

CHAPTER 2. ALTERNATIVES AND ALTERNATIVES DEVELOPMENT

Alternative Solutions

How a Range of Alternatives Was Developed

Alternatives were developed in a collaborative, step-by-step process involving the affected communities, regulatory agencies, jurisdictional stakeholders, and the public. Developing alternatives began with defining the project Purpose and Need, and identifying goals and objectives. The goals and objectives are listed in detail in Table 5.

The Project Advisory Committee assisted the Project Management Team in developing screening criteria. The screening criteria were developed to screen the many alternatives and ideas received at the public workshops held during the alternatives development process. The criteria were not rated but were used as discussion points with the project teams and the Project Advisory Committee in winnowing down or combining alternatives toward a recommended range of alternatives. Evaluation criteria were later developed to provide metrics for comparatively evaluating the range of alternatives in the SDEIS. Below is a list of the screening criteria. The alternatives were measured against the screening criteria to determine which ones should be carried forward for further refinement.



Looking north from project alignment at west end of Camp Withycombe

Screening Criteria for Goal 1: Transportation/Operations

1. Optimize performance of regional transportation system.
2. Provide additional vehicular capacity for regional travel at least equivalent to a four-lane, limited access highway between I-205 and Rock Creek Junction as indicated by the 1998 Sunrise Major Investment Study conclusion and the 2000 RTP amendment.
3. Provide connectivity and access for bicycles and pedestrians along any new highway facility as well as improve the connectivity of the I-205 multi-use path.
4. Provide flexibility for high capacity transit (HCT) within or in association with any new regional highway facility.¹⁸
5. The projected service levels of new intersections and interchange movements should be in balance with the projected operational levels of connecting roadway facilities.
6. Provide appropriate access for emergency vehicles in any new highway improvements.
7. Provide a facility that addresses the goals and policies of the Oregon Highway Plan, including mobility standards, access management, and rail and highway compatibility.
8. Improve travel safety on state highways and associated interchanges/intersections within the corridor.
9. Provide a cost-effective solution.

¹⁸ Subsequent to developing this evaluation measure, the regional public transit agency, TriMet, concluded that the appropriate corridor for HCT would be SE Sunnyside Road to the north, rather than along the Sunrise alignment.

Screening Criteria for Goal 2: Industrial and Commercial Vitality

1. Improve the efficiency and safety of truck access to the interstate and regional highway system for freight distribution centers in the corridor.
2. Maintain or improve local circulation needs of affected industrial uses.
3. Minimize construction impacts to local businesses.
4. Provide I-205 access for the Lawnfield business area at least as direct as shown in the adopted 1996 interchange design and endorsed by the Lawnfield Area Business Organization group in 1996.
5. Minimize displacements of businesses and retain as much viable industrial land as possible.

Screening Criteria for Goal 3: Community Livability

1. Provide connectivity to the regional highway system for the residential collector and minor arterial streets of SE 135th, SE 142nd, and SE 152nd avenues.
2. Provide local roadway connectivity.
3. Minimize residential displacements.
4. Minimize, where practicable, project-related noise impacts to established residential uses.
5. Minimize, where practicable, project-related visual impacts.
6. Avoid disproportionate adverse impacts on low-income and minority communities.
7. Avoid dividing established residential areas.

Screening Criteria for Goal 4: Natural and Cultural Resources

1. Avoid impacting as much as practicable the existing terrestrial and riparian wildlife corridors.

2. Consider opportunities for enhancing terrestrial and aquatic corridors and habitat in the project area.
3. Protect streams/mitigate impacts to riparian areas.
4. Avoid/minimize/mitigate impacts to protected wetlands.
5. Protect habitat/mitigate impacts to T&E species.
6. Protect ground and surface water quality.
7. Avoid impacting National Register eligible historic sites in the project corridor.
8. Avoid/minimize/mitigate impacts to known archaeological sites.
9. Minimize impacts to air quality.

Alternatives Considered but Dismissed

The Project Management Team hosted a two-day public design workshop in December 2004 to work on evaluating or developing alternatives for the full length of the project area as well as options for specific locations or features. Twenty-one alternatives were identified and screened: 19 build alternatives, one no build alternative, and one Transit/Transportation Demand Management (TDM)/Transportation System Management (TSM) alternative (see Table 6). Four of the 21 alternatives had been originally developed but were eliminated during the 1993 DEIS. Those four were re-evaluated in terms of the screening criteria for the SDEIS.

Table 6. Summary of Alternatives Considered

Alternatives		Recommend Forward to SDEIS
1	No Build (includes planned street/highway improvements in Financially Constrained RTP, as well as TDM, TSM, and Transit elements)	Yes
Alternatives Eliminated in 1993 DEIS and Revisited for SDEIS		
2	Widen or Double-Deck Existing OR 212/224	No
3	Alignment across Mount Talbert	No
4	More westerly crossing of Camp Withycombe	No
5	Enhanced Transit, TSM, and TDM	No
Alternatives Considered for Inclusion in SDEIS: New Six-lane Highway		
I-205 Interchange Area		
6	1996 Design (Modified)	No
7	New Design	Yes
Lawnfield Area		
8	1996 Design (Modified)	Yes
9	Maintain Lawnfield Road Area Access	No
10	SE 98 th Avenue/Sunnybrook Connection	Yes
Midpoint Area		
11	1996 Split Interchange	Yes
12	Single Interchange	Yes
13	Half Interchange	No
14	No Midpoint Interchange	Yes
SE 135th Avenue to Rock Creek Junction Area		
15	Follow Tree-Line Alignment	Yes
16	Central Alignment	Yes
17	Move Existing OR 212 to the North	No
18	Southern Alignment	No
19	On Top of Bluff Alignment	No
East End Area		
20	Alignment Through Knoll	Yes
21	Alignment North of Knoll	Yes

In addition, new alternatives were developed either by the technical team or through the public design workshop. The alternatives were reviewed in light of the screening criteria to determine which ones should be carried forward for further refinement. The following is a brief description of and rationale for alternatives and options (old and new) considered but not recommended for further design or study in the SDEIS.

Alternatives proposed in 1993 DEIS

Four conceptual design alignments proposed in the 1993 DEIS were re-evaluated for the current SDEIS and not advanced for further consideration. These alternatives were dismissed primarily because they did not meet the Purpose and Need of the proposed Sunrise Project, or conflicted with the project's goals and objectives as reflected in the screening criteria. The principal factors why each design concept did not meet the project screening criteria are noted below.

1. Widen or double-deck existing OR 212/224

Existing OR 212/224 currently functions primarily as an arterial, rather than a highway, due to the high number of driveways and intersecting streets prevalent along this facility. Arterial roads have about half the capacity of an access-controlled highway. Accommodating forecasted 2030 traffic volumes and providing for all of the necessary local commercial and industrial traffic movements at multiple at-grade intersections on this highway would require either expansion of the existing 5-lane highway to approximately 14 lanes, or construction of a double-decked highway over OR 212/224. Significant revisions to the existing Clackamas Highway Interchange would be required to accommodate both alternatives on OR 212/224.

Either highway design would create significant business displacements and driveway location issues along OR 212/224 and the adjacent Clackamas Industrial Area, as well as create adverse visual and noise impacts. Although the widening of OR 212/224 alternative would require a larger footprint throughout the corridor than the double-decked highway alternative, construction of a midpoint interchange as part of the double-decked alternative would require significant right-of-way acquisition in the midsection of the corridor in order to provide adequate ramp connections from elevated highway double-deck to ground-level businesses. Both alternatives would impact approximately 350 properties (driveways and displacements) and 243 acres for right-of-way. Approximately 285 business properties would be impacted, of which about half would result in business displacements. Approximately 180 residential units would also be impacted.

The historic Frank A. Haberlach House (13002 SE OR 212/224) would be displaced under both of these alternatives, with minor impacts to the nearby historic Silverthread Kraut and Pickle Works Building. This alignment would still impact a portion of the Clackamas Elementary School recreation field (Section 4(f) *de minimis*).

This alternative did not meet the project's Purpose and Need in that this alternative would retain its function as an *arterial*, with numerous conflict points remaining at driveways, ramp terminals, and side streets, rather than providing a limited access highway. This alternative would not effectively meet the project's Purpose and Need of addressing the existing congestion and safety problems along this corridor, or serving the growing demand for regional travel and access to the state highway. This alternative also conflicted with a number of the Sunrise Project's goals and objectives to support the viability of the Clackamas area for industrial uses and to avoid impacting historic properties.

2. Alignment across Mount Talbert

This alignment presents numerous topographic and neighborhood constraints. It would require excavating up to 130 feet along a historically unstable slope, known as the Camp Withycombe and Eastern landslides. The Camp Withycombe Landslide is in the northeastern portion of Camp Withycombe and the Eastern Landslide is between SE 115th and SE 119th avenues (marked "QIs" on Figures 51 and PA-47). The resulting roadway would have long, steep grades at each end, causing lower travel speeds, difficulties for truck usage, and higher maintenance costs due to more frequent sanding for icy conditions. This alignment was initially considered as one means of minimizing impacts to commercial/industrial properties north of the Clackamas Highway (OR 212/224). However, while this area was largely undeveloped in the early 1990s, by 2004 it had developed into the Sunnyside community, with hundreds of new residences. It is estimated that up to 577 properties would be impacted by this alignment, including approximately 727 residential units and 238 businesses.

There would also likely be Section 4(f) *de minimis* impacts to the recreation fields of two schools in the Sunnyside neighborhood: Clackamas High School and Clackamas Elementary School. The crossing of Mount Talbert by the Sunrise Project would impact a portion of this 183-acre greenspace/habitat

area, the largest undeveloped butte in northern Clackamas County, and sever critical wildlife corridors connecting Mount Talbert, Camp Withycombe/ODOT forested slope parcel, and Rock Creek habitats. This alignment would still impact a portion of the KEX Towers site, but would avoid impacting Camp Withycombe, an active, secured military base.

The alignment across Mount Talbert presents a number of design constraints, including steep grades, slower speeds, and lack of a midpoint interchange that would limit its attraction and safety for truck usage, and therefore does not effectively meet the project's Purpose and Need of addressing the existing congestion and safety problems along this corridor. This alignment further conflicts with Goal 2 because it would not support the viability of the Clackamas Industrial Area or Goal 3 to support community livability because of the impacts on residences.

3. More westerly crossing of Camp Withycombe

A crossing of Camp Withycombe beginning farther to the west than the proposed build alternatives (**Alternatives 2 and 3**) presents design difficulties in connecting to the Sunrise/Milwaukie/I-205 interchange. A more westerly crossing would follow a route along the west side of the UPRR tracks at a highly skewed angle, and then traverse the northern portion of Camp Withycombe before matching up at the eastern border of the camp to the proposed alignments for the two build alternatives. Camp Withycombe was identified in 2005 for a base expansion that will increase the assigned military strength of the post from its current strength of 675 personnel to approximately 1,947 by 2011. Associated with that planned increase in personnel has been the extensive construction of additional base facilities in what would be the proposed alignment of this alternative along the northern portion of the base. The Oregon Military Department stated that this more westerly alignment would require additional right-of-way acquisition from the camp's already limited (77+ acres) base property needed for base

redevelopment and further reduce their base perimeter security buffer.

This alignment presents a number of design constraints, including substandard design speed, poor angle of approach to the I-205 interchange, and substandard curves that would limit its attraction and safety for truck usage, and therefore does not effectively meet the project's Purpose and Need of addressing the existing congestion and safety problems along this corridor.

4. Alignment south of Camp Withycombe

This more southerly alignment along lower SE 82nd Drive and SE Jennifer Street would impact numerous businesses and residences located along these roadways traversing the southern portion of the Clackamas Industrial Area. A large grouping of three lower-income manufactured home parks (440 units) to the south of OR 212/224, between SE 135th and SE 142nd avenues, and a 30-unit home park near SE 152nd Avenue would also be adversely impacted by this alignment alternative, with approximately 90 units displaced. It is estimated that up to 300 properties (access and displacements) would be impacted by this alignment, including approximately 210 residential units and 55 to 60 businesses considered in the SDEIS.

This alignment alternative would completely avoid any impacts to Camp Withycombe, an active and secure military base, by traversing to the south of the camp and then east along SE Jennifer Street, parallel and south of OR 212/224, before resuming the proposed alignments (Alternatives 2 and 3) near SE 142nd Avenue. However, this southerly alignment alternative does not adequately meet the project's Purpose and Need to address congestion and safety conditions in the OR 212/224 corridor or serve the growing demand for regional travel and access to state highway corridor, due to its less central routing to the south of the OR 212/224 corridor and the Clackamas Industrial Area. By connecting to the state highway system (I-205) south of the OR 212/224 corridor at the Gladstone

Interchange, it provides limited congestion relief along the OR 212/224 corridor and I-205, between Milwaukie Expressway and the Clackamas Highway interchange; as well as provides less direct connections to Milwaukie Expressway and I-205 northbound than that provided by the **Preferred Alternative**.

Alternatives from the Public Design Workshops

Six alternatives developed at the workshops were not recommended for study in the SDEIS based on the ratings generated by applying the screening criteria. The main reasons for their low ratings are described for each alternative below.

1. 1996 Design (Modified) for the I-205 Interchange Area

This 1996 design concept of a 4-lane highway was reviewed and modified to assess whether it could accommodate the projected 2030 traffic volumes. The 1996 Design (Modified) did not accommodate traffic movements as well, or as safely, as the new interchange design in **Alternatives 2 and 3**. Therefore, this design did not meet the purpose of the project to serve the growing demand for regional travel, nor Objective 1 of Goal 1, particularly with respect to travel times and congestion.

2. Maintain Lawnfield Road area access

This alternative would maintain access to the Lawnfield Business Area via SE Lawnfield Road and an at-grade rail crossing at the UPRR main line. An at-grade crossing would not meet the Purpose and Need for improved safety. If the grade crossing were separated at the UPRR main line crossing, this design option would add more vertical height to the adjacent interchange and add unreasonable costs and complexity to the design of the interchange that could be addressed instead by elevating a crossing on Tolbert Street. The Tolbert overcrossing will provide acceptable access from the Lawnfield Business Area to the regional highway system with lower costs and

complexity than a Lawnfield at-grade or overcrossing.

