

DRAFT

OR 39 South Sixth Street Facility Plan

TM#5 – Concept Development

Prepared by

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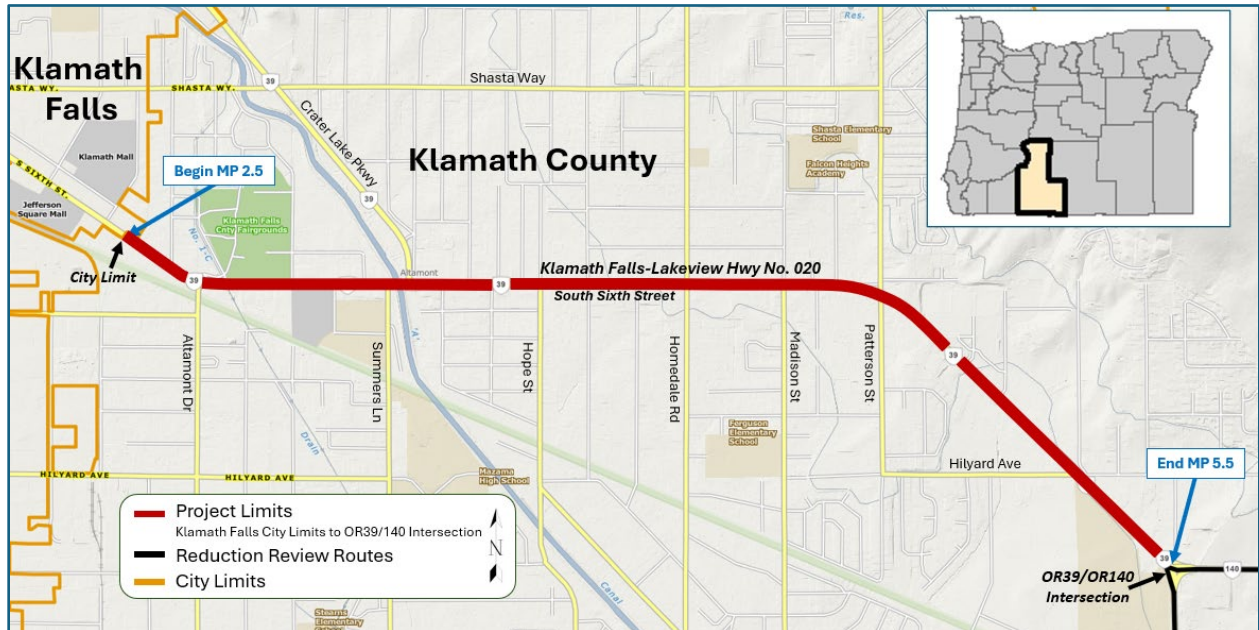
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Study Area and Project Goals

The study area for the Facility Plan is OR 39 from the border of Klamath Falls to the intersection of OR 39/OR 140 (Figure 1). The corridor project limits are approximately 3 miles long.

Figure 1: Project Area Map



Project Goals

Vision

OR 39 will be an organized, safe, and modern corridor that provides adequate access for the local community and acts as a commercial corridor for the county.

Draft Goals

The following goals reflect local goals expressed in the Klamath County TSP, ideas from the project team, and feedback from the Participant Advisory Committee.

1. Improve safety for people walking, bicycling, and driving in the corridor through proven safety countermeasures.

2. Create a corridor that facilitates a thriving economy through easy to access economic opportunities and accommodates freight movement.
3. Improve travel time reliability in the corridor.
4. Reduce transportation-related disparities and barriers along the OR 39 corridor.
5. Focus on realistic, practical design solutions.
6. Improve visual conditions of the corridor through landscaping and reducing overhead utility impacts.
7. Improve access spacing and access management to reduce conflicts
8. Support Basin Transit infrastructure and route development.

Creating the Concepts

Background

This memorandum summarizes potential solutions identified for the OR 39 South Sixth Street Facility Plan. The project team developed solutions based on a comprehensive review of the following project items:

- Participant Advisory Committee (PAC) Feedback
- Open House and Online Open House feedback
- Technical Memorandum #3.2 Land Use and Transportation System Inventory
- Technical Memorandum #4 Future No-Build and Focus Areas

Through the public process and planning analysis, the project team ultimately narrowed the feedback into focus areas on the OR 39 corridor that need improvement, both in the current year and in the future (2045). TM#4 Future No-Build and Focus Areas summarizes the needs for each focus area, ranging from safety, traffic operations, asset condition, access issues, active transportation, and design as indicated in the ODOT Highway Design Manual.

Concept Development

Solutions are presented for each focus area and category below, with details for cost estimates, anticipated safety benefits, descriptions of challenges or considerations, and graphic representations. The ultimate goal of the memo is to present the PAC, the general public, and partnering local agencies with draft solutions for feedback. Following the next public involvement process, the team will refine concepts and move to a preferred alternative.

The team grouped solutions for the corridor into four categories:

- Intersection Solutions
- General Cross Sections
- Pedestrian Crossing Solutions
- Transit Solutions

Intersection solutions were often the focus of the PAC and general public, largely due to the operational and safety issues at intersections on the OR 39 corridor. Intersection solutions are specific to each focus area identified in TM#4 and include one to two draft solutions. The team did initial traffic analysis to support draft concepts and either eliminated conceptual ideas based on the analysis or used the analysis to support the proposed concept design.

Cross section improvements are general and are intended to represent widths based on the ODOT Highway Design Manual (HDM). Cross sections were developed through the practical solutions mindset with the goal to bring the corridor up to HDM standards without serious impacts to ROW or the built environment. Two options are presented for each section of the corridor.

Pedestrian crossing improvements are intended to be general and exact design will be determined at the time of implementation. Crossing locations are termed “advanced” in an effort to prioritize improvements that have more infrastructure than the standard unmarked crosswalk. These improvements could include lighting, striping, a rectangular rapid flashing beacon, a median island, or other features as determined by future ODOT HDM or ODOT Traffic manual revisions.

Transit stop recommendations are included in the memo and are highly general. Exact infrastructure will be determined by transit district needs, routes, and funding. Locations are meant to highlight where transit stops should be considered in the future.

Concepts are guided in part by the goal of decreasing the amount of overhead utilities through the corridor. This goal is shared by the PAC, ODOT, Klamath County and the City of Klamath Falls. The outcomes of reducing the overhead utility congestion and number of large utility poles in the corridor include increased vehicular and pedestrian safety, increased bicycle and walkability, increased climate resiliency with decreased utility maintenance costs, as well as improvement of the corridor’s viewshed. ODOT recognizes that the cost to relocate aerial facilities underground will be significant and will be mostly borne by the franchise utilities and by ODOT, however there will also be cost to the customers. In order to decrease the expense for the franchise utilities and their customers, ODOT is amenable to allowing special concessions that would not normally be granted, such as installing longitudinal utility lines beneath the highway center median. Any such concession would be evaluated on a case-by-case basis and final approval would be given at the time of permitting.

All concepts are subject to final design and funding availability. Concepts may deviate from proposals upon implementation.

Cost Estimating Approach

This memorandum provides cost estimate ranges for many of the concept and potential solutions. This approach provides flexibility with future market changes and inflation while still providing a ballpark understanding of the order-of-magnitude cost for the improvement. It also allows flexibility in terms of future concept refinement in the project delivery phase to both accurately represent the concept and provide adequate cost for potential changes.

Historical Statewide Transportation Improvement Program (STIP) data and bid pricing data was used to create planning-level cost estimate ranges. Cost estimates include consideration for contingencies (30%), professional engineering phases (25%), and construction engineering (12%).

Planning level costs are meant to be a starting point for cost assumption and may not accurately capture issues such as right of way, environmental, or other disciplines that would require more in-depth review; however, considerations for disciplines were added into the text to convey known constraints. Additionally, planning level cost estimates may not be indexed to inflation at the time of implementation, especially if projects are funded years from the time of the study (2025).

