

# STATE OF OREGON

# INTEROFFICE MEMO

## Department of Transportation Transportation Development Division

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Date: December 18, 2017

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**TO: Don Morehouse, Region 3 Planning  
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**FROM: Joseph Meek III PE, PTOE, Transportation Analyst  
Transportation Planning Analysis Unit**

**SUBJECT: DRAFT: Rogue River TSP Technical Memorandum #6 Deficiencies**

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This memo summarizes Rogue River's transportation system deficiencies gathered from the previous technical memorandums and other sources. This analysis includes an evaluation of the study intersections for transportation system issues for motorized and non-motorized travel modes.

The constrained and congested intersection layout, especially in the central core, will become more of a problem in the future. Intersection approaches will likely need realignment along with addressing capacity and maneuverability issues. Transit, bicycle and pedestrian facilities need to be filled in and improved which may require dedicated funding.

There are a number of safety concerns regarding queuing in the area of the interchange. Queuing and congestion along Pine and Depot Streets will be extensive. This may cause issues on I-5 off-ramps as drivers may need to brake prematurely, increasing the potential of crashes.

### ***Deficiencies***

#### **Operations, Safety, Capacity and Maneuverability**

There several issues in Rogue River regarding traffic safety, operations, capacity, and maneuverability. Keeping a street network that is safe and efficient is essential for growth and safety of the community.

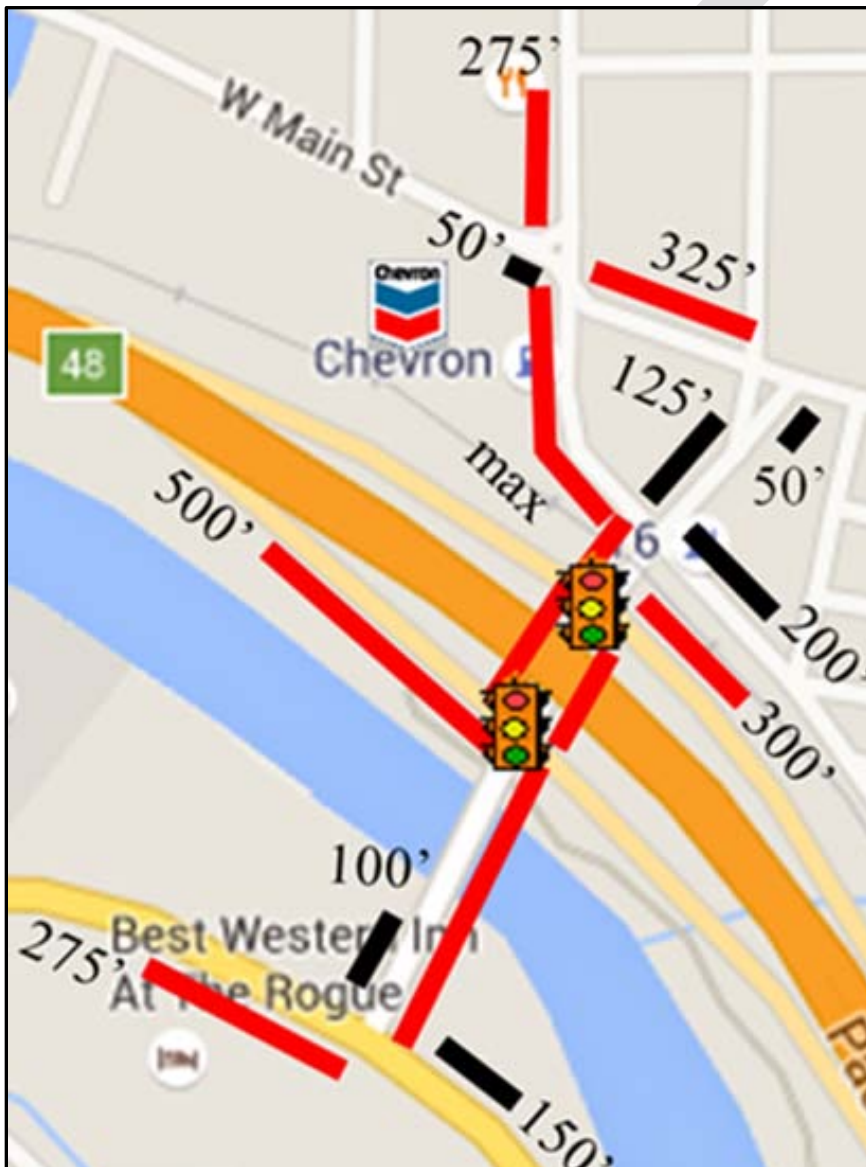
## Safety

There are not any intersections with high number of crashes. All of the intersection crash rates are less than their corresponding critical rates and the published 90<sup>th</sup> percentile crash rate. With so few crashes, no patterns can be found or consistent causes to be investigated. There are no Safety Priority Index System (SPIS) sites in the study area. There are sight distance issues at downtown intersections. Drivers cannot see around parked cars at the corners. These spaces could be removed if more off street parking was developed. Improving sight distance will also increase visibility of pedestrians and allow for enhancements. There are a number of locations below with safety hazards.



