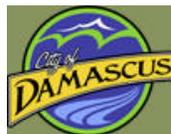


## Sunrise Expressway IAMPs

- **Rock Creek Junction**
  - **Midpoint**
    - **West**





# Sunrise Project, I-205 to Rock Creek Junction

## Interchange Area Management Plan (IAMP)

### Rock Creek Junction Interchange Management Area

Final Draft

April 2011

Prepared in Cooperation with the Clackamas County Department of Transportation and  
Development

City of Happy Valley, and the City of Damascus

by

ODOT Region 1 Planning





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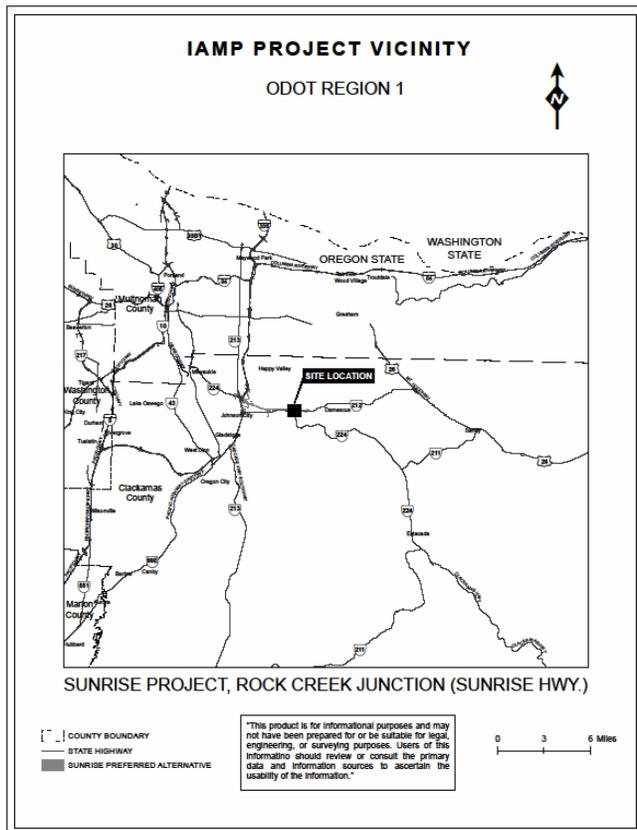
## Introduction

Oregon Administrative Rule (OAR) 734-051-0155 requires that an IAMP be prepared for any new interchange and recommends an IAMP for significant modifications to existing interchanges.

The Rock Creek Junction Interchange Area Management Plan (IAMP) is one of three IAMPs that has been prepared for the Sunrise Project Preferred Alternative, which has three new and one substantially altered highway interchange. The Rock Creek Junction IAMP has been prepared in conjunction with a Supplemental Draft Environmental Impact Statement (SDEIS) and the Final Environmental Impact Statement (FEIS) for the Sunrise Project.

The Sunrise Project will construct a new, east-west expressway located in the western, urbanized portion of Clackamas County. The project limits start just west of SE Webster Road at OR 224 and extend approximately 5 miles east to SE 172nd Avenue at OR 212, just beyond of Rock Creek Junction, where OR 212 and OR 224 diverge to the east and south. The location of the Sunrise Project, in relation to the Portland Metro Area is shown on **Figure 1**. The Sunrise Project

**Figure 1 – Location of the Sunrise Project**



is being undertaken by the Oregon Department of Transportation (ODOT) and Clackamas County to address congestion and safety problems in the existing OR 212/224 corridor and to serve the growing demand for regional travel and access to the state highway system through the year 2030. The proposed expressway will have six through-lanes (3 in each direction) with auxiliary lanes in some locations to reduce traffic merging and weaving movements between interchanges. As proposed, the Sunrise Project will include three new and one significantly modified interchanges. These interchange improvements will provide much needed access to/from the Clackamas Industrial Area and the state and interstate highway system, thereby helping maintain the economic viability of this major industrial/distribution center and providing essential access to the emerging Rock Creek Employment area.

## IAMP Purpose

The purpose of an IAMP is to ensure safe and efficient operations between connecting roadways, to protect the function of the interchange, and to minimize the need for future major interchange improvements. Because new interchanges are very costly, state and local governments and citizens have an interest in ensuring that they function as intended and for as long as possible, while still supporting planned land use.

OAR 734-051-0155(7) requires an IAMP to comply with the following criteria, unless the IAMP documents why compliance with a criterion is not applicable:

- a. Be developed no later than the time an interchange is designed or is being redesigned.
- b. Identify opportunities to improve operations and safety in conjunction with roadway projects and property development or redevelopment and adopt policies, provisions, and development standards to capture those opportunities.
- c. Include short, medium, and long-range actions to improve operations and safety within the designated study area.
- d. Consider current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches.
- e. Provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years.
- f. Consider existing and proposed uses of all the property within the designated study area consistent with its comprehensive plan designation and zoning.
- g. Be consistent with any applicable Access Management Plan, corridor plan or other facility plan adopted by the Oregon Transportation Commission.
- h. Include polices, provisions and standards from local comprehensive plans, transportation system plans, and land use and subdivision codes that are relied upon for consistency and that are relied upon to implement the Interchange Area Management Plan.

## **Problem Statement**

Development in the vicinity of the Rock Creek Junction interchange is recent. There are local connections to the existing OR 212 and OR 224 highways that will not meet ODOT access spacing standards should the Sunrise Expressway and the Rock Creek Junction interchange be constructed. This IAMP is being developed to address these conditions.

The Rock Creek Junction interchange will be a single point urban interchange, which will connect the Sunrise Expressway to the existing OR 212 and OR 224 highways (**Figure 2**). It is the easternmost interchange on the Sunrise Expressway and will serve Clackamas County and the Cities of Happy Valley and Damascus.

The area to the north of the Rock Creek Junction interchange is undeveloped land that will potentially develop as a mix of uses, but is currently without an adequate local street network to serve the area. The Happy Valley Transportation System Plan identifies a new arterial, named Rock Creek Boulevard, to be constructed as development occurs. Rock Creek Boulevard will be a county road except near the intersection of the Sunrise Expressway/Rock Creek Boulevard interchange, about 100' north of the Sunrise Expressway. This portion will be a state facility.

The land south of the Rock Creek Junction interchange is predominately residential in character. East of OR 224, most of the residentially zoned land is built out. Residential development is still occurring west of OR 224. All of these land uses will have access to the Rock Creek Junction interchange through a realignment of the existing OR 224 to the interchange.

The Rock Creek Junction interchange will also serve to facilitate the movement of traffic to and from areas outside the UGB, from the areas surrounding the City of Estacada and the areas east of Oregon City, in the Redland area.

**Figure 2 –**

**Rock Creek Junction Interchange at OR 212 and OR 224**

**IAMP Goals**

The Rock Creek Junction IAMP addresses several goals related to interchange area management:

- Protect the function and operation of the Rock Creek Junction Interchange and the Sunrise Expressway.
- Protect the function and operation of OR 212 and OR 224 within the IAMP area.
- Protect the function and operation of the local street network within the IAMP area.
- Provide safe and efficient operations between the connecting roadways and the local street network.
- Provide for an adequate system of local streets that support access and circulation within the interchange area while minimizing local traffic through the interchange and on the interchange crossroad (OR 212/OR 224/Rock Creek Boulevard).
- Ensure that changes to the planned land uses are consistent with protecting the long-term function of the interchange and the local street system.
- Provide and manage access to minimize impacts to natural and cultural resources within the management area, and ensure safe traffic operations.





**Figure 3 – Rock Creek Junction Interchange Management Area**

## Rock Creek Junction Interchange Management Area

The Rock Creek Junction Interchange Management Area, shown in **Figure 3**, contains approximately 145 acres and is located where OR 212 presently diverges from OR 224. The Rock Creek Junction Interchange Management Area boundaries were developed by Clackamas County and ODOT staff and took into consideration the existing geography and development in the area. The Interchange Management Area is bounded on the west by the ravine through which Rock Creek flows and existing tax lot boundaries south of the proposed Sunrise Expressway. The southern boundary follows the existing Goosehollow Drive, west of OR 224 and OR 224 and OR 212 to SE 162nd Avenue. SE 162nd Avenue is the eastern boundary. Existing tax lot lines make up the northern boundary.

## Existing Conditions-

### Existing Land Use

The Rock Creek Junction interchange is the easternmost of the interchanges along the Sunrise Expressway for which an IAMP is being developed. Land in this management area is contained within three jurisdictions: Clackamas County and the Cities of Happy Valley and Damascus. Much of the area surrounding the Rock Creek Junction interchange is presently undeveloped. Land to the north is vacant or used for farming. Land use to the south is residential. Most of the area east of OR 224 is fully developed as residential. The area west of OR 224 is also zoned residential, but is not yet fully developed. West of SE 162nd Avenue and along the south of OR 212 is an area of open space. At the SW corner of the Rock Creek Junction of OR 212/224 and OR 224, there is one parcel each of existing commercial and industrial zoned land. **Figure 4** shows what the existing land uses are in the Rock Creek Junction Interchange Management Area.

**Figure 4 – Existing Land Uses**

### **Existing Local Circulation and Private Property Approaches**

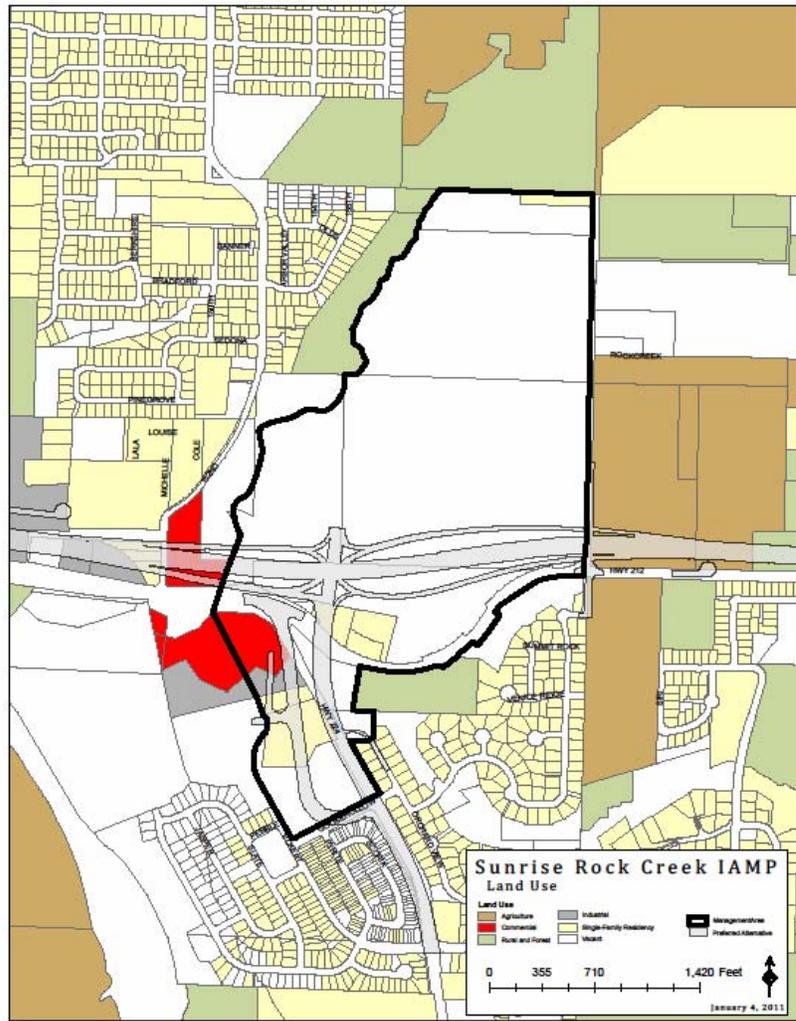
While the newer subdivisions south of OR 212 have internal circulation, there is limited access to either OR 212 or OR 224 from these subdivisions. Larger lots that have yet to develop or redevelop all have direct access to either OR 212 or OR 224 as shown in **Figure 5**.

Some of the existing accesses will be purchased by the state and either closed or relocated with the construction of the interchange. Changes to grade or direct property impacts will necessitate either closure or relocation.

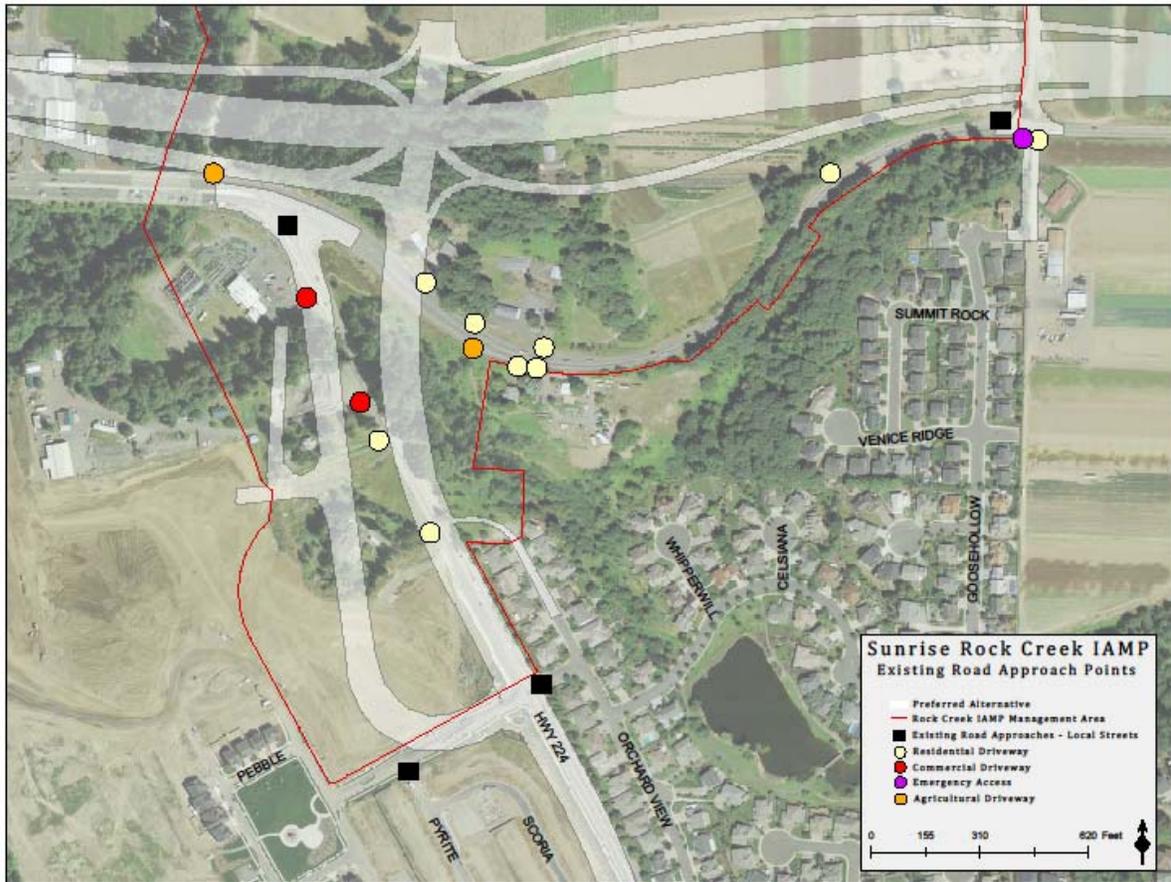
### **Orchard Lake Access Alternatives Analysis**

In compliance with ODOT Project Delivery Operational Notice 03 (PD-03), an Access Management Team (AMT) was formed as a subset of the Sunrise Project Management Team (PMT) in November 2007. PD-03 requires that an AMT be formed for interchange and expressway projects to ensure consistency with access spacing provisions outlined in the Oregon Highway Plan (OHP) and OAR 734-051 (Division 51). The AMT included representation from several divisions within ODOT (planning, roadway design, traffic, right-of-way, and district permitting) and staff from the jurisdictional agencies (Clackamas County, Happy Valley, and Damascus).

The AMT was tasked with reviewing access and circulation decisions that had been previously made as part of the Sunrise Project design process and to consider alternative approaches to access management within the Interchange Management Area. The review process sought to insure that public and private approach spacing distances considered ODOT spacing standards.



**Figure 5 - Existing Local Approach Road Points- Prior to Sunrise Project**



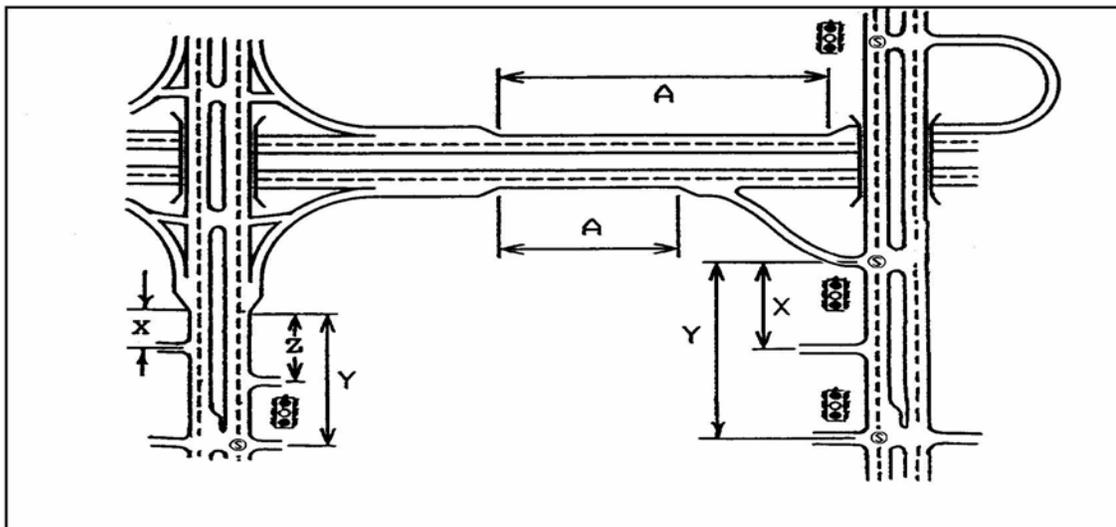
With the exception of one approach road intersection discussed below, approach spacing distances on the project roadways conform to ODOT standards as adopted in OAR 734-051-0125, and as listed below in **Table 1** and diagrammed in **Figure 6**. This new right-out only approach to OR 224 will require a deviation from Table 1.

**Table 1 - Minimum Spacing Standards Applicable to Freeway Interchanges with Multi-Lane Crossroads (OHP Table 19)**

Type of Area* (OAR 734-051-0125)	Spacing Dimension			
	A = Distance between the start and end of tapers of adjacent interchanges	X = Distance to the first approach on the right; right in/right out only	Y = Distance to first intersections where left turns are allowed	Z = Distance between the last right in/ right out approach road & start of taper for the on-ramp
Urban	1 mile	1,320 feet	1,320 feet	1,320 feet

\*An Urban Interchange Management Area is within an urban growth boundary and is not a Fully Developed Urban Interchange Management Area (1999 Oregon Highway Plan).

