



# Cottage Grove Urban Design Verification Study

Final Summary Report

ODOT Region 2

September 4, 2024





## Contents

1	BACKGROUND.....	1
	Study Area.....	1
	Existing OR99 Conditions .....	2
	ODOT Highway Design Manual Urban Context.....	3
2	ROADWAY REALLOCATION.....	6
	Existing Typical Section .....	6
	Proposed Typical Sections.....	6
3	ENHANCED CROSSINGS.....	9
	Enhanced Crossing Locations .....	9
	Enhanced Crossing Components .....	12

## Tables

Table 1	Comparison of HDM Guidance, Existing Conditions and Proposed Conditions .....	3
Table 2	Siting Considerations for Enhanced Crossing Locations.....	11
Table 3	Proposed Enhanced Crossing Treatments and Cost Estimates .....	13

## Figures

Figure 1	Cottage Grove UDV Study Area .....	2
Figure 2	Typical corridor conditions .....	3
Figure 3	Existing typical section.....	6
Figure 4	Proposed typical sections .....	8
Figure 5	Locations of Proposed Enhanced Crossings.....	9
Figure 6	Proposed Enhancement for OR99 at E Quincy Ave. & S 5th St. ....	15
Figure 7.	Proposed Enhancement for OR99 at S 6th St.....	16
Figure 8	Proposed Enhancement for OR99 at Jefferson Ave. ....	17
Figure 9	Proposed Enhancements for OR99 at E Washington Ave. ....	18

## Appendices

Appendix A. Existing Conditions Memorandum

Appendix B. Traffic Analysis – No-Build Scenario

Appendix C. Traffic Analysis – Build Scenario

Appendix D. Public Involvement Summary

Appendix E. Study Area Roll Plots

Appendix F. Crossing Treatment Exhibits and Cost Estimate

Appendix G. Turning Templates

# UDV Study Report

This Urban Design Verification Study (UDV) Report presents the proposed roadway reallocation and enhanced crossings for the Oregon 99 (OR99) study area in Cottage Grove<sup>1</sup>. The intent of this study is to identify lower-cost improvements to make it safer for people walking and bicycling to use OR99. The study can be used to help find funding for future projects through grants or other opportunities such as Safe Routes to School, maintenance activities, and ADA curb ramp improvements.

## 1 BACKGROUND

### Study Area

The UDV study area is defined as OR99 (Goshen-Divide Highway No. 226) from the intersection at E Main Street (Mile Point (MP) 14.79) to the intersection at E Harrison Avenue/S 4th Street (MP 15.36), approximately 0.6 miles in length. OR99 serves as the main north-south thoroughfare in central Cottage Grove, dividing the city into eastern and western halves. (Figure 1)

The land use context for the corridor is predominantly auto-oriented with uses such as appliance and tire sales and automobile repair businesses interspersed with smaller, neighborhood-serving uses such as a barber shop, convenience grocery store, and fast-food restaurants. Two parks are adjacent to the study area - Bohemia Park at the north end of the study area east of the railroad tracks and a skatepark near the southern end of the study area. Low-density residential neighborhoods and schools are located directly east and west of the study area.

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<sup>1</sup> This study report is supported by the following deliverables, which are included as Appendices.

- Appendix A: Existing Conditions Memorandum
- Appendix B: Traffic Analysis – No-Build Scenario
- Appendix C: Traffic Analysis – Build Scenario
- Appendix D: Public Involvement Summary
- Appendix E: Study Area Roll Plots
- Appendix F: Enhanced Crossing Treatments and Cost Estimate
- Appendix G: Turning Templates