3. Half interchange at the Midpoint area

Half interchanges are inconsistent with ODOT policies on access and highway standards because they tend to create motorist confusion and unsafe driving conditions. In addition, this alternative would provide access to the regional highway system to/from the Clackamas Industrial Area in only one direction. Therefore, this alternative would not meet the Project Need to improve safety. It would not meet Objective 7 of Goal 1 nor Goal 2 that support freight travel because access to the Clackamas Industrial Area would be compromised compared to the full interchange of the **Preferred Alternative**.

4. Move existing OR 212/224 to the north from SE 135th Avenue to the Rock Creek Junction area

This alternative would rebuild the existing OR 212/224, creating potentially adverse impacts to the Rock Creek riparian area, particularly areas designated as Essential Salmonid Habitat. Because the crossing would be at an angle it requires a larger structure and footings in this sensitive section of the creek. The alternative would displace a moderate number of businesses and create adverse impacts to remaining businesses currently oriented to the existing OR 212/224 by requiring reconnection of driveways to a new alignment. Therefore, this alternative would not meet any of the environmental objectives of Goal 4, creating additional impacts compared to the **Preferred Alternative**.

5. Southern alignment from SE 135th Avenue to the Rock Creek Junction area

This alternative would have similarly adverse impacts to the Rock Creek riparian area as the previous option, with visual impacts to residential areas to the south and east. The interchange design and connections to/from existing OR 212 and OR 224 would be difficult and extremely costly. Therefore, this alternative

would not meet any of the environmental objectives of Goal 4, nor the visual objective 5 of Goal 3.

6. Top of the bluff alignment from SE 135th Avenue to the Rock Creek Junction area

This alternative would have similarly adverse impacts to the Rock Creek riparian area as the previous two options with a crossing higher upstream, and it would have potentially adverse impacts to the passage of wildlife in the Rock Creek riparian reaches and east-west corridor. In addition, it would divide an established residential area, create higher noise levels, and cause more adverse visual impacts to residential areas. Therefore, this alternative would not meet Goals 3 and 4 of the Sunrise Project, which are to protect livability of residential areas and avoid impacting streams, wetlands and the wildlife corridor.

Alternatives Carried Forward

After ten of the alignments or design alternatives were eliminated, 11 were selected to be carried forward for evaluation in the SDEIS (see Table 6). These 11 alternatives were refined into the three alternatives and the six design options considered in the SDEIS.

Alternatives Evaluated in the SDEIS

Three alternatives were under consideration in the SDEIS. **Alternative 1–No Build** is required by NEPA, ODOT, and FHWA guidelines.

Alternatives 2 and 3 would incorporate the construction of a new multi-lane, limited-access highway north of and parallel to the existing OR 212/224 between I-205 and Rock Creek Junction.

Alternative 1 – No Build

The conventional FHWA definition of a no build condition for a transportation project is the ongoing maintenance of existing facilities plus the addition of planned transportation project

improvements that are already funded and programmed for implementation as described in the Financially Constrained Project List of the Metro RTP (see Figure 3, **Alternative 1–No Build**, in Executive Summary). The planned transportation project improvements are assumed to have independent utility and are part of the regional transportation modeling assumptions that were used to evaluate the SDEIS No Build and the SDEIS build alternatives. The impacts of each project will need to be analyzed independently when a project undergoes detailed analysis, and as such this analysis was not undertaken as part of the SDEIS evaluation.

In the case of the proposed Sunrise Project, some deviation from this convention was necessary to develop a more accurate **No Build Alternative** that would reflect anticipated future conditions that would result from recent UGB expansions and assumed additional UGB expansions. The proposed Sunrise Project is intended to serve two large areas of planned future urbanization—the Damascus/Boring UGB expansion area and the Metro-identified “provisional urban expansion area” south of the Clackamas River.

When the work on the SDEIS began, the existing 2025 RTP did not include all the roads necessary to serve those areas and the planning horizon for the proposed Sunrise Project is 2030, not 2025. For those reasons, the project team assumed that some additional roads would be built, even if they were not then planned in the RTP. Otherwise, the regional transportation model would show an unrealistic amount of traffic on the proposed Sunrise Project in the expansion areas. To correct for this issue, the project team created a list of reasonably foreseeable improvements that would likely be in place by 2030.

Subsequent to the analysis on the SDEIS, Metro adopted an updated RTP in 2008 with a 2035 Financially Constrained Project List that includes all of the assumed major road facilities in the Damascus/Boring UGB expansion area. The City of Happy Valley adopted a comprehensive plan

and a transportation system plan in 2009. The City of Damascus is currently developing a comprehensive land use plan and transportation system plan for the area included in this addition to the regional UGB.

The “provisional urban expansion area” south of the Clackamas River area is still outside of the UGB, and as such the Metro RTP 2035 Financially Constrained Project List does not contain the assumed projects in this area. Consultations with local jurisdictions in the corridor, as well as the professional engineering judgment of agency and consultant staff, were utilized to estimate needed transportation improvements, pending completion of local land use and transportation planning efforts. The projects include:

- Gronlund Road (5 lanes/35 mph).
- Bradley Road (3 lanes/35 mph).
- Forsythe Road (5 lanes/35 mph).
- Holcomb Boulevard (3 lanes/35 mph).
- Clackamas River Drive (3 lanes/35 mph).
- A new crossing of the Clackamas River connecting the I-205/Gladstone interchange with Clackamas River Drive (5 lane/35 mph).

In addition to the projects south of the Clackamas river area, a project that is not currently in the 2035 RTP is:

- Create a climbing lane on OR 212 between Rock Creek Junction and SE 172nd Avenue.

In addition to normal maintenance of the existing OR 212/224, several programmed larger transportation projects in the project vicinity are assumed to be included.

Following is a list of larger, programmed projects with the years of construction in parentheses, as updated in the recent Metro RTP 2035 Financially Constrained Project List that were considered in the **No Build Alternative**:

- SE 82nd Drive, widen from existing three lanes to five lanes between SE Lawnfield Road and OR 212/224 (RTP #5106, 2026-2035).

- SE 102nd Avenue, SE Clackamas Road, and SE Industrial Way, improve all to Mather Road for improved truck access, with better intersection/roadbed conditions for trucks turning and wider shoulders (Clackamas County Urban Renewal Agency project, 2008-2017. Phase 1 OR 212 to Mather Road under construction 2010-2011; Phase 2 planned for 2012).
- New arterial, construct four- and five-lane arterial north and east from Rock Creek Junction Interchange to SE 162nd Avenue. (Property owner-/developer-driven local project. Phase 1 between OR 212 and Sunnyside completed in 2010).
- Sunnybrook West Extension, construct a three-lane facility extending from SE 82nd Avenue (OR 213N) to Harmony Road near Fuller Road (Clackamas County project, 2012-2017).
- SE 172nd Avenue, widen from existing two lanes to four and five lanes between SE Foster Road and SE Sunnyside Road (RTP #7000, by 2017).
- OR 212, widen from existing two lanes to five lanes between Rock Creek Junction and Carver Bridge (2018).
- OR 212, Rock Creek to Damascus, add climbing lane (RTP#5007).
- SE 242nd Avenue, OR 212 to Palmquist, widen from 2 lanes to 5 lanes (future Damascus project).
- OR 212, Rock Creek to 257th Avenue, widen from 2 or 3 lanes to 5 lanes (future Damascus project).
- Sunnyside Road extension, 172nd Avenue to 242nd Avenue, widen to 5 lanes (future Damascus project).
- SE 232nd Avenue extension, OR 212 to Borges Road, widen from 2 lanes to 3 lanes (future Damascus project).

- SE 190th Avenue extension, Tillstrom Road to SE 172nd Avenue, 5 lanes (part of RTP project #7000 and future Damascus project).

Alternative 1 would implement the planned bicycle and pedestrian improvements, as shown on Figure 4. Higher levels of TDM and TSM are assumed as part of **Alternative 1** and the build alternatives.

Transit improvements included under **Alternative 1—No Build** are limited to those identified in Metro’s 2035 RTP. They include primarily modest increases in service hours. These assumed transit improvements included the following:

- Frequent Bus: Line 31 - Milwaukie to Clackamas Regional Center via OR 212.
- Frequent Bus: Line 31 - Clackamas Regional Center to SE 152nd Avenue via OR 212/224.
- Frequent Bus: Line 79 - Clackamas Town Center to Oregon City via SE Webster Road and SE 82nd Drive.

Alternative 2 – Limited-Access Highway with Midpoint Access

The proposed highway alignment generally would be north of and parallel to the existing OR 212/224. The project begins with changes to the local road network in the area of SE Johnson Road and ends by tapering into OR 212 just east of SE 172nd Avenue (see Figure 5, **Alternatives 2** and **3**, in Executive Summary). From I-205 to Rock Creek Junction (where OR 212/224 splits into OR 212 to the east and OR 224 to the south), the highway would have six lanes plus auxiliary lanes.

Auxiliary lanes would be between:

- Southbound I-205 on-ramp to Midpoint off-ramp.
- Midpoint off-ramp to northbound I-205 off-ramp.
- Midpoint on-ramp to Rock Creek off-ramp.
- Rock Creek on-ramp to Midpoint off-ramp.

East of Rock Creek Junction, the highway would narrow to six lanes with no auxiliary lanes until SE 172nd Avenue, where it would narrow to five lanes. An extension of SE Lawnfield Road (referred to as the North Lawnfield extension) would be built northward to create an improved route for trucks climbing the hill to SE Sunnyside Road.

This alternative is distinguished from **Alternative 3** by a midpoint (conventional) diamond interchange in the vicinity of SE 122nd Avenue, which would have on- and off-ramps connecting the highway to the existing OR 212/224 via SE 122nd Avenue. The purpose of the midpoint interchange is to meet the objective of ensuring access to OR 212/224 for businesses along that corridor. Travelers would use this connection to access OR 212/224 from either direction on the proposed Sunrise Project, and, conversely, residents and businesses in the area would use SE 122nd Avenue to go eastbound or westbound on the proposed Sunrise Project.

At the Rock Creek Junction area, the proposed Sunrise Project would incorporate a folded diamond interchange aligned north of a prominent knoll. The connection between OR 212 and OR 224 would be reconfigured 1,300 feet south with a signalized T-intersection. The new access road would turn north and connect to the existing OR 212/224 at another signalized T-intersection. Figures 10 through 17 illustrate the connections that would be made via ramps and auxiliary lanes for all of the alternatives and design options.

This alternative with a midpoint interchange can be modified with different roadway alignments and interchange designs, as discussed under the heading Design Options.

Alternative 3 – Limited-Access Highway with No Midpoint Access

In contrast to **Alternative 2**, this alternative would not have a midpoint interchange, resulting in no access to or from

the proposed Sunrise Project between I-205 and Rock Creek Junction (see inset, Figure 5, in Executive Summary). This alternative can be modified with different roadway alignments and interchange designs at Rock Creek Junction, as discussed in the Design Options section.

Transit, bikeway, and pedestrian improvements

In order to incorporate the baseline information of the TSM/TDM, the Sunrise Project build alternatives assumed all of the transit improvements assumed by **Alternative 1** and added two additional transit improvements:

- A new local transit service from Happy Valley to the Springwater Area via Butler Road.
- New express bus service on the Sunrise Project between the Clackamas Transit Center and Damascus Town Center.

The two build alternatives would allow for new local transit service from Happy Valley to the Gresham area, more frequent service between Damascus and Gresham, more frequent service on SE Sunnyside Road between Clackamas Regional Center and Damascus Town Center, and new express bus service along the proposed Sunrise Project between the Clackamas Transit Center and Damascus Town Center. Current regional plans identify SE Sunnyside Road as the primary east-west, high capacity transit route within the area of the Sunrise Project.

Alternatives 2 and 3 would improve the bicycle and pedestrian system. They would add multi-use path improvements with connections to the existing I-205 trail system, filling gaps in that system between SE 82nd Drive and SE Roots Road as well as between I-205 and the existing on-street facilities at SE 122nd Avenue. Figures 5 through 9 (in Executive Summary) show the proposed multi-use path.

Design Options

Six design options were proposed as variations on certain aspects of the build alternatives.

Each design option was developed to address different constraints or to avoid or minimize specific natural or built environmental impacts. Most of the design options can be substituted for a comparable segment alignment (such as **Design Option C-2** or **C-3** instead of **Alternative 2** in that segment) and most are available under each build alternative. A more detailed description of each design option in relation to each build alternative follows.

The options are depicted on figures that correspond to three geographic subareas referred to in the Project Location and Study Area (text box, page ES-1). Many design options were considered, but only a few were carried forward for study. The design options retain their original numbering system.

The 15 technical reports used geographical areas designated Zones A, B, C, and D to reference the location of the design options, although the impact analysis within each technical report was not necessarily meant to be based on those zone boundaries. In the SDEIS, the narrative was intended to be less focused on the zone boundaries and more focused on features in the proposed Sunrise Project area. For reviewers of both the technical reports and this FEIS, the I-205 Interchange area corresponds to Zone A, the Midpoint area corresponds to Zones B and C, and the Rock Creek Junction area corresponds to Zone D.

Design Option A-2: Modified 1996 design

Design Option A-2 is in the I-205 Interchange area and could be implemented with either build alternative. This design option would differ from **Alternatives 2 and 3** by not extending Lawnfield Road to the north (see Figure 6, Comparison of Options for I-205 Interchange Area, in Executive Summary) and replacing it with a smaller local connection to/from SE 82nd Drive and the Lawnfield industrial area. The connection would be from SE Industrial Way over the UPRR tracks via SE Tolbert Street. This option was developed to address business community concerns about

connectivity in the area. This design option is available under both build alternatives. It may be substituted for the North Lawnfield Extension.