Funding managers, ODOT, Klamath County, local developers, and the Oregon Legislature should plan accordingly when funding projects in the future. Coordination with ODOT Region 4 at the time of programming will result in the most accurate project cost.

Intersection Solutions

This section presents solutions for key intersections identified as needs in Technical Memorandum #4: Future No-Build and Focus Areas. Solutions are intended to address safety, operational, connectivity, and other concerns as identified by the PAC.

OR 39/Altamont Drive

Several issues were identified at OR 39/Altamont Drive. Access spacing around the intersection, particularly Arthur and Bisbee St.(transit stop), does not meet HDM access spacing standards and creates driver confusion for those wanting to access the fairgrounds. The OR30/Altamont intersection is also skewed which creates longer than necessary crossing distances for pedestrians. Additionally, the intersection has had one bicycle fatality and 17 additional crashes in the most recent 5 years of data. The solution seeks to improve access management, operations, and safety for the intersection while building upon previous visioning exercises for the county fairgrounds.

Solution ID #1

This solution realigns the OR 39/Altamont intersection and provides access management solutions at Bisbee Street (closure) and creates a right-in right-out at OR 39/Arthur street. The intersection realignment improves pedestrian safety for those that cross the intersection and improves sight distance/visibility for drivers at the approaches. The roundabout proposal within the fairgrounds creates better circulation opportunities for visitors, as well as opportunity for transit buses to access the OR 39/Altamont signal rather than utilizing Bisbee St which is unsignalized. This concept builds upon previous solutions as identified by Klamath County and County Fairgrounds.

Considerations

- The roundabout and county road improvements would need right of way purchases. The solution may impact the canal and require additional piping.
- The impacts to freight mobility are minimal but feedback from the Mobility Advisory Committee (MAC) is expected for the cross section changes. Transit mobility would need to be accounted for on the county fairgrounds location. If a median is proposed, MAC feedback would be necessary.
- Environmental considerations include the potential historic nature of the canal. Fish passage may apply in the canal structure and have ESA considerations. Fill and removal could have additional permit considerations, especially if wetlands are present near the canal. 4f, archaeology, and historic resources at the park location could be impacted at the county road improvements. Considerations should be made with funding type (federal vs local) in design.
- Storm water facilities would be impacted and need to be addressed.

Benefits

- Improved safety performance by realigning intersection
- More comfortable crossing for pedestrians and better safety performance for bicycles/pedestrians
- Better traffic flow with coordinated signals
- Promotes access management, reduces likelihood of turning movement and angle crashes at Bisbee and Arthur street by minimizing the number of conflict points
- Better site circulation with Fairgrounds

Cost Estimate

\$12 Million to \$19 Million

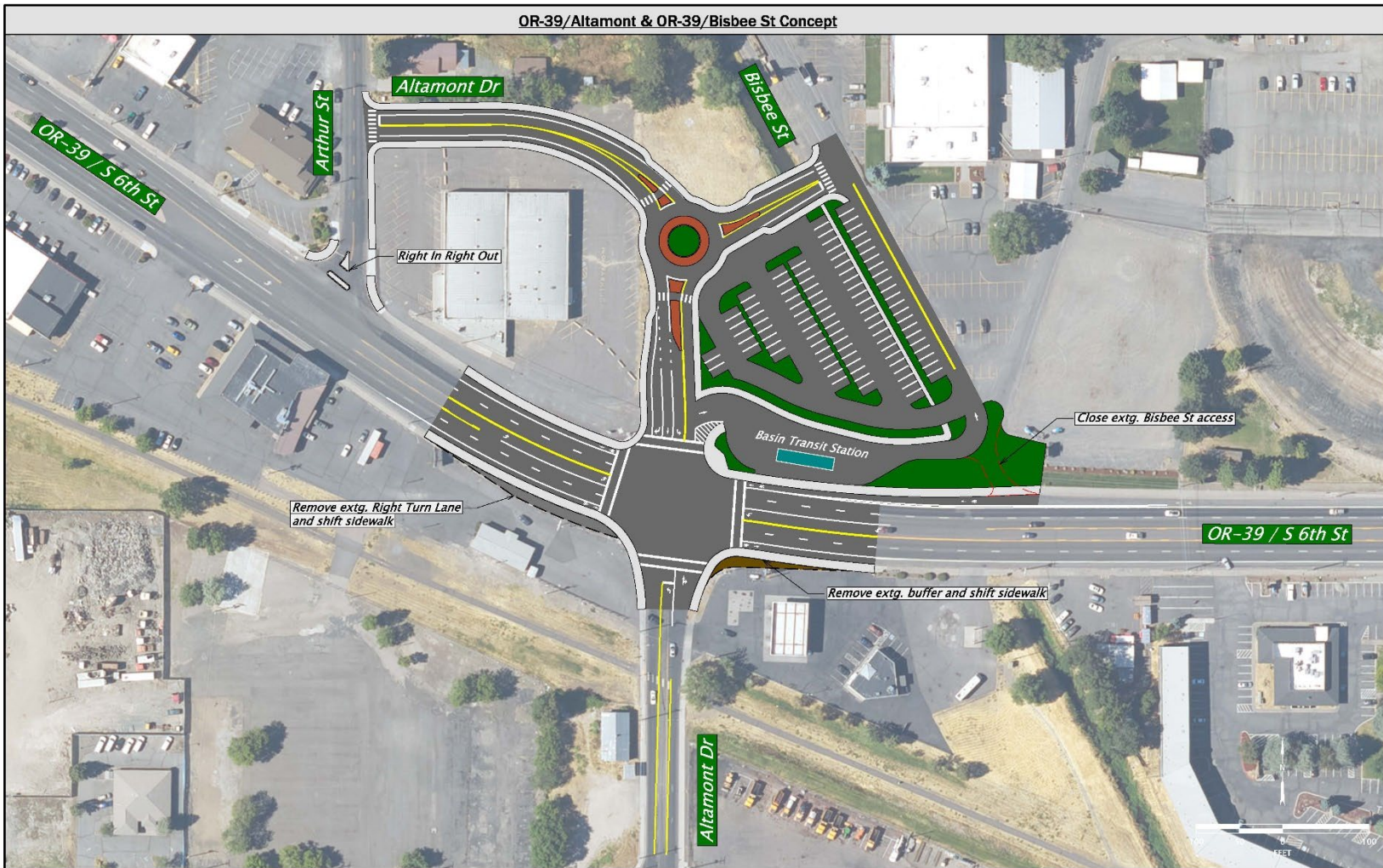
Implementation suggestion

Mid term

Solutions not recommended

No additional solutions were evaluated – the current proposal offers the most opportunity to address known issues.

Figure 2 OR 39 at Altamont Dr. – Solution ID #1



OR39/Altamont & OR39/Bisbee St. Concept

For conceptual design purposes only.

OR 39/Summers Lane and OR 39/Crater Lake Parkway

The OR 39/Summers Lane and OR 39/Crater Lake Parkway intersections were the main priority for improvement based on our public involvement efforts. This area contains multiple SPIS sites and is over the critical crash rate for both intersections and generally throughout the highway segment; there have been 5 fatal and serious injury crashes and 68 total crashes between both intersections. Both signals are in poor condition with poor vehicle detection, and generally poor condition infrastructure (sidewalks, pavement) throughout the vicinity. Pedestrian and bicycle connectivity is rather poor as well. Last, the access spacing between the two intersections does not meet standard and creates queuing issues, as well as issues for freight turning movements north-south from Crater Lake Parkway to Summers Lane. The traffic signals on S 6th Street at Summers Lane and Crater Lake Parkway are approximately 155' apart. This close spacing has led to non-typical design decisions to manage queues and signal operations

Solution ID #2

Road Realignment: This solution would require building a new Crater Lake Parkway structure over the canal to connect directly to Summers Lane. It would require piping the canal under both the existing structure and the new realignment, as well as re-aligning the canal trail. The canal trail would connect to the intersection of Crater Lake Parkway/Summers Lane.

