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TECHNICAL MEMORANDUM #4

Sherman County Transportation System Plan Update

Alternatives Analysis

Date: May 29, 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 provides a framework for the implementation of future transportation improvements. The framework includes an updated functional classification system for Sherman County and roadway design standards that will guide future improvement projects. Specific improvement projects are summarized, which include projects to address all needs identified in Memorandum #3 (Existing and Future Needs) as identified by the public, the Project Advisory Committee, Sherman County staff, and ODOT staff. The memorandum is organized in three main sections based on these elements; proposed functional classification, roadway design standards, and transportation alternatives.

FUNCTIONAL CLASSIFICATION

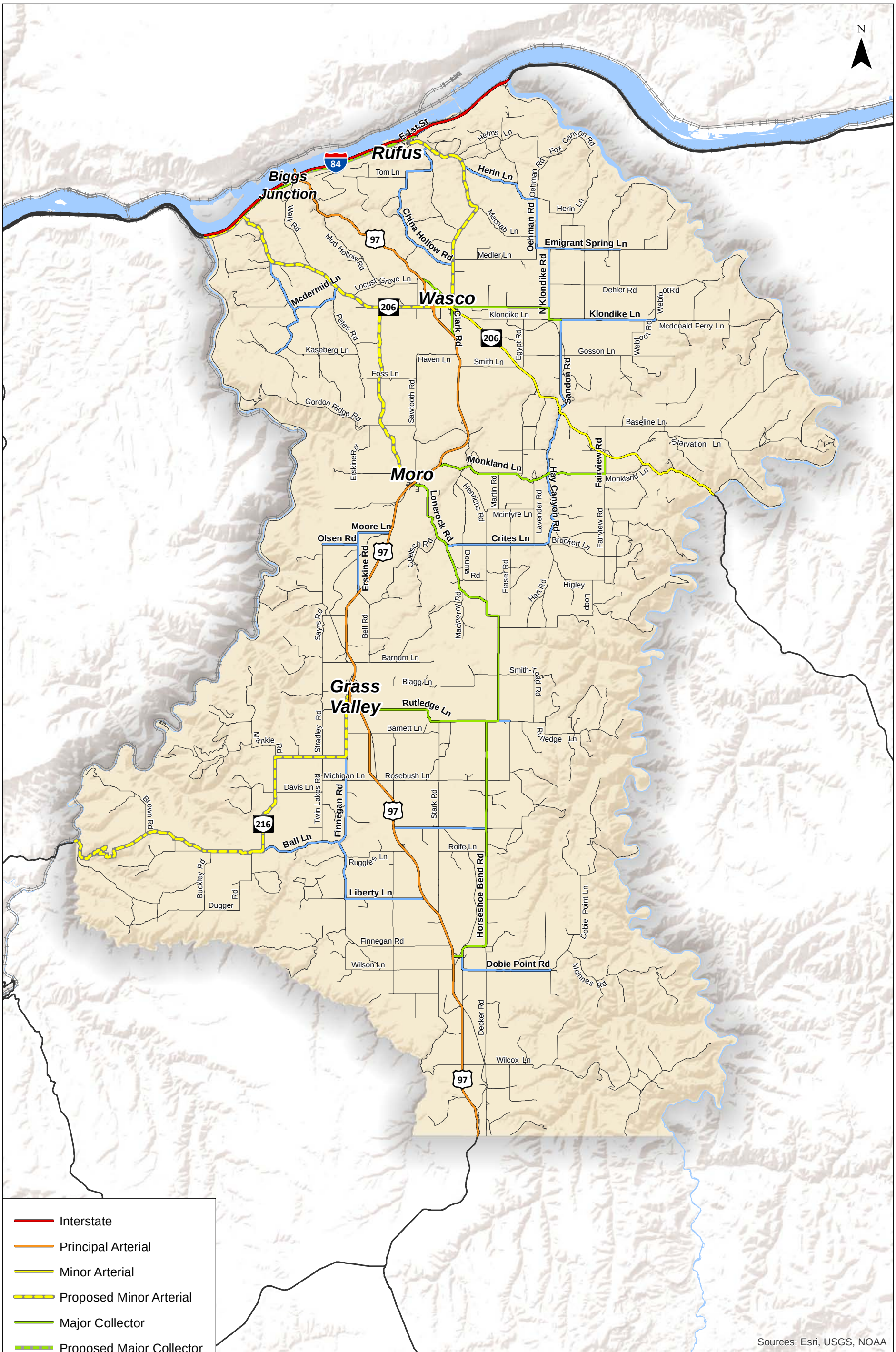
Functional classification of a roadway characterizes the intended purpose, amount and type of vehicular traffic it is expected to carry, provisions for non-auto travel, and the roadway's design standards. The classification considers the adjacent land uses and transportation modes that should be accommodated.

Proposed classifications identified for Sherman County include: Interstate, Principal Arterial, Major Collector, Minor Collector, and Local Road. Table 4-1 provides a detailed description of each classification. Figure 4-1 presents the proposed functional classifications for all existing County roadways, based on the existing Federal Functional Classifications. The functional classifications apply in both urban and rural environments.

Table 4-1. 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.
Principal 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.
Minor Arterial	Primary function is to link cities and larger destinations and form an integrated network providing interstate and inter-county service. Minor Arterials provide service to corridors with trip lengths and travel density greater than collectors and local roads. Travel speeds are relatively high, and the interference to the through-movement is typically minimal on Minor Arterials. Minor Arterials provide more land access than Principal Arterials.
Major Collector	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. 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.
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.