**Figure 6 - Measurement of Spacing Standards**



During the design process, the AMT considered alternative access for various property owners within the management area. The primary issue for the AMT was reducing out-of-direction travel while maintaining safe access from the Orchard Lake neighborhood to OR 224 northbound.

The alternatives review process included retaining an existing full movement intersection at Goosehollow Drive and OR 224 (FEIS Intersection #41 as shown in **Table 2** and **Figure 7**). Closing the east leg of the Goosehollow Drive and OR 224 intersection has been part of the recommended project design from the earliest traffic analysis. However, City of Damascus residents of the Orchard Lake neighborhood expressed dissatisfaction with the proposed loss of this intersection - one of only two existing approach roads to and from the neighborhood along OR 224.

The narrow length of the east leg of Goosehollow Drive, near its intersection with OR 224, would not accommodate a left-turn pocket; thereby requiring a protected/split signal phasing to accommodate all traffic movements. This phasing would diminish green time for the more critical movements (N-S through traffic on OR 224, and NB to WB and EB to NB left-turn movements) and lead to failure of the intersection.

The AMT analyzed the consequences of retaining full or reduced access to and from the Orchard Lake neighborhood at Goosehollow Drive/OR 224 and determined that accommodating the relatively limited traffic volumes at this location resulted in the failure of the intersection in 2030.

**Preferred Alternative - Orchard View Lane Right-out only:** The AMT looked at an alternative right-out only intersection north of Goosehollow Drive. This right-out only would be located at the end of the Orchard View Lane cul-de-sac (five houses north of Goosehollow Drive), approximately 870 feet south of the Rock Creek Junction Interchange ramp signal (H on **Figure 10**). Providing a right-out at this location does not meet OHP interchange ramp terminal spacing standards and requires

a deviation to the standards. For similar reasons as noted above, a right-in turn at this more northerly access point was considered but not advanced as it would cause conflicts in the outside travel lane, slowing traffic operations along OR 224, or require constructing a deceleration lane with ROW impacts to abutting properties.

The AMT further identified the following problems with the various alternatives.

### **Alternatives Considered, but Dismissed**

**Right-out only:** The AMT also analyzed various design/signal treatments to provide right-out only from the east leg of Goosehollow Drive, but none were identified that could accommodate this movement safely without requiring an allocation of signal phasing which would cause this intersection to fail. A right-out only at this location is also considered unconventional and unsafe. It is difficult to control driver expectations about when different turn movements may occur, as well as to confine vehicles to appropriate lanes to turn into (e.g., EB to NB traffic may turn at same time as WB to NB traffic and experience conflicts over access to appropriate NB lane).

**Right-out/right-in only:** For reasons similar to right-out only scenario, this alternative was dismissed. Given that most traffic potentially making a right-in turn at Goosehollow Drive would be coming NB from farther south, it is believed they could just as easily make a right-in turn at Eckert Lane.

**Right-in only:** A right-in turn at Goosehollow Drive would cause slowing in the outside travel lane, slowing traffic operations along OR 224, or require constructing a deceleration lane, with ROW impacts to abutting properties.

It was determined necessary to limit the traffic signal phases at this intersection, a critical connection between OR 212/224, OR 224, and the Sunrise Expressway (Rock Creek Junction interchange), to accommodate only the primary traffic movements needed to ensure the operational effectiveness of the Rock Creek Junction interchange. Therefore, the Preferred Alternative closes the east leg of Goosehollow Drive.

### **Future Land Use**

The Rock Creek Junction interchange is located inside the Metro Urban Growth Boundary (UGB) in an area that is rapidly developing. Presently the location of this new interchange meets the definition of an Urban Interchange Management Area<sup>1</sup>. As per the OHP, Urban Interchange

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<sup>1</sup> As defined in Appendix A of the Oregon Highway Plan, an Urban Interchange Management Area is an interchange management area within an urban growth boundary that is not a fully developed urban interchange management area.

Management Areas have a more restrictive access spacing standard than Fully Developed Urban Interchange Management Areas. The difference in spacing standards is shown in Appendix C of the OHP, Table 19 and Figure 21. ODOT has designed the Rock Creek Junction interchange to accommodate the surrounding communities' plans for growth over the 20-year planning horizon, consistent with their comprehensive plans, and with the Metro 2030 Regional Employment and Housing Forecast (Gen 2.3).

The zoning in the management area of the proposed interchange is RC-ME (Regional Commercial-Mixed Employment, which is consistent with Metro's Regionally Significant Industrial Area (RSIA), and residential lands. See **Appendix B** for maps of existing comprehensive plan designations and zoning. A regionally significant medical facility is planned for development on the RC-ME zoning, which is completely within the city of Happy Valley. Residential lands are split between the cities of Happy Valley and Damascus and are generally located south of OR 212. The Comprehensive Plans for the City of Happy Valley and Clackamas County show that similar future land uses are projected for this area, with the lands to the north being mixed employment and industrial, and the lands to the south being residential. Future traffic analysis was based on the future land uses being consistent with current plans. The City of Damascus adopted its comprehensive plan in December of 2010. The city's Comprehensive Plan shows the area within the Rock Creek Junction Interchange Management Area as zoned for medium density residential. This zoning is consistent with its current land uses. The Rock Creek Junction IAMP is relying on the existing zoning and land uses of the acknowledged comprehensive plans. It is designed to support development authorized in the Clackamas County's, Damascus' and Happy Valley's Comprehensive Plans rather than to encourage rezoning of property for uses that generate greater volumes of traffic.

The local comprehensive plans and other related documents are described in **Appendix A** and include the following assumptions, which were used to develop the IAMP for Rock Creek Junction:

- The transition of existing land uses from rural to urban uses following the 2002 addition of lands to the Metro UGB in the east Happy Valley/Damascus area;
- The adoption of the Damascus Comprehensive Plan and the East Happy Valley Plan;
- The location of a regional medical center north of the Sunrise Project with the assumptions of a 75% build-out of the facility by 2030;
- The location of substantial employment in the 172nd Avenue corridor and in Damascus, including the resolution of the Metro assumptions on the Regional Significant Industrial Area; and
- The planned land uses are in conformance with the Metro 2030 forecast for household and employment used in modeling the future traffic operations below. A more complete description of the planned land uses in this area is contained in **Appendix B**.

### **Future Traffic Operations**

The Sunrise Project traffic model used the 2030 Financially Constrained road network as the basis for all forecasting of future traffic volumes. An alternative 2030 Employment and Housing Forecast was considered as part of the Sunrise Project evaluation process that assumed slower growth in the City of Damascus, but it did not significantly affect the travel demand in the Sunrise Project Study Area.

The traffic analysis assumes increases in non-local traffic on the highway, consistent with historic growth rates, as well as forecasted traffic growth resulting from planned development of recently annexed lands into the Portland metro UGB, along the Sunrise Corridor and the incorporation of the City of Damascus.

The future (2030) traffic operational analysis assumed that parcels within the affected local jurisdictions were developed in a manner consistent with the comprehensive plans of Clackamas County and the Cities of Happy Valley and Damascus, and/or minimum household and employment targets set by Metro (MPO). The traffic analysis represents an intensive scenario of employment and household development assumptions over the 20-year planning horizon.

The Rock Creek Junction Interchange Management Area contains three intersections that were analyzed as part of the Sunrise Project FEIS. These intersections meet the mobility standards for new intersections as described in the Highway Design Manual and The Oregon Highway Plan. Refer to Table 1 of Appendix C for the mobility standards.

**Table 2** shows the volume/capacity (v/c) ratios for each of these intersections during the AM and PM peak hours in 2030 and **Figure 7** identifies their location within the Rock Creek Junction Interchange Management Area. A detailed description of intersection level of service is shown in the FEIS Transportation Technical Report, April 2010, Figures PA 6-10 (AM) and 6-11 (PM), on pages 305 and 307 of the Report.

**Table 2 - Rock Creek Junction IAMP Intersection Capacity Analysis**

FEIS Intersection	Intersection Name	AM Peak Hour Performance		PM Peak Hour Performance	
		1st Hour	2ND Hour	1st Hour	2ND Hour
23	Existing OR 212 and OR 224- (north end of Jughandle)	0.62 v/c	0.51 v/c	0.37 v/c	0.38 v/c
41	OR 224 and New Arterial (south end of Jughandle)	0.65 v/c	0.47 v/c	0.74 v/c	0.80 v/c
44	Rock Creek Junction Interchange SPUI	0.60 v/c	0.56 v/c	0.64 v/c	0.70 v/c

The travel forecasting process produced estimates of intersection queuing for the Sunrise Project intersections. There are no cases where traffic queues are forecast to extend onto the Sunrise Expressway mainline in 2030. However, there is one intersection where the projected intersection queues exceed the planned available queue storage. This intersection is Preferred Alternative Intersection #23 (OR 212/224 and OR 224 – Jughandle). The west bound through movement at this intersection is predicted to exceed its queue storage length of 2,500 feet during the AM peak period for both lanes.

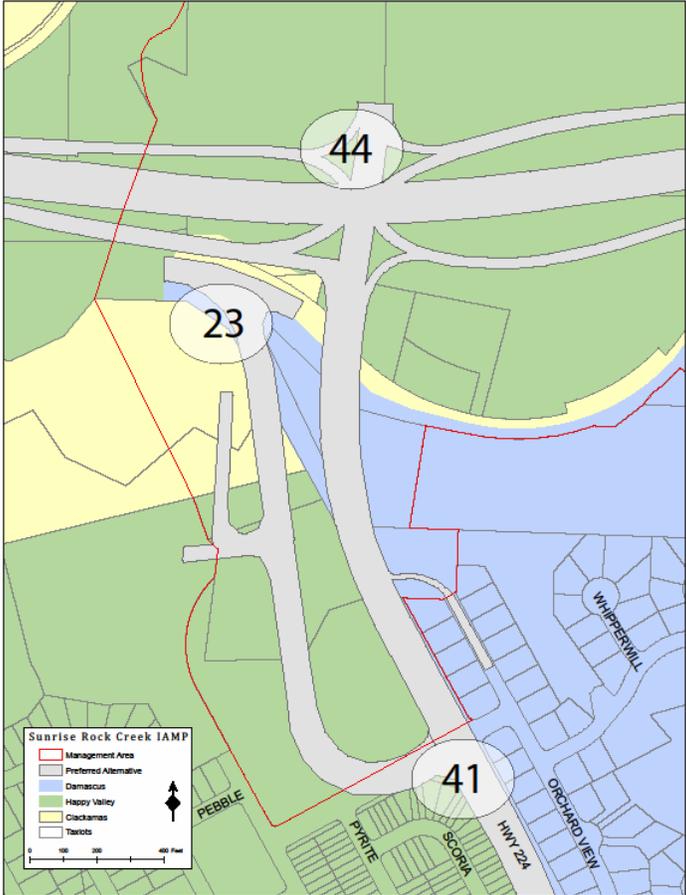
### Future Local Circulation

The physical improvements that comprise the Rock Creek Junction Interchange of the Preferred Alternative include some new features that were not part of the SDEIS, based on stakeholder input and additional design refinement related to assessment of environmental resource avoidance and analysis of traffic performance. These improvements include the following:

- A right-out-only approach (north bound on OR 224) at the end of Orchard View Lane to northbound OR 224 will be created to partially provide access from the Orchard Lake subdivision on the east side of OR 224.

- A new connection between existing OR 212 and Goosehollow Drive at SE 162nd Avenue, to partially replace the access lost with the closure of the east leg of Goosehollow Drive at OR 224.
- A new connection, west of the ‘jughandle’, to Eckert Lane providing access to later phases of the Windswept Waters subdivision.

**Figure 7 – Location of Intersections Identified in Table 2**



## **Interchange Area Management Plan**

### **Rock Creek Interchange Function Statement**

The Rock Creek Junction interchange is a proposed interchange that would serve the eastern end of the Clackamas Industrial Area and would serve as the eastern terminus of the Sunrise Expressway, connecting it to OR 212 and OR 224. The primary functions of this interchange are to:

- Accommodate access to and from OR 212 and OR 224 for regional through and freight traffic, and
- Provide access to the adopted and existing urban land uses in the vicinity including employment areas and Regionally Significant Industrial Areas (RSIA) located in east Happy Valley and Damascus.

The interchange is not designed to facilitate additional development such as highway oriented commercial, beyond what is already designated for the management area in the Comprehensive Plans of Clackamas County and the cities of Happy Valley and Damascus.

### **Land Use Assumptions**

ODOT is relying on the acknowledged comprehensive plans and zoning for Clackamas County and the Cities of Happy Valley and Damascus, in the management area. (See **Appendix B** - for applicable zoning districts.)

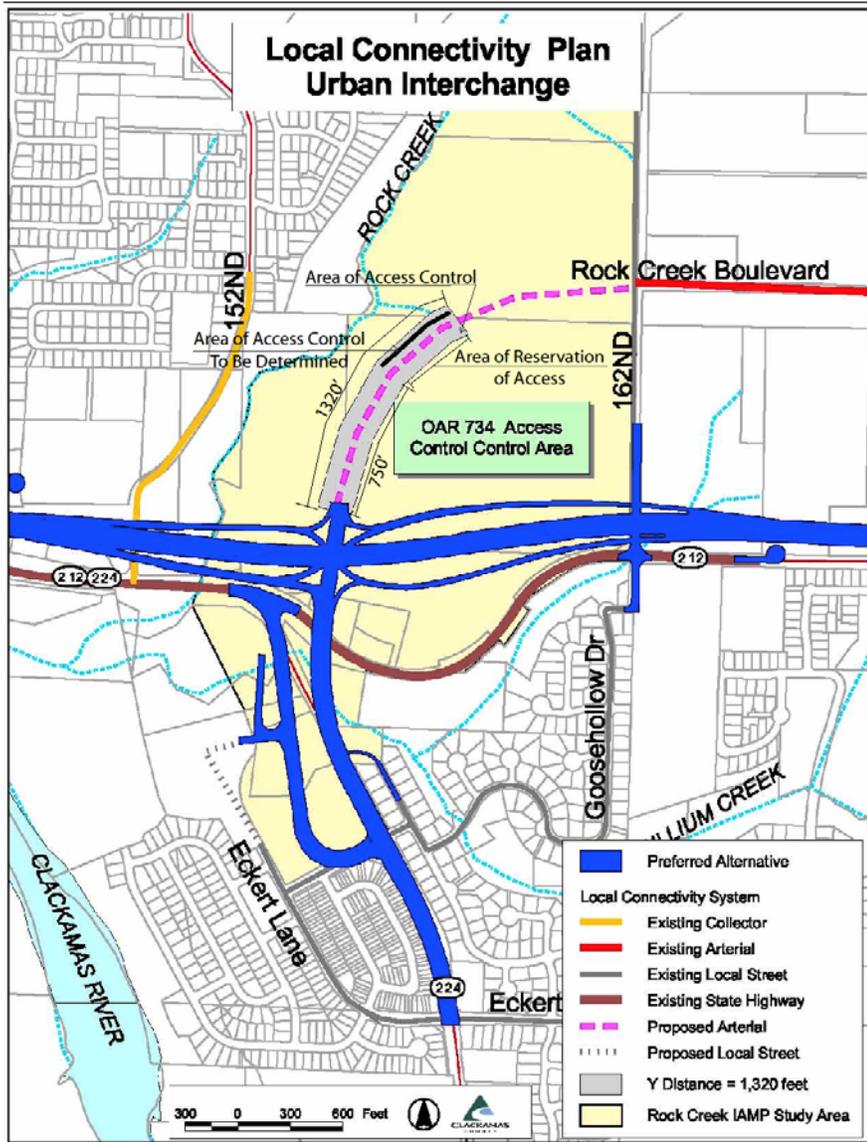
### **Circulation and Access Management Plan**

This section describes the generalized access control measures developed for approach roads onto the state highways and local roadways by ODOT, Clackamas County and the Cities of Happy Valley and Damascus. The Access Management Plan (AMP) comprises actions to guide and control access for the entire Rock Creek Junction Interchange Management Area.

The Local Connectivity Plan in the Rock Creek Junction Interchange Management Area is shown in **Figure 8**. Rock Creek Boulevard is planned to be constructed as part of the land development process.

Under the Happy Valley access standards, the first full intersection could be placed 1,000 feet from the westbound ramp terminal, instead of 1,320 feet as required by ODOT standards. The City of Happy Valley, the property owner/developer and ODOT have entered into a Memorandum of Agreement (MOA) concerning access to the site. The language used for the MOA is in **Appendix K**

**Figure 8 - Local Connectivity Plan – Urban Interchange**



There is one local road, a new portion of Eckert Lane, that will be built as part of the later phases of Windswept Waters Subdivision and will provide an approach to the subdivision to replace Goosehollow Drive, which will be closed on the west side of OR 224.

As shown in **Table 3** and in **Figure 10**, south of the new interchange a new right-out only approach road is proposed on the new OR 224 connector (H)<sup>2</sup> approximately 870 feet south of the east bound ramp. This approach road is included in the Preferred Alternative as partial replacement for the closing of the east leg of Goosehollow Drive (A)<sup>2</sup>. A deviation is needed for this approach road, as it does not meet the 1320' spacing requirement of Division 51. As part of the construction of the "jughandle" the intersection of Pyrite Lane (B)<sup>2</sup> will be closed.

The current intersection of OR 212 and OR 224 (D)<sup>2</sup> will undergo substantial modification as part of the Sunrise Project

Preferred Alternative. The south leg of this intersection will be realigned and connected to OR 224 at the Goosehollow Drive intersection becoming a new arterial street, referred to as the "jughandle" (A)<sup>2</sup>. The closure of access to OR 224 at Goosehollow Drive will require the creation of replacement access for two residential areas – Orchard Lake Subdivision (east of OR 224) and Windswept Waters Subdivision (west of OR 224) (C)<sup>2</sup>.