Considerations

- Right of way impacts are expected to be high. Complex right of way phases, scheduling, and cost are anticipated. Impacts to canal piping, while anticipated to be beneficial, will also be costly.
- This proposal would require feedback from the Mobility Advisory Committee.
- Environmental impacts are expected to be high. Fish passage may apply in the canal structure and have ESA considerations. Fill and removal could have additional permit considerations; wetlands are present and wetland mitigation will be required. 4f recreational resources, archaeology, and historic resources are present as well.
- Utility impacts are expected to be high and relocation plans are expected to include long construction lead times. Significant aerial facilities exist at these intersections with multiple poles that are inside of the highway clear zone. Space inside of the public right of way for these facilities to relocate underground is expected to be limited. Klamath Irrigation District and the Bureau of Reclamation will be required to enter into an IGA with ODOT for construction mitigating measures required to ensure continued operation of the canal. The cost of mitigating impacts to the canal are expected to be the responsibility of ODOT.

Benefits

- Improved safety performance for all modes
- Improved traffic operations and less driver confusion
- Better bicycle/pedestrian connectivity, especially for the canal trail
- Improved access management and access spacing
- Removes bridge structure and decreases maintenance costs over time

Cost Estimate

\$15 Million to \$25 Million

Implementation suggestion

Long term due to cost, impacts, and availability of funding

Solutions not recommended

- Create a dogbone roundabout to serve both intersections: This solution was rejected from a traffic analysis standpoint. While it may be more cost effective than the preferred alternative, the solution exceeded mobility targets for the intersection. Table 1 presents the resulting traffic analysis for the Summers Lane and Crater Lake Parkway alternatives under 2045 AM and PM peak hour conditions. As shown, the intersections operate well within capacity under No Build conditions when analyzed as isolated intersections. What the table does not demonstrate is the effect of queue spillback. Alternative 1 (realign Crater Lake Parkway) is expected to operate within the Oregon Highway Plan (OHP) mobility targets in 2045 AM and PM peak hour conditions, but would not meet Highway Design Manual (HDM) mobility targets; therefore, a design exception would be required to support this alternative. Alternative 2 (dog bone roundabouts) is expected to see a volume-to-capacity ratio for the critical movement at Summers Lane to exceed 1.0; neither intersection at Summers Lane or Crater Lake Parkway would meet OHP or HDM mobility targets. Therefore, it is recommended only Alternative 1 be carried forward.
- Create a tunnel structure for the canal path: This was examined but due to the water table was ultimately dismissed. It was determined that significant pumping equipment would be needed to keep water out of the tunnel. Additionally, many users access OR 39 from the path and an at-grade crossing at the intersection provides better and safer connectivity for users.

Figure 3 OR 39/Summers Lane & Crater Lake Parkway

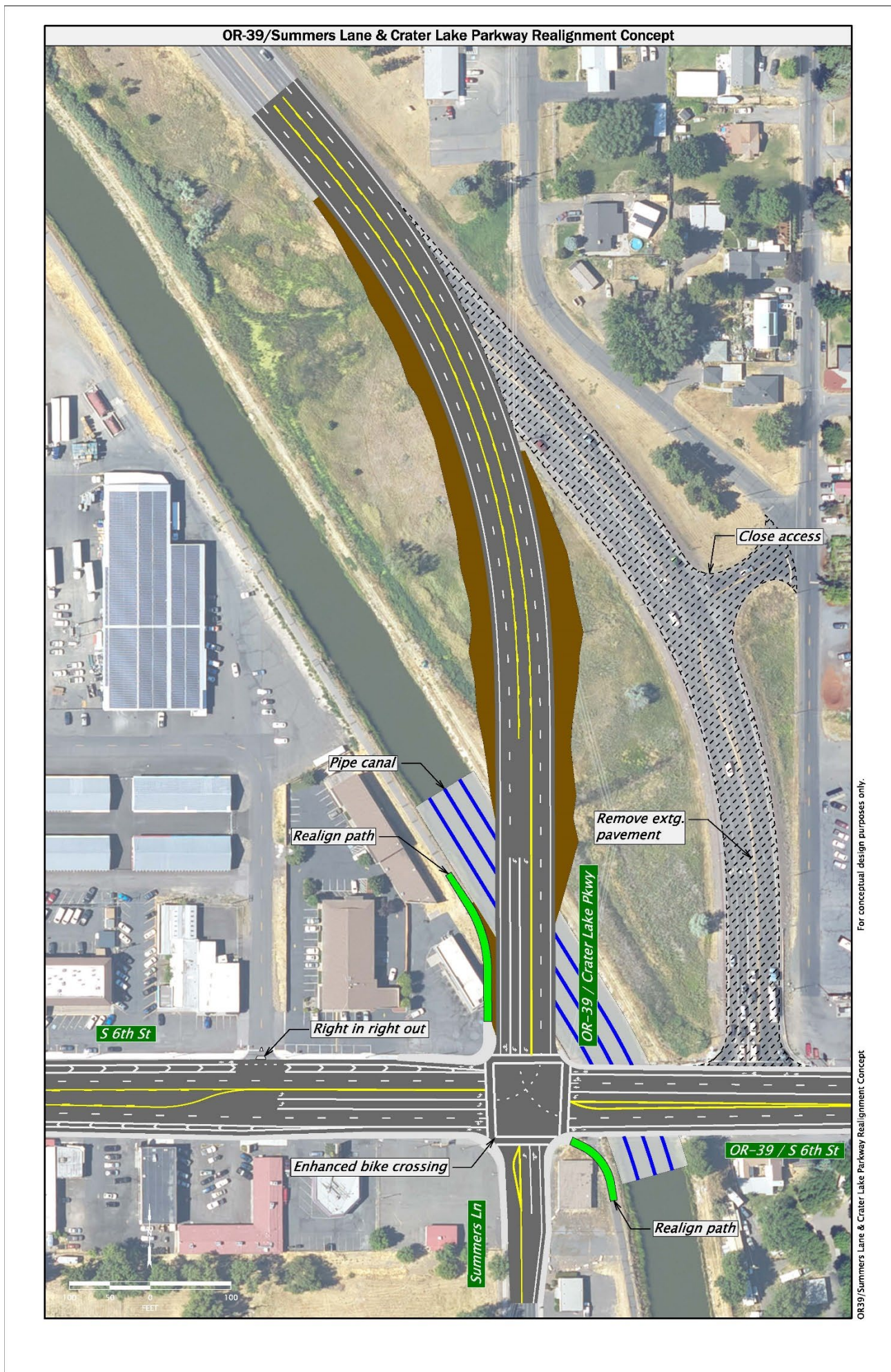


Table 1 South 6th Street 2045 Alternative Analysis for S 6th Street at Summers Lane and Crater Lake Parkway

Alternative	Intersection	Intersection Control	Mobility Target OHP/HDM	Peak Hour	V/C	Delay (s/veh)	LOS
No Build	Summers Ln	Signal	0.90/0.75	AM PM	0.55 0.69	5.5 37.0	A D
	Crater Lake Pkwy	Signal	0.90/0.75	AM PM	0.67 0.61	23.3 16.2	C B
Realign Crater Lake Pwky to Summers Ln	Summers Ln/ Crater Lake Pkwy	Signal	0.90/0.75	AM PM	0.82 0.81	46.1 53.8	D D
“Dog Bone” Roundabouts (Multilane)	Summers Ln	Roundabout	0.90/0.75	AM PM	0.66 1.12	11.5 97.4	B F
	Crater Lake Pkwy	Roundabout	0.90/0.75	AM PM	0.96 0.92	43.5 51.3	E F

OR 39/Gettle (Fire Signal)

The OR 39/Gettle Street intersection provides access for the local fire department as well as businesses in the corridor. At the intersection of S 6th Street and Gettle Street (West), there currently exists an “Emergency Signal.” The signal is actuated by the fire station to the south, and provide overhead signal heads for east-west traffic. It does not provide signal indication for northbound traffic, nor does it provide pedestrian signals. As it exists in its current state, it is not MUTCD-compliant and is approaching its end of life. Since the existing signal needs to be replaced due to aging infrastructure and a new emergency signal like what exists today is not feasible due to its conflict with national and state standards, this section explores alternatives to support emergency access and roadway safety.