Source: http://www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/section03.cfm#Toc336872980



Roadway Functional Classification
Sherman County, Oregon

Figure **4-1**

K:\H_Portland\proj\file\18054 - Sherman County TSP\gis\memo 4\4-1 Functional Classifications County.mxd - agriffin - 4:17 PM 5/29/2015

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Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet Intl
Data Source: Wasco County

PROPOSED COUNTY ROADWAY DESIGN GUIDELINES

The proposed roadway design guidelines are based on existing right-of-way widths, former County and City guidelines, and guidance in the *American Association of State Highway Transportation Officials (AASHTO) Green Book*. The guidelines take into consideration roadway functional and operational characteristics, including traffic volume, capacity, operating speed, and safety. As the County road system develops, the guidelines will support safe and efficient movement of people and goods while also accommodating the orderly development of adjacent lands.

Separate design guidelines are presented for rural and urban roadways given the different purpose and function of each. The guidelines are intended to serve as a minimum dimensions. Rural standards apply to roadways outside of City limits, and urban standards apply to facilities within City limits. The unincorporated communities of Biggs and Kent have a rural character and have historically followed rural County guidelines.

Rural Roadway Design Guidelines

Exhibit 4-1 through Exhibit 4-3 summarize the proposed cross-sections for rural roadways. County arterial roadway surfaces should be paved, but other lower-order roadway surfaces could be gravel or paved, depending on the level of use of the roads and the ability of the local jurisdiction to maintain them. Major and minor collectors that serve industrial traffic should be paved when feasible.

