



TECHNICAL MEMORANDUM #5

Sherman County Transportation System Plan Update

Preferred Alternative

Date: July 8, 2015 Project #: 18054
To: Michael Duncan, ODOT
Georgia Macnab, Sherman County
From: Casey Bergh, PE; Ashleigh Griffin; and Marc Butorac, PE, PTOE
cc: Project Advisory Committee

This memorandum outlines the draft preferred transportation system plan for Sherman County, which includes TSP elements consistent with OAR 660-12-020 and goals of OAR 660-12-025. The preferred plan includes recommendations for the County's transportation system, including:

- Roadway System Plan
- Access Management Plan
- Pedestrian and Bicycle System Plan
- Public Transportation System Plan
- Air/Marine/Rail/Pipeline/Transmission System Plan

The transportation components presented in this section were developed in accordance with the requirements of Oregon's Transportation Planning Rule (TPR). Each modal plan has been developed concurrent with the findings presented in the existing and future forecast conditions analysis. The plan also conveys the interests of the citizens, business owners, and governmental agencies within Sherman County, as expressed by the Public Advisory Committee (PAC) and in-person and on-line public workshops.

The preferred plan applies to the entire county, including areas within the incorporated cities of Rufus, Wasco, Moro, and Grass Valley and the unincorporated communities of Biggs and Kent.

PROJECT ADVISORY COMMITTEE (PAC) FEEDBACK

Draft projects were reviewed at the Project Advisory Committee (PAC) meeting in May 2015. Feedback was incorporated into the preferred project list and prioritization. *Attachment A summarizes the feedback received and changes made to the alternatives.*

ROADWAY SYSTEM PLAN

The Sherman County roadway system plan reflects the anticipated operations and circulation needs through the year 2035 and provides guidance on how to facilitate vehicular and freight traffic over the next 20 years. The plan focuses on the City- and County-owned and maintained roadway system. All state highways residing within the County are identified for coordination purposes.

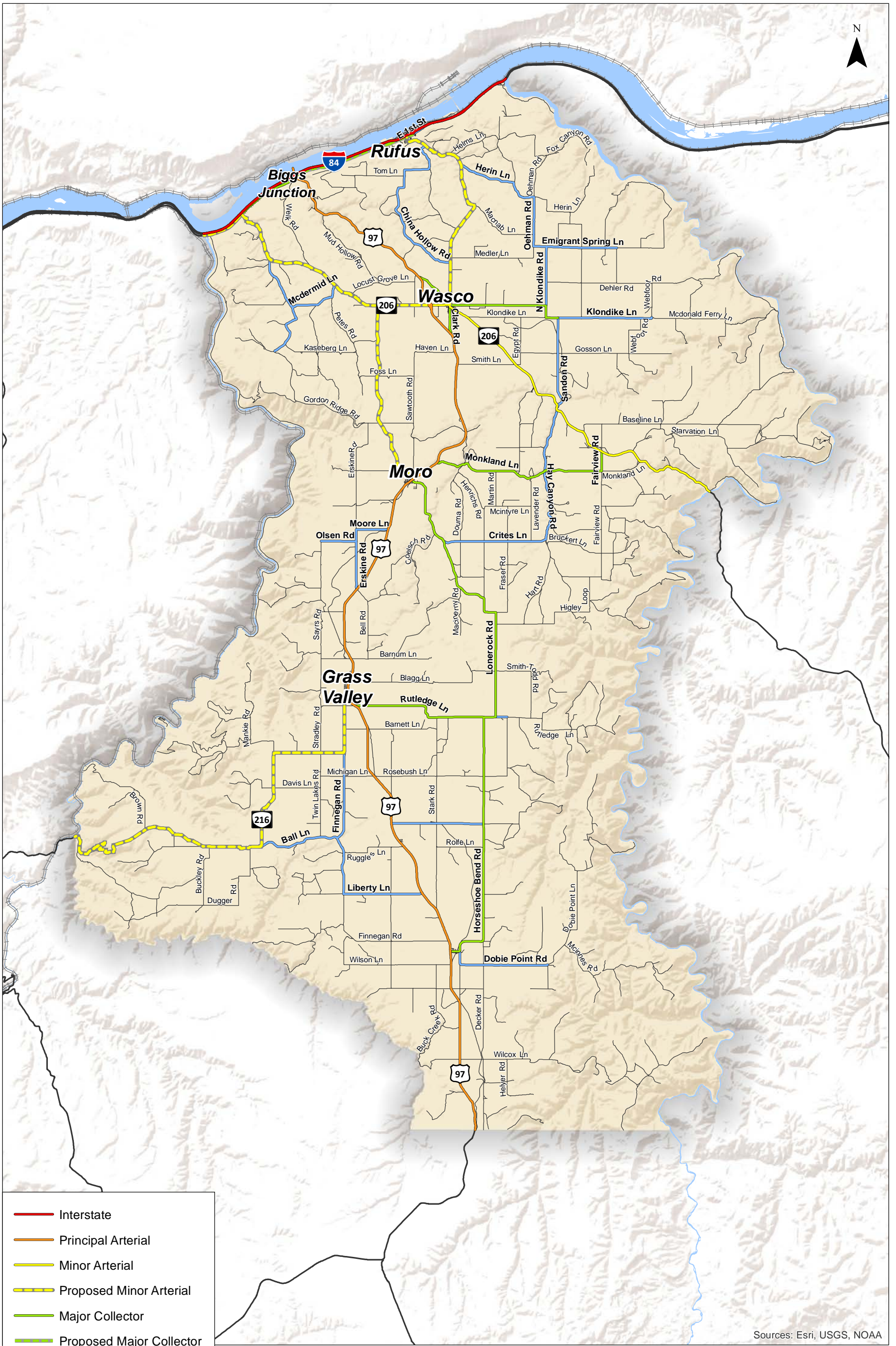
Functional Classifications

Functional classification of a roadway characterizes the intended purpose, amount and type of vehicular traffic it is expected to carry, provisions for non-auto travel, and the roadway's design standards. The classification considers access to adjacent land uses and the transportation modes to be accommodated.

The preferred functional classification system in Sherman County includes: Minor Arterial, Major Collector, Minor Collector, and Local Road. Table 5-1 provides a detailed description of each classification. Figure 5-1 presents the preferred functional classifications for all existing and planned County roadways.

Table 5-1. Sherman County Functional Classification Descriptions

Functional Classification	Description
Interstate	Primary function is mobility and to serve long-distance travel. These roadways are high-speed, divided roadways with limited access. Interstates link urban areas across the United States.
Minor Arterial	Primary function is to carry high levels of regional vehicular traffic at high speeds. These roads connect the collector road system to freeways, provide access to other cities and communities, and serve major traffic movements. Access is limited but can be accommodated with at-grade intersections.
Major Collector	<p>Primary function is to serve traffic from local roads and move them to arterials. These roads provide some degree of access to adjacent properties, while maintaining circulation and mobility for all users. Major Collectors carry lower traffic volumes at slower speeds than arterials. Major Collectors are often longer in length and have lower driveway density, higher speed limits, higher traffic volumes, and may have more travel lanes than Minor Collectors.</p> <p>Major Collectors can be located in urban or rural environments. In rural environments, Collectors generally serve intra-county travel. In rural areas, traffic volumes and spacing may be the most significant designation factors between Major and Minor Collectors. In urban areas, these roads serve both access and traffic circulation in higher dense residential, commercial, and industrial areas. They typically have higher speeds and more signalized intersections.</p>
Minor Collector	Primary function is to serve traffic from local roads and connect traffic to arterials. These roads can be urban or rural. In urban areas, they serve both access and traffic circulation but in lower density areas than Major Collectors. They also penetrate neighborhoods, but often for a shorter distance than Major Collectors. They typically have lower speeds and fewer signalized intersections. In rural areas, they serve to bring traffic from local roads to developed areas or connections to those areas. They provide service to smaller communities not served by a higher class facility and link locally important traffic generators with rural areas.
Local Road	Local roads account for the largest percentage of all roadways in terms of mileage. Their primary function is to provide direct access to adjacent land uses. They are characterized by short roadway distances, slow speeds, and low volumes. Local roads offer a high level of accessibility, serves passenger cars, pedestrians, and bicycles, but not through trucks.



Sources: Esri, USGS, NOAA

Roadway Functional Classification
Sherman County, Oregon

Figure
5-1

K:\H_Perlan\proj\file116054 - Sherman County TSP\figs\memo 5-1 Functional Classifications County.mxd - agriffin - 3:48 PM 6/19/2015

Design Standards

Roadway design standards were established for rural and urban conditions. The design standards take into consideration roadway function and operational characteristics, including traffic volume, capacity, operating speed, and safety. The design standards are necessary to ensure that as the road system develops, it will be capable of safely and efficiently serving the traveling public, while also accommodating orderly development of adjacent lands.

While not specifically outlined in this plan, improvements on state highways must meet ODOT design and operating standards provided in the ODOT Highway Design Manual.

Rural Design Standards

Rural roadway design standards for all County-owned and maintained facilities are shown in Exhibit 5-1, Exhibit 5-2, and Exhibit 5-3. Deviations from these design standards will be considered on a case-by-case basis and approved by the designated roadway manager (e.g., Roadmaster).

Sidewalks have not been included in the roadway design standards because the majority of County roadways are rural in nature and sidewalks are not typically provided. Bicyclists are expected to share the travel lane with vehicles in rural areas, consistent with guidance provided in the Oregon Bicycle and Pedestrian Design Guide.

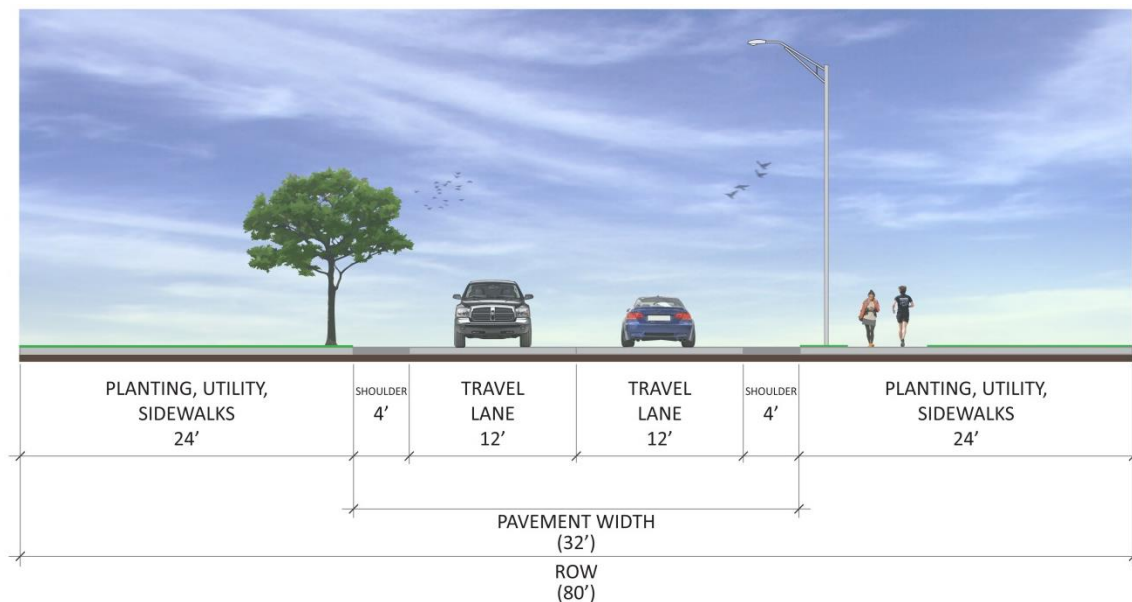


Exhibit 5-1. Rural Arterial Street Cross-Section

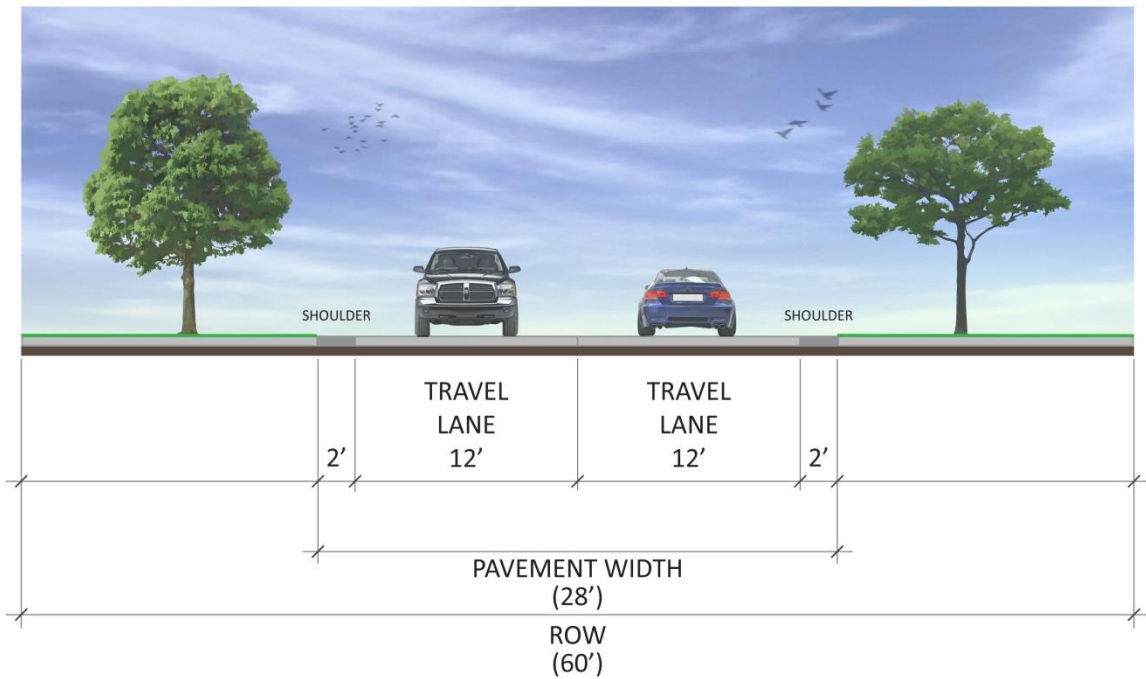


Exhibit 5-2. Rural Major and Minor Collector Street Cross-Section

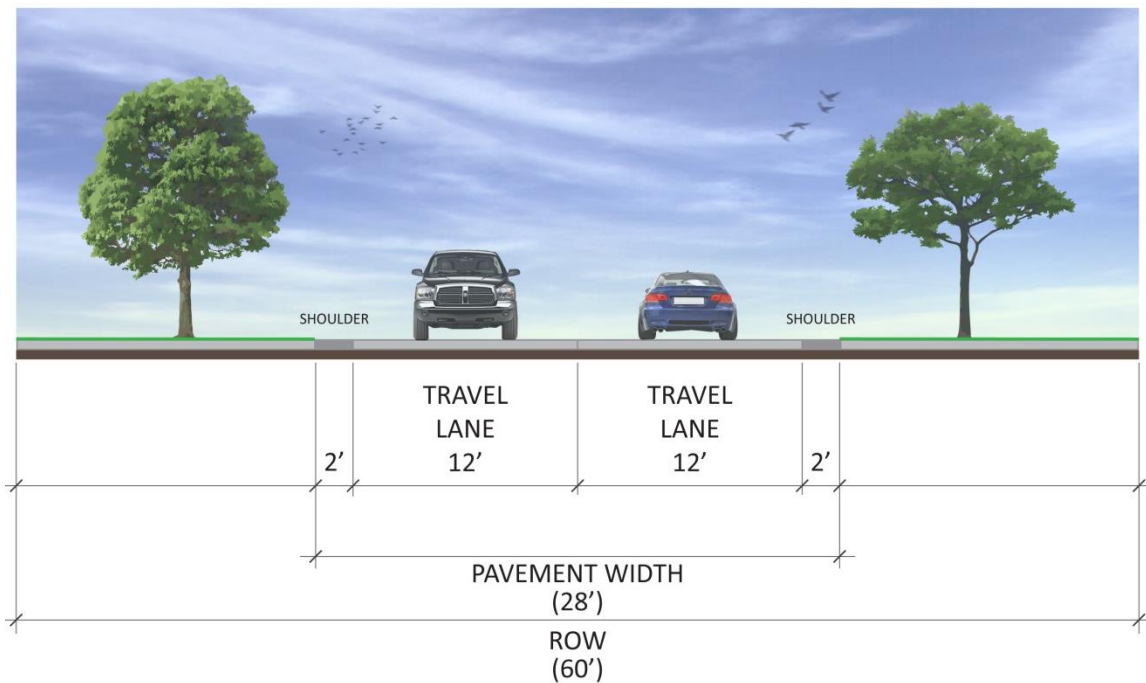


Exhibit 5-3. Rural Local Street Cross-Section

Urban Design Standards

Design standards for City roadways within urban areas (incorporated cities) are provided below.

Rufus Design Standards

City of Rufus’ street standards are summarized in Table 5-2. Exhibit 5-4, Exhibit 5-5, Exhibit 5-6, and Exhibit 5-7 illustrate the cross-sections based on the road design standards for the City of Rufus for arterials, collectors, local roads, and half-streets, respectively.

Table 5-2. City of Rufus Road Design Standards

Type of Street	Right-of-Way Width	Paving Width Between Curbs ⁶	Curb Return Radius	Maximum Percent of Grade	Minimum Radius of Curvature
Arterial ⁴	60'	42'	35'	10%	400'
Collector ⁴	60'	28'	35'	10%	300'
Residential ⁴	60'	24'	25'	10%	150'
Half Street ⁴	50'	20'	25'	10%	150'
Cul-de-sac ⁴	50-60' ¹	36' ¹	25'	10%	150'
Alley	20'	20'	15'	10%	150'

1. The paving radius at the turn-around of a cul-de-sac shall be 38' on a right-of-way radius of 50'.
2. Minimum grade of 0.3%. If unavoidable conditions exist, a grade of 2% steeper than that shown will be allowed.
3. One street name sign shall be provided at each intersection for each street.
4. Curbs and gutters shall be provided on both sides of the street on Arterial and Collector Streets with the council discretion of curb designs.
5. Curbs, Gutters, pedestrian walkways and bike lanes may be required on Residential, Half Street, and Cul-de-sac streets.
6. With approval from the City, pavement widths may be reduced to a minimum of 36' for Arterials, 24' for Collectors, 20' for Residential streets, 18' for half-streets, 15' for alleys, and 26' for a cul-de-sac.

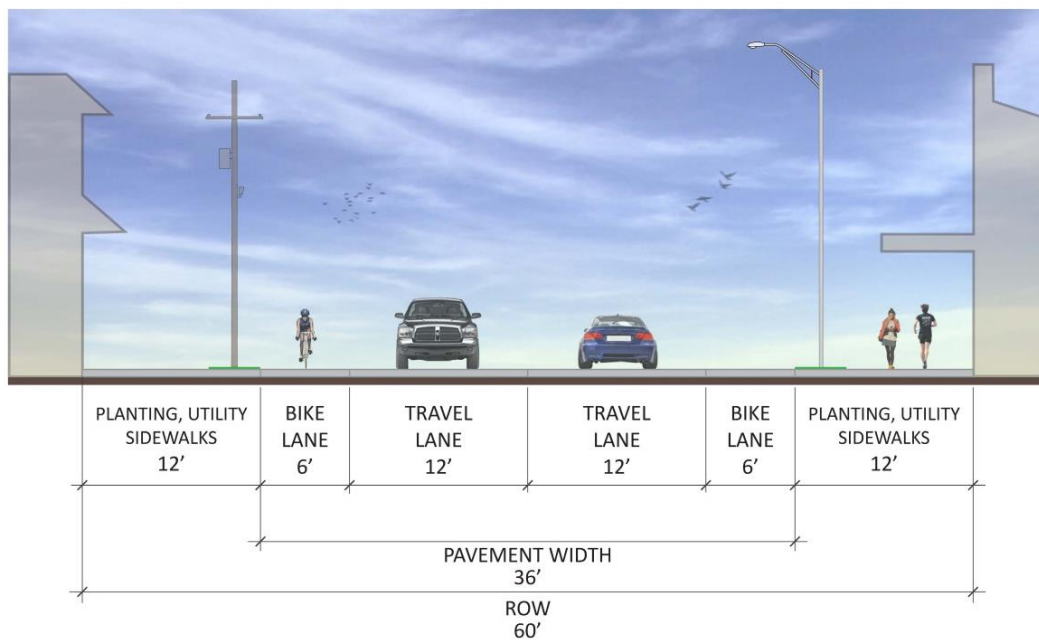


Exhibit 5-4. City of Rufus Arterial Design Standard

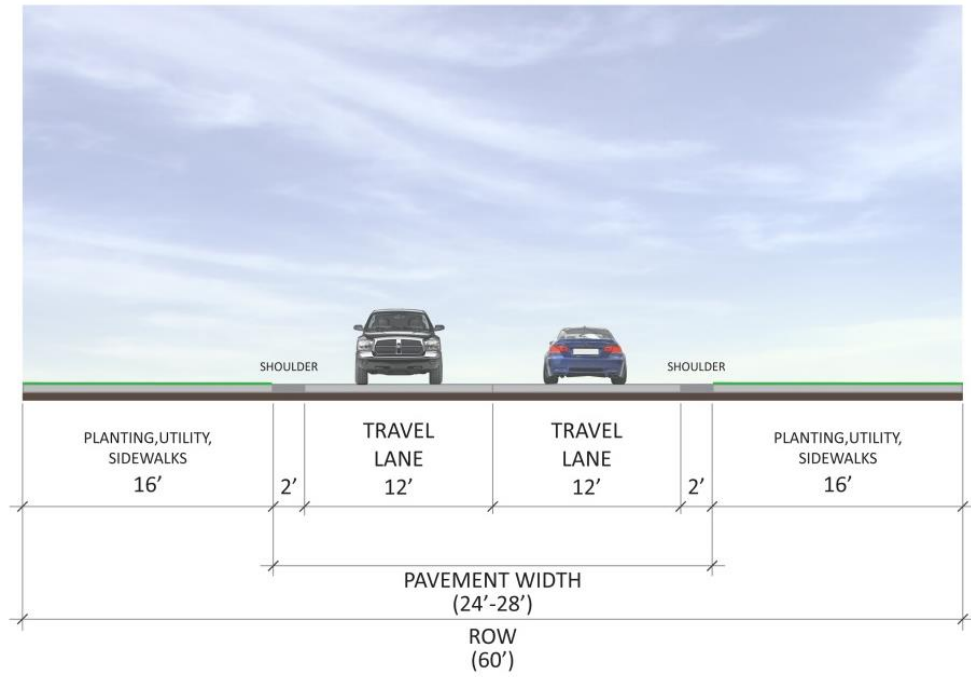


Exhibit 5-5. City of Rufus Collector Design Standard

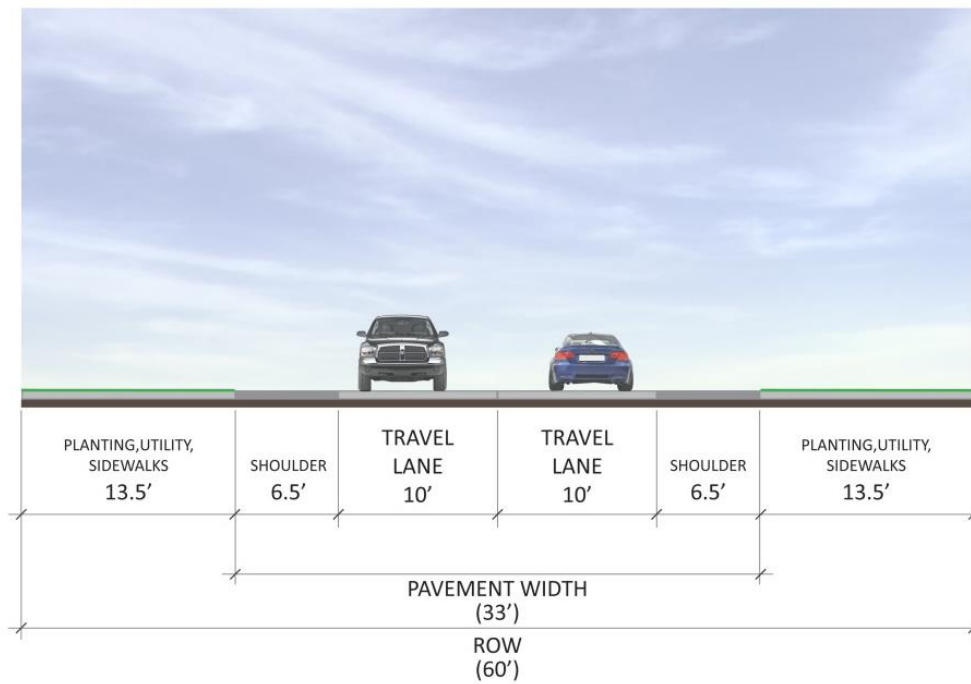


Exhibit 5-6. City of Rufus Local Road Design Standard

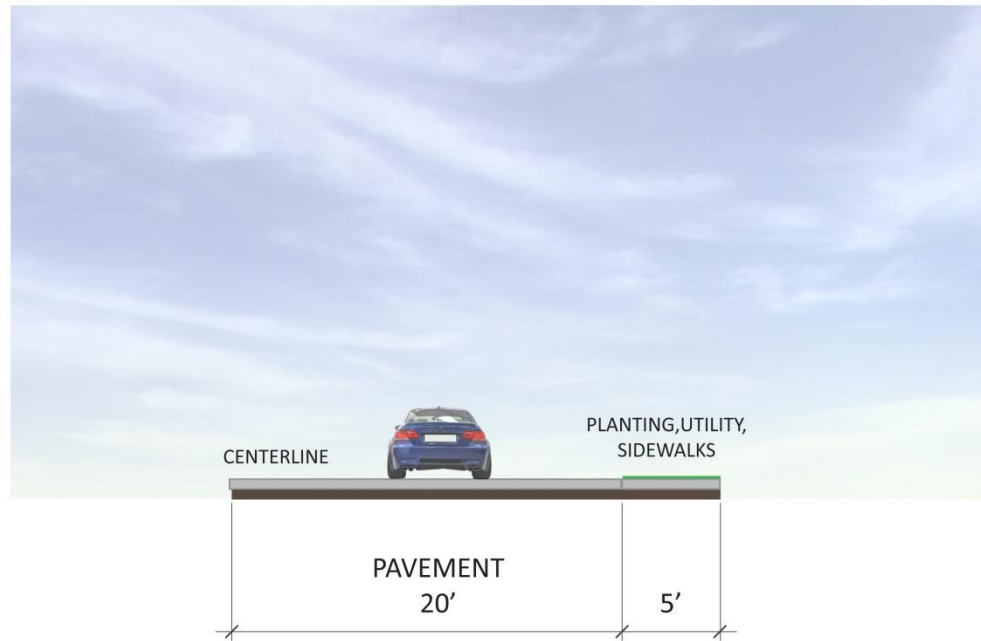


Exhibit 5-7. City of Rufus Half-Street Design Standard

Moro Design Standards

City of Moro’s street standards are summarized in Table 5-3. Exhibit 5-8, Exhibit 5-9, Exhibit 5-10, and Exhibit 5-11 illustrate the cross-sections based on the road design standards for the City of Moro for arterials, collectors, local roads, and half-streets, respectively.