Figure 1 Cottage Grove UDV Study Area

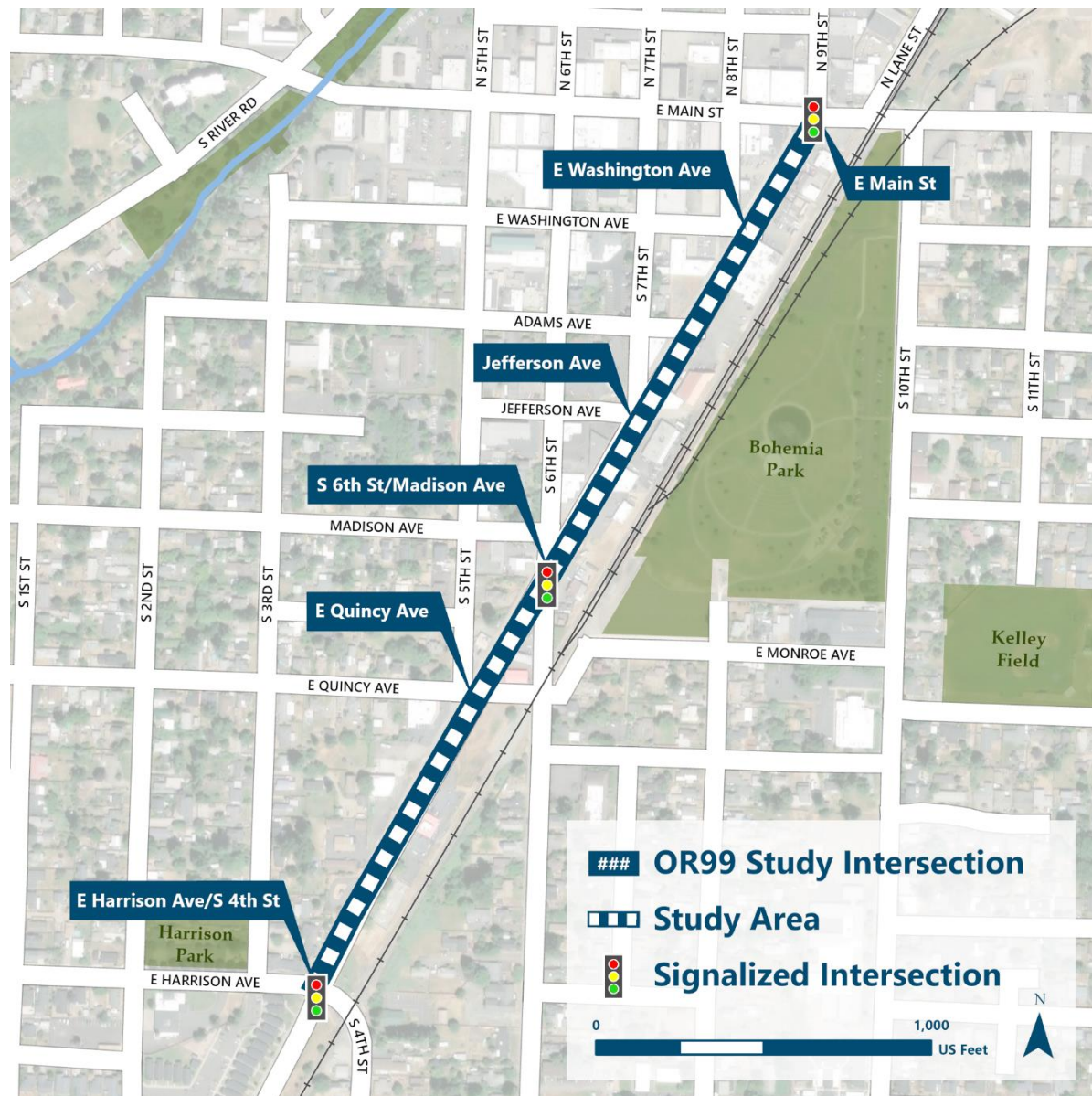


Image Source: Maxar  
Data: Lane Council of Governments

## Existing OR99 Conditions

OR99 is a 4-lane highway characterized by sidewalks, on-street parking, and a 5-6 ft. wide raised median (Figure 2). The angular alignment of OR99 relative to the surrounding roadway network also creates complex intersections where multiple streets meet the highway at the same location. This creates long crossings across OR99 and across intersecting side streets, some of which require islands to bridge the distance and clarify traffic movements.

Between E Main Street and E Harrison Avenue, the OR99 corridor intersects with nine streets at 5 intersections. Notably, two of these streets, S 6th Street (running north-south) and E Quincy Avenue (running east-west), extend beyond OR99 to the east. These two intersections, however, are only 300 feet apart – leaving the remainder of the corridor with no connections across OR99. The railroad tracks immediately east of OR99 limit the number of connections that cross OR99 and continue east.

Figure 2 Typical corridor conditions



Image Source: 2024 Google

## ODOT Highway Design Manual Urban Context

The study corridor was determined to be “Urban Mix” per the Oregon Department of Transportation (ODOT) Highway Design Manual (HDM), as documented in the Existing Conditions Memorandum. Per the Urban Mix designation, the HDM guidance for elements are presented below with a summary of Existing Conditions and Proposed Conditions per the UDV recommendations. (Table 1)

Table 1 Comparison of HDM Guidance, Existing Conditions and Proposed Conditions

Element	HDM Guidance	Existing Conditions	Proposed Conditions
Target Speed	25 to 30 miles per hour	<ul style="list-style-type: none"> <li>25 miles per hour (mph) from E Main St. to E Quincy Ave.</li> <li>35 mph from E Quincy Ave. to E Harrison Ave.</li> </ul>	<ul style="list-style-type: none"> <li>No change proposed</li> </ul>
Travel Lanes	Start with minimum widths, wider by roadway characteristics: <ul style="list-style-type: none"> <li>Minimum width: 11 ft. to 12 ft.</li> </ul>	<ul style="list-style-type: none"> <li>11 feet from E Main St. to E Quincy Ave.</li> <li>12 feet, 16 feet, and 18 feet from E Quincy Ave. to E Harrison Ave.</li> <li>Note: Data reflects ODOT TransGIS as of 8/16/2024</li> </ul>	<ul style="list-style-type: none"> <li>11 feet at Jefferson Ave. and E Quincy Ave.</li> <li>11-12 feet at E Harrison Ave.</li> <li>12 feet at E Main St. and E Harrison Ave.</li> </ul>

Element	HDM Guidance	Existing Conditions	Proposed Conditions
Turn Lanes	Minimize additional crossing width at intersections. Minimum widths: <ul style="list-style-type: none"> <li>• Two-way left turn lane: 11 ft. to 12 ft.</li> <li>• Left turn lane: 11 ft. to 12 ft.</li> <li>• Right turn lane: 11 ft. to 12 ft.</li> </ul>	<ul style="list-style-type: none"> <li>• 13-foot turn lanes at E Main St. and at E Harrison Ave.</li> <li>• Right turn only lanes of 16 feet at E Harrison Ave. and 14 feet at E Main St.</li> </ul>	<ul style="list-style-type: none"> <li>• 12 feet left turn lanes at E Main St. and E Quincy Ave.</li> <li>• 12-14 feet left turn and right turn lanes at E Harrison Ave.</li> </ul>
Shy Distance	Minimal	Not applicable	<ul style="list-style-type: none"> <li>• 2'</li> </ul>
Median	Optional, use as a pedestrian crossing refuge. Minimum widths: <ul style="list-style-type: none"> <li>• Raised median (no turn lane): 8 ft. to 11 ft.</li> <li>• Raised median (with left turn lane): 12 ft. to 14 ft.</li> </ul>	<ul style="list-style-type: none"> <li>• 5 to 6-foot raised and landscaped medians with no turn lanes</li> </ul>	<ul style="list-style-type: none"> <li>• 8-foot raised and landscaped medians with turn lanes</li> <li>• Existing medians to remain largely in their current locations, except at enhanced crossings and added turn lanes</li> </ul>