Design Option B-2: 1996 split interchange (modified)

Design Option B-2 is in the SE 122nd Avenue area and is an option for **Alternative 2** only, because **Alternative 3** does not have an interchange in the Midpoint area. **Design Option B-2** would have a modified split-diamond interchange involving both SE 122nd Avenue and SE 130th Avenue (see Figure 7, Comparison of Options for Midpoint Area, in Executive Summary) instead of single diamond interchange only at SE 122nd Avenue. Travelers on the proposed Sunrise Project would have two choices of exits, a feature that is intended to reduce potential congestion on OR 212/224 at the off- and on-ramps at the midpoint under **Alternative 2**. **Design Option B-2** could be considered with **Design Option A-2** and/or **Design Option C-2**. However, it would not be compatible with the design of the curves in **Design Option C-3**, so **Design Options B-2** and **C-3** could not be combined.

Design Option C-2: Central alignment

Design Option C-2 is located in the SE 135th Avenue area and may be substituted for the comparable segment in **Alternatives 2** and **3**, and for **Design Option C-3**. **Design Option C-2** would alter the road alignment in the vicinity of Rock Creek, moving it closer to the existing OR 212/224 alignment (see Figure 8, Comparison of Options for Midpoint Area [East End], in Executive Summary). The purpose of **Design Option C-2** is to reduce impacts to the wildlife corridor by moving the alignment farther from the base of the bluff.

Design Option C-3: Modified follow tree-line alignment

Design Option C-3 would more closely follow the existing tree line to the north to reduce impacts to a residential development (see Figure 8, in Executive Summary). **Design Option**

C-3 may be substituted for the comparable segment in **Alternatives 2** and **3**, and for **Design Option C-2**. However, **Design Option B-2** and **Design Option C-3** are incompatible due to the curves in **Design Option C-3**.

Design Option D-2: Alignment through knoll (folded diamond interchange)

Design Option D-2 is in the Rock Creek Junction area and could be used with either build alternative or **Design Option D-3**. This option would move the folded diamond interchange south from its location mostly north of a natural knoll under **Alternatives 2** and **3**. **Design Option D-2** would place the alignment through the knoll but would have lower right-of-way impacts on a narrow wildlife corridor and the site of the proposed medical care complex (see Figure 9, Comparison of Options for Rock Creek Junction Area, in Executive Summary).

Design Option D-3: Single-point diamond interchange

Design Option D-3 in the Rock Creek segment is an option to **Alternatives 2** and **3** and to **Design Option D-2**. This design option replaces the folded diamond interchange with a single-point diamond design interchange that would require less right-of-way (see Figure 9, in Executive Summary) and reduce impacts on the site of the proposed medical care complex.

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**. Additionally, the **Preferred Alternative** includes several modifications based on both stakeholder input and additional design refinement 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 show 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. Without the third lane, westbound traffic would be backed up from Webster Road to I-205.
- The North Lawnfield Extension will be shifted to the east to avoid impacts to the KEX site historic resource and other cultural and natural resources in the area between the existing SE Lawnfield Road and SE 97th Avenue.
- A dedicated westbound right-turn lane will be added at SE 82nd Drive and 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.
 - Widening SE 82nd Drive from three to five lanes between the Fred Meyer store and SE Clackamas Road and creating a new signalized intersection at SE 82nd Drive and SE Clackamas Road to accommodate U-turns, including trucks.

- Widening from three to five lanes 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 to the Rock Creek Interchange.

Rock Creek 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 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 212 will be created. **Alternative 2** had north SE 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

The **Preferred Alternative** would add new local transit service from Happy Valley to the Springwater area, more frequent service between Damascus and Gresham, and new express bus service along the proposed Sunrise Project between the Clackamas Transit Center and Damascus Town Center. Current regional plans identify SE Sunnyside Road as the east-west transit route within the Sunrise Project area.

The **Preferred Alternative** would 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. The new multi-use path would parallel the proposed Sunrise Project from I-205 on the north side until SE 122nd Avenue, where it would cross under and follow the existing OR 212/224 to SE 152nd Avenue. The multi-use path would also connect the cul-de-sac of OR 212, just east of SE 162nd Avenue, to SE 172nd Avenue.



Aerial view of Rock Creek Junction

How New Connections Would Be Made

This section describes and depicts in a general way how travelers would get from point to point on the Sunrise Project. Figures 10 through 17 depict the changes to connections that would occur. Figures PA-6 through PA-8 show the changes to connections for the **Preferred Alternative**. There are few differences between the connections for the **Preferred Alternative** and **Alternative 2**; where there are differences they are noted in separate paragraphs for each area of the project.

Changes to connections between I-205, Milwaukie Expressway, and SE 82nd Avenue/Drive

The proposed alignment would cross SE 82nd Avenue and I-205 with a long overpass, and then turn southeast (Figure 10 and Figure PA-6). Travelers could make the following connections:

- From eastbound on the Milwaukie Expressway to I-205 northbound via a looped on-ramp.
- From eastbound on the Milwaukie Expressway to I-205 southbound by turning right onto the on-ramp at the western end of the overpass.
- From westbound on the proposed Sunrise Project to I-205 northbound via an auxiliary lane and off-ramp.
- From westbound on the proposed Sunrise Project to I-205 southbound by a loop to I-205 on-ramp.
- From I-205 traveling north or south, access to the proposed Sunrise Project at signals at end of off-ramps or, in the case of southbound I-205 to eastbound Sunrise, via a direct fly-over ramp.
- From northbound on I-205 to SE 82nd Avenue/Drive via a dedicated off-ramp.
- From southbound on I-205 to westbound Milwaukie Expressway (OR 212) by turning right only at a signal at the west end of the proposed Sunrise Project overpass.

On I-205, the on- and off-ramps would be “braided,” or channeled, between interchanges at SE Sunnyside Road, the proposed Sunrise Project, and OR 212/224. Braided ramps mean traffic will be separated according to its destination; the braided ramps are what give the I-205/Sunrise Interchange its spaghetti-like look. For example, traffic on I-205 southbound will have a ramp dedicated to the eastbound direction on the proposed Sunrise Project. By separating traffic, the braided ramps avoid the “weaving” that currently happens when traffic from one highway has to cross lanes to access another highway or exit. Braided ramps address the safety needs of the project by reducing potential collision points, and they also improve traffic flow. By preventing certain connections, they help to eliminate dangerous movements that tend to happen today on I-205. For example, the braided ramps will eliminate the movements between SE Sunnyside Road and SE 82nd Avenue and the movements between OR 212/224 and SE 82nd Avenue. The movements would be possible on local streets but not on I-205.

The Lawnfield area network would change by the addition of a street connection from SE Lawnfield Road to SE Mather Road through an extended SE 98th Avenue. SE Lawnfield Road would be extended west and south under the proposed Sunrise Project to connect with SE Clackamas Road.

SE 82nd Avenue (west of I-205) would be directly connected to SE 82nd Drive (east of I-205) over I-205. Travelers on SE 82nd Avenue/Drive wanting to go south on I-205 would have a signalized on-ramp just south of the Milwaukie Expressway.

Travelers on I-205 northbound would connect directly to SE 82nd Avenue/Drive through a signalized off-ramp. Travelers from SE 82nd Avenue at the north end of the project area wanting to go either north or south on I-205 could use SE Sunnyside Road.

The new interchange configuration does not affect the connection between the Sunnyside/Sunnybrook Interchange and the

OR 212/224 Interchange. The braided ramps still allow drivers to use I-205 between the two interchanges.

Preferred Alternative

To improve traffic flow and remove conflicts from the intersection of OR 212/224 and SE 82nd Drive, all left-turn movements will be restricted. To accommodate the vehicles that would otherwise make these left-turns, u-turn capabilities (shown on Figure PA-6) are provided to the north and south of the intersection on SE 82nd Drive at SE Clackamas Road (to the north) and the northern Fred Meyer intersection (to the south).

Connections at the Midpoint area

Travelers would use the Midpoint connection to access OR 212/224 from either direction on the proposed Sunrise Project (Figures 12 through 15, and Figure PA-7). Conversely, residents and business traffic traveling from OR 212/224 would use SE 122nd Avenue to go eastbound or westbound on the proposed Sunrise Project.

Under **Design Option B-2** (Figure 13) travelers on the proposed Sunrise Project or on OR 212/224 could exit either at SE 122nd Avenue or at SE 130th Avenue.

Preferred Alternative

The connections will be the same as for **Alternative 2** (Figure PA-7) except that two cul-de-sacs would be provided on the north side of the project to make connections for parcels east of SE 135th Avenue and east of SE 142nd Avenue. Under **Alternative 2**, one cul-de-sac provides access to lots west of SE 142nd Avenue.

Connections at Rock Creek Junction

Under **Alternatives 2 and 3** and **Design Option D-2** (Figures 16 and 17) the proposed Sunrise Project would incorporate a folded diamond interchange aligned north of a prominent knoll. Travelers eastbound on the proposed Sunrise Project wanting to connect to OR 224 eastbound would use an exit ramp and turn

right at the signalized intersection. Travelers westbound on the proposed Sunrise Project wanting to connect to OR 212 eastbound would exit via an off-ramp and turn left to a connecting road to OR 212/224. The same connecting road to OR 212/224 would be used by travelers wanting to go east or west on the highway. Westbound travel would connect to a loop ramp at the same location as the westbound off-ramp. Eastbound travel would be via an on-ramp from the connecting road just south of the highway.

Under **Design Option D-3** (Figure 17) the interchange ramps would lead to a signal underneath the highway, and travelers would use the connecting road under the highway in the same way as described above for **Design Option D-2**.

The connection between OR 212 and OR 224 would be reconfigured 1,300 feet farther south with a signalized T-intersection. The new access road would turn north and connect to the existing OR 212/224 at another signalized T-intersection.

Preferred Alternative

The configuration of the interchange at Rock Creek Junction is unchanged from that shown for **Design Option D-3** (Figure 17). New access to the Orchard Lake subdivision will be provided via a new access at SE 162nd Avenue south of the new highway. That new access provides mitigation for the closure of SE Goosehollow Drive at OR 212. In addition, a right-out-only connection with OR 224 at SE Orchard View Lane will provide northbound access from the Orchard Lake subdivision. North of the Sunrise Project, local access to properties will be provided by local street improvements contained in the Happy Valley Transportation System Plan.

Selection of the Preferred Alternative

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 show the **Preferred Alternative** as a whole and in specific areas.

The only difference between **Alternative 2** and **Alternative 3** is the midpoint interchange and both meet the Purpose and Need for the Sunrise Project. 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 in two out of four evaluation measures of Goal 1, Objective 1 of the screening criteria; the other two evaluation measures have equivalent benefits. The midpoint interchange would reduce volumes on I-205 by about 600 vehicles daily compared to a facility with no midpoint interchange. The **Preferred Alternative's** project refinements result in reduced volume on I-205 of more than 1,000 vehicles compared to **Alternative 3**. Capacity on I-205 is 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 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 calls 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 jobs (60), which is 20 fewer jobs than the **Preferred Alternative** will displace. However, the reason for the additional displacements under the **Preferred Alternative** is primarily the mitigation measures at SE 82nd Drive to alleviate circulation impacts from **Alternative 2** (after adopted as the **Preferred Alternative**), which means other objectives in Goal 1.

The **Preferred Alternative** better meets the objectives that call for fewer noise, affordable housing, residential displacement, and wetland and wildlife corridor impacts than **Alternative 2** and 3 and the build alternatives with design options. Those objectives support Goal 3 (Objectives 2, 3, 4, and 7) and Goal 4 (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 would support Objective 7 of Goal 4 because all alternatives would need to meet the same water quality standards. Analysis for the **Preferred Alternative** has demonstrated (see Figures PA-26 through PA-45) that water quality treatment can be accommodated.

Public comments supported **Alternative 2** (93 comments) over **Alternative 3** (8 comments). **Design Option A-2** was supported by 33 comments.

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 facility 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. It 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 of that extension. Fifty-one public comments supported the North Lawnfield Extension based on its ability to rectify the loss of more direct access to I-205, while 32 comments opposed it (without citing a reason).

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 including 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 resources (Frank A. Haberlach House and Silverthread Kraut and Pickle Works Building)., It further constrains the wildlife corridor compared to **Alternative 2**. One benefit is slightly fewer noise impacts, because traffic is more dispersed. The split-diamond interchange provides a modest benefit to westbound drivers on OR 212/224 when congestion backs up beyond SE 122nd Avenue. One individual comment out of four comments on **Design Option B-2** favored the option, while three opposed it based on the cost and the minimal traffic benefit.

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 amongst **Alternative 2**, **Design Option C-2**, and **Design Option C-3**, the selection focused on 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 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. Public comments were most in favor of **Design Option C-3** (86).

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 the Providence property 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** 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. Public comment preferred **Design Option D-3** (45 in favor) over **Design Option D-2** (39 in favor). Public comments also requested 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.

Other Project Refinements

While the alternatives and design options were being evaluated, the technical team worked on other project refinements, addressing concerns raised by the public and project partners regarding access and local connectivity. The **Preferred Alternative** includes these project refinements (see Figures PA-6 through PA-8):

- SE 162nd Avenue Extension south of OR 212 to SE Goosehollow Drive – added as another connection for the Orchard Lake neighborhood.
- SE Orchard View Lane Access – added a right-out-only connection to the Goosehollow neighborhood.
- Intersection of SE Johnson Road and SE Deer Creek Lane – revised to address local driveway and circulation issues, by maintaining the existing intersection location and roadway alignments to minimize impacts to local businesses.
- Frontage road driveways for local businesses – these include several modifications including an access road for

businesses along OR 224 southwest of Rock Creek Junction, near SE 125th Court and several near SE 82nd Drive (e.g., St. Helens Street, SE Janssen Road).

- Cul-de-sac modifications for residences – these include modifications to connections to neighborhoods near Hubbard Road, SE 142nd, SE 162nd Avenue, and SE 82nd Drive.

Consideration of Concerns and Issues Raised during the Public Comment Period

The public's comments at the public hearing and received during the public comment period are presented in Appendix A. How the key concerns were considered or addressed in developing the **Preferred Alternative** is discussed below.