Solution ID #3

Install emergency flasher system to alert drivers of emergency vehicles.

Considerations

- Right of way impacts are minimal or absent.
- This solution would improve overhead clearance in the corridor and would likely have positive Mobility Advisory Committee feedback from the freight industry.
- Minimal environmental impacts.
- Significant aerial utilities will require relocation underground.

Benefits

- Brings fire signal device up to standard, reduces maintenance cost
- Improves visibility for fire truck entering OR 39
- Improved driver compliance and effectiveness

Cost Estimate

\$300,000 to \$700,000

Implementation suggestion

Near term – funding currenting identified in STIP

Solutions not recommended

- Install a traffic signal: This solution was only to be considered if one of the nine signal warrants is met in the MUTCD. The signal warrants were reviewed using year 2045 projected volume for planning analysis. None of the nine warrants were met; low side street traffic volumes was the primary reason none of the volume warrants were met. Therefore, this alternative is not applicable.
- Remove existing signal system and provide no new signal or flashing beacon infrastructure: This solution is likely the Fire Station’s least preferred alternative. It would only be appropriate if a signal is not warranted and if it is determined that an emergency flashing beacon is not desired.

Figure 4: OR 39 at Gettle Fire Signal Concept – Eastbound – Solution ID #3



OR 39: South Sixth Street Facility Plan
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Figure 5 OR 39 at Gettle Fire Signal Concept – Westbound – Solution ID #3



OR 39/Hope St.

The OR 39/Hope St signal is currently the worst condition signal in the corridor. Given the condition of the OR 39/Hope St intersection and current traffic patterns, the project team developed a straight-forward approach to improving the signal.

Solution ID #4

Signal Replacement: Replace signal, ADA infrastructure, add sidewalk infill.

Considerations

- Right of way impacts are minimal or absent. Access to mobile home park on north Hope Street should be considered.
- Signal would require feedback from Mobility Advisory Committee for vertical clearance.
- Community impacts to the north side of Hope Street should be considered.
- Significant aerial utilities will require relocation underground.

Benefits

- Improved signal coordination will reduce maintenance cost and provide benefits for timing and traffic flow
- ADA improvements and sidewalk will benefit pedestrians

Cost Estimate

\$2.5 million to \$3.5 million

Implementation suggestion

Near term – funding currenting identified in STIP

Solutions not recommended

No additional solutions were evaluated – the current proposal offers the most opportunity to address known issues.

OR 39/Hilyard

The intersection of S 6th Street and Hilyard Avenue is a side-street stop-controlled intersection with poor skewing. It was identified in the year 2045 No Build analysis that the stop-controlled approaches would exceed a volume-to-capacity (v/c) ratio of 1.0 by year 2045. Known issues include intersection skew, sight distance, and access for the current fire station. While this location does not have an extensive history of crashes, development is expected to occur on both sides of Hilyard and increase demand.

The project team developed two concepts for the OR 39/Hilyard intersection: one that prioritizes mobility and through traffic for the OR 39 corridor, and another that improves safety and access to Hilyard.

Solution ID #5

Convert intersection to offset T-intersections: this alternative was originally conceived to consider if a roundabout or traffic signal were not warranted or feasible. This alternative would realign the west leg of Hilyard Avenue to T into S 6th Street a few hundred feet north and would realign the east leg of Hilyard Avenue to T into S 6th Street a few hundred feet south. It is assumed that at both intersections, the Hilyard Avenue approaches would have both a left turn lane and a right turn lane.

Considerations

- Considerable right of way impacts for the county road improvements. Impacts would include schedule and budget.
- Option still allows for higher speeds and creates additional intersection conflict points that does not address plan goals
- Access spacing standards will not be met.
- Mid-block crossing would need to seek feedback from the Mobility Advisory Committee.
- Ground disturbance activity would require historic and archeological considerations in the environmental phase. Stormwater considerations should be included in design.
- Significant aerial utilities will require relocation underground.

Benefits

- Provides ample capacity for future vehicular volumes
- Visibility and sight distance is improved from the existing condition.

Cost Estimate

\$4 Million to \$6 Million

Implementation suggestion

Long term – funding driven by development, local sources or other sources

Solutions not recommended

- Construct a traffic signal - Signal warrants were reviewed using year 2045 projected volume for planning analysis. None of the nine warrants were met. It should be noted that for Warrant 1 Condition B (8 hour warrant), the 2045 volumes met the criteria for 7 out of 8 hours; and that for Warrant 2 (4 hour warrant), the 2045 volumes met the criteria for 3 out of the 4 hours. So while this study will not recommend a traffic signal at this intersection given warrants were not met, the County and ODOT may wish to monitor traffic volumes in the future in case traffic growth exceeds forecasts if a signal is desired

Figure 6 OR 39/Hilyard Ave Realignment Concept Solution ID #5



Solution ID #6

This solution would replace the intersection with a dogbone roundabout. While there may be opportunities to realign the side street approaches into a roundabout at this location, roundabouts are generally able to serve skewed intersections. There are also opportunities to connect the fire station more directly to Vermont Street and to the roundabout, providing quick access for left turns onto OR 39.

Considerations

- Right of way considerations should be made with the canal. Right of way impacts are anticipated.
- Freight considerations and turning movements should be evaluated at the roundabout. This concept should be reviewed and seek proper support for roundabout sizing from the Mobility Advisory Committee in meeting the Highway Directive DES-02.
- Environmental: Canal piping would require additional environmental permits and possibly fish passage triggers related to Environmental Species Act. Hazmat considerations should be made as well. Potential historic resources may exist.
- Adding illumination to the intersection could be challenging given the surrounding built environment.
- Significant aerial utilities will require relocation underground.

Benefits

- Improved safety performance by reducing likelihood of angle and turning movement crashes from left turns
- Previous MAC feedback has indicated support for dogbone-style roundabouts when shown type of freight movement considered
- Slower speeds and better speed management in the corridor
- Better pedestrian connectivity
- Improved access spacing