Table 5-3. City of Moro Road Design Standards

Type of Street	Right-of-Way Width	Paving Width Between Curbs ⁵	Curb Return Radius	Maximum Percent of Grade	Minimum Radius of Curvature
Arterial ⁴	60'	42'	35'	10%	400'
Collector ⁴	50'	28'	35'	10%	300'
Residential ⁴	50'	24'	25'	10%	150'
Half Street ⁴	50'	20'	25'	10%	150'
Cul-de-sac ⁴	50-60' ¹	36' ¹	25'	10%	150'
Alley	20'	20'	15'	10%	150'

1. The paving radius at the turn-around of a cul-de-sac shall be 38' on a right-of-way radius of 50'.
2. Minimum grade of 0.3%. If unavoidable conditions exist, a grade of 2% steeper than that shown will be allowed.
3. One street name sign shall be provided at each intersection for each street.
4. Curbs and gutters shall be provided on both sides of the street on Arterial and Collector Streets. Curbs, Gutters, pedestrian walkways and bike lanes may be required on Residential, Half Street, and Cul-de-sacs.
5. With approval from the City, pavement widths may be reduced to a minimum of 36' for Arterials, 24' for Collectors, 20' for Residential streets, 18' for half-streets, 26' for a cul-de-sac, and 15' for alleys.

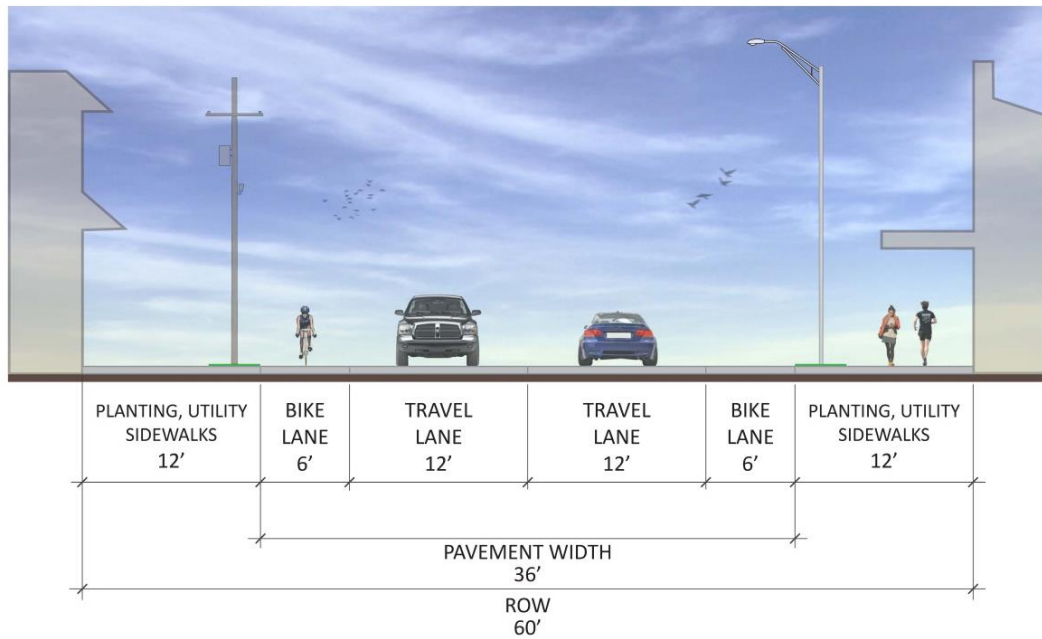


Exhibit 5-8. City of Moro Arterial Design Standard

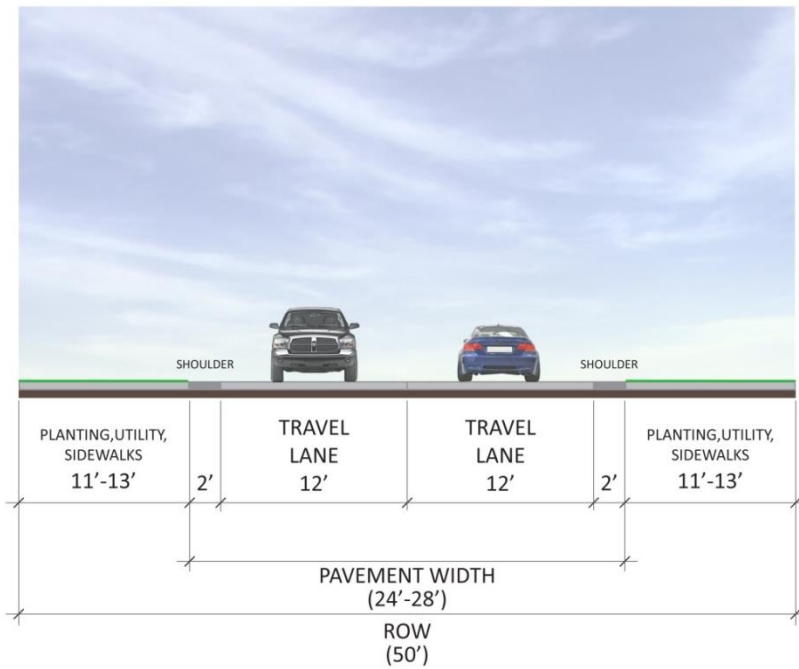


Exhibit 5-9. City of Moro Collector Design Standard

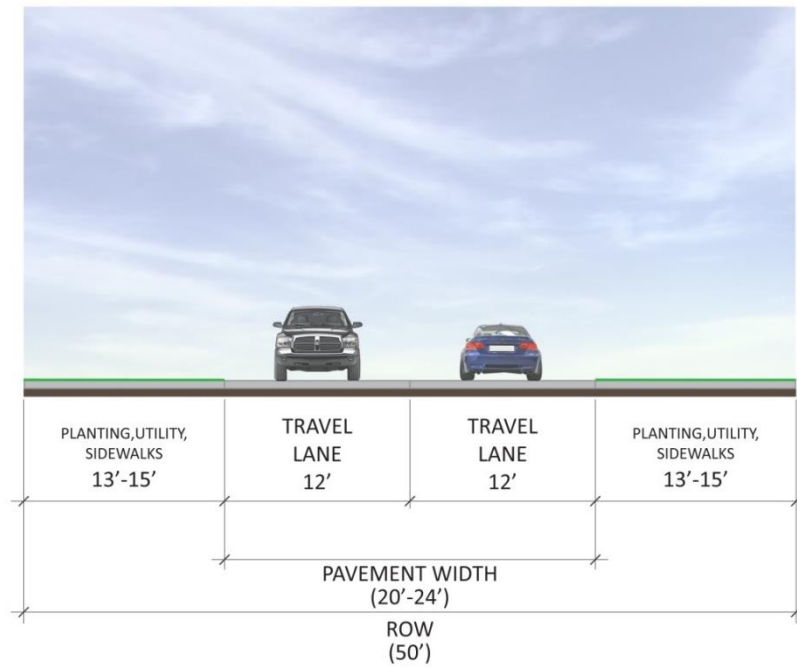


Exhibit 5-10. City of Moro Local Road Design Standard



Exhibit 5-11. City of Moro Half-Street Design Standard

Wasco Design Standards

City of Wasco’s street standards are summarized in Table 5-4. Exhibit 5-12, Exhibit 5-13, Exhibit 5-14, and Exhibit 5-15 illustrate the cross-sections based on the road design standards for the City of Wasco for arterials, collectors, local roads, and half-streets, respectively.

Table 5-4. City of Wasco Road Design Standards

Type of Street	Right-of-Way Width	Paving Width Between Curbs ⁵	Curb Return Radius	Maximum Percent of Grade	Minimum Radius of Curvature
Arterial ⁴	60'	42'	35'	10%	400'
Collector ⁴	60'	28'	35'	10%	300'
Residential ⁴	60'	33'	25'	10%	150'
Half Street ⁴	50'	20'	25'	10%	150'
Cul-de-sac ⁴	50-60' ¹	36' ¹	25'	10%	150'
Alley	20'	20'	15'	10%	150'

1. The paving radius at the turn-around of a cul-de-sac shall be 38' on a right-of-way radius of 50'.
2. Minimum grade of 0.3%. If unavoidable conditions exist, a grade of 2% steeper than that shown will be allowed.
3. One street name sign shall be provided at each intersection for each street.
4. Curbs and gutters shall be provided on both sides of the street on Arterial and Collector Streets. Curbs, Gutters, pedestrian walkways and bike lanes may be required on Residential, Half Street, and Cul-de-sacs.
5. With approval from the City, pavement widths may be reduced to a minimum of 36' for Arterials, 24' for Collectors, 20' for Residential streets, 18' for half-streets, 15' for alleys, and 26' for a cul-de-sac.

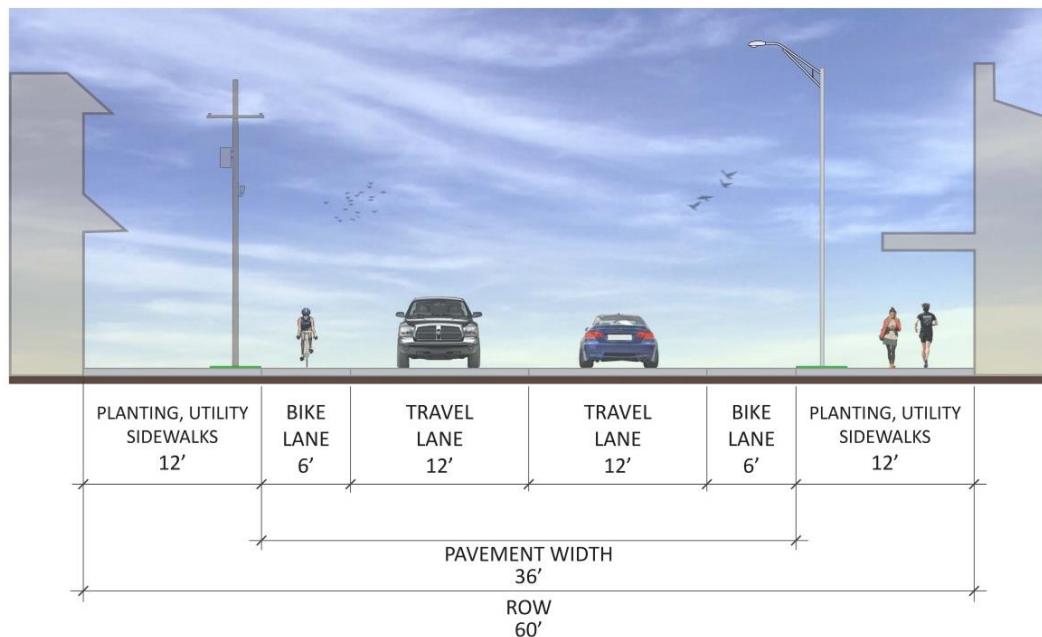


Exhibit 5-12. City of Wasco Arterial Design Standard

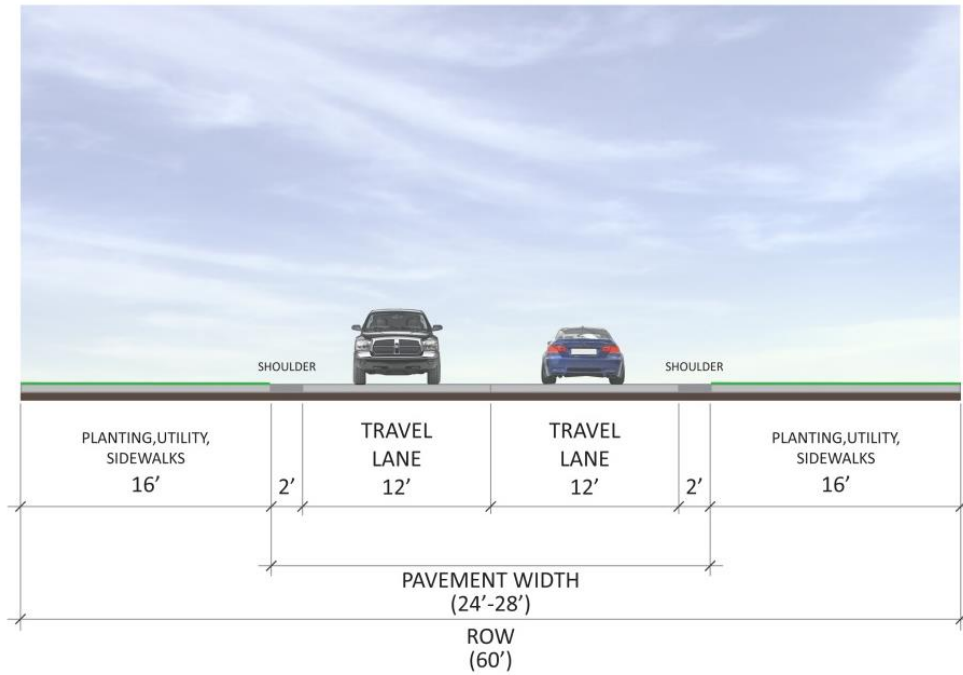


Exhibit 5-13. City of Wasco Collector Design Standard

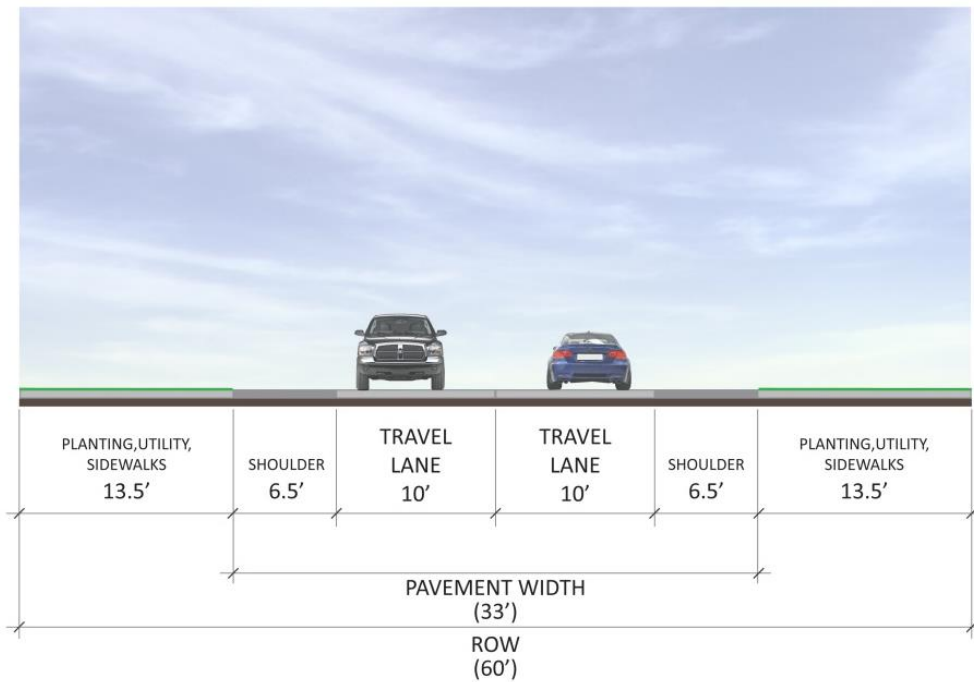


Exhibit 5-14. City of Wasco Local Street Design Standard

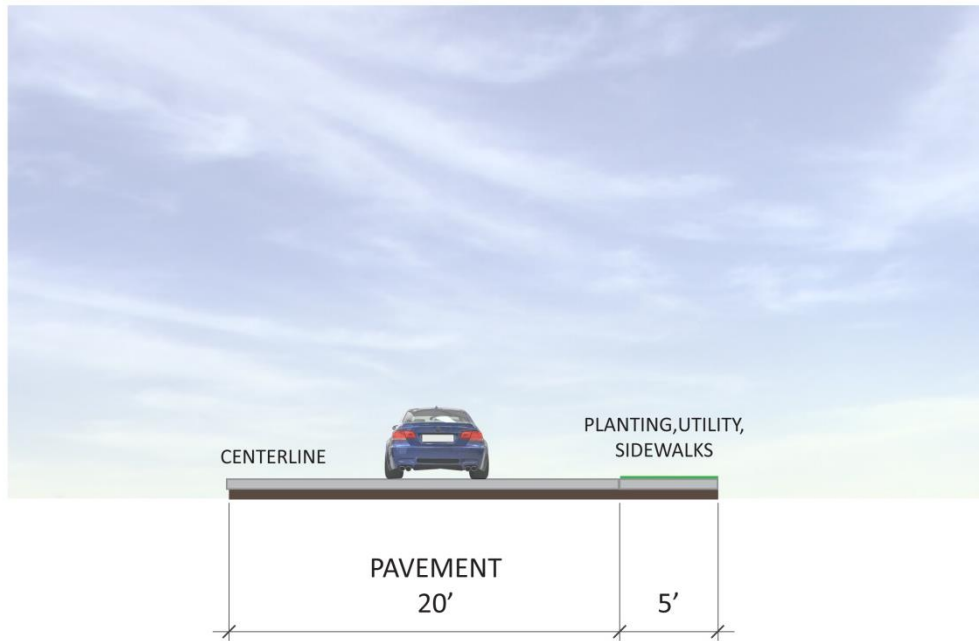


Exhibit 5-15. City of Wasco Half-Street Design Standard

Grass Valley Design Standards

City of Grass Valley’s street standards are summarized in Table 5-5. Exhibit 5-16, Exhibit 5-17, Exhibit 5-18, and Exhibit 5-19 illustrate the cross-sections based on the road design standards for the City of Grass Valley for arterials, collectors, local roads, and half-streets, respectively.

Table 5-5. City of Grass Valley Road Design Standards

Type of Street	Right-of-Way Width	Paving Width Between Curbs ⁵	Curb Return Radius	Maximum Percent of Grade	Minimum Radius of Curvature
Arterial ⁴	60'	42'	35'	10%	400'
Collector ⁴	60'	28'	35'	10%	300'
Residential ⁴	60'	24'	25'	10%	150'
Half Street ⁴	50'	20'	25'	10%	150'
Cul-de-sac ⁴	50-60' ¹	36' ¹	25'	10%	150'
Alley	20'	20'	15'	10%	150'

1. The paving radius at the turn-around of a cul-de-sac shall be 38' on a right-of-way radius of 50'.
2. Minimum grade of 0.3%. If unavoidable conditions exist, a grade of 2% steeper than that shown will be allowed.
3. One street name sign shall be provided at each intersection for each street.
4. Curbs and gutters shall be provided on both sides of the street on Arterial and Collector Streets. Curbs, Gutters, pedestrian walkways and bike lanes may be required on Residential, Half Street, and Cul-de-sacs.

- With approval from the City, pavement widths may be reduced to a minimum of 36' for Arterials, 24' for Collectors, 20' for Residential streets, 18' for half-streets, 15' for alleys, and 26' for a cul-de-sac.

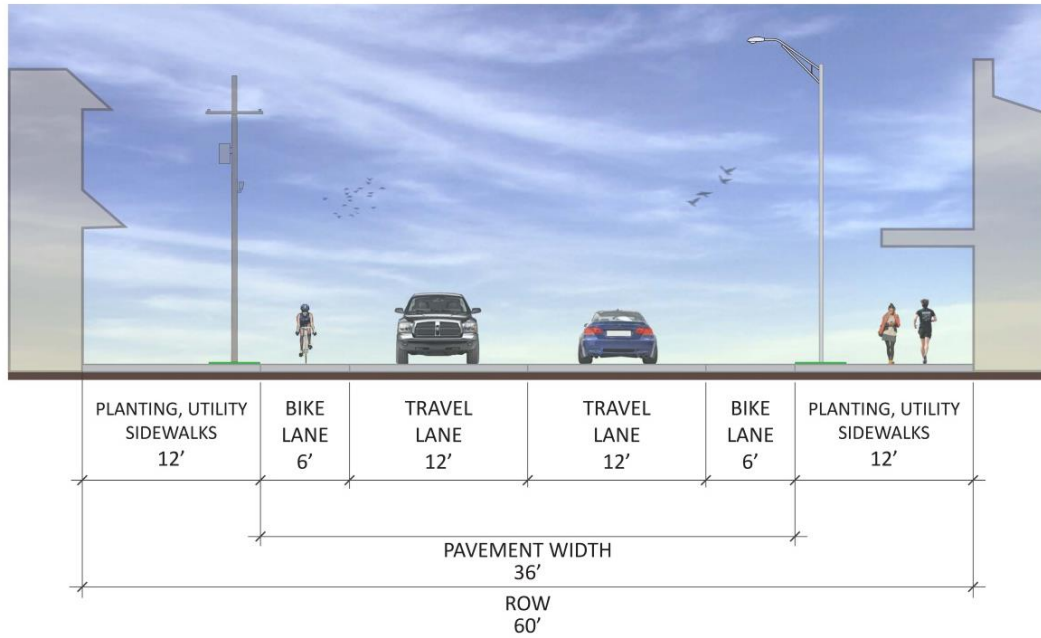


Exhibit 5-16. City of Grass Valley Arterial Design Standard

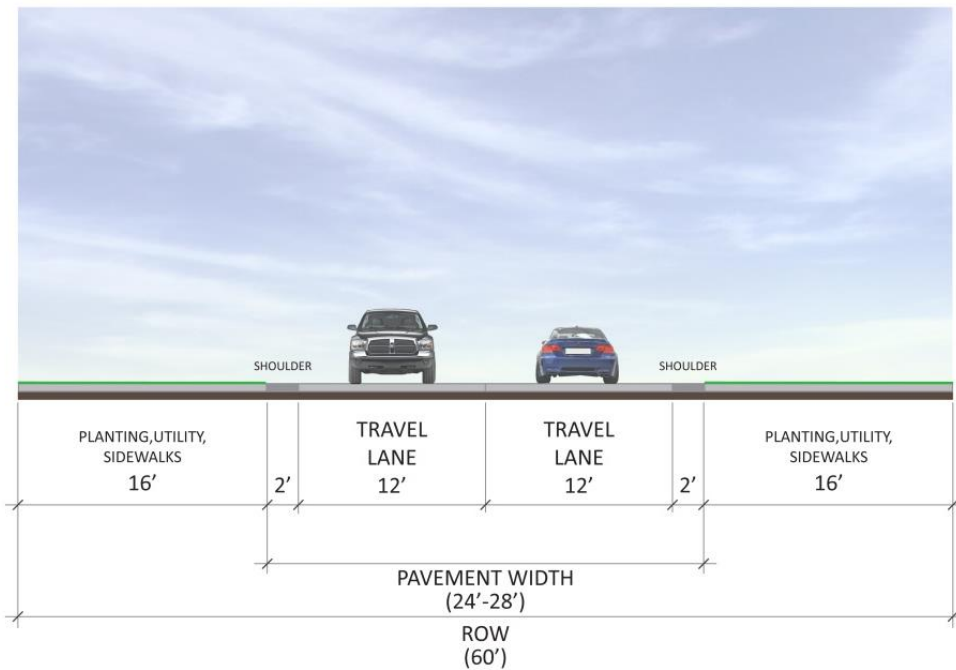


Exhibit 5-17. City of Grass Valley Collector Design Standard

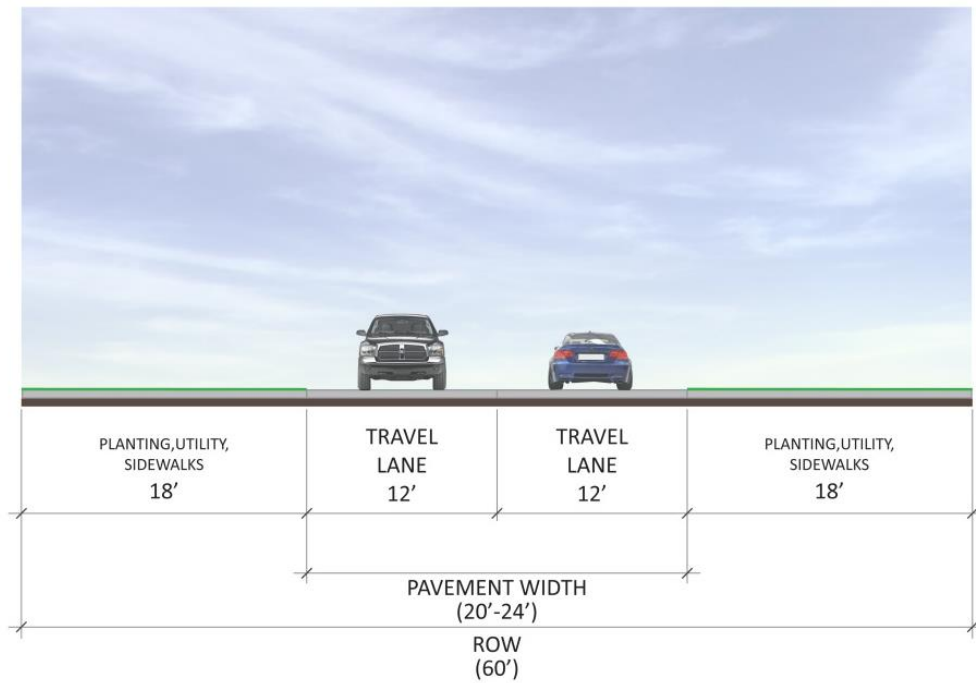


Exhibit 5-18. City of Grass Valley Local Road Design Standard

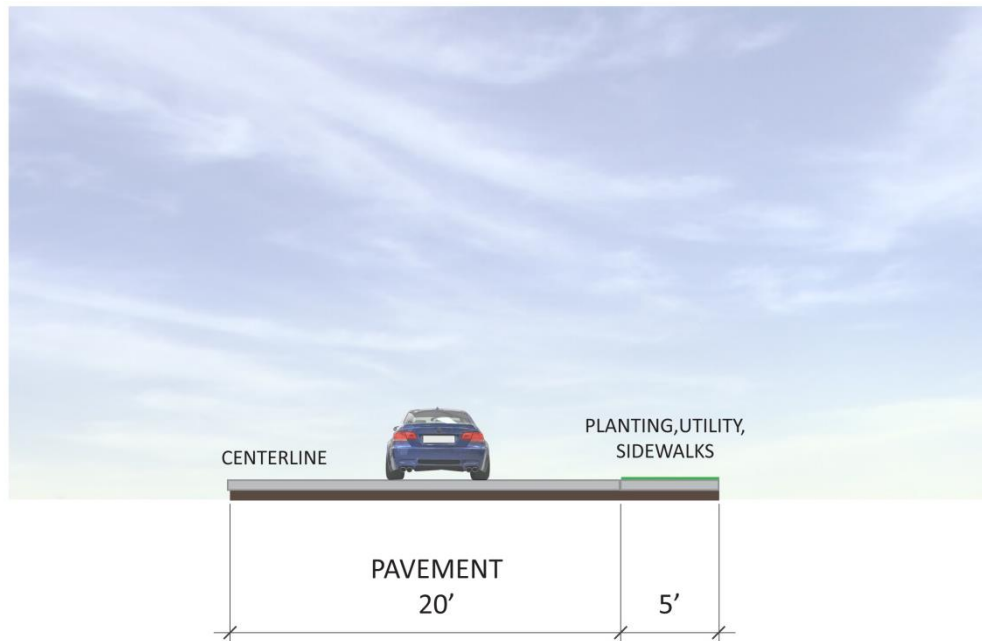


Exhibit 5-19. City of Grass Valley Half-Street Design Standard

Access Management Policy

Managing access to the County's road system is necessary to preserve capacity and maintain safety of the County's arterial and collector system. Capacity is preserved by minimizing the number of points

where traffic flow may be disrupted by traffic entering and exiting the roadway. Access management also enhances safety along roadways by minimizing the number of potential conflict points.