Midpoint interchange. The issue of the Midpoint interchange was the trade-off between improved mobility (with the interchange) and somewhat greater environmental impacts. The public comments supported **Alternative 2** over **Alternative 3** by a wide margin (see Chapter 5). Public support and the benefits of redundant access and shorter travel times to the core of the Clackamas Industrial Area made the midpoint interchange in **Alternative 2** preferable to no midpoint interchange.

Lawnfield Extension and Tolbert overcrossing. There were advocates and opponents for both options in this area of the I-205 interchange, as discussed above under “**Alternative 2** and **Design Option A-2.**” This issue was resolved by keeping both options in the **Preferred Alternative**. As a result, the **Preferred Alternative** maximizes connectivity in the industrial area. Potential adverse impacts to the KEX site and adjacent natural resources from the North Lawnfield Extension were reduced by realigning the extension farther east.

Transportation circulation. Where existing access would be replaced with alternative routes, business and residential commenters expressed concern about longer travel times and consequent cost impacts on businesses. Of particular concern were the cul-de-sac on SE Lake Road, the median on SE Johnson Road, the limited turn movements from cross-streets at SE 82nd Drive, restriction of Lawnfield industrial area access to I-205, SE Deer Creek Lane, the closing of SE Goosehollow Drive at OR 224, and business access blockages from a Tolbert overcrossing. In several cases (access along SE 82nd Drive, SE Deer Creek Lane), the project team was able to adjust the design to improve provision of access. Two access points are provided in the **Preferred Alternative** to the Lawnfield Industrial area in an effort to make sure this area remains viable and has adequate access. SE 162nd Avenue will provide an alternative access to mitigate the closing of access at the intersection of SE Goosehollow Drive and OR 224.

Business impacts. Nine commenters wrote letters addressing concerns about right-of-way, property acquisition, and property values. These ranged from specific concerns about property acquisitions, to questions about timing and compensation from the project.

For parcels that are partially acquired from businesses, the business owners will receive compensation for the fair market value of the land in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act). The compensation would not include any value on revenue streams or how future revenues might be affected by a reduced lot size, ability to expand on a lot, or changes in access.

Land supply in the Clackamas Industrial Area is limited by the urban growth boundary on the south, I-205 on the west, Rock Creek and residential areas on the north and east. It is well accepted that successful industrial areas tend to have clusters of related businesses, such as suppliers to manufacturers. Consequently, the

acquisition of businesses and industrial land may negatively affect the remaining industrial businesses because the land supply is not easily augmented and the loss of land and businesses may reduce the “critical mass” needed to remain a viable industrial area. The eventual impact of those losses on the Clackamas Industrial Area cannot be calculated. However, the loss of industrial land and businesses would not be the only factor that is likely to influence future uses of this area, congestion being another big factor since the distribution sector is a major portion of the industry there. The benefit to the Clackamas Industrial Area of building the Sunrise Project will be to ensure future mobility to and through the industrial area compared to the No Build conditions. The slower growth of congestion may increase the appeal of locating on designated industrial lands in Damascus and redeveloping the remaining industrial lots at higher densities, and may offset the negative impacts of the loss of other businesses.

In addition, Clackamas County will identify and apply community development tools to encourage public-private partnerships that will optimize opportunities for economic development and re-development once the Sunrise Project is complete.

Some of the costs of relocating businesses cannot be compensated for under the Uniform Act, including loss of business during construction or the travel costs for future out-of-direction travel that results from the project. As part of the final design process, ODOT will work with affected businesses to limit the anticipated impacts on business revenues or costs caused by construction and by the new local routes. A construction management plan will be developed that supports the continued operation of business districts and the livability of neighborhoods. The goal is to keep the business nearby or at least in Clackamas County.

KEX Radio. In late 1991, initial contact was made with KEX Radio regarding potential impacts to the KEX facility and radio signal from

the Sunrise Corridor Project. Numerous discussions and much correspondence occurred between ODOT and KEX throughout the process leading to the adoption of the 1993 DEIS and through 1996 as a draft FEIS was being prepared (not adopted).

KEX concerns during the preparation of the 1993 DEIS were primarily focused on one of the project alignments (Central Alignment), and the potential for adverse impacts on the KEX radio signal clarity and range. At that time, both KEX Radio and ODOT acknowledged that there was no predictive computer model available to quantify and assess the impacts to KEX’s signal from the proposed highway construction.

The initiation in 2004 of the Sunrise Project Supplemental Draft EIS, I-205 to Rock Creek Junction, also prompted the resumption of conversations with KEX on potential adverse impacts to their facility. The commitments proposed by ODOT in 1996 were revisited and reconfirmed. Additional issues regarding new design options (the extension of SE 97th Avenue from SE Lawnfield Road to SE Sunnybrook Boulevard) have been raised, and discussions have continued between ODOT, Clackamas County, and KEX representatives to address these concerns.

ODOT and KEX/Clear Channel continue to jointly acknowledge that 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 prior to construction. Mitigation measures in this FEIS have been developed to 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.

Noise. About a dozen individuals made formal comments concerning noise impacts on residences on the bluff north of the alignment (roughly between SE 122nd Avenue and SE 135th Avenue), how noise would affect property values, and whether the lack of mitigation and/or compensation was justified. **Design Option B-2** was predicted to have noise impacts

on 111 residences compared to 121 for **Alternative 2** and 118 for **Alternative 3**. The difference is primarily because of small changes in sound levels for properties with predicted levels at the impact criterion of 65 dBA. The slight difference would not offset the other negative aspects of **Design Option B-2** compared to **Alternative 2**. The noise abatement sections of the Noise Technical Report and this FEIS note that several abatement measures for noise impacts on the bluff were evaluated, including slight shifts in alignment. Noise abatement for residences along the bluff was generally found to be either ineffective at reducing sound levels or the costs were too high to meet the ODOT reasonable criterion. At the manufactured home park east of SE 106th Avenue and south of the Sunrise Project, a noise wall was found to meet the effectiveness and reasonableness criteria. In all, 14 abatement measures were evaluated for residents along the bluff. However, none of those measures met ODOT's reasonable and feasible criteria. Because the number and the magnitude of noise impacts varied only slightly by alternative and options available, noise impacts were not a major consideration in the selection of the **Preferred Alternative**.

The potential effects of increased noise levels on wildlife were also noted, but no analysis of those impacts has been done or is planned to be done as part of this project.

Environment. Approximately 14 agencies, businesses or organizations, and individuals commented on the project's encroachment on upland and riparian habitats, wetlands, and the wildlife corridor. The creation of new impervious surface and its impacts on surface water quality was another issue raised during the public comment process. Some commenters said that there was insufficient information or analysis of specific impacts, such as growth pressures and greenhouse gas emissions. In the I-205 Interchange area, the impacts of the **Preferred Alternative** on upland and riparian habitat are lower than those with **Alternative 2** as a result of the realignment of the North Lawnfield Extension further east. Including

Design Option C-2 as part of the **Preferred Alternative** reduces impacts to the wildlife corridor along the bluff compared to **Alternative 2** and **Design Option C-3** in this area. **Design Option D-3** has fewer impacts on a narrow portion of the wildlife corridor than **Alternative 2**.

Residential neighborhoods. Several individuals made comments regarding their concern about the impacts of increased noise levels and lighting, and about the loss of valuable views on livability in the neighborhood. They noted that there was no mitigation or compensation for those impacts. The only alternative that would not have noise, visual, or lighting impacts would be the **No Build Alternative**. The **No Build Alternative** was not recommended as the **Preferred Alternative**, because it does not meet the Purpose and Need of the project. There are minimal differences in impacts to residential neighborhoods between the build alternatives and the design options. Mitigation measures to reduce impacts from light and visual impacts are found in the mitigation summary and the respective sections of Chapter 3.

Property values. Several businesses and individuals expressed concern about how the loss of freeway access will affect the value of industrial or commercial properties. There was concern about inadequate compensation for acquisition of businesses (no compensation for value of a business) and residential properties (lower values due to the economic downturn). Residents are concerned that the lack of mitigation for impacts on residences on the bluff (noise, visual, and access impacts) will diminish property values and lower owners' abilities to sell their homes. Mitigation measures for displacements of residents would occur under the Uniform Act; Federal Law 91.646; the Code of Federal Regulations (CFR 49, Part 24); Oregon Revised Statutes (ORS 281.045 to 281.105); ORS 35.346; and State of Oregon Right-of-way Manual. The Uniform Act requires fair and equitable treatment of all property owners as well as businesses or residents displaced as a direct result of programs or projects. Fair market value is the

basis for all full acquisitions, and speculative increases or decreases to property values generated by the project are not considered in the appraisal process for full acquisitions. For partial acquisitions, damages can be considered as part of the right-of-way appraisal process.

Comparison of Alternatives and Design Options

The **No Build Alternative** is the alternative with the fewest direct impacts to natural resources. However, the **No Build Alternative** does not meet the Purpose and Need of the project. **Alternative 2** has somewhat greater impacts than **Alternative 3**, because the midpoint interchange creates a larger footprint and more impervious surface.

The **Preferred Alternative** avoids and minimizes environmental impacts to the greatest extent practicable. Further mitigation strategies have been developed that will further avoid and minimize impacts.

Public support for **Alternative 2**, combined with the benefits of redundant access and shorter travel times to the core of the Clackamas Industrial Area, outweighed the marginally lower environmental impacts of **Alternative 3**. The recommendation to add the Tolbert overcrossing (**Design Option A-2**) and other local improvements in the I-205 Interchange area to create the **Preferred Alternative** increases impervious surface compared to **Alternative 2** or **Design Option A-2** alone. However, **Alternative 2** and **Design Option A-2** were combined because of the strong local support and the need to maximize connectivity in the industrial area. Some of the potential adverse impacts of the Lawnfield Extension to the KEX site and adjacent natural resources have been reduced by realigning the Lawnfield Extension farther east. The **Preferred Alternative** includes adding a third westbound lane that would lengthen and widen the west end of the project to approximately 1,000 feet west of SE Webster Road, slightly increasing impervious surface over **Alternative 2**. However, there is no habitat for wildlife in the

new areas west of SE Johnson Road. The additional third lane will reduce congestion-related queuing and improve travel times and reliability.

The **Preferred Alternative** alignment in the Midpoint area contains the lowest-impact design option, **Design Option C-2**. In the Rock Creek Junction area, the chosen **Design Option D-3** has the smallest amount of impervious surface and preserves as much as or more of a narrow wildlife corridor as the other options.

Preliminary Project Costs

Preliminary construction and right-of-way cost estimates for all of the build alternatives are presented in Table 1 (Executive Summary). Actual construction costs will depend upon labor and materials costs, competitive market conditions, final project requirements, and other variables at the time of the construction contract. Construction cost estimates are based on unit costs as derived from recent large construction projects in the region. Cost estimates are provided for the year 2009 and the expected year of construction, 2013. Estimated 2013 costs are derived using inflation factors of 4.3 percent (2009 – 2011) and 4.0 percent (2012 – 2013).

Alternatives 2 and 3

The total cost of the proposed project depends on the alternative and design option. Table 1, Chapter 1, shows that in 2009 dollars, **Alternative 2** is estimated to cost \$1,254 million, while **Alternative 3** is estimated at \$1,186 million. **Alternative 2 with Design Option B-2** has the highest estimated cost—\$1,359 million—while **Alternative 3 with Design Option D-2** has the lowest estimated cost—\$1,105 million.

Preferred Alternative

The **Preferred Alternative** is estimated to cost \$1,493 million. Much of the difference in the cost compared to **Alternatives 2 and 3** is based on updated and more refined analysis of project

construction and right-of-way acquisition information. For example, the **Preferred Alternative** includes \$216 million in right-of-way costs that were not previously included in the right-of-way estimates for **Alternatives 2** and **3**. The previous right-of-way estimates did not include the costs of administration, demolition, or contingency items. The estimates for the **Preferred Alternative** now do include these administration, demolition, and contingency costs.

Some of the land currently owned by ODOT or Clackamas County within the right-of-way will be donated to the project and is not included in the right-of-way cost estimate provided in this FEIS. In contrast, the estimates for **Alternatives 2** and **3**, in the SDEIS, assumed such public land would be purchased. ODOT's District Office in the Lawnfield area would need to be moved to a new location at a cost of \$20 million. This expense is reflected in the total cost estimate for the **Preferred Alternative** in this FEIS, but was not included in the estimates for **Alternatives 2** and **3** in the SDEIS.