Cost Estimate

\$13 million to \$16 million

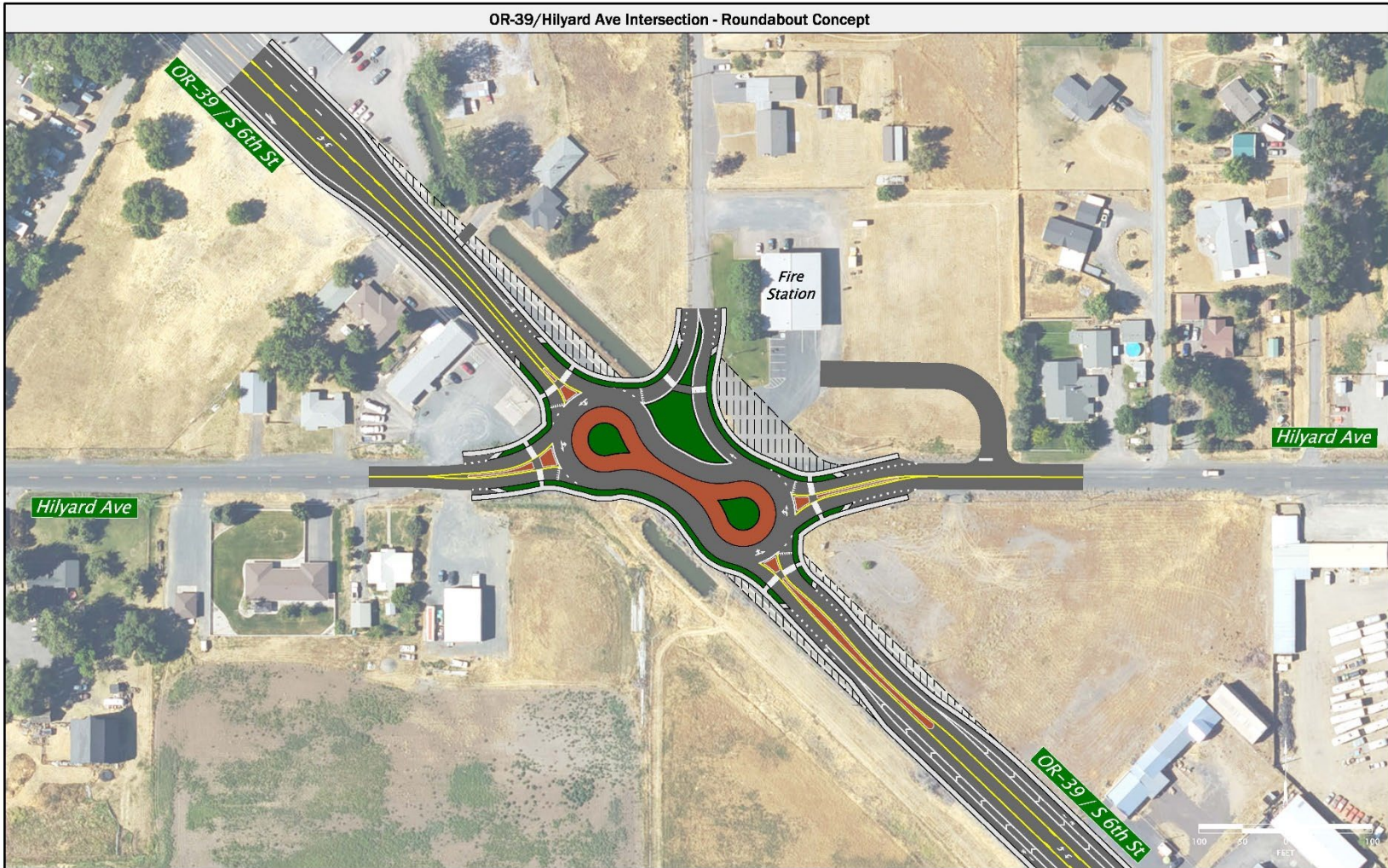
Implementation suggestion

Long term – funding driven by development, local sources or other sources

Solutions not recommended

- Solutions not recommended discussed under Solution ID #5

Figure 7 OR 39/Hilyard Ave Roundabout Concept Solution ID #6



OR39/Hilyard Ave Intersection – Roundabout Concept

For conceptual design purposes only.

OR 39/OR 140

The intersection of OR 39 and OR 140 is currently signalized for the three highway approaches, each with sweeping channelized rights, and a stop-controlled right-in/right-out approach for Western Street. The intersection promotes high speed movements through the intersection with a non-traditional geometry and footprint. Pedestrians have no facilities to cross the intersection. This study looks to improve safety for vehicle traffic as well as find a solution to provide safe pedestrian and bicyclist crossings. While pedestrian demand may be low today, Klamath Community College is interested in developing student housing in the southeast corner of the intersection. While there have been talks of a grade-separated pedestrian crossing south of OR 39/OR 140, this plan still seeks to find solutions to provide at-grade pedestrian crossings at the intersection to improve pedestrian access.

Solution ID #7

Construct a roundabout: This solution would create a four-legged roundabout with a southbound slip lane to meet mobility targets. A single lane roundabout would support the goals of providing safe pedestrian crossings.

This solution includes a pedestrian tunnel (undercrossing) on the southern approach of the intersection. The pedestrian tunnel would provide east-west connectivity for the community college to connect to future student housing.

Considerations

- Right of way considerations are minimal. Access management should be considered adjacent businesses.
- This section of OR 39 and OR 140 is on an ORS 366.215 Reduction Review route. Proposal would require a presentation to the MAC stakeholder forum in obtaining a Record of Support per ORS 366.215 and Highway Directive Roundabout DES-02 for proper sizing of the roundabout.
- Limited environmental considerations compared to the other solutions. Ground disturbance and considerations around hazmat and archeological. Stormwater considerations should be made as well. Klamath Falls is a non-attainment air quality zone so considerations for air quality will be made.
- Significant aerial utilities will require relocation underground.

Benefits

- Improved safety performance by reducing likelihood of angle and turning movement crashes at the intersection
- Slower speeds and better speed management in the corridor, as well as at the intersection
- Better pedestrian connectivity both at the intersection and for the proposed undercrossing
- Improved access spacing

Cost Estimate

\$11 million to \$16 Million

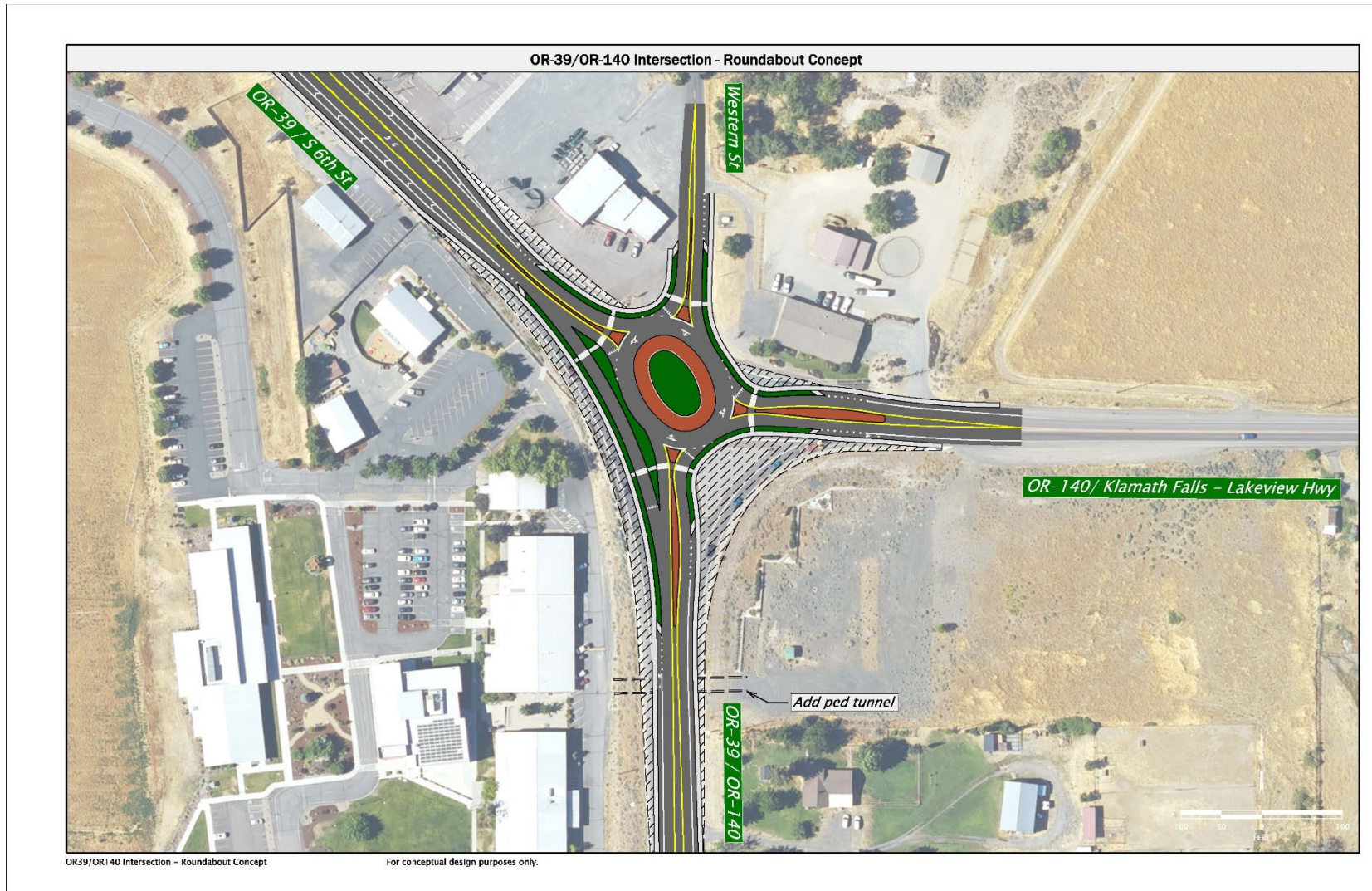
Implementation suggestion

Long term due to cost, impacts, and availability of funding

Solutions not recommended

- Construct a traffic signal – A traffic signal currently exists today. While a traffic signal could meet mobility targets, the current configuration would have to be changes to add turn lanes in order to bring it up to standard. The intersection would become wider and not have the safety benefits of a roundabout. Early rounds of public involvement indicated strong support for a roundabout. However, a traffic signal could remain an alternative albeit an undesirable one due to the safety considerations.