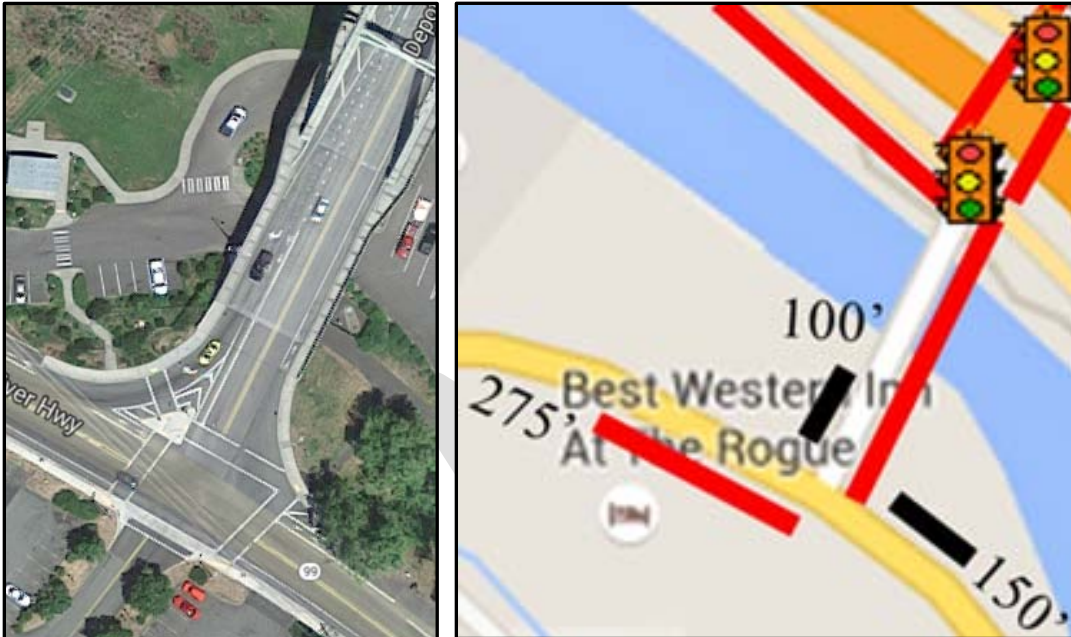
## OS1 Ramp Terminal Queuing

The constrained I-5 & Depot Street ramp terminals and the overall interchange section create a number of safety issues. The overall lack of maneuvering room and queue storage leads to congestion even at relatively low volumes, creating serious queuing issues. Any incident or slowdown on Depot Street or a train crossing can quickly create queues back onto the ramps and even onto I-5 mainline. Queuing that extends into the deceleration portion of the ramp or onto I-5 mainline is an inherent safety issue. The southbound off-ramp will start having this problem by 2024. The predicted queue of 500 feet in 2040 will extend well into the deceleration zone. Drivers will need to brake much earlier than expected to avoid potential collisions.



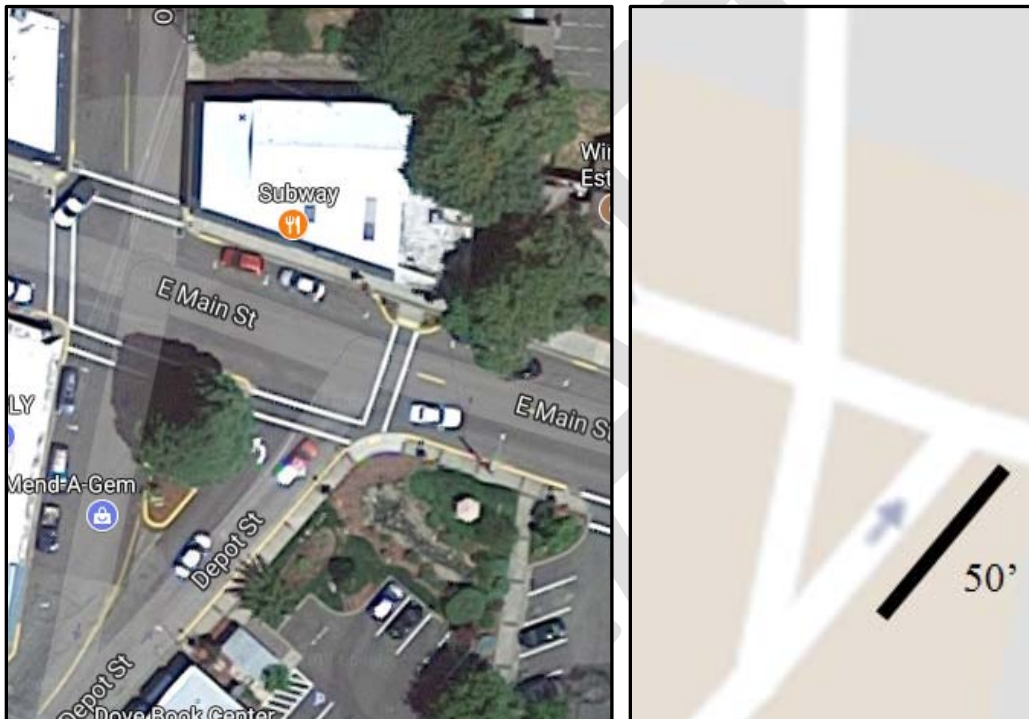
OS2 Depot Street and OR 99

The V/C at this intersection is forecasted to be 0.63 in 2040. This intersection will have a significant southeast bound left turning queue on OR99 that may not be expected by southbound drivers. This may lead to an increased amount of rear-end collisions. Vehicles waiting to turn will not have anywhere to go as there will be queues propagating back from the interchange. The ADT/C ratio is 6.31, uncongested with no slowing speeds.



### OS3 Depot Street and Main Street

The v/c at Depot and Main Street is forecasted to be 0.36 in 2040. Intersection operation will likely be affected by queuing extending from the adjacent Main & Pine Street and Pine & Depot Street intersections. The ADT/C ratio is 10.36, congested with slowing speeds on a daily basis. The overall capacity here is low as the intersection is in a non-standard configuration; however Preliminary Signal Warrants (PSW's) were not met. The alignment of this intersection should be investigated. As configured, the northbound movement is indirect and goes through two closely spaced intersections. Both intersection functional areas overlap, leading to increased chance of conflicts, collisions, and pedestrian crash. Drivers too-focused on maneuvering through the intersection might not see a pedestrian.



### OS4 Depot & Pine Streets/Classick Drive Intersection

The intersection of Depot Street with Pine Street and Classick Drive is too close to railroad tracks and to the I-5 northbound ramp terminal intersection. The functional area, which includes distance traveled during reaction, deceleration, and maneuvering time plus distance for queue storage, overlaps between the two. Functional area overlaps create too many things for a driver to process at once which can lead to an increased rate of crashes.

## Capacity and Queues

There are a number of locations below with excessive queuing now or in the future which will likely lead to increased crashes.



