of an engineered stormwater treatment facility.
- Step 2: Incorporate sufficient LID BMPs into the stormwater management plan to meet the project's stormwater management goals, such that an engineered treatment method and quantity control are not needed. Go to Step 3 if this is not the situation.
- Step 3: Use a combination of LID BMPs, an engineered treatment method, other BMPs, and quantity control to meet stormwater management goals. The stormwater management practices discussed in Attachment 1: Water Quality Guidance and the Storage Facilities Chapter (ODOT's Hydraulics Manual) are applicable to transportation projects.

Low Impact Development Best Management Practices

LID BMPs are innovative stormwater management approaches that utilize vegetation and infiltration to reduce the rate and volume of runoff, filter out pollutants, and facilitate infiltration and evapotranspiration of stormwater. LID BMPs help to improve the quality of receiving waters and stabilize the flow rates of nearby streams. In many cases LID BMPs are less expensive to construct and maintain than other stormwater treatment facilities.

LID BMPs are not a significant departure from the current rural road design practices in which curbing and gutter systems are not typically used. The major difference is that LID BMPs are specifically designed not to concentrate flows or transport flows for long distances.

The use of LID BMPs should be evaluated for feasibility on all transportation projects early in project development as additional right of way may be needed. The use of LID BMPs may influence the water quality and flow control treatment chosen and reduce the size of any additional stormwater management facilities needed. The feasibility of LID BMPs depends on the physical characteristics of the site, the adjacent development, and the availability and cost of additional right-of-way, when applicable. Note that use of LID BMPs will not be feasible on all projects. Utilize LID BMPs discussed in the following publication:

Evaluation of Best Management Practices for Highway Runoff Control (NCHRP 2006)
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_565.pdf. (Also follow the link "Report Web Page" to access the User's Guide and LID BMP Manual.)

The benefits of using LID BMPs:

- Supports streamlined permitting,
- Can eliminate the need for engineered treatment facilities on many projects,
- Can reduce the size of storm drain systems and engineered treatment facilities on many projects, and
- Can frequently reduce maintenance and construction costs compared to engineered facilities.

Water Quality

ODOT's water quality goals:

1. Stormwater runoff from a project shall not cause violations of water quality standards in the receiving water.
2. Provide water quality treatment for the total CIA using the most effective techniques practicable for the site.

The water quality design storm is 50 percent of the cumulative rainfall from the 2-year, 24-hour storm for the project site, except as follows:

- i. Climate Zone 4: 67 percent
- ii. Climate Zone 5: 75 percent
- iii. Climate Zone 9: 67 percent

Further information is available in Attachment 1: Water Quality Guidance Document and Appendices. Refer to Attachment 2: Water Quality Design Storm Factor – Climate Regions for the climate zone map and Water Quality Design Storm Technical Guidance for background technical information. This document is provided on the ODOT Stormwater Management Program website.
http://www.oregon.gov/ODOT/HWY/GEOENVIRONMENTAL/Storm_Management_Program.shtml

Flow Control (Water Quantity)

Flow Control for the Protection of Channel Processes

ODOT is responsible for managing stormwater runoff to avoid an increase in sediment transporting flows from pre-project to post-project (i.e., match the existing hydrology) between:

- i. The lower endpoint of 42 percent of the 2-year flow event (annual series) in western Oregon and 50 percent of the 2-year flow event (annual series) in Eastern Oregon; and
- ii. The upper limit of the channel over-topping event for streams with an entrenchment ratio that is greater than or equal to 2.2 (i.e., slightly incised) or the 10-year flow event (annual series) for streams with an entrenchment ratio that is less than 2.2 (i.e., moderately to severely incised).

Certain projects are excluded from application of the flow control (water quantity) performance standard as follows:

- i. Projects that discharge into major water bodies, such as large mainstem rivers (e.g., Columbia, Willamette, Umpqua) and large lakes and reservoirs;
- ii. When the uncontrolled peak post-construction runoff rate from the new impervious surface area increases by less than 0.5 cubic feet per second during the 10-year, 24-hour storm event from the total proposed contributing area.

Projects are expected to follow the local jurisdiction's regulations if their requirements are stricter than those given above.

Refer to *Flow Control (Water Quantity) Technical Guidance* for the background technical information. This document is provided on the Stormwater Management Program website.

Flood Flow Control

Projects are expected to comply with local flood control regulations and guidance provided in ODOT's Hydraulics Manual.

Water Quality and Flow Control Treatment Best Management Practices (BMPs)

Project teams should use LID BMPs, when feasible, to reduce the volume of stormwater runoff produced from roads and bridges and use BMPs categorized as "preferred" (many of which are LID BMPs), when feasible, to treat the remaining stormwater. Use of the LID BMPs and "preferred" BMPs on a project will result in streamlined review and rapid approval by the natural resource agencies.

If project-specific conditions preclude the use of "preferred" BMPs, then other BMPs are to be used and combined in a treatment train to achieve comparable pollutant removal effectiveness. Refer to the BMP Selection Tool and User's Guide for guidance on BMP selection if "preferred" BMPs cannot be used. This document is provided on the ODOT Stormwater Management Program website.

The "preferred" stormwater treatment BMPs are:

- Infiltration facilities,
- Bioretention,
- Bioslope,
- Grass swale with soil amendment.
- Filter strip with soil amendment, and
- Constructed wetlands.