Funding

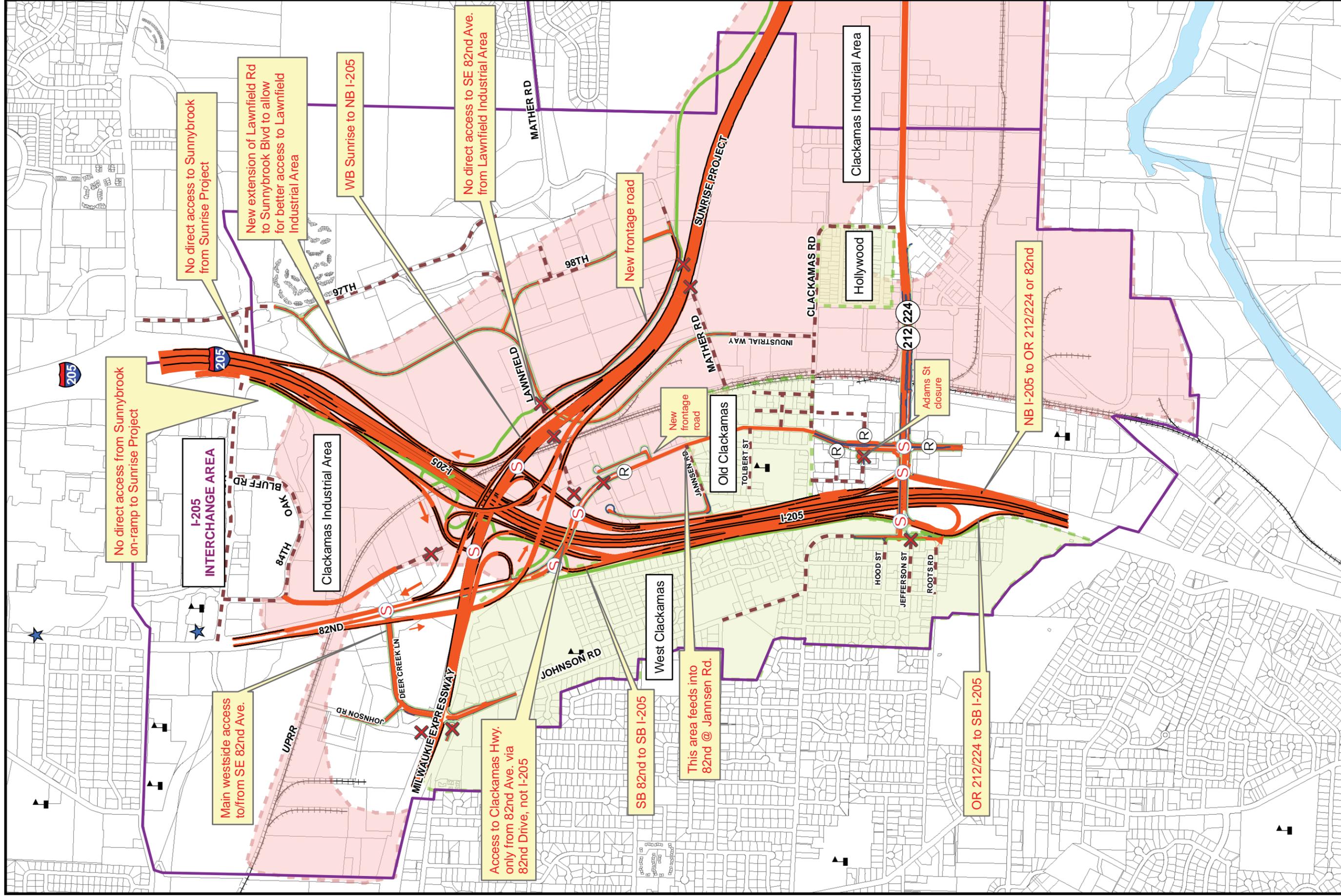
Currently, ODOT has estimated \$428 million will become available for the project over the next 20 years. The commitment of \$428 million is included in the Metro 2035 RTP financially-constrained list of projects.

FHWA has guidance for major projects that imposes requirements on recipients of federal financial assistance for projects with an estimated cost of \$500 million or more. The proposed Sunrise Project will need to comply with those requirements by developing a Project Management Plan and Financial Plan, mechanisms for managing such large projects. ODOT is currently preparing those plans.

Funding currently committed to the project totals \$200.55 million: \$143.87 million in committed funding, and \$56.68 million in value of surplus ODOT and County properties available for project right-of-way. Specific funding derives from the following sources:

2009 State Legislation (Jobs & Transportation Act – State Gas Tax) (\$100 million); ODOT Oregon Transportation Investment Act (OTIA) III (\$20 million); ODOT surplus properties for project right-of-way (\$35.07 million); Clackamas County Development Agency – surplus properties for project right-of-way (\$21.61 million); Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) federal reauthorization earmark (\$18 million); State Transportation Improvement Program (STIP – State Gas Tax) (\$3 million); Surface Transportation Program federal appropriations earmarks (\$1.1 million); ODOT contributions (\$909,000); and Clackamas County contributions (\$860,000).

The type and source of likely future funding would include the following: annual ODOT Region 1 Modernization fund allocations; 2009/2015/2021/2027 federal reauthorization program funds; 2011 state legislative program for Projects of Statewide Significance; and possible tolling revenue. The Oregon Transportation Commission has stated its intention not to initiate project-specific tolling analyses until it has had an opportunity to address wider policy issues associated with tolling (anticipated at a later date).



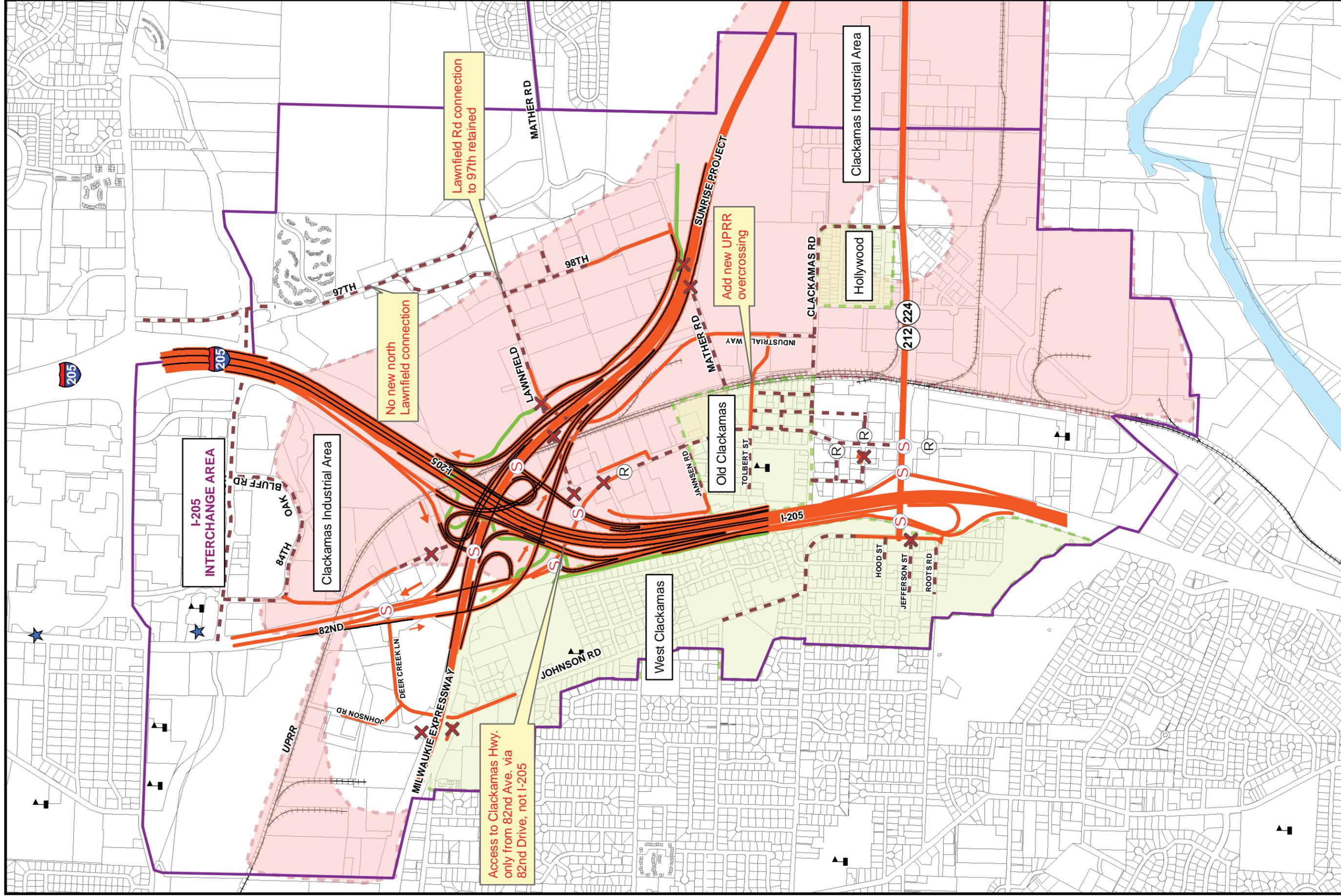
Legend

- Close Existing Access
- Directional Traffic Flow
- Existing Street
- Multi-use Path
- Proposed Project
- Business Districts
- Neighborhoods
- Police Station
- Railroad Right-in, Right-out
- Schools
- Signal
- I-205 Interchange Area Boundary

Figure 10
Changes to Travel Patterns, Alternatives 2 and 3

Sources: ODOT and Metro, Portland OR

Sunrise Project, I-205 to Rock Creek Junction



Legend

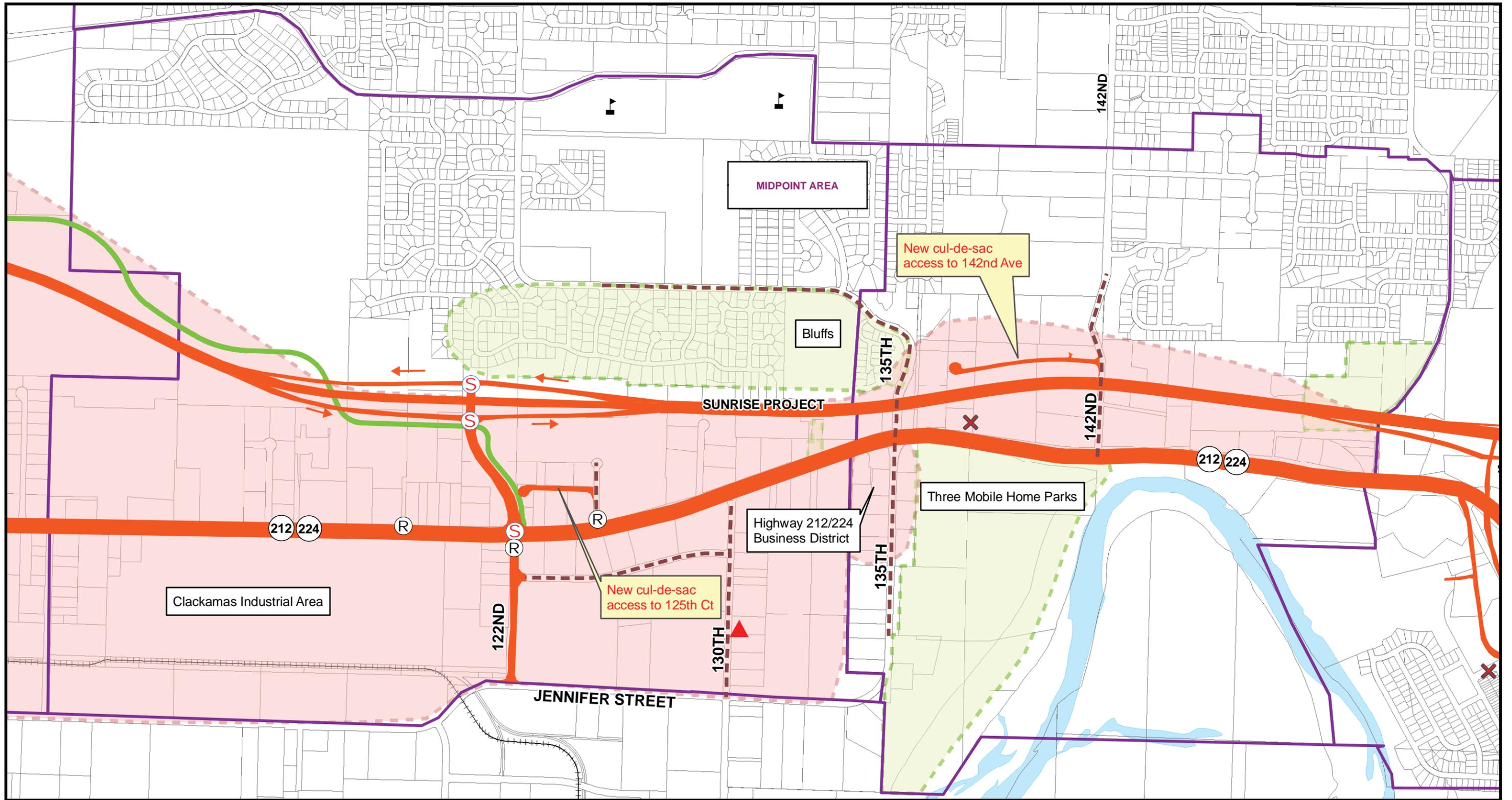
- Close Existing Access
- Directional Traffic Flow
- Existing Street
- Multi-use Path

- Proposed Project
- Business Districts
- Neighborhoods
- Police Station

- Railroad Right-in, Right-out
- Schools
- Signal

Figure 11
Changes to Travel Patterns,
Design Option A-2
 Sunrise Project, I-205 to Rock Creek Junction