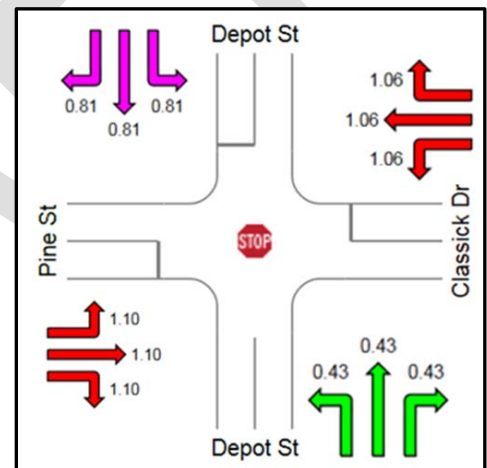
### OS5 Depot Street and SB I-5

The v/c at this intersection is forecasted to be 0.87 in 2040 and predicted to exceed the standard of 0.85 in 2038. This signalized intersection will have queues in both directions on Depot Street radiating from the closely spaced nearby intersections. These queues are evident under existing conditions and will get worse. There will be an unreasonable delay due to queuing on all legs, especially on the exit ramp. The ADT/C ratio is 9.10, congested with slowing speeds on a daily basis. As can be seen by the red lines on the queuing diagram, queues will extend through the interchange and up the ramp.



## OS6 Depot Street and Pine Street

The v/c at Depot Street and Pine Street is forecasted to be 1.10 in 2040. This intersection is predicted to exceed the standard of 0.95 in 2038. This intersection is forecasted to be at capacity (V/C = 1.00) in 2039. Due to queues and delay, this intersection will not work in its current control and form in the future. Even with the high v/c ratio, this intersection does not meet preliminary signal warrants (PSW), but even if it did, intersection spacing and lack of queue storage space is too limiting for good operation. There will be an unreasonable delay by all three stopped approaches, especially Classick Dr. The ADT/C ratio is 7.01, not hugely congested on a daily basis. The intersection diagram below shows a lack of capacity available for the Pine and Classick movements.



The Depot and Pine Street intersection has a lack of queuing space on the south leg due to a railroad crossing seen in the photograph below. This issue leads to a lack of queuing space on the north leg of the adjacent intersection, the I-5 ramp terminal. Both the Rogue Valley Commuter line transit operation and the City fire department have noted a lack of

space to wait for the northbound I-5 ramp terminal intersection signal and not sit on the railroad tracks, which is a challenge for longer vehicles. The police department also mentions it as a general concern. On the queuing diagram below, there are queues that extend from the interchange upstream into this intersection and the Pine & Main Street intersection. In 2028 the eastbound queue of Depot and Pine Street will be long enough to interfere and interrupt operations at Pine and Main Street. This is a problem that needs to be addressed.

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## OS7 Depot Street and NB I-5

The V/C at this intersection is forecasted to meet the 0.85 v/c standard in 2040. This signalized intersection will have queues in both directions on Depot Street radiating from the closely spaced nearby intersections. These queues are evident today under existing conditions and will get worse in the future. There will be an unreasonable delay and queues on all legs, especially the exit ramp. The ADT/C ratio is 10.36, congested with slowing speeds on a daily basis. As seen in the photo, there is not queuing space for large southwest bound vehicles on Depot Street heading toward southbound I-5 or OR99. As can be seen by the red lines on the queuing diagram, there are queues that extend through the interchange and up the ramp.



### OS8 Main Street and Pine Street

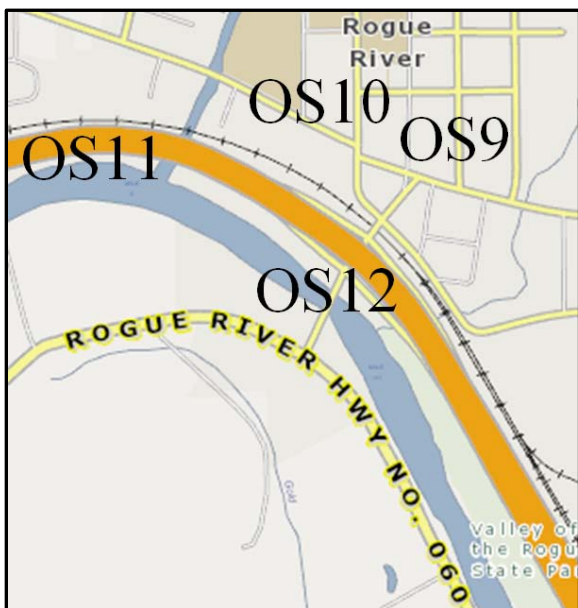
The v/c at this intersection is forecasted to be 1.08 in 2040. This intersection is predicted to exceed the standard of 0.95 in 2035. This intersection is forecasted to be at capacity (V/C = 1.00) in 2037. This intersection will have a southbound queue that will be waiting and unable to enter queue extending from the interchange area. The westbound queue will likely disrupt operation at Depot and Main Street. The ADT/C ratio is 12.94, very congested with substantial slowing of speeds on a daily basis. Even with the capacity issues, PSW's are still not met. This intersection is offset and has a skewed alignment, enlarging the intersection and slowing operations.



By 2040, the westbound queue on Main Street will extend to and interfere with operations at Depot and East Main Street.

## Maneuvering

There are a number of maneuvering issues in Rogue River, for large trucks, vehicles, emergency vehicles, or transit.



### OS9 Depot/Pine/Oak Alignment

For operations and sightlines, Depot Street should be realigned to line up with Pine or Oak Street. Note issue discussed in safety section.

### OS10 W Main/E Main Alignment

A straighter alignment is needed at West and East Main at Pine Street. There is a tight turn required to turn right onto East Main Street from Pine Street which can create off-tracking issues that can interfere with waiting left-turn vehicles. Off-tracking is different paths of front and rear wheels, especially when a longer vehicle corners. The rear wheels take a shorter and straighter path, possibly intruding into a lane or sidewalk. Off-tracking is also evident from East Main to Pine Street, leading to left turning vehicles interfering with waiting northbound vehicles. The East Main to Pine street movement is the

preferred route to access the interchange due to congestion at Depot and Pine Street. This location is also discussed in capacity.