<sup>2</sup> Letters within parenthesis correspond to ID # in Table 3 and intersections on Figure 10

**Table 3 - Rock Creek Junction IAMP Local Circulation Changes**

ID #	Approach	Road Type	Approach Road Location	Type of Modification
A	Existing	Local Street	Goosehollow Drive and OR 224	Major Modification of Existing Intersection
B	Existing	Local Street	Pyrite Lane and Goosehollow Lane	Local Access to OR 224 Closed
C	Existing	Local Street	162nd Avenue and OR 212	Major Modification of Existing Intersection
D	Existing	State Facility	Junction of OR 212 and OR 224	Major Modification of Existing Intersection
E	Existing	Local Street	Rock Creek Boulevard and 162nd Avenue	Intersection modified by the southern extension of 162nd Avenue to Goosehollow Drive
F	New	Local Street	Proposed Rock Creek Boulevard	New Connection to Rock Creek Junction Interchange
G	New	Local Street	Replacement Windswept Waters Access	New Connection to jughandle which will provide local access
H	New	Local Street	Orchard View Lane - Right Out Only	New Connection to re-aligned OR 224 to provide local access

ODOT is relying on the following provisions for access management decisions in the Rock Creek Junction Interchange Management Area:

- Existing approach roads that are not modified by the construction of the Sunrise Project will maintain existing connections to the state and local road systems.
- **Table 1** and **Figure 6** above; apply to all new or modified approaches to state facilities.
- Clackamas County Access Management Standards apply to all new or modified county facilities. The standards are in the Clackamas County Road Standards, Section 130.3.3 - for Driveway Entrance Permits; and Chapter 2, Section 220, Table 2-2 for Access Management concerning roadway intersections and driveway access to county roads (see **Table 4 below and Appendix J**).
- Happy Valley Access Management Standards apply to all new or modified approaches to city facilities, except for an approach to the proposed Rock Creek Boulevard. **Figure 8** shows the location of a reservation of access to Rock Creek Boulevard agreed to by ODOT and the City of Happy Valley. The standards regarding all other streets are in the City of Happy Valley Transportation System Plan, Table 8-2 (**Table 5, below**). Local street connectivity is addressed in Chapter 8 of the City’s Transportation System Plan.
- ODOT and the City of Happy Valley have entered into a Memorandum of Agreement for control of access along Rock Creek Boulevard, north of the Rock Creek Junction interchange.

Because the City of Damascus does not have a transportation system plan, ODOT will coordinate with the City to establish access management standards needed for all new or modified approaches to city facilities to protect the function of the interchange.

**Table 4 -**

**(Table 2-2. Minimum Intersection Access Spacing (feet) from the Clackamas County Roadway Standards)**

Functional Classification of Existing Primary Roadway	Minimum Full Spacing of Intersection Roadways				Minimum Restricted Spacing of Intersecting Roadway*			
	Major and Minor Arterials	Collector	Connector	Local & Private Roadways	Major and Minor Arterials	Collector	Connector	Local & Private Roadways
Major Arterial	1000	1000	500	250	N/A	N/A	300	300
Minor Arterial	1000	500	250	250	N/A	N/A	300	150
Collector		150	100	100		N/A	N/A	N/A
Connector			100	100			N/A	N/A
Local & Private Roadways				100				N/A

Notes: Does not apply to driveways.

Alternative spacing may be allowed as a modification per Section 170.

Access movements may be restricted as necessary to preserve function of major roadway.

Section 220.4 Driveway Access to Arterial Roadways through Section 220.9 Maximum Access by Modification of the Clackamas County Roadway Standards describes the spacing requirements for driveways based on the roadway classification. These sections of the Clackamas County Roadway Standards are in **Appendix J**.

**Table 5 -**

**(Table 8-2: Access Spacing Standards for City Street Facilities from the Happy Valley Transportation System Plan)**

Street Facility	Maximum Access Spacing	Minimum Access Spacing with Full Access	Minimum Access Spacing with Limited Access*
Major Arterial	-	1,000 feet	500 feet
Minor Arterial	-	600 feet	300 feet
Collector	530 feet	400 feet	200 feet
Neighborhood	530 feet	-	-
Local	530 feet	-	-

Note: Intersection and driveway spacing measured from centerline to centerline.

\*Limited Access – Vehicles are restricted to right-in/right-out turn movements. In some cases, left-in turn movements may be permitted.

**Figure 9 - Future Local Street Intersections**

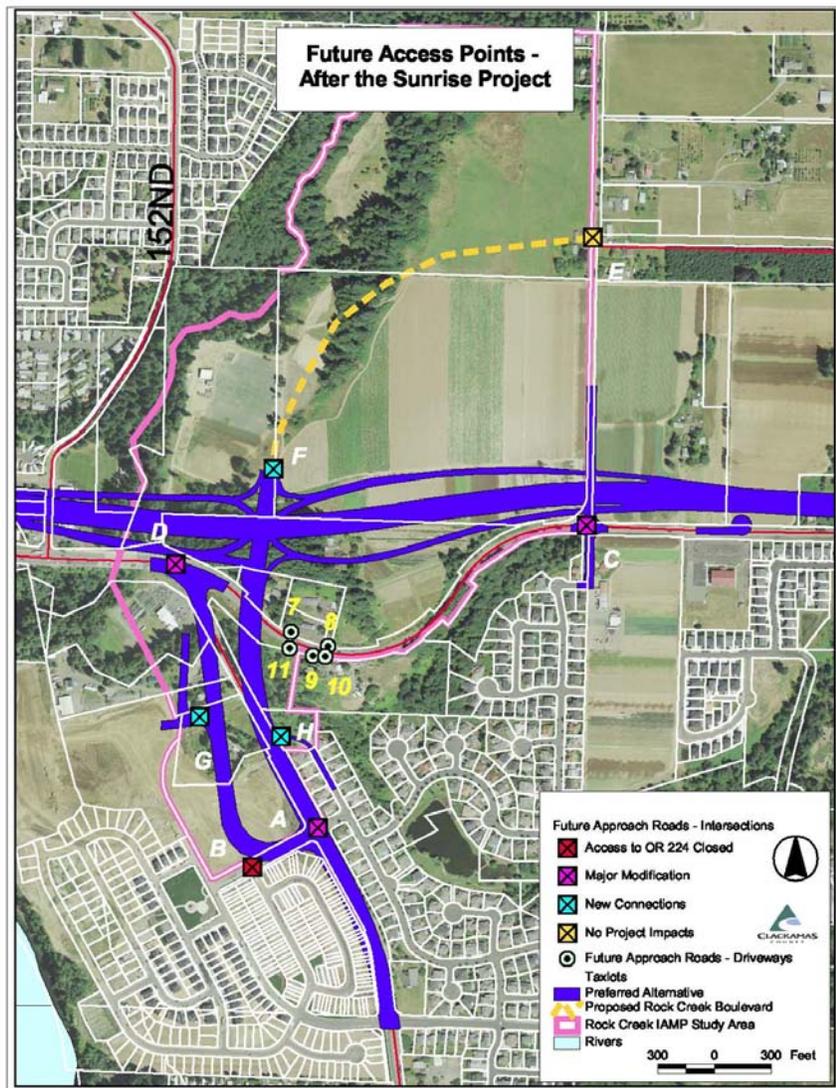
**Implementation**

Clackamas County, ODOT and the Cities of Happy Valley and Damascus cooperated in the preparation of the Rock Creek Junction IAMP. Separate adoption processes and implementing actions exist for each agency. This section summarizes the implementation roles and responsibilities of the respective jurisdictions. It also identifies access management and policy actions, and reviews the process for state and local authorities to adopt the Rock Creek Junction IAMP.

See **Appendix F** for local Comprehensive Plans/TSPs and development ordinance amendments adopted to implement the IAMP.

**ODOT Actions**

The following actions will be implemented by ODOT as part of the land



acquisition and construction of the Sunrise Expressway:

- The following access management changes identified in this IAMP will occur during the right-of-way acquisition phase or the construction phase of the Sunrise Project on the following facilities:
  - Rock Creek Junction Interchange;
  - “Jughandle”;
  - Connection to future Eckert Lane;
  - Connection of SE 162nd Avenue to Goosehollow neighborhood;
  - New connection of Orchard View Lane to new arterial (Rock Creek Boulevard);
  - Consolidate, restrict, purchase, and/or close approach roads, consistent with the Circulation and Access Management Plan portion of the IAMP;

Prior to the construction of the Sunrise Project facilities, access in the Rock Creek Junction IAMP Management Area will be managed in accordance with the following:

- ODOT and the local governments will manage the creation of new approaches to the state highway system in a manner that is consistent with OAR 734 Division 51.
- Local governments will manage the creation of new approach roads to the local street system in a manner that is consistent with local government access management requirements.

### **Local Actions**

As detailed in **Appendix G**, Clackamas County and the cities of Happy Valley and Damascus have adopted implementing policies intended to:

- Support the adoption of the IAMP by the OTC as an amendment to the Oregon Highway Plan.
- Promote redevelopment of sites in a manner consistent with the Metro 2030 Regional Employment and Housing Forecast (Gen 2.3).
- Support land uses in the vicinity of the Rock Creek Junction interchange that are consistent with the land use assumptions in the IAMP and with the stated function of the interchange as described in the IAMP.
- Require any party initiating changes to the land use designations or uses allowed in the Interchange Management Area to identify needed amendments to the IAMP, including a funding plan, and coordinate with the affected jurisdiction(s) to assure that mobility standards are not exceeded before the end of the planning period.
- Review possible allowed uses and existing resource designations, and monitor and comment on any future actions that would amend the boundary of a local jurisdiction if that boundary change is within the Interchange Management Area.
- If future circumstances in the Interchange Management Area result in the need for changes to the IAMP, Clackamas County and the Cities of Happy Valley and Damascus and ODOT shall jointly prepare amendments to the IAMP.

## **IAMP Adoption**

Clackamas County and Happy Valley have developed amendments to their Comprehensive Plans and/or Transportation System Plans to support the implementation of this IAMP.

The Clackamas County Planning Commission held a hearing on these amendments (ZDO 225) on May 10, 2010.

The Clackamas County Board of County Commissioner adopted the amendments of the Clackamas County Comprehensive Plan Chapter 4 on August 11, 2010.

The Happy Valley Planning Commission held a hearing to recommend amending the Happy Valley TSP in October, 2010.

The Happy Valley City Council adopted amendments to the Happy Valley TSP on January 18, 2011.

The City of Damascus adopted its Comprehensive Plan on December 14, 2010.

The City of Damascus anticipates the adoption of its TSP in the spring of 2012.

The City of Damascus has signed a Letter of Support for the Rock Creek Junction IAMP.

**Appendix H** of the plan demonstrates that the IAMP is consistent with other planning documents.





**Interchange Area Management Plan  
(IAMP)**

**Midpoint Interchange Management Area**

Final Draft

April 2011

Prepared in Cooperation with the Clackamas County Department of Transportation and  
Development and the  
City of Happy Valley

by

ODOT Region 1 Planning





## **Study Participants**

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Appendix J: Clackamas County Driveway Spacing Standards

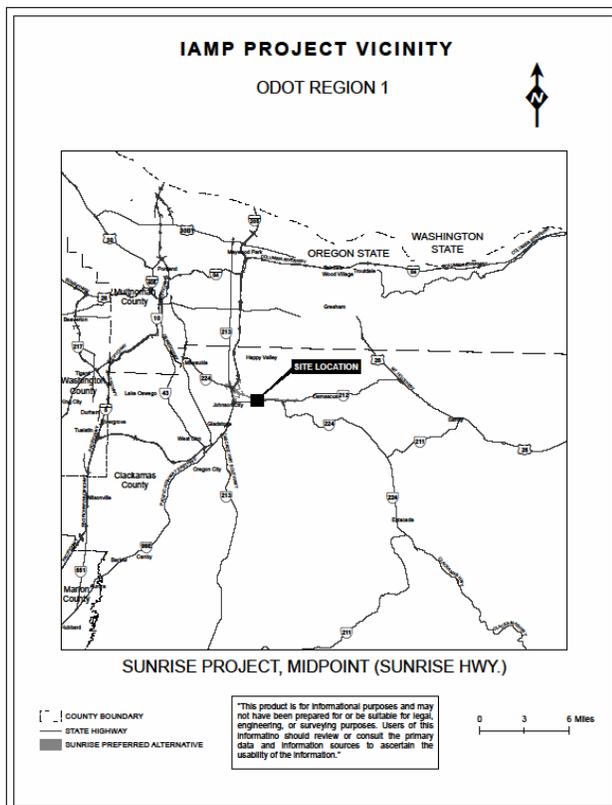


## Introduction

The Midpoint Interchange Area Management Plan (IAMP) is one of three IAMPs that have been prepared for the new or substantially altered highway interchanges that are part of the Preferred Alternative of the Sunrise Project. The Midpoint IAMP has been prepared in conjunction with a Supplemental Draft Environmental Impact Statement (SDEIS) and the Final Environmental Impact Statement (FEIS) for the Sunrise Project.

The Sunrise Project will construct a new, east-west expressway located in the western, urbanized portion of Clackamas County. The project limits start just west of SE Webster Road at OR 224 and extend approximately 5 miles to SE 172<sup>nd</sup> Avenue at OR 212, just east of Rock Creek Junction, where OR 212 and OR 224 diverge to the east and south. The Sunrise Project is being undertaken by the Oregon Department of Transportation (ODOT) and Clackamas County to address congestion and safety problems in the existing OR 212/224 corridor and to serve the growing demand for regional travel and access to the state highway system through the year 2030. The proposed expressway would have six through-lanes (3 each direction) with auxiliary lanes in some locations to reduce traffic merging and weaving between interchanges. As proposed, the Sunrise Project will include three new and one significantly modified interchanges. These interchange improvements will provide much needed access to/from the Clackamas Industrial Area and the state and interstate highway system, thereby helping maintain the economic viability of this major industrial/distribution center.

**Figure 1 – Location of the Sunrise Project**



## IAMP Purpose

Oregon Administrative Rule (OAR) 734-051-0155 requires that an IAMP be prepared for any new interchange and recommends an IAMP for significant modifications to existing interchanges. The purpose of an IAMP is to ensure safe and efficient operations between connecting roadways, to protect the function of the interchange, and to minimize the need for future major interchange improvements. Because new interchanges are very costly, state and local governments and citizens have an interest in ensuring that they function as intended and for as long a period as possible, while still supporting planned land use.

OAR 734-051-0155(7) requires an IAMP to comply with the following criteria, unless the plan documents why compliance with a criterion is not applicable:

- a. Be developed no later than the time an interchange is designed or is being redesigned.

- b. Identify opportunities to improve operations and safety in conjunction with roadway projects and property development or redevelopment and adopt policies, provisions, and development standards to capture those opportunities.
- c. Include short, medium, and long-range actions to improve operations and safety within the designated study area.
- d. Consider current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches.
- e. Provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years.
- f. Consider existing and proposed uses of all the property within the designated study area consistent with its comprehensive plan designation and zoning.
- g. Be consistent with any applicable Access Management Plan, corridor plan or other facility plan adopted by the Oregon Transportation Commission.
- h. Include polices, provisions and standards from local comprehensive plans, transportation system plans, and land use and subdivision codes that are relied upon for consistency and that are relied upon to implement the Interchange Area Management Plan.

## **Problem Statement**

The Midpoint interchange is a tight urban diamond interchange, which will connect the Sunrise Expressway to the existing OR 212/224 highway (**Figure 2**), at SE 122<sup>nd</sup> Avenue. It is the central interchange on the Sunrise Expressway and will serve Clackamas County and the City of Happy Valley.

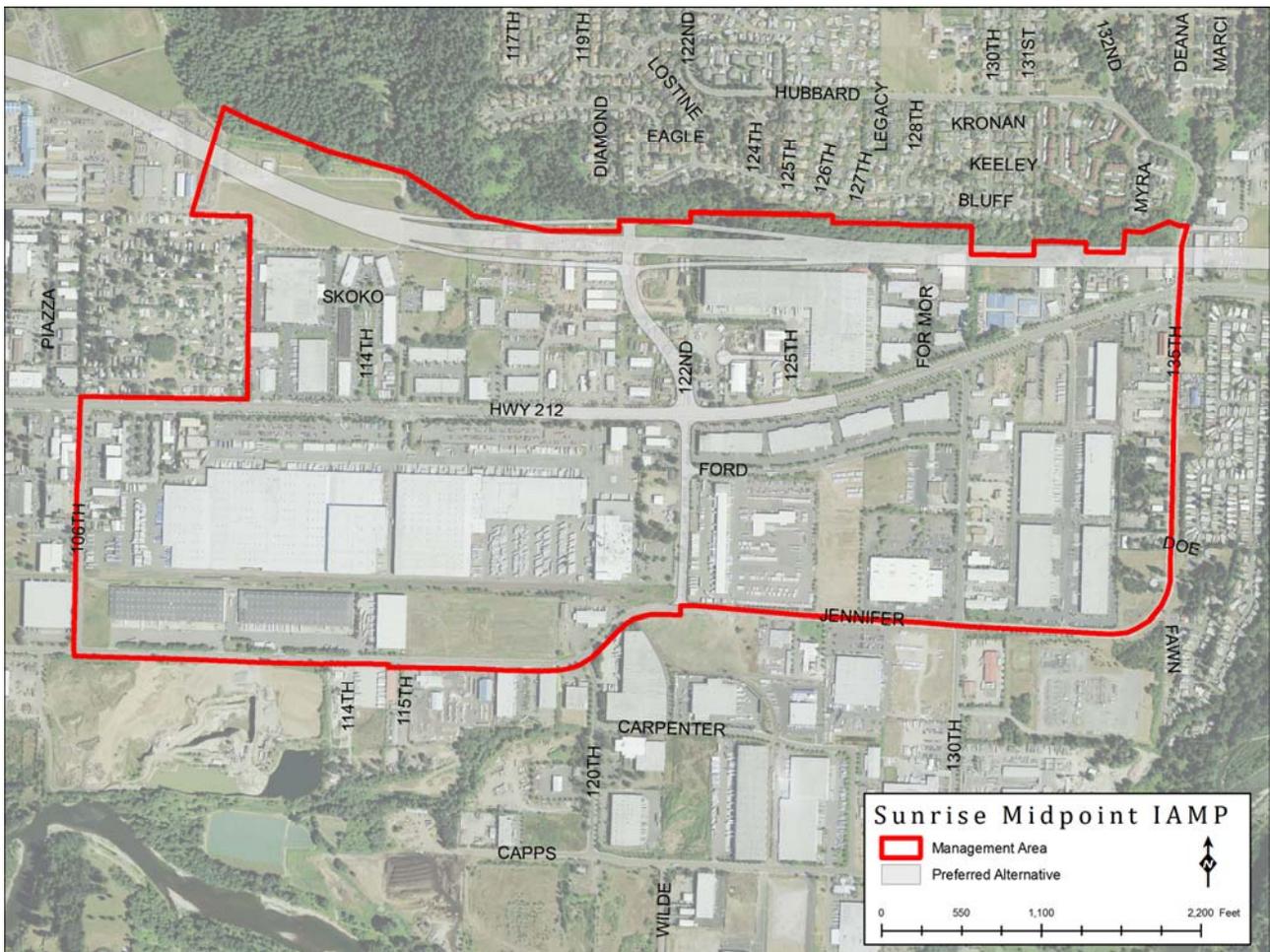
The area served by the Midpoint interchange has the potential to redevelop in a haphazard manner. To the north is a steep bluff which constrains the transportation network. SE 122<sup>nd</sup> Avenue serves as the only connection between the existing OR 212/224 and the Sunrise Expressway. Because of the nature of urban development in the Midpoint area and the constraints of the bluff, an inadequate system of local connectivity exists. The development of the Midpoint IAMP addresses a long-term plan to facilitate an adequate transportation system to serve the existing land uses allowed in the management area by the Clackamas County Comprehensive Plan.