Access spacing standards for all driveways and private roads accessing County collector and arterial roadways are provided in Table 5-6.

Access to state facilities is governed by ODOT's access management standards provided in the most current version of the 1999 Oregon Highway Plan and in Oregon Administrative Rule 734-051. ODOT's standards also apply to access spacing on County facilities located within the management area of a freeway or expressway interchange, as defined by OAR 734-051.

The Oregon Transportation Planning Rule (TPR) defines access management as a set of measures regulating access to streets, roads, and highways, from public roads and private driveways. The TPR requires that new connections to arterials and state highways be consistent with designated access management categories. This TSP includes an access management policy that maintains and enhances the integrity (i.e., capacity, safety, and level of service) of Sherman County's roadways.

Table 5-6. Access Management Spacing Standards for Rural Sherman County Roadways

Functional Classification	Public Road Spacing	Private Drive Spacing
Collector	¼ mile	1,200 ft
Local Street	200-400 ft	Vary

These standards apply to new development or redevelopment; existing accesses are allowed to remain as long as the land use does not change. As a result, access management is a long-term process in which the desired access spacing to a street slowly evolves over time as redevelopment occurs.

Traffic Operations Standards

Sherman County has an obligation to maintain a safe, convenient, and economical transportation system. A maximum volume-to-capacity (v/c) ratio of 0.85 during a typical weekday peak hour should be maintained for all City- and County-owned or maintained intersections. At intersections with an ODOT facility, ODOT standards shall apply. For unsignalized intersections, the v/c ratio should be based on the intersection's critical movement. For signalized intersections, the ratio is based on the overall intersection operation.

Systemic Safety Plan

Several projects were identified in Technical Memorandum #4 to address safety concerns and reduce potential for crashes in Sherman County. The projects have been categorized as hot spot or systemic projects, consistent with the ODOT All Roads Transportation Safety (ARTS) program project classifications.

Background

ODOT allocates Oregon's Highway Safety Improvement Program (HSIP) funds through the ARTS program. The program currently splits funding between hot-spot and systemic safety projects. Hot spot safety projects are individual locations where a unique countermeasure could be applied to reduce the frequency and severity of crashes. Systemic safety projects include multiple locations where many low-cost countermeasures can be applied.

ARTS project funding will be allocated through the Statewide Transportation Improvement Program (STIP). The project locations are selected based on reported history of fatal and severe injury crashes. The draft 300-percent list for ODOT Region 4 2017-2021 Hotspot Safety projects does not include any projects in Sherman County. Similarly, the draft 150-percent list of 2017-2021 Systemic Safety projects in Region 4 does not include any projects in Sherman County.

County Systemic Safety Prioritization Methodology

Although no safety projects in Sherman County are included in the draft 2017-2021 STIP lists, a set of objective criteria were established to generate a prioritized list of projects that could be considered for future updates to the STIP.

A list of projects was generated based on a review of crash trends and locations with history of crashes in the County, including:

- Projects developed by the consultant team to address safety concerns identified by the Project Advisory Committee;
- Projects identified in ODOT's Roadway Departure, Intersection, and Pedestrian/Bicycle Safety Implementation Plans;
- Projects identified for locations with geometric and traffic control characteristics where low-cost, systemic countermeasures could reduce risk of roadway departure or intersection crash types.

Systemic countermeasures that may be applied for the Roadway Departure projects include centerline rumble strips, edgeline rumble strips, shoulder widening, guardrail, and curve warning signs, as summarized in Table 5-7. Intersection treatments may include additional signage, pavement markings, right-turn deceleration lanes, left-turn lanes, and mountable raised medians, as shown by the concepts in Table 5-8. Traffic volumes were not available for any of the locations where turn lanes or deceleration lanes were identified. Therefore, ODOT warrants should be reviewed prior to implementation of the left-turn or right-turn deceleration lanes. Cost estimates for these projects were based on unit costs from ODOT's list of approved Crash Reduction Factors (CRFs), 2014 ODOT bid items, and previous projects. A 40-percent contingency is applied to all estimates.

Table 5-7. Systemic Safety Countermeasure Toolbox for Rural Roadways











Systemic Safety Countermeasure	Description	Documented Effectiveness
<p>Milled Rumble Strip – Centerline</p>  <p>Photo: ODOT</p>	<p>Rumble strips are grooves in the roadway placed on the roadway in such a manner that, as the tires of a vehicle contact them, they produce sound (noise) and vibration. The noise and vibration produced by rumble strips is intended to alert inattentive drivers that they have departed from their lane. They can be placed on the shoulder (if adequate paved shoulder is available) or on the centerline.</p>	<p>38 to 50 percent reduction in injury crashes resulting from head-on and opposite direction sideswipe crashes on rural two-lane roads. (Source: NCHRP Report 641)</p>
<p>Milled Rumble Strip – Shoulder or Edgeline</p> 		<p>26 to 46 percent reduction in single-vehicle run-off-road injury crashes on two-lane rural roads (Source: NCHRP Report 641)</p>
<p>Horizontal Curve Signage</p>  <p>Photo: Speed Concepts: Informational Guide, FHWA</p>	<p>Provide Static Combination Horizontal Alignment/Advisory Curve Warning Sign, Install RECOMMENDED Chevron Signs on Rural Horizontal Curves</p>	<p>13 to 16 percent reduction in run-off-road injury crashes rural two-lane roads. Source: <i>Manual for Selecting Safety Improvements on High Risk Rural Roads</i> (FHWA-SA-14-075)</p>
<p>Shoulder Widening</p>  <p>Photo: Low Cost Treatments for Horizontal Curve Safety (http://safety.fhwa.dot.gov/roadway_dept/horicurves/fhwasa07002/ch6.cfm)</p>	<p>Widen the paved roadway shoulder to provide additional space for vehicles to recover if they exit the travel lane.</p>	<p>3 to 6 percent reduction in crashes per one foot of shoulder widening. (Source: <i>CMF Clearinghouse</i> and <i>ODOT's List of Approved CRFs</i>)</p>
<p>Safety Edge</p>  <p>Photo: Selecting Speed Treatments, FHWA (http://safety.fhwa.dot.gov/hsip/hrrr/manual/sec45.cfm)</p>	<p>Install Safety Edge treatment on the pavement edge drop-off to provide a more gradual drop-off and increase the likelihood of vehicle recovery if the vehicle exits the roadway. This may be done in conjunction with shoulder widening or pavement maintenance activities.</p>	<p>5 to 15 percent reduction in rural roadway crashes. (Source: <i>CMF Clearinghouse</i> and <i>ODOT's List of Approved CRFs</i>)</p>
<p>Guardrail</p>  <p>Photo: FHWA Horizontal Curve Safety (Source: http://safety.fhwa.dot.gov/roadway_dept/horicurves/cmhoricurves/)</p>	<p>Install guardrail to prevent vehicles from entering areas that are not recoverable. When guardrail is located close to the roadway, vehicles are more likely to hit it. However, these crashes are typically less severe than roadway departure crashes in locations without guardrail. Guardrail is often used in situations where there is limited recovery area for vehicles and steep drop offs or fixed objects are present.</p>	<p>38 percent reduction to 23 percent increase in run off the road crashes. Source: <i>CMF Clearinghouse</i> (CMF ID: 39). <i>Note: This item is not included in ODOT's list of approved systemic countermeasures.</i></p>

Table 5-8. Systemic Safety Countermeasure Toolbox for Rural Intersections

Systemic Safety Countermeasure	Description	Documented Effectiveness
<p>Basic Set of Sign and Marking Improvements</p>  <p>Photo: Low-Cost Safety Enhancements for Stop-Controlled and Signalized Intersections, FHWA</p>	<p>Install basic set of signs/markings from the ODOT Intersection Safety Implementation Plan, including: double up oversized warning signs, double STOP signs, mountable curb on stop approach (if feasible), street name signs, and stop bars.</p>	<p>40 percent reduction in intersection crashes at rural two-way stop controlled intersections.</p> <p>Source: <i>Low-Cost Safety Enhancements for Stop-Controlled and Signalized Intersections</i> (FHWA-SA-09-020)</p>
<p>Right-Turn Deceleration Lane</p> 	<p>Install right-turn deceleration lanes to provide an area for vehicles to slow down prior to completing a turning movement on high-speed roads. Deceleration lanes reduce the likelihood that vehicles will be rear-ended when slowing for a turn.</p>	<p>14 to 26 percent reduction in crashes at unsignalized intersections.</p> <p>(Source: <i>Highway Safety Manual</i> and <i>ODOT's List of Approved CRFs</i>)</p> <p>Note: This item is included in ODOT's list of approved CRFs as a hot spot treatment rather than systemic.</p>
<p>Left-turn Lane</p> 	<p>Install a left-turn lane to provide an area for vehicles to decelerate prior to making a left-turn and an area for vehicles to wait until a sufficient gap in traffic is available to complete the left-turn. Left-turn lanes help reduce rear-end crashes and discourage left-turn vehicles from taking smaller gaps in traffic because they have a refuge area.</p>	<p>33 to 55 percent reduction in crashes at rural unsignalized intersections.</p> <p>(Source: <i>Highway Safety Manual</i> and <i>ODOT's List of Approved CRFs</i>)</p> <p>Note: This item is included in ODOT's list of approved CRFs as a hot spot treatment rather than systemic.</p>
<p>Reduce Intersection Skew by Realignment</p>  <p>(Example of skewed approach prior to realignment.)</p>	<p>Realign the intersection to create a 90-degree intersection, removing any skewed approaches.</p>	<p>The effectiveness of this treatment varies depending on the skew angle of the intersection prior to realignment.</p>
<p>Improve Intersection Sight Distance</p>  <p>(Example of restricted sight distance that could be mitigated by tree removal.)</p>	<p>Improve intersection sight distance to meet minimum AASHTO guidance based on the posted speed limit of the major roadway.</p>	<p>44 to 89 percent reduction in crashes at rural unsignalized intersections.</p> <p>(Source: <i>ODOT's List of Approved CRFs</i>)</p>

Lists of prioritized Roadway Departure projects and Intersection projects, based on a set of objective criteria outlined in Table 5-9, are provided in Table 5-10 and Table 5-11. Figure 5-2 illustrates the locations of these projects throughout the County. The projects are ordered from highest to lowest priority based on the criteria each location satisfies. All locations where a fatal or severe injury crash occurred in the County were reviewed. However, crashes are not always associated with geometric factors. Crashes are random occurrences and often influenced by driver errors such as impaired driving and inattention. If no geometric factors were found during the review of the severe crash location, the location was excluded from the list of systemic safety projects. Similarly, locations where geometric concerns were identified by the County or Cities may be included even if no crashes have been reported during the past five years. No systemic pedestrian and bicycle safety projects were identified.

Table 5-9. Objective Criteria for Identifying and Prioritizing Systemic Safety Projects

	Roadway Departure Projects	Intersection Projects
Criteria for Identifying Locations for Systemic Projects	<ul style="list-style-type: none"> ▪ ≥1 Fatal or Injury A Crash ▪ ≥2 Injury B or C Crashes ▪ ≥3 PDO Crashes ▪ Presence of Roadway Departure Crashes ▪ Presence of a Horizontal Curve 	<ul style="list-style-type: none"> ▪ ≥1 Fatal or Injury A Crash ▪ ≥2 Injury B or C Crashes ▪ ≥3 PDO Crashes ▪ Restricted intersection sight distance ▪ Skewed intersection approach ▪ Uncontrolled approach speed >45 mph ▪ Functional classification ▪ Land use

Table 5-10. Systemic Safety Roadway Departure Projects

ID	Roadway	Start MP or Cross Street	End MP or Cross Street	Priority	Cost Estimate	Potential Countermeasures							
						Inlaid Raised Pavement Markers	Widen Shoulder & Install Safety Edge	Install Centerline and Shoulder Rumble Strips*	Curve Warning Signs	Chevrons at Curves	Guard-rail	Passing Lanes^	Speed Enforcement
95	US 97	0.86	6.20	High	\$18,500	X		X	X	X			
4	US 97	42.43	43	High	\$4,800	X		X	X	X		X	X
87	OR 206	3	6.1	Medium	\$12,900	X		X	X	X			
88	US 97	22.5	23.9	Medium	\$8,600	X		X				X**	
89	Scott Canyon Road	Rufus City Limits	Herin Lane	Medium	\$9,500	X	X	X	X	X			
90	US 97	12	13.28	Medium	\$6,600	X		X					
91	US 97	33.33	33.58	Medium	\$4,000	X		X	X	X			
49 & 86	Van Gilder Road	4	5.6	Medium	\$14,700	X	X	X	X	X	X		
92	Scott Canyon Road	Medler Ln	Gerking Canyon Rd	Low	\$6,600	X	X	X	X	X			
2	Herin Lane	Scott Canyon Road	Oehman Road	Low	\$9,200	X	X	X					
48	Lonerock Road	N/A	N/A	High	\$5,300	X	X	X			X		
59	Blagg Lane	N/A	N/A	Low	\$3,500	X	X	X	X	X			

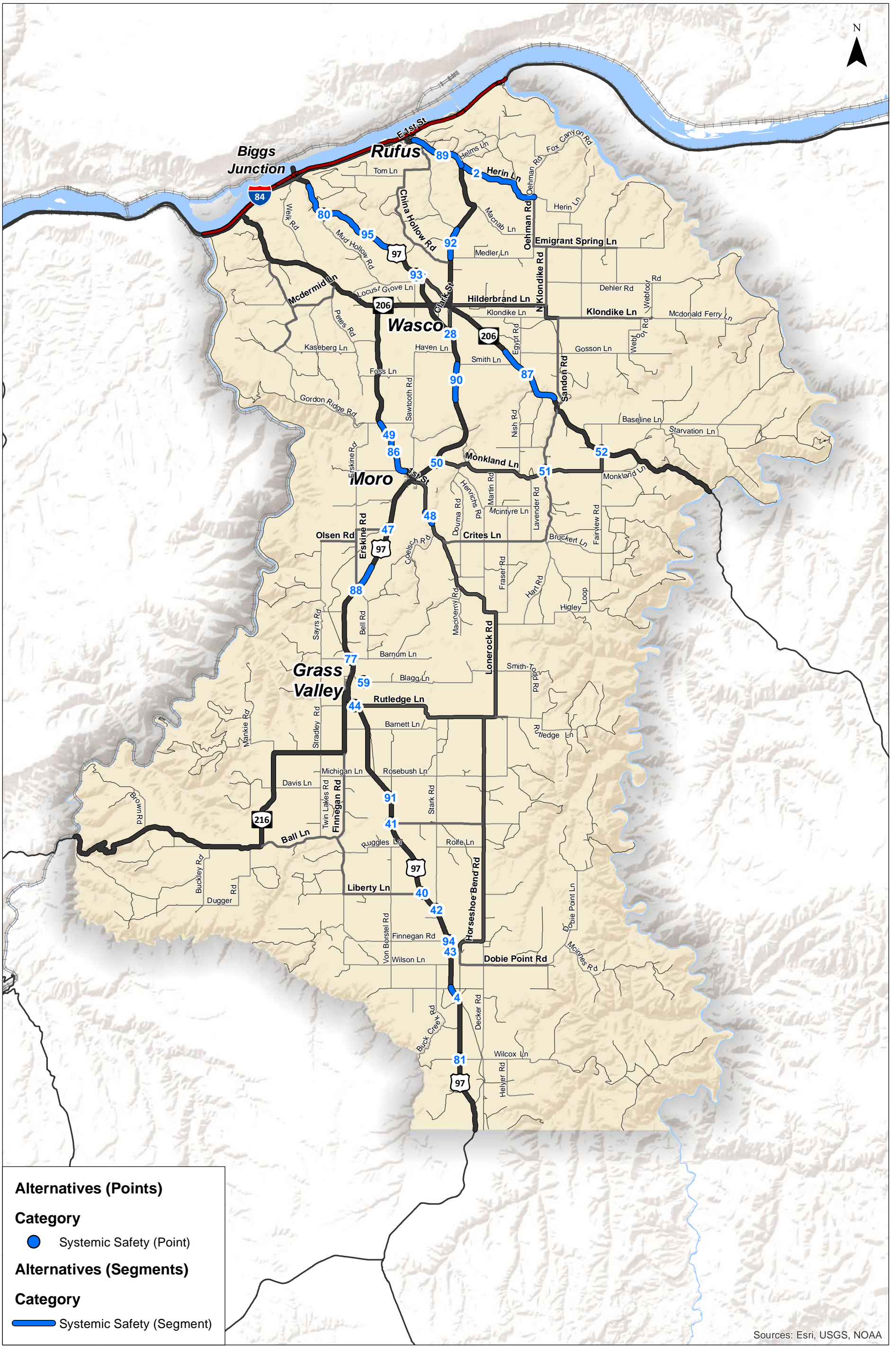
*Rumble strips should only be installed in locations where the shoulder width permits it.

^Passing lanes and speed enforcement should involve further study prior to implementation. Cost estimates do not include passing lanes.

**Passing lanes exist from approximately MP 23 to 23.55. The study should evaluate whether this passing lane can be lengthened.

Table 5-11. Systemic Safety Intersection Projects

ID	Major Road	Minor Road	Priority	Cost Estimate	Potential Countermeasures						
					Rural Intersection Signing and Marking Improvements	Right-turn deceleration Lane	Lengthen existing right-turn deceleration lane	Install left-turn lane	Lengthen existing left-turn lane	Improve sight distance	Reduce intersection skew
50	US 97	Monkland Lane	High	\$309,900				X		X	
77	US 97	Barnum Lane	High	\$309,900				X			
93	US 97	Sawtooth Road	High	\$6,500	X						
94	US 97	Finnegan Road	Medium	\$18,500							X
42	US 97	Stark Lane	Medium	\$5,000						X	
47	US 97	Moore Lane	Low	\$25,600			X				
52	OR 206	Fairview Road	Medium	\$27,300	X						X
44	US 97	Rutledge Lane	Medium	\$25,600							X
80	US 97	Mud Hollow Road	Medium	\$309,900				X			
40	US 97	Liberty Lane	Medium	\$210,000		X					
41	US 97	Bourbon Lane	Medium	\$309,900				X			
27	US 97	Old Highway 97	Medium	\$309,900				X			
20	W 1 st Street / Biggs-Rufus Highway	Industrial Access	High	\$309,900				X			
43	US 97	Dobie Point Road	High	\$514,900		X		X			
28	US 97	Clark Street	Low	\$25,600			X				
81	US 97	Wilcox Lane	Medium	\$309,900				X			
51	Monkland Lane	Hay Canyon Road	Medium	\$3,200	X						



Systemic Safety Projects
Sherman County, Oregon

Figure
5-2

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IMPLEMENTATION PLAN

This section outlines specific transportation system improvement projects as well as a categorization of the identified improvements into two groups: near- and long-term. The categorization presented reflects the relative time period in which it may be foreseeable for the County and Cities to implement the project; it is not intended to limit the selection of a project or the order in which projects will be implemented. The County will need to periodically update its TSP and will review the need and timing for improvements at those times.

Long-term projects may or may not be feasible within the twenty-year planning horizon, for reasons of both need and resources. However, they represent a vision for an efficient transportation system in the future, and they have been identified to support the preservation of the opportunities as future conditions may warrant them.

The construction of roads, water, sewer, and electrical facilities in conjunction with local development activity should be coordinated if the County is to develop in an orderly and efficient way. Consequently, the planned improvements identified should be considered in light of developing infrastructure sequencing plans, and may need to be modified accordingly.

The planned transportation improvement alternatives in Sherman County include those identified to address various types of transportation issues, which generally include:

- *Operations:* These projects provide the roadway capacity needed to accommodate future traffic flows and reduce delay.
- *Safety:* These projects consider opportunities to improve existing facilities to reduce probability and severity of crashes. These projects include those identified as part of the Systemic Safety Plan for the County.
- *Pedestrian and Bicycle Enhancements:* These projects improve existing facilities or create new facilities that provide greater connectivity and increase access to pedestrian and bicycle routes.
- *Heavy Maintenance:* These projects address the needs identified by the County that relate to roadway, roadside, or drainage and cannot be conducted as part of regular maintenance activities.
- *Full Reconstruction:* These projects include reconstruction of the roadway including removal of existing roadway and placement of aggregate base and asphalt pavement.
- *Feasibility Studies:* These projects have identified the need for some level of long-term improvements to different roadway segments or intersections. Given the size and complexity, a more detailed evaluation of potential improvements has been identified that is beyond the scope of the TSP.
- *Pilot Projects:* Pilot projects are innovative projects that can be done on an interim basis and can be reversed if needed.
- *Programs/Policies:* The programs and policies reflect changes to County or City operations or code that has an impact on the transportation system.

While site-specific projects, such as adding turn lanes at an existing intersection, have been included to improve conditions at particular locations, the alternatives collectively reflect a broader goal which is to develop an efficient transportation network that will reduce reliance on the state highways and limit potential for motor vehicle crashes while encouraging economic activity.

Roadway Transportation Improvements

The preferred near- and long-term transportation improvements within unincorporated areas of Sherman County are listed in Table 5-12, and the preferred transportation improvements for the incorporated cities of Rufus, Wasco, Moro, and Grass Valley are shown in Table 5-13. The table includes a project number for reference to the project location illustrated in Figure 5-3 for rural areas and Figure 5-4 for urban areas. Additionally, the tables include preliminary cost estimates with 40-percent contingency for the projects, excluding right-of-way. Potential non-binding funding sources were also identified for each project and are subject to negotiation at the time of project execution. *Cost estimate calculations and assumptions are provided in Attachment B.*

The implementation plan incorporates the preferred financing plan, which identifies that a limited amount of money will be available to fund projects. As a result, only improvements that are planned for implementation and are expected to have funding are shown in the near-term time frame. The long-term project timeline reflects the fact that some projects are not needed immediately and that it will take time to accumulate the funds to build those projects.