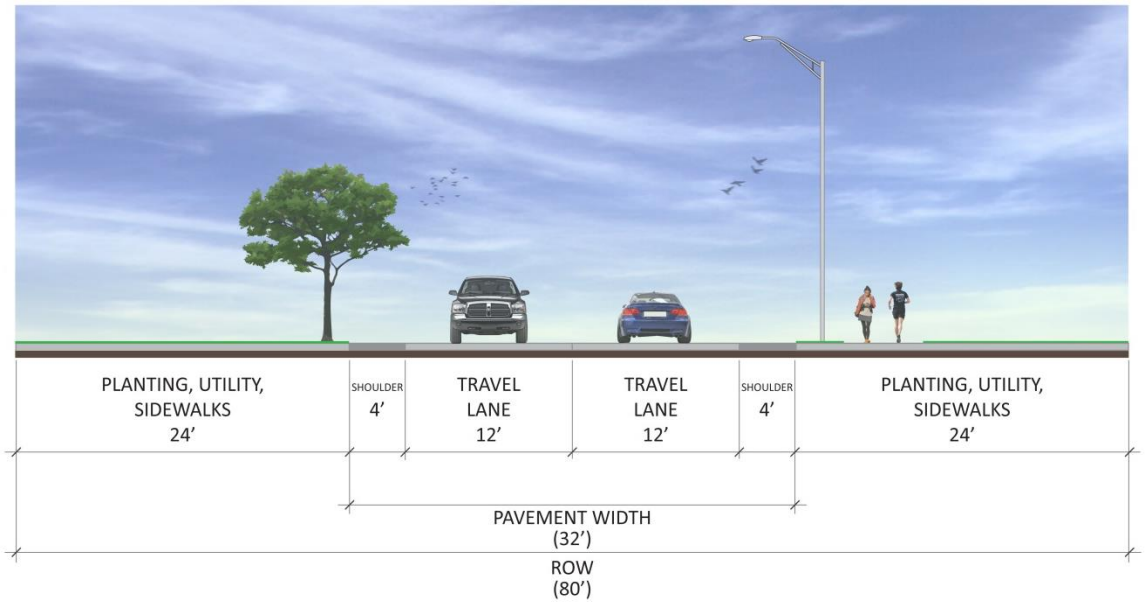


Exhibit 4-1. Proposed Rural Arterial Cross-Section

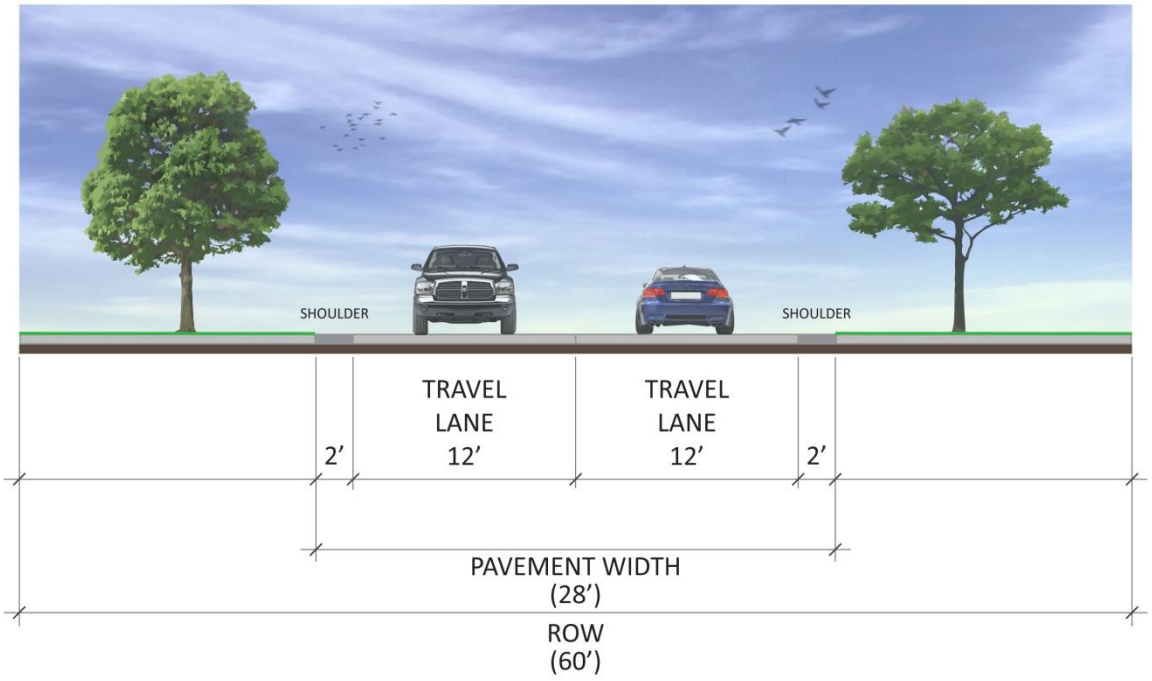


Exhibit 4-2. Proposed Rural Collector Cross-Section

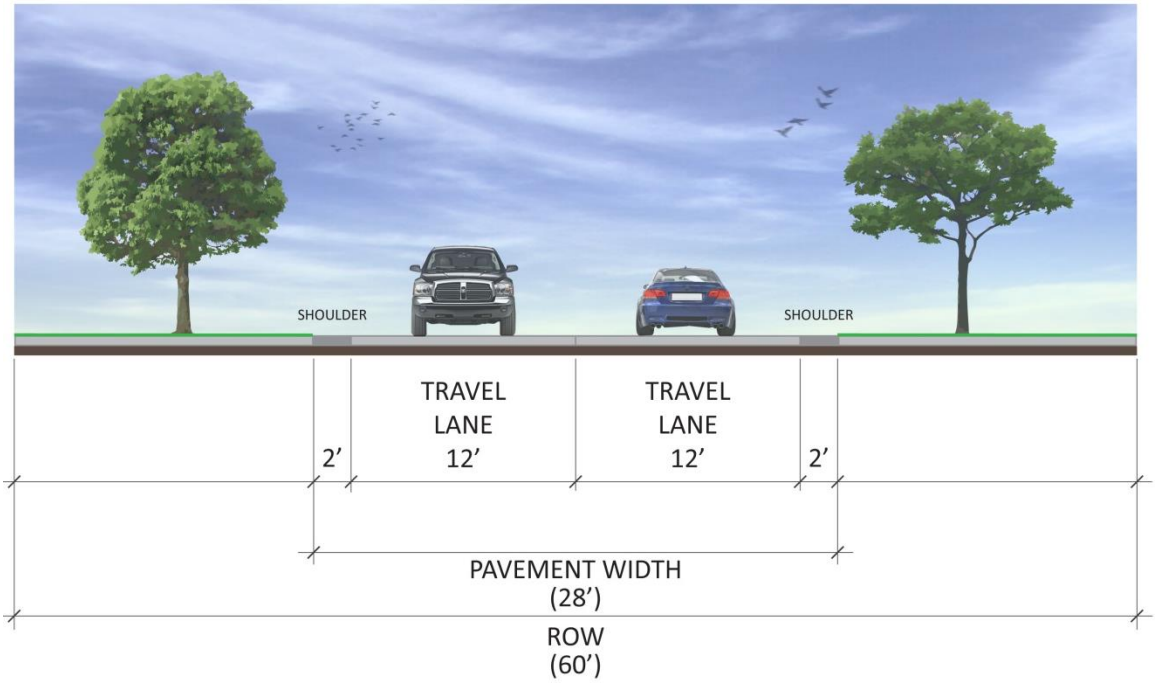


Exhibit 4-3. Recommended Rural Local Street Cross-Section

Urban Roadway Design Guidance

Each of the four cities had individual street design guidelines in their current TSP. However, these guidelines recommended narrow street widths, which were smaller than 20 feet in some cases. The Cities have expressed that the narrow street widths below 20 feet are not appropriate for local streets in Sherman County. Therefore, the proposed guidelines set a new minimum cross section for urban streets in all cities.

Exhibit 4-4 through Exhibit 4-6 illustrate the proposed roadway design guidelines for urban areas. Although many of the existing local roads do not include connected sidewalks, adopting design guidelines that match the local vision for the area is a tool that will help the City achieve goals such as connected sidewalks in the future. Developers will have the option to obtain an exception in situations where sidewalks are not appropriate.

Each City is reviewing the proposed design guidelines and will be developing their individual urban design guidelines that reflect the unique situations of each City. The City-specific design guidelines will be presented in Tech Memo 5 and may differ slightly from the exhibits below.