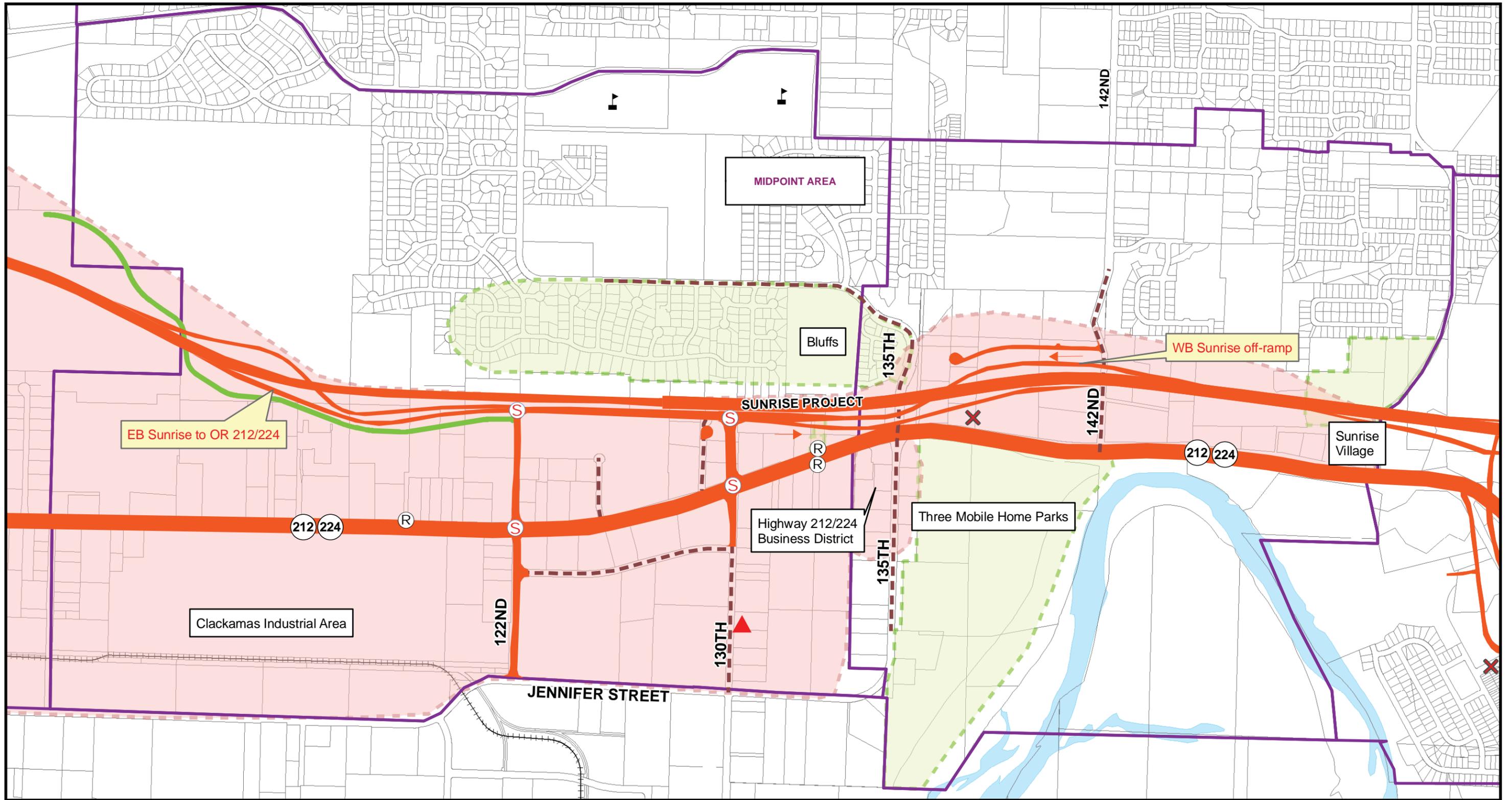
Sources:
 ODOT and Metro, Portland OR



Legend			
	Close Existing Access		Fire Stations
	Directional Traffic Flow		Business Districts
	Existing Street		Neighborhoods
	Multi-use Path		Right-in, Right-out
	Proposed Project		Signal
	Midpoint Area Boundary		Schools

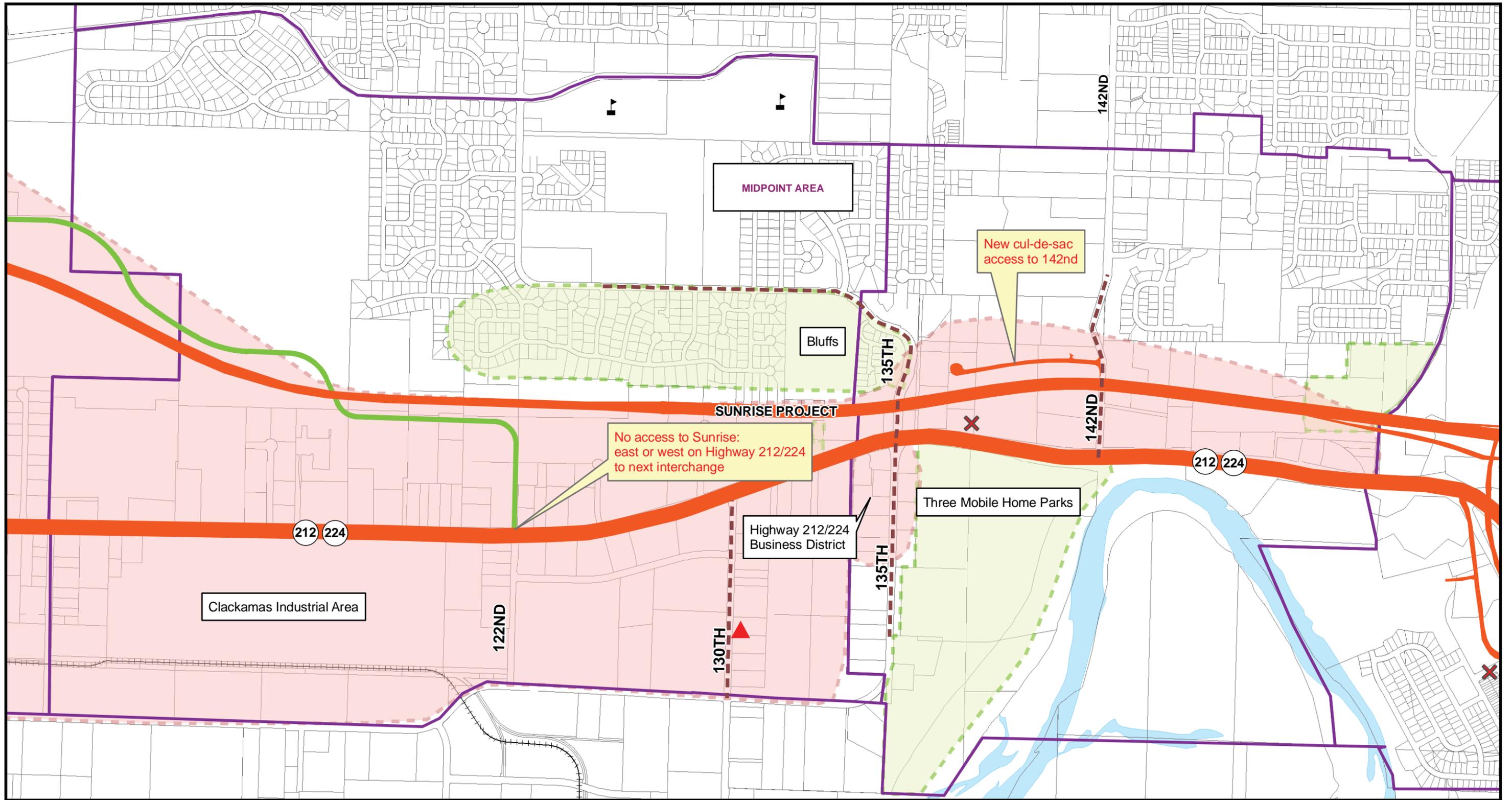
Figure 12
*Changes to Travel Patterns,
 Alternative 2 Midpoint Area*

Sunrise Project, I-205 to Rock Creek Junction



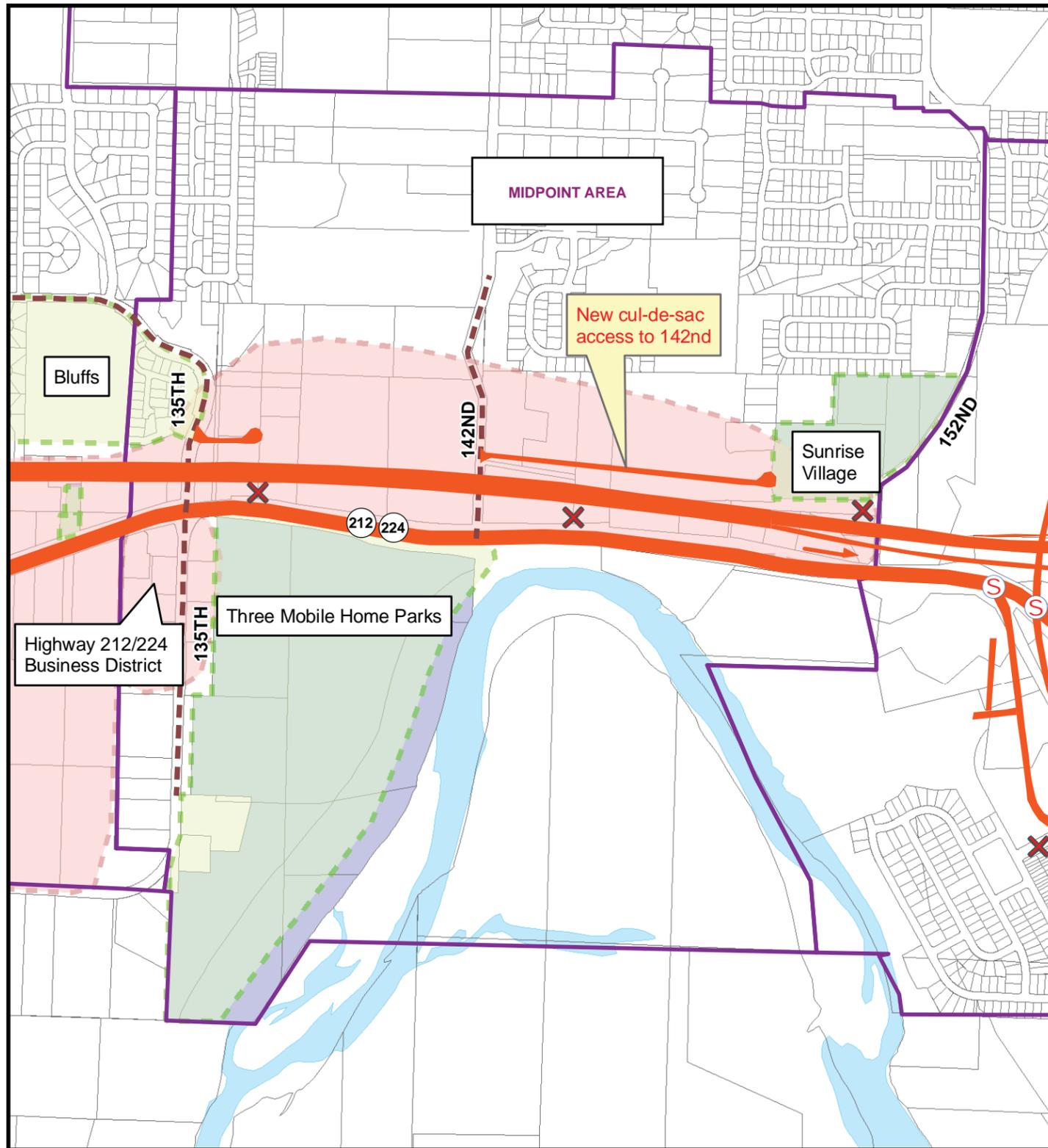
Legend			
	Close Existing Access		Fire Stations
	Directional Traffic Flow		Business Districts
	Existing Street		Neighborhoods
	Multi-use Path		Right-in, Right-out
	Proposed Project		Signal
	Midpoint Area Boundary		Schools

Figure 13
Changes to Travel Patterns, Design Option B-2
 Sunrise Project, I-205 to Rock Creek Junction

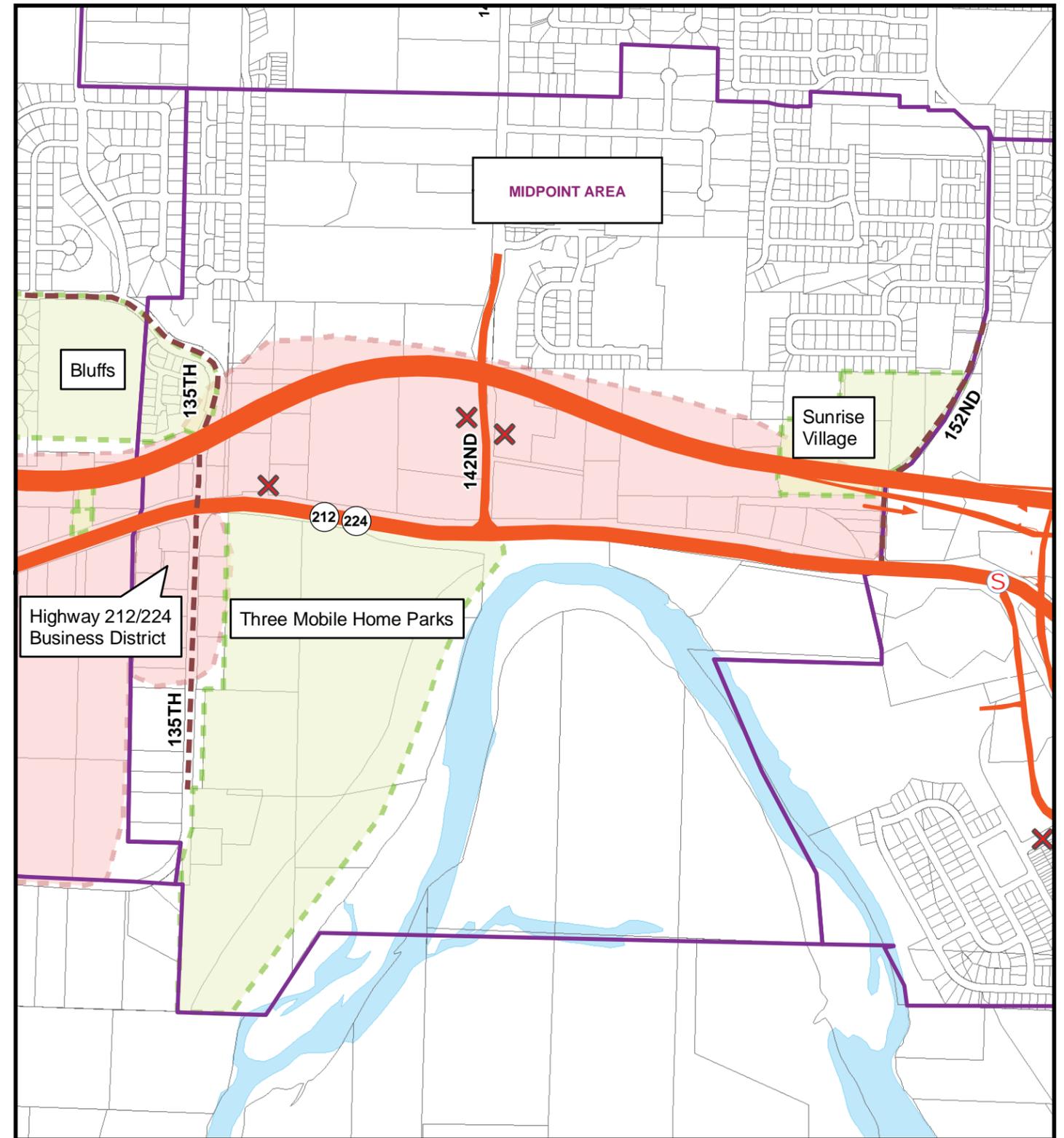


Legend			
	Close Existing Access		Fire Stations
	Directional Traffic Flow		Business Districts
	Existing Street		Neighborhoods
			Multi-use Path
			Right-in, Right-out
			Signal
			Proposed Project
			Midpoint Area Boundary
			Schools