Figure 8 OR 39/OR 140 Roundabout Concept Solution ID #7



Cross Section Solutions

Included below are general cross sections for OR 39 South Sixth Street within the project limits.

OR 39: Altamont to Summers

This section of the corridor has issues related to safety, asset condition, bicycle/pedestrian connectivity, and does not meet current standards in the highway design manual. Safety performance on this section is rather poor: there were 6 fatal and serious injury crashes on this section and includes 4 top 5% SPIS sites.

Solution ID #8 and #9 generally have the same cross section proposal improvements, however one includes recommendations for a median and the other includes striping width improvements to the existing center turn lane. Both solutions address asset condition, bicycle/pedestrian connectivity, and cross section standardization but solution ID#9 more greatly improves safety performance.

Solution ID #8

This solution will generally bring the cross section up to standard and will improve overall asset condition when coupled with paving work along with improved bicycle/pedestrian connectivity when implemented.

Considerations

- Right of way impacts are expected to be minimal, but cost could be driven if business signs need to be relocated. Access management could be difficult and there are not likely opportunities outside of the intersection proposals.
- Utility undergrounding or relocation is anticipated to be costly if reimbursable.
- Lane reconfiguration would need to seek feedback from Mobility Advisory Committee.
- Historic resources, hazmat, stormwater, Endangered species act, and archeological considerations should be made.
- Significant aerial utilities will require relocation underground.

Benefits

- Improved condition of pavement and sidewalks
- Improved center turn lane
- Improved pedestrian and bicycle facilities
- Speed management from striping improvements

Cost Estimate

- \$10 to \$15 Million

Implementation suggestion

Long term due to cost, impacts, and availability of funding

Figure 9 OR 39: Altamont Dr to Summers Lane Typical Cross Section – Solution ID #8



© Google

Solution ID #9

This solution will generally bring the cross section up to standard and will improve overall asset condition and bicycle/pedestrian connectivity when implemented. A center median is proposed to improve safety performance by reducing angle and turning movement crashes, which are the most prevalent crash type in the corridor.

Considerations

- Right of way impacts are expected to be minimal, but cost could be driven if business signs need to be relocated. Access management could be difficult and there are not likely opportunities outside of the intersection proposals.
- Utility undergrounding or relocation is anticipated to be costly if reimbursable.
- Lane reconfiguration with installation of a raised center median would need to seek feedback from Mobility Advisory Committee.
- Historic resources, hazmat, stormwater, Endangered species act, and archeological considerations should be made.
- Significant aerial utilities will require relocation underground.

Benefits

- Improved condition of pavement, bicycle lanes, and sidewalks.
- Improved safety performance by reducing the likelihood of turning movement, angle, or pedestrian crashes via center median. Advanced investigations for placement of left turn lanes would need to occur.
- Better speed management from striping and median improvements.

Cost Estimate

- \$10 to \$15 Million

Implementation suggestion

Long term due to cost, impacts, and availability of funding

Figure 10 OR 39: Altamont to Summers Lane Typical Cross Section – Solution ID #9



OR 39: Crater Lake Parkway to Hilyard

This section of the corridor has issues related to safety, asset condition, bicycle/pedestrian connectivity, and does not meet current standards in the highway design manual. Safety performance on this section is rather poor: there were 6 fatal or serious injury crashes and the section from Crater Lake Parkway to Fargo St. is over the critical crash rate.

Solution ID #10 and #11 generally have the same cross section proposal improvements, however one includes striping width improvements to the existing center turn lane and solution ID 11 includes a median. Both solutions address asset condition, bicycle/pedestrian connectivity, and cross section standardization but solution ID#11 more greatly improves safety performance.

Solution ID #10

This solution will generally bring the cross section up to standard and will improve overall asset condition with paving work and bicycle/pedestrian connectivity when implemented. The solution is conscious of the built environment and still provides adequate vehicular access as well as bicycle and pedestrian infrastructure.

Considerations

- Right of impacts are expected to be higher on this section. Sidewalk infill will not require excessive property but the number of taxlots and right of way files will be higher. Access management could be difficult due to the parcel sizes for the majority of taxlots, although opportunities for defining and consolidating accesses exist.
- Utility undergrounding or relocation is anticipated to be costly if reimbursable.
- Lane reconfiguration would need to seek feedback from Mobility Advisory Committee.
- Historic resources, hazmat, stormwater, Endangered species act, and archeological considerations should be made.

Benefits

- Improved condition of pavement and sidewalks
- Improved center turn lane
- Improved pedestrian and bicycle facilities
- Speed management from striping improvements