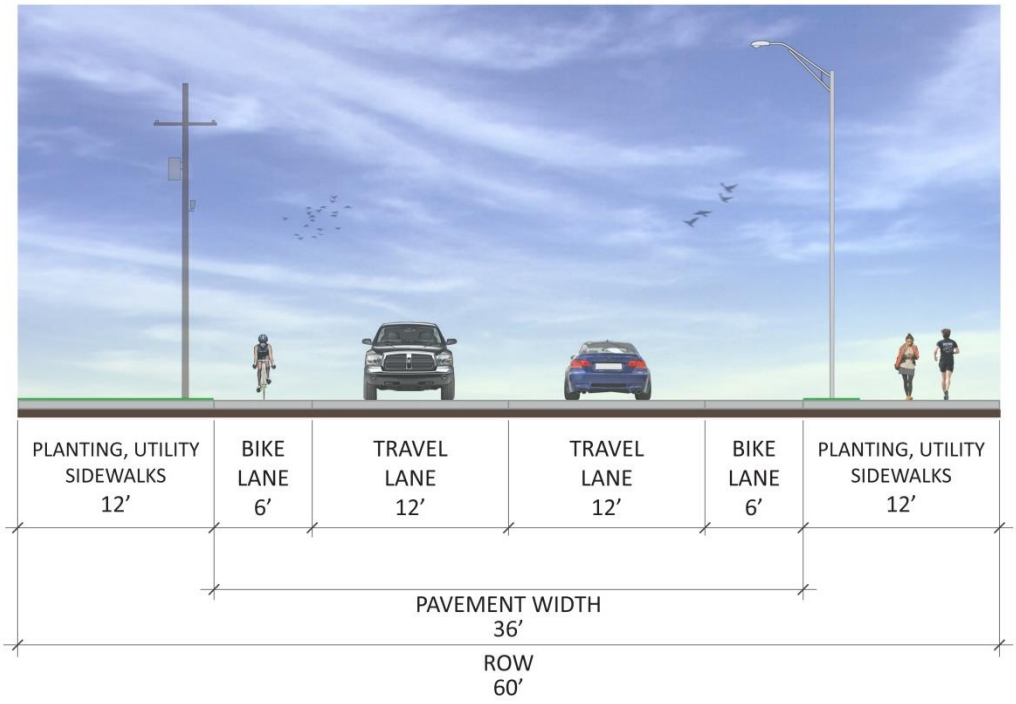


Exhibit 4-4. Urban Arterial Cross-Section

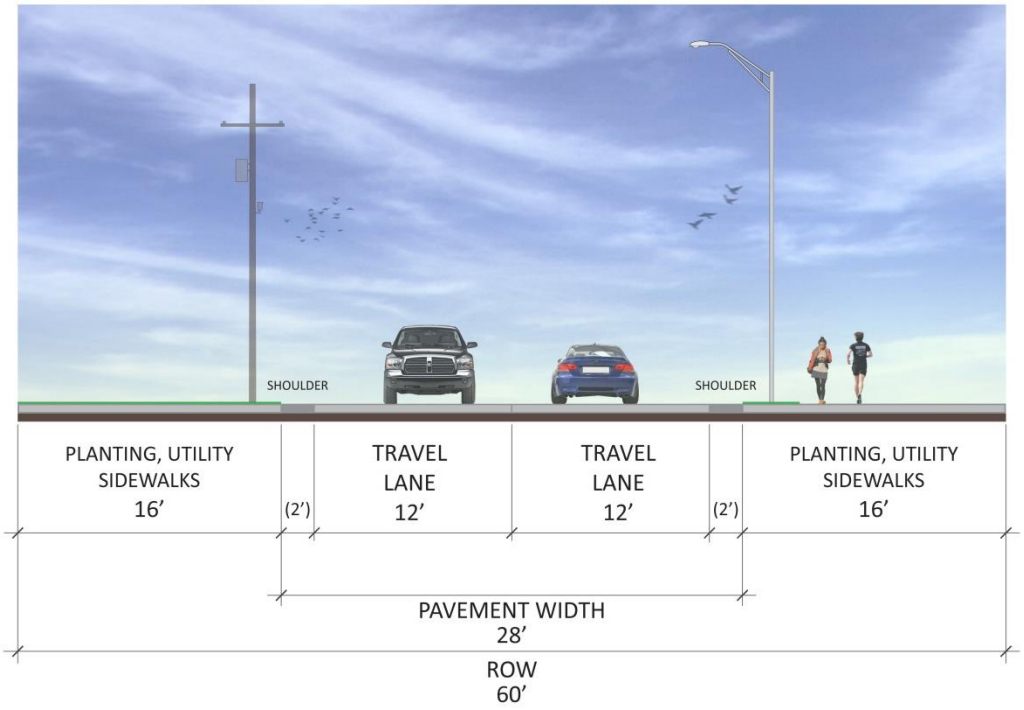


Exhibit 4-5. Urban Collector Cross-Section

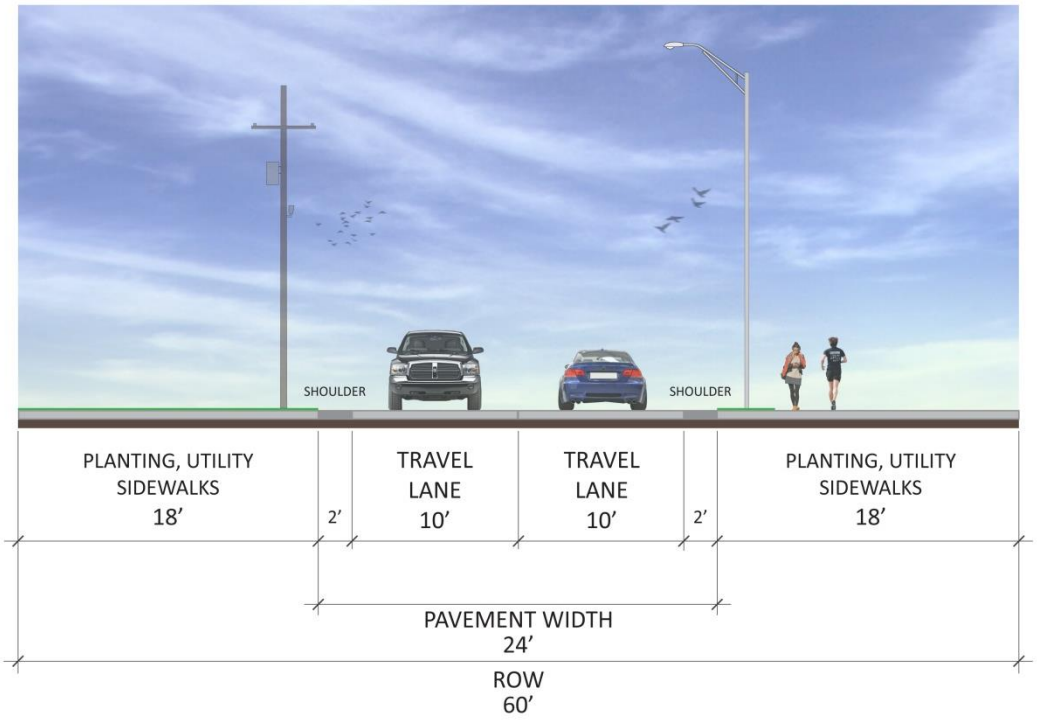


Exhibit 4-6. Urban Local Street Cross-Section

TRANSPORTATION ALTERNATIVES

Transportation alternatives for Sherman County were developed and evaluated to address transportation needs based on the current and future forecast traffic conditions. The future transportation needs of the County were determined based on: comments received from the public, Sherman County, ODOT, members of the Project Advisory Committee; a field review conducted by Kittelson and Associates, Inc. (KAI) in 2015; technical analysis of traffic operations; and, a review and analysis of crash history reports. Alternatives include a combination of projects, policies, programs, pilot projects, and studies. Table 4-2 shows the financially unconstrained transportation alternatives identified to address the future transportation needs.