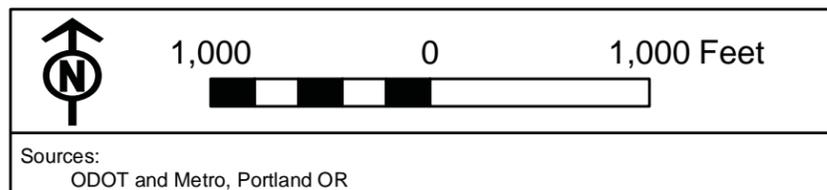
Figure 14
Changes to Travel Patterns, Alternative 3 Midpoint Area
 Sunrise Project, I-205 to Rock Creek Junction



Option C-2: Central Alignment



Option C-3: Modified Follow Tree-line Alignment

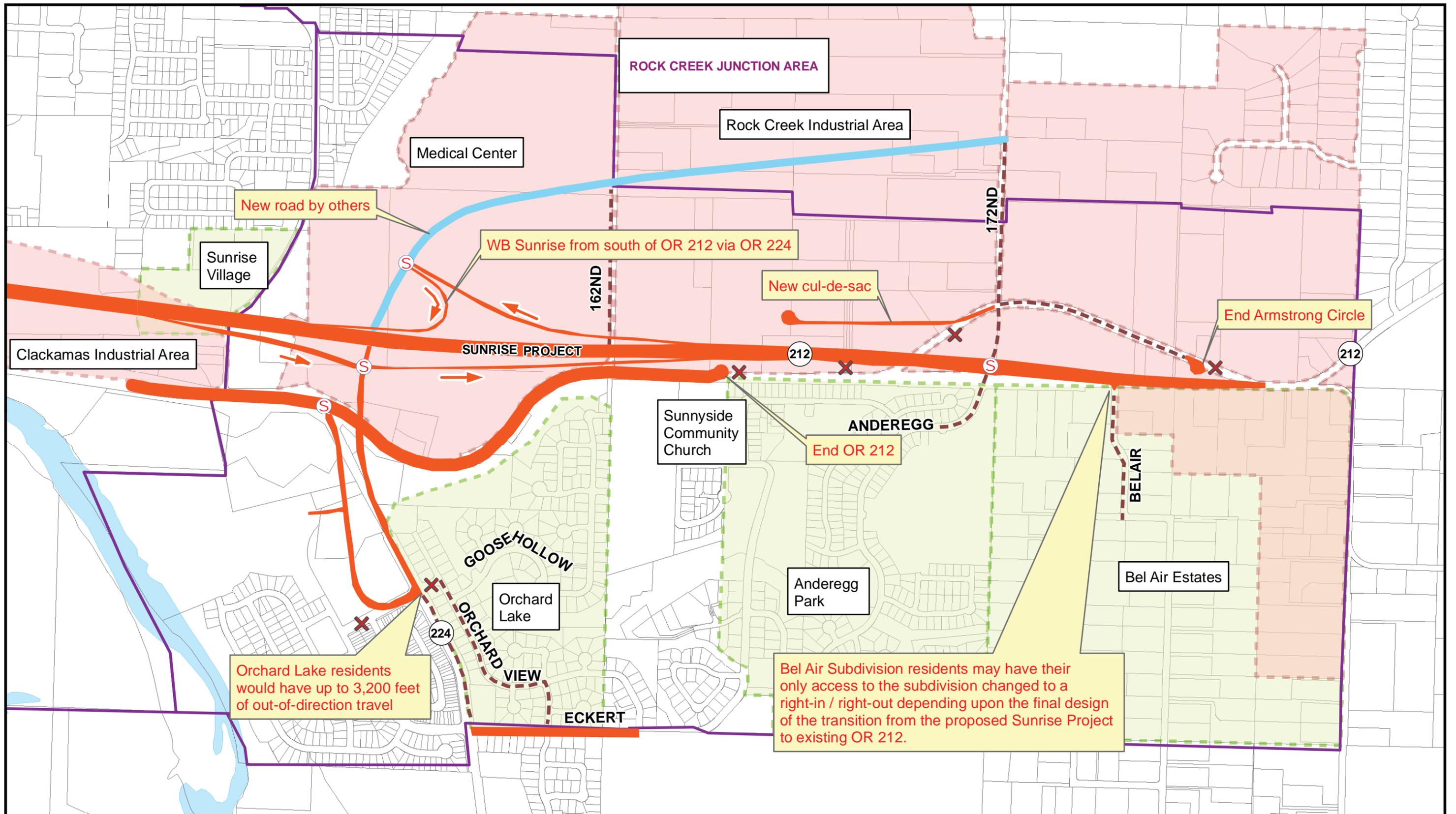


Legend			
	Close Existing Access		Fire Station
	Directional Traffic Flow		Business Districts
	Existing Street		Neighborhoods
	Proposed Project		Midpoint Area Boundary
	Signal		

Figure 15
*Changes to Travel Patterns,
 Design Options C-2 and C-3*

Sunrise Project, I-205 to Rock Creek Junction

Sources:
 ODOT and Metro, Portland OR



Orchard Lake residents would have up to 3,200 feet of out-of-direction travel

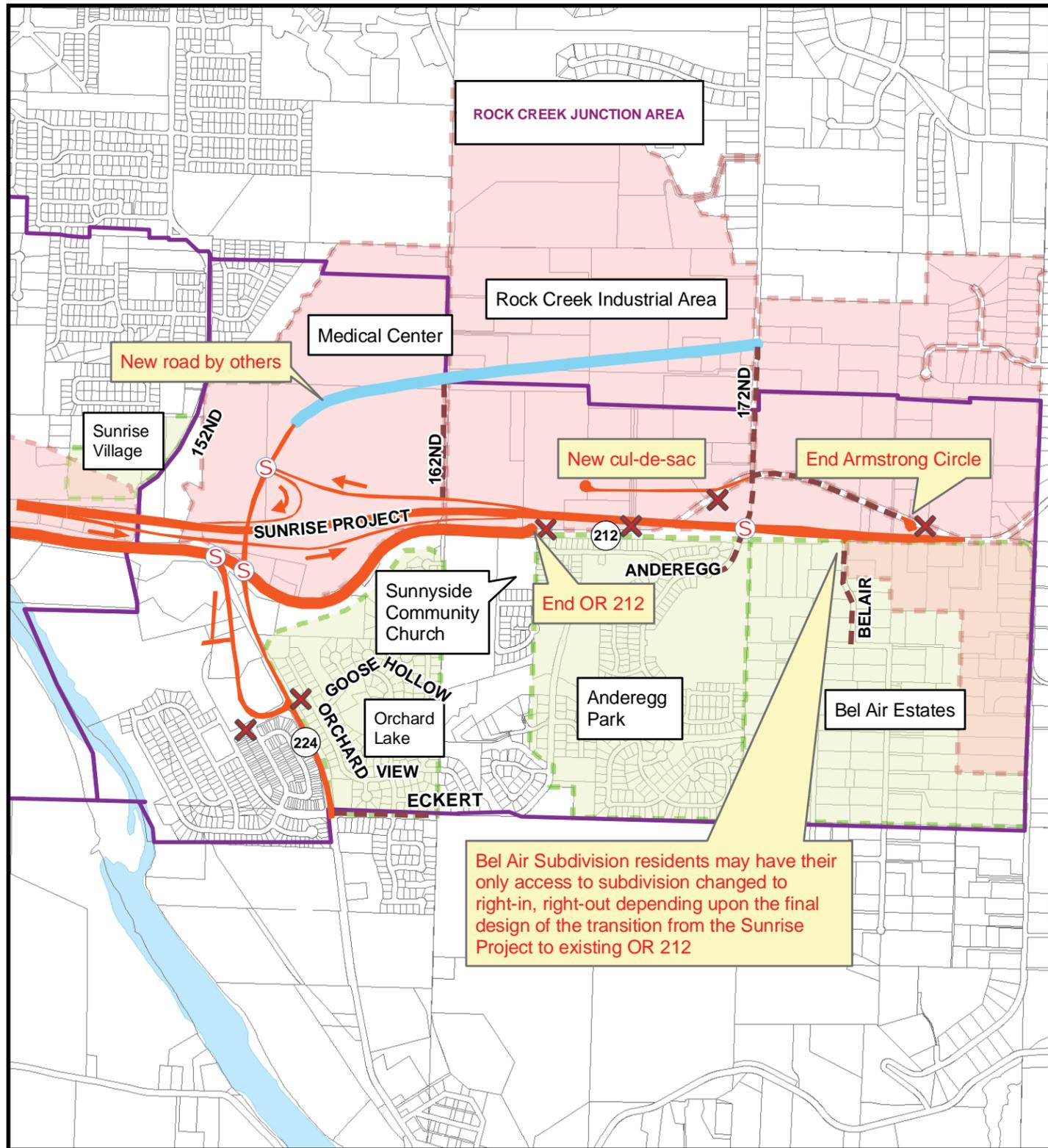
Bel Air Subdivision residents may have their only access to the subdivision changed to a right-in / right-out depending upon the final design of the transition from the proposed Sunrise Project to existing OR 212.



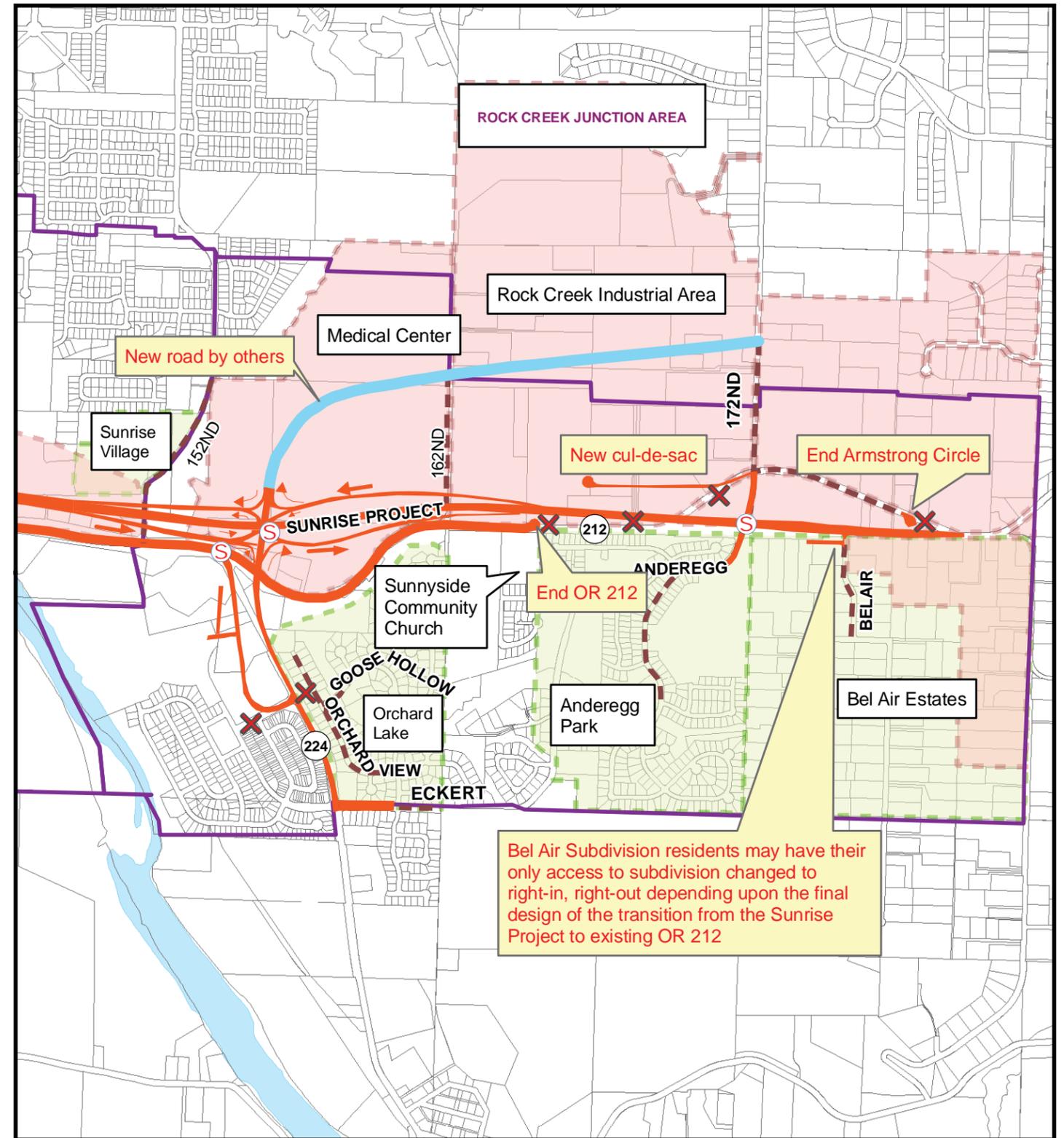
Sources:
ODOT and Metro, Portland OR

Legend	
	Close Existing Access
	Directional Traffic Flow
	Existing Street
	Business Districts
	Neighborhoods
	Proposed Project
	Signal
	Rock Creek Junction Area Boundary