Current land uses in the vicinity are comprised of a mix of industrial uses, most on relatively small lots. Because of the Clackamas River Bluffs, the land is constrained and requires a cooperative planning effort to ensure the capacity provided by the new interchange is not prematurely used up. The extension of SE 122<sup>nd</sup> Avenue, between the Sunrise Expressway and the existing OR 212/224, is in the Clackamas County TSP.

Development in the vicinity of the Midpoint interchange is well established. There are local connections to the existing OR 212/224 highway that will not meet ODOT access spacing standards should the Sunrise Expressway and the Midpoint interchange be constructed. This IAMP is being developed to address these conditions.

The Midpoint Interchange is located inside the Metro Urban Growth Boundary. It is a service interchange located in the heart of the Clackamas Industrial Area between I-205 and the eastern end of the Sunrise Expressway. The location of this new interchange meets the definition of a Fully Developed Urban Interchange Management Area.

**Figure 2 - Midpoint Interchange at SE 122<sup>nd</sup> Avenue**



## **IAMP Goals**

The Midpoint IAMP addresses several goals related to interchange area management:

- Protect the function and operation of the Midpoint Interchange and the Sunrise Expressway.
- Protect the function and operation of OR 212/224 within the IAMP area.
- Protect the function and operation of the local street network within the IAMP area.
- Provide safe and efficient operations between the connecting roadways and the local street network.
- Provide for an adequate system of local streets that support access and circulation within the interchange area while minimizing local traffic through the interchange and on the interchange crossroad (SE 122<sup>nd</sup> Avenue).
- Ensure that changes to the planned land use system are consistent with protecting the long-term function of the interchange and the local street system.
- Provide and manage access to minimize impacts to natural and cultural resources within the management area.

## **Midpoint Interchange Management Area**

The Midpoint Interchange Management Area, shown in **Figure 3**, contains approximately 483 acres including developed land, vacant land and public rights-of-way. The Midpoint Interchange Management Area boundaries were developed by Clackamas County and ODOT staff and took into consideration the existing geography and development in the area. The Interchange Management Area is bounded on the west by parcel boundaries and a portion of Camp Withycombe, north of OR 212/224 and SE 106<sup>th</sup> Avenue, south of OR 224/212. The southern boundary is SE Jennifer Street between SE 106<sup>th</sup> Avenue and SE 135<sup>th</sup> Avenue. SE 135<sup>th</sup> Avenue is the eastern boundary. The northern boundary follows the southern edge of parcels that define the Clackamas River Bluffs, a steep, narrow forested corridor generally running east-west along the northern edge of the Sunrise Corridor Project.

### **Existing Conditions-**

#### **Existing Land Use**

The Midpoint interchange is the central interchange along the Sunrise Expressway. Land in this management area is contained within two jurisdictions; most parcels are in Clackamas County but a few parcels in the northeast corner are within the City of Happy Valley. The area surrounding the Midpoint interchange is zoned for and developed with urban uses. Industrial and warehousing are the primary zoning designation and land use within this area. There are small clusters of commercial development scattered throughout the management area; almost all located along the existing OR 212/224 corridor. Only 14 residences currently exist in this management area. **Figure 4** shows the existing land uses in the Midpoint Interchange Management Area.

Figure 3 – Midpoint Interchange Management Area

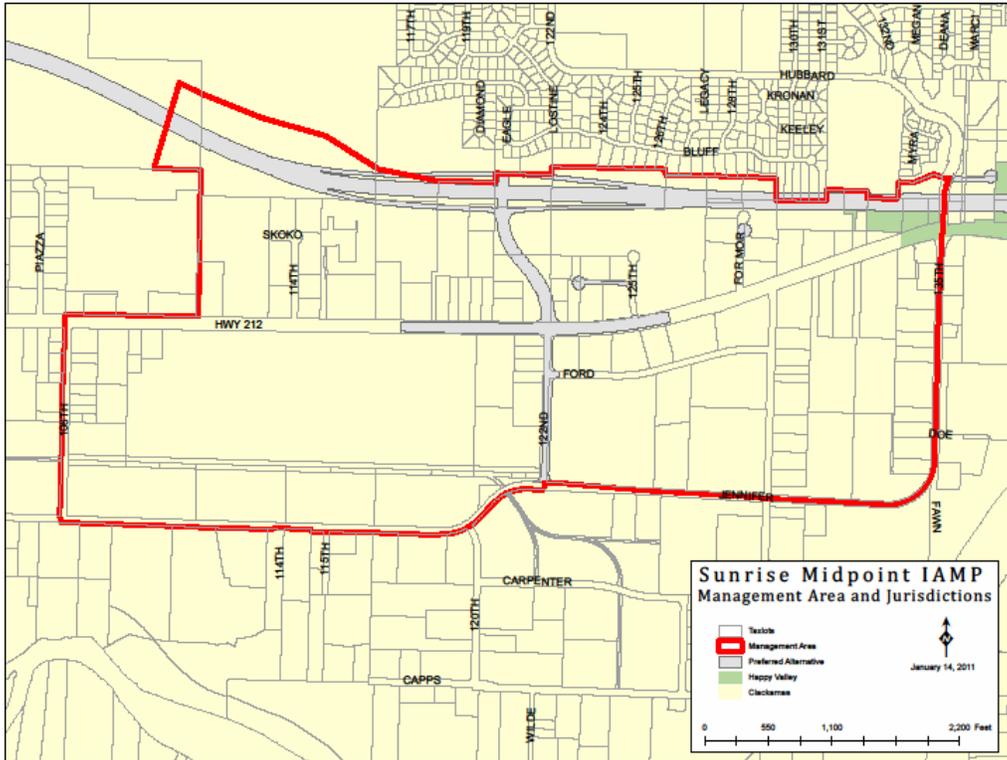
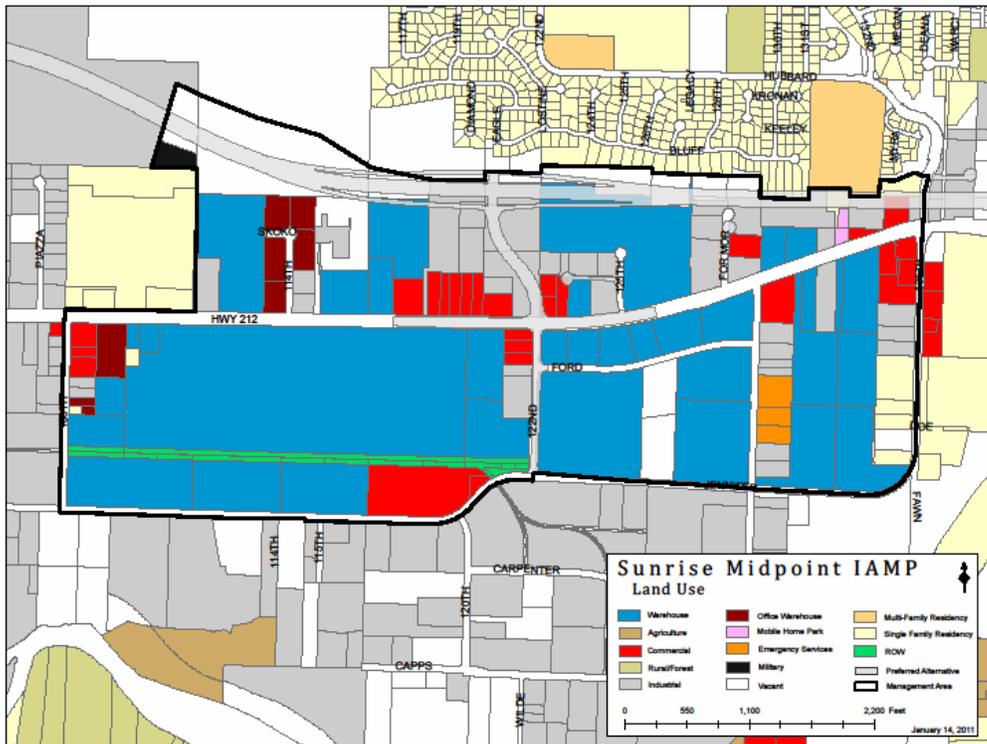


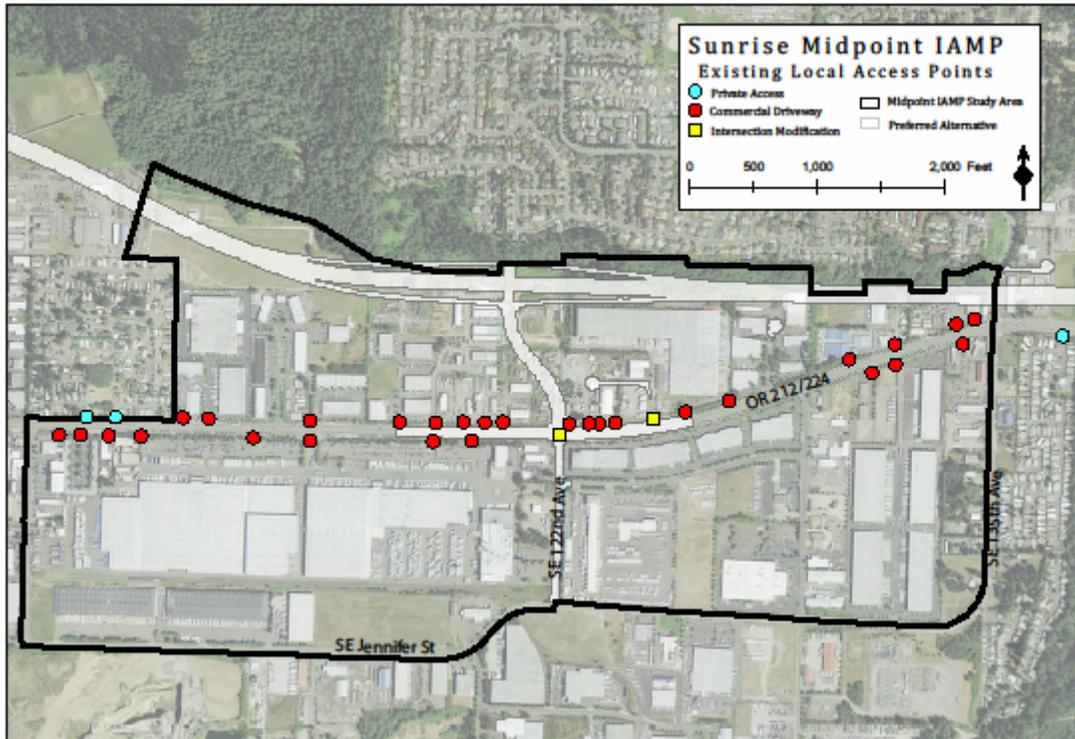
Figure 4 – Existing Land Uses



## Existing Local Circulation and Private Property Approaches

The majority of local circulation and private property approach roads in the Midpoint Interchange Management Area use OR 212/224 for circulation and access as shown in **Figure 5**.

**Figure 5 - Existing Local Approach Road Points-Prior to Sunrise Project**



## Alternatives Analysis

An Access Management Team (AMT), formed as a subset of the Sunrise Project Management Team (PMT) in November 2007, in compliance with Access Management Project Delivery Objective 3.

The purpose of the AMT was to review access and circulation decisions previously made as part of the Sunrise Project design process and to consider alternative approaches to access management within the Interchange Management Area. The primary purpose of this review was to improve operations and safety of the interchange ramps and SE 122<sup>nd</sup> Avenue and the intersection of SE 122<sup>nd</sup> Avenue and OR 212/224.

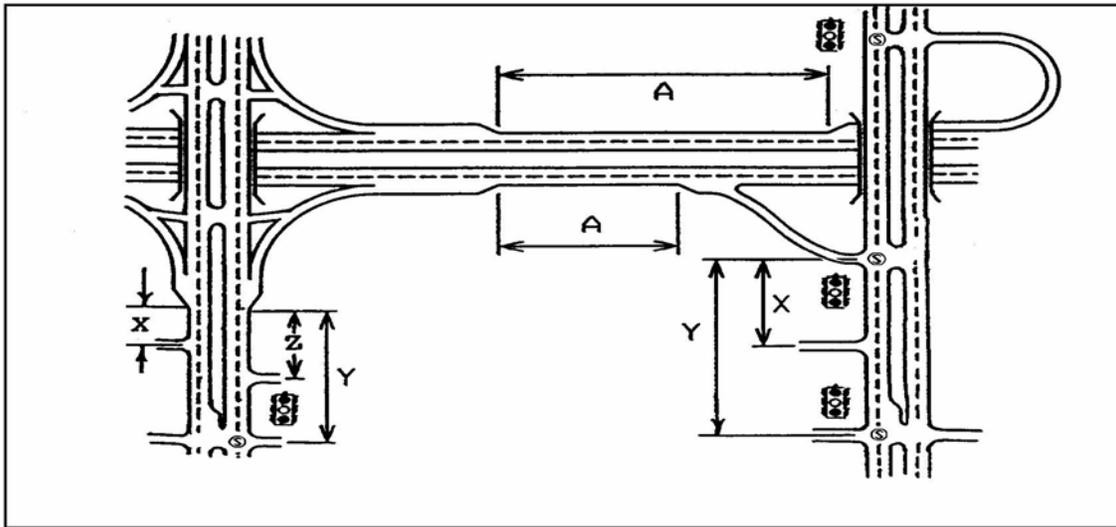
**Table 1 and Figure 6** list and diagram ODOT spacing standards used in the design of approach road spacing distances within the Midpoint Interchange Management Area.

**Table 1 - Minimum Spacing Standards Applicable to Freeway Interchanges with Multi-Lane Crossroads (OHP Table 19)**

Type of Area* (OAR 734-051-0125)	Spacing Dimension			
	A = Distance between the start and end of tapers of adjacent interchanges	X = Distance to the first approach on the right; right in/right out only	Y= Distance to first intersections where left turns are allowed	Z = Distance between the last right in/ right out approach road & start of taper for the on-ramp
Fully Developed Urban	1 mile	750 feet	1,320 feet	750 feet

\*A Fully Developed Urban Interchange Management Area is within an urban growth boundary and has at least 85% of the frontage of the interchange crossroad developed (1999 Oregon Highway Plan).

**Figure 6 - Measurement of Spacing Standards**



Because the Sunrise Expressway is located in close proximity to the Clackamas River Bluffs, the distance between the eastbound ramp terminals and the existing OR 212/224 alignment does not meet the 1320' access spacing standard. A deviation has been made for this spacing. The distance between the eastbound ramp terminals and the existing OR 212/224 is approximately 1000'.

**Other Alternatives Considered, but Dismissed**

One alternative interchange design considered for the Midpoint was a modified split diamond interchange design. The design team dismissed this alternative due to greater impacts to corridor natural and cultural resources. This design option alternative connected the Sunrise Expressway to both SE 122<sup>nd</sup> Avenue and SE 130<sup>th</sup> Avenue instead of the recommended diamond interchange only at SE 122<sup>nd</sup> Avenue. This alternative would have provided travelers on the Sunrise Expressway two choices for exiting; a feature intended to reduce congestion on the existing OR 212/224 highway.

The greater impact on natural and cultural resources with the split-diamond interchange alternative included the following:

- Two historic resource impacts, which are eligible for the National Historic Register (Frank A. Haberlach House, and Silverthread Kraut and Pickle Works Building - both on SE 130<sup>th</sup> Ave. at OR 212/224). There is no impact to these historic sites with the preferred alternative single-diamond interchange.
- The displacement of an entire 6-unit manufactured home community, near SE 132<sup>nd</sup> Ave.

- Four (4) additional acres of impervious surface compared to single diamond interchange.
- Two (2) additional acres of wetland impacts compared to single diamond interchange.
- Seven (7) additional acres of wildlife habitat impacts compared to single diamond interchange.
- Thirty-five (35) additional job displacements compared to single diamond interchange.

### **Future Land Use**

The Sunrise Project traffic model used the 2030 Financially Constrained road network as the basis for all forecasting of future traffic volumes. An alternative 2030 employment and housing forecast, considered as part of the Sunrise Project evaluation process, did not significantly affect the travel demand in the Sunrise Project Study Area.

The traffic analysis assumes increases in non-local traffic on the highway, consistent with historic growth rates, as well as forecasted traffic growth resulting from planned development of recently annexed lands into the Portland metro UGB.

The future (2030) traffic operational analysis is consistent with the comprehensive plans of Clackamas County and the Cities of Happy Valley and Damascus, and/or minimum household and employment targets set by Metro (MPO). The traffic analysis represents an intensive scenario of employment and household development assumptions over the 20-year planning horizon.

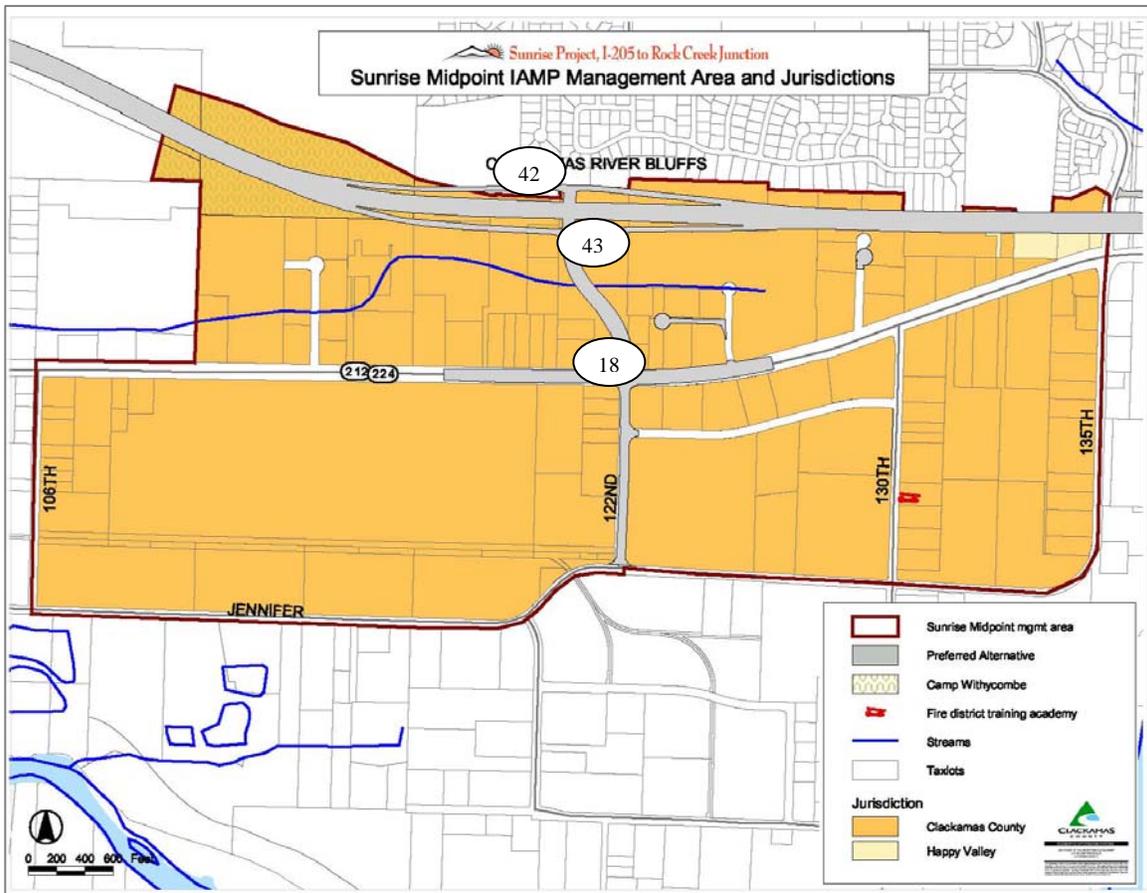
The Midpoint Interchange Management Area contains three intersections analyzed as part of the Sunrise Project FEIS. One of these intersections would not meet the Oregon Highway Plan mobility standards, for either the AM or PM Peak Hour (identified in **Bold** in Table 2).