Transportation alternatives shown in the table are categorized as *projects, policies*, and *studies*. *Projects* are physical improvements to the transportation system while *policies* reflect changes to County or City code that would impact the transportation system. *Studies* indicate the need for some level of long-term improvements where a detailed evaluation of potential improvements is beyond the scope of the TSP.

The projects identified in Table 4-2 address various transportation issues, which generally include: modernization, safety issues, pedestrian/bicycle enhancements, and bridge replacement/ preservation needs. These issues are briefly described below:

- Modernization: These projects include upgrades to address operational issues or upgrades to roadways that are serving higher traffic volumes than they were originally intended to serve. These projects cannot be conducted as part of regular maintenance activities and may include activities such as shoulder widening or full reconstruction of a roadway.
- Safety: These projects consider opportunities to improve existing facilities to reduce probability and severity of crashes.
- Active Transportation: These projects improve existing facilities or create new facilities that provide greater connectivity and increase access to pedestrian and bicycle routes within Cities and between communities.

Several projects are categorized as Systemic Safety Projects. These projects are intended to be low-cost improvements such as additional signage, rumble strips, or guardrail installation that can be completed at multiple locations as part of a systemic project. These will be refined in the Preferred Alternative and presented as a Systemic Safety Plan.

Table 4-2 includes an identification number for reference to the project locations shown Figure 4-2 and Figure 4-3.

The next Technical Memorandum will summarize the details of individual projects, including the location, cost estimate, and conceptual sketches of proposed cross-sections or intersection realignments.

Table 4-2. Transportation Alternatives

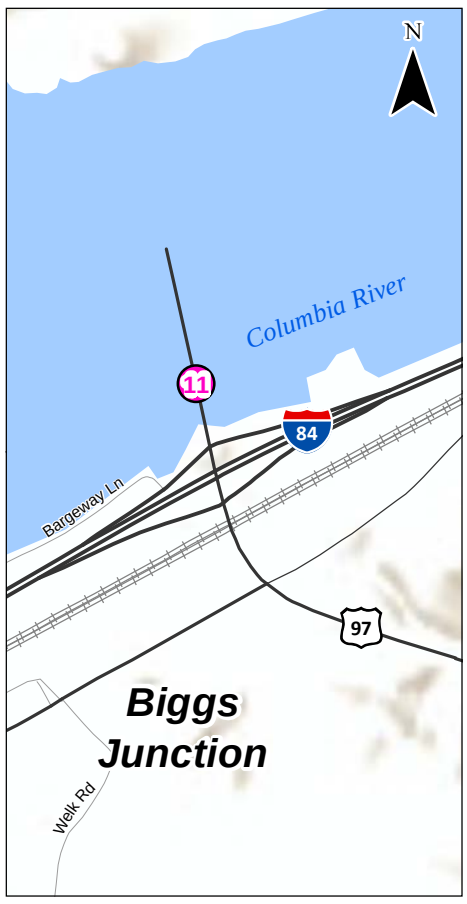
ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority
Biggs							
11	Project	Bridge	US 97 Bridge over Columbia River at Biggs Junction	The Biggs Rapids Bridge over the Columbia River is classified as functionally obsolete, indicating that it is still structurally 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
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
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
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
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
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
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
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
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
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
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
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
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	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	County	Medium Priority

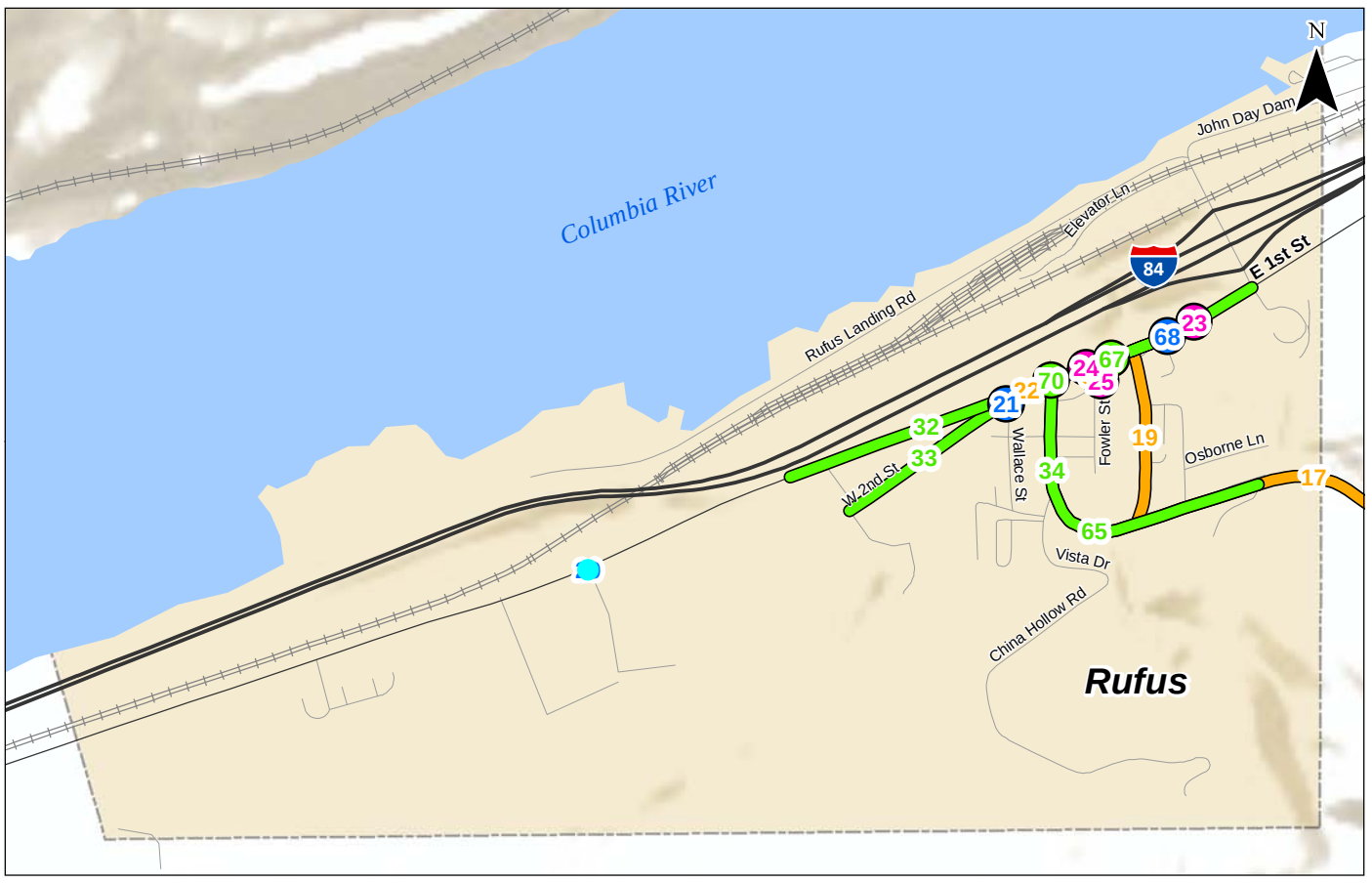
ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority
				collectors. These routes serve as popular alternatives to provide connections to I-84 (west) for local residents. Fulton Canyon Road access is restricted for trucks; trucks cannot use this route due to limited width.	serves as a popular alternative to US 97 for local residents. Study the feasibility of improving the roads to arterial standards.		
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
75	Policy & Study	Modernization	OR 216 Upgrade	OR 216 is currently classified as a major collector 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.	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.	County	Medium Priority
46	Project	Modernization	US 97 / Erskine Road	Narrow throat at intersection; road is crumbling.	Widen the throat of Erskine Road.	County	Medium Priority
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	Medium Priority
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	Low Priority
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
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
Grass Valley							
45	Project	Modernization	North Street/US 97	Turn radius for westbound right turn is too small to accommodate large vehicles, and no left-turn lane is provided from US 97 to North Street.	Reconstruct North Street approach to US 97 to provide larger turn radius, and add a left-turn lane from US 97 to North Street.	Grass Valley	Medium Priority
84	Project	Active Transportation	US 97 Pedestrian Scale Lighting	Existing lighting along US 97 in Grass Valley is typical overhead lighting. The community desires more attractive, pedestrian scale lighting.	Install pedestrian scale lighting along the sidewalks on US 97 in Grass Valley.	Grass Valley	Low Priority
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 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).	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 adding directional signs to school to raise awareness. Consider speed feedback signs to reduce speeds in advance of intersections. Document available sight distance and determine if minimum standards can be met.	Moro	High Priority