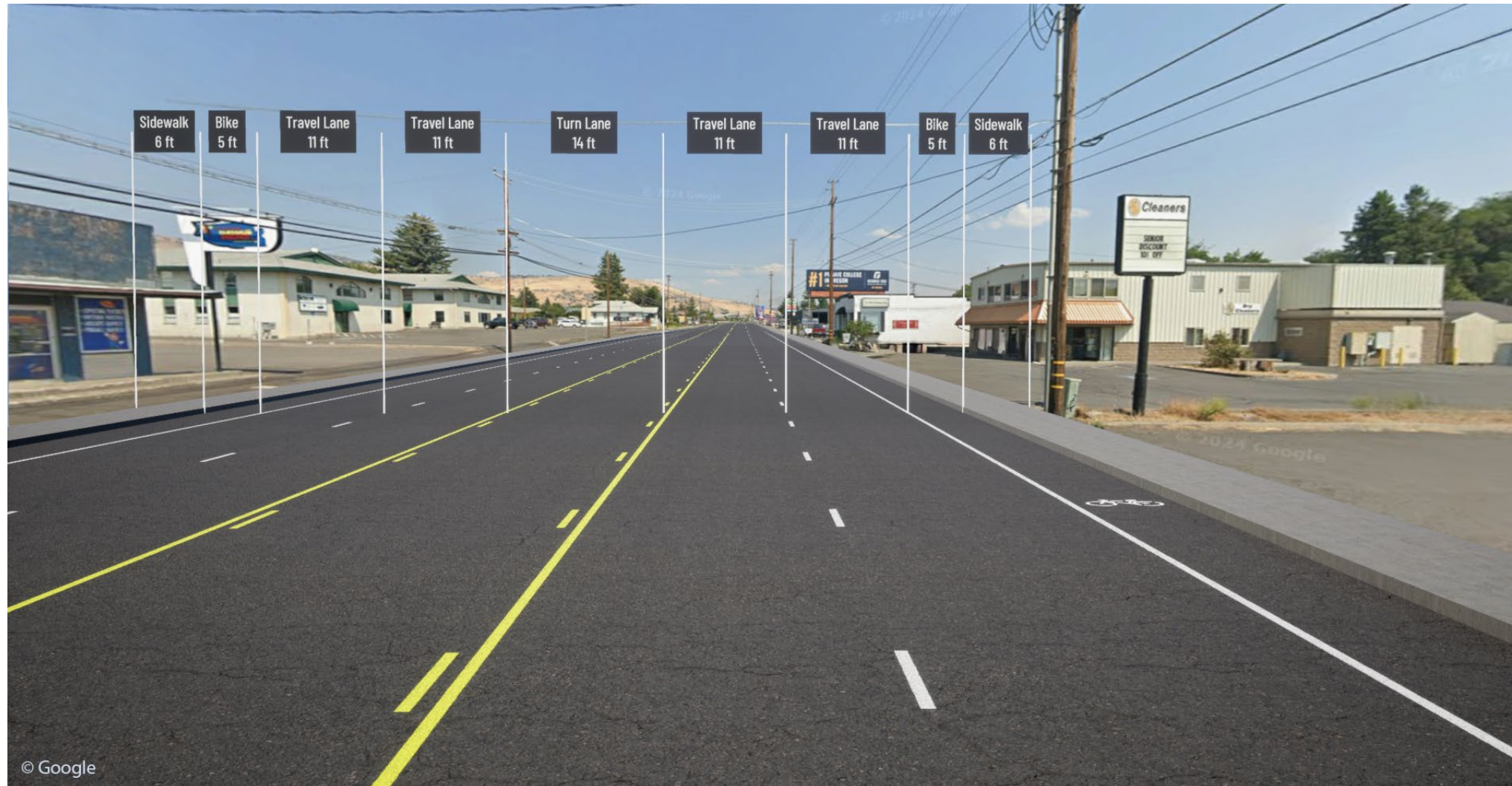
Cost Estimate

\$15 to \$20 Million

Implementation suggestion

Mid to long term – ODOT Great Streets program has funded streetscape improvements from Hope to Patterson.

Figure 11 OR 39: Crater Lake Parkway to Hilyard Typical Cross Section – Solution ID #10



Solution ID #11

This solution will generally bring the cross section up to standard and will improve overall asset condition and bicycle/pedestrian connectivity when implemented. A center median is proposed to improve safety performance by reducing angle and turning movement crashes, which are the most prevalent crash type in the corridor.

Considerations

- Right way of impacts are expected to be higher on this section. Sidewalk infill will not require excessive property but the number of taxlots and right of way files will be higher. Access management could be difficult due to the parcel sizes for the majority of taxlots, although opportunities for defining and consolidating accesses exist.
- Utility undergrounding or relocation is anticipated to be costly if reimbursable.
- Lane reconfiguration with installation of a raised center median would need to seek feedback from Mobility Advisory Committee.
- Historic resources, hazmat, stormwater, Endangered species act, and archeological considerations should be made.

Benefits

- Improved condition of pavement and sidewalks.
- Improved safety performance by reducing the likelihood of turning movement, angle, or pedestrian crashes via center median. Advanced investigations for placement of left turn lanes would need to occur.
- Better speed management from striping improvements.

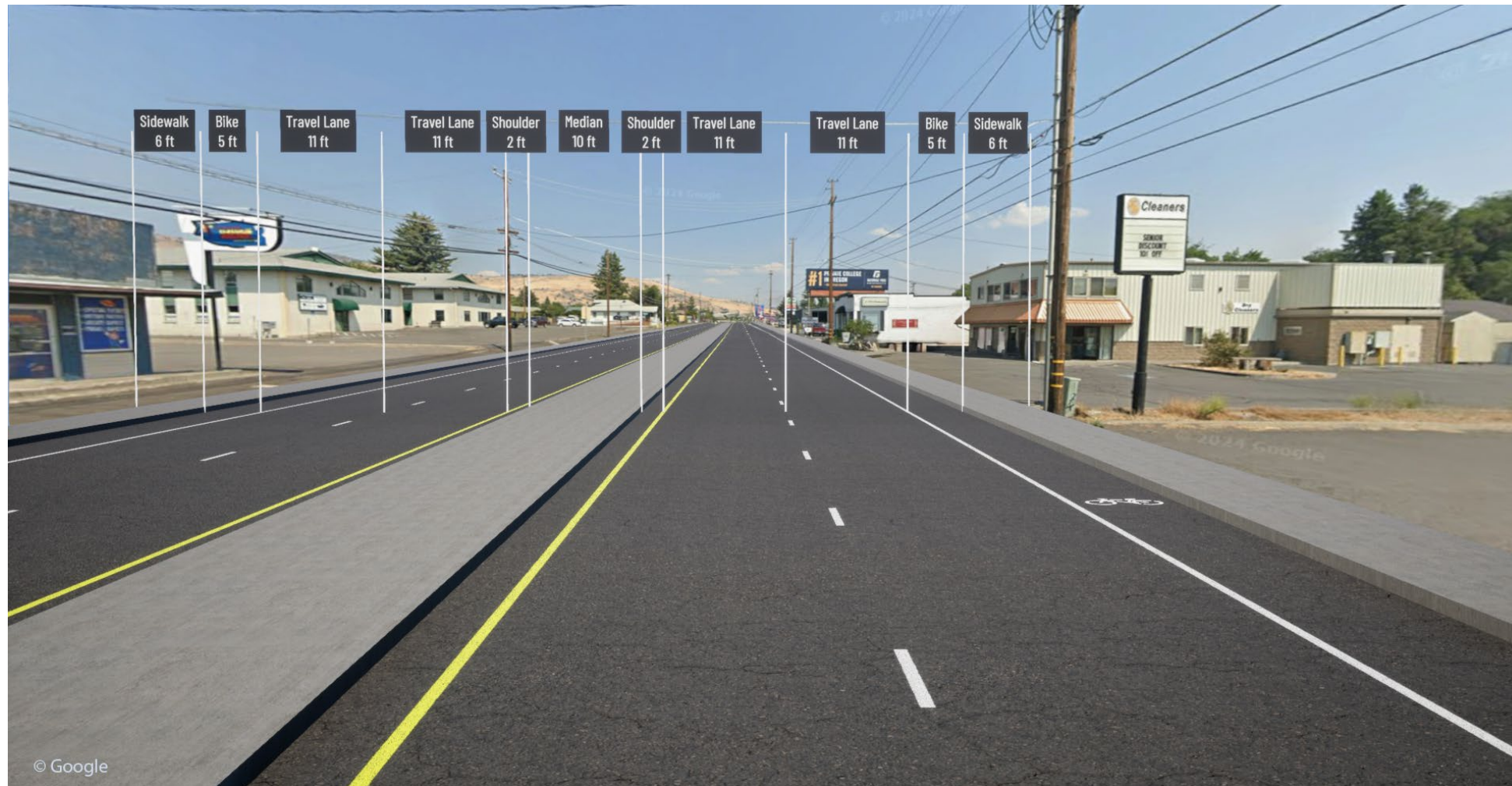
Cost Estimate

\$15 to \$20 Million

Implementation suggestion

Mid to long term – ODOT Great Streets program has funded streetscape improvements from Hope to Patterson.

Figure 12: OR 39: Crater Lake Parkway to Hilyard Typical Cross Section – Solution ID #11



OR 39: Hilyard to OR 140

This section of the corridor has issues related to safety, asset condition, bicycle/pedestrian connectivity, and does not meet current standards in the highway design manual. Anecdotally, several members of the public and the PAC have not excessive speeding on this section of highway. There were 3 fatal or serious injury crashes in the crash data review.

There are two solutions for this section of highway that are meant to support intersection solutions for OR 39/Hilyard (Solution ID #5 and #6) and OR 39/OR 140 (Solution ID #7). Solution ID #12 is meant to support Solution ID #5, while solution ID #13 is meant to support Solution ID #6 and #7.

Solution ID #12

This solution will generally bring the cross section up to standard and will improve overall asset condition of pavement and sidewalks, as well as bicycle/pedestrian connectivity, when implemented. The solution is conscious of the built environment and still provides adequate vehicular access as well as bicycle and pedestrian infrastructure.

Considerations

- Right of way impacts are expected to be minimal, but cost could be driven if business signs need to be relocated. Access management could be difficult and there are not likely opportunities outside of the intersection proposals.
- Utility undergrounding or relocation is anticipated to be costly if reimbursable.
- Lane reconfiguration would need to seek feedback from Mobility Advisory Committee.
- Historic resources, hazmat, stormwater, Endangered species act, and archeological considerations should be made.