**Table 2** shows the v/c ratios for each of these intersections during the AM and PM peak hours in 2030 and **Figure 7** identifies their location within the Midpoint Interchange Management Area. A detailed description of intersection level of service is shown in the FEIS Transportation Technical Report, June 2010, Figures PA 6-10 (AM) and 6-11 (PM), on pages 305 and 307 of the Report.

**Table 2 - Midpoint IAMP Intersection Capacity Analysis (2030)**

FEIS Intersection	Intersection Name	AM Peak Hour Performance		PM Peak Hour Performance	
		1 <sup>st</sup> Hour	2 <sup>ND</sup> Hour	1 <sup>st</sup> Hour	2 <sup>ND</sup> Hour
New Intersections					
18	OR 212/224 and 122 <sup>nd</sup> Avenue Intersection	<b>0.81 v/c</b>	0.70 v/c	<b>0.84 v/c</b>	<b>0.91 v/c</b>
42	Midpoint Interchange – East bound Ramp Terminal	0.25 v/c	0.24 v/c	0.24 v/c	0.27 v/c
43	Midpoint Interchange – West bound Ramp Terminal	0.46 v/c	0.43 v/c	0.26 v/c	0.28 v/c

**Figure 7 – Location of Intersections Identified in Table 2**



# Interchange Area Management Plan

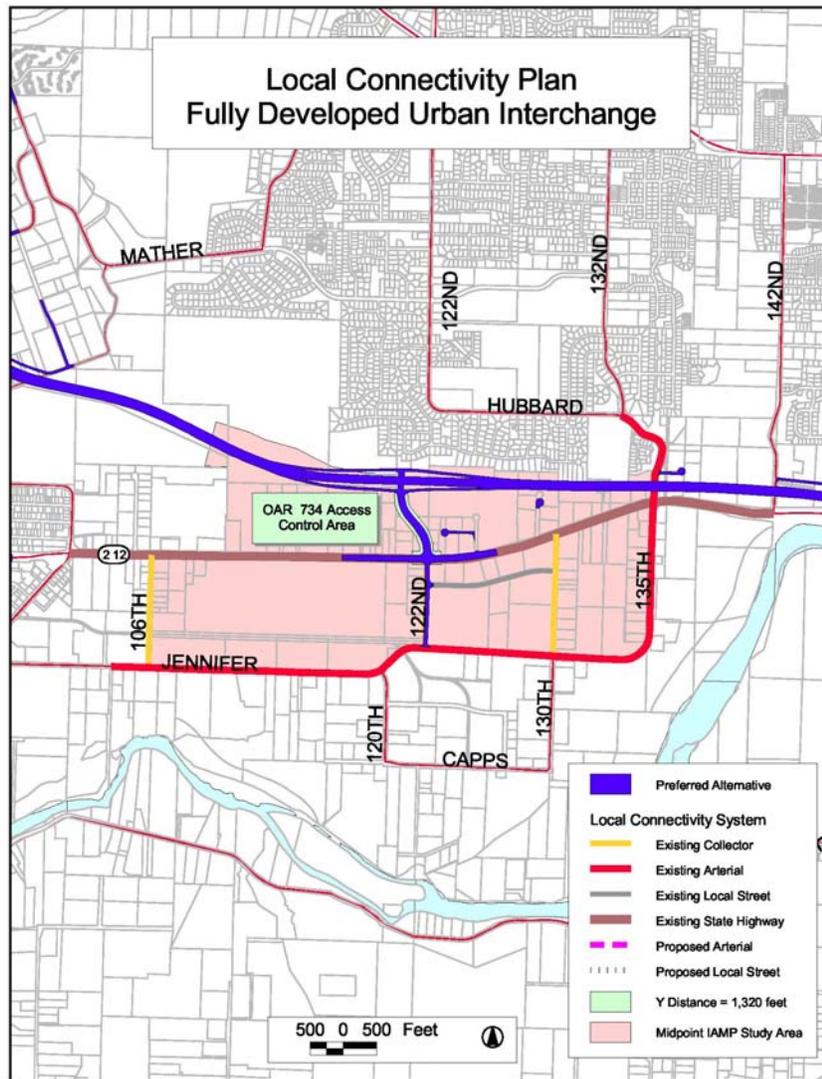
## Midpoint Interchange Function Statement

The Midpoint interchange is a proposed interchange that would serve the central portion of the Clackamas Industrial Area and connect the Sunrise Expressway to the existing OR 212/224 highway. The primary functions of this interchange are to:

- Accommodate access to and from OR 212/224 for regional through freight traffic, and
- Provide access to the adopted and existing urban land uses in the vicinity.

The interchange is not designed to facilitate additional development such as highway oriented commercial, beyond what is already designated in the Comprehensive Plans of Clackamas County and the City of Happy Valley.

**Figure 8 - Local Connectivity Plan – Fully Developed Urban Interchange**



## Land Use Assumptions

ODOT is relying on the acknowledged comprehensive plans for Clackamas County and the City of Happy Valley.

## Circulation and Access Management Plan

This section describes the generalized access control measures developed for approach roads onto the state highways and local roadways by ODOT, Clackamas County and the City of Happy Valley. The Access Management Plan (AMP) comprises actions to guide and control access for the entire Midpoint Interchange Management Area.

The Local Connectivity Plan in the Midpoint Interchange Management Area is shown in **Figure 8**. This local circulation system is integrated with the Sunrise Project Preferred Alternative and comprises the non-expressway

facilities constructed as part of the Sunrise Project, along with the planned SE 122<sup>nd</sup> Avenue

connection between the Midpoint interchange and the existing OR 212/224 corridor. SE 122nd Avenue is planned to be constructed as part of the Sunrise Project. Under the Clackamas County access standards, the first full intersection could be placed 1,000 feet from the eastbound ramp terminal, instead of 1,320 feet as required by ODOT standards.

Because of the topographical constraint mentioned earlier, a deviation from the ODOT access spacing standards is required for the connection of the new SE 122<sup>nd</sup> Avenue to the existing OR 212/224 highway.

There are three new local road connections constructed as part of the Sunrise Project, in addition to SE 122<sup>nd</sup> Avenue. One local road, off of SE 125<sup>th</sup> Court (C) will serve properties that no longer will have access to SE 122<sup>nd</sup> Avenue, nor the existing OR 212/224 corridor. The second local connection is a new cul-de-sac of SE For More Court. This new cul-de-sac is approximately 75 feet south of the existing cul-de-sac and is required as the new Sunrise Expressway will traverse the existing cul-de-sac of SE For More Court. The third new connection (Hubbard Street) (E) will connect to SE 135<sup>th</sup> Avenue, north of the preferred alignment of the Sunrise Expressway. This new connection will serve properties cut off from the existing OR 212/224 corridor as a result of the new Sunrise Expressway (**Table 3 and Figure 9**).

**Table 3 - Midpoint IAMP Local Circulation Changes**

ID Number	Approach Road Type	Approach Road Location	Type of Modification
A	Existing Local Street	OR 212 / 224 and 122nd Avenue	Major Modification of an Existing Intersection
B	Existing Local Street	122nd Avenue and Ford Street	Minor Modification of an Existing Intersection
C	New Local Street	125th Court and New Local Street	New Connection to a Local Street
D	Existing Local Street	OR 212 / 224 and 125th Court	Minor Modification of an Existing Intersection  Possible conversion to Right In / Right out by raised median
E	New Local Street	Hubbard Road and New Local Street	New Connection to a Local Street

ODOT is relying on the following provisions for access management decisions in the Midpoint Interchange Management Area:

- Existing approach roads not modified by the construction of the Sunrise Project will maintain existing connections to the state and local road systems.
- **Table 1 and Figure 6** above; apply to all new or modified approaches to state facilities.
- Clackamas County Access Management Standards apply to all new or modified county facilities. The standards are in the Clackamas County Road Standards, Section 130.3.3 - for Driveway Entrance Permits; and Chapter 2, Section 220, Table 2-2 for Access Management concerning roadway intersections and driveway access to county roads (see **Table 4 below and Appendix J**).
- Happy Valley Access Management Standards apply to all new or modified approaches to city facilities. The standards regarding streets are in the City of Happy Valley Transportation System Plan, Table 8-2 (**Table 5, below**). Chapter 8 of the City’s Transportation System Plan addresses local street connectivity.

**Table 4 -**

**(Table 2-2. Minimum Intersection Access Spacing (feet) from the Clackamas County Roadway Standards)**

Functional Classification of Existing Primary Roadway	Minimum Full Spacing of Intersection Roadways				Minimum Restricted Spacing of Intersecting Roadway*			
	Major and Minor Arterials	Collector	Connector	Local & Private Roadways	Major and Minor Arterials	Collector	Connector	Local & Private Roadways
Major Arterial	1000	1000	500	250	N/A	N/A	300	300
Minor Arterial	1000	500	250	250	N/A	N/A	300	150
Collector		150	100	100		N/A	N/A	N/A
Connector			100	100			N/A	N/A
Local & Private Roadways				100				N/A

Notes: Does not apply to driveways.  
 Alternative spacing may be allowed as a modification per Section 170.  
 Access movements may be restricted as necessary to preserve function of major roadway.

Section 220.4 Driveway Access to Arterial Roadways through Section 220.9 Maximum Access by Modification of the Clackamas County Roadway Standards describes the spacing requirements for driveways based on the roadway classification. These sections of the Clackamas County Roadway Standards are in **Appendix J**.

**Table 5 -**

**(Table 8-2: Access Spacing Standards for City Street Facilities from the Happy Valley Transportation System Plan)**

Street Facility	Maximum Access Spacing	Minimum Access Spacing with Full Access	Minimum Access Spacing with Limited Access*
Major Arterial	-	1,000 feet	500 feet
Minor Arterial	-	600 feet	300 feet
Collector	530 feet	400 feet	200 feet
Neighborhood	530 feet	-	-
Local	530 feet	-	-

Note: Intersection and driveway spacing measured from centerline to centerline.  
 \*Limited Access – Vehicles are restricted to right-in/right-out turn movements. In some cases, left-in turn movements may be permitted.



- The following access management changes identified in this IAMP will occur during the right-of-way acquisition phase or the construction phase of the Sunrise Project on the following facilities:
  - Midpoint Interchange;
  - Connection to existing OR 212/224 through a new alignment of SE 122<sup>nd</sup> Avenue;
  - New local connection to SE 125<sup>th</sup> Court;
  - New connection to SE 135<sup>th</sup> Avenue (Hubbard Street);
  - Consolidate, restrict, purchase, and/or close approach roads, consistent with the Circulation and Access Management Plan portion of the IAMP;

Prior to the construction of the Sunrise Project facilities, access in the Midpoint IAMP Management Area will be managed in accordance with the following:

- ODOT and the local governments will manage the creation of new approach roads to the state highway system in a manner that is consistent with OAR 734 Division 51. Refer to **Table 1** and **Figure 6** above.
- Local governments will manage the creation of new approach roads to the local street system in a manner that is consistent with local government access management requirements.

### **Local Actions**

As detailed in **Appendix G**, Clackamas County and the City of Happy Valley have adopted implementing policies intended to:

- Support the adoption of the IAMP by the OTC as an amendment to the Oregon Highway Plan.
- Promote redevelopment of sites consistent with the Metro 2030 Regional Employment and Housing Forecast (Gen 2.3).
- Support land uses in the vicinity of the Midpoint interchange that are consistent with the land use assumptions in the IAMP and with the stated function of the interchange as described in the IAMP.
- Require any party initiating changes to the land use designations or uses allowed in the Interchange Management Area to identify needed amendments to the IAMP, including a funding plan, and coordinate with the affected jurisdiction(s) to assure that mobility standards are not exceeded before the end of the planning period.
- Review possible allowed uses and existing resource designations, and monitor and comment on any future actions that would amend the boundary of a local jurisdiction if that boundary change is within the Interchange Management Area.
- If future circumstances in the Interchange Management Area result in the need for changes to the IAMP, Clackamas County and the City of Happy Valley and ODOT shall jointly prepare amendments to the IAMP.

## **IAMP Adoption**

Clackamas County and Happy Valley have developed amendments to their Comprehensive Plans and/or Transportation System Plans to support the implementation of this IAMP.

The Clackamas County Planning Commission held a hearing on these amendments (ZDO 225) on May 10, 2010.

The Clackamas County Board of County Commissioner adopted the amendments of the Clackamas County Comprehensive Plan Chapter 4 on August 11, 2010.

The Happy Valley Planning Commission held a hearing to recommend amending the Happy Valley TSP in October 2010.

The Happy Valley City Council adopted amendments to the Happy Valley TSP on January 18, 2011.

**Appendix H** of the plan demonstrates that the IAMP is in compliance with other planning documents.





# Sunrise Project, I-205 to Rock Creek Junction

## Interchange Area Management Plan

(IAMP)

### Sunrise West Interchanges Management Area

Final Draft

April 2011

Prepared in Cooperation with the Clackamas County Department of Transportation and  
Development and the City of Happy Valley

By

ODOT Region 1 Planning





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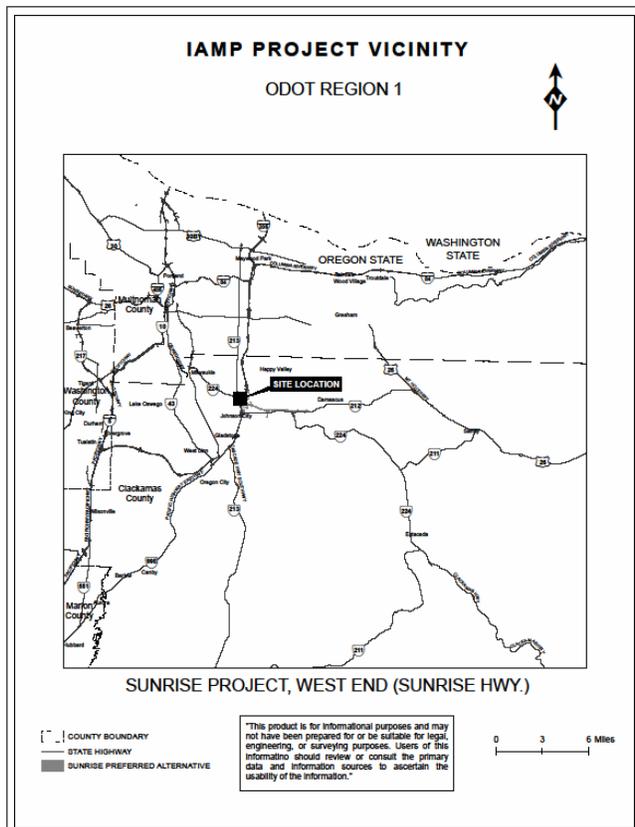


## Introduction

The Sunrise West Interchanges Area Management Plan (IAMP) is one of three IAMPs that have been prepared for the three new and one substantially altered highway interchanges that are part of the Preferred Alternative of the Sunrise Project. The Sunrise West IAMP has been prepared in conjunction with a Supplemental Draft Environmental Impact Statement (SDEIS) and the Final Environmental Impact Statement (FEIS) for the Sunrise Project.

The Sunrise Project will construct a new, east-west expressway located in the western, urbanized portion of Clackamas County. The project limits start just west of SE Webster Road at OR 224 and extend approximately 5 miles to SE 172nd Avenue at OR 212, just east of Rock Creek Junction, where OR 212 and OR 224 diverge to the east and south. The location of the Sunrise Project, in relation to the Portland Metro Area is shown on **Figure 1**. The Sunrise Project is being undertaken by the Oregon Department of Transportation (ODOT) and Clackamas County to address congestion and safety problems in the existing OR 212/224 corridor and to serve the growing demand for regional travel and access to the state highway system through the year 2030. The proposed expressway would have six through-lanes (3 in each direction) with auxiliary lanes in some locations to reduce traffic merging and weaving movements between interchanges. As proposed, the Sunrise Project will include three new and one significantly modified interchanges. These interchange improvements will provide much needed access to/from the Clackamas Industrial Area and the state and interstate highway system, thereby helping maintain the economic viability of this major industrial/distribution center and providing essential access to the emerging Rock Creek Employment area.

**Figure 1 – Location of the Sunrise Project**



## IAMP Purpose

Oregon Administrative Rule (OAR) 734-051-0155 requires that an IAMP be prepared for any new interchange and recommends an IAMP for significant modifications to existing interchanges. The purpose of an IAMP is to ensure safe and efficient operations between connecting roadways, to protect the function of the interchange, and to minimize the need for future major interchange improvements. Because new interchanges are very costly, state and local governments and citizens have an interest in ensuring that they function as intended and for as long a period as possible, while still supporting planned land use.

OAR 734-051-0155(7) requires an IAMP to comply with the following criteria, unless the plan documents why compliance with a criterion is not applicable:

- a. Be developed no later than the time an interchange is designed or is being redesigned.
- b. Identify opportunities to improve operations and safety in conjunction with roadway projects and property development or redevelopment and adopt policies, provisions, and development standards to capture those opportunities.
- c. Include short, medium, and long-range actions to improve operations and safety within the designated study area.
- d. Consider current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches.
- e. Provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years.
- f. Consider existing and proposed uses of all the property within the designated study area consistent with its comprehensive plan designation and zoning.
- g. Be consistent with any applicable Access Management Plan, corridor plan or other facility plan adopted by the Oregon Transportation Commission.
- h. Include polices, provisions and standards from local comprehensive plans, transportation system plans, and land use and subdivision codes that are relied upon for consistency and that are relied upon to implement the Interchange Area Management Plan.