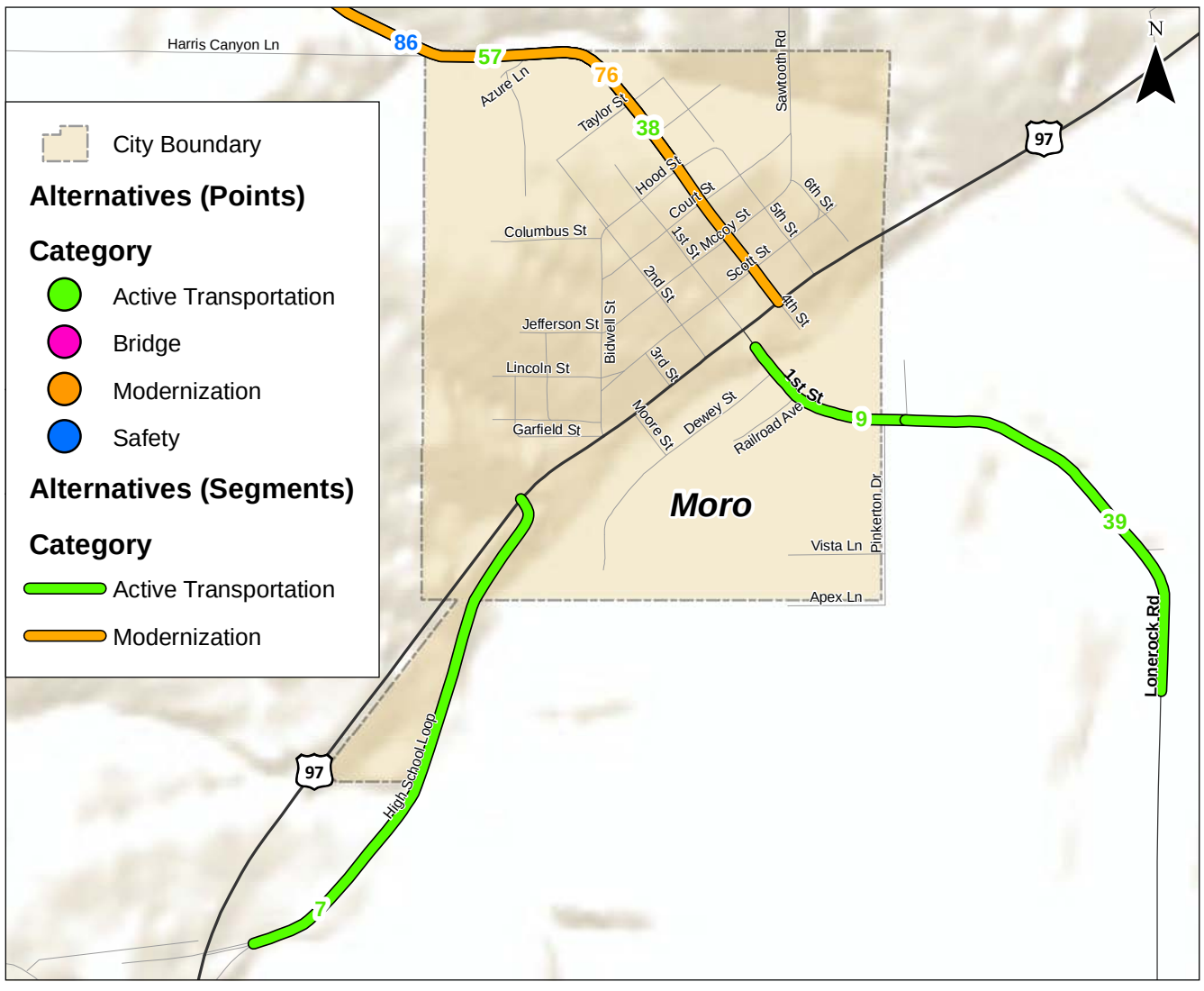
ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority
29	Not a Project	Modernization	Moro Truck Traffic	Moro is bisected by US 97 which has a high truck volume. In addition, residents have observed vehicles traveling fast through the downtown area.	This issue will be addressed as part of project number #72, which is focused on reducing traffic speeds on US 97 in all cities in the County.	Moro	High Priority
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
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	Medium Priority
7	Project	Active Transportation	Sidewalks to High School	A wide shoulder serves as the pedestrian and bicycle connections between the High School and residential areas of Moro.	Install sidewalks or a shared-use path between the High School and the existing sidewalks on Main Street.	Moro	Low Priority
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
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
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
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
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
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	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	High Priority
24	Project	Bridge	1st Street/Biggs-Rufus Highway Bridge (east of Fowler St)	Visual inspection indicates bridge needs repair	Evaluate structure integrity of the existing bridge and establish cost estimates for required improvements.	Rufus	High Priority
67	Project	Active Transportation	Rufus Ped/Bike Access Under Freeway and Railroad	There is no pedestrian/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 pedestrian/bike users between 1st Street and the Columbia River.	Rufus	Medium Priority
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
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
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	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
25	Project	Bridge	2nd Street Bridge (east of Fowler St)	Visual inspection indicates bridge needs repair.	Close bridge to traffic when 2nd Street is closed to traffic as part of Project #68.	Rufus	Low Priority
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	Rufus	Low Priority

ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority
					convert to a parking lot with access to 2nd Street only.		
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, and Cottonwood Canyon State Park.	Wasco	High Priority
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 and west. It provides connections to residences between Clark Street to Asher Street in Wasco.	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.	Wasco	Medium Priority
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
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
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
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.	Wasco	Medium Priority
79	Project	Active Transportation	Existing Clark Street Sidewalks	Existing sidewalks on Clark Street between Columbia Street and Ellis Street are in poor condition and are missing on the east side of the road between Barnett Street and Columbia Street as well as Ellis Street and OR 206 (East).	Upgrade existing sidewalks along Clark Street from Columbia to Ellis, and add sidewalks on the east side.	Wasco	Low Priority
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
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
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
59	Project	Systemic Safety	Blagg Lane Curve Warning Signs	There is one warning sign for the approaching curve (& adjacent drop-off) when traveling westbound on Blagg Lane from the racetrack.	Install additional curve warning signs and/or chevrons on the outside of the horizontal curve on Blagg Lane 1/2 mile east of US 97. One advanced curve warning sign exists for westbound traffic.	County	High Priority
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	High Priority
48	Project	Systemic Safety	Lonerock Road	Lonerock Road lacks guardrail on curves.	Install guardrail.	County	High Priority
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 and consider adding a left-turn lane.	County	High Priority
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 left- and right-turn lanes on US 97 at Dobie Point Road in Kent.	Kent	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
86	Project	Systemic Safety	Van Gilder Road Curve Warning Signs	Van Gilder Road is a heavily used route for vehicles in the County and many of the curves lack curve warning signs. KAI observed skid marks on	Install curve warning signs and chevrons as appropriate.	County	High Priority

ID	Type	Category	Name	Description of Need	Description of Alternative(s)	Location	Priority
				one curve.			
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. on US 97 from south County line to Grass Valley.	County	Medium Priority
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
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
77	Project	Systemic Safety	US 97 / Barnum Lane	There is no left-turn lane from US 97 to Barnum Lane.	Install a left-turn lane from US 97 to Barnum Lane to serve alternate access to race track if alternate connection is provided to race track.	County	Medium Priority
80	Project	Systemic Safety	US 97 / Mud Hollow Road	There is no northbound left-turn lane from US 97 to Mud Hollow Road.	Install a northbound left-turn lane from US 97 to Mud Hollow Road.	County	Medium Priority
49	Project	Systemic Safety	Van Gilder Road	Van Gilder Road lacks guardrail on curves.	Install guardrail.	County	Medium Priority
81	Project	Systemic Safety	US 97 / Wilcox Lane	There is no southbound left-turn lane at US 97 / Wilcox Lane.	Install a left-turn lane at US 97 / Wilcox Lane.	County	Medium Priority
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	Medium Priority
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	Medium Priority
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	Medium Priority
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	Medium Priority
47	Project	Systemic Safety	US 97 / Moore Lane	Short deceleration lane length.	Extend deceleration lane length.	County	Low Priority
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.	Extend length of the existing northbound right-turn deceleration lane on US 97 at Clark Street.	County	Low Priority