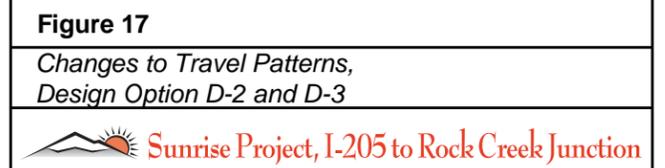
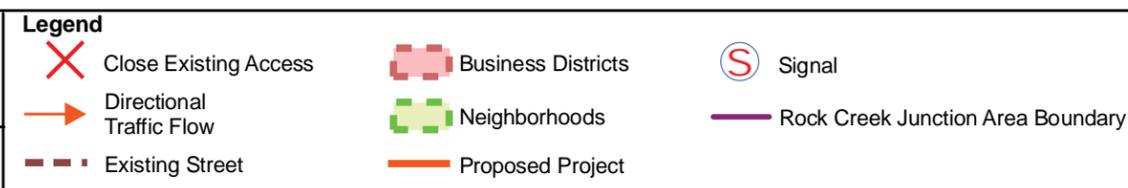
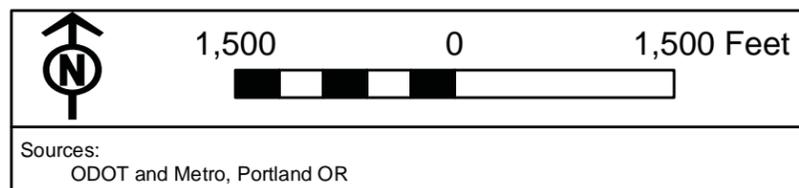
Figure 16
Changes to Travel Patterns,
Alternatives 2 and 3 Rock Creek Junction Area
 Sunrise Project, I-205 to Rock Creek Junction



**Option D-2: Alignment Through Knoll
(Folded Diamond Interchange)**



Option D-3: Single-Point Diamond Interchange



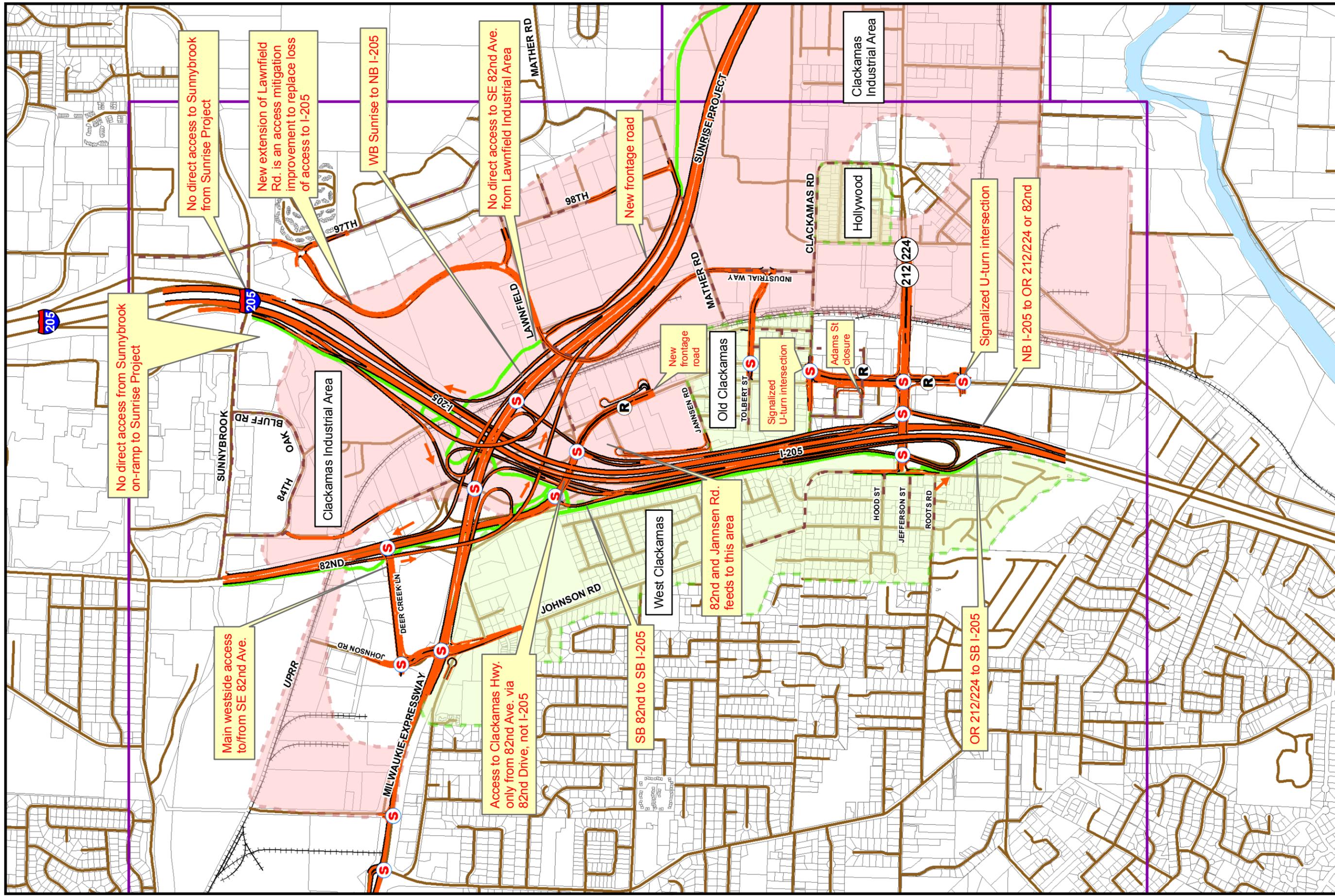


Figure PA-6
FEIS Preferred Alternative Travel Patterns, I-205 Interchange Area

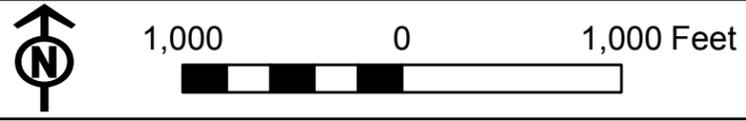
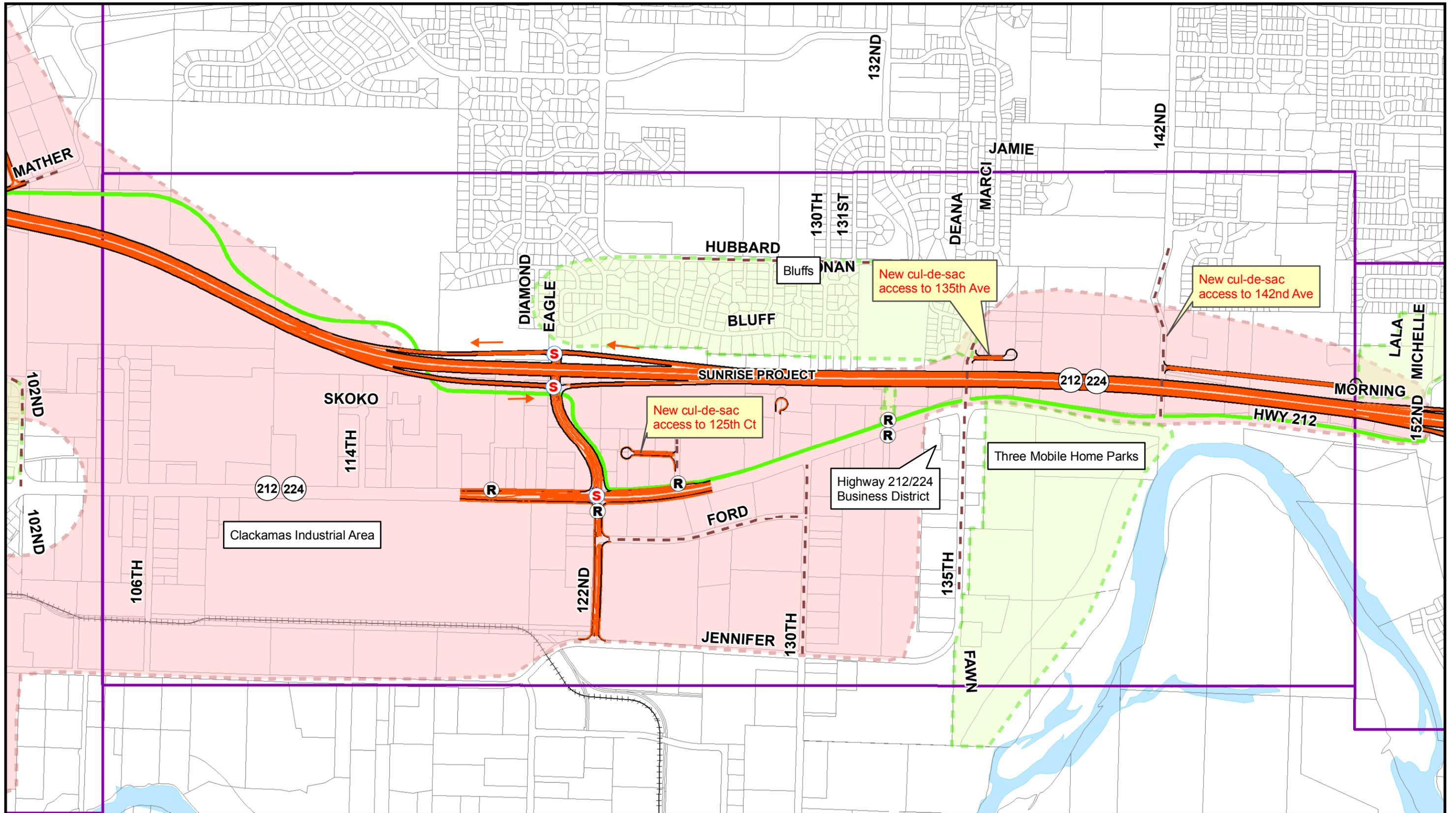
Legend

- Directional Traffic Flow
- Existing Street
- Multi-use Path
- Proposed Project
- Business Districts
- Neighborhoods
- Railroad
- I-205 Interchange Area
- Boundary
- Right-in, Right-out
- Signal

800 400 0 800 Feet

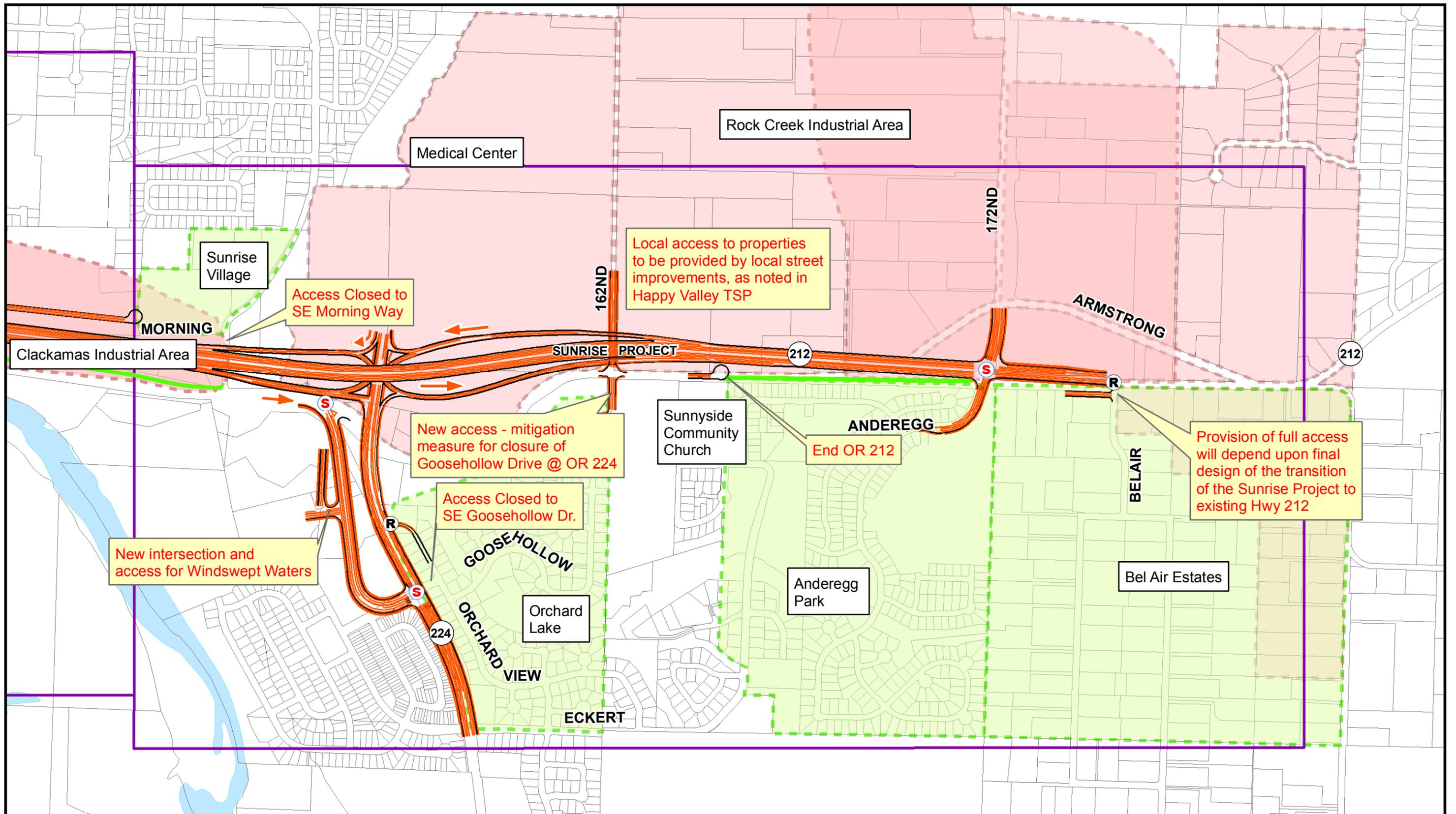
Sources: ODOT and Metro, Portland OR

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Legend	
	Right-in, Right-out
	Directional Traffic Flow
	Existing Street
	Neighborhoods
	Business Districts
	Midpoint Area Boundary
	Multi-use Path
	Proposed Project
	Schools
	Signal

Figure PA-7
Travel Patterns, Midpoint Area
 Sunrise Project, I-205 to Rock Creek Junction



Legend	
	Directional Traffic Flow
	Existing Street
	Proposed Project
	Business Districts
	Neighborhoods
	Multi-use Path
	Right-out Only Access
	Signal
	Rock Creek Junction Area Boundary

Figure PA-8
Travel Patterns, Rock Creek Junction Area
 Sunrise Project, I-205 to Rock Creek Junction

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