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TECHNICAL MEMORANDUM #6

Lake County & City of Paisley Transportation System Plan Update

Lake County Preferred Alternative

Date: April 19, 2016 Project #: 18547
To: Devin Hearing, ODOT
Rick DuMilieu, Lake County Road Master

From: Matt Kittelson, PE
cc: Project Advisory Committee

This memorandum outlines the draft preferred transportation system plan (TSP) projects for the Lake County TSP. A separate memorandum describes the specific projects within the City of Paisley, which will ultimately be a subset of the overall Lake County TSP. The TSP will contain elements consistent with OAR 660-12-020 and goals of OAR 660-12-025. The preferred plan includes recommendations for Lake County's transportation system, with a specific focus on the following elements:

- Roadway System Plan
- Access Management Plan
- Pedestrian and Bicycle System Plan
- Public Transportation System Plan
- Air/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. In addition, the plan relies heavily on feedback from the Technical & Public Advisory Committees (TAC/PAC) and in-person and on-line public workshops.

Draft projects were reviewed at the TAC/PAC meeting in October 2015. Feedback was incorporated into the preferred project list and prioritization.

ROADWAY SYSTEM PLAN

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

Functional Classifications

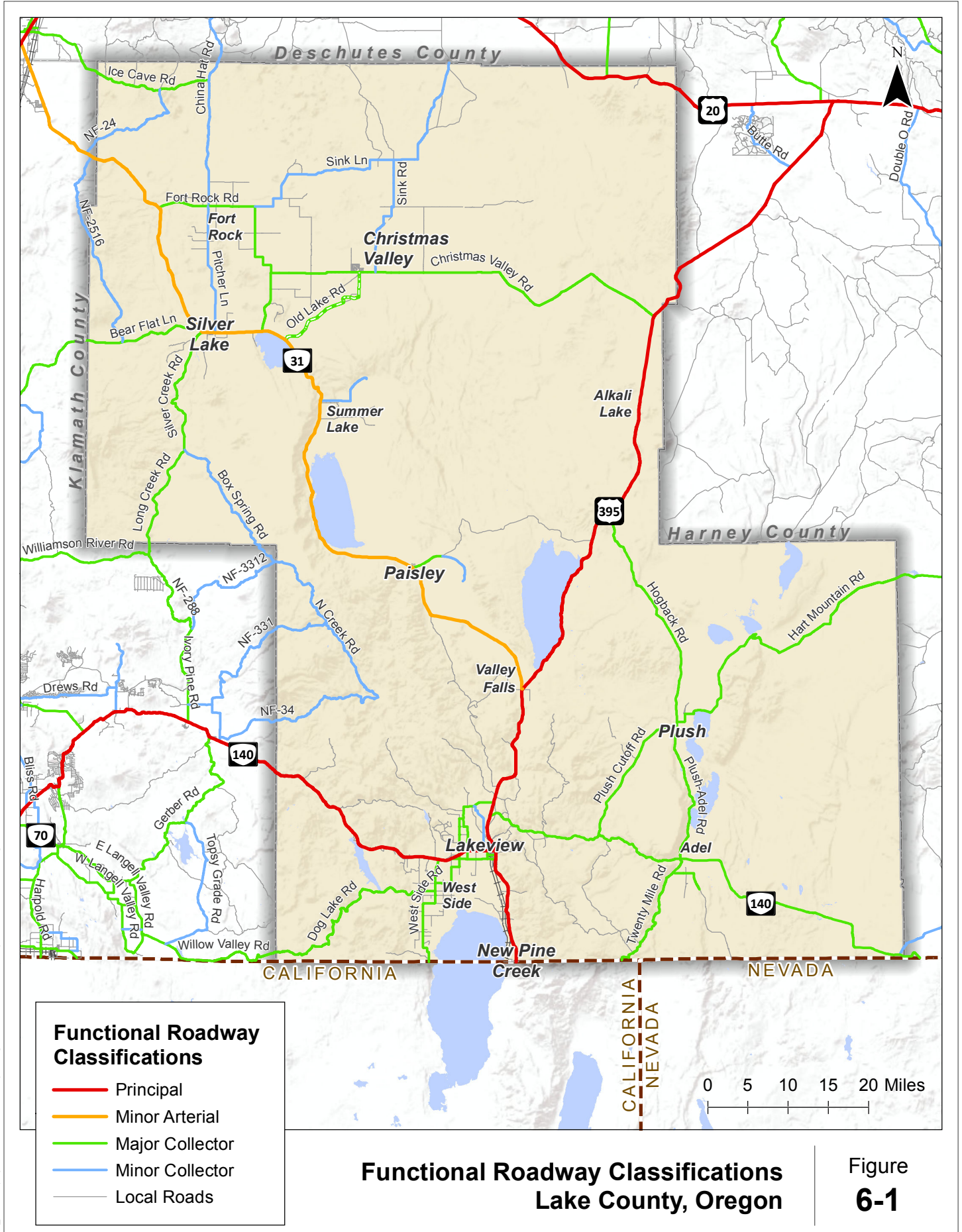
Functional classification of a roadway characterizes the intended purpose, amount and type of vehicular traffic it is expected to carry, provisions for non-auto travel, and the roadway’s design standards. The classification considers access to adjacent land uses and the transportation modes to be accommodated.

A description of the preferred functional classification system within Lake County is summarized in Table 6-1. A map of the preferred functional classification system is shown in Figure 6-1.

The only proposed modification to the existing functional classification is to upgrade Old Lake Road from a Minor Collector to a Major Collector. A project currently in-process will result in a physical upgrade, consistent with the proposed change in functional classification for this roadway.

Table 6-1 Lake County and Town of Paisley Functional Classification Descriptions

Functional Classification	Description
Principal Arterial	The primary function of a Principal Arterial is to carry high levels of regional vehicular traffic at high speeds. US 97 and OR 140 west of Lakeview are the only two highways classified as Principal Arterials within Lake County.
Minor Arterial	Minor Arterials are similar to Principal Arterials, but do provide a higher degree of accessibility to lower classified roadways and private driveways. OR 31 is the only highway classified as a Minor Arterial within Lake County and the City of Paisley.
Major Collector	These facilities serve as access routes between population centers and Principal/Minor Arterials. Within Lake County these facilities are generally minor state highways and major county roads. They represent the most significant county-owned facilities.
Minor Collector	These facilities are similar to Major Collectors, but do allow a higher degree of accessibility to Local Roads and private driveways.
Local Road	The primary function of Local Roads are to provide direct access to adjacent land uses. They are characterized by short roadway distances, slow speeds, and low volumes.



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Functional Roadway Classifications

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Roads

**Functional Roadway Classifications
Paisley, Oregon**

**Figure
6-1**

Design Guidelines

The proposed roadway design guidelines are based on existing County standards and a strong preference of County officials to focus resources on roadway maintenance efforts. The guidelines take into consideration general roadway purpose and available county resources. 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.

Basic County roadway design standards are shown in Exhibit 1 and Exhibit 2.

In addition to these standards, a roadway standard that includes bike lanes is also included. This standard is expected to be used for roadways identified as recreational routes to promote regional recreation or tourism. Exhibit 3 shows the preferred configuration of a roadway that includes bicycle facilities. Based on design details, available right-of-way, or maintenance considerations, other layouts, including a multi-use path on one side, may be considered.

Roadways that are part of the state transportation system are subject to ODOT design standards.