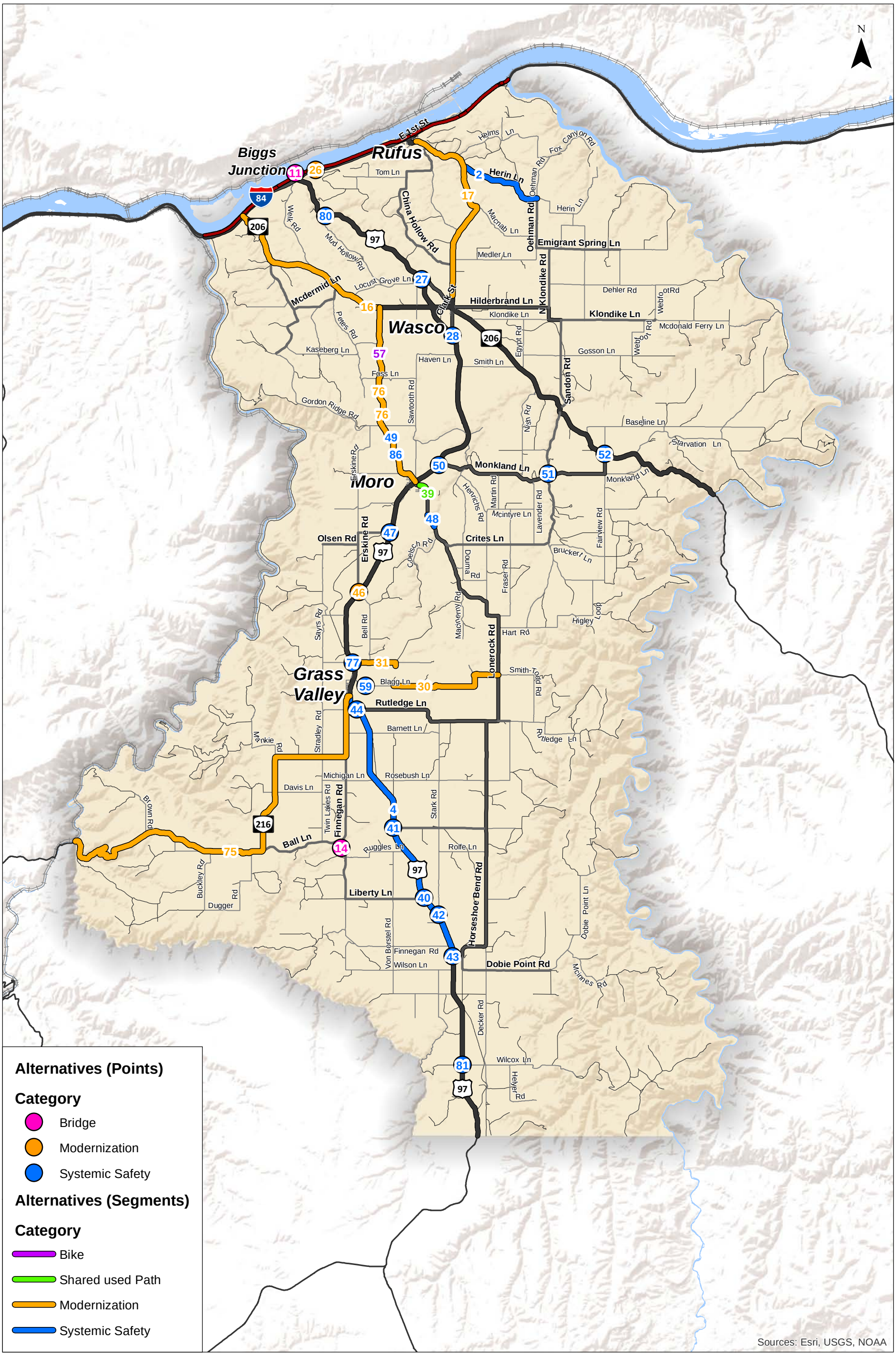




Urban Transportation Alternatives
Sherman County, Oregon

Figure **4-2**

Coordinate System: NAD 1983 Oregon Statewide Lambert Feet Intl
Data Source: Wasco County



Alternatives (Points)

Category

- Bridge
- Modernization
- Systemic Safety

Alternatives (Segments)

Category

- Bike
- Shared used Path
- Modernization
- Systemic Safety

Rural Transportation Alternatives
Sherman County, Oregon

Figure **4-3**

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KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Coordinate System: NAD 1983 StatePlane Oregon North FIPS 3601 Feet Intl
Data Source: Wasco County

PROJECT TIMING

The projects shown in Table 4-2 were categorized into short-term and medium/long-term projects. Short-term projects include those that could be addressed within the next five years and align with the High Priority projects. Some medium/long-term projects may be addressed within the next five to ten years; others will be considered during planning projects, but will not likely be addressed for 10 to 20 years.

Each project was categorized based on known transportation needs, forecast travel demand, crash history, and input from the County and ODOT staff. The amount of funding available per year is expected to have the greatest impact on the timing of these projects.

CONCLUSION

This memorandum summarizes future transportation projects proposed for Sherman County. The projects were developed and evaluated to address current and future transportation needs based on the current and 20-year project forecasts. The projects do not take into consideration available or potential future revenue sources to implement the projects.

The Project Advisory Committee has reviewed these projects, and their input is reflected in the project prioritization in this memorandum. The next step will be to develop a financially-constrained list of projects based on future potential revenue sources for the projects. Technical Memorandum 5 will summarize the financially-constrained project list.