Table 5-12. Planned Transportation Improvements in Sherman County (including unincorporated areas of Biggs and Kent)

ID	Name	Description	Category	Type	Cost Estimate ¹	Potential Funding Source			
						ODOT/ State	County	Cities	Private
Short-Term Projects									
15	Roadway Design Guidelines	Update roadway design guidelines for each community.	Modernization	Policy	\$0		X	X	
72	Traffic Speeds on US 97	Improve education and enforcement related to traffic speeds in the County through programs and additional signage or campaigns. Evaluate the feasibility of using ITS treatments to reduce speed in Cities throughout the County.	Safety	Program/ Study	\$20,000	X	X	X	
73	Truck Volumes and Speeds on US 97 in Cities	Install speed reduction treatments on US 97 to reinforce posted speeds in cities. Speed reduction treatments may consider automated speed enforcement, speed feedback signs, roadway modifications to visually indicate to drivers that they are entering urban area.	Safety	Project	\$56,800	X	X	X	
74	Passing Opportunities on US 97	Conduct study to determine locations where passing lanes are needed. Supplement with previous work ODOT has completed.	Safety	Study	\$10,000	X	X		
5	Weather-related crashes	Conduct study to determine feasibility and cost of implementing treatments for weather related crashes, including: ITS treatments, different pavement materials, warning signs, etc.	Safety	Study	\$10,000	X			
16	OR 206/Fulton Canyon Road & Biggs-Rufus Highway Upgrade	Upgrade OR 206/Fulton Canyon Road from a major collector to a minor arterial from the intersection of US 97 to the intersection with Biggs-Rufus Highway. Route serves as a popular alternative to US 97 for local residents. Study the feasibility of improving the roads to arterial standards.	Modernization	Policy & Study	\$10,000	X	X		
17	Scott Canyon Road Upgrade	Upgrade Scott Canyon Road from a major collector to a minor arterial from OR 206 in Wasco to Biggs-Rufus Highway in Rufus. Route serves as a popular alternative to US 97 for local residents. Study the feasibility of improving the road to arterial standards.	Modernization	Policy & Study	\$0		X		
75	OR 216 Upgrade	Upgrade OR 216 from a major collector to a minor arterial from US 97 in Grass Valley to Deschutes River. This route is a popular route for river access along the Deschutes and for residents traveling to the east. Study the feasibility of improving the road to arterial standards.	Modernization	Policy & Study	\$10,000	X			
76	Van Gilder Road Upgrade	Upgrade Van Gilder Road from a major collector to a minor arterial from US 97 in Moro to the intersection with OR 206. Route serves as a popular alternative to US 97 for local residents. Study the feasibility of improving the road to arterial standards.	Modernization	Policy & Study	\$10,000		X		
Medium and Long-Term Projects									
11	US 97 Bridge over Columbia River at Biggs Junction	Improve or replace bridge to meet current design standards. (Note: Future improvement or maintenance of this bridge falls under the Washington Department of Transportation's responsibility)	Bridge	Project	N/A	X			
18	Intermodal freight connections at Biggs Junction	Evaluate opportunities for improved freight connections between trucks, rail, and river cargo.	Intermodal	Study	\$20,000	X	X		X
14	Finnegan Road Bridge over Finnegan Creek	Study feasibility of improving or replacing bridge to meet current design standards.	Bridge	Project	\$20,000		X		
26	Maddie's Hump	Upgrade to major collector. Study feasibility of widening shoulders.	Modernization	Project & Study	\$10,000	X	X		
46	US 97 / Erskine Road	Widen the throat of Erskine Road.	Modernization	Project	\$56,900	X	X		
30	Eastern Alternate Access to	Pave Blagg Lane from Oregon Raceway to Lonerock Road. Consider upgrading the functional classification.	Roadway	Project	\$2,559,600		X		X

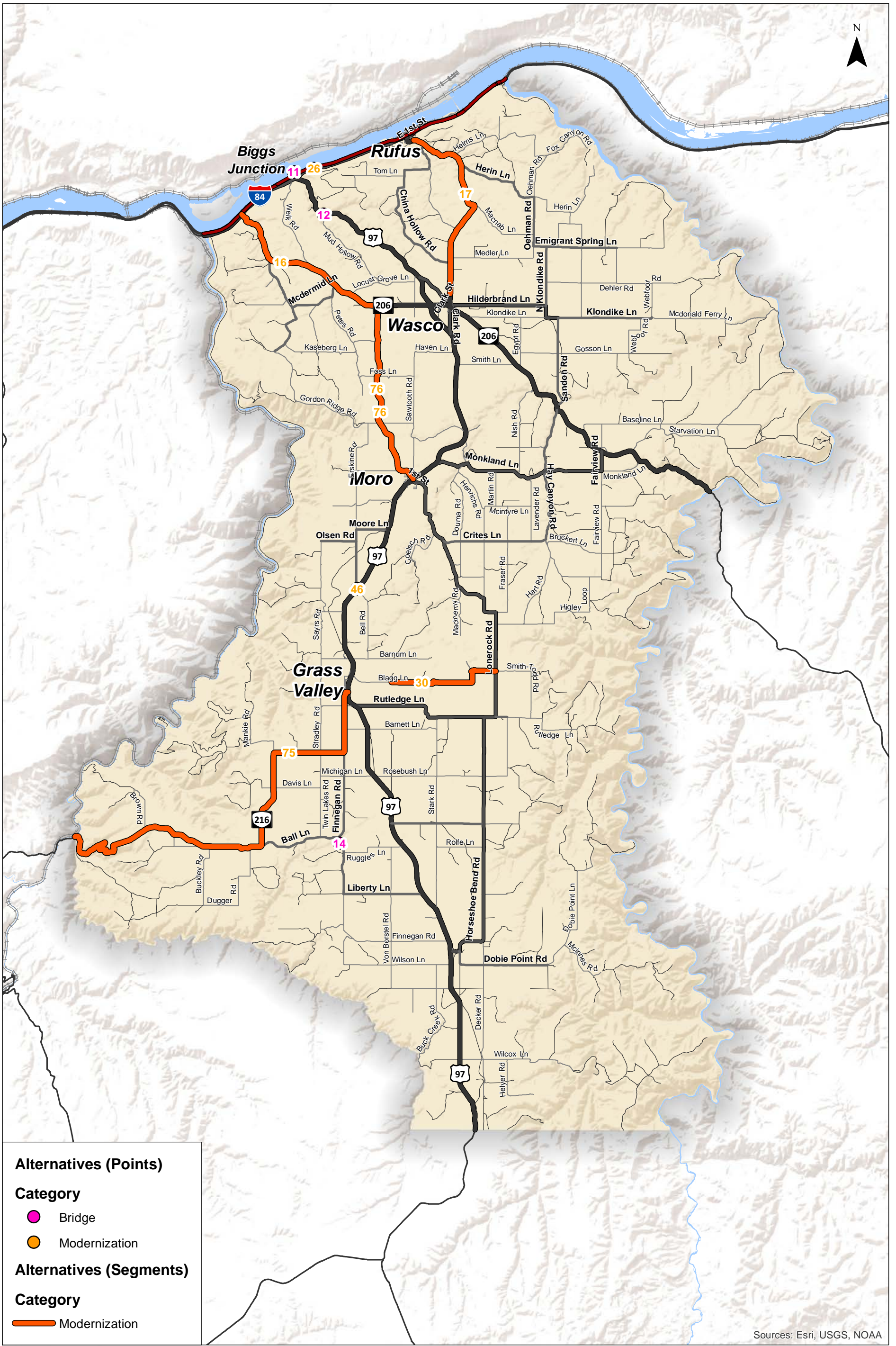
ID	Name	Description	Category	Type	Cost Estimate ¹	Potential Funding Source			
						ODOT/ State	County	Cities	Private
	Raceway								
31	Northern Alternate Access to Raceway	Construct a secondary access from the Oregon Raceway to Barnum Lane.	Safety	Project	\$484,100		X		X
12	Mud Hollow Road Bridge over Spanish Hollow Creek	Improve or replace bridge to meet current design standards.	Bridge	Project	\$100,000		X		
55	Wildlife Crossings	Conduct a study to determine where wildlife crossings are needed on the major state highways. Estimate the cost of installing the crossings.	Safety	Study	\$10,000	X			

Table 5-13. Planned Transportation Improvements in Urban Areas

ID	City	Name	Description	Category	Type	Cost Estimate ¹	Potential Funding Source			
							ODOT/ State	County	Cities	Private
Short-Term Projects										
23	Rufus	1st Street/Biggs-Rufus Highway Bridge (west of Sullivan Ln)	Evaluate structural integrity of the existing bridge and establish cost estimates for required improvements to support structural integrity and serve existing traffic use.	Bridge	Study	\$20,000	X	X		
24	Rufus	1st Street/Biggs-Rufus Highway Bridge (east of Fowler St)	Evaluate structure integrity of the existing bridge and establish cost estimates for required improvements.	Bridge	Study	\$20,000	X	X		
19	Rufus	Murray Street	Install traffic calming measures on Murray Street to reinforce posted speed and deter cut-through traffic.	Modernization	Project	\$10,000			X	
21	Rufus	2nd Street/Wallace Street	Connect 2nd Street to 1st Street 300' west of Wallace Street. Vacate 2nd Street from new connection to Wallace Street. Consider extending 3rd Street to 2nd Street/1st Street.	Safety	Project	\$95,800			X	
68	Rufus	Intersection of 2nd Street/Biggs Rufus Highway	Vacate 2nd Street from Murray Street to 1st Street.	Safety	Project	\$22,300	X		X	
56	Wasco	Wasco Wayfinding Signage	Provide better signage to direct vehicles to highways, Rufus, and Cottonwood Canyon State Park.	Modernization	Project	\$6,800			X	
66	Moro	High School Access	Restripe southern access points to restrict minor street left-turns to northern part of fork and make southern entrance one-way incoming northbound only. Add southbound left-turn lane at northern intersection on US 97. Relocated speed limit signs to reduce speed limit further in advance of intersection. Consider speed feedback signs to reduce speeds in advance of intersections.	Safety	Project	\$204,700	X	X	X	
Medium and Long-Term Projects										
22	Rufus	Biggs Rufus Highway (1st Street) lacks defined on-street parking.	Define access management along the highway and define on-street parking spaces.	Modernization	Project	\$28,400	X		X	

ID	City	Name	Description	Category	Type	Cost Estimate ¹	Potential Funding Source			
							ODOT/ State	County	Cities	Private
25	Rufus	2nd Street Bridge (east of Fowler St)	Close bridge to traffic when 2nd Street is closed to traffic as part of Project #68.	Bridge	Project	\$0			X	
69	Rufus	Fowler Street Parking	Vacate Fowler Street from 1st Street to 2nd Street and convert to a parking lot with access to 2nd Street only.	Modernization	Project	\$27,300			X	
71	Rufus	Rufus Parking Analysis	Conduct a parking options study and analysis for the business and residential block.	Modernization	Study	\$10,000			X	
45	Grass Valley	North Street/US 97	Reconstruct North Street approach to US 97 to provide larger turn radius, and add a left-turn lane from US 97 to North Street.	Modernization	Project	\$91,000	X		X	

¹ Cost estimate is planning level only. Does not include right-of-way costs.

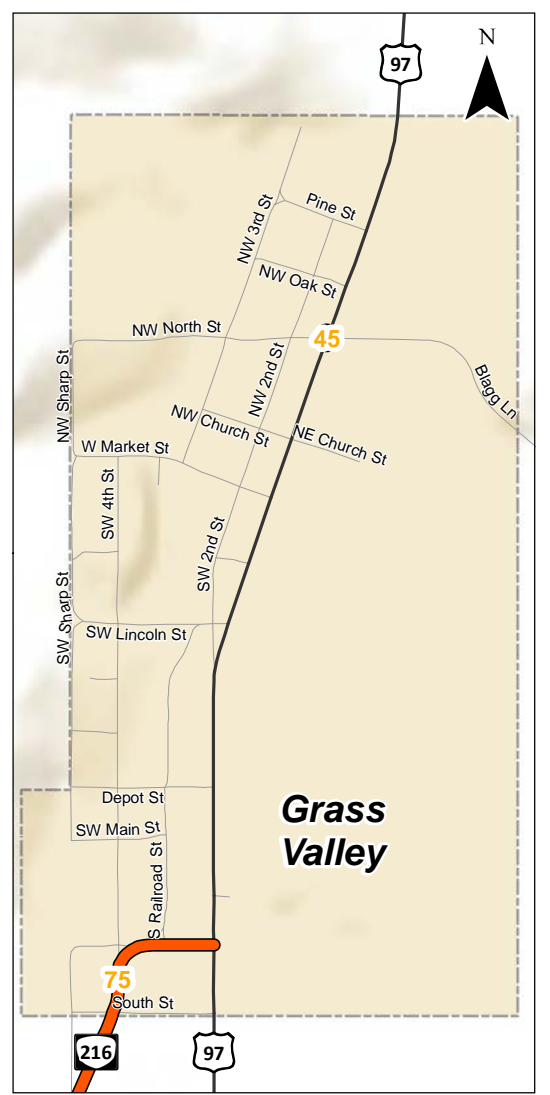
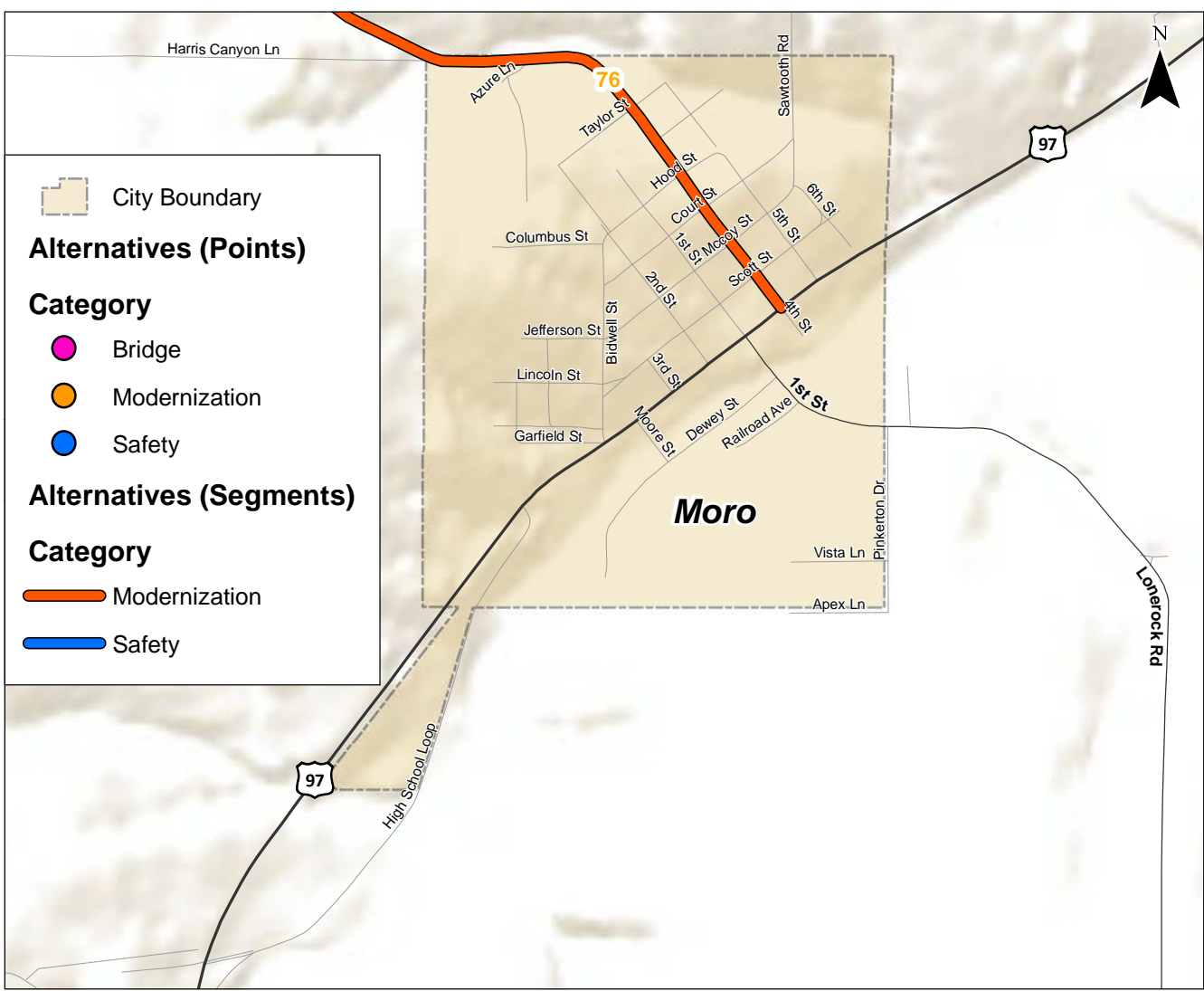
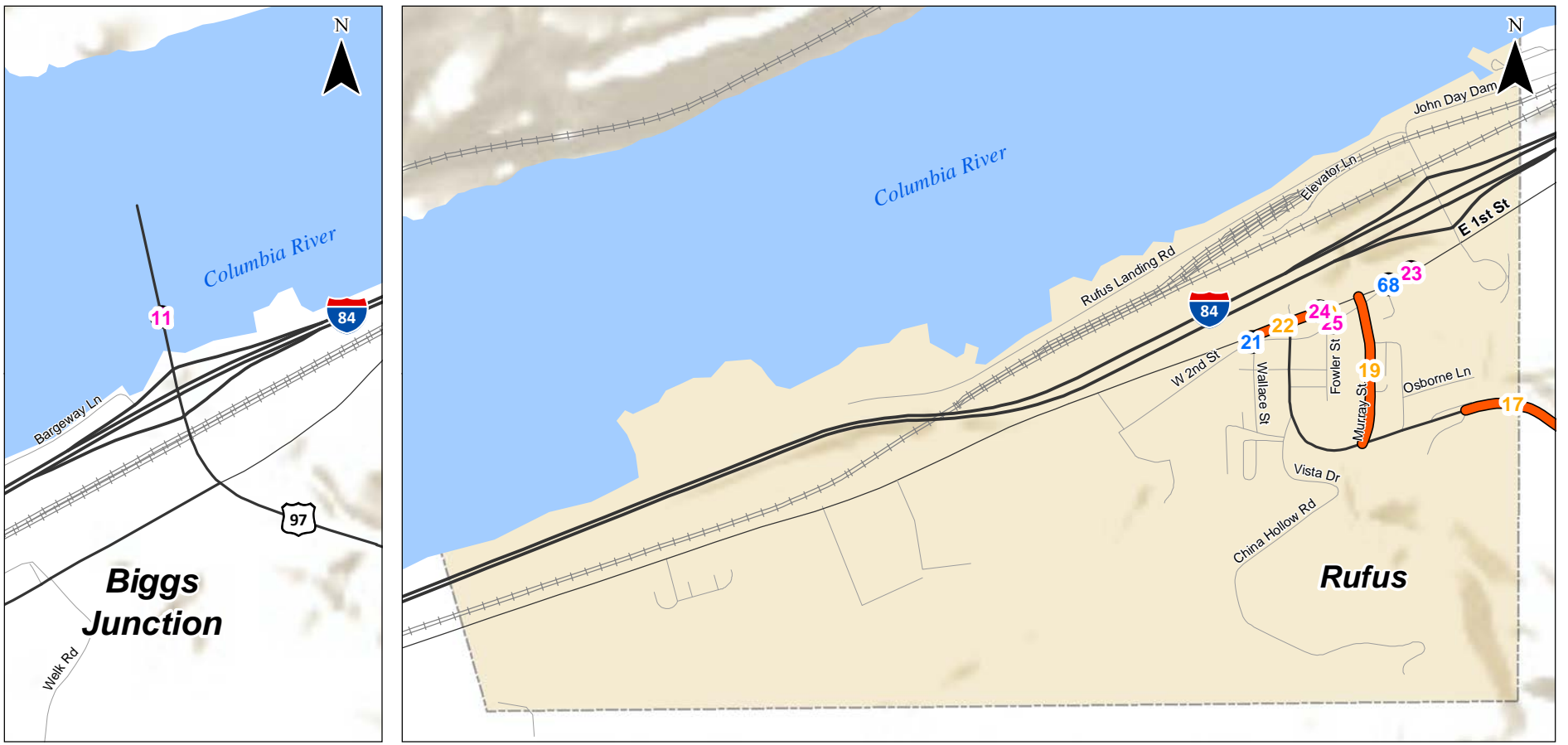


Sources: Esri, USGS, NOAA

Rural Transportation Alternatives Sherman County, Oregon

Figure 5-3

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City Boundary

Alternatives (Points)

Category

- Bridge
- Modernization
- Safety

Alternatives (Segments)

Category

- Modernization
- Safety

Urban Transportation Alternatives
Sherman County, Oregon

Figure
5-4

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The total cost of projects, policies, programs, and feasibility studies shown in Table 5-12 and Table 5-13 that are expected to be implemented in the near-term is approximately \$500,000. The total cost of the medium/long-term alternatives is approximately \$3.3 million.

PEDESTRIAN AND BICYCLE SYSTEM PLAN

The future population growth in the incorporated areas of Rufus, Wasco, Moro, and Grass Valley will increase the need to expand the existing sidewalks in the Cities and to provide new paths in and around the incorporated areas to encourage residents and visitors to ride bicycles for transportation. Providing a connected network of pedestrian and bicycle facilities is important for:

- Serving shorter trips from neighborhoods to area activity centers, such as schools, churches, and neighborhood commercial uses;
- Providing access to regional park and ride lots to enhance intermodal connections; and
- Meeting residents' and visitors' recreational needs, further promoting economic activity in the County.

Table 5-14 and Figure 5-5 summarizes the planned pedestrian and bicycle projects for the next twenty years. In rural Sherman County, bicycle and pedestrian design standards provide paved shoulders on arterials and minimum two-foot paved or unpaved shoulders on all other, lower volume roads to facilitate pedestrian and bicycle travel. Within the cities, the standards for arterials include shoulders to accommodate bicyclists in a separate space from vehicles. Bicyclists are expected to share the road with vehicles on the other local roads in the cities due to the low speeds and low volumes.

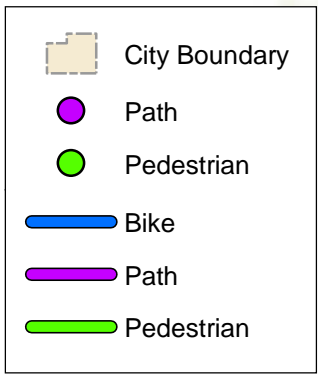
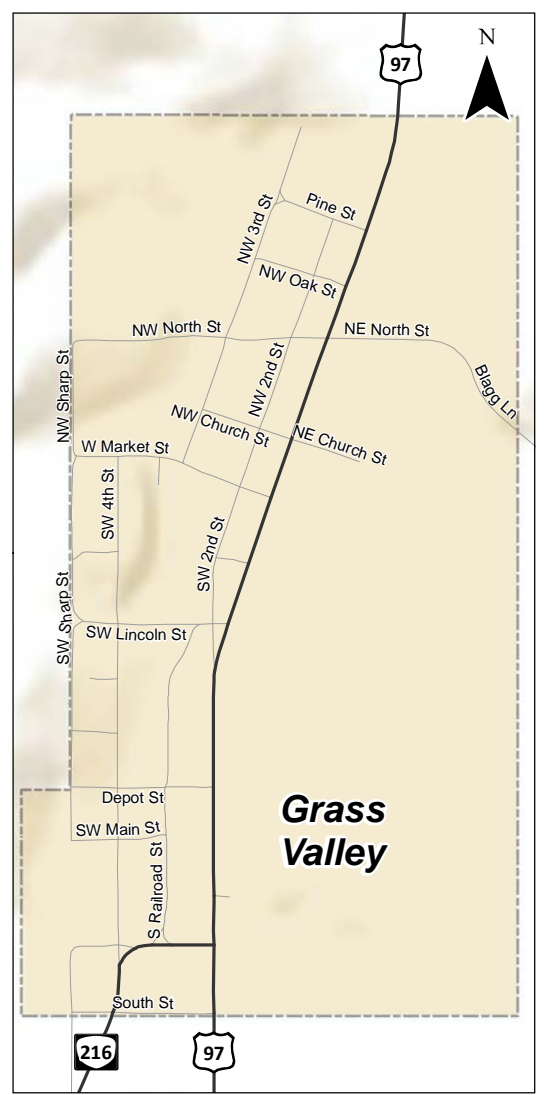
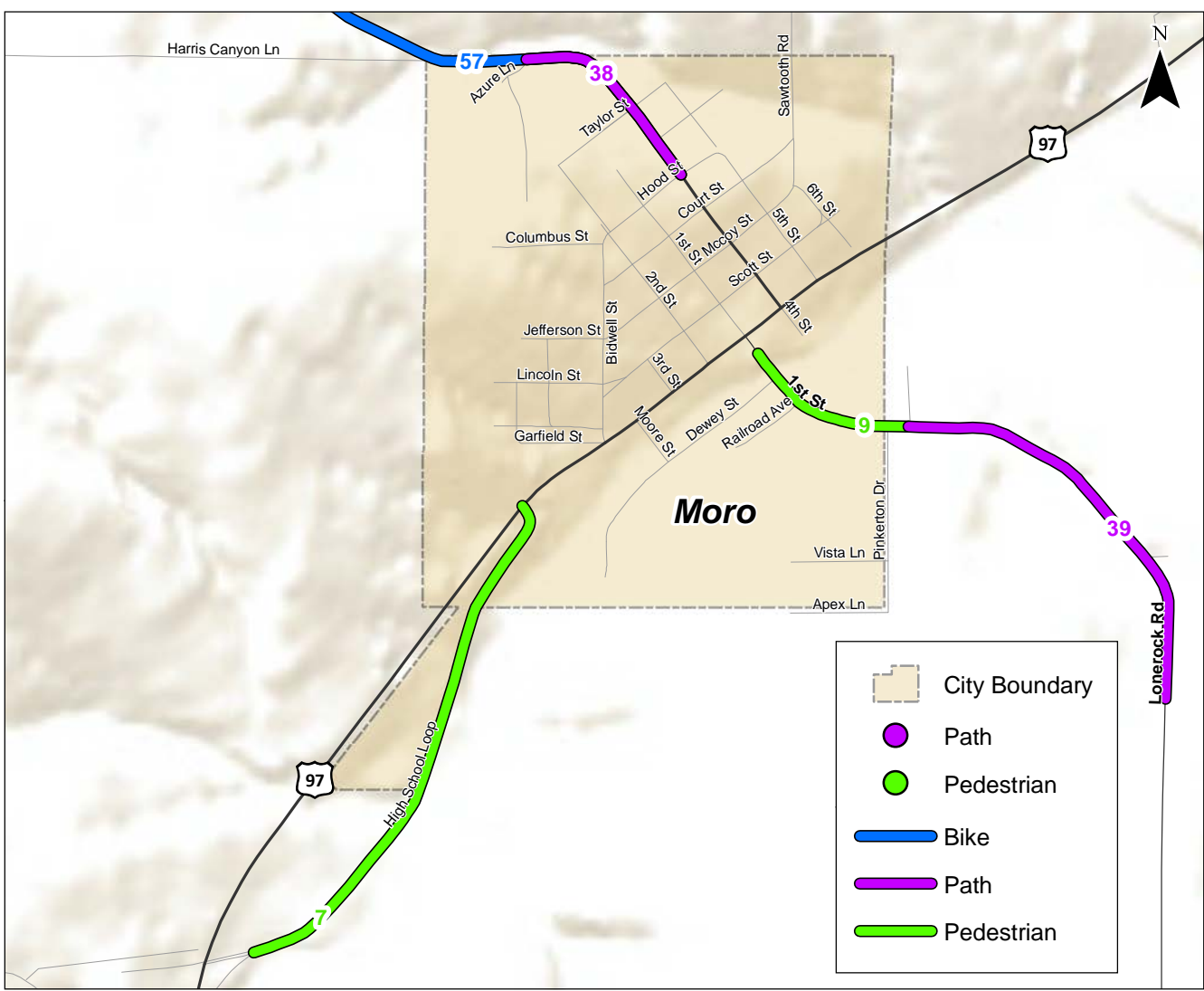
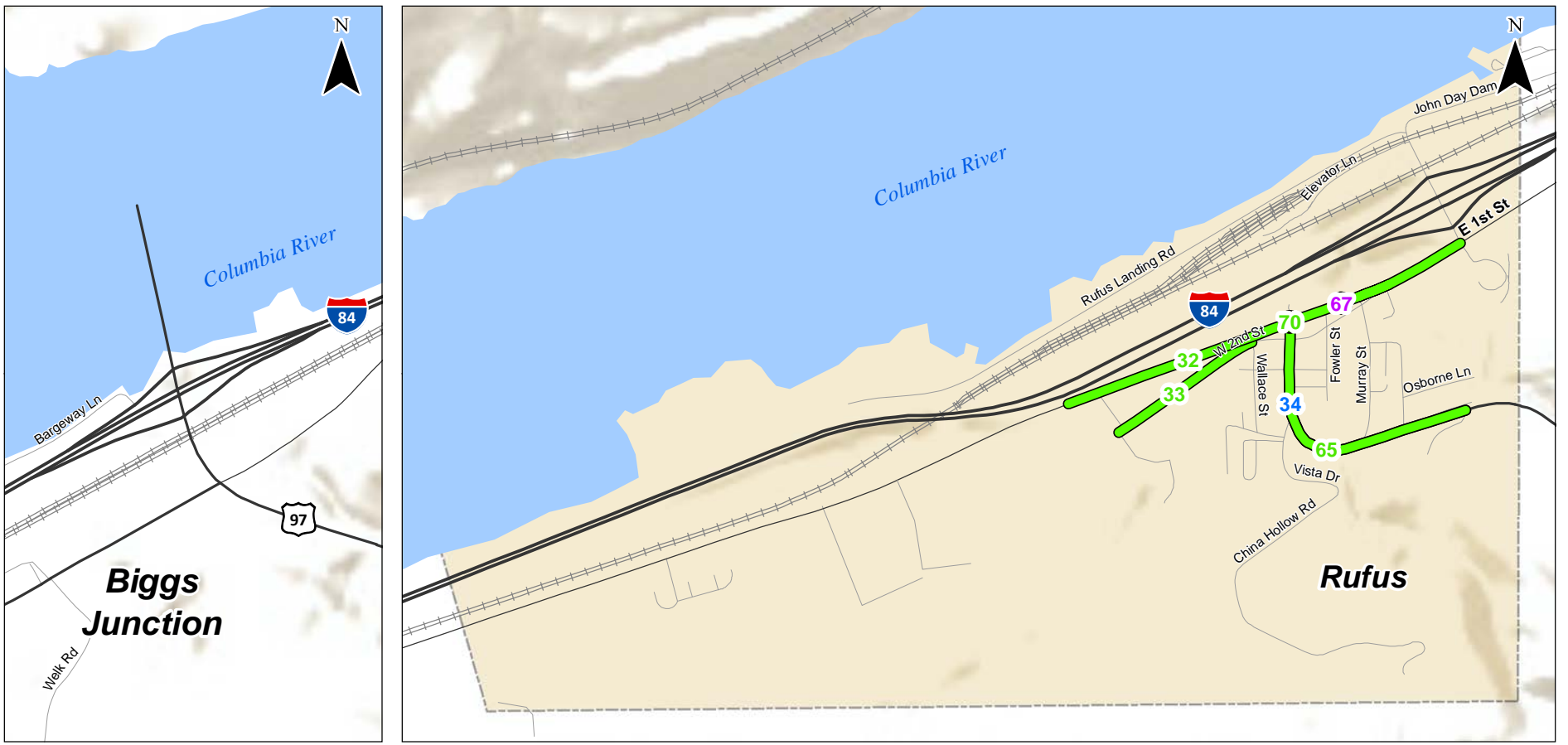
Arterials, collectors, and local streets should include sidewalks as they are developed within the city limits. A complete connected sidewalk network will encourage walking as a mode of transportation within the City. Key gaps in the existing sidewalk infrastructure as well as locations with sidewalks in need of repair are identified in Table 5-14 and Figure 5-5.

The total cost for all near-term pedestrian and bicycle system improvements is approximately \$350,000. The total cost for all medium/long-term pedestrian and bicycle system improvements is approximately \$4.7 million.

Table 5-14. Planned Pedestrian and Bicycle Improvements in Sherman County

ID	Location	Name	Description	Category	Cost Estimate ¹	Potential Funding Source			
						ODOT/ State	County	Cities	Private
Short-Term Projects									
32	Rufus	1st Street Sidewalks (Rufus)	Install sidewalks and pedestrian scale lighting along both sides of 1st Street from Sullivan Ln to Wallace Street	Pedestrian	\$300,600	X		X	
70	Rufus	Pedestrian Crossings of Biggs-Rufus Highway	Stripe crossing of 1st Street at Main Street.	Pedestrian	\$2,800	X		X	
Medium- & Long-Term Projects									
10	County	Bicyclist Routes	Promote the bike routes that are currently popular routes and identify opportunities to route cyclists off of US 97 when possible. Provide signage to encourage cyclists to use alternate routes from the highway and provide warnings signs on these routes to inform drivers of the bicycle routes.	Bike	\$17,000	X	X		
57	County	Van Gilder Road	Provide directional signage for cyclists; warning signs for motorists to share the road.	Bike	\$5,100		X		X
39	County	Ped/Bike Connections along Lonerock Road, east of City Limits of Moro	Install a shared-use path along Lonerock Road from East City Limits to Fairgrounds.	Path	\$270,300		X		
34	Rufus	Bikes on Main Street (Rufus)	Widen to accommodate a bicycle lane.	Bike	\$164,100	X		X	
65	Rufus	Main Street Sidewalks	Install sidewalks on Main Street from Vista Drive to 1st Street.	Pedestrian	\$500,600				
67	Rufus	Rufus Ped/Bike Access Under Freeway and Railroad	Conduct environmental impact study to determine whether Gerking Gulch is a feasible undercrossing of I-84 and railroad for ped/bike users between 1st Street and the Columbia River.	Path	\$20,000	X		X	
33	Rufus	2nd Street Sidewalks (Rufus)	Install sidewalks along the south side of 2nd Street from Main Street to Community Center	Pedestrian	\$368,100			X	
35	Wasco	Old Highway 97 Sidewalks	Install sidewalks on both sides of Old Highway 97 from Clark Street to 6th Street and along the east side of the road from 6th Street to Asher Street.	Pedestrian	\$1,032,000	X	X		
61	Wasco	OR 206 Sidewalks (Clark Street to Scott Street)	Install sidewalks on OR 206 from Clark Street east to Scott Street.	Pedestrian	\$723,400	X		X	
62	Wasco	Armsworthy Street Sidewalks	Install sidewalks on Armsworthy Street from Church Street to Scott Street.	Pedestrian	\$397,500	X		X	
63	Wasco	Clark Street Sidewalks	Install sidewalks on Clark Street from Old Highway 97 to Yates Street.	Pedestrian	\$231,400	X		X	
64	Wasco	OR 206 Sidewalks (Biggs Street to Church Street)	Install sidewalks on OR 206 from Biggs Street to Church Street.	Pedestrian	\$152,800	X		X	
79	Wasco	Existing Clark Street Sidewalks	Upgrade existing sidewalks along Clark Street from Columbia to Ellis, and add sidewalks on the east side.	Pedestrian	\$208,200	X		X	
9	Moro	Lonerock Road Sidewalks	Construct sidewalks on the north side of the road.	Pedestrian	\$172,300		X	X	
38	Moro	Ped/Bike Connections along 4th Street to Azure Lane in Moro	Install a shared-used path along 4th Street/Van Gilder Road from Hood Street to Azure Lane.	Path	\$134,600		X	X	X
7	Moro	Sidewalks to High School	Install sidewalks or a shared-use path between the High School and the existing sidewalks on Main Street.	Pedestrian	\$184,300	X	X	X	
84	Grass Valley	US 97 Pedestrian Scale Lighting	Install pedestrian scale lighting along the sidewalks on US 97 in Grass Valley.	Pedestrian	\$266,100	X		X	

¹ Cost estimate is planning level only. Does not include right-of-way costs.



**Pedestrian and Bicycle Plan
Sherman County, Oregon**

**Figure
5-5**

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PUBLIC TRANSPORTATION PLAN

Sherman County Community Transit operates a dial-a-ride transit service for the County. Between July 2013 and January 2015, almost 7,500 rides were provided by the transit service, covering a distance of over 130,000 miles. The majority of rides provided, over 6,000 rides, were for Seniors. The service is available on Monday and Thursday each week and offered for a fare of \$5 to all residents. Residents must request a pick-up 24-hours in advance and can be picked up anywhere in the County or Cities. Typical trips are to The Dalles for shopping, business, and medical appointments. Buses also transport residents to Hood River and Portland for medical trips.

Sherman County Community Transit has the funding and resources necessary to continue providing dial-a-ride transit service. Sherman County Community Transit receives funding from ODOT and is being reimbursed for Veteran medical trips by the Veteran's Administration. No fixed route service is needed to support the communities.

AIR SERVICE

The Wasco State Airport is located on the east side of Wasco in Sherman County. The airport dates back to 1946 and has been continuously operated by the State of Oregon since it acquired it in 1958. The airport accommodates general aviation and agricultural users serving the local community and the surrounding region. Wasco State Airport has a land area of approximately 66 acres and is zoned Airport Development (A-D) by Sherman County. The outer periphery of the airport is predominantly zoned Exclusive Farm Use (A-E). The airport is located entirely outside the City's urban growth boundary (UGB). Both the City of Wasco and Sherman County have adopted the FAA Part 77 Imaginary Surfaces Plan for the Airport. There are no planned projects associated with the Wasco State Airport.

MARINE SYSTEM PLAN

Sherman County is located on the Columbia River, a major water transportation route. The only river cargo operations that currently exist in the County are located at Biggs Junction, where Mid-Columbia Producers export much of their grain in the region.

Rufus also has access to the river which could be developed for recreational or industrial purposes in the future if the demand exists. Project number 18 in Table 5-12 identifies a planned study to evaluate opportunities for intermodal connections between the rail system, roadway system, and marine transportation system.

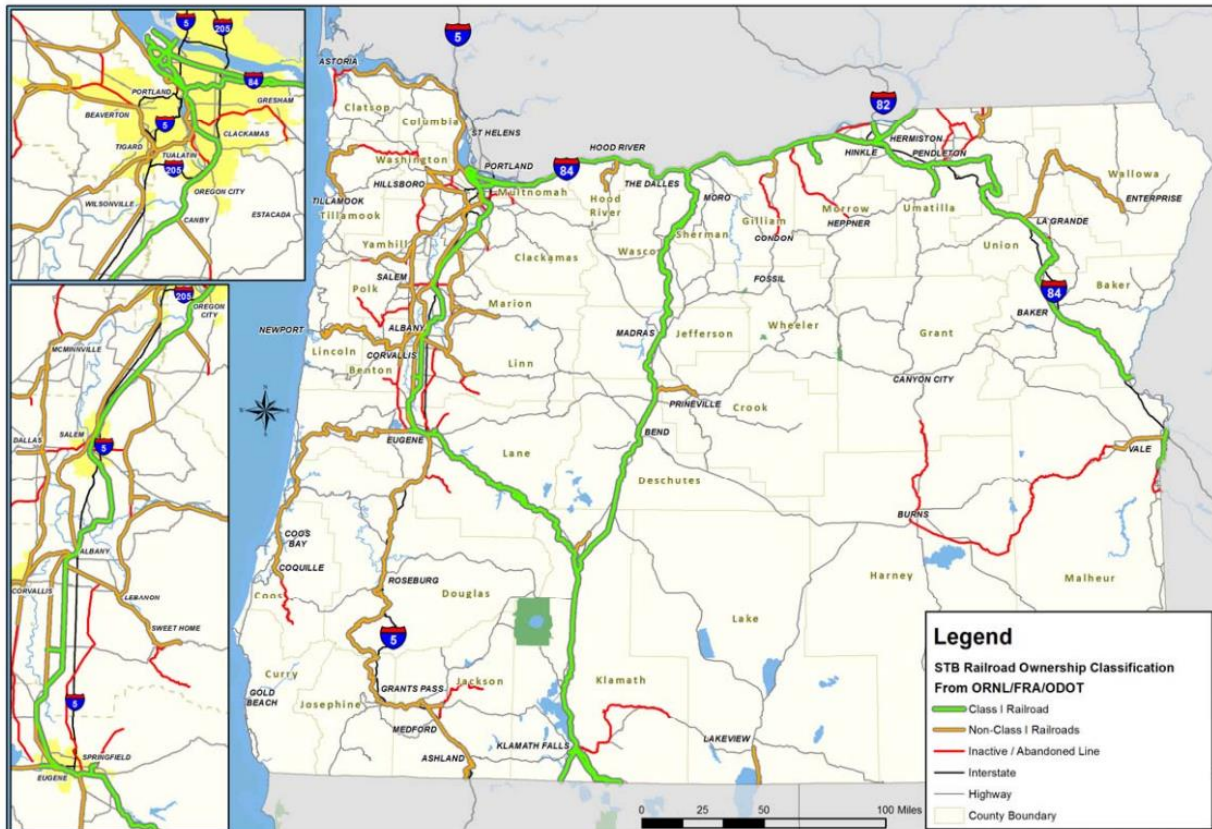
RAIL SERVICE

The Union Pacific Main Line (UP) and the Burlington Northern/Santa Fe Bend Branch (BNSF) serve Sherman County at Biggs Junction. The UP line includes a spur serving the Mid-Columbia Grain



Growers Terminal at Biggs. However no grain has been hauled from this spur for approximately 10 years. Therefore, there are no train stops in Sherman County today. There is currently no passenger rail service in the County.

As shown in Exhibit 5-20, the UP railroad that runs along the Columbia River through Sherman County is designated as a Class I Railroad. Project number 18 in Table 5-12 identifies a planned study to evaluate opportunities for intermodal connections between the rail system, roadway system, and marine transportation system.



Source: Oak Ridge National Laboratory Rail GIS Data, FRA, ODOT

Exhibit 5-20. State of Oregon Railroads

PIPELINE AND TRANSMISSION SYSTEM PLAN

Two natural gas pipelines run through Sherman County although they do not currently serve the County. If larger commercial or industrial development came to the County, the County may support the development of pipeline access for the County.

Future extension of a high-speed broadband service is planned from Idaho along the Columbia River. Sherman County may be able to provide broadband services to its citizens through this line. A

broadband internet connection could allow for implementation of Intelligent Transportation Solutions along I-84 that could have a positive effect on transportation safety and mobility. Other benefits of this added service could spur economic development.

TRANSPORTATION FINANCE ELEMENT

Funding for transportation projects is increasingly in short supply as existing infrastructure ages and transportation demands increase. This section provides a means for evaluating the likelihood that projects can be funded within the timelines identified in the TSP and defines priorities based on available funding opportunities.

The TPR requires that the Sherman County TSP address transportation funding, including the following elements:

- A list of planned transportation facilities and major improvements;
- A general estimate of the timing for planned transportation facilities and major improvements;
- Determination of rough cost estimates for the transportation facilities and major investments identified in the TSP; and,
- A discussion of existing and potential financing sources for each transportation facility and major improvement (which can be described in terms of guidelines or local policies).

Current Sherman County Transportation Funding Revenues

Sherman County has had an annual revenue of approximately \$2.2 million per year over the past ten years. This funding covers all transportation related projects, including maintenance and capital improvements projects. As shown in Exhibit 5-21, the County's transportation revenue comes from a variety of sources including property taxes, other local revenue, state revenue, and federal revenue. ODOT has historically been able to fund the County's transportation operations and maintenance activities for state facilities.

Exhibit 5-22 shows that the County has had a small portion of transportation revenue remaining at the end of each fiscal year with the exception of two years when the expenditures exceeded the revenue. Over the past ten years, approximately \$1.9 million in excess transportation revenue has been accumulated. The majority of transportation expenditures over the past 10 years have covered operations, maintenance, and system preservation, as shown in Exhibit 5-23. Approximately \$200,000 were used for new facilities and system enhancement projects during the past ten years.

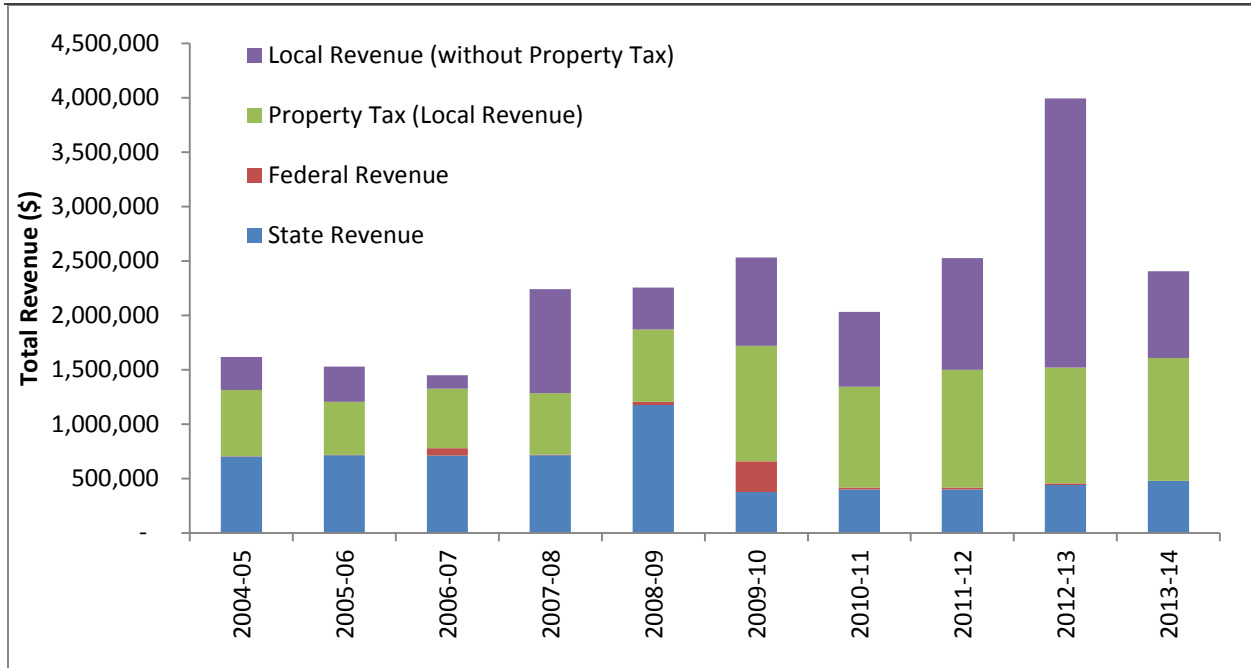


Exhibit 5-21. Sherman County Transportation Revenue Sources (2005 – 2014)

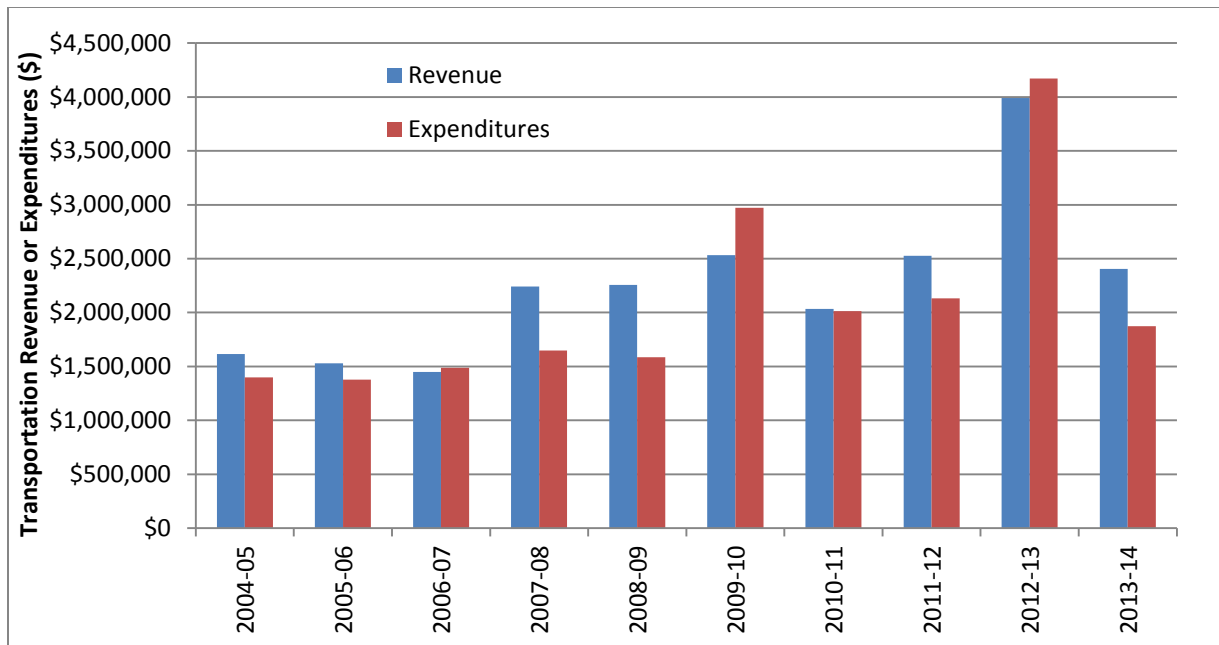


Exhibit 5-22. Sherman County Transportation Revenue Compared to Transportation Expenditures (2005 – 2014)

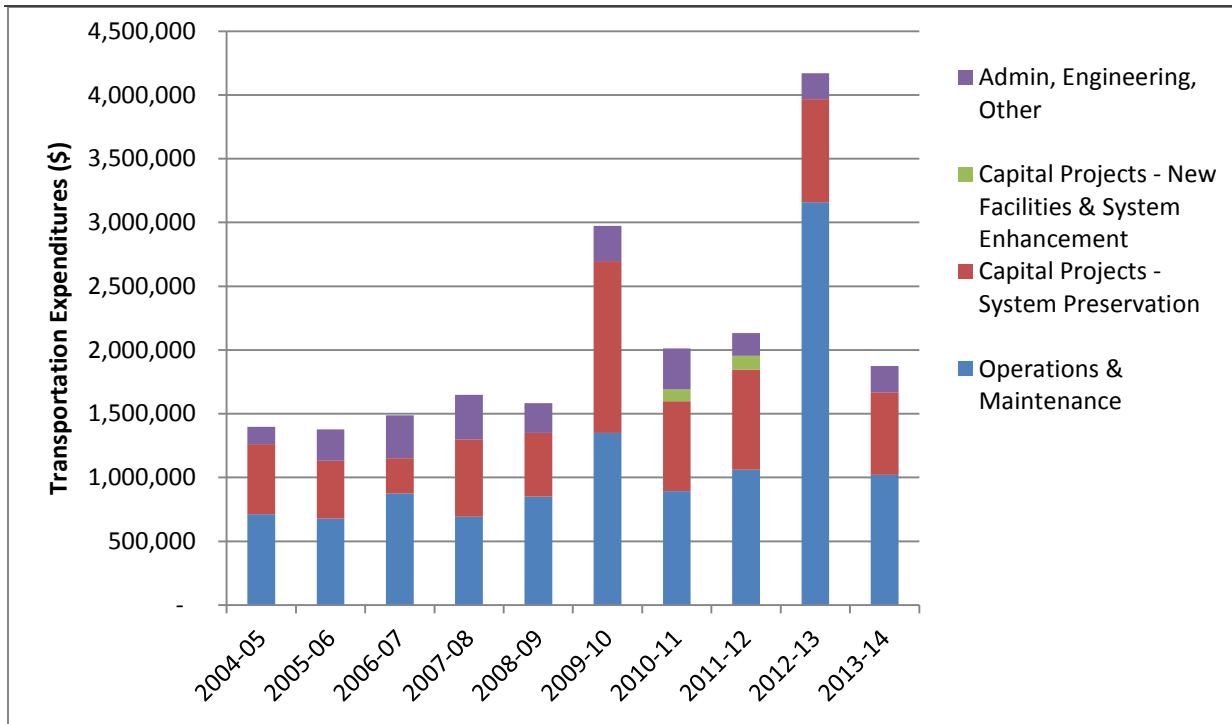


Exhibit 5-23. Sherman County Transportation Expenditures (2005 – 2014)

Transportation Funding Options

Sherman County faces two inter-related financing issues: how to finance operations and maintenance and how to finance capital projects. Presently, the majority of public works funding is devoted to operations and maintenance; there is no substantial funding for capital projects. As shown in Table 5-15, the total funding needed to accomplish all of the near-term alternatives summarized in this plan, including all projects and studies, systemic safety projects, and active transportation projects, would be approximately \$2,615,000. *Comprehensive tables summarizing all modal alternatives and their cost estimate is provided in Attachment C.*

Table 5-15. Total Project Costs

Project Type	Near-Term	Medium/Long-Term
Systemic Safety	\$1,780,000	\$1,330,000
Roadway	\$530,000	\$3,250,000
Pedestrian and Bicycle	\$305,000	\$4,640,000
Total	\$2,615,000	\$9,220,000

Potential strategies for addressing these needs in Sherman County may generally be grouped into three categories: secure more external funding, identify public/private sponsorship opportunities, and raise local revenue through user fees and taxes. Observations on the use of these strategies are discussed below. They are not all mutually exclusive.

Identify Additional Grant Opportunities

ODOT offers multiple grant opportunities to support transportation projects. The County and Cities should identified grants from those summarized in Table 5-16 that are applicable to their projects. Some of these programs require a local match. The County and Cities should begin identifying these programs early in order to plan for the funding necessary to satisfy a local match. Using local dollars as a match for a grant opportunity is a strategy to stretch the local funding even farther.

Table 5-16. Grant Opportunities

Source ID	Source Title	Award Cycle	Intended Use	Applicable Project Types	Administration Agency	Deadline	Local Match	Website
1	Rivers, Trails, and Conservation Assistance Program	Annual	Technical assistance for recreation and conservation projects.	Shared-use paths	National Park Service	August	None	http://www.nps.gov/ncrc/programs/rtca/contactus/cu_apply.html
2	Highway Safety Improvement Program	Annual	Address safety issues on highways and High Risk Rural Roads	All	ODOT	Varies	10%	www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/highway_safety_program.shtml
3	Oregon Parks and Recreation Local Government Grants	Annual	Primary use is recreation; transportation allowed. Construction limited to outside road right-of-way, only in public parks or designated recreation areas	Shared-use paths	OPRD	Varies	20%	http://www.oregon.gov/OPRD/GRANTS/local.shtml
4	Recreational Trails Program	Annual	Recreational trail-related projects, such as hiking, running, bicycling, off-road motorcycling, and all-terrain vehicle riding.	Shared-use paths	OPRD	Varies	20%	http://www.oregon.gov/OPRD/GRANTS/trails.shtml
5	Land and Water Conservation Fund	Annual	Acquire land for public outdoor recreation or develop basic outdoor recreation facilities	Shared-use paths, bikeways, sidewalks	OPRD	Varies	50%	http://www.oregon.gov/OPRD/GRANTS/lwcf.shtml
6	Statewide Transportation Improvement Program	Biennial	Multi-year, statewide, intermodal program of transportation projects	Sidewalk, bikeways, crossing improvements	ODOT	Varies	Varies	http://www.oregon.gov/ODOT/HWY/STIP/
7	ATV Grant Program	Annual	Operation and maintenance, law enforcement, emergency medical services, land acquisition, leases, planning, development, and safety education in Oregon's OHV (off-highway vehicle) recreation areas	Shared-use paths	OPRD	February / April	20%	http://www.oregon.gov/oprd/ATV/pages/grants.aspx
8	Immediate Opportunity Funds	Biennial	Support primary economic development through the construction and improvement of street and roads.	All	ODOT	On-going	50%	http://www.oregon.gov/ODOT/TD/EA/reports/IOF_PolicyGuidelines2015%20doc.pdf
9	Enhance (STIP)	Biennial	Activities that enhance, expand, or improve the transportation system. Projects that improve or enhance the state's multimodal transportation system.	All	ODOT	August	10%	http://www.oregon.gov/ODOT/TD/STIP/Pages/WhatsChanged.aspx
10	ConnectOregon	Biennial	Non-highway transportation projects that promote economic development in Oregon.	Non-highway modes	ODOT	November	20%	http://www.oregon.gov/ODOT/TD/TP/pages/connector.aspx
11	All Roads Transportation Safety (ARTS)	Biennial	Address safety needs on all public roads in Oregon; reduce fatal and serious injury crashes.	All hot spot and systemic safety projects	ODOT	Varies	8%	http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/Pages/ARTS.aspx

Public/Private Sponsorship Opportunities

Public/Private sponsorships involve a private entity such as a local business owner working with the public agency to fund a project. In return for their investment in the community, these business owners often have recognition for their role, providing a marketing venue for the business. In Sherman County, one potential opportunity for this type of partnership is the bicycle wayfinding signage project. Private organizations that sponsor a sign may have the opportunity to provide their logo on a sign to help direct cyclists to their community and business.

Local Taxes and User Fees

Many types of user fees and taxes may be collected to finance road construction and operations. On that premise, it is assumed that the County will need to develop local revenue sources to supplement or replace federal resources if it hopes to maintain current levels of service and assuming that changes in state of federal financing, coupled with efficiency measures are not enough to close the funding gap. Table 5-17 lists options that the County and Cities may wish to consider for funding local roads. The sources include a mix of fees and taxes, some of which if implemented would have implications for other aspects of the County and City budgets. Some of these fees could also be used to provide a local match to obtain greater federal or state funding, further stretching local dollars.

Development Code Updates

In order to fund sidewalk projects, a change to the development code may be beneficial to local jurisdictions. The development code identifies the requirements that a developer must meet before obtaining permission to build. Local jurisdictions may choose to require developers to complete sidewalks in locations where they are identified in the TSP and enforce the completion through the development code. The jurisdiction may also choose to collect a payment in lieu of sidewalk construction from the developers and then use the money to construct complete sections of sidewalk when enough is collected to create efficiencies.

Table 5-17. Local Taxes and User Fee Options

Source	Description	Comments
General Fund	Property taxes from the county's permanent tax rate.	Diverting general fund revenue to the Road Fund would have significant consequences for other county services.
Supplemental 5-year Serial Levy	Voter approved property tax levied in addition to the county's permanent tax rate.	A road fund serial levy would have to be approved by voters every five years. A one-time approval would buy time for the county to develop other options. This method could fund operations and capital programs, some of which might reduce future maintenance requirements.
Road Utility Fee	Monthly user fee with revenue dedicated to road operations. May be enacted legislatively but could be challenged and brought to a vote.	This type of fee is becoming more common in cities but would require substantial investment in rate studies, administrative staffing, software and computer systems to enable the county to collect the revenue. This source is generally better suited to funding operations than for capital improvements, but it may free up existing resources for capital projects.
Vehicle Registration Fee	An extra fee on all registered motor vehicles in the county. May be authorized legislatively but could be challenged and brought to a vote.	State must be willing to act as a collection agent for the county, otherwise would be easy to implement. This source could fund operations or capital programs.
Motor Vehicle Title Fee	Require that all motor vehicles registered in the county also have their title recorded as personal property with the County.	This would generate two sources of revenue: from the fee itself and from personal property taxes levied on motor vehicles. This could be problematic for renters and would increase taxable property that the Assessor must account for.
County Gas Tax	May be enacted legislatively but could be challenged and brought to a vote.	A local-option fuel tax would be easy to collect because the infrastructure is already in place. Would generate revenue for the county from motorists passing through the county. This method could fund operations and capital programs.

ATTACHMENTS

Attachment A. PAC & Public Feedback on the Draft List of Alternatives

Attachment B. Cost Estimate Calculations

Attachment C. Planned TSP Alternatives



Attachment A. PAC & Public Feedback on
the Draft List of Alternatives

Handout #1: *County*

Sherman County TSP Workshop Instructions:

We would like to get your feedback on the alternatives and priorities identified in Tech Memo #4.

Step 1: Please review the proposed roadway design guidelines and provide comments here letting us know if you agree with the guidelines. If you disagree, please explain why below or provide markups of your comments directly on the figures.

Jaclyn McCurdy (Rufus & Biggs service District) – “I disagree with the guidelines due to Rufus’ 1st Street is not wide enough for 80 ft – needs to be 60 ft with bike and sidewalks.”

Step 2: Please review the table provided and indicate whether you agree or disagree with the alternative’s priority in the table. Please reference the figures for additional information on the project location if needed. **If you disagree with the project or priority, please be sure to explain why in the next column.** Feel free to provide any additional comments in the last column as well.

Step 3: Please indicate any alternatives to address existing or future needs that we have missed in the County or Cities by listing them below:

Caitlin Blagg’s (Sherman County Health District/Medical Clinic) comments:

- Finish paving blagg In from racetrack to Lonerock Rd (project #30)
- Install guardrail going down Lonerock towards Coelsch Road – deep canyon there

Cassie Strege’s (City of Wasco) priorities:

#28, 27, 56, 15.

Jaclyn McCurdy’s (Rufus and Biggs) comments: - referred to her as JMC in table

- Rufus left turn lane on West Hwy 30/1st Street into Industrial Park
- Business Loop district sign

Jessica Metta comments:

- Wasco projects to add:
 - Sidewalks along Clark from Columbia to Ellis need some improvements in places & road lacks curbs in some spots. See notes on Wasco map – add sidewalk East side, add signage for Cottonwood.”

Mark Coles commented to add the following:

- US 97/Mud Hollow left turn In. northbound onto Mud Hollow.

Paul Sather commented to add turn lanes at Wilcox too – very high priority.

Tom Miller commented:

- Left-turn lane from US 97 to Barnum;
- Left-turn lane from US 97 to North St (Grass Valley).

UNK(2) commented on maps:

- Upgrade classification of Herin Lane further east of where existing func class ends
- “lower” main st in rufus near curve

- _____
- _____
- _____
- _____

Step 4: If you have any additional comments, please provide them below.

Please provide your name and contact information below so that we may contact you with any follow up questions regarding your notes.

Name: _____

Organization: _____

Email address: _____

Phone number: _____

Thank you for your input!

If you would like to provide additional comments, please submit those to Georgia Macnab at Sherman County, or provide them online at www.shermancountytsp.com.

Table of Alternatives

Please focus on providing input on COUNTY, KENT, and BIGGS projects. If you have comments on the projects in other cities, please provide those as well.

ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority	Agree / Disagree?	If you disagree, please explain why.
Biggs									
11	Project	Bridge	US 97 Bridge over Columbia River at Biggs Junction	The Biggs Rapids Bridge over the Columbia River is classified as functionally obsolete, indicating that it is still structurally sound but does not meet current design standards for its purpose. It likely needs widening.	Improve or replace bridge to meet current design standards.	Biggs Junction	Medium Priority		Mark Coles commented: In Poss...(?). UNK agrees. JMC agrees.
18	Study	Intermodal	Intermodal freight connections at Biggs Junction	Intermodal freight connections are limited at Biggs Junction. Some truck to river cargo connections exist. No rail service in Biggs Junction.	Evaluate opportunities for improved freight connections between trucks, rail, and river cargo.	Biggs Junction	Medium Priority		Mark Coles agrees. UNK agrees. JMC agrees.
County									
15	Policy	Modernization	Roadway Design Guidelines	Roadway design guidelines for cities are not reflective of the rural character of the communities.	Update roadway design guidelines for each community.	County	High Priority		Mark coles commented: have concerns. UNK DISagrees. Cassie Strege (Wasco) agrees. JMC agrees.
72	Project	Safety	Traffic Speeds on US 97	Residents are concerned about traffic speeds on US 97 in the County.	Enforcement, Education, ITS	County	High Priority		Mark Coles agrees. UNK agrees. JMC agrees;
73	Project	Safety	Truck Volumes on US 97 in Cities	Residents are concerned about high truck volumes on the highway within the downtown areas of the cities.	Install speed reduction treatments on US 97 to reinforce posted speeds in cities.	County	High Priority		JMC agrees; Mark Coles agrees. UNK DISagrees.
74	Project	Safety	Passing Opportunities on US 97	Residents are concerned about the lack of passing opportunities on US 97 and the impatience drivers experience while being stuck behind trucks.	TSP to identify specific locations of concern and recommend ODOT conduct county-wide study.	County	High Priority		Mark Coles agrees. Paul Sather agrees and commented "Top Priority, Bell Ridge, any passing lanes going south are needed. Going south trucks can't get around each other." UNK agrees. Bonne whitley (GV) Agrees; JMC agrees;
10	Project	Active Transportation	Bicyclist Routes	Bicyclists are uncomfortable riding on US 97 due to high speeds and truck traffic.	Promote the bike routes that are currently popular routes and identify opportunities to route cyclists off of US 97 when possible. Provide signage to encourage cyclists to use alternate routes from the highway and provide warnings signs on these routes to inform drivers of the bicycle routes.	County	Medium Priority		Caitlin Blagg's comment: Bikes need to be aware of heavy farm equipment moving along back roads – farm equipment has limited visibility. Mark Coles commented that is should be Low Priority and said "not priority in my opinion." UNK DISagrees. JMC agrees;
57	Project	Active Transportation	Van Gilder Road	Van Gilder Road is a heavily used bike route in the County.	Provide directional signage for cyclists; warning signs for motorists to share the road.	County	Medium Priority		Mark Coles commented that is should be Low Priority. UNK DISagrees. JMC agrees;
12	Project	Bridge	Mud Hollow Road Bridge over Spanish Hollow Creek	The Mud Hollow Road bridge, immediately west of US 97, over Spanish Hollow Creek has a low sufficiency rating and is classified as structurally deficient by ODOT.	Improve or replace bridge to meet current design standards.	County	Medium Priority		Mark Coles commented that is should be Low Priority but also agreed with project noting that "this has history." UNK DISagrees. JMC agrees;

ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority	Agree / Disagree?	If you disagree, please explain why.
14	Project	Bridge	Finnegan Road Bridge over Finnegan Creek	The bridge on Finnegan Road over Finnegan Creek has a low sufficiency rating and is classified as structurally deficient.	Improve or replace bridge to meet current design standards.	County	Medium Priority		Mark Coles agrees. UNK agrees. JMC agrees;
26	Policy & Study	Modernization	Biggs-Rufus Highway Upgrade (Maddie's Hump)	There is concern about a potential closure of Biggs-Rufus Highway at this location. The road serves the local residents who live/work in Biggs/Rufus and also provides an important alternative route to the interstate when it closes.	Upgrade from minor collector to major collector between Biggs and Rufus. Study feasibility of widening shoulders and installing guardrail and/or rock guard for vehicles.	County	Medium Priority		Mark Coles agrees and commented "money pit". UNK agrees. JMC agrees;
31	Project	Safety	Northern Alternate Access to Raceway	The Oregon Raceway currently only has one access available: Blagg Lane from US 97.	Construct a secondary access from the Oregon Raceway to Barnum Lane.	County	Medium Priority		Caitlin Blagg commented "pave the secondary access." Mark Coles commented "Low – They can go east to get out, its just gravel). Tom Miller agrees with this project. UNK DISagrees. Bonne Whitley (GV) agrees and notes "include turn lane from US 97"; JMC agrees;
76	Policy	Modernization	Van Gilder Road Upgrade	Van Gilder Road is currently classified as a major collector from US 97 in Moro to the intersection with OR 206. The route is a popular alternative to US 97 for local residents.	Upgrade Van Gilder Road from a major collector to a minor arterial from US 97 in Moro to the intersection with OR 206. Route serves as a popular alternative to US 97 for local residents. Study the feasibility of improving the road to arterial standards.	County	Medium Priority		Mark Coles commented – "not sure, thinking." UNK agrees. JMC agrees;
16	Policy	Modernization	OR 206/Fulton Canyon Road & Biggs-Rufus Highway Upgrade	OR 206/Fulton Canyon Road (from the intersection of US 97 to the intersection with Biggs-Rufus Highway) and Biggs-Rufus Highway (from OR 206 to the western county limit) are currently classified as major collectors. These routes serve as popular alternatives to provide connections to I-84 (west) for local residents. Fulton Canyon Road access is restricted for trucks; trucks cannot use this route due to limited width.	Upgrade OR 206/Fulton Canyon Road from a major collector to a minor arterial from the intersection of US 97 to the intersection with Biggs-Rufus Highway. Route serves as a popular alternative to US 97 for local residents. Study the feasibility of improving the roads to arterial standards.	County	Medium Priority		Mark Coles commented "ODOT Concerns." UNK agrees. JMC agrees;
17	Policy	Modernization	Scott Canyon Road Upgrade	Scott Canyon Road is currently classified as a major collector from OR 206 in Wasco to Biggs-Rufus Highway in Rufus. Route serves as a popular alternative connection to I-84 (east) for local residents. This road is difficult for trucks to traverse due to limited width. Trucks are discouraged from using this route.	Upgrade Scott Canyon Road from a major collector to a minor arterial from OR 206 in Wasco to Biggs-Rufus Highway in Rufus. Route serves as a popular alternative to US 97 for local residents. Study the feasibility of improving the road to arterial standards.	County	Medium Priority		Mark Coles commented "not sure, thinking". UNK agrees. JMC agrees;
75	Policy &	Modernization	OR 216 Upgrade	OR 216 is currently classified as a major collector	Upgrade OR 216 from a major	County	Medium		Mark Coles commented "ODOT

ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority	Agree / Disagree?	If you disagree, please explain why.
	Study			from US 97 in Grass Valley to Deschutes River. This route is a popular route for river access along the Deschutes and for residents traveling to the west.	collector to a minor arterial from US 97 in Grass Valley to Deschutes River. This route is a popular route for river access along the Deschutes and for residents traveling to the east. Study the feasibility of improving the road to arterial standards.		Priority		Concerns.” UNK agrees. JMC agrees;
39	Project	Active Transportation	Ped/Bike Connections along Lonerock Road, east of City Limits of Moro	There are no ped/bike connections along Lonerock Road from the East City Limits of Moro to Fairgrounds.	Install a shared-use path along Lonerock Road from East City Limits to Fairgrounds.	County	Low Priority		Jessica Metta notes this should be Medium priority; Mark Coles agrees at Low Priority. UNK DISagrees. JMC agrees;
46	Project	Modernization	US 97 / Erskine Road	Narrow throat at intersection; road is crumbling.	Widen the throat of Erskine Road.	County	Low Priority		Mark Coles agrees (& stars this one) and notes Medium priority. UNK agrees. JMC agrees;
30	Project	Roadway	Eastern Alternate Access to Raceway	The Oregon Raceway currently only has one access available: Blagg Lane from US 97.	Pave Blagg Lane from Oregon Raceway to Lonerock Road. Consider upgrading the functional classification.	County	Low Priority		Caitlin Blagg agrees and commented “#1 – this needs to happen.” Mark Coles agrees and notes Medium priority. Tom Miller agrees with this project and commented that he would like to see higher priority – safety. UNK agrees. Bonne Whitley (GV) agrees and notes “need for another way from race track”; JMC agrees;
55	Study	Safety	Wildlife Crossings	Residents are concerned about wildlife crashes.	Conduct a study to determine where wildlife crossings are needed on the major state highways. Estimate the cost of installing the crossings.	County	Low Priority		UNK DISagrees. JMC agrees;
Grass Valley									
45	Project	Modernization	North Street/US 97	Turn radius for westbound right turn is too small to accommodate large vehicles.	Reconstruct North Street approach to US 97 to provide larger turn radius.	Grass Valley	Medium Priority		Jessica Metta notes “also add project to replace street lights with pedestrian scale attractive ones”; Mark Coles agrees with this project. Tom Miller agrees with this project. Bonne Whitley (GV) agrees and also commented “upgrade street lights”; JMC agrees;
Moro									
66	Project	Safety	High School Access	The high school currently has three access locations via two general areas. One has limited sight distance. The high school serves younger/vulnerable drivers. There is desire to restrict access to one location, but concerns about maintaining two points for emergency	Consolidate access points. Consider a new access point just north of high school, closing southern access, and converting northern access to ped/bike only route. Maintain secondary access for emergency	Moro	High Priority		Caitlin Blagg disagreed and commented “a gate will slow down emergency vehicles – not good in an emergency. This needs work, I just don’t think this is the answer.” Mark Coles agrees and notes “yes something different what we

ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority	Agree / Disagree?	If you disagree, please explain why.
				access. The elementary school will be moving to the same site, increasing traffic by about 25 vehicles per day (according to numbers provided to Brad Dehart by the school district).	vehicles only by using a gate.				currently have, left turn lane and decel lane." JMC agrees;
7	Project	Active Transportation	Sidewalks to High School	No pedestrian or bicycle facilities exist to connect the High School to residential areas of Moro.	Install sidewalks or a shared-use path between the High School and the existing sidewalks on Main Street. Consider converting some of the existing roadway to pedestrian and bicycle access only.	Moro	Medium Priority		Mark Coles commented that the high school loop road does have bike path H.S. north. JMC agrees;
38	Project	Active Transportation	Ped/Bike Connections along 4th Street to Azure Lane in Moro	There are no ped/bike connections along 4th Street/Van Gilder Road from Hood Street to Azure Lane, which serves a major employer, in Moro.	Install a shared-used path along 4th Street/Van Gilder Road from Hood Street to Azure Lane.	Moro	Medium Priority		JMC agreed but also noted – "Done, removed." Jessica Metta notes this should be changed to Low priority; Mark Coles commented "completed." JMC agrees;
9	Project	Active Transportation	Lonerock Road Sidewalks	No sidewalks exist along Lonerock Road between US 97 and the Steve Burnett Extension & Research Building.	Construct sidewalks on the north side of the road.	Moro	Low Priority		Jessica Metta notes this should be changed to medium priority; Mark Coles agrees. JMC agrees;
29	Project	Modernization	Moro Truck Traffic	Moro is bisected by US 97 which has a high truck volume. In addition, residents have observed vehicles traveling fast through the downtown area.	Install a bypass around Moro.	Moro	Low Priority		Caitlin Blagg commented "or install speed cameras & Fine people who are speeding." Jessica Metta notes "bad idea – do not support." Mark Coles disagrees. Bonne Whitley (GV) disagrees and notes "bad idea"; JMC agrees;
Rufus									
32	Project	Active Transportation	1st Street Sidewalks (Rufus)	1st Street lacks sidewalks and serves as an east-west route through Rufus.	Install sidewalks along both sides of 1st Street from Sullivan Ln to Wallace Street	Rufus	High Priority		Janice Strand (R) – agrees and commented "#1 - Highest – will definitely upgrade downtown but might actually slow traffic". Jessica Metta commented "also add ped-scale attractive street lights to this part." Mark Coles agrees. Mayor of Rufus commented online: "Human safety should be an important element for ODOT. When ODOT diverted traffic through town due to the closure of I-84 2 years ago, there was a major concern for safety. Rufus has a highway going through town. It is the feelings of the citizens that ODOT has no regard for human safety by ignoring the fact there is a need for sidewalks, safe parking, and erosion control for their bridges which are severely under maintained and falling apart. Once again we need to address these problems with long term fixes instead of bandage repairs. As the Mayor of Rufus it has been a major topic for our citizens and nothing has been done." JMC

ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority	Agree / Disagree?	If you disagree, please explain why.
									agrees (#1);
65	Project	Active Transportation	Main Street Sidewalks	Main Street lacks sidewalks. It is a collector in city limits.	Install sidewalks on Main Street from Vista Drive to 1st Street.	Rufus	High Priority		Janice Strand (R) – commented “S/B Low Priority – traffic too fast”. Mark Coles commented “Medium priority – Agree just don’t have the money.” He also commented “county rd scott canyon.” JMC agrees but noted Medium Priority;
19	Project	Modernization	Murray Street	This residential road is used as a cut-through in Rufus.	Install traffic calming measures on Murray Street to reinforce posted speed and deter cut-through traffic.	Rufus	High Priority		Janice Strand (R) – commented #3 – city can handle this. Mark Coles agrees. JMC agrees;
21	Project	Safety	2nd Street/Wallace Street	The existing intersection is too close to the highway.	Connect 2nd Street to 1st Street 300' west of Wallace Street. Vacate 2nd Street from new connection to Wallace Street. Consider extending 3rd Street to 2nd Street/1st Street.	Rufus	High Priority		Janice Strand (R) – commented #3 – intersection/access is confusing- extend guardrail parallel to Hwy 30. Mark Coles agrees. JMC agrees (#2);
68	Project	Safety	Intersection of 2nd Street/Biggs Rufus Highway	The intersection of 2nd Street/1st street/Biggs Rufus Highway is skewed.	Vacate 2nd Street from Murray Street to 1st Street.	Rufus	High Priority		Janice Strand (R) – agreed& commented #2. JMC agrees (#2);
34	Project	Active Transportation	Bikes on Main Street (Rufus)	Bicyclists share the roadway with vehicles along this road. Truck traffic is heavy during harvest time.	Widen to accommodate a bicycle lane.	Rufus	Medium Priority		Mark Coles agrees. JMC agrees;
70	Project	Active Transportation	Pedestrian Crossings of Biggs-Rufus Highway	There are no defined crossings or marked crosswalks along Biggs-Rufus Highway/1st Street in Rufus.	Stripe crossing of 1st Street at Main Street.	Rufus	Medium Priority		Janice Strand (R) – commented S/B High Priority. Mark Coles agrees. Mayor of Rufus commented online: “U.S.30 through town is a major concern. Parking is dangerous and has no safe parameters. Backing onto U.S.30 from a parking space has created fender benders and WILL cause a major life threatening accident. Our time to have ODOT address these issues with safety is long needed. We are a major area for recreation and traffic control is non-existent.” JMC agrees (#2 – noted High Priority);
23	Project	Bridge	1st Street/Biggs-Rufus Highway Bridge (west of Sullivan Ln)	Visual inspection indicates bridge needs repair	Evaluate structure integrity of the existing bridge and establish cost estimates for required improvements.	Rufus	Medium Priority		Janice Strand (R) – commented S/B High Priority. Mark Coles agrees. Mayor of Rufus commented online: “As the Mayor of Rufus there are a few points of concern along U.S. 30 through the city. One point of major concern and safety is the bridge at the east end of town. Obviously when originally constructed it worked well for the traffic and the size and weight of the vehicles in the 40’s. Times have change with vehicles, trucks and traffic. The bridge is undersized in relation to the road traffic, in dire need of major repair versus patching. Heavy loads are a common sight through our city” JMC agrees (#2 – noted High Priority);
24	Project	Bridge	1st Street/Biggs-	Visual inspection indicates bridge needs repair	Evaluate structure integrity of the	Rufus	Medium		Janice Strand (R) – commented S/B High

ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority	Agree / Disagree?	If you disagree, please explain why.
			Rufus Highway Bridge (east of Fowler St)		existing bridge and establish cost estimates for required improvements.		Priority		Priority. Mark Coles agrees. Mayor of Rufus commented: "As the Mayor of Rufus there are a few points of concern along U.S. 30 through the city. One point of major concern and safety is the bridge at the east end of town. Obviously when originally constructed it worked well for the traffic and the size and weight of the vehicles in the 40's. Times have change with vehicles, trucks and traffic. The bridge is undersized in relation to the road traffic, in dire need of major repair versus patching. Heavy loads are a common sight through our city" JMC agrees (#2 – noted High Priority);
22	Project	Modernization	Biggs Rufus Highway (1st Street) lacks defined on-street parking.	Access to business is not defined, and no on-street parking exists through downtown area.	Define access management along the highway and define on-street parking spaces.	Rufus	Medium Priority		Jessica Metta comments "High Priority – just because this would be related to project 32 – adding sidewalks will restrict access to some current parking." Mark Coles agrees. JMC agrees;
71	Study	Modernization	Rufus Parking Analysis	The downtown area of Rufus lacks a detailed parking analysis to help identify parking needs and options.	Conduct a parking options study and analysis for the business and residential block.	Rufus	Medium Priority		Janice Strand (R)-commented S/B Low Priority – we can aggect this with sidewalks & closure of Fowler St. between 1 st and 2 nd plus sidewalks with aprons can help. JMC agrees but notes Low Priority;
33	Project	Active Transportation	2nd Street Sidewalks (Rufus)	2nd Street lacks sidewalks. This street serves access to the Community Center.	Install sidewalks along the south side of 2nd Street from Main Street to Community Center	Rufus	Low Priority		JMC agrees;
67	Project	Active Transportation	Rufus Ped/Bike Access Under Freeway and Railroad	There is no ped/bike access under the freeway and river.	Conduct environmental impact study to determine whether Gerking Gulch is a feasible undercrossing of I-84 and railroad for ped/bike users between 1st Street and the Columbia River.	Rufus	Low Priority		Janice Strand (R)- commented S/B Medium Priority; JMC agrees but notes Medium Priority;
25	Project	Bridge	2nd Street Bridge (east of Fowler St)	Visual inspection indicates bridge needs repair	Evaluate structure integrity of the existing bridge and recommend closure of road if bridge is not structurally sound.	Rufus	Low Priority		Janice Strand (R)- commented – eliminate – we will close 2 nd at Fowler across bridge going East. JMC agrees;
69	Project	Modernization	Fowler Street Parking	There is a lack of defined parking spaces in downtown Rufus.	Vacate Fowler Street from 1st Street to 2nd Street and convert to a parking lot with access to 2nd Street only.	Rufus	Low Priority		JMC agrees;
Wasco									
56	Project	Modernization	Wasco Wayfinding Signage	The Wasco wayfinding signage is limited, and many drivers make incorrect turns.	Provide better signage to direct vehicles to highways & Rufus.	Wasco	High Priority		Mark Coles put a ? by this one. Cassie Strege (Wasco) agrees. JMC agrees;
35	Project	Active Transportation	Old Highway 97 Sidewalks	Old Highway 97 is a Major Collector in Wasco and lacks sidewalks from Clark Street to the north	Install sidewalks on both sides of Old Highway 97 from Clark Street to 6th	Wasco	Medium Priority		JMC agrees;

ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority	Agree / Disagree?	If you disagree, please explain why.
				and west. It provides connections to residences between Clark Street to Asher Street in Wasco.	Street and along the east side of the road from 6th Street to Asher Street.				
61	Project	Active Transportation	OR 206 Sidewalks (Clark Street to Scott Street)	OR 206 lacks sidewalks from Clark Street east to Scott Street (an arterial in city limits).	Install sidewalks on OR 206 from Clark Street east to Scott Street.	Wasco	Medium Priority		Mark Coles put a ? by this one. JMC agrees;
63	Project	Active Transportation	Clark Street Sidewalks	Clark Street from Old Highway 97 to Yates Street lacks sidewalks. It is a collector in the city limits.	Install sidewalks on Clark Street from Old Highway 97 to Yates Street.	Wasco	Medium Priority		JMC agrees;
64	Project	Active Transportation	OR 206 Sidewalks (Biggs Street to Church Street)	OR 206 from Biggs Street to Church Street lacks sidewalks. It is an arterial in city limits.	Install sidewalks on OR 206 from Biggs Street to Church Street.	Wasco	Medium Priority		JMC agrees;
62	Project	Active Transportation	Armsworthy Street Sidewalks	Armsworthy Street lacks sidewalks. It is a collector in the city limits.	Install sidewalks on Armsworthy Street from Church Street to Scott Street.	Waso	Medium Priority		JMC agrees;
Systemic Safety Projects									
3	Project	Systemic Safety	Fixed-object and non-collision crashes	The County-wide crash history showed a high proportion of fixed-object and non-collision crashes.	County wide systemic safety projects for rural roads (rumble strips, shoulder widening).	County	High Priority		Mark Coles commented "not in my opinion." JMC agrees;
5	Project or Study	Systemic Safety	Weather-related crashes	The County-wide crash history showed a high percentage of weather-related crashes. I-84 had the highest number of crashes in the County.	County wide systemic safety projects for weather related crashes, which may include: ITS treatments, different pavement materials, warning signs, etc.	County	High Priority		Mark Coles put a ? by this one. JMC agrees;
2	Project	Systemic Safety	Herin Lane	Crash rate is above the statewide 90th percentile for similar facilities. Key crash trends: fixed object and non-collision crashes as well as icy road conditions. This segment was studied because it was counted, and it likely represents similar characteristics of other County roads.	County-wide systemic safety projects for rural roads (rumble strips, shoulder widening)	County	High Priority		Mark Coles wrote medium priority and commented "more shoulders, no rumble strips. Like to know what year that crash data was pulled from." JMC agrees;
59	Project	Systemic Safety	Blagg Lane Curve Warning Signs	There is no warning of the approaching curve (& adjacent drop-off) when traveling westbound on Blagg Lane from the racetrack.	Install curve warning signs on the outside of the horizontal curve on Blagg Lane 1/2 mile east of US 97.	County	High Priority		Caitlin Blagg agreed and marked this as #3 for her. Mark Coles commented "I believe there is, I need to check." JMC agrees;
27	Project	Systemic Safety	US 97 / Old Highway 97	There is a high volume of southbound traffic on US 97 turning left onto Old Highway 97.	Install a southbound left-turn lane.	County	Medium Priority		JMC agrees;Cassie Strege (Wasco) agrees and says high priority - #2. Mark Coles agrees.
28	Project	Systemic Safety	US 97 / Clark Street	Northbound right-turn traffic from US 97 has little time to slow before making the right-turn	Install a northbound right-turn deceleration lane on US 97 at Clark Street	County	Medium Priority		JMC agrees;Cassie Strege (Wasco) agrees and says high priority - #1. Mark Coles changed this to low priority and commented "there is one just needs to be longer."
4	Project	Systemic Safety	US 97 from Grass Valley to Kent	Observations from the residents indicate there is a high frequency of crashes in this location.	Passing lanes, speed treatments/enforcements, curve warning signs, etc.	County	Medium Priority		Mark Coles commented "to County Line" instead of to Kent" JMC agrees;
42	Project	Systemic Safety	US 97 / Stark Lane	There is limited sight distance at the intersection of US 97 / Stark Lane.	Improve sight distance at the intersection of US 97/Stark Lane.	County	Medium Priority		Mark Coles commented: "? Really. I need to check". JMC agrees;

ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority	Agree / Disagree?	If you disagree, please explain why.
44	Project	Systemic Safety	US 97 / Rutledge Lane	There is limited sight distance at the intersection of US 97 / Rutledge Lane.	Improve sight distance at the intersection of US 97 / Rutledge Lane.	County	Medium Priority		JMC agrees;Mark Coles starred this one.
48	Project	Systemic Safety	Lonerock Road	Lonerock Road lacks guardrail on curves.	Install guardrail.	County	Medium Priority		Caitlin Blagg agreed and marked this as #2 for her. She commented "canyon coming out of Moro towards Coelsch Rd needs guardrail." Mark Coles agreed with this one and noted it as 2-3 on his priority list. JMC agrees;
49	Project	Systemic Safety	Van Gilder Road	Van Gilder Road lacks guardrail on curves.	Install guardrail.	County	Medium Priority		Mark Coles commented "low no crash data". JMC agrees;
50	Project	Systemic Safety	US 97 / Monkland Lane	There is limited sight distance at the intersection of US 97 / Monkland Lane.	Improve sight distance at the intersection of US 97 / Monkland Lane.	County	Medium Priority		Mark Coles commented "High" priority and noted it as 2-3 on his list. JMC agrees;
40	Project	Systemic Safety	US 97 / Liberty Lane	There is no southbound right-turn deceleration lane on US 97 at Liberty Lane.	Install southbound right-turn deceleration lane on US 97 at Liberty Lane.	County	Low Priority		Mark Coles noted this as medium priority and as his top 2-3 priorities. (Paul Sather commented that this intersection should be high priority); JMC agrees;
41	Project	Systemic Safety	US 97 / Bourbon Lane	There are no turn lanes from US 97 at Bourbon Lane.	Install turn lanes on US 97 at Bourbon Lane.	County	Low Priority		Mark Coles commented that this should be medium priority. (Paul Sather commented that this intersection should be high priority); JMC agrees;
47	Project	Systemic Safety	US 97 / Moore Lane	Short deceleration lane length.	Extend deceleration lane length.	County	Low Priority		Mark Coles commented that this should be low priority and noted "at least they have one." JMC agrees;
51	Project	Systemic Safety	Hay Canyon Road / Monkland Lane	There is a rock bluff at Hay Canyon Road / Monkland Lane that blocks sight distance.	KAI to evaluate intersection and identify project on 5/6.	County	Low Priority		Mark Coles noted Medium priority and circle "KAI" to find out what KAI is. JMC agrees;
52	Project	Systemic Safety	OR 206 / Fairview Road	There is a blind corner at OR 206 / Fairview Road.	KAI to evaluate intersection and identify project on 5/6.	County	Low Priority		JMC agrees;Mark Coles noted Medium priority and circle "KAI" to find out what KAI is.
43	Project	Systemic Safety	US 97 / Dobie Point Rd (Kent)	There are no turn lanes from US 97 at Dobie Point Road. This road is heavily used by harvest trucks.	Install turn lanes on US 97 at Dobie Point Road in Kent.	Kent	High Priority		Bonne Whitley (GV) agrees; Mark Coles agrees with this and noted "left-turn and decel". Paul Sather commented "Agree, Add bourbon, liberty, Wilcox- very high priority."
20	Project	Systemic Safety	W 1st Street / Industrial access	Access to industrial areas off of 1st Street/Biggs-Rufus Highway lacks turn lanes.	Construct westbound left-turn lane on 1st Street at Industrial Park	Rufus	High Priority		Mark Coles agrees with this.

Attachment B. Cost Estimate Calculations

Sherman County Transportation System T.E.C. Engineers Estimate

High School Shared Use Path				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 12,000.00	\$ 12,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 2,000.00	\$ 2,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 3,000.00	\$ 3,000.00
4	PROVIDE SUBGRADE PREPARATION	LS 1	\$ 8,000.00	\$ 8,000.00
5	F&P 1-1/2" MINUS AGGREGATE BASE	TON 937	\$ 35.00	\$ 32,793.70
6	F&P 3/4" MINUS AGGREGATE BASE	TON 268	\$ 45.00	\$ 12,046.67
7	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 531	\$ 110.00	\$ 58,433.12
8	F&P PAINT STRIPING	LS 1	\$ 1,000.00	\$ 1,000.00
9	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 500.00	\$ 500.00
			CONSTRUCTION QUOTE =	\$ 129,773.49
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 28,550.17
2	CONTINGENCY	LS 1	20%	\$ 25,954.70
			TOTAL QUOTE =	\$ 184,278.36
High School Shared Use Path				

Sherman County Transportation System T.E.C. Engineers Estimate

Lonerock Rd. Sidewalk				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 11,000.00	\$ 11,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 3,500.00	\$ 3,500.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 2,000.00	\$ 2,000.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 2,466	\$ 1.50	\$ 3,699.00
5	PROVIDE SUBGRADE PREPARATION	LS 1	\$ 5,000.00	\$ 5,000.00
6	F&P 1-1/2" MINUS AGGREGATE BASE	TON 69	\$ 35.00	\$ 2,424.14
7	F&P 3/4" MINUS AGGREGATE BASE	TON 20	\$ 45.00	\$ 890.50
8	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 47	\$ 110.00	\$ 5,183.31
9	F&P CONCRETE CURBS	LF 1,233	\$ 25.00	\$ 30,825.00
10	F&P CONCRETE WALK	SF 6,165	\$ 8.00	\$ 49,320.00
11	F&P CONCRETE WALK INTERSECTION RETURNS	EA 2	\$ 600.00	\$ 1,200.00
12	F&P CONCRETE WALK DRIVEWAY DROPS	EA 7	\$ 400.00	\$ 2,800.00
12	F&P PAINT STRIPING	LS 1	\$ 2,500.00	\$ 2,500.00
13	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 1,000.00	\$ 1,000.00
			CONSTRUCTION QUOTE =	\$ 121,341.95
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 26,695.23
2	CONTINGENCY	LS 1	20%	\$ 24,268.39
			TOTAL QUOTE =	\$ 172,305.57
Lonerock Rd. Sidewalk				

Sherman County Transportation System T.E.C. Engineers Estimate

2nd St. Realignment (Rufus)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 3,100.00	\$ 3,100.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 3,000.00	\$ 3,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 1,500.00	\$ 1,500.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 5,050	\$ 1.75	\$ 8,837.50
5	PROVIDE GRADE PREPARATION & DEMO	LS 1	\$ 2,500.00	\$ 2,500.00
6	F&P 1-1/2" MINUS AGGREGATE BASE	TON 143	\$ 40.00	\$ 5,711.65
7	F&P 3/4" MINUS AGGREGATE BASE	TON 41	\$ 50.00	\$ 2,039.88
8	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 73	\$ 75.00	\$ 5,508.92
9	F&P PAINT STRIPING	LS 1	\$ 1,500.00	\$ 1,500.00
10	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 1,250.00	\$ 1,250.00
			CONSTRUCTION QUOTE =	\$ 34,947.95
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 7,688.55
2	CONTINGENCY	LS 1	20%	\$ 6,989.59
			TOTAL QUOTE =	\$ 49,626.09
2nd St. Realignment (Rufus)				

Sherman County Transportation System T.E.C. Engineers Estimate

3rd St. Extension (Rufus)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 3,500.00	\$ 3,500.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 1,000.00	\$ 1,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 1,500.00	\$ 1,500.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 1,600	\$ 1.75	\$ 2,800.00
5	PROVIDE GRADE PREPARATION	LS 1	\$ 3,000.00	\$ 3,000.00
6	F&P 1-1/2" MINUS AGGREGATE BASE	TON 200	\$ 40.00	\$ 7,996.20
7	F&P 3/4" MINUS AGGREGATE BASE	TON 57	\$ 50.00	\$ 2,855.79
8	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 102	\$ 75.00	\$ 7,637.10
9	F&P PAINT STRIPING	LS 1	\$ 1,500.00	\$ 1,500.00
10	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 750.00	\$ 750.00
CONSTRUCTION QUOTE =			\$	32,539.09
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 7,158.60
2	CONTINGENCY	LS 1	20%	\$ 6,507.82
TOTAL QUOTE =			\$	46,205.51
3rd St. Extension (Rufus)				

Sherman County Transportation System T.E.C. Engineers Estimate

Eastern Alternate Raceway Access				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 160,000.00	\$ 160,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 4,000.00	\$ 4,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 2,000.00	\$ 2,000.00
4	PROVIDE GRADE PREPARATION	LS 1	\$ 50,000.00	\$ 50,000.00
5	F&P 1-1/2" MINUS AGGREGATE BASE	TON 19,900	\$ 30.00	\$ 597,000.00
6	F&P 3/4" MINUS AGGREGATE BASE	TON 5,700	\$ 40.00	\$ 228,000.00
7	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 11,600	\$ 65.00	\$ 754,000.00
8	F&P PAINT STRIPING	LS 1	\$ 6,500.00	\$ 6,500.00
9	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 1,000.00	\$ 1,000.00
			CONSTRUCTION QUOTE =	\$ 1,802,500.00
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 396,550.00
2	CONTINGENCY	LS 1	20%	\$ 360,500.00
			TOTAL QUOTE =	\$ 2,559,550.00
Eastern Alternate Raceway Access				

Sherman County Transportation System T.E.C. Engineers Estimate

Northern Alternate Raceway Access				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 31,000.00	\$ 31,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 1,500.00	\$ 1,500.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 3,000.00	\$ 3,000.00
4	PROVIDE CLEARING & GRUBBING	LS 1	\$ 4,000.00	\$ 4,000.00
5	PROVIDE GRADE PREPARATION	LS 1	\$ 10,000.00	\$ 10,000.00
6	F&P 1-1/2" MINUS AGGREGATE BASE	TON 3,094	\$ 40.00	\$ 123,777.98
7	F&P 3/4" MINUS AGGREGATE BASE	TON 884	\$ 50.00	\$ 44,206.42
8	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 1,579	\$ 75.00	\$ 118,421.66
9	F&P PAINT STRIPING	LS 1	\$ 2,500.00	\$ 2,500.00
10	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 2,500.00	\$ 2,500.00
			CONSTRUCTION QUOTE =	\$ 340,906.05
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 74,999.33
2	CONTINGENCY	LS 1	20%	\$ 68,181.21
			TOTAL QUOTE =	\$ 484,086.59
Northern Alternate Raceway Access				

Sherman County Transportation System T.E.C. Engineers Estimate

1st St. Sidewalks (Rufus - Concept 2)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 19,000.00	\$ 19,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 10,000.00	\$ 10,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 2,000.00	\$ 2,000.00
4	PROVIDE CLEARING & SUBGRADE PREPERATION	LS 1	\$ 3,000.00	\$ 3,000.00
5	F&P CONCRETE CURBS	LF 3,993	\$ 18.00	\$ 71,874.00
6	F&P CONCRETE WALK	SQ FT 19,965	\$ 5.00	\$ 99,825.00
7	PEDESTRIAN LIGHTING	LS 1	\$ 6,000.00	\$ 6,000.00
			CONSTRUCTION QUOTE=	\$ 211,699.00
7	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 46,573.78
8	CONTINGENCY	LS 1	20%	\$ 42,339.80
			TOTAL QUOTE=	\$ 300,612.58
1st St. Sidewalks (Rufus - Concept 2)				

Sherman County Transportation System T.E.C. Engineers Estimate

2nd St. Sidewalks (Rufus)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 23,000.00	\$ 23,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 6,000.00	\$ 6,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 2,500.00	\$ 2,500.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 13,320	\$ 1.75	\$ 23,310.00
5	F&P STORM CATCH BASIN	EA 4	\$ 1,500.00	\$ 6,000.00
6	F&P STORM SEWER MANHOLE	EA 3	\$ 2,000.00	\$ 6,000.00
6	F&P STORM SEWER	LF 1,000	\$ 40.00	\$ 40,000.00
7	PROVIDE SUBGRADE PREPARATION	LS 1	\$ 5,000.00	\$ 5,000.00
8	F&P 1-1/2" MINUS AGGREGATE BASE	TON 530	\$ 35.00	\$ 18,549.68
9	F&P 3/4" MINUS AGGREGATE BASE	TON 151	\$ 45.00	\$ 6,814.17
10	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 361	\$ 110.00	\$ 39,663.06
11	F&P CONCRETE CURBS	LF 1,080	\$ 25.00	\$ 27,000.00
12	F&P CONCRETE WALK	SF 5,400	\$ 8.00	\$ 43,200.00
13	F&P CONCRETE WALK INSTERSECTION RETURNS	EA 3	\$ 600.00	\$ 1,800.00
14	F&P CONCRETE WALK DRIVEWAY DROPS	EA 6	\$ 400.00	\$ 2,400.00
14	F&P PAINT STRIPING	LS 1	\$ 5,000.00	\$ 5,000.00
15	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 3,000.00	\$ 3,000.00
			CONSTRUCTION QUOTE = \$	259,236.90
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 57,032.12
2	CONTINGENCY	LS 1	20%	\$ 51,847.38
			TOTAL QUOTE = \$	368,116.40
2nd St. Sidewalks (Rufus)				

Sherman County Transportation System T.E.C. Engineers Estimate

Main St. Bike Lanes (Rufus)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 10,000.00	\$ 10,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 2,000.00	\$ 2,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 1,000.00	\$ 1,000.00
4	PROVIDE GRADE PREPARATION	LS 1	\$ 5,000.00	\$ 5,000.00
5	F&P 1-1/2" MINUS AGGREGATE BASE	TON 1,038	\$ 40.00	\$ 41,522.96
6	F&P 3/4" MINUS AGGREGATE BASE	TON 297	\$ 50.00	\$ 14,829.63
7	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 504	\$ 75.00	\$ 37,834.39
8	F&P PAINT STRIPING	LS 1	\$ 3,000.00	\$ 3,000.00
9	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 400.00	\$ 400.00
			CONSTRUCTION QUOTE =	\$ 115,586.99
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 25,429.14
2	CONTINGENCY	LS 1	20%	\$ 23,117.40
			TOTAL QUOTE =	\$ 164,133.52
Main St. Bike Lanes (Rufus)				

Sherman County Transportation System T.E.C. Engineers Estimate

Old Highway 97 Sidewalks (Wasco)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 65,000.00	\$ 65,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 12,000.00	\$ 12,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 4,000.00	\$ 4,000.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 47,658	\$ 1.75	\$ 83,401.50
5	F&P STORM CATCH BASIN	EA 10	\$ 1,500.00	\$ 15,000.00
6	F&P STORM SEWER MANHOLE	EA 5	\$ 2,000.00	\$ 10,000.00
6	F&P STORM SEWER	LF 2,100	\$ 40.00	\$ 84,000.00
7	PROVIDE SUBGRADE PREPARATION	LS 1	\$ 15,000.00	\$ 15,000.00
8	F&P 1-1/2" MINUS AGGREGATE BASE	TON 1,458	\$ 35.00	\$ 51,030.78
9	F&P 3/4" MINUS AGGREGATE BASE	TON 417	\$ 45.00	\$ 18,746.00
10	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 992	\$ 110.00	\$ 109,114.39
11	F&P CONCRETE CURBS	LF 3,639	\$ 25.00	\$ 90,975.00
12	F&P CONCRETE WALK	SF 18,195	\$ 8.00	\$ 145,560.00
13	F&P CONCRETE WALK INSTERSECTION RETURNS	EA 14	\$ 600.00	\$ 8,400.00
14	F&P CONCRETE WALK DRIVEWAY DROPS	EA 5	\$ 400.00	\$ 2,000.00
14	F&P PAINT STRIPING	LS 1	\$ 7,500.00	\$ 7,500.00
15	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 5,000.00	\$ 5,000.00
			CONSTRUCTION QUOTE = \$	726,727.67
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 159,880.09
2	CONTINGENCY	LS 1	20%	\$ 145,345.53
			TOTAL QUOTE = \$	1,031,953.30
Old Highway 97 Sidewalks (Wasco)				

Sherman County Transportation System T.E.C. Engineers Estimate

4th St. Shared Use Path				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 8,500.00	\$ 8,500.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 4,000.00	\$ 4,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 2,500.00	\$ 2,500.00
4	PROVIDE CLEARING & GRUBBING	LS 1	\$ 2,000.00	\$ 2,000.00
5	PROVIDE GRADE PREPARATION	LS 1	\$ 25,000.00	\$ 25,000.00
6	F&P 1-1/2" MINUS AGGREGATE BASE	TON 525	\$ 40.00	\$ 20,990.67
7	F&P 3/4" MINUS AGGREGATE BASE	TON 150	\$ 50.00	\$ 7,496.67
8	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 298	\$ 75.00	\$ 22,313.69
9	F&P PAINT STRIPING	LS 1	\$ 1,000.00	\$ 1,000.00
10	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 1,000.00	\$ 1,000.00
			CONSTRUCTION QUOTE =	\$ 94,801.03
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 20,856.23
2	CONTINGENCY	LS 1	20%	\$ 18,960.21
			TOTAL QUOTE =	\$ 134,617.46
4th St. Shared Use Path				

Sherman County Transportation System T.E.C. Engineers Estimate

Grass Valley North St. & US 97				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 5,000.00	\$ 5,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 10,000.00	\$ 10,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 3,000.00	\$ 3,000.00
4	PROVIDE CONCRETE AND PAINT REMOVAL	LS 1	\$ 5,000.00	\$ 5,000.00
5	PROVIDE GRADE PREPARATION	LS 1	\$ 10,000.00	\$ 10,000.00
6	PROVIDE N.B. RT. TURN CURB, RAMP, S.W. & DEMO	LS 1	\$ 7,000.00	\$ 7,000.00
7	F&P 1-1/2" MINUS AGGREGATE BASE	TON 133	\$ 40.00	\$ 5,329.40
8	F&P 3/4" MINUS AGGREGATE BASE	TON 38	\$ 50.00	\$ 1,903.36
9	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 84	\$ 75.00	\$ 6,317.68
10	F&P PAINT STRIPING	LS 1	\$ 7,500.00	\$ 7,500.00
11	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 3,000.00	\$ 3,000.00
			CONSTRUCTION QUOTE =	\$ 64,050.43
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 14,091.09
2	CONTINGENCY	LS 1	20%	\$ 12,810.09
			TOTAL QUOTE =	\$ 90,951.61
Grass Valley North St. & US 97				

Sherman County Transportation System T.E.C. Engineers Estimate

US 97 & Erskine Road				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 3,000.00	\$ 3,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 3,000.00	\$ 3,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 1,000.00	\$ 1,000.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 2,600	\$ 1.75	\$ 4,550.00
5	PROVIDE GRADE PREPARATION	LS 1	\$ 2,500.00	\$ 2,500.00
6	F&P 1-1/2" MINUS AGGREGATE BASE	TON 162	\$ 40.00	\$ 6,484.59
7	F&P 3/4" MINUS AGGREGATE BASE	TON 46	\$ 50.00	\$ 2,315.93
8	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 140	\$ 75.00	\$ 10,463.69
9	12" CULVERT REPLACEMENT	L.F. 95	\$ 50.00	\$ 4,750.00
10	F&P PAINT STRIPING / REMOVAL	LS 1	\$ 1,000.00	\$ 1,000.00
11	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 1,000.00	\$ 1,000.00
			CONSTRUCTION QUOTE =	\$ 40,064.21
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 8,814.13
2	CONTINGENCY	LS 1	20%	\$ 8,012.84
			TOTAL QUOTE =	\$ 56,891.18
US 97 & Erskine Road				

Sherman County Transportation System T.E.C. Engineers Estimate

OR 206 Sidewalks (East)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 41,000.00	\$ 41,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 8,000.00	\$ 8,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 3,000.00	\$ 3,000.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 19,968	\$ 1.50	\$ 29,952.00
5	F&P STORM CATCH BASIN	EA 8	\$ 1,500.00	\$ 12,000.00
6	F&P STORM SEWER MANHOLE	EA 3	\$ 2,000.00	\$ 6,000.00
6	F&P STORM SEWER	LF 1,200	\$ 40.00	\$ 48,000.00
7	PROVIDE SUBGRADE PREPARATION	LS 1	\$ 12,500.00	\$ 12,500.00
8	F&P 1-1/2" MINUS AGGREGATE BASE	TON 1,178	\$ 35.00	\$ 41,243.78
9	F&P 3/4" MINUS AGGREGATE BASE	TON 337	\$ 45.00	\$ 15,150.78
10	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 1,069	\$ 110.00	\$ 117,583.69
11	F&P CONCRETE CURBS	LF 2,331	\$ 25.00	\$ 58,275.00
12	F&P CONCRETE WALK	SF 11,655	\$ 8.00	\$ 93,240.00
13	F&P CONCRETE WALK INSTERSECTION RETURNS	EA 15	\$ 600.00	\$ 9,000.00
14	F&P CONCRETE WALK DRIVEWAY DROPS	EA 6	\$ 750.00	\$ 4,500.00
14	F&P PAINT STRIPING	LS 1	\$ 6,000.00	\$ 6,000.00
15	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 4,000.00	\$ 4,000.00
			CONSTRUCTION QUOTE = \$	509,445.26
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 112,077.96
2	CONTINGENCY	LS 1	20%	\$ 101,889.05
			TOTAL QUOTE = \$	723,412.26
OR 206 Sidewalks (East)				