Benefits

- Improved condition of pavement and sidewalks
- Improved center turn lane
- Improved pedestrian and bicycle facilities
- Speed management from striping improvements

Cost Estimate

\$8 to \$10 Million

Implementation suggestion

Long term due to cost, impacts, and availability of funding

Figure 13: OR 39: Hilyard to OR 140 Typical Cross Section – Solution ID #12



Solution ID #13

This solution would reconfigure the roadway to one travel lane in each direction and include a center median. A buffer is included between the bicycle lane and travel lane to support safe bicycle travel. This solution is meant to support Solution ID#6 and Solution ID #7: The taper distance for single lane roundabouts would exceed the current distance between OR 39/Hilyard and OR 39/OR 140.

Considerations

- Right of way impacts are negligible. The reduction of travel lane provides ample space to support all modes.
- Would need feedback from Mobility Advisory Committee.
- Historic resources, hazmat, stormwater, Endangered species act, and archeological considerations should be made.
- Left turn lanes would need to be assessed in the future.

Benefits

- Improved condition of pavement and sidewalks.
- Improved safety performance by reducing the likelihood of turning movement, angle, or pedestrian crashes via center median. Advanced investigations for placement of left turn lanes would need to occur.
- Better speed management from striping improvements.

Cost Estimate

\$3 to \$7 Million

Implementation suggestion

Long term due to cost and availability of funding.

Figure 14 OR 39: Hilyard to OR 140 Typical Cross Section – Solution ID #13



Pedestrian Crossings

Pedestrian crossing improvements were indicated as a need based on public and PAC feedback, as well as crash data. The proposed crossings, in conjunction with intersection improvements, are strategically placed to better meet ODOT HDM crossing spacing standards. Exact pedestrian crossing infrastructure will be determined in a funded design phase but may include illumination, rectangular rapid flashing beacons, median islands, and striping.

Solution ID#14

The following areas are locations where enhanced crossings would be considered for evaluation or re-evaluation:

- MP 3.08 – Near Wubba’s BBQ – Mid-block crossing
- MP 3.4 – near Fargo Street – Mid-block crossing
- MP 3.76 – Near OR 39/Wiard Street intersection – Mid-block crossing
- MP 4.38 – Near OR 39/Ogden Street – Mid-block crossing

Considerations

- Advanced traffic investigations will need to occur to determine exact infrastructure at time of construction
- Median island treatment will need feedback from the Mobility Advisory Committee
- Minor right of way impacts are likely

Benefits

- Improved safety for pedestrians
- Improved crossing frequency and opportunities
- Better visibility for drivers

Cost Estimate

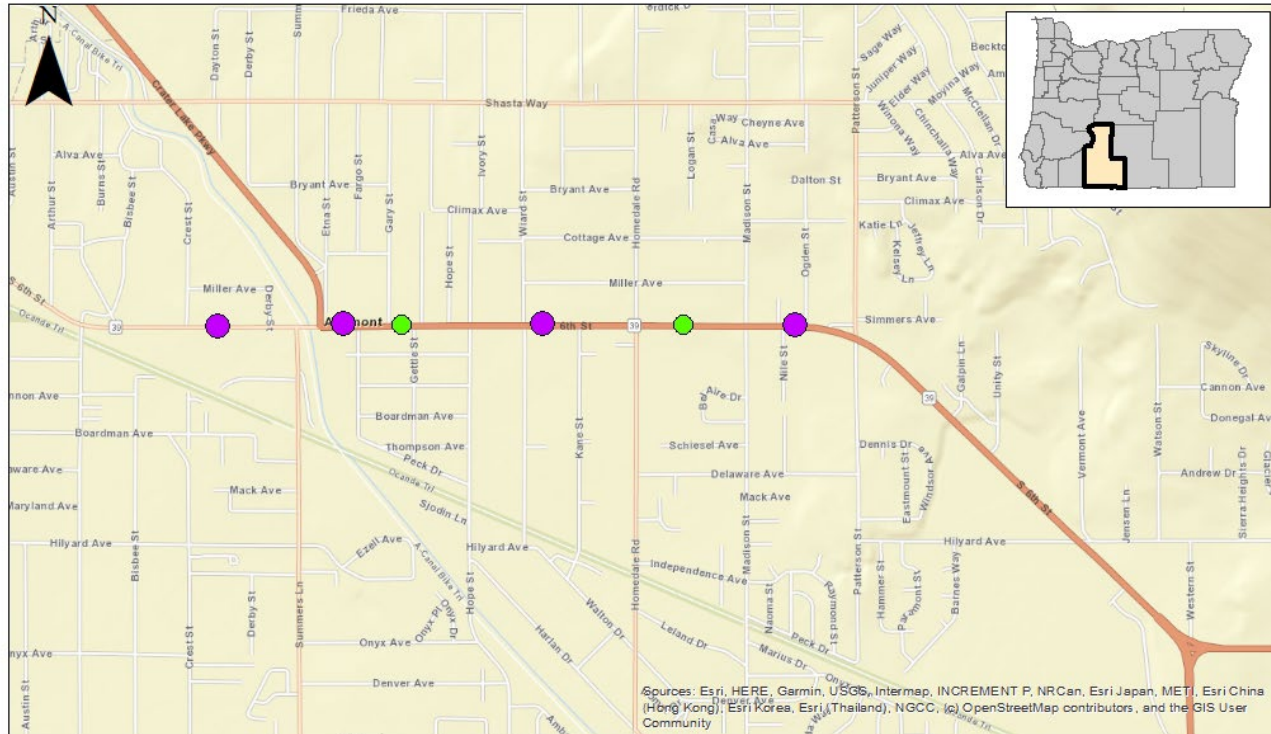
Each location will cost between \$400,000 and \$1,000,000.

Implementation suggestion

Mid term

OR 39: South Sixth Street Facility Plan
 TM#5 Concept Development

Figure 15 Advanced Crossing Improvements

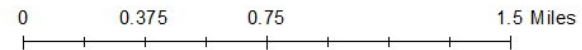


OR 39: South Sixth Street Facility Plan

Advanced Pedestrian
 Crossing Improvements

Mid-block, at grade crossings on OR 39

- Existing Crossing
- Proposed Crossing



Transit Stops

Basin Transit Service is the primary provider on the OR 39 South Sixth Street Corridor. The Sage Stage Klamath Falls-Alturas bus service does not operate in the corridor but does provide pick/drop-off near the project limits. The Quail Trail Bus service does have stops within 850' of the corridor as well.

Solution ID #15

The following locations were identified as possible transit stop improvements:

- Fairground Transit Center – Improvements may be needed based on proposed intersection configurations, primarily to address bus operations at the transit center.
- MP 3.08 – Transit stop improvements near Wubbas
- OR 39/Hope Street - Bus stop improvements east of intersection, EB direction
- OR 39/Wiard St – Bus stop improvements west of intersection, WB direction
- MP 3.92 – Bus stop improvements near the OR 39/Homedale intersection
- MP 5.17 – Bus stop improvements near OR 39/Hilyard

Transit improvements could vary in terms of scale. For many locations, a small pad and shelter may be appropriate, while other locations may warrant larger-scale improvements. Outreach to Basin Transit prior to design would provide the most up to date information and desire from the agency.

Considerations

- Transit stop locations may change depending on land use, and the scale of desired improvements may change depending on need.
- Right of way would likely be necessary for stops without existing infrastructure.
- Environmental review will be required per Federal Transit Administration
- Signing, striping, and illumination may be beneficial at each location.

Benefits

- Improved user experience for transit ridership
- Better visibility for transit users, buses, and vehicles

Cost Estimate

Cost estimate will vary depending on location, right of way impacts, and size of desired transit stop. Cost estimate range could be \$250,000 to \$1 million.

Implementation suggestion

Near to long term depending on location and need.

Figure 16 Existing transit stop at OR 39/Wiard St.



Next Steps

These solutions serve as a starting point for ODOT, Klamath County, and the PAC to provide feedback. Following internal team review and PAC review, the solutions will be presented to the public at an open house. Feedback will be documented and the internal team will provide direction for solutions in the Draft OR 39 South Sixth Street Facility Plan.