Element	HDM Guidance	Existing Conditions	Proposed Conditions
Bicycle Facility	<p>Start with separated bicycle facility, consider roadway characteristics.</p> <p>Preferred facility design:</p> <ul style="list-style-type: none"> <li>• Tier 1: Separated Bicycle Lane using these options for delineation: parking, raised island, flexible delineator posts, parking stops, planters, bioswale.</li> <li>• Separated Bicycle Lane (Curb Constrained Facility): 8 ft. to 7 ft.</li> <li>• Tier 2: Buffered Bike Lane.</li> <li>• On-Street Bicycle Lane (not including buffer): 6 ft. to 5 ft. Bicycle/Street Buffer: 4 ft. to 2 ft.</li> <li>• Tier 3: On-Street Bicycle Lane or Shared Lane if speeds <math>\leq</math> 25mph.</li> <li>• On-Street Bicycle Lane (not including buffer): 6 ft. to 5 ft.</li> </ul>	<ul style="list-style-type: none"> <li>• 4 to 5-foot bike lanes from E Main St. to E Washington Ave.</li> <li>• No dedicated bicycle facility between E Washington Ave. and E Harrison Ave.</li> </ul>	<ul style="list-style-type: none"> <li>• Tier 2 Buffered Bike Lane with 5-7-foot bike lane and 2-foot buffer</li> </ul>
Sidewalk	<ul style="list-style-type: none"> <li>• Ample space for sidewalk activity (5 ft. to 8 ft., 6 ft without paved frontage zone)</li> </ul>	<ul style="list-style-type: none"> <li>• 5–6-foot sidewalks from E Main St. to E Quincy Ave.</li> <li>• 5-foot sidewalks from E Quincy Ave. to E Harrison Ave.</li> </ul>	<ul style="list-style-type: none"> <li>• No change proposed</li> </ul>
Target Pedestrian Crossing Spacing Range	<ul style="list-style-type: none"> <li>• 250 ft. to 550 ft. (1-2 blocks)</li> </ul>	<ul style="list-style-type: none"> <li>• 1,400 feet and 1,500 feet between signalized crossings.</li> </ul>	<ul style="list-style-type: none"> <li>• 400 feet to 1,000 feet between signalized and unsignalized crossings</li> </ul>

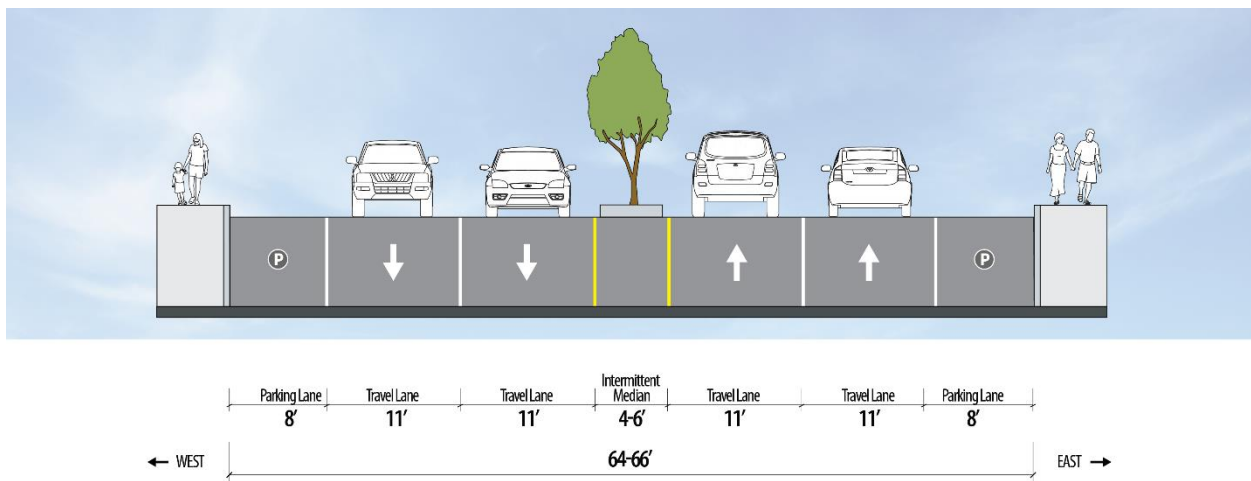
Element	HDM Guidance	Existing Conditions	Proposed Conditions
On-Street Parking	<ul style="list-style-type: none"> <li>Consider on-street parking if space allows (8 ft. wide)</li> </ul>	<ul style="list-style-type: none"> <li>8 ft. parallel parking lanes from E Washington Ave. to E Harrison Ave. No parking from E Main St. to E Washington Ave.</li> </ul>	<ul style="list-style-type: none"> <li>Parking is removed between E Harrison Ave. and Jefferson Ave. Minimal parking is removed near the Jefferson Ave. and E Washington Ave. intersections to provide space for curb extensions.</li> </ul>

## 2 ROADWAY REALLOCATION

### Existing Typical Section

The existing typical section for OR99 between E. Main Street and E. Harrison Avenue consists of two 11-foot travel lanes in each direction, a 4-6-foot raised median in the center, 8-foot parking on both sides of the street, and 6.5' sidewalks on both sides of the street (Figure 3). There are no bike lanes in the project area and cyclists share the roadway with traffic except for a short segment of an approximately 5-foot-wide striped bike lane one block south of E. Main Street.

Figure 3 Existing typical section



### Proposed Typical Sections

The proposed roadway cross-section reallocates existing curb-to-curb width, which ranges from 58 feet to 65 feet, to add 5-6-foot-wide buffered bike lanes, with typical 2-foot buffers where feasible. This reallocation is achieved by reducing the number of travel lanes from two to one along parts of the corridor, and repurposing areas of 8-foot-wide on-street parking lanes.

HDM guidance for bicycle facilities in an Urban Mix context ranges from buffered bicycle lanes to separated bikeways. Buffered bike lanes were selected given the existing roadway width which needs to retain travel lanes or turn lanes in some locations to meet 2045 mobility targets, thereby limiting width available for separated bikeways, which are wider than buffered bike lanes.

This reallocation is forecasted to maintain traffic operations through the planning horizon year of 2045, continue to accommodate freight movement, and retain sufficient on-street parking supply corridor-wide.

**Traffic Operations:** The results of the future-year No-Build and Build Traffic Analyses (Appendices B and C) show that all intersections will continue to meet the Oregon Highway Plan (OHP) and Highway Design Manual (HDM) mobility targets.

**Freight Movement:** OR99 is not classified as a freight route by ODOT or the United States Department of Transportation, and it is not an Oregon Revised Statutes (ORS) 366.215 Reduction Review Route. However, as an important north-south arterial, freight and large vehicles constitute a large portion (19%) of daily traffic, therefore freight needs are an important consideration. As demonstrated in the turning templates in Appendix G, the intersections will continue to accommodate the WB-67 design vehicle. Furthermore, this will not result in a greater reduction in the “hole in the air” than already exists north of the project area north of E Main Street, therefore no new pinch points will be introduced in this segment of OR99 as a result of the proposed reconfiguration or enhanced crossing treatments.

**On-Street Parking:** As documented in the Existing Conditions Memorandum (Appendix A), approximately 9-10% of the 100 existing on-street parking spaces are consistently utilized. Targeted parking removal to accommodate the revised roadway cross-section and enhanced crossing treatments is not expected to have substantial corridor-wide parking impacts. Parking removal in the vicinity of specific businesses or uses, however, may require further discussion or refinements.

Five typical sections for the study area are presented in Figure 4. These typical sections reflect varying conditions along the corridor, as well as needed transitions from the study area to E. Main Street to the north and E. Harrison Avenue on the south.

Figure 4 Proposed typical sections



Image Source: Maxar  
 Data: Lane Council of Governments  
 See also Appendix E which contains roll plots of study area corridor

### 3 ENHANCED CROSSINGS

#### Enhanced Crossing Locations

In addition to the proposed roadway reconfiguration, this study identified three locations for enhanced crossings in the corridor, at E Washington Avenue, Jefferson Avenue, and E Quincy Avenue as shown in Figure 5.

**Figure 5 Locations of Proposed Enhanced Crossings**



Image Source: Maxar  
 Data: Lane Council of Governments

These crossings were selected based on key siting considerations, which were intended to achieve the following:

**Decrease distances between enhanced crossings.** HDM guidance recommends pedestrian crossings every 250 to 500 feet for the study area's Urban Mix designation. The UDV Study sought to reduce the existing crossing distances as the only signalized crossing between the study area's northern and southern endpoints is at the intersection of S 6<sup>th</sup> Street and Madison Avenue, with a gap of 1,600 feet to E. Main Street at the north end of the corridor, and 1,400 feet to E. Harrison Avenue at the south end of the corridor.

**Improve Safety.** Higher-frequency crash "hotspots" were identified at and near E Main Street (11 reported crashes from 2017 to 2021) and E Quincy Avenue (4 reported crashes from 2017 to 2021) which elevated the importance of evaluating these two locations for improved crossing treatments in particular.

**Meet Demand.** Concurrent with this UDV Study, the City of Cottage Grove is in the process of developing its citywide Pedestrian and Bicycle Plan (PBP), which included the UDV Study area. That plan identified "activity nodes" and land use patterns which are expected to generate more pedestrian and bicycle activity, and therefore increased crossing needs. The UDV Study identified higher-demand locations consistent with the City's findings which included Trailhead Park, Bohemia Park, Harrison Park, and the Cottage Grove Skate Park. Community members also identified Dairy Queen, the skate park, and multiple business near the E Quincy Avenue intersection as key destinations, especially for younger residents.

**Connect to the Pedestrian and Bicycle Network.** This study sought to maximize connections to the City's existing and planned pedestrian and bicycle network, notably bikeways traversing OR99 such as E Main Street, E Quincy Avenue, E Harrison Avenue and S 6<sup>th</sup> Street. The study also considered transit service along or near the corridor to identify locations which would benefit from improved crossings. Lane Transit District Line 98 travels south along OR99 from S 6th Street to E Harrison Avenue, with stops on OR99 near E Harrison Avenue and near the OR99 study corridor on S 6th Street, S 10th Street, and N 9th Street.

**Partner and Community Input.** The study solicited input from the City of Cottage Grove Public Works and City Council, ODOT Mobility Advisory Committee, an on-line open house hosted on the project website, and the general public at a community event. Detailed information about these activities is documented in the Public Involvement Summary (Appendix D). Input received from these activities confirmed general support for the locations and types of enhanced crossings in the corridor, in addition to the proposed roadway reallocation. The Cottage Grove City Council noted future engagement and coordination with property owners adjacent to the corridor will be needed prior to project implementation. The Council also requested investigating a potential crossing location at S 6th Street, which the Project Team determined would need to be addressed as part of future traffic signal improvements outside the scope of the UDV Study.

The proposed enhanced crossing locations are consistent with siting considerations as shown in Table 2.

**Table 2 Siting Considerations for Enhanced Crossing Locations**

	<b>E. Washington Ave</b>	<b>E. Jefferson Ave</b>	<b>Quincy Ave</b>
Decrease distances between formalized crossings	<ul style="list-style-type: none"> <li>Reduces the distance between the existing E Main St. crossing and the proposed Jefferson Ave. crossing from approximately 1,000 feet to approximately 400 feet. The distance between existing crossings (S 6<sup>th</sup> St., and E Main St.) is approximately 1,600 feet.</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the distance between the S 6<sup>th</sup> St. crossing and the proposed E Washington Ave. crossing from approximately 1,200 feet to approximately 600 feet. The distance between existing crossings (S 6<sup>th</sup> St. and E Main St.) is approximately 1,600 feet.</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the distance between existing S. 6<sup>th</sup> St. crossing and Harrison St. from 1,400 feet to 400 feet north of E Quincy Ave. and from 1,400 feet to 1,000 feet south of E Quincy Ave.</li> </ul>
Improve Safety	<ul style="list-style-type: none"> <li>Adds an enhanced crossing 400 feet south of a higher-crash location of E Main St.</li> </ul>	<ul style="list-style-type: none"> <li>Adds an enhanced crossing mid-way between an enhanced crossing and signalized intersection where there is otherwise no marked crossing for 600 feet in either direction.</li> </ul>	<ul style="list-style-type: none"> <li>Adds an enhanced crossing at a higher crash location.</li> </ul>
Meet Demand	<ul style="list-style-type: none"> <li>Located near businesses on Main St.</li> </ul>	<ul style="list-style-type: none"> <li>Provides pedestrian access to several business on the east side of OR99.</li> </ul>	<ul style="list-style-type: none"> <li>Business near the intersection, such as the market and multiple restaurants, have been identified by community members as key destinations.</li> <li>Community members report this as the one of the most-used crossings in the corridor.</li> </ul>

	E. Washington Ave	E. Jefferson Ave	Quincy Ave
Connect to Existing and Planned Pedestrian and Bike Network	<ul style="list-style-type: none"> <li>The PBP proposes E Washington Ave. as an enhanced shared roadway bikeway connecting to OR99 conventional bike lanes.</li> </ul>	<ul style="list-style-type: none"> <li>Adds an enhanced crossing which connects to existing sidewalks and proposed bike lanes.</li> </ul>	<ul style="list-style-type: none"> <li>The PBP includes recommendations for walkway improvements on E Quincy Ave. east and west of OR99 intersection.</li> <li>Intersection acts as a nexus of existing and PBP-proposed bikeways.</li> <li>Transit stop nearby on S 6<sup>th</sup> St. at E Quincy Ave.</li> </ul>

## Enhanced Crossing Components

As shown in Figure 6, Figure 8, and Figure 9 for the three recommended enhanced crossings, specific improvements include pavement markings (to reflect new travel patterns) and intersection curb ramp upgrades. Pedestrian signage is also recommended that indicates crossing locations (and crossing closures where applicable). Figure 7 shows recommendations for the S 6th Street intersection that include signal adjustments and pavement marking changes. All enhanced crossing locations should be evaluated for illumination improvements. This was not included in the scope of the UDV.

Crossings will be established or reoriented from alignment with intersecting streets to be perpendicular to OR99 to reduce crossing distances and to improve sight lines for all users. The north leg crossings for each intersection, which do not have proposed enhancements, may be closed in the final design, dependent on further review of several factors including the impacts of geometric design and operational conditions on pedestrian safety. Stormwater needs were evaluated at a conceptual level and will require further evaluation in final design of the crossings and/or future roadway improvements outside the scope of the crossing work.

Table presents the components of each proposed enhanced crossing, along with planning-level cost estimates. The cost estimates for each crossing account for materials, labor rates, and equipment reflecting curb ramp, sidewalk, and landscaping changes. Cost estimates for the OR99 cross-section modifications (outside of the enhanced crossing locations) will be developed as part of a separate effort. See Appendix F Crossing Treatment Exhibits and Cost Estimate for a complete list of estimate assumptions and exclusions.



**Table 3 Proposed Enhanced Crossing Treatments and Cost Estimates**

Location	Description	Cost Estimate (2024 Dollars)
OR99 at E Quincy Ave. & S 5 <sup>th</sup> St. (Figure 6)	<ul style="list-style-type: none"> <li>• New crosswalk south of intersection with ADA-compliant curb ramps, pedestrian refuge in center median, and continental striping.</li> <li>• Driveway access at southwest corner to be closed and the corner brought further north, shortening crossing distances for OR99 and E Quincy Ave. Final configuration will be designed in collaboration with the property owner.</li> <li>• Sidewalks and curb ramps on the northwest corner of intersection between S 5<sup>th</sup> St. and OR99, enhancing the E Quincy Ave. crossing at OR99 and the S 5<sup>th</sup> St. crossing at E Quincy Ave.</li> <li>• Curb ramps on the east leg crossing of the OR99/E Quincy Ave. intersection and the north leg crossing of the E Quincy Ave./S 5<sup>th</sup> St. intersection.</li> <li>• Roadway markings to exclude vehicles from center lane along raised median.</li> <li>• Northbound and southbound parking removal between E Harrison Ave. and Jefferson Ave. to accommodate proposed bike lane and travel lane configuration changes.</li> <li>• Note: crossing projects must include illumination considerations (not included in estimate).</li> </ul>	\$531,000
OR99 at S 6 <sup>th</sup> Ave. (Figure 7)	<ul style="list-style-type: none"> <li>• Signal head adjusted</li> <li>• Detection to be modified</li> <li>• Left turns to become protected with left turn phase</li> <li>• Further enhancements to be evaluated as part of future study or project</li> </ul>	Estimate to be developed by ODOT
OR99 at Jefferson Ave. (Figure 8)	<ul style="list-style-type: none"> <li>• New crosswalk south of intersection with continental striping, ADA-compliant curb ramps, pedestrian refuge in center median, and curb extensions to shorten pedestrian crossing distance.</li> <li>• Access to OR99 for Jefferson Ave. eastbound and S 7<sup>th</sup> St. southbound to be closed to remove conflict points and simplify traffic movements.</li> <li>• Southern leg of intersection prioritized for enhanced crossing treatments due to existing land uses and distances to the nearest signalized intersections.</li> <li>• Northbound and southbound parking removal south of the intersection to accommodate proposed bike lane, travel lane, and turn lane configuration changes.</li> <li>• Note: crossing projects must include illumination considerations (not included in estimate).</li> </ul>	\$545,000