#### OS11 I-5 Emergency Turn Around

There is a lack of turn arounds on I-5 between Rogue River and Grants Pass for emergency vehicles. As noted by emergency responders from Rogue River any incident that is responded to on I-5 requires long out-of-direction travel to get to or get back from which could affect response time to calls within the City. This section of I-5 is on separated roadbeds so a connection between the two directions is likely difficult.

#### OS12 Southbound Off Ramp onto Depot Street

Trucks with a large turning radius have trouble turning left from the southbound I-5 ramp onto Depot Street. Trucks may hit vehicles waiting to turn left from Depot Street onto the I-5 southbound ramp. This has been noted in a previous TSP. Realigning this approach may be an issue. The Rogue River Greenway trail is between the river and the ramp.

#### **Bicycle Facilities**

With such a great representation of bicycle ridership, it is essential to keep that going with further improvements in bicycle facilities. These are some identified deficiencies that need to be addressed along with locations for bicycle facilities to be highlighted.

#### No Markings

There are no official bicycle facilities with pavement markings within the City with the exception of OR99 and Depot Street southwest of the I-5 southbound ramp. Anything that looks like a bicycle lane is actually a paved shoulder. There is also a lack of marking to show when vehicles and bicycles are sharing the same lanes, such as on East Main Street west of Wards Creek Road. The result is that there are no expectations of drivers that bicycles will be on the shoulder or in the travel lanes. In wider shoulder locations, vehicle parking does occur. Where it looks like a bicycle facility/shoulder is provided, frequently this space can be blocked by residential garbage and recycling carts.

Striped paths were created at some point in town. They do not substitute for a bicycle lane or sidewalk. They are too narrow to be considered a bicycle lane. The striped paths lack a raised curb and width to be considered a sidewalk. Either mode would benefit from more of a separation from vehicular traffic. Garbage carts can block the path, rather than in driveways. These paths were noted on 3<sup>rd</sup> and West Main Street.



The ideal Bicycle Level of Traffic Stress (LTS) is considered to be LTS 2, the greatest range of users have a comfortable experience. LTS 1 is preferable in areas surrounding elementary and middle schools to allow for the safest experience for children. The shaded areas in the table below show LTS levels that are higher than desired.

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### B1 Pine Street

Pine Street “bicycle lanes” are narrow. The Pine Street paved shoulder/”bicycle lanes” run along both sides of Pine Street beyond the elementary and middle schools and into the suburban area until it turns into East Evans Creek Road. While LTS 2 is sufficient for most users, LTS 1 is preferred for sections at least within a half-mile of an elementary or middle school.



### B2 East Evans Creek Road

The paved shoulder on East Evans Creek Road and past the high school is only about four feet wide in most places, and while potentially inviting, it is functionally too narrow for safe bicycle riding and has a LTS 4 rating as a result.



**B3 West Main Street**

West Main Street has paved shoulders that could be used as bicycle facilities, although it is too narrow. In some locations east of East Evans Creek Road, there is no sidewalk and a section of the pavement is striped to substitute for a combination walking path/possible bike lane.



**B4 East Main Street**

East Main Street needs to show shared path markings for vehicles and bicycles from Ward Creek west. East Main Street east of Ward Creek has a wider shoulder on the north side to Wards Creek Road that could be converted into a four to six foot bicycle lane.



**B5 Broadway Street North**

Broadway St north of 1<sup>st</sup> Street needs to have bicycle lanes





B6 Broadway Street South

Broadway St south of 1<sup>st</sup> Street needs to have bicycle lanes on both sides of the street and is a LTS 3 section.



B7 N River Rd

North River Road south of Classick Drive could use bicycle lanes given the auto speed limit in this LTS 3 section instead of a wider paved shoulder that allows for parking that is not necessary given the development patterns.



Vehicle in shoulder

B8 Oak Street

Oak Street needs to have bicycle lanes.



B9 3<sup>rd</sup> Street

3<sup>rd</sup> Street is planned to be an important east-west route for all modes in the future. There should be bicycle lanes on both sides of 3<sup>rd</sup> Street.