## **Problem Statement**

The Sunrise West Interchanges will be constructed as part of the Sunrise Expressway to facilitate movement of traffic from I-205 and the Milwaukie Expressway to the new Sunrise Expressway. The current Milwaukie Expressway/I-205 interchange and the I-205/OR 212-224 (Clackamas) interchange are at capacity. With the construction of the Sunrise Expressway, both of these interchanges will be modified to accommodate regional traffic projections.

Clackamas Regional Center located immediately to the north of the Interchange Management Area is a major destination for future users of the Sunrise Expressway. The proposed system (freeway to freeway) interchange complex that will connect the Sunrise Expressway to the Milwaukie Expressway and I-205 cannot accommodate all of the necessary movements to support the existing land uses located in the Clackamas Regional Center, due to interchange spacing requirements on I-205. To accommodate additional traffic movements two half interchanges are added to the complex:

- the Sunrise Expressway to OR 213 N (82<sup>nd</sup> Avenue) Half Interchange, and the
- I-205 to OR 213 N (82<sup>nd</sup> Avenue) Half Interchange.

Refer to **Figure 2**.

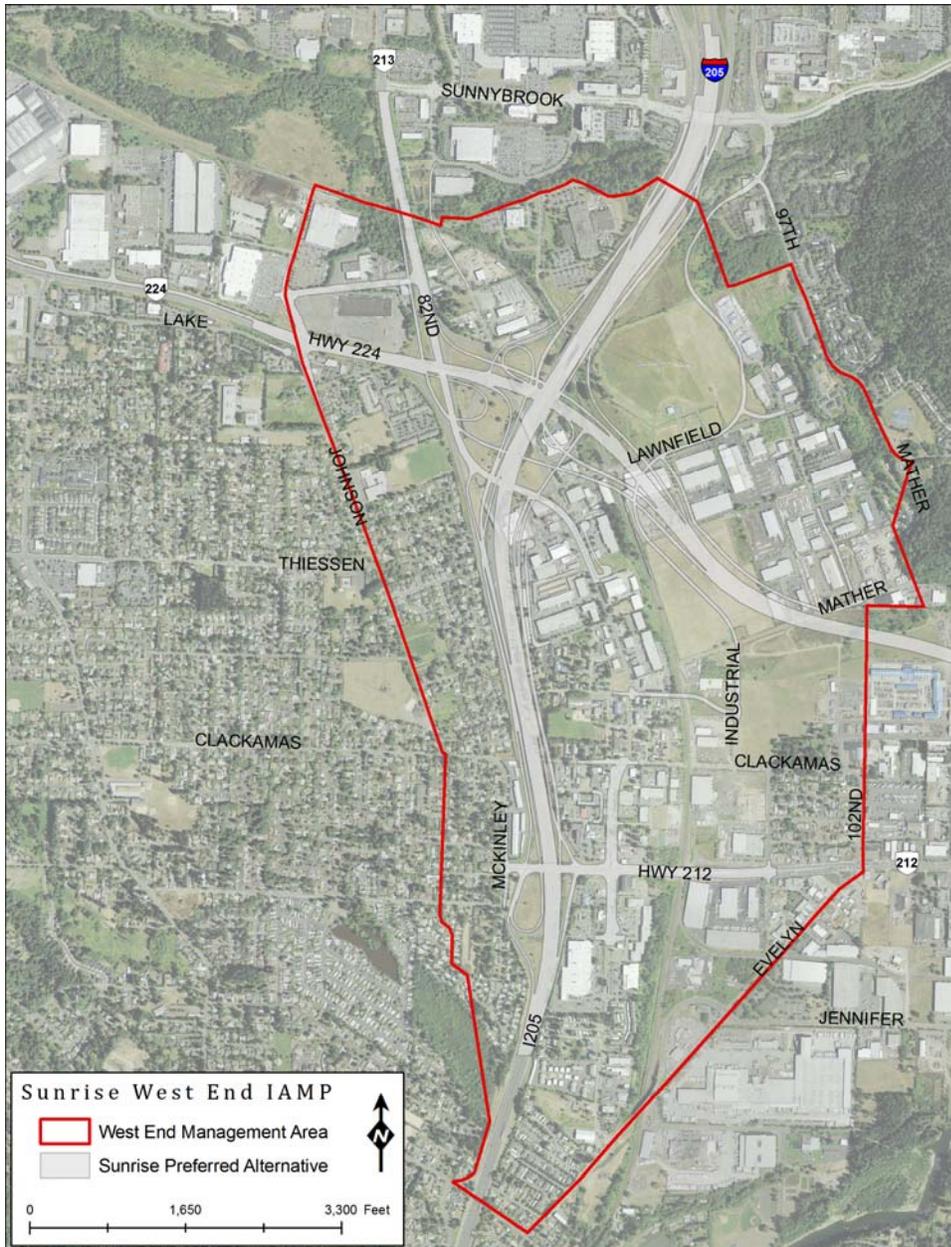
Additionally, there are local connections to the existing OR 212/224 and OR 224 highways that do not meet ODOT access spacing and operational standards including:

- the intersection of SE 82<sup>nd</sup> Drive and OR 212/224,
- the intersection of SE Deer Creek Lane and SE 82<sup>nd</sup> Avenue,

- the intersection of SE Johnson Road and SE Lake Road/SE Johnson Road and the Milwaukie Expressway, and
- the intersection of SE McKinley Avenue/SE Roots Road and OR 212/224.

These problems - not originally addressed in the Supplemental Draft Environmental Impact Statement (SDEIS) - came to light during the development of this IAMP. The implementation of this IAMP will address these access spacing and operational conditions.

**Figure 2 – Sunrise West Interchanges**



**IAMP Goals**

The Sunrise West IAMP addresses several goals related to interchange area management:

- Protect the function and operation of the Sunrise West Interchanges and the Sunrise Expressway.
- Protect the function and operations of OR 212/224 and OR 224 within the IAMP area.
- Protect the function and operation of the local street network within the IAMP area.
- Provide safe and efficient

operations between the connecting roadways and the local street network.

- Provide for an adequate system of local streets that support access and circulation within the interchange area while minimizing local traffic through the interchange.

- Ensure that changes to the planned land uses are consistent with protecting the long-term function of the interchange and the local street system.
- Provide and manage access to minimize impacts to natural and cultural resources within the management area.

### **Sunrise West Interchanges Management Area**

The Sunrise West Interchanges Management Area is the largest and most complex of the three Sunrise Project IAMP management areas, containing over 741 acres. The Sunrise West Interchanges Management Area boundaries developed by Clackamas County and ODOT staff took into consideration the existing geography and development in the area. The Interchange Management Area is bounded on the west by Johnson Road. The southern boundary is Strawberry Lane. Approximately SE 97th Avenue, SE 102nd Avenue, and Evelyn Street make up the eastern boundary. The Union Pacific Railroad (UPRR) and a stream that runs along Oak Bluff Road make up the northern boundary as shown in **Figure 3**.

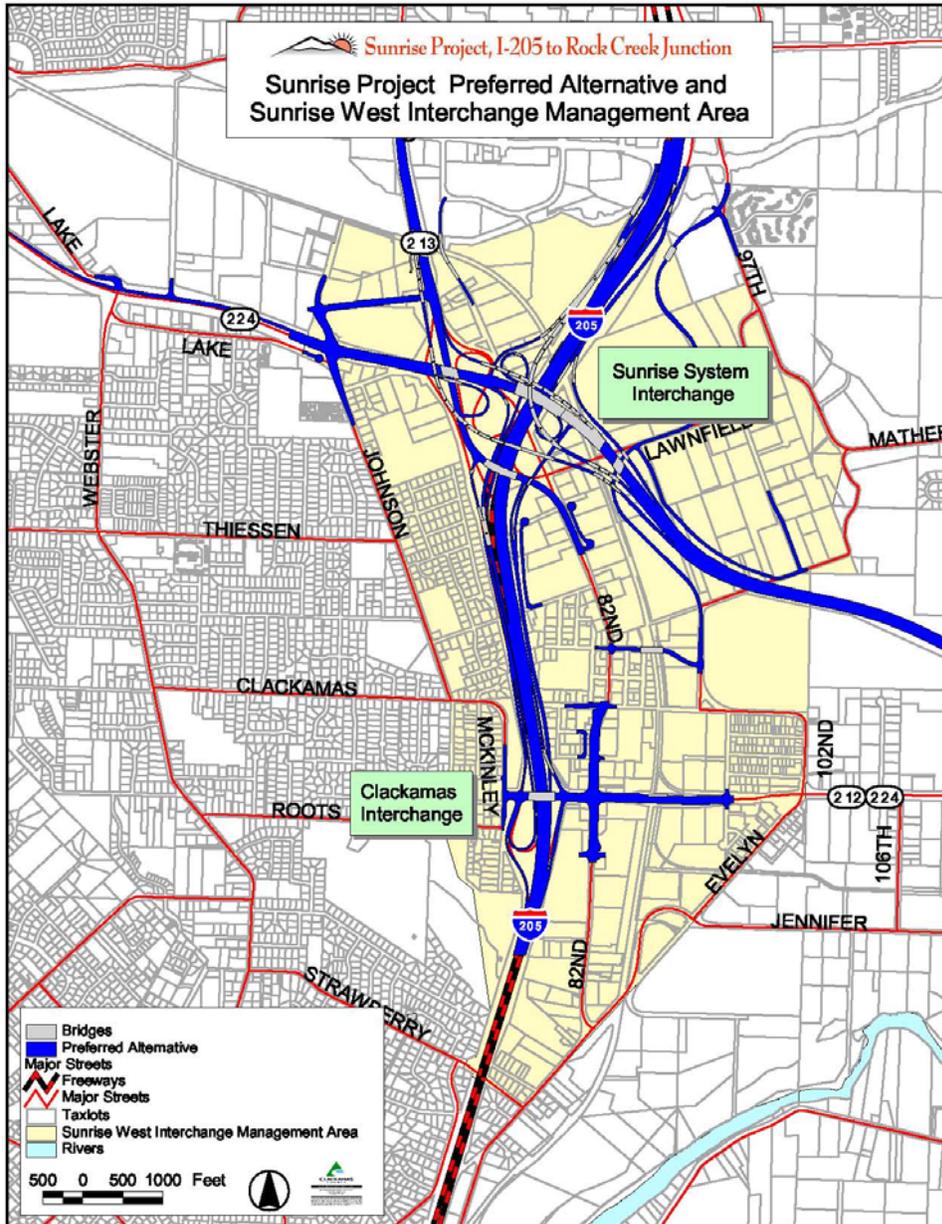
### **Existing Conditions**

#### **Existing Land Use**

The area within the Sunrise West Interchanges Management Area is largely built-out. Residential, commercial and industrial development exists at urban densities, as allowed by the Clackamas County Comprehensive Plan. Development within the management area is predominantly for employment uses, with over half of the land area in industrial, office, commercial and warehouse uses. Refer to **Appendix B** for Sunrise West Interchanges Land use Analysis concerning information on households and employment. The Sunrise West Interchanges Management Area contains portions of three of the County's most important business districts, as identified on **Figure 4** - the Clackamas Business District, the Clackamas Industrial Area, and the Highway 212/224 Business District. The management area is just south of the Clackamas Regional Center.

Residential uses take up approximately 21 percent of the developed land in the management area, predominately in the western and southern portions of the management area. The remaining land is occupied by parks, public utilities, and military uses, community uses such as churches and schools, and rights-of-way. About 97 acres in the management area (12 percent of the total) are vacant. **Figure 4** shows the existing land uses in the Sunrise West Interchanges Management Area.

**Figure 3 - Sunrise West Interchange Management Area**



**Existing Local Circulation and Private Property Approaches**

As there is significant development in the Management Area, the Sunrise West Interchanges are considered Fully Developed Urban interchanges as described in the Oregon Highway Plan.

At the heart of the Sunrise West Interchanges Management Area is the confluence of four major state facilities – I-205, the Milwaukie Expressway, OR 213 N (SE 82<sup>nd</sup> Avenue) and the Sunrise Expressway. OR 212/224 intersects with I-205 at the

southern end of the management area. As displayed in **Figure 5**, there are no local or private connections to the Sunrise Expressway and I-205. SE Johnson Road connects with the Milwaukie Expressway at the northwestern corner of the management area, but there are no private approaches. SE Mckinley, SE 82<sup>nd</sup> Drive and SE Evelyn/SE 102<sup>nd</sup> Avenues all intersect with OR 212/224, but again the state facilities are access controlled concerning private approaches. The intersections of SE McKinley Avenue and SE 82<sup>nd</sup> Drive will not meet the ODOT standard for approaches on state highways as shown in **Table 1**. Therefore, a deviation is required for these intersections.

**Alternatives Analysis**

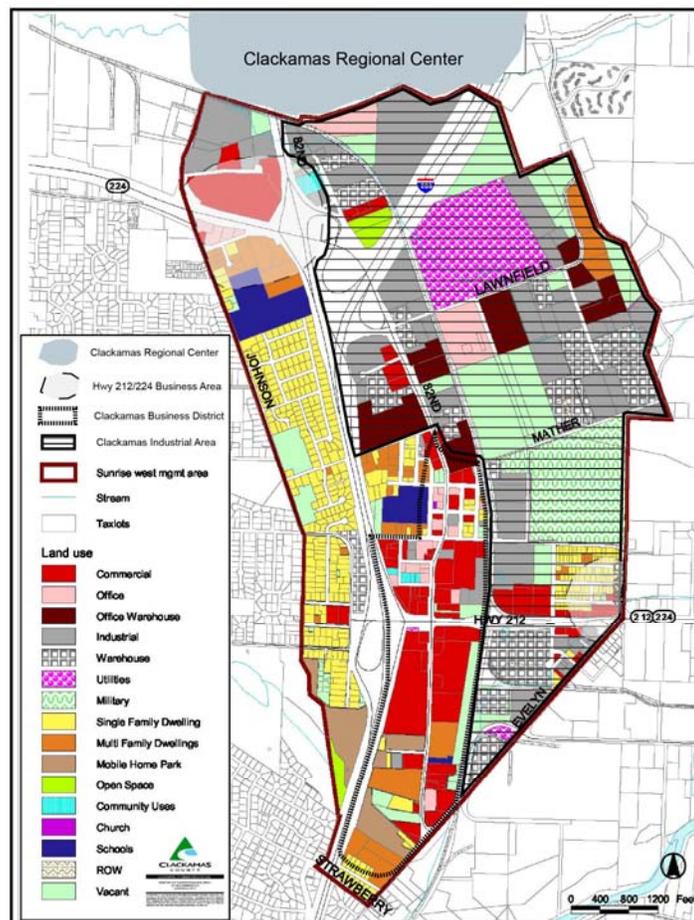
An Access Management Team (AMT), formed as a subset of the Sunrise Project Management Team (PMT) in November 2007, in compliance with Access Management Project Delivery Objective 3.

The purpose of the AMT was to review access and circulation decisions previously made as part of the Sunrise Project design process and to consider alternative approaches to access management within the Interchange Management Area. The primary purpose of this review was to improve operations and safety of:

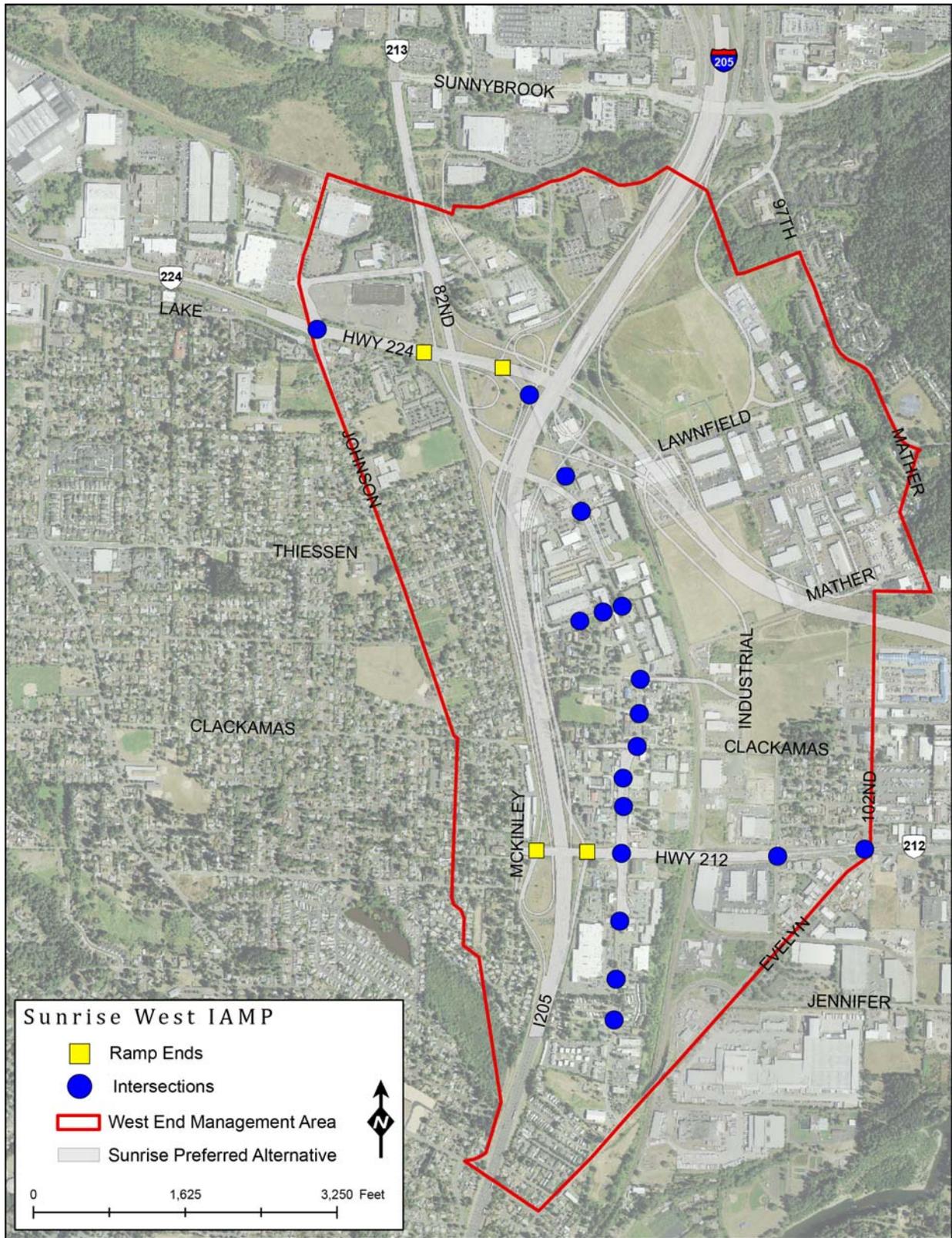
- the interchange ramps between the Sunrise Expressway, I-205, the Milwaukie Expressway, SE 82<sup>nd</sup> Avenue and SE 82<sup>nd</sup> Drive,
- the intersection of SE 82<sup>nd</sup> Drive and OR 212/224,
- the intersection of SE Deer Creek Lane and SE 82<sup>nd</sup> Avenue,
- the intersection of SE Johnson Road and SE Lake Road/SE Johnson Road and the Milwaukie Expressway, and
- the intersection of SE McKinley Avenue/SE Roots Road and OR 212/224.