Location	Description	Cost Estimate (2024 Dollars)
OR99 at E Washington Ave. (Figure 9)	<ul style="list-style-type: none"><li>• Enhanced crosswalk at southern leg of intersection with continental striping, pedestrian refuge in center median, and curb extension on east side of OR99.</li><li>• Driveway access at southwest corner to be closed and corner to be brought further north to shorten pedestrian crossing distance across OR99. Final configuration will be designed in collaboration with the property owner.</li><li>• Removal of direct access from S 8<sup>th</sup> St. to OR99. Traffic to be redirected to turn left onto E Washington Ave. before accessing OR99.</li><li>• ADA-compliant curb ramps to be added to west leg of OR99/E Washington Ave. intersection and the north and west legs of E Washington/S 8<sup>th</sup> St. intersection.</li><li>• Note: crossing projects must include illumination considerations (not included in estimate).</li></ul>	\$476,000

Figure 6 Proposed Enhancement for OR99 at E Quincy Ave. & S 5th St.

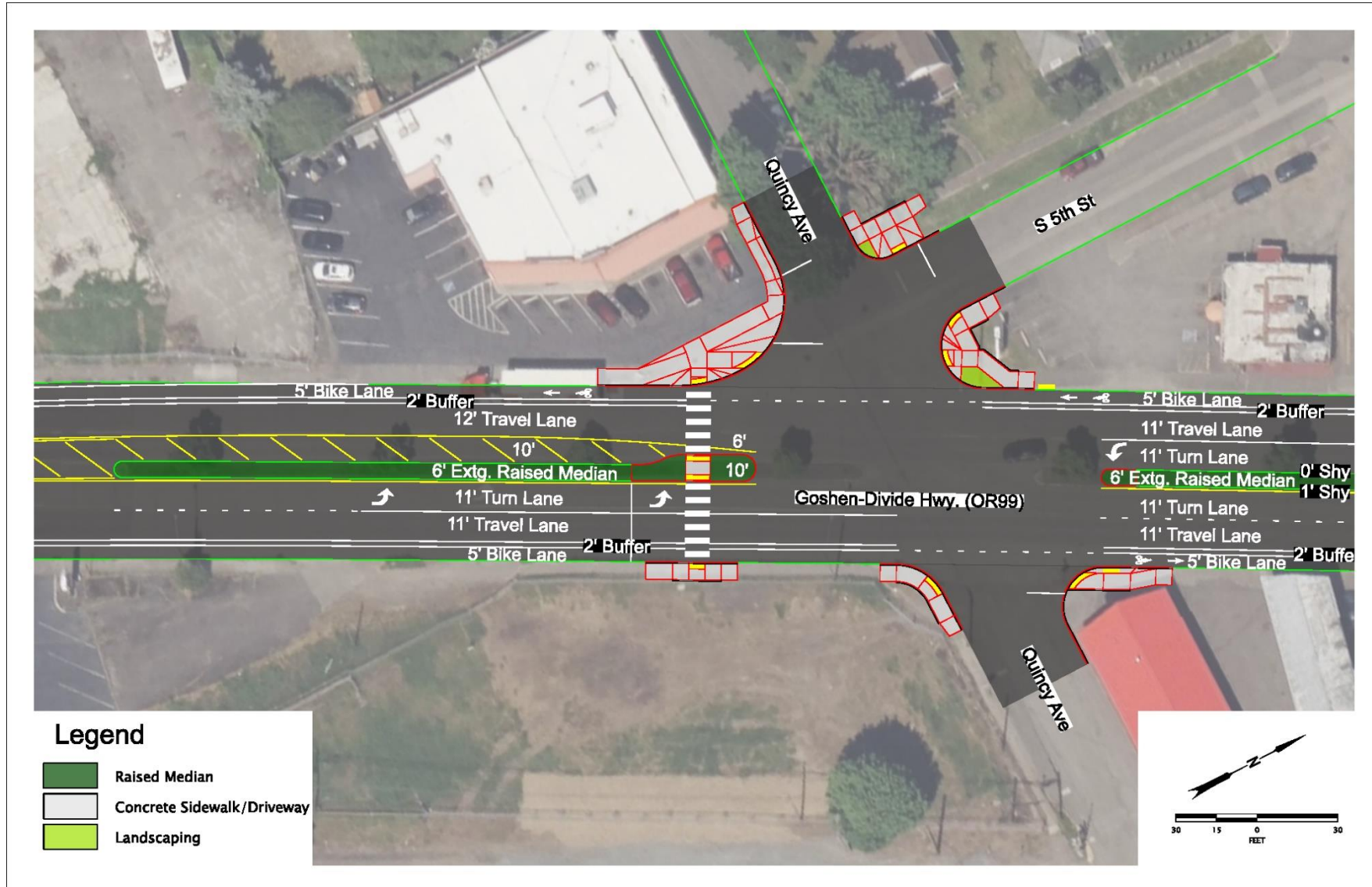


Image Source: Google Earth

Figure 7. Proposed Enhancement for OR99 at S 6th St.