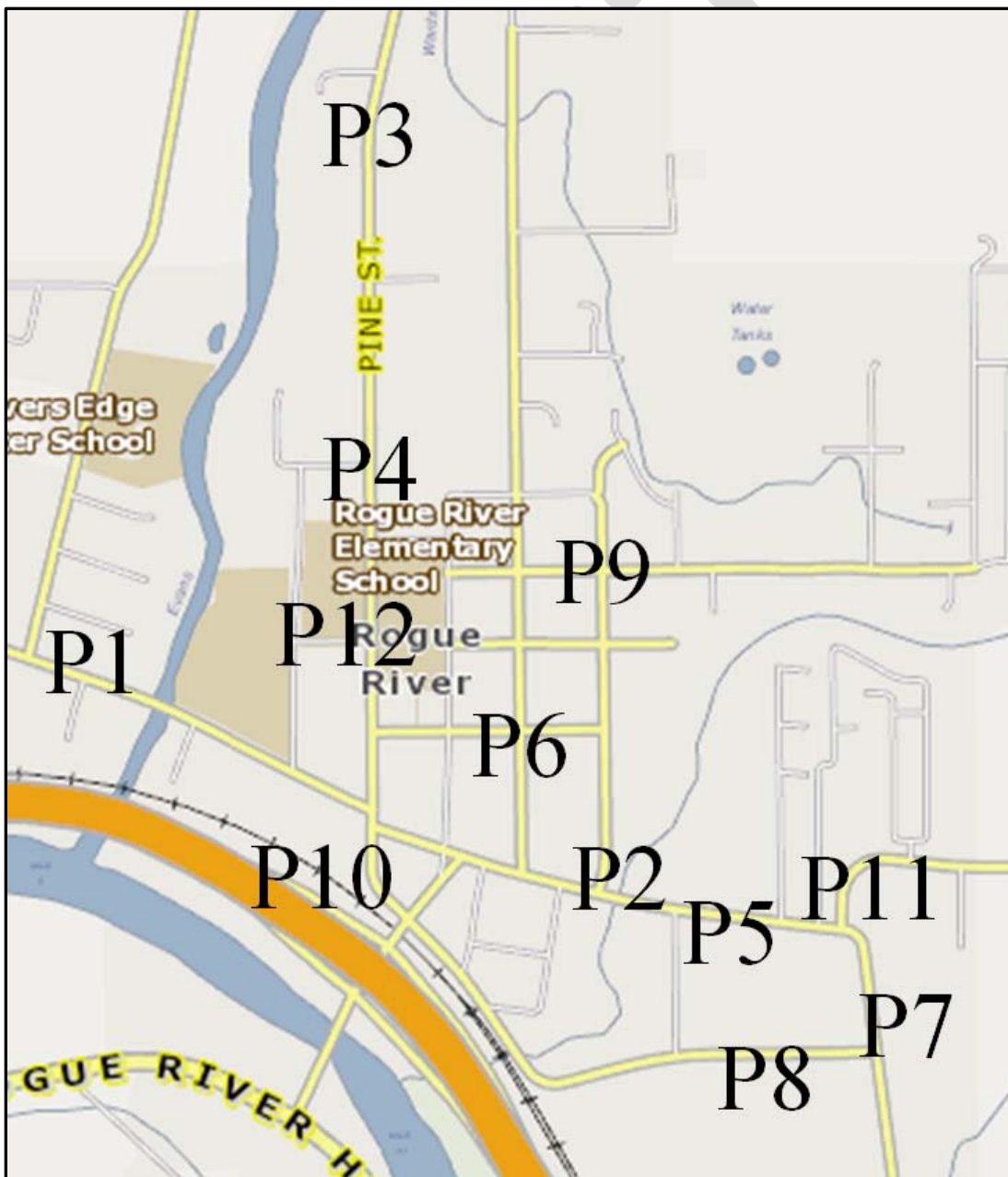


## Pedestrian Facilities

Encouraging numbers of pedestrians were recorded in the traffic counts. Fixing deficiencies and further investments like the Rogue River Greenway, keep that momentum for a healthy and growing city.

Availability of sidewalk facilities in the study area is inconsistent. There is a lack of ADA (Americans with Disabilities Act) ramps or facilities on almost all sidewalks. Wider sidewalks are needed for higher-use areas (schools and downtown) as well as room around obstacles (power poles, mail boxes, signs, benches, and fences). Most facilities are fair to poor from the qualitative pedestrian assessment in Tech Memo 4.

These are some identified deficiencies that need to be addressed.



**P1 West Main Sidewalk Continued**

West Main Street has sidewalk to the west of Pine Street for a block (not by football field) and a striped walking path on the north side road shoulder extending to East Evans Creek Road. The sidewalk should be continued west on Foothill Blvd to the UGB.



**P2 East Main Street**

East Main Street has sidewalk facilities on the south side from Rogue Lane to Ward Creek. Sidewalk does not exist with the raised curb on the south side of East Main Street across from Wards Creek Road.



P3 Pine Street/E Evans

From Short Street north, sidewalk only exists on the west side of Pine Street for a short distance. From Creek View Lane north, there are no sidewalk facilities on Pine Street/ East Evans Creek Road, central to access to the high school.



#### P4-6 Marked Crosswalks

Drivers are not observing and properly yielding to pedestrians at marked crosswalks. Frequently, stops are not happening near schools (P4 other than signalized crossing), Main Street/N River Road (P5 near shopping area), and Broadway (P6 near 1<sup>st</sup> Street).

**Figure P4**



**Figure P5**



**Figure P6**



P7 N River Road Curb w/o Sidewalk, Light, and More

North River Road has a sidewalk on the east side from Wards Creek Road to a bit past Classick Drive. There is curbing for much of this distance on the west side, but no sidewalk. There is also a lack of lighting, especially for crosswalks. Note that there is a lack of ADA ramps, including at crosswalks.



P8 Classick Question

Classick Drive does not have sidewalks on much of it. Some sections have businesses, such as a coffee shop that would attract pedestrians. Some sections of Classick Drive have parking for large trucks. This truck parking area should be defined and planned with alternate paths where it is desired to have the sidewalk closed.



P9 3rd Street

3<sup>rd</sup> Street is planned to be an important east-west route for all modes in the future. There should be sidewalks on both sides of 3<sup>rd</sup> Street. Note how two pedestrians do not feel there is not enough space to walk side by side. Striped paths lack a raised curb and any physical or lateral separation from traffic. Garbage carts block the path, rather than in driveways. See more discussion on striped paths under Bicycle section.



P10 Pine Street Downtown

There are no sidewalks on the north side of Pine Street from Depot Street to East Main Street and south side for a portion of that distance.



P11 Wards Creek and Surrounding

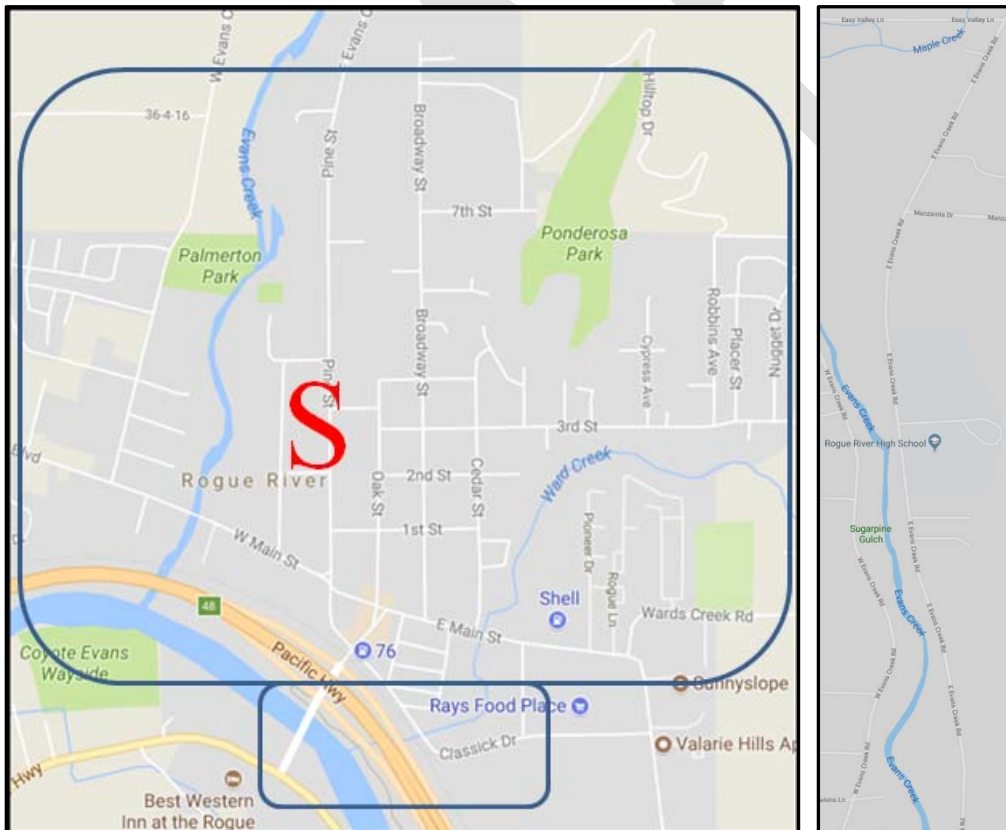
Wider shoulders are an improvement; there needs to be sidewalks around the mall area. There should be sidewalks from the mall to the assisted living area and mobile homes.





## P12 Safe Routes to School

Priority should be given to fixing gaps in sidewalks in the areas surrounding the elementary and middle school. The following map shows where sidewalks are needed. One block away from the elementary school there is a need for sidewalks (all directions but south).



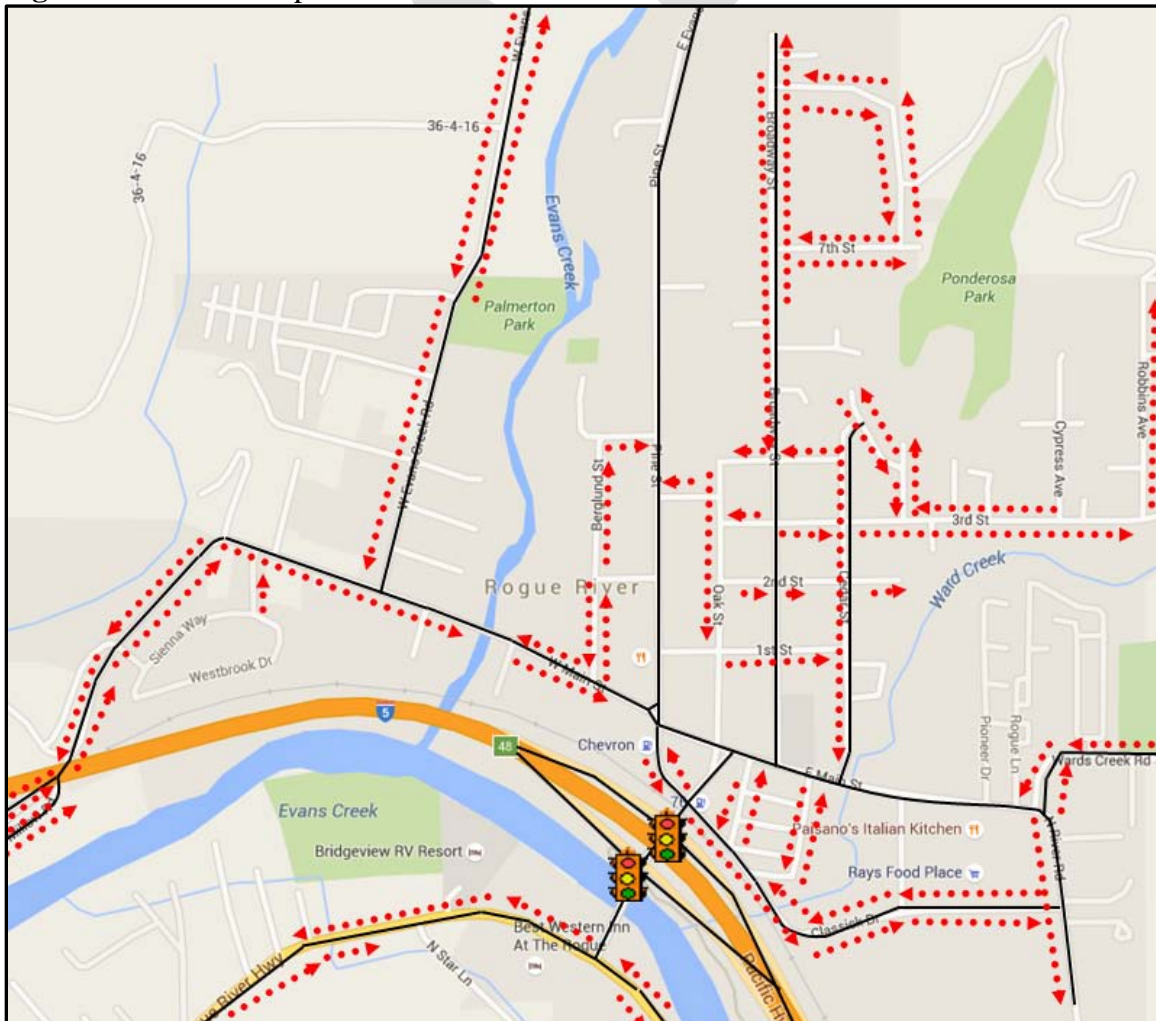
The map above has an “S” for the location of the east and west campus elementary school. The rectangles generally show what is within half a mile of the two schools. Priority should be given to having sidewalks within a ½ mile walk to the middle or elementary school. To the northwest it extends to BLM Road 36-4-16, a road 1000 feet

north of Park Circle. West on Foothill Boulevard reaches to the newer development on Westbrook Drive. The range extends south to just across the Depot Street Bridge to OR99. The ½ mile walk range would just about get to Gilmore Street. On East Main Street the distance reaches to Wards Creek Road. Also included in this distance is as far east on 3<sup>rd</sup> Street as Nugget Drive and as far north on Broadway as Valley View Drive or Creek View Lane on Pine Street. The ½ mile distance from the elementary school generally covers most of the developed area of Rogue River.