Use of the BMP Selection Tool and proper documentation will facilitate regulatory review of projects where "preferred" BMPs cannot be employed by providing the rationale for BMP selection decisions, demonstration that the most effective BMPs suitable for the project have been chosen, and evaluation of the expected effectiveness. The Stormwater Treatment Decision Document is provided on the ODOT Stormwater

Management Program website. This document can be provided to the natural resource agencies upon request and can aid in preparation of other required environmental documents (e.g., Biological Assessment, Stormwater Management Plan).

Operation and Maintenance (O&M) Manuals

Operation and Maintenance Manuals provide maintenance guidance, the recommended facility inspection schedule, the location of the facility, and a general overview of how the facility functions.

Development of O&M Manuals is critical to ensure that stormwater treatment facilities are maintained in such a way that they function as designed and to meet the intent for which they are designed. These manuals link the transfer of structures completed by ODOT Project Teams to that of ODOT Maintenance.

All facilities must have an O&M Manual prepared and a copy must be distributed to the appropriate district maintenance office and the ODOT Geo-Environmental Senior Hydraulics Engineer.

Manual preparation guidance is provided in Attachment 1: Water Quality Guidance.

Stormwater Management Plan

Projects requiring a CWA Section 404 Permit or that are subject to the ESA may require a formal Stormwater Management Plan (SWMP). The SWMP should be formatted using the most current submittal checklist from DEQ for CWA Section 401 Water Quality Certifications, and should be reviewed by ODOT using the most current ODOT SWMP Quality Control (QC) Checklist before submittal to the resource and regulatory agencies.

The DEQ submittal checklist is available from DEQ. The ODOT SWMP QC Checklist is available on the ODOT Stormwater Management Program website.

DEFINITIONS

Best Management Practices (BMPs) – BMPs are physical, structural, and/or operational practices employed to reduce or eliminate the pollutant load carried by highway runoff. Within ODOT, BMPs refer to both engineered and non-engineered facilities that are known to have a water quality and/or flow control benefit.

Contributing Impervious Area (CIA) - The project's contributing impervious area consists of all impervious surface within the strict project limits plus impervious surface owned or operated by ODOT outside the project limits that drains to the project via direct flow or discrete conveyance. Design guidance is provided in Attachment 1: Water Quality Guidance.

Engineered Treatment Facilities – A treatment facility that requires engineering analysis to determine the hydrology, hydraulics, and design of the structure. Engineered

treatment facilities include features such as dry and wet detention basins, engineered water quality swales (bioswales), treatment wetlands, and proprietary systems.

Low Impact Development (LID) - The concept of designing projects to minimize the effect on natural hydrology and water quality. This is primarily accomplished by minimizing impervious surface area and applying LID BMPs which provide opportunities for infiltration of stormwater into vegetated soil. For highway projects, LID BMPs refer to the treatment of highway runoff within the linear highway right of way using techniques and facilities that generally require minimal hydraulic engineering.

New Impervious Surface – Includes new impervious surfaces plus impervious surfaces that originally were bordered by and drained to vegetated ditches or slopes and are boarded by curbs after construction.

Net New Impervious Surface – Includes new impervious surface minus old impervious surfaces that are removed.

Stormwater Runoff – The precipitation that runs off the surface of a drainage area after accounting for all abstractions. The portion of precipitation that appears as flow in streams; total volume of flow of a stream during a specified time.

BACKGROUND/REFERENCE

Stormwater management has increased in complexity and importance for ODOT, the Federal Highway Administration (FHWA), and the natural resource agencies. These agencies agree that stormwater runoff is a major factor in the degradation of the waters of the United States and of Oregon, and that highway runoff is an important contributor to reduced water quality. As a consequence, regulatory scrutiny of and expectations for transportation projects have increased. ODOT, FHWA, and the natural resource agencies embarked on a collaborative venture to promote improved management of stormwater, ensure that all parties are in alignment on permitting requirements and enhance streamlined permitting. The natural resource agencies involved were the National Marine Fisheries Service (NMFS), Oregon Department of Environmental Quality (DEQ), the U.S. Fish and Wildlife Service (USFWS), the U.S. Environmental Protection Agency (EPA), and the Oregon Department of Fish and Wildlife (ODFW).

A comprehensive literature review was used to inform and direct the development of the technical guidance. Discipline experts were also consulted during the development of the design storm definitions. The final selections of the design storms and elements of the BMP Selection Tool and Summary Reports were consensus decisions by ODOT, FHWA, and the natural resource agencies.

RESPONSIBILITIES

Refer to Attachment 3: Process Diagram for Addressing Stormwater Runoff during Project Development.

SPECIAL INSTRUCTIONS

Highway Division Project Delivery Leadership Team Operational Notice PD-05 sets forth ODOT's goals for highway runoff water quality, with direction on determining the requirements for treatment facilities.

PD-05 can be viewed and downloaded from the Stormwater Management Program web site.

CONTACT INFORMATION

Stormwater treatment guidance questions should be directed to:

Title: Water Quality/Resources Program Coordinator
Section: Geo-Environmental Section
Phone: (503) 986-3509
E-mail: william.fletcher@odot.state.or.us

Design of stormwater treatment facilities should be directed to:

Title: Senior Hydraulics Engineer
Section: Geo-Environmental Section
Phone: (503) 986-3365
E-mail: alvin.shoblom@odot.state.or.us