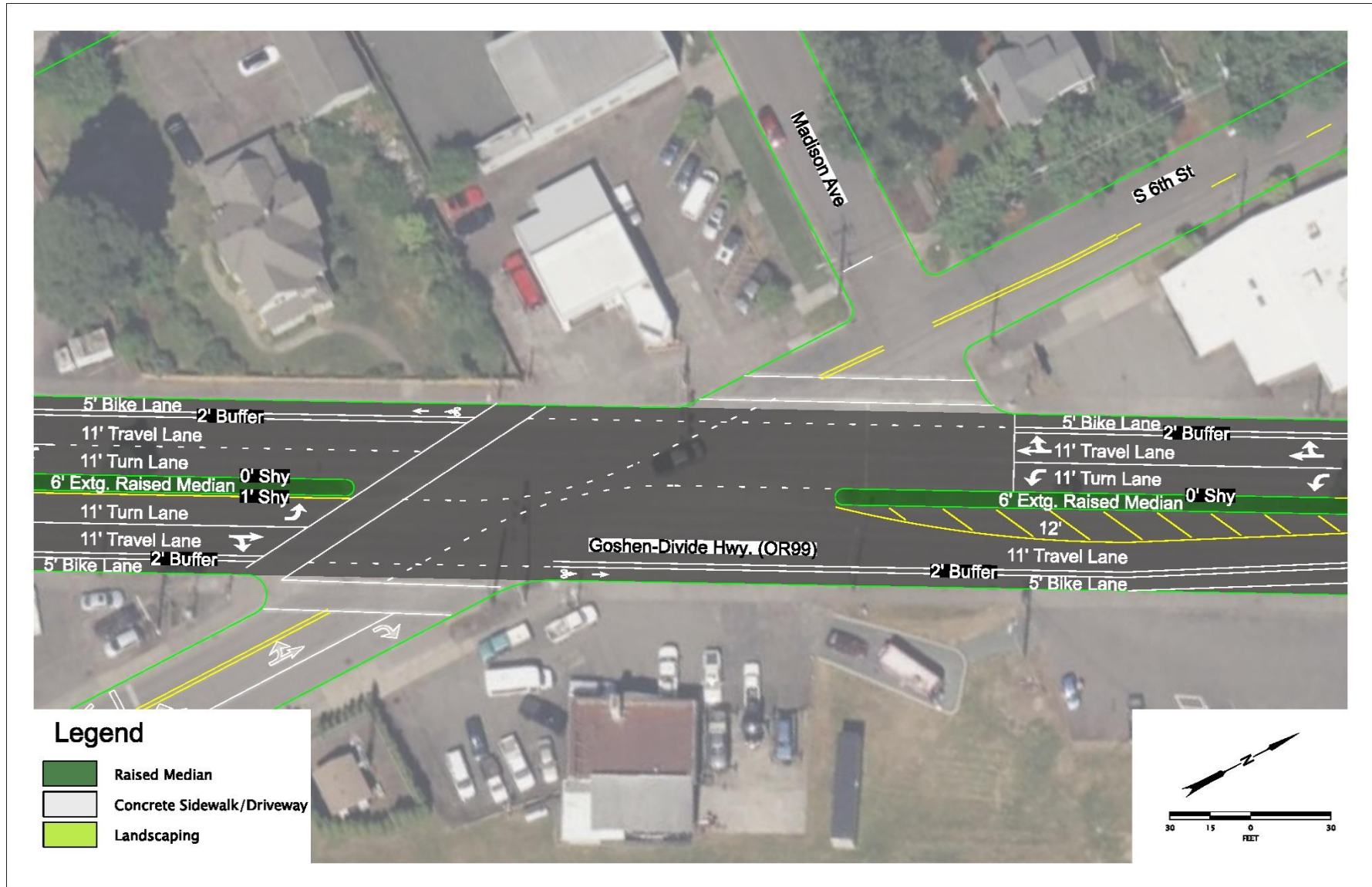


Image Source: Google Earth

Figure 8 Proposed Enhancement for OR99 at Jefferson Ave.