Sherman County Transportation System T.E.C. Engineers Estimate

Armsworthy St. Sidewalks				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 30,000.00	\$ 30,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 6,000.00	\$ 6,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 2,500.00	\$ 2,500.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 1,664	\$ 1.50	\$ 2,496.00
5	F&P STORM CATCH BASIN	EA 4	\$ 1,500.00	\$ 6,000.00
6	F&P STORM SEWER MANHOLE	EA 4	\$ 2,000.00	\$ 8,000.00
6	F&P STORM SEWER	LF 1,200	\$ 40.00	\$ 48,000.00
7	PROVIDE SUBGRADE PREPARATION	LS 1	\$ 10,000.00	\$ 10,000.00
8	F&P 1-1/2" MINUS AGGREGATE BASE	TON 148	\$ 35.00	\$ 5,167.02
9	F&P 3/4" MINUS AGGREGATE BASE	TON 42	\$ 45.00	\$ 1,898.09
10	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 100	\$ 110.00	\$ 11,048.17
11	F&P CONCRETE CURBS	LF 1,649	\$ 25.00	\$ 41,225.00
12	F&P CONCRETE WALK	SF 11,785	\$ 8.00	\$ 94,280.00
13	F&P CONCRETE WALK INSTERSECTION RETURNS	EA 7	\$ 600.00	\$ 4,200.00
14	F&P CONCRETE WALK DRIVEWAY DROPS	EA 4	\$ 400.00	\$ 1,600.00
14	F&P PAINT STRIPING	LS 1	\$ 5,000.00	\$ 5,000.00
15	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 2,500.00	\$ 2,500.00
			CONSTRUCTION QUOTE = \$	279,914.28
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 61,581.14
2	CONTINGENCY	LS 1	20%	\$ 55,982.86
			TOTAL QUOTE = \$	397,478.28
Armsworthy St. Sidewalks				

Sherman County Transportation System T.E.C. Engineers Estimate

Clark Street Sidewalks				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 20,000.00	\$ 20,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 3,500.00	\$ 3,500.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 2,000.00	\$ 2,000.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 1,200	\$ 1.50	\$ 1,800.00
5	F&P STORM CATCH BASIN	EA 4	\$ 1,500.00	\$ 6,000.00
6	F&P STORM SEWER MANHOLE	EA 2	\$ 2,000.00	\$ 4,000.00
6	F&P STORM SEWER	LF 600	\$ 40.00	\$ 24,000.00
7	PROVIDE SUBGRADE PREPARATION	LS 1	\$ 2,500.00	\$ 2,500.00
8	F&P 1-1/2" MINUS AGGREGATE BASE	TON 84	\$ 35.00	\$ 2,949.07
9	F&P 3/4" MINUS AGGREGATE BASE	TON 24	\$ 45.00	\$ 1,083.33
10	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 57	\$ 110.00	\$ 6,305.73
11	F&P CONCRETE CURBS	LF 1,196	\$ 25.00	\$ 29,900.00
12	F&P CONCRETE WALK	SF 5,980	\$ 8.00	\$ 47,840.00
13	F&P CONCRETE WALK INSTERSECTION RETURNS	EA 7	\$ 600.00	\$ 4,200.00
14	F&P CONCRETE WALK DRIVEWAY DROPS	EA 1	\$ 400.00	\$ 400.00
14	F&P PAINT STRIPING	LS 1	\$ 4,000.00	\$ 4,000.00
15	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 2,500.00	\$ 2,500.00
			CONSTRUCTION QUOTE = \$	162,978.14
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 35,855.19
2	CONTINGENCY	LS 1	20%	\$ 32,595.63
			TOTAL QUOTE = \$	231,428.96
Clark Street Sidewalks				

Sherman County Transportation System T.E.C. Engineers Estimate

OR 206 Sidewalks (West)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 7,500.00	\$ 7,500.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 5,000.00	\$ 5,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 2,000.00	\$ 2,000.00
4	PROVIDE SUBGRADE PREPARATION	LS 1	\$ 15,000.00	\$ 15,000.00
5	F&P PEDESTRIAN BRIDGE ACROSS DRAINAGE	EA 2	\$ 6,000.00	\$ 12,000.00
6	F&P CONCRETE WALK	SF 7,225	\$ 8.00	\$ 57,800.00
7	F&P CONCRETE WALK INTERSECTION RETURNS	EA 8	\$ 600.00	\$ 4,800.00
8	F&P PAINT STRIPING	LS 1	\$ 1,500.00	\$ 1,500.00
9	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 2,000.00	\$ 2,000.00
CONSTRUCTION QUOTE =			\$	107,600.00
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 23,672.00
2	CONTINGENCY	LS 1	20%	\$ 21,520.00
TOTAL QUOTE =			\$	152,792.00
OR 206 Sidewalks (West)				

Sherman County Transportation System T.E.C. Engineers Estimate

Main St. Sidewalks (Rufus)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 31,000.00	\$ 31,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 8,000.00	\$ 8,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 3,000.00	\$ 3,000.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 20,568	\$ 1.75	\$ 35,994.00
5	F&P STORM CATCH BASIN	EA 8	\$ 1,500.00	\$ 12,000.00
6	F&P STORM SEWER MANHOLE	EA 2	\$ 2,000.00	\$ 4,000.00
6	F&P STORM SEWER	LF 800	\$ 40.00	\$ 32,000.00
7	PROVIDE SUBGRADE PREPARATION	LS 1	\$ 10,000.00	\$ 10,000.00
8	F&P 1-1/2" MINUS AGGREGATE BASE	TON 818	\$ 35.00	\$ 28,643.37
9	F&P 3/4" MINUS AGGREGATE BASE	TON 234	\$ 45.00	\$ 10,522.06
10	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 557	\$ 110.00	\$ 61,245.48
11	F&P CONCRETE CURBS	LF 1,477	\$ 25.00	\$ 36,925.00
12	F&P CONCRETE WALK	SF 7,385	\$ 8.00	\$ 59,080.00
13	F&P CONCRETE WALK INSTERSECTION RETURNS	EA 11	\$ 600.00	\$ 6,600.00
14	F&P CONCRETE WALK DRIVEWAY DROPS	EA 10	\$ 400.00	\$ 4,000.00
14	F&P PAINT STRIPING	LS 1	\$ 6,000.00	\$ 6,000.00
15	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 3,500.00	\$ 3,500.00
			CONSTRUCTION QUOTE = \$	352,509.91
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 77,552.18
2	CONTINGENCY	LS 1	20%	\$ 70,501.98
			TOTAL QUOTE = \$	500,564.07
Main St. Sidewalks (Rufus)				

Sherman County Transportation System T.E.C. Engineers Estimate

Moro High School South Access (Fork)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 1,950.00	\$ 1,950.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 4,000.00	\$ 4,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 500.00	\$ 500.00
4	PROVIDE PAINT REMOVAL	LS 1	\$ 5,000.00	\$ 5,000.00
5	F&P PAINT STRIPING	LS 1	\$ 5,000.00	\$ 5,000.00
6	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 5,000.00	\$ 5,000.00
			CONSTRUCTION QUOTE =	\$ 21,450.00
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 4,719.00
2	CONTINGENCY	LS 1	20%	\$ 4,290.00
			TOTAL QUOTE =	\$ 30,459.00
Moro High School South Access (Fork)				

Sherman County Transportation System T.E.C. Engineers Estimate

Moro High School North Access (Left Turn)				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 8,000.00	\$ 8,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 6,000.00	\$ 6,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 2,500.00	\$ 2,500.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 2,500	\$ 1.75	\$ 4,375.00
5	PROVIDE GRADE PREPARATION	LS 1	\$ 25,000.00	\$ 25,000.00
6	PROVIDE UTILITY RELOCATION	LS 1	\$ 10,000.00	\$ 10,000.00
7	F&P 1-1/2" MINUS AGGREGATE BASE	TON 556	\$ 40.00	\$ 22,226.19
8	F&P 3/4" MINUS AGGREGATE BASE	TON 159	\$ 50.00	\$ 7,937.92
9	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 382	\$ 75.00	\$ 28,674.36
10	F&P PAINT STRIPING	LS 1	\$ 5,000.00	\$ 5,000.00
11	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 3,000.00	\$ 3,000.00
			CONSTRUCTION QUOTE =	\$ 122,713.48
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 26,996.96
2	CONTINGENCY	LS 1	20%	\$ 24,542.70
			TOTAL QUOTE =	\$ 174,253.14
Moro High School North Access (Left Turn)				

Sherman County Transportation System T.E.C. Engineers Estimate

Existing Clark St. Sidewalks				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 12,500.00	\$ 12,500.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 2,000.00	\$ 2,000.00
3	F&P EROSION CONTROL MEASURES	LS 1	\$ 1,000.00	\$ 1,000.00
4	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 9,490	\$ 1.50	\$ 14,235.00
5	PROVIDE SUBGRADE PREPARATION	LS 1	\$ 10,000.00	\$ 10,000.00
6	F&P CONCRETE WALK	SF 12,525	\$ 8.00	\$ 100,200.00
7	F&P CONCRETE WALK INTERSECTION RETURNS	EA 7	\$ 600.00	\$ 4,200.00
8	F&P PAINT STRIPING	LS 1	\$ 2,000.00	\$ 2,000.00
9	F&P ALL NECESSARY SIGNAGE	LS 1	\$ 500.00	\$ 500.00
			CONSTRUCTION QUOTE =	\$ 146,635.00
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 32,259.70
2	CONTINGENCY	LS 1	20%	\$ 29,327.00
			TOTAL QUOTE =	\$ 208,221.70
Existing Clark St. Sidewalks				

Sherman County Transportation System T.E.C. Engineers Estimate

US 97 Lighting				
ITEM #	DESCRIPTION	U/M QTY	UNIT COST	TOTAL
1	MOBILIZATION, PROJ MGT, TEMP. FACILITIES, ETC.	LS 1	\$ 17,000.00	\$ 17,000.00
2	PROVIDE TRAFFIC CONTROL	LS 1	\$ 5,000.00	\$ 5,000.00
3	PROVIDE DEMOLITION & PAVEMENT REMOVAL	SQ FT 8,040	\$ 1.50	\$ 12,060.00
4	F&P 1-1/2" MINUS AGGREGATE BASE	TON 226	\$ 35.00	\$ 7,903.52
5	F&P 3/4" MINUS AGGREGATE BASE	TON 65	\$ 45.00	\$ 2,903.33
6	F&P 1/2" DENSE ODOT LEVEL 2 MHMAC PAVING	TON 205	\$ 110.00	\$ 22,532.48
7	F&P ORNAMENTAL LIGHT POLE	EA 24	\$ 5,000.00	\$ 120,000.00
			CONSTRUCTION QUOTE =	\$ 187,399.34
1	ENGINEERING, SURVEYING, MANAGEMENT	LS 1	22%	\$ 41,227.85
2	CONTINGENCY	LS 1	20%	\$ 37,479.87
			TOTAL QUOTE =	\$ 266,107.06
US 97 Lighting				

Cost estimates for remaining projects were developed using the following unit costs, with 42% contingency applied.

- New enhanced signs: \$600 per sign
- Marked crosswalk: \$2,000 per crossing
- Guardrail (based on ODOT bid costs)
 - Average cost for guardrail (small project only): \$53 per lin ft
 - Average cost estimate for anchors: \$903 ea
 - Average cost estimate for non-flare terminals: \$2,550 ea
- New curb: \$25 per lin ft
- Improving sight distance: \$5,000 per location
- Left-turn lanes on US 97 to side streets:
 - Assumptions: taper rate of 55:1 for 65 mph road; 660' of taper; 100' of storage, 450' of deceleration.
 - \$15 per sq ft of new pavement
 - Including contingency: \$304,920 per left-turn lane
- Right-turn deceleration lane on US 97: \$210,000 including contingency
- Rural intersection treatments:
 - \$360 per new sign
 - \$650 per new oversized sign
 - \$1,000 for Stop Ahead legend
 - \$7.55 per sq ft of raised median
- Shoulder widening: \$15 per sq ft of new pavement
- Rumble strips:
 - Centerline rumble strips (including labor): \$3,000 per mile
 - Shoulder rumble strips (including labor): \$850 per mile

Attachment C. Planned TSP Alternatives

Systemic Safety Roadway Departure Projects

ID	Roadway	Start MP or Cross Street	End MP or Cross Street	Priority	Cost Estimate	Potential Countermeasures							
						Inlaid Raised Pavement Markers	Widen Shoulder & Install Safety Edge	Install Centerline and Shoulder Rumble Strips*	Curve Warning Signs	Chevrons at Curves	Guard-rail	Passing Lanes^	Speed Enforcement
95	US 97	0.86	6.20	High	\$18,500	X		X	X	X			
4	US 97	42.43	43	High	\$4,800	X		X	X	X		X	X
87	OR 206	3	6.1	Medium	\$12,900	X		X	X	X			
88	US 97	22.5	23.9	Medium	\$8,600	X		X				X**	
89	Scott Canyon Road	Rufus City Limits	Herin Lane	Medium	\$9,500	X	X	X	X	X			
90	US 97	12	13.28	Medium	\$6,600	X		X					
91	US 97	33.33	33.58	Medium	\$4,000	X		X	X	X			
49 & 86	Van Gilder Road	4	5.6	Medium	\$14,700	X	X	X	X	X	X		
92	Scott Canyon Road	Medler Ln	Gerking Canyon Rd	Low	\$6,600	X	X	X	X	X			
2	Herin Lane	Scott Canyon Road	Oehman Road	Low	\$9,200	X	X	X					
48	Lonerock Road	N/A	N/A	High	\$5,300	X	X	X			X		
59	Blagg Lane	N/A	N/A	Low	\$3,500	X	X	X	X	X			

*Rumble strips should only be installed in locations where the shoulder width permits it.

^Passing lanes and speed enforcement should involve further study prior to implementation. Cost estimates do not include passing lanes.

**Passing lanes exist from approximately MP 23 to 23.55. The study should evaluate whether this passing lane can be lengthened.

Systemic Safety Intersection Projects

ID	Major Road	Minor Road	Priority	Cost Estimate	Potential Countermeasures						
					Rural Intersection Signing and Marking Improvements	Right-turn deceleration Lane	Lengthen existing right-turn deceleration lane	Install left-turn lane	Lengthen existing left-turn lane	Improve sight distance	Reduce intersection skew
50	US 97	Monkland Lane	High	\$309,900				X		X	
77	US 97	Barnum Lane	High	\$309,900				X			
93	US 97	Sawtooth Road	High	\$6,500	X						
94	US 97	Finnegan Road	Medium	\$18,500							X
42	US 97	Stark Lane	Medium	\$5,000						X	
47	US 97	Moore Lane	Low	\$25,600			X				
52	OR 206	Fairview Road	Medium	\$27,300	X						X
44	US 97	Rutledge Lane	Medium	\$25,600							X
80	US 97	Mud Hollow Road	Medium	\$309,900				X			
40	US 97	Liberty Lane	Medium	\$210,000		X					
41	US 97	Bourbon Lane	Medium	\$309,900				X			
27	US 97	Old Highway 97	Medium	\$309,900				X			
20	W 1 st Street / Biggs-Rufus Highway	Industrial Access	High	\$309,900				X			
43	US 97	Dobie Point Road	High	\$514,900		X		X			
28	US 97	Clark Street	Low	\$25,600			X				
81	US 97	Wilcox Lane	Medium	\$309,900				X			
51	Monkland Lane	Hay Canyon Road	Medium	\$3,200	X						

Planned Transportation Improvements in Sherman County (including unincorporated areas of Biggs and Kent)

ID	Name	Description	Category	Type	Cost Estimate ¹	Potential Funding Source			
						ODOT/State	County	Cities	Private
Short-Term Projects									
15	Roadway Design Guidelines	Update roadway design guidelines for each community.	Modernization	Policy	\$0		X	X	
72	Traffic Speeds on US 97	Improve education and enforcement related to traffic speeds in the County through programs and additional signage or campaigns. Evaluate the feasibility of using ITS treatments to reduce speed in Cities throughout the County.	Safety	Program/Study	\$20,000	X	X	X	
73	Truck Volumes and Speeds on US 97 in Cities	Install speed reduction treatments on US 97 to reinforce posted speeds in cities. Speed reduction treatments may consider automated speed enforcement, speed feedback signs, roadway modifications to visually indicate to drivers that they are entering urban area.	Safety	Project	\$56,800	X	X	X	
74	Passing Opportunities on US 97	Conduct study to determine locations where passing lanes are needed. Supplement with previous work ODOT has completed.	Safety	Study	\$10,000	X	X		
5	Weather-related crashes	Conduct study to determine feasibility and cost of implementing treatments for weather related crashes, including: ITS treatments, different pavement materials, warning signs, etc.	Safety	Study	\$10,000	X			
16	OR 206/Fulton Canyon Road & Biggs-Rufus Highway Upgrade	Upgrade OR 206/Fulton Canyon Road from a major collector to a minor arterial from the intersection of US 97 to the intersection with Biggs-Rufus Highway. Route serves as a popular alternative to US 97 for local residents. Study the feasibility of improving the roads to arterial standards.	Modernization	Policy & Study	\$10,000	X	X		
17	Scott Canyon Road Upgrade	Upgrade Scott Canyon Road from a major collector to a minor arterial from OR 206 in Wasco to Biggs-Rufus Highway in Rufus. Route serves as a popular alternative to US 97 for local residents. Study the feasibility of improving the road to arterial standards.	Modernization	Policy & Study	\$0		X		
75	OR 216 Upgrade	Upgrade OR 216 from a major collector to a minor arterial from US 97 in Grass Valley to Deschutes River. This route is a popular route for river access along the Deschutes and for residents traveling to the east. Study the feasibility of improving the road to arterial standards.	Modernization	Policy & Study	\$10,000	X			
76	Van Gilder Road Upgrade	Upgrade Van Gilder Road from a major collector to a minor arterial from US 97 in Moro to the intersection with OR 206. Route serves as a popular alternative to US 97 for local residents. Study the feasibility of improving the road to arterial standards.	Modernization	Policy & Study	\$10,000		X		
Medium and Long-Term Projects									
11	US 97 Bridge over Columbia River at Biggs Junction	Improve or replace bridge to meet current design standards. (Note: Future improvement or maintenance of this bridge falls under the Washington Department of Transportation's responsibility)	Bridge	Project	N/A	X			
18	Intermodal freight connections at Biggs Junction	Evaluate opportunities for improved freight connections between trucks, rail, and river cargo.	Intermodal	Study	\$20,000	X	X		X
14	Finnegan Road Bridge over Finnegan Creek	Study feasibility of improving or replacing bridge to meet current design standards.	Bridge	Project	\$20,000		X		
26	Maddie's Hump	Upgrade to major collector. Study feasibility of widening shoulders.	Modernization	Project & Study	\$10,000	X	X		
46	US 97 / Erskine Road	Widen the throat of Erskine Road.	Modernization	Project	\$56,900	X	X		
30	Eastern Alternate Access to	Pave Blagg Lane from Oregon Raceway to Lonerock Road. Consider upgrading the functional classification.	Roadway	Project	\$2,559,600		X		X

ID	Name	Description	Category	Type	Cost Estimate ¹	Potential Funding Source			
						ODOT/ State	County	Cities	Private
	Raceway								
31	Northern Alternate Access to Raceway	Construct a secondary access from the Oregon Raceway to Barnum Lane.	Safety	Project	\$484,100		X		X
12	Mud Hollow Road Bridge over Spanish Hollow Creek	Improve or replace bridge to meet current design standards.	Bridge	Project	\$100,000		X		
55	Wildlife Crossings	Conduct a study to determine where wildlife crossings are needed on the major state highways. Estimate the cost of installing the crossings.	Safety	Study	\$10,000	X			

Planned Transportation Improvements in Urban Areas

ID	City	Name	Description	Category	Type	Cost Estimate ¹	Potential Funding Source			
							ODOT/State	County	Cities	Private
Short-Term Projects										
23	Rufus	1st Street/Biggs-Rufus Highway Bridge (west of Sullivan Ln)	Evaluate structural integrity of the existing bridge and establish cost estimates for required improvements to support structural integrity and serve existing traffic use.	Bridge	Study	\$20,000	X	X		
24	Rufus	1st Street/Biggs-Rufus Highway Bridge (east of Fowler St)	Evaluate structure integrity of the existing bridge and establish cost estimates for required improvements.	Bridge	Study	\$20,000	X	X		
19	Rufus	Murray Street	Install traffic calming measures on Murray Street to reinforce posted speed and deter cut-through traffic.	Modernization	Project	\$10,000			X	
21	Rufus	2nd Street/Wallace Street	Connect 2nd Street to 1st Street 300' west of Wallace Street. Vacate 2nd Street from new connection to Wallace Street. Consider extending 3rd Street to 2nd Street/1st Street.	Safety	Project	\$95,800			X	
68	Rufus	Intersection of 2nd Street/Biggs Rufus Highway	Vacate 2nd Street from Murray Street to 1st Street.	Safety	Project	\$22,300	X		X	
56	Wasco	Wasco Wayfinding Signage	Provide better signage to direct vehicles to highways, Rufus, and Cottonwood Canyon State Park.	Modernization	Project	\$6,800			X	
66	Moro	High School Access	Restripe southern access points to restrict minor street left-turns to northern part of fork and make southern entrance one-way incoming northbound only. Add southbound left-turn lane at northern intersection on US 97. Relocated speed limit signs to reduce speed limit further in advance of intersection. Consider speed feedback signs to reduce speeds in advance of intersections.	Safety	Project	\$204,700	X	X	X	
Medium and Long-Term Projects										
22	Rufus	Biggs Rufus Highway (1st Street) lacks defined on-street parking.	Define access management along the highway and define on-street parking spaces.	Modernization	Project	\$28,400	X		X	
25	Rufus	2nd Street Bridge (east of Fowler St)	Close bridge to traffic when 2nd Street is closed to traffic as part of Project #68.	Bridge	Project	\$0			X	
69	Rufus	Fowler Street Parking	Vacate Fowler Street from 1st Street to 2nd Street and convert to a parking lot with access to 2nd Street only.	Modernization	Project	\$27,300			X	
71	Rufus	Rufus Parking Analysis	Conduct a parking options study and analysis for the business and residential block.	Modernization	Study	\$10,000			X	
45	Grass Valley	North Street/US 97	Reconstruct North Street approach to US 97 to provide larger turn radius, and add a left-turn lane from US 97 to North Street.	Modernization	Project	\$91,000	X		X	

¹ Cost estimate is planning level only. Does not include right-of-way costs.

Table 5-1. Planned Pedestrian and Bicycle Improvements in Sherman County

ID	Location	Name	Description	Category	Cost Estimate ¹	Potential Funding Source			
						ODOT/ State	County	Cities	Private
Short-Term Projects									
32	Rufus	1st Street Sidewalks (Rufus)	Install sidewalks and pedestrian scale lighting along both sides of 1st Street from Sullivan Ln to Wallace Street	Pedestrian	\$300,600	X		X	
70	Rufus	Pedestrian Crossings of Biggs-Rufus Highway	Stripe crossing of 1st Street at Main Street.	Pedestrian	\$2,800	X		X	
Medium- & Long-Term Projects									
10	County	Bicyclist Routes	Promote the bike routes that are currently popular routes and identify opportunities to route cyclists off of US 97 when possible. Provide signage to encourage cyclists to use alternate routes from the highway and provide warnings signs on these routes to inform drivers of the bicycle routes.	Bike	\$17,000	X	X		
57	County	Van Gilder Road	Provide directional signage for cyclists; warning signs for motorists to share the road.	Bike	\$5,100		X		X
39	County	Ped/Bike Connections along Lonerock Road, east of City Limits of Moro	Install a shared-use path along Lonerock Road from East City Limits to Fairgrounds.	Path	\$270,300		X		
34	Rufus	Bikes on Main Street (Rufus)	Widen to accommodate a bicycle lane.	Bike	\$164,100	X		X	
65	Rufus	Main Street Sidewalks	Install sidewalks on Main Street from Vista Drive to 1st Street.	Pedestrian	\$500,600				
67	Rufus	Rufus Ped/Bike Access Under Freeway and Railroad	Conduct environmental impact study to determine whether Gerking Gulch is a feasible undercrossing of I-84 and railroad for ped/bike users between 1st Street and the Columbia River.	Path	\$20,000	X		X	
33	Rufus	2nd Street Sidewalks (Rufus)	Install sidewalks along the south side of 2nd Street from Main Street to Community Center	Pedestrian	\$368,100			X	
35	Wasco	Old Highway 97 Sidewalks	Install sidewalks on both sides of Old Highway 97 from Clark Street to 6th Street and along the east side of the road from 6th Street to Asher Street.	Pedestrian	\$1,032,000	X	X		
61	Wasco	OR 206 Sidewalks (Clark Street to Scott Street)	Install sidewalks on OR 206 from Clark Street east to Scott Street.	Pedestrian	\$723,400	X		X	
62	Wasco	Armsworthy Street Sidewalks	Install sidewalks on Armsworthy Street from Church Street to Scott Street.	Pedestrian	\$397,500	X		X	
63	Wasco	Clark Street Sidewalks	Install sidewalks on Clark Street from Old Highway 97 to Yates Street.	Pedestrian	\$231,400	X		X	
64	Wasco	OR 206 Sidewalks (Biggs Street to Church Street)	Install sidewalks on OR 206 from Biggs Street to Church Street.	Pedestrian	\$152,800	X		X	
79	Wasco	Existing Clark Street Sidewalks	Upgrade existing sidewalks along Clark Street from Columbia to Ellis, and add sidewalks on the east side.	Pedestrian	\$208,200	X		X	
9	Moro	Lonerock Road Sidewalks	Construct sidewalks on the north side of the road.	Pedestrian	\$172,300		X	X	
38	Moro	Ped/Bike Connections along 4th	Install a shared-used path along 4th Street/Van Gilder Road from	Path	\$134,600		X	X	X

ID	Location	Name	Description	Category	Cost Estimate ¹	Potential Funding Source			
						ODOT/ State	County	Cities	Private
		Street to Azure Lane in Moro	Hood Street to Azure Lane.						
7	Moro	Sidewalks to High School	Install sidewalks or a shared-use path between the High School and the existing sidewalks on Main Street.	Pedestrian	\$184,300	X	X	X	
84	Grass Valley	US 97 Pedestrian Scale Lighting	Install pedestrian scale lighting along the sidewalks on US 97 in Grass Valley.	Pedestrian	\$266,100	X		X	

¹ Cost estimate is planning level only. Does not include right-of-way costs.