**Table 1 and Figure 6** list and diagram ODOT spacing standards used in the design of approach road spacing distances within the Midpoint Interchange Management Area.

**Figure 4 - Existing Land Uses**



**Figure 5 - Existing Local Approach Road Points- Prior to Sunrise Project**

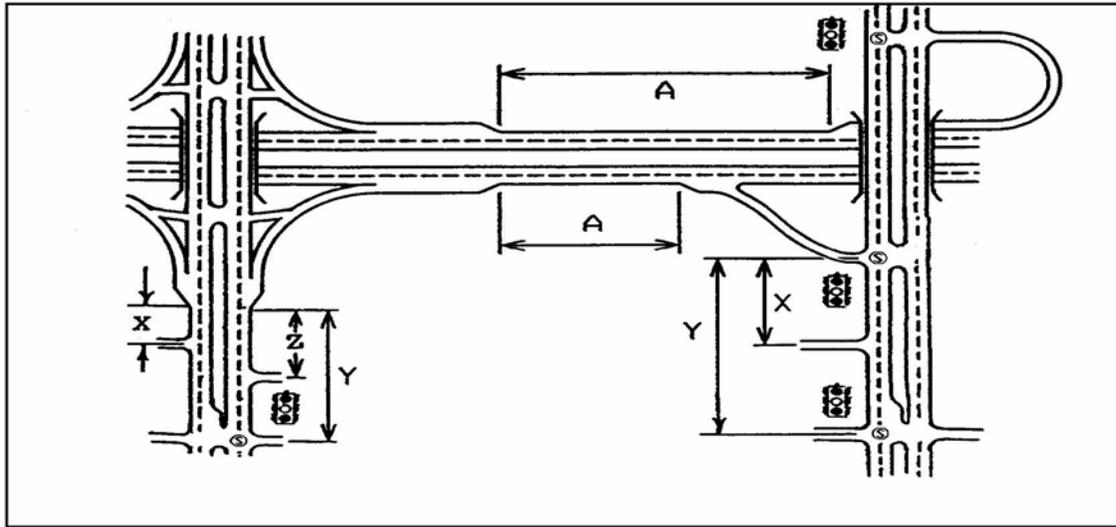


**Table 1 - Minimum Spacing Standards Applicable to Freeway Interchanges with Multi-Lane Crossroads (OHP Table 19)**

Type of Area* (OAR 734-051-0125)	Spacing Dimension			
	A = Distance between the start and end of tapers of adjacent interchanges	X = Distance to the first approach on the right; right in/right out only	Y = Distance to first intersections where left turns are allowed	Z = Distance between the last right in/ right out approach road & start of taper for the on-ramp
Fully Developed Urban	1 mile	750 feet	1,320 feet	750 feet

\*A Fully Developed Urban Interchange Management Area is within an urban growth boundary and has at least 85% of the frontage of the interchange crossroad developed (1999 Oregon Highway Plan).

**Figure 6 - Measurement of Spacing Standards**



The primary source of changes to the approach roads on the state highway system within the Sunrise West Interchanges Management Area will be the construction of the Sunrise Project described as part of the Preferred Alternative. These new facilities will remove a number of existing approach road access points on the state highways and substantially modify most of the other approaches to the existing state highways. During the design process and the review of the access changes by the AMT, consideration was given to providing alternative access to property owners within the study area and to better alleviating traffic in several identified problem areas. The most notable change proposed in the Preferred Alternative includes the SE 82<sup>nd</sup> Drive/OR 212-224 intersection.

Detailed analyses of this and several other intersections considered for minor alterations are in **Appendix C**.

**SE 82nd Drive and OR 212/224 Intersection Refinement Alternatives**

The intersection of 82nd Drive at OR 212/224 (**Figure 7**) is the most congested bottleneck within the study area in the year 2030. The Supplemental Draft Environmental Impact Statement (SDEIS) design at this intersection is an improvement over the current design, but it would not meet state and local operational standards in the design year (2030).

Four alternatives to the SDEIS Build Alternative were studied for this intersection:

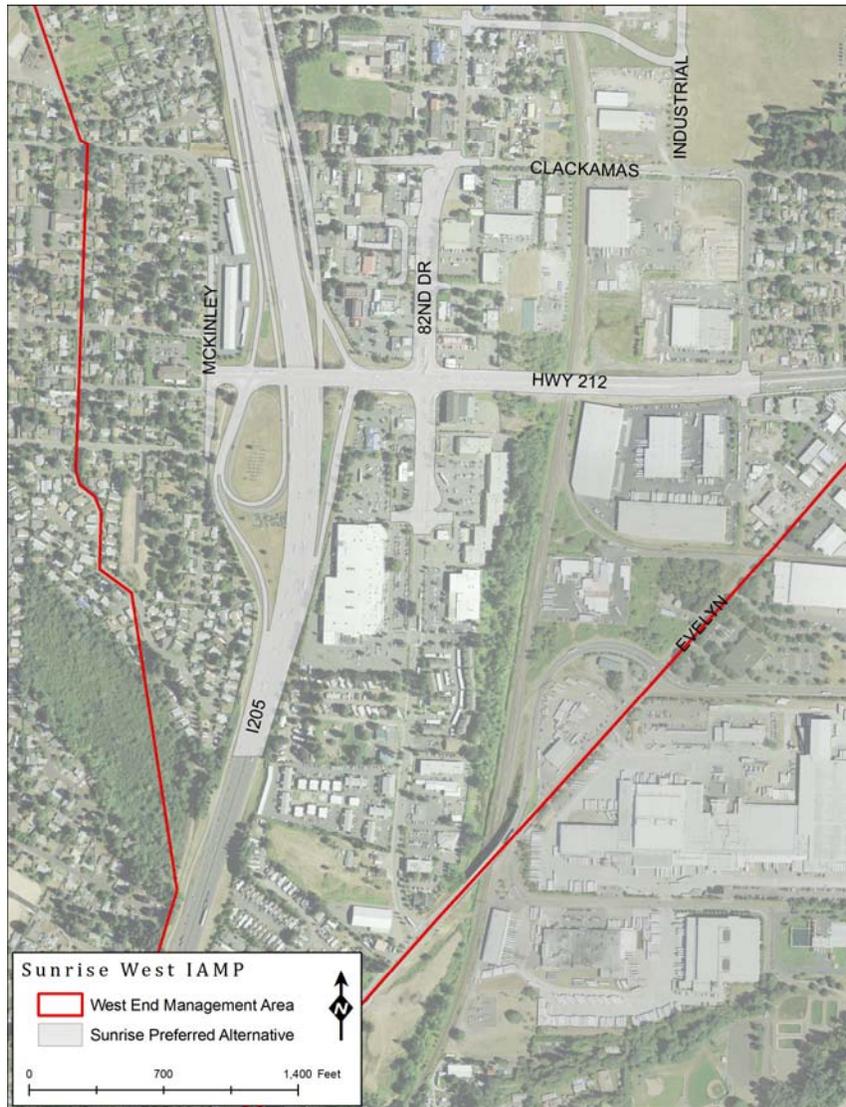
1. Adding capacity via a third westbound lane on OR 212/224, between SE 102<sup>nd</sup> Avenue and SE 82<sup>nd</sup> Drive (also providing a dedicated westbound right turn lane at SE 82<sup>nd</sup> Drive);
2. Limiting access by restricting all left-turn movements from SE 82<sup>nd</sup> Drive and the OR 212/224 intersection by providing alternative access via signalized intersections with potential for U-turns along SE 82<sup>nd</sup> Drive at SE Clackamas Road and at the north Fred Meyer access;
3. Reroute northbound and southbound through trips on SE 82<sup>nd</sup> Drive to a new parallel road east of SE 82<sup>nd</sup> Drive. This would remove a signal phase from the intersection, allowing the remaining signal phases to use the additional capacity;
4. Grade separate the northbound and southbound through trips under the existing intersection. Again, removing a signal phase from the intersection and allowing the remaining signal phases to use the additional capacity.

The following is a list of assumptions considered to complete the analysis of the four SE 82<sup>nd</sup> Drive improvement scenarios:

- The SE Lawnfield Road connection between the Lawnfield Industrial Area and Sunnybrook Boulevard is constructed;
- The SE Tolbert Road overcrossing of the Union Pacific Railroad is constructed between SE 82<sup>nd</sup> Drive and SE Industrial Way;
- The intersection of SE Tolbert Road at SE 82<sup>nd</sup> Drive is signalized;
- The intersection at the southern Fred Meyer access with SE 82<sup>nd</sup> Drive is signalized; and
- A raised median is constructed along SE 82<sup>nd</sup> Drive between the north Fred Meyer intersection (south of OR 212/224) and SE Clackamas Road (north of OR 212/224), restricting all left turns along this stretch of SE 82<sup>nd</sup> Drive.

Alternatives 1 and 2 (above) were incorporated into the Preferred Alternative. For the methodology, data sources and standards used for the four alternatives of the SE 82<sup>nd</sup> Drive and OR 212/224 Refinement Study, please reference Section 4 and Section 4.6 of the Transportation Technical Report for the “Sunrise Expressway, I-205 to Rock Creek Junction (OR 212/224).” **Table 2** lists alternatives that were considered and dismissed by the AMT.

**Figure 7 – Se 82<sup>nd</sup> Drive and OR 212/224 Intersection**



**Table 2 - 82<sup>nd</sup> Drive – Other Alternatives Considered and Dismissed**

Scenario	Reason for Dismissal
Closure of 82nd Drive at OR 212/224	Not practical due to: Traffic Operational Problems & Impacts to Local Businesses
Restrict north and southbound left turns	Not practical due to: Traffic Operational Problems
Restrict east and westbound left turns	Not practical due to: Traffic Operational Problems
SDEIS Design	Not practical due to: Traffic Operational Problems
Dual left turns on all approaches (Above SDEIS Improvements)	Not practical due to: Traffic Operational Problems
Jug handles in each quadrant – No left turns at 82 <sup>nd</sup> Drive	Not practical due to: Design and Weaving Problems
Jug handles in NE and SW quadrants only – Left turns only allowed WB > SB and EB > NB	Not practical due to: Design and Weaving Problems
Require all trucks to use the Gladstone interchange	Not practical due to: Enforcement Issues & May require improvements to Gladstone interchange.
Add local road connections over I-205 at Clackamas Road and Roots Road	Not practical due to: Design Problems
Restrict all left turns – Provide no additional alternative routes	Not practical due to: Out-of-Direction Travel & Impacts to Local Businesses

The Sunrise Corridor SDEIS proposes closing the direct access from southbound SE 82<sup>nd</sup> Avenue to the Milwaukie Expressway and provide that access via a new signalized intersection at SE Deer Creek Lane and SE 82<sup>nd</sup> Avenue. The proposed access change has the potential to increase traffic volumes on SE Deer Creek Lane and SE Johnson Road significantly. This change also will change the character of SE Deer Creek Lane from a local access road to a regional connector.

The Sunrise SDEIS also proposes closing the SE Lake Road intersection with SE Johnson Road leaving SE Webster Road as the only access to the Milwaukie Expressway from SE Lake Road. To help answer the access and mobility questions associated with SE Deer Creek Lane and SE Lake Road, the project team evaluated capacity improvements to the existing signalized intersection of SE Deer Creek Lane and SE Johnson Road, and the realignment of SE Lake Road and SE Johnson Road to provide access to the Milwaukie Expressway at SE Pheasant Court. Two alternative improvements studied for this intersection incorporate the realignment of SE Lake Road and SE Johnson Road:

- Capacity enhancements on side streets and turning movements along the Milwaukie Expressway, designed to determine whether traffic operations would meet standards without adding a third lane on Milwaukie Expressway. Dual northbound left-turn lanes were provided at the intersection of Deer Creek Lane and 82<sup>nd</sup> Avenue, or
- A seven-lane cross section of the Milwaukie Expressway 1,100 feet past SE Webster Road, including select side street and turning movement capacity enhancements along the Milwaukie Expressway.

## **Operational Results**

Without a seven-lane cross section on Milwaukie Expressway, a queue forms on the Milwaukie Expressway at the SE Webster Road intersection. This queue extends easterly as far back as the Sunrise mainline under the first alternative. The queue on the Milwaukie Expressway causes a reduction in side street capacity because there is no storage for vehicles to turn westbound onto the Milwaukie Expressway.

To meet ODOT's operational standards along the Milwaukie Expressway between I-205 and SE Webster Road, it was determined that the second alternative, with a seven-lane cross section continuing west 1,100 feet past the intersection of SE Webster Road along with select turning movement capacity enhancements, should be made along the Milwaukie Expressway.

## **Future Land Use**

The Sunrise West interchanges are located inside the Metro Urban Growth Boundary (UGB) in an area that is largely developed. Approximately 41% of the 97 acres of vacant land within this Management Area is expected to be acquired for new right-of-way, leaving roughly 57 acres of vacant land to potentially develop, more than half of which contains some sort of development constraint including steep slopes, wetlands, and/or natural habitat. Therefore, the majority of the expected growth in the Sunrise West Interchanges Management Area will be redevelopment of existing sites under existing zoning and comprehensive plan designations.

ODOT has designed the Sunrise West interchanges to accommodate the surrounding communities' plans for growth over the 20-year planning horizon, consistent with their comprehensive plans, and with the Metro 2030 Regional Employment and Housing Forecast (Gen 2.3); and is relying on the existing zoning and land uses. The Sunrise West IAMP was not

designed to support development such as highway commercial that is not authorized in the Clackamas County and City of Happy Valley Comprehensive Plans.

The local comprehensive plans and other related documents are described in **Appendix A** and include the following assumptions, which were used to develop the IAMP for Sunrise West:

- The areas will continue to develop in accordance to existing comprehensive plans and zoning;
- Development will intensify on sites where zoning will allow; and
- Planned land uses are in conformance with the Metro 2030 forecast for households and employment used in modeling the future traffic operations summarized below. A more complete description of the planned land uses in this area is contained in **Appendix B**.

### **Future Traffic Operations**

The Sunrise Project traffic model used the 2030 Financially Constrained road network as the basis for all forecasting of future traffic volumes. An alternative 2030 Employment and Housing Forecast was considered as part of the Sunrise Project evaluation process that assumed slower growth in the City of Damascus, but it did not significantly affect the travel demand in the Sunrise Project Study Area.

### **Preferred Alternative System Intersection Performance**

The traffic model forecasts for the Preferred Alternative show that it performs better than the SDEIS Alternatives with respect to intersection operations in the Sunrise West Interchanges Management Area. A summary of the intersection capacity analysis is shown in **Table 3**. A detailed discussion of impacts to the intersections identified in this section is in **Appendix C**.

ODOT's Oregon Highway Plan standards indicate a v/c ratio of no greater than 0.85 for the design year for intersections. New intersections expected to fail to meet ODOT standards in 2030 require design exceptions and are noted in the **Table 3** with highlighting.

**Table 3 - Sunrise West IAMP Intersection Capacity Analysis**

N Intersection Name	AM Peak Hour Performance		PM Peak Hour Performance	
	1 <sup>st</sup> Hour	2 <sup>nd</sup> Hour	1 <sup>st</sup> Hour	2 <sup>nd</sup> Hour
<b>Sunrise System Interchange Intersections</b>				
System Interchange West Signal	<b>0.87 v/c</b>	0.81 v/c	0.56 v/c	0.63 v/c
System Interchange East Signal	0.77 v/c	0.71 v/c	0.77 v/c	<b>0.86 v/c</b>
<b>OR 212 / 224 Intersections (ODOT Intersections)</b>				
Clackamas Interchange – South Bound Ramps	0.72 v/c	0.69 v/c	<b>0.91 v/c</b>	<b>0.93 v/c</b>
Clackamas Interchange – North Bound Ramps	0.79 v/c	0.71 v/c	0.80 v/c	<b>0.86 v/c</b>
OR 212/224 and 82 <sup>nd</sup> Drive Intersection	0.73 v/c	0.71 v/c	0.80 v/c	0.85 v/c
OR 212/224 and 102 <sup>nd</sup> Avenue Intersection Existing Intersection, not Modified by Project	<b>0.94 v/c</b>	<b>0.95 v/c</b>	<b>1.07 v/c</b>	<b>1.06 v/c</b>
<b>82<sup>nd</sup> Drive Intersections (County Intersections)</b>				
82 <sup>nd</sup> Drive and Tolbert Road Intersection	0.48 v/c	0.42 v/c	0.64 v/c	0.70 v/c
82 <sup>nd</sup> Drive and Clackamas Road Intersection	0.52 v/c	0.47 v/c	0.74 v/c	0.80 v/c
82 <sup>nd</sup> Drive and North FM Access Intersection	0.66 v/c	0.62 v/c	0.79 v/c	0.86 v/c
<b>OR 213 N (82nd Avenue) Half Interchange with I-205</b>				
OR 213 N / 82 <sup>nd</sup> Drive – South Bound Ramps	0.42 v/c	0.42 v/c	0.60 v/c	0.66 v/c
OR 213 N / 82 <sup>nd</sup> Drive – North Bound Ramps	0.49 v/c	0.42 v/c	0.50 v/c	0.55 v/c
<b>OR 213 N (82nd Avenue) / OR 224 Arterial Connection</b>				
OR 213N and Deer Creek Lane Intersection	0.56 v/c	0.51 v/c	0.75 v/c	<b>0.81 v/c</b>
Deer Creek Lane and Johnson Road Intersection	0.46 v/c	0.45 v/c	0.74 v/c	<b>0.83 v/c</b>
OR 224 and Johnson Road Intersection	<b>1.01 v/c</b>	<b>0.95 v/c</b>	<b>0.90 v/c</b>	<b>1.01 v/c</b>
<b>West End Transition Area</b>				
OR 224 and Webster Road Intersection	<b>1.01 v/c</b>	<b>0.95 v/c</b>	<b>1.31 v/c</b>	<b>1.39 v/c</b>
OR 224 and Pheasant Court Intersection	0.71 v/c	0.67 v/c	0.77 v/c	0.81 v/c
OR 224 and Johnson Road Intersection	<b>1.01 v/c</b>	<b>0.95 v/c</b>	<b>0.90 v/c</b>	<b>1.01 v/c</b>

Source: Sunrise Project Transportation Technical Report, David Evans, 2010

As shown in **Table 3**, there are numerous intersections that do not meet operational standards of the OHP for both AM and PM peak hour. Some of these intersections, such as those in the Sunrise System Interchange; OR 213 N (82<sup>nd</sup> Avenue) OR 224 Arterial Connections; and the West End Transition Area are a condition of future projects along the Milwaukie Expressway, as identified in the Region Transportation Plan (RTP). ODOT has discussed this with FHWA and FHWA has acknowledged that later improvements to the Milwaukie Expressway identified in the Metro RTP will enhance future operations at these intersections. FHWA has also acknowledged that the Sunrise Expressway Preferred Alternative provides operational and safety improvements at these locations that will prevent queuing of vehicles onto I-205 from the Milwaukie Expressway. Intersections identified as OR 212/224 Intersections (ODOT Intersections) that do not meet OHP mobility standards do not because the cost of land acquisition and constructing the facilities to meet the standard outweigh the benefit of meeting the mobility standard. Traffic projects demonstrate that although the ramp terminals will not meet OHP mobility standards, traffic will not queue back onto the Interstate system.