Working with the ½ mile range to school, there are several locations to work on. Most of West Evans Creek Road south of Road 36-4-16 needs sidewalks. Foothill needs sidewalk on the south side and some of the north side, including the striped path replaced. Classick Drive needs sidewalks, as well as streets to the north, including some of East Main Street. 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, and 7<sup>th</sup> need sidewalks. This includes streets like Robbins Avenue. Broadway Street needs sidewalks north of 4<sup>th</sup> Street.

With the middle school at the high school, there is a need to look at East Evans Creek Road as far north as Easy Valley Lane and as far south as the 45MPH speed sign at 1308 East Evans Creek Road. A Junior High needs school zone signing to alert drivers that children may be walking or bicycling along the roadway. See P3 for sidewalk need.

**Figure P Sidewalk Gaps**



## **Transit**

Rogue River transit is relatively poor and needs transit options for its residents.

### **T1 Infrequent Transit**

There needs to be an internal city public transit circulator or dial –a-ride on demand service. The Rogue Valley Commuter line between Grants Pass and Medford has one stop at the Rogue River Community Center. There are fewer than 10 stops per day. Considerable walking is required from most residential areas to reach that location. This service is only useful for leaving the city and traveling to Grants Pass or Medford. The qualitative assessment from Technical Memorandum 4 determined that transit access is generally poor for the City.

### **T2 Stop placement**

The Rogue Valley Commuter line is already noting the I-5 interchange congestion and would prefer a stop closer to the ramps. Alternatives should be considered where the commuter bus can stop but does not have to exit Rogue River using the Depot Street interchange.

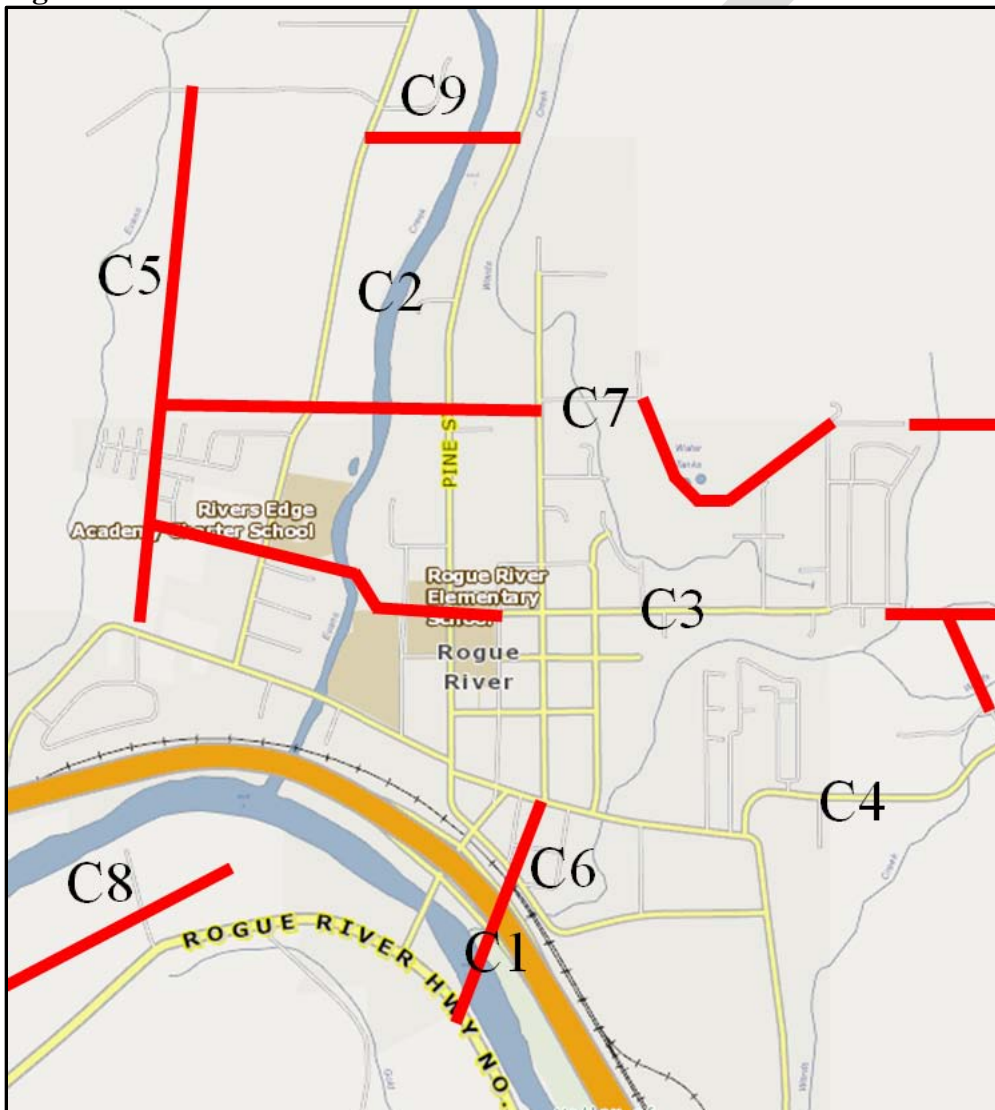
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## Connectivity

Connectivity is an issue for most cities. There may be issues with how the city has grown in the past or the natural barriers that always existed: creeks, canyons, rivers, and other elements of nature. They may be manmade but under other jurisdictions: railroads, highways, or airports. It takes planning and work to ensure a livable environment that will sustain itself. Planning for growth is essential in this.