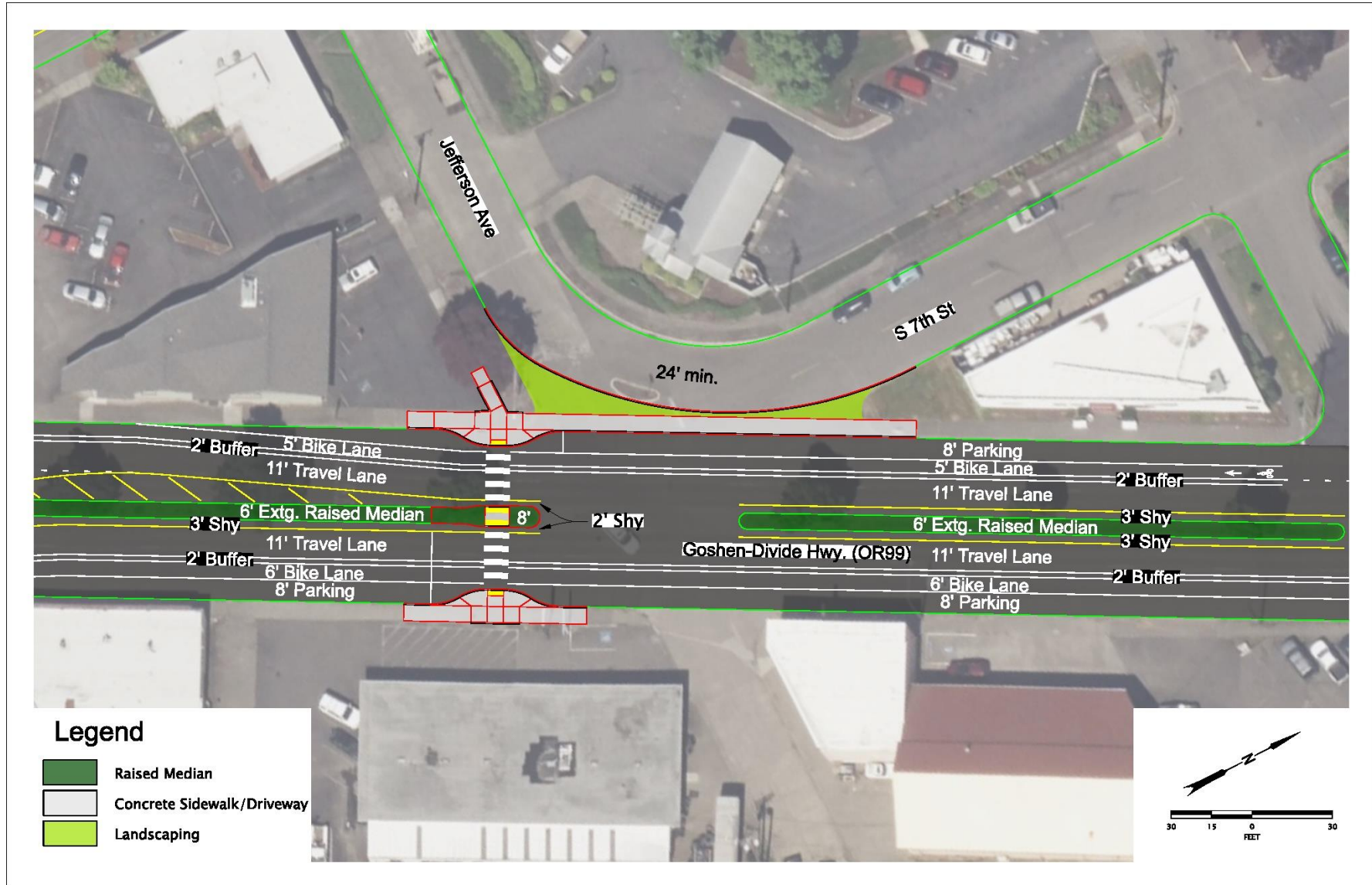


Image Source: Google Earth

Figure 9 Proposed Enhancements for OR99 at E Washington Ave.

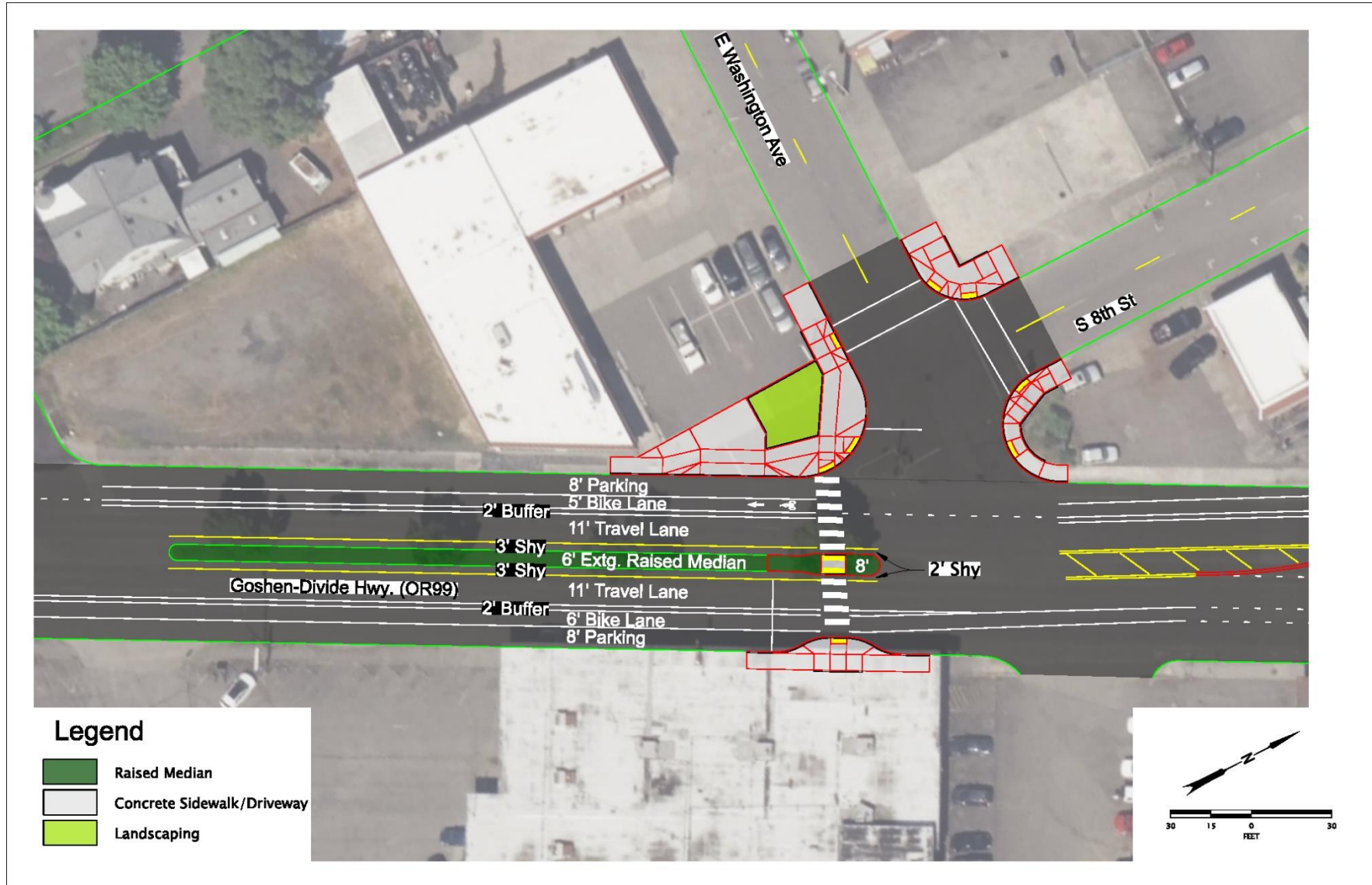


Image Source: Google Earth