### Future Local Circulation

The physical improvements to future local circulation in the Sunrise West Interchanges Area include new features that were not part of the SDEIS. Additional design refinement was done based on stakeholder input and the additional assessment of environmental resource avoidance. These improvements include the following:

- SE 82<sup>nd</sup> Drive-OR 212/224 intersection redesign – no left turns
- Third westbound lane on OR 212/224 extended to SE 102<sup>nd</sup> Avenue
- SE Lawnfield Road alignment revised to avoid radio tower site.

## **Interchange Area Management Plan**

### **Sunrise West Interchanges Function Statement**

The Sunrise West Interchanges are proposed system and service-level interchanges that would serve as the western terminus of the Sunrise Expressway and OR 212/224. The primary functions of these interchanges are to:

- Accommodate expressway to expressway movements between I-205, the Milwaukie Expressway (OR 224) and the new Sunrise Expressway.
- Accommodate movements from I-205 and the Sunrise Expressway to SE 82<sup>nd</sup> Avenue and SE 82<sup>nd</sup> Drive through two new half interchanges.
- Provide access to the two large employment areas in the vicinity - the Clackamas Regional Center and the Clackamas Industrial Area.
- Accommodate access to/from OR 212 and OR 224 for regional through freight traffic; and
- Provide access to the planned urban land uses including employment areas and Regionally Significant Industrial Areas (RSIA) located at the eastern terminus of the Expressway, in east Happy Valley and Damascus.

The interchanges are not designed to facilitate additional development such as highway oriented commercial, beyond what is already designated for the management area in the Comprehensive Plans of Clackamas County and the City of Happy Valley.

### **Land Use Assumptions**

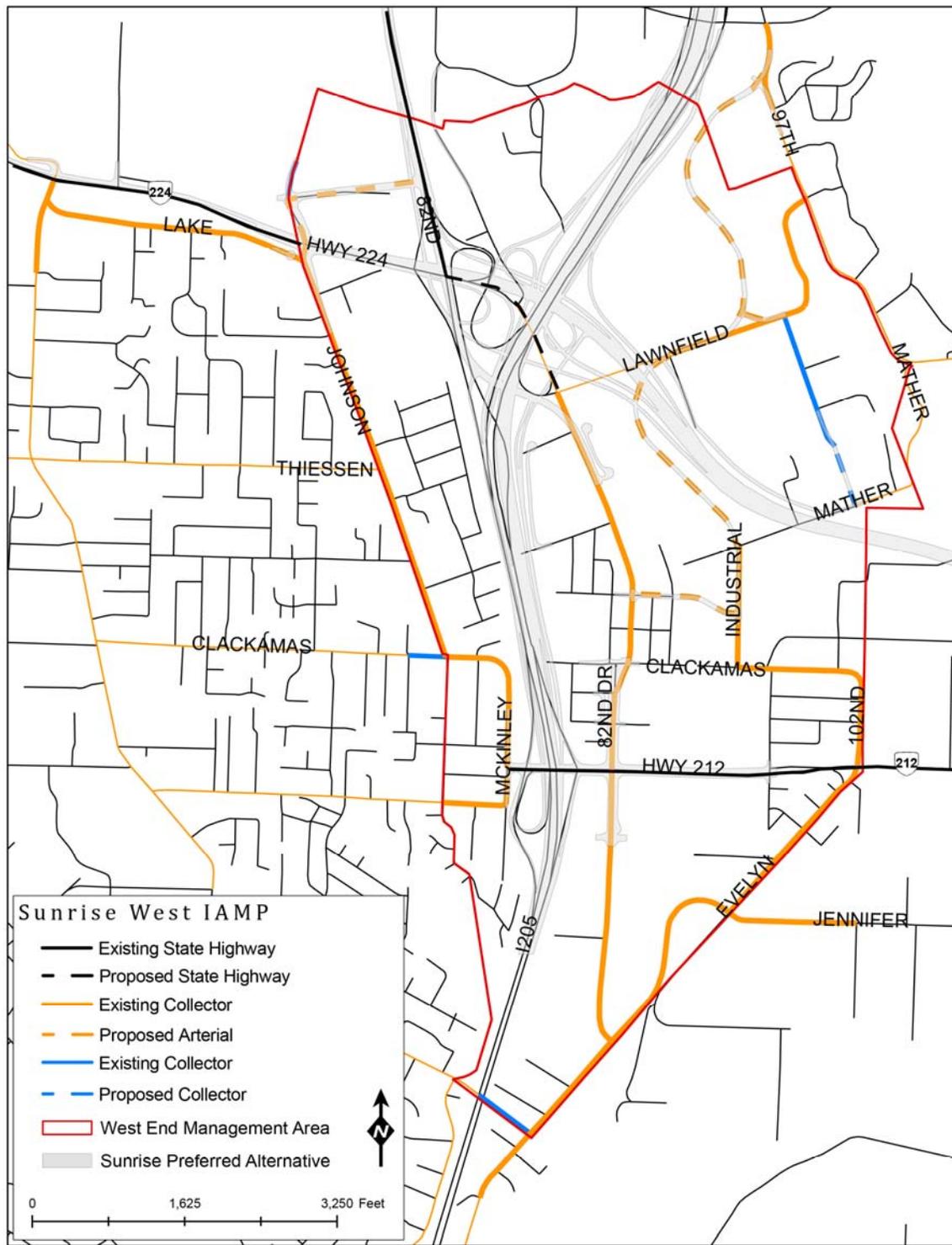
ODOT is relying on the acknowledged comprehensive plans for Clackamas County and the City of Happy Valley. (See **Appendix B** - for applicable zoning districts).

### **Circulation and Access Management Plan**

This section describes the generalized access control measures developed for approach roads onto the state highways and local roadways by ODOT, Clackamas County and the City of Happy Valley. The Access Management Plan (AMP) comprises actions to guide and control access for the entire Sunrise West Interchanges Management Area.

The Local Connectivity Plan in the Sunrise West Interchanges Management Area is shown in **Figure 8**. This local circulation system is integrated with the Sunrise Project Preferred Alternative and comprises the non-expressway facilities constructed or altered as part of the Sunrise Project.

**Figure 8 - Local Connectivity Plan – Sunrise West Interchanges**



There are twelve new or reconfigured local streets within the West interchanges management area constructed as part of the Sunrise Project. **Table 4** and **Figure 9** below, list and display these new or reconfigured local connections. The ID number in Table 4 coincides with the location on Figure 8.

**Table 4 - West IAMP Local Circulation Changes**

ID Number	Approach Road Type	Location	Type of Modification
A	New Local Street	SE Lawnfield Road to SE 97 <sup>th</sup> Avenue	New Connection
B	Existing Local Street	SE Johnson Road to SE 82 <sup>nd</sup> Avenue	Major Modification to an Existing Street
C	Existing Local Street	SE Lake Road at SE Johnson Road	Cul-de-Sac of Existing Intersection
D	New Local Street	SE 98 <sup>th</sup> Court	New Connection
E	New Local Street	SE Industrial Way to SE Lawnfield Road	New Connection
F	New Local Access	From SE Herbert Street South	New Connection
G	New Local Access	New Local Access between SE Jannsen Street and SE Herbert Street	New Connection
H	New Local Street	SE Tolbert Street Extension	New Connection
I	Existing Local Street	SE Clackamas Road	Minor Intersection Modification
J	New Local Access	SE 92 <sup>nd</sup> Avenue Connection	New Connection
K	Existing Local Street	SE Alansa Drive	Minor Intersection Modification
L	New Local Access	North Fred Meyer Access	Minor Intersection Modification

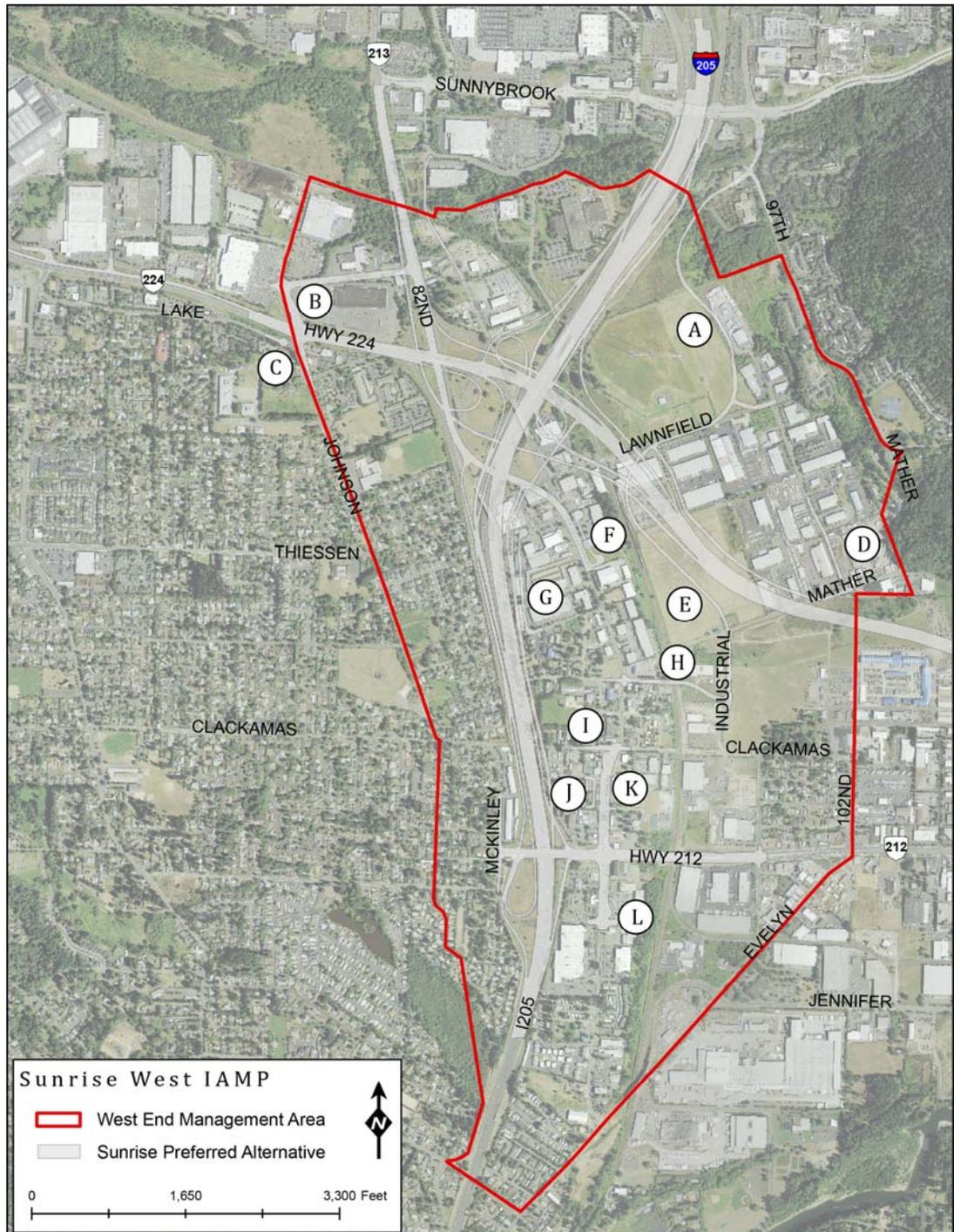
ODOT is relying on the following provisions for access management decisions in the West Interchanges Management Area:

- Existing approach roads not modified by the construction of the Sunrise Project will maintain existing connections to the state and local road systems.
- **Table 1** and **Figure 6** above; apply to all new or modified approaches to state facilities.

Clackamas County Access Management Standards apply to all new or modified approaches to county facilities. The standards are in the Clackamas County Road Standards, Section 130.3.3 - for Driveway Entrance Permits; and Chapter 2, Section 220, Table 2-2 for Access Management concerning roadway intersections and driveway access to county roads (see **Table 5 below and Appendix J**).

- Happy Valley Access Management Standards apply to all new or modified approaches to city facilities. The standards regarding streets are in the City of Happy Valley Transportation System Plan, Table 8-2 (**Table 6, below**). Chapter 8 of the City's Transportation System Plan addresses local street connectivity.

**Figure 9- West IAMP Local Circulation Changes**



**Table 5 -  
(Table 2-2. Minimum Intersection Access Spacing (feet) from the Clackamas County Roadway Standards)**

Functional Classification of Existing Primary Roadway	Minimum Full Spacing of Intersection Roadways				Minimum Restricted Spacing of Intersecting Roadway*			
	Major and Minor Arterials	Collector	Connector	Local & Private Roadways	Major and Minor Arterials	Collector	Connector	Local & Private Roadways
Major Arterial	1000	1000	500	250	N/A	N/A	300	300
Minor Arterial	1000	500	250	250	N/A	N/A	300	150
Collector		150	100	100		N/A	N/A	N/A
Connector			100	100			N/A	N/A
Local & Private Roadways				100				N/A

Notes: Does not apply to driveways.  
Alternative spacing may be allowed as a modification per Section 170.  
Access movements may be restricted as necessary to preserve function of major roadway.

Section 220.4 Driveway Access to Arterial Roadways through Section 220.9 Maximum Access by Modification of the Clackamas County Roadway Standards describes the spacing requirements for driveways based on the roadway classification. These sections of the Clackamas County Roadway Standards are in **Appendix J**.

**Table 6 -  
(Table 8-2: Access Spacing Standards for City Street Facilities from the Happy Valley Transportation System Plan)**

Street Facility	Maximum Access Spacing	Minimum Access Spacing with Full Access	Minimum Access Spacing with Limited Access*
Major Arterial	-	1,000 feet	500 feet
Minor Arterial	-	600 feet	300 feet
Collector	530 feet	400 feet	200 feet
Neighborhood	530 feet	-	-
Local	530 feet	-	-

Note: Intersection and driveway spacing measured from centerline to centerline.  
\*Limited Access – Vehicles are restricted to right-in/right-out turn movements. In some cases, left-in turn movements may be permitted.

## Implementation

Clackamas County, ODOT and the City of Happy Valley cooperated in the preparation of the Sunrise West IAMP. Separate adoption processes and implementing actions exist for each agency. This section summarizes the implementation roles and responsibilities for the respective jurisdictions. It also identifies access management and policy actions, and reviews the process for state and local authorities to adopt the Sunrise West IAMP.

See **Appendix G** for language used by the local jurisdictions in the amendment of their Transportation System Plans (TSPs). Clackamas County and the City of Happy Valley have adopted local ordinances to their Comprehensive Plans/TSPs to implement local elements of

the IAMP prior to adoption of the IAMP by the Oregon Transportation Commission (OTC). The OTC must adopt the IAMP before construction commences on the Sunrise Project.

### **ODOT Actions**

The following will be done by ODOT as part of the land acquisition and construction of the Sunrise Expressway:

- The following access management changes identified in this IAMP will occur during the right-of-way acquisition phase or the construction phase of the Sunrise Project on the following facilities:
  - The Sunrise Project interchange complex - a system interchange that would provide connections between the Milwaukie Expressway (OR 224), the Sunrise Expressway and I-205. Two half interchanges are included in the interchange complex to provide additional necessary movements to support the Clackamas Regional Center:
    - I-205/OR 213N (SE 82<sup>nd</sup> Avenue) half interchange
    - Sunrise Expressway/OR 213N (SE 82<sup>nd</sup> Avenue) half interchange
  - The expanded Clackamas interchange (I-205 and OR 212/224).
  - The adjacent OR 212/224 - SE 82<sup>nd</sup> Drive intersection, reconfigured to prohibit all left turns at the intersection. Reconstruct SE 82<sup>nd</sup> Drive to accommodate the left turn movements with the addition of two signalized intersections which permit U-turns.
  - Three new arterial connections, within the Lawnfield industrial area to improve circulation and to provide access to SE 82 Drive, OR 212/224 and SE 97<sup>th</sup> Avenue.
  - A rebuilt arterial connector, Lawnfield Road, will link the Lawnfield industrial area and SE 97<sup>th</sup> Avenue.
  - Consolidate, restrict, purchase, and/or close approach roads, consistent with the Circulation and Access Management Plan portion of the IAMP.
  - Purchase access control where needed.

Prior to the construction of the Sunrise Project facilities, access in the Sunrise West IAMP Management Area will be managed in accordance with the following:

- ODOT and the local governments will manage the creation of new approach roads to the state highway system in a manner that is consistent with OAR 734 Division 51.
- Local governments will manage the creation of new approach roads to the local street system in a manner that is consistent with local government access management requirements.

### **Local Actions**

As detailed in **Appendix G**, Clackamas County and the City of Happy Valley have adopted implementing policies intended to:

- Support the adoption of the IAMP by the OTC as an amendment to the Oregon Highway Plan.
- Promote redevelopment of sites in a manner consistent with the Metro 2030 Regional Employment and Housing Forecast (Gen 2.3).
- Support land uses in the vicinity of the Sunrise West Interchanges that are consistent with the land use assumptions in the IAMP and with the stated function of the interchanges as described in the IAMP.
- Require any party initiating changes to the land use designations or uses allowed in the Interchanges Management Area to identify needed amendments to the IAMP, including a funding plan, and coordinate with the affected jurisdiction(s) to assure that mobility standards are not exceeded before the end of the planning period.
- Review possible allowed uses and existing resource designations, and monitor and comment on any future actions that would amend the boundary of a local jurisdiction if that boundary change is within the Interchanges Management Area.
- If future circumstances in the Interchange Management Area result in the need for changes to the IAMP, Clackamas County, the City of Happy Valley, and ODOT shall jointly prepare amendments to the IAMP.

## **IAMP Adoption**

Clackamas County and Happy Valley have developed amendments to their Comprehensive Plans and/or Transportation System Plans to support the implementation of this IAMP.

The Clackamas County Planning Commission held a hearing on these amendments (ZDO 225) on May 10, 2010.

The Clackamas County Board of County Commissioner adopted the amendments of the Clackamas County Comprehensive Plan Chapter 4 on August 11, 2010.

The Happy Valley Planning Commission held a hearing to recommend amending the Happy Valley TSP in October, 2010.

The Happy Valley City Council adopted amendments to the Happy Valley TSP on January 18, 2011.

**Appendix H** of the plan demonstrates that the IAMP is in compliance with other planning documents.