There is a need to strengthen the existing grid network to reduce traffic on existing major streets. The next figure shows concept locations to improve connectivity.

**Figure 10**



### C1 Connectivity over Rogue River

Building across a natural boundary creates connectivity issues. As the City of Rogue River grows and expands, it will need a street layout that provides connectivity. As the area of the City develops on the south side of Rogue River, existing problems through the interchange area will increase that much faster. A second crossing of Rogue River would be beneficial in alleviating some of the lack of space. Broadway could be extended

across the Rogue River. The Broadway extension/bridge could be part of a split diamond interchange with new I-5 ramps to the south. There is also a possible location to the northwest where Foothill Boulevard goes under I-5 to add ramps to/from the north.

#### C2 Connectivity Over Evans Creek

Connections are needed across Evans Creek at different locations for all modes or one for all modes and one for just bicycle/pedestrians. Possible locations are 3<sup>rd</sup> Street, 7<sup>th</sup> Street, and further north. This will cut down out of direction travel and reduce travel and burden on the intersection of Main and Pine Street.

#### C3 3<sup>rd</sup> Street Extension to West

3<sup>rd</sup> street should be extended across Evans Creek. 3<sup>rd</sup> Street should be realigned to pass just past the school buildings to eventually connect to West Evans Creek Road north of Walnut Drive. This will create an operable through alignment. An alternative multi use pedestrian and bicycle path should also be considered between W Evans Creek Road and Pine Street.

#### C4 3<sup>rd</sup> Street Extension to East

Ward Creek is a barrier to getting to the east part of town. There are a cluster of developments to the south of Ward Creek that will prevent east to west connections. 3<sup>rd</sup> Street should be extended east across Ward Creek and connect with Wards Creek Road.

#### C5 Grow with a Grid

Start a grid network on the west side of Evans Creek Road with a road that parallels W Evans Creek Rd.

#### C6 Broadway Extension

Broadway could extend south of E Main Street by making a four way intersection and utilizing the Park Street alignment. The Classick /Madrone Street intersection should also need to be realigned to eliminate the skewed intersection alignment at Classick.

#### C7 7<sup>th</sup> Street Extensions

7<sup>th</sup> Street should be extended in both directions, past Ponderosa Park to Tenney Drive (use Scenic Drive), past Evans Creek.

#### C8 Neighborhood Street between OR99 and Rogue River

Set up a backage road between OR99 and the river that would help minimize additional future conflict points on OR99. The parallel street would have a lower speed limit and more of a community element. There would be sidewalks, street lighting, and other amenities that OR99 does not offer.

#### C9 Powerline Bridge

Future continuation of a grid system could be to create a roadway that goes from E Evans Creek Road to West Evans Creek Road.

#### C10 Code Updates

Future city code should require connectivity or two points of entry into a development from different streets. Entry points to be reviewed for connectivity and safety.

## Bridges

Bridge Conditions Report states that bridges in the area are classified as “Not Deficient.” As with other bridge structures the bridges in this area are seismically vulnerable.

The ODOT 2016 Bridge Conditions Report states that area bridges are in fair condition and classified as “Not Deficient.” Also, the Bridge Sufficiency Rating map in Tech Memo #2 showed bridges in the study area to be in the range of 58.9 to 93, greater than the poor condition threshold of 45. However, the I-5 bridges over Depot Street, Evans Creek, and Foothill Boulevard are noted to be seismically vulnerable and the Depot Street Bridge over the Rogue River is noted as potentially seismically vulnerable.

The Main Street Bridge across Ward Creek is not deficient, but in part functionally outdated as it requires bicycles and vehicles to share a lane on the structure. Even if there were bicycle lanes on Main Street, bicyclists would still need to share the vehicular lane at the narrow bridge. The Classick Drive Bridge over Ward Creek is also functionally obsolete, narrow without sidewalks or bicycle lanes.

**Table 1 Bridge Deficiencies**

#	Bridge	Issue
B1	Main St/Wards Creek Bridge	<i>Too narrow to accommodate separation between bicycles and vehicles.</i>
B2	Classick Dr/Wards Creek Bridge	<i>Too narrow to accommodate all modes.</i>
B3	I-5 NB/Depot St	Seismically vulnerable
B4	I-5 SB/Depot St	Seismically vulnerable
B5	I-5/Evans Creek	Seismically vulnerable
B6	I-5/Foothills Blvd	Seismically vulnerable
B7	Depot St/Rogue River Bridge	Potentially seismically vulnerable

## Pavement Conditions

Pavement condition itself is an issue for creating connectivity. The condition of a roadway is a symbol of a community's health. I-5 is in very good condition and OR99 is in fair condition. With a condition of fair, it is expected that some areas of OR99 will need a 2" resurface or chip seal in the 20 year horizon, likely in the medium term period (5-10 years out). The streets of Rogue River are overall in good condition. The following table shows likely needs within the 20-year planning horizon.

**Table 2 Pavement Deficiencies**

#	Street	Needs
P1	Broadway St	<i>Requires minor crack seal beyond 5-10 years</i>
P2	Depot St	<i>Requires crack seal / seal coat / chip seal beyond 5-10 years</i>
P3	Wards Creek Rd	<i>Requires crack seal / seal coat / chip seal beyond 5-10 years</i>
P4	Foothill Rd	<i>Requires minor crack seal beyond 5-10 years</i>
P5	OR99	Fair condition, thus will require resurfacing in the 20 year horizon.

## Summary

There are a number of identified deficiencies within the city, many due to the constrained areas in and around the interchange area and the central core of Rogue River. As the roadway alignment exists there will be very little room for growth for this city without causing more congestion and safety issues. Substantial improvements are needed for the pedestrian, bicycle and transit modes to help ensure for future livability.

The next steps will include a review by the PMT and PAC. There will be a public open house which will complete the base set of deficiencies to be considered for alternatives and resolutions.

If you have any questions, please feel free to contact me at 503-986-4112.

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cc: Peter Schuytema, TPAU  
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File