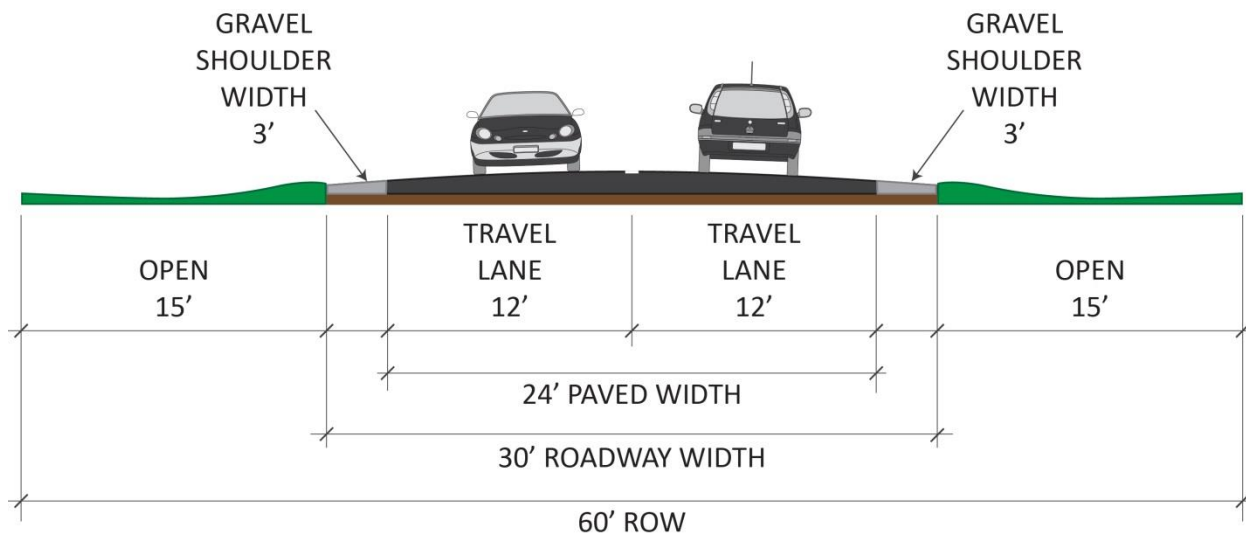


Exhibit 1: Paved County Roads (Collector or Local Roads)

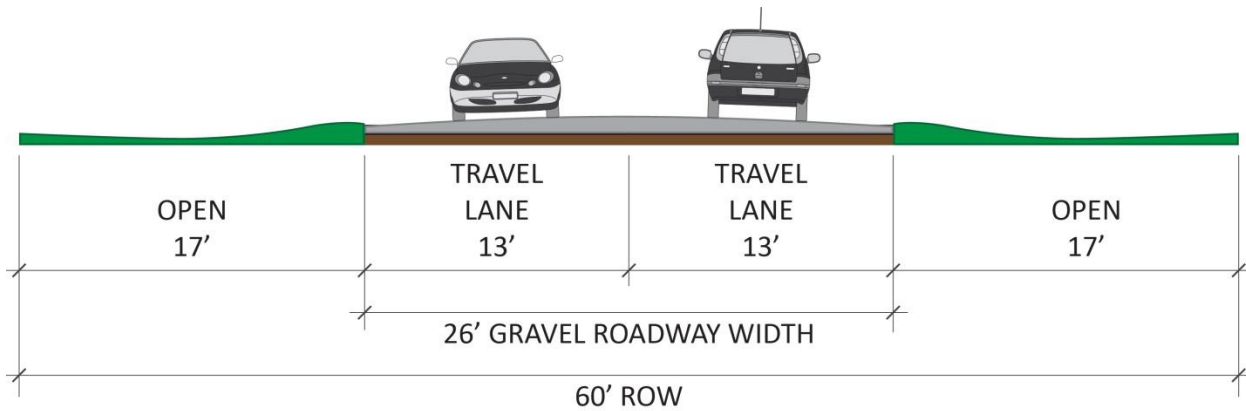


Exhibit 2: Gravel County Roads (Collector or Local Roads)

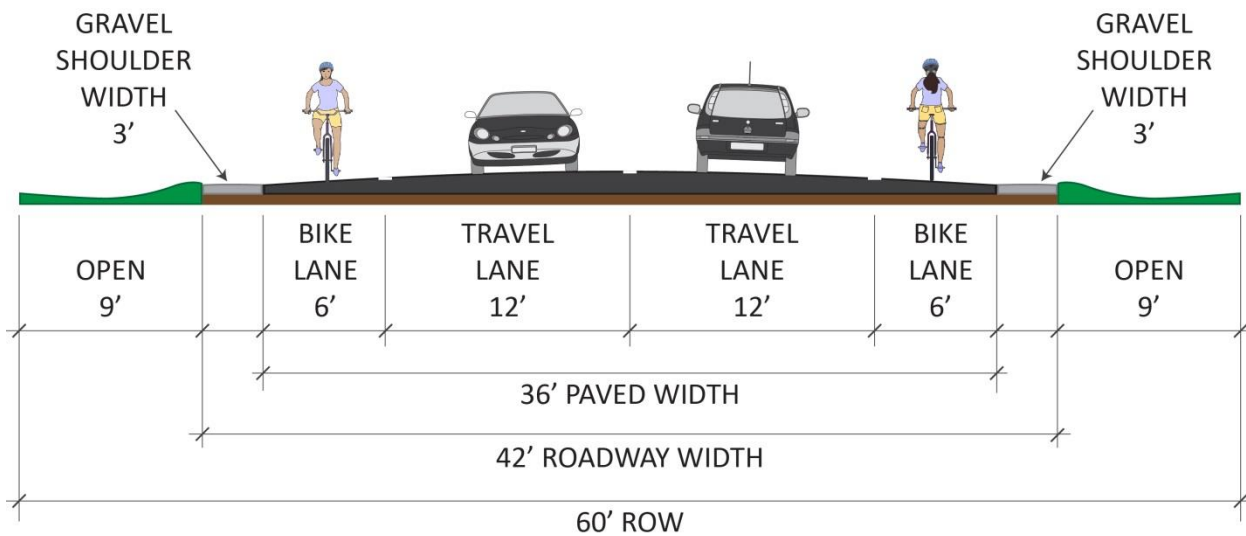


Exhibit 3: Paved County Roads with Bike Lanes (Collector or Local Roads)

Bicycle and Pedestrian Plan

Limited dedicated pedestrian facilities are located within Lake County or the City of Paisley. Most exciting facilities exist within Christmas Valley or near the Town of Lakeview. Given the rural area of most of the County, lack of pedestrian facilities on County roads is not uncommon. Even so, integrating pedestrian facilities into streets located within city centers, particularly within Paisley, would enhance the pedestrian environment. Several pedestrian enhancements are included in preferred alternative project list presented later in the memorandum.

Like pedestrian facilities, there are limited dedicated bicycle facilities in Lake County. Shoulders and some bike lanes are present on some roads but a continuous bicycle system is not in place. County roads between cities are generally high speed (posted speed limits of 55 miles per hour) and can be uncomfortable riding for bicyclists. Streets with lower speeds and lower volume within communities such as residential streets are typically marked or expected to be used as a shared facility.

Mountain biking is a popular form of recreation in Lake County with many trails for all levels of experience. Lakeview, Paisley, and Silver Lake Ranger Districts all have multiple areas for mountain biking.

Bicycle projects presented in the preferred alternative project listed presented later in the memorandum are focused on enhancing the recreational bicycling environment within the County.

Access Management Policy

Managing access to the County’s road system is necessary to preserve capacity and maintain the 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 0.

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.

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 Lake County’s roadways.

Table 6-2 Access Management Spacing Standards for Lake County Roadways

Functional Classification	Public Road Spacing	Private Drive Spacing
Collector	500 ft	200 ft
Local Road	500 ft	50 ft

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 Operation Standards

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.

IMPLEMENTATION PLAN

This section outlines specific transportation system improvement projects. The projects identified within Lake County are focused on several key categories listed below:

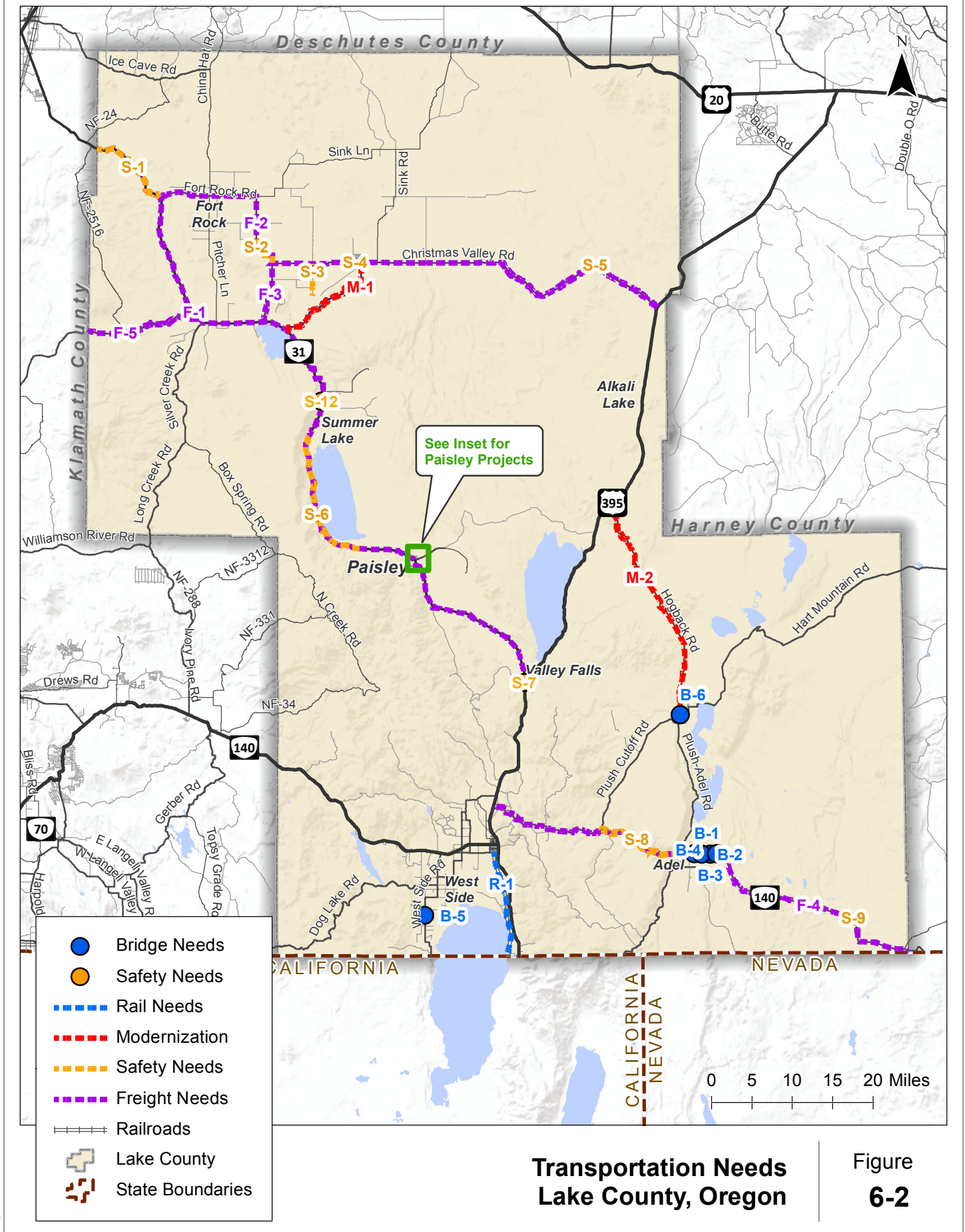
- **Modernization:** These projects include upgrades to address operational issues or upgrades to roadways to expand roadway purposes, such upgrading to freight routes. These projects cannot be conducted as part of regular maintenance activities and may include activities such as shoulder widening or 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 communities, and provide recreational opportunities between communities/region wide.
- **Other projects** include maintenance, bridge replacement, and railroad efforts.

Specific projects are presented in the next section.

Transportation System Improvements

Table 6-3 describes the preferred projects identified for Lake County. Figure 6-2 shows the location. These projects collectively reflect the broad goal of developing an efficient and accessible transportation network for all users.

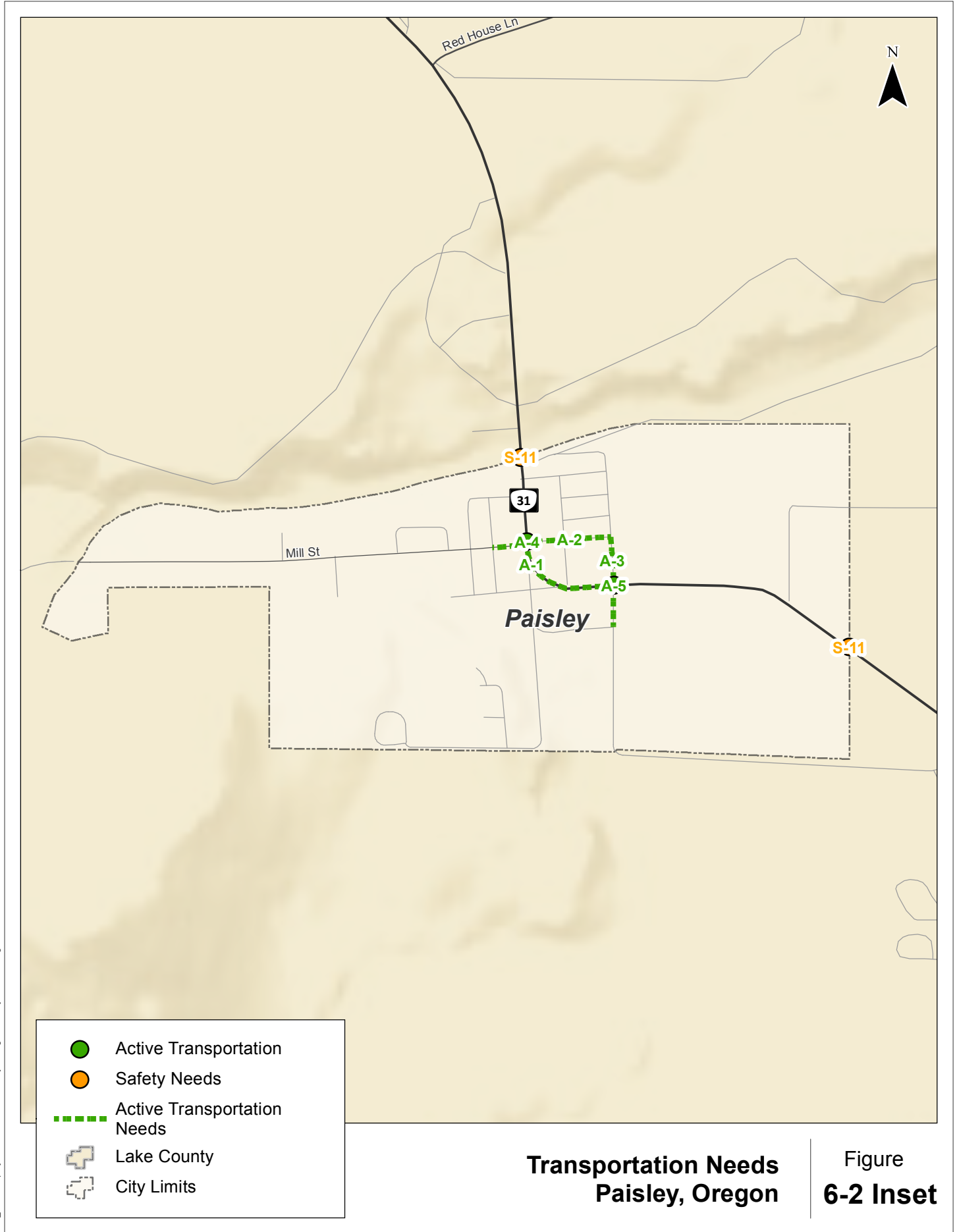
Planning level cost estimates are included in Attachment A.



**Transportation Needs
Lake County, Oregon**

**Figure
6-2**

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**Transportation Needs
Paisley, Oregon**

**Figure
6-2 Inset**

Table 6-3 Preferred Transportation Improvement Projects

ID	Category	Name	Description of Issue	Description of Improvement(s)	Priority	Cost Estimate
S-1	Safety	OR 31 (Fort Rock Rd. to Klamath County line)	High frequency of crashes, particularly animal and fixed-object crashes. More passing lanes may be needed.	Conduct focused study on this section of highway to determine cause of crashes and possible mitigation measures.	High	<\$50,000
S-2	Safety	Fort Rock Rd. to Christmas Valley "S" turns.	County officials and residents believe these turns have a high potential for crashes.	Conduct focused study on this section of highway to determine cause of crashes and possible mitigation measures. Study could be in the form of a roadway safety audit.	Medium	<\$50,000
S-3	Safety	Old Lake Road (5-14G)	Main route to Christmas Valley from the south. Blowing dust and sand can limit visibility.	Install screening barriers to help minimize visibility issues and signage to improve driver awareness.	Low	<\$50,000
S-4	Safety	Christmas Valley	Residents have concerns about high traffic speeds through Christmas Valley. Speed was a factor in 6 of 13 reported crashes.	Construct transition treatments on Christmas Valley Rd. at the west and east edges of the community, including monuments announcing to motorists that they are entering Christmas Valley and permanent speed feedback signs.	High	\$82,800
S-5	Safety	Christmas Valley Rd.	Steep grade (8%) east of Christmas Valley.	Improve roadway signage warning drivers of grade. Consider installation of weather-based warning system to alert drivers when traction devices should be used. Long term, this road may require realignment and reconstruction.	Low	\$73,200

ID	Category	Name	Description of Issue	Description of Improvement(s)	Priority	Cost Estimate
S-6	Safety	OR 31 along Summer Lake	High frequency of fixed-object crashes. Wind and speed are common contributing factor to crashes.	Conduct focused study on this section of highway to determine cause of crashes and possible mitigation measures.	High	<\$50,000
S-7	Safety	Valley Falls (Jct. US 395/OR 31)	County officials and area residents believe a warning device may be needed to alert drivers to this intersection.	Conduct study to identify possible mitigation measures for the intersection. Options could include warning devices, roadway reconfiguration, or modified intersection control.	Medium	<\$50,000
S-8	Safety	OR 140 (Plush Cutoff Road to Plush–Adel Road)	High frequency of crashes. Two fatalities over 5 years of observed data. Road winds through canyon.	Conduct focused study on this section of highway to determine cause of crashes and possible mitigation measures.	High	<\$50,000
S-9	Safety	OR 140 about 10 miles west of the Nevada border (Doherty Rim)	Steep grade (8%) on the highway.	Consider installation of weather-based warning system to alert drivers when traction devices should be used.	Low	\$75,000
S-10	Safety	Fixed-object and non-collision crashes	High frequency of fixed-object and non-collision crashes, including collisions with animals.	Conduct a study to determine where wildlife crossings are needed on the major state highways. Estimate the cost of installing the crossings. County-wide systemic safety projects for rural roads (e.g., rumble strips, shoulder widening).	High	\$50,000

ID	Category	Name	Description of Issue	Description of Improvement(s)	Priority	Cost Estimate
S-11	Safety	Speed transition treatment – Paisley	Speeds on OR 31 transition from 65 mph to 35 mph within Paisley.	Construct transition treatments, including monuments announcing to motorists that they are entering Paisley and permanent speed feedback signs.	High	\$85,000
S-12	Safety	Silver Lake	Speeds on OR 31 transition from 65 mph to 40 mph within Silver Lake.	Construct transition treatments at the west and east ends of the community on OR 31, including monuments announcing to motorists that they are entering Silver Lake and permanent speed feedback signs.	High	\$85,000
S13	Safety	Summer Lake	Speeds on OR 31 transition from 65 mph to 35 mph within Summer Lake	Construct transition treatments at the west and east ends of the community on OR 31, including monuments announcing to motorists that they are entering Summer Lake and permanent speed feedback signs.	High	\$85,000
S14	Safety	North Lakeview	Speeds on US 395 transition from 65 mph to 25 mph within Lakeview	Evaluate and construction speed transition treatments as vehicles enter Lakeview from the north. This could include monuments announcing to motorists that they are entering Summer Lake and permanent speed feedback signs.	High	\$100,000
M-1	Modernization	Pave Hogback Road	Hogback Road is currently a gravel road.	Pave Hogback Road. This improvement should be planned in conjunction with an appropriate amount of increased maintenance funding.	Low	\$17,500,000
A-1	Active Transportation	OR 31 between Main St. and Green St.	Limited sidewalk infrastructure. Provide access to businesses on OR 31.	Construct sidewalks.	High	\$345,000

ID	Category	Name	Description of Issue	Description of Improvement(s)	Priority	Cost Estimate
A-2	Active Transportation	Mill St. between Willow St. and Paisley School	Limited sidewalk infrastructure. Provide sidewalks to/from Paisley School.	Construct sidewalks.	High	\$345,000
A-3	Active Transportation	Green St. between Cottonwood St. and Mill St.	Limited sidewalk infrastructure. Provide sidewalks to/from Paisley School.	Construct sidewalks.	High	\$270,000
A-4	Active Transportation	OR 31 at Mill St.	School crossing.	Construct an improved crosswalk.	High	\$6,000
A-5	Active Transportation	OR 31 at Green St.	School crossing.	Construct an improved crosswalk.	High	\$6,000
A-6	Active Transportation	Recreational biking routes	Limited recreational biking routes exist. Potential locations may include county roads around Lakeview and the City of Paisley.	Evaluate possible bike routes on: <ul style="list-style-type: none"> • OR 140 east of US 395 to Plush-Adel Road • Plush Cutoff Road (Project in process) • Plush-Adel Road • West of Paisley 	Medium	<\$50,000
A-7	Active Transportation	County-wide	Prioritize signage to recreational areas to boost economic opportunities that could result from tourism, etc.	Install and/or enhance wayfinding to key recreational areas. Specifically evaluate Picture Rock Pass turnout on OR 31.	Low	\$12,000

ID	Category	Name	Description of Issue	Description of Improvement(s)	Priority	Cost Estimate
A-8	Active Transportation	County-wide	Limited recreational biking routes exist. Potential locations may include County roads around Lakeview and the City of Paisley.	Evaluate possible bike routes on: <ul style="list-style-type: none"> • OR 140 east of US 395 to Plush–Adel Road • Plush Cutoff Road (Project in process) • Plush–Adel Road • West of Paisley 	Medium	<\$50,000
A-9	Active Transportation	OR 140 west of Lakeview	No sidewalks on OR 140 west of the railroad tracks	Construct sidewalks on OR 140 from the railroad tracks in the east to Roberta Avenue in the west	Medium	TBD
A-10	Active Transportation	US 395 south of Lakeview	No sidewalks on US 395 south of 9 th Street	Construct sidewalks on US 395 from 9 th Street in the north to BLM building in the south	Medium	TBD
B-1	Bridge	Highway 431 (OR 140), Bridge 08848A	Bridge has low sufficiency rating	Evaluate structure integrity of the existing bridge and establish cost estimates for required improvements.	High	\$30,000
B-2	Bridge	Highway 431 (OR 140) at Milepoint 30.67, Bridge 08850	Bridge has low sufficiency rating	Evaluate structure integrity of the existing bridge and establish cost estimates for required improvements.	High	\$30,000
B-3	Bridge	Highway 431 (OR 140) at Milepoint 31.40, Bridge 08849	Bridge has low sufficiency rating	Evaluate structure integrity of the existing bridge and establish cost estimates for required improvements.	High	\$30,000

ID	Category	Name	Description of Issue	Description of Improvement(s)	Priority	Cost Estimate
B-4	Bridge	Highway 431 (OR 140), Bridge 09538	Bridge has low sufficiency rating	Evaluate structure integrity of the existing bridge and establish cost estimates for required improvements.	High	\$30,000
B-5	Bridge	Drews Creek County Road (37C030)	Bridge is a high priority for County maintenance	Repair bridge	High	\$720,000
B-6	Bridge	Honey Creek County Rod (37C008)	Bridge is a high priority for County maintenance	Repair bridge	High	\$600,000
MA-1	Maintenance	County system	Lake County struggles to maintain roadways to acceptable standard. Ongoing maintenance funding is challenging.	Identify long-term maintenance funding strategies.	High	Ongoing
MA-2	Maintenance	City system	The City of Paisley struggles to maintain roadways to acceptable standard. Ongoing maintenance funding is challenging.	Identify long-term maintenance funding strategies.	High	Ongoing
F-1	Roadway/ Freight Route	OR 31	OR 31 is not currently designated as a truck route. Designating this road as such may increase economic opportunities for the County.	Coordinate with ODOT Klamath County, and Deschutes County on study to evaluate need/feasibility of upgrading OR 31 to a designated freight route.	High	<\$50,000

ID	Category	Name	Description of Issue	Description of Improvement(s)	Priority	Cost Estimate
F-2	Roadway/ Freight Route	Fort Rock Road to Christmas Valley Road	Fort Rock Road to Christmas Valley Road between OR 31 and US 395 are not currently designated as a freight route, but often used by freight vehicles.	Upgrade facility to better accommodate freight vehicles.	Medium	\$1,900,000 (For some asphalt widening)
F-3	Roadway/ Freight Route	Arrow Gap Road	Arrow Gap Road between OR 31 and Christmas Valley Road is not currently designated as a freight route, but often used by freight vehicles.	Upgrade facility to better accommodate freight vehicles.	Medium	\$1,365,000 (For some asphalt widening)
F-4	Roadway/ Freight Route	OR 140 east of Lakeview	OR 140 currently has length restrictions that limit freight movement on this route. Removing this length restriction is a priority for the County.	Coordinate with ODOT on study to evaluate feasibility of upgrading 140 in this section to a designated freight route.	High	<\$50,000
F-5	Roadway/ Freight Route	Bear Flat Lane	Freight vehicles traveling from the west often use Bear Flat Lane	Designate Bear Flat Lane from Klamath County to OR 31 as a freight route. This should be done in coordination with Klamath County.	Medium	\$30,000
R-1	Railroad	Lake County Railroad	The Lake County Railroad is a key economic engine for Lake County.	Improve rail crossings, improve bridges, upgrade iron, update signs.	High	Estimated at \$1 million per mile

ALL-TERRAIN VEHICLES

All-Terrain Vehicles (ATVs) are popular forms of transportation within Lake County. These vehicles are allowed to use County roadways as provided by County Ordinance No. 104. The vehicles are explicitly banned from the following highways: US 395, US 20, Oregon Highway 31, and Oregon Highway 140. ATVs are allowed to cross these state highways.

Maintaining access to ATV recreational opportunities is a priority for the County.

ACCESS TO PARKS & RECREATIONAL FACILITIES

Recreational opportunities within Lake County are a draw for residents and visitors. Maintaining transportation access to these facilities is a priority for the County.

AIR TRANSPORTATION PLAN

Five airports serve Lake County. Two are general aviation airports and the other three are remote access/emergency service airports. They are as follows:

- Lake County Airport – Category III (Regional General Aviations Airport)
- Christmas Valley Airport – Category IV (Local General Aviations Airport)
- Paisley Airport – Category V (Remote Access/Emergency Services Airport)
- Silver Lake Airport – Category V (Remote Access/Emergency Services Airport)
- Alkali Lake State Airport – Category V (Remote Access/Emergency Services Airport)

The Oregon Aviation Plan (OAP) defines Category III airports as regional general service airports located in geographically significant locations and serve multiple communities within the service area. Category IV Airports function to accommodate general aviation users and local business activities, as defined by OAP. Category V Airports accommodate limited general aviation use in smaller communities and remote areas of Oregon as well as provide emergency and recreational use function.

The Lake County Airport has a Master Plan that guides the future of that property. That document and any other relevant planning documents for each airport will guide the development of each facility.

PUBLIC TRANSPORTATION PLAN

Lake County has no fixed route public transit service. Limited demand-responsive/dial-a-ride shuttle service exists for seniors, those with disabilities and the general public through local STF providers. Preliminary plans exist for expansion of services into additional areas including Adel, Plush, New Pine



Creek, Westside and Valley Falls. These services are for non-emergency transit purposes including but not limited to medical appointments, education, employment, shopping and recreation. Future planning needs most likely will include placement of bus shelters in areas across the County as well as consideration for passenger pick-up/drop off designations.

There is no intercity bus service within Lake County. The closest intercity bus stops are located in Riley (Harney County), La Pine (Deschutes County), and Klamath Falls (Klamath County).

Transit services are coordinated in Lake County through the Lake County Coordinated Human Services Plan. This document is currently being updated with the assistance of the Oregon Department of Transportation and is the guiding plan for transit services within the greater Lake County community.

MARINE SYSTEM PLAN

Lake County is landlocked with no major navigable waterways. As such, no plans for the Marine System are included in this plan.

RAIL SERVICE

Frontier Rail provides the only rail service in the County. Frontier Rail, operating as Lake Railroad, provides freight rail service between Lakeview, Oregon and Alturas, California¹. Passenger rail service is not provided in Lake County.

Frontier Rail manages the operations of the Lake Railroad. Lake County should support operations of this railroad as an economic engine for the County, particularly Lakeview.

PIPELINE AND TRANSMISSION SYSTEM PLAN

The Ruby Pipeline is a 42-inch natural gas pipeline that spans from Opal, Wyoming to Malin, Oregon. It travels through Lake County from Klamath County in the west and Nevada in the southeast.

This pipeline will continue to be operated with the County. No modifications or additions are planned.

¹The Lake Railroad expanded in 2009 when it assumed operations of the connecting Union Pacific branchline from Alturas to Perez, where the railroad now interchanges with the UP.

<http://www.trainweb.org/highdesertrails/lcr.html>

TRANSPORTATION FINANCE ELEMENT

Transportation funding is considered at the County-wide level, though specific funding options may apply to Paisley.

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 Lake 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 Lake County Transportation Funding Revenues

Historically, sources of road revenue for Lake County have included federal forest fees, state highway fund revenue, federal grants, interest earnings from the investment fund balance. Transportation revenue and expenditures for Lake County are shown in Tables 6-4 to 6-6.

Table 6-4 – Special Transportation Funds Revenue & Expenses²

	2010	2011	2012	2013	2014 Adopted
Revenue	\$77,075	\$38,245	\$95,429	\$179,319	\$121,900
Expenses	\$39,921	\$32,905	\$38,004	\$119,323	

Table 6-5 – Bicycle Trails Revenue & Expenses³

	2010	2011	2012	2013	2014 Adopted
Revenue	\$53,632	\$60,576	\$67,456	\$15,861	\$21,146
Expenses	\$132	\$133	\$58,903	\$601	

² Current Funding Sources: ODOT Entitlement & 5310 Grant Funds. Past Funding Sources: ODOT Entitlement

³ Current/Past Funding: State of Oregon monies specifically earmarked for construction of bicycle trails



Table 6-6 – Road Department Revenue & Expenses

Revenue	2012	2013	2014	2015
Local	\$46,784	\$21,033	\$20,000	\$20,000
State (Surface Transportation Program, vehicle registration fees, gas tax)	\$882,780	\$957,006	\$850,000	\$870,000
Federal (federal forest highway, Bureau of Land Management, forest receipts)	\$1,993,236	\$1,770,751	\$1,550,000	\$1,677,591
Total Revenue	\$2,922,800	\$2,748,790	\$2,420,000	\$2,567,591
Total Expenses	\$2,922,800	\$2,748,790	\$2,420,000	\$2,567,591

Expenses have matched revenue over the period evaluated with the vast majority of expenses going to operations and maintenance. Little to no funding is available for capital improvements projects.

The following section identifies and summarizes existing and potential future funding sources available for implementing the Lake County Transportation System Plan (TSP) update. The funding information provides context for evaluating projects and defining priorities that will allow the County to utilize all available funding opportunities and maximize current resources to preserve and improve current infrastructure.

Existing Funding Sources

Key funding sources that have contributed to transportation improvement projects within Lake County over the last several years include the Surface Transportation Program, the County’s Road Fund, state funds, and federal grants.

Surface Transportation Program

The Surface Transportation Program (STP) provides flexible funding that may be used by states and localities, such as Lake County, for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals.

General Road Fund

The County’s General Road Fund revenues are primarily funded through the State gas tax and vehicle registration fees, which are projected to flatten (less than inflation). The expenditures of the General Road Fund are restricted for construction, reconstruction, improvement, repair, maintenance, operation, use and policing of public highways, roads and streets within the County.

Federal Grants

In addition to STP funds, Lake County receives additional funding each year in federal grants, such as the Congestion Mitigation and Air Quality (CMAQ) program and the Federal Transit Administration (FTA) Enhanced Mobility of Seniors and Individuals with Disabilities program.

Secure Rural Schools Fund

Lake County has historically received significant funding as part of the Secure Rural Schools (SRS) program. However, funding from this program is ending and will no longer be a reliable funding source for the County, leaving a significant funding gap.

Transportation Funding Options

Lake County faces two inter-related financing issues: how to finance operations and maintenance and how to finance capital projects. Effectively all public works funding is devoted to operations and maintenance presently; there is no substantial funding for capital projects.

Potential strategies for addressing these needs in Lake County can generally be grouped into three categories: identify additional grant opportunities (i.e., 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 should identify grants from those summarized in 0 that are applicable to their projects. Some of these programs require a local match. The County and City 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 6-7 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 Lake 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 or federal financing, coupled with efficiency measures are not enough to close the funding gap. Table 6-8 lists options that the County 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 budget. Some of these fees could also be used to provide a local match to obtain greater federal or state funding, further stretching local dollars.

Table 6-8 Local Taxes and User Fee Options

Source	Description	Comments
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. Cost Estimate Calculations

Attachment A. Cost Estimate Calculations

OR 31 From Klamath County to Fort Rock Road

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
TOTAL					\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Conduct focused study on OR 31 from Klamath County to Fort Rock Road to determine cause of crashes and possible mitigation measures. Research crash data, roadside inventory, prepare letter/report of findings and recommendations for mitigation.



Fort Rock Road to Christmas Valley "S" Turns

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study	LS	1	\$ 30,000	\$ 30,000
					2016 COSTS \$ 30,000
					TOTAL \$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Conduct focused study on Fort Rock Road to Christmas Valley "S" turns to determine cause of crashes and possible mitigation measures. Research crash data, roadside inventory, prepare letter/report of findings and recommendations for mitigation.



Oil Dri Road (5-14G)

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
TOTAL					\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Main route to Christmas Valley from the South. Blowing dust and sand limits visibility. Conduct study to evaluate possible mitigation measures. Research crash data, roadside inventory, prepare letter/report of findings and recommendations for mitigation.



Traffic Speed Through Christmas Valley

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization	LS	1	\$ 5,000	\$ 5,000
2	Traffic Control	LS	1	\$ 5,000	\$ 5,000
3	Permanent Speed Feedback Signs	LS	1	\$ 24,000	\$ 24,000
4	Signage (Announcing entering Christmas Valley)	LS	1	\$ 10,000	\$ 10,000
2016 CONSTRUCTION COSTS					\$ 44,000
	Construction Contingency (20%)				\$ 8,800
	Design Engineering/Surveying				\$ 10,000
	Construction Administration /Engineering/Inspection				\$ 10,000
	Permitting				\$ 10,000
TOTAL					\$ 82,800

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Construct transition treatments at the west and east City limits of Christmas Valley on Christmas Valley Road. This includes monuments announcing to vehicles that they are entering Christmas Valley and permanent speed feedback signs.

Includes:

Permanent Speed Feedback Signs (one at each end of town), Signage announcing entering Christmas Valley.



Christmas Valley Road

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization	LS	1	\$ 5,000	\$ 5,000
2	Traffic Control	LS	1	\$ 5,000	\$ 5,000
3	Signage (Warning Driver's of Grade)	LS	1	\$ 2,000	\$ 2,000
4	Weather-Based Warning Signs	LS	1	\$ 24,000	\$ 24,000
2016 CONSTRUCTION COSTS					\$ 36,000
	Construction Contingency (20%)				\$ 7,200
	Design Engineering/Surveying				\$ 10,000
	Construction Administration /Engineering/Inspection				\$ 10,000
	Permitting				\$ 10,000
TOTAL					\$ 73,200

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Improve roadway signage warning drivers of grade. Installation of a weather based warning sign to alert drivers when traction devices should be used.

Includes:

Weather based warning sign, Warning signs (Steep Grade)



OR 31 Along Summer Lake

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study	LS	1	\$ 30,000	\$ 30,000
					2016 COSTS \$ 30,000
					TOTAL \$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Conduct focused study on OR 31 along Summer Lake to determine the cause of crashes and possible mitigation measures. Research crash data, roadside inventory, prepare letter/report of findings and recommendations for mitigation.



US 395/OR 31

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study	LS	1	\$ 30,000	\$ 30,000
					2016 COSTS \$ 30,000
					TOTAL \$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Conduct focused study on the US 395 and OR 31 intersection to determine the cause of crashes and possible mitigation measures. Research crash data, roadside inventory, prepare letter/report of findings and recommendations for mitigation.



OR 140 from Plush Cutoff Road to Plush-Adel Road

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
TOTAL					\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Conduct focused study on OR 140 from Plush Cutoff Road to Plush Adel Road to identify the cause of crashes and possible mitigation measures. Research crash data, roadside inventory, prepare letter/report of findings and recommendations for mitigation.



OR 140 (10 miles west of Nevada Border)

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization	LS	1	\$ 5,000	\$ 5,000
2	Traffic Control	LS	1	\$ 5,000	\$ 5,000
3	Weather-Based Warning Signs	LS	1	\$ 24,000	\$ 24,000
4	Signage (Warning Drivers of Grade)	LS	1	\$ 2,000	\$ 2,000
2016 CONSTRUCTION COSTS					\$ 36,000
	Construction Contingency (20%)				\$ 7,200
	Design Engineering/Surveying				\$ 10,000
	Construction Administration /Engineering/Inspection				\$ 10,000
	Permitting				\$ 10,000
TOTAL					\$ 73,200

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Improve roadway signage by warning driver's of grade. Installation of a weather-based system to alert drivers when traction devices should be used.

Includes:

Weather-Based Warning System Signs (2 signs total), Grade Signage



Fixed-Object & Non-collision Crashes

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study	LS	1	\$ 50,000	\$ 50,000
					2016 COSTS \$ 50,000
					TOTAL \$ 50,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Conduct focused study to determine where wildlife crossings, rumble strips, widened shoulders, are needed on major state highways. Estimate the cost of installing the crossings.

Includes:

Cost county wide to perform study.



Speed Transition Treatment - Paisley

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization	LS	1	\$ 5,000	\$ 5,000
2	Traffic Control	LS	1	\$ 5,000	\$ 5,000
3	Permanent Speed Feedback Signs	LS	1	\$ 24,000	\$ 24,000
4	Signage (Transition Treatments)	LS	1	\$ 10,000	\$ 10,000
				2016 CONSTRUCTION COSTS	\$ 44,000
	Construction Contingency (20%)				\$ 8,800
	Design Engineering/Surveying				\$ 10,000
	Construction Administration /Engineering/Inspection				\$ 10,000
	Permitting				\$ 10,000
				TOTAL	\$ 82,800

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Construct transition treatments at the north and south City limits of Paisley on OR 31. This includes monuments announcing to vehicles that they are entering Paisley and permanent speed feedback signs.

Includes:

Signage (Transition Treatment signs @ both ends of town), Permanenet Speed Feedback Signs (2 total)



Speed Transition Treatment - Silver Lake

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization	LS	1	\$ 5,000	\$ 5,000
2	Traffic Control	LS	1	\$ 5,000	\$ 5,000
3	Permanent Speed Feedback Signs	LS	1	\$ 24,000	\$ 24,000
4	Signage (Transition Treatments)	LS	1	\$ 10,000	\$ 10,000
2016 CONSTRUCTION COSTS					\$ 44,000
	Construction Contingency (20%)				\$ 8,800
	Design Engineering/Surveying				\$ 10,000
	Construction Administration /Engineering/Inspection				\$ 10,000
	Permitting				\$ 10,000
TOTAL					\$ 82,800

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Construct transition treatments west and east of the community on OR 31, this includes monuments announcing to vehicles that they are entering Silver Lake and permanent speed feedback signs.

Includes:

Signage (Transition Treatment signs @ both ends of town), Permanenet Speed Feedback Signs (2 total)



Modernization - Upgrade Old Lake Road

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization (10%)	LS	1	\$ 45,000	\$ 45,000
2	Traffic Control (2%)	LS	1	\$ 9,000	\$ 9,000
3	Earthwork/Relocate Ditches	LS	1	\$ 500,000	\$ 500,000
4	Gravel Shoulders	LS	1	\$ 400,000	\$ 400,000
				2016 CONSTRUCTION COSTS	\$ 954,000
	Construction Contingency (20%)				\$ 190,800
	Design Engineering/Surveying				\$ 95,400
	Construction Administration /Engineering/Inspection				\$ 95,400
	Permitting				\$ 95,400
				TOTAL	\$1,431,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Upgrade Old Lake Road from a Minor Collector to a Major Collector by widening shoulders. ±15 miles total length.

Includes:

Providing 3' aggregate base shoulder each side including earthwork & relocating ditches.



Modernization - Pave Hogback Road

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization (10%)	LS	1	\$ 1,132,500	\$ 1,132,500
2	Traffic Control (2%)	LS	1	\$ 225,000	\$ 225,000
3	Modernization	LS	1	\$ 10,000,000	\$ 10,000,000
2016 CONSTRUCTION COSTS					\$ 11,357,500
	Construction Contingency (20%)				\$ 2,271,500
	Design Engineering/Surveying				\$ 1,135,800
	Construction Administration /Engineering/Inspection				\$ 1,135,800
	Permitting				\$ 1,135,800
TOTAL					\$ 17,036,400

Long Term Maintenance: Assume replacement every 20 years and \$20,000,000 project
 = \$1,000,000 set aside per year.

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:
 Paving Hogback Road along with increased maintenance funding. Assume
 3" Asphalt on 6" new aggregate base on top of existing gravel road (graded to
 receive aggregate base). ±15 Miles of road.

Includes:
 Asphalt, Aggregate Base, Signage, Striping, etc.



Paisley Sidewalks (Along OR 31 between Main Street & Green Street)

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization (10%)	LS	1	\$ 20,000	\$ 20,000
2	Traffic Control	LS	1	\$ 10,000	\$ 10,000
3	New Sidewalk	LS	1	\$ 200,000	\$ 200,000
2016 CONSTRUCTION COSTS					\$ 230,000
	Construction Contingency (20%)				\$ 46,000
	Design Engineering/Surveying				\$ 23,000
	Construction Administration /Engineering/Inspection				\$ 23,000
	Permitting				\$ 23,000
TOTAL					\$ 345,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:
Construct sidewalks in Paisley along OR 31 between Main Street and Green Street.
(± 850 feet project length).

Includes:
5' Sidewalks, Curbs, Drainage, Etc. (Both Sides of Street)



Paisley Sidewalks (Along Mill Street between Willow Street & Paisley School)

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization (10%)	LS	1	\$ 20,000	\$ 20,000
2	Traffic Control	LS	1	\$ 10,000	\$ 10,000
3	New Sidewalk	LS	1	\$ 200,000	\$ 200,000
2016 CONSTRUCTION COSTS					\$ 230,000
	Construction Contingency (20%)				\$ 46,000
	Design Engineering/Surveying				\$ 23,000
	Construction Administration /Engineering/Inspection				\$ 23,000
	Permitting				\$ 23,000
TOTAL					\$ 345,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Construct sidewalks in Paisley along Mill Street between Willow Street & Paisley School. (±950' project length).

Includes:

5' Sidewalks, Curbs, Drainage, Etc. (Both Sides of Street)



Paisley Sidewalks (Along Green Street between Cottonwood Street & Mill Street)

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization (10%)	LS	1	\$ 16,000	\$ 16,000
2	Traffic Control	LS	1	\$ 10,000	\$ 10,000
3	New Sidewalk	LS	1	\$ 155,000	\$ 155,000
2016 CONSTRUCTION COSTS					\$ 181,000
	Construction Contingency (20%)				\$ 36,200
	Design Engineering/Surveying				\$ 18,100
	Construction Administration /Engineering/Inspection				\$ 18,100
	Permitting				\$ 18,100
TOTAL					\$ 271,500

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:
Construct sidewalks in Paisley along Green Street between Cottonwood Street & Mill Street. (±750' project length).

Includes:
5' Sidewalks, Curbs, Drainage, Etc. (Both Sides of Street)



Improve Crossing at OR 31 & Main Street in Paisley

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization	LS	1	\$ 1,000	\$ 1,000
2	Traffic Control	LS	1	\$ 1,000	\$ 1,000
3	New Crosswalk & Signs	LS	1	\$ 3,000	\$ 3,000
2016 CONSTRUCTION COSTS					\$ 5,000
	Construction Contingency (20%)				\$ 1,000
	Design Engineering/Surveying				**
	Construction Administration /Engineering/Inspection				**
	Permitting				**
TOTAL					\$ 6,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

**By ODOT or City

Project Description:

Construct an improved crosswalk in Paisley at OR 31 and Main Street.

Includes:

New Crosswalk and Warning Signs.



Improve Crossing at OR 31 & Green Street in Paisley

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization	LS	1	\$ 1,000	\$ 1,000
2	Traffic Control	LS	1	\$ 1,000	\$ 1,000
3	New Crosswalk & Signs	LS	1	\$ 3,000	\$ 3,000
2016 CONSTRUCTION COSTS					\$ 5,000
	Construction Contingency (20%)				\$ 1,000
	Design Engineering/Surveying				**
	Construction Administration /Engineering/Inspection				**
	Permitting				**
TOTAL					\$ 6,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

**By ODOT or City

Project Description:

Construct an improved crosswalk in Paisley at OR 31 and Green Street.

Includes:

New Crosswalk and Signs.



Evaluate Possible Recreational Bike Routes

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study & Preform Cost Estimates	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
				TOTAL	\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:
 Evaluate possible bike routes on Or 140 E of US 395 to Plush-Adel Road,
 Plush Cutoff Road, Plush-Adel Road & West of Paisley.

Includes:
 Cost to Perform Study and Estimate Costs.



Wayfinding Sign

Item	Description	Unit	Quantity	Unit Price	Total
1	Wayfinding Sign	LS	1	\$ 10,000	\$ 10,000
				2016 CONSTRUCTION COSTS	\$ 10,000
	Construction Contingency (20%)				\$ 2,000
	Design Engineering/Surveying				**
	Construction Administration /Engineering/Inspection				**
	Permitting				**
TOTAL					\$ 12,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

**By County

Project Description:

Install and/or enhance wayfinding to key recreational areas. Assume five \$2000 improvements or ten \$1000 improvements.

Includes:

Wayfinding Sign

Highway 431 (OR 140) Bridge 08848A

Item	Description	Unit	Quantity	Unit Price	Total
1	Evaluate Existing Bridge & Prepare Cost Estimates	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
				TOTAL	\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:
Evaluate structural integrity of Hwy 431 (OR 140) Bridge 08848A. Prepare cost estimates for required improvements.

Includes:
Cost to evaluate the bridge and prepare cost estimates for repair and/or replacement.



Highway 431 (OR 140) at Milepoint 30.67, Bridge 08850

Item	Description	Unit	Quantity	Unit Price	Total
1	Evaluate Existing Bridge & Prepare Cost Estimates	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
				TOTAL	\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Evaluate structural integrity Bridge 08850 on Hwy 431 (OR 140) at Milepoint 30.67.
Prepare cost estimates for required improvements.

Includes:

Cost to evaluate the bridge and prepare cost estimates for repair and/or replacement.



Highway 431 (OR 140) at Milepoint 31.40, Bridge 08849

Item	Description	Unit	Quantity	Unit Price	Total
1	Evaluate Existing Bridge & Prepare Cost Estimates	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
TOTAL					\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Evaluate structural integrity Bridge 08849 on Hwy 431 (OR 140) at Milepoint 31.40.
Prepare cost estimates for required improvements.

Includes:

Cost to evaluate the bridge and prepare cost estimates for repair an/or replacement.



Highway 431 (OR 140), Bridge 09538

Item	Description	Unit	Quantity	Unit Price	Total
1	Evaluate Existing Bridge & Prepare Cost Estimates	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
TOTAL					\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:
Evaluate structural integrity Bridge 09538 on Hwy (140). Prepare cost estimates for required improvements.

Includes:
Cost to evaluate the bridge and prepare cost estimates for repair and/or replacement.



Maintenance - County System

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study & Financial Analysis	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
TOTAL					\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Lake County struggles to maintain roadways to an acceptable standard. Identify long-term maintenance funding strategies.

Includes:

Cost to perform study and financial analysis for alternatives.



Maintenance - City System

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study & Financial Analysis	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
TOTAL					\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

City of Paisley struggles to maintain roadways to an acceptable standard. Identify long-term maintenance funding strategies.

Includes:

Cost to perform study and financial analysis for alternatives.



OR 31 (Roadway/Freight Route)

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study & Prepare Cost Estimates	LS	1	\$ 30,000	\$ 30,000
					2016 COSTS \$ 30,000
					TOTAL \$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Coordinate with ODOT Klamath County, and Deschutes County on a study to evaluate the need/feasibility of upgrading OR 31 to a designated freight route.

Includes:

Cost to perform study and prepare cost estimates for alternatives.



Freight Route - Fort Rock Road to Christmas Valley Road

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization (10%)	LS	1	\$ 125,000	\$ 125,000
2	Traffic Control (2%)	LS	1	\$ 25,000	\$ 25,000
3	Upgrade to Freight Route	LS	1	\$ 535,000	\$ 535,000
4	Earthwork	LS	1	\$ 500,000	\$ 500,000
5	Striping	LS	1	\$ 50,000	\$ 50,000
6	Signage	LS	1	\$ 30,000	\$ 30,000
2016 CONSTRUCTION COSTS					\$ 1,265,000
	Construction Contingency (20%)				\$ 253,000
	Design Engineering/Surveying				\$ 126,500
	Construction Administration /Engineering/Inspection				\$ 126,500
	Permitting				\$ 126,500
TOTAL					\$ 1,897,500

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Upgrade Fort Rock Road to Christmas Valley Road to better accommodate freight vehicles. (±10 miles project length).

Includes:

2' Asphalt Widening and 3' Aggregate Base Shoulders (Both Sides)



Freight Route - Arrow Gap Road

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization (10%)	LS	1	\$ 90,000	\$ 90,000
2	Traffic Control (2%)	LS	1	\$ 20,000	\$ 20,000
3	Upgrade to Freight Route	LS	1	\$ 400,000	\$ 400,000
4	Earthwork	LS	1	\$ 320,000	\$ 320,000
5	Striping	LS	1	\$ 50,000	\$ 50,000
6	Signage	LS	1	\$ 30,000	\$ 30,000
				2016 CONSTRUCTION COSTS	\$ 910,000
	Construction Contingency (20%)				\$ 182,000
	Design Engineering/Surveying				\$ 91,000
	Construction Administration /Engineering/Inspection				\$ 91,000
	Permitting				\$ 91,000
TOTAL					\$ 1,365,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:
 Upgrade Arrow Gap Road to better accommodate freight vehicles.
 (±7.6 miles project length).

Includes:
 2' Asphalt, 3' Aggregate Base, Earthwork, Signage & Striping



OR 140 East of Lakeview

Item	Description	Unit	Quantity	Unit Price	Total
1	Conduct Study & Prepare Cost Estimate	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
TOTAL					\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:
 Coordinate with ODOT on a study to evaluate the need/feasibility of upgrading OR 140 east of Lakeview to a designated freight route.

Includes:
 Cost to perform study and prepare cost estimates.



Freight Route - Bear Flat Lane

Item	Description	Unit	Quantity	Unit Price	Total
1	Designate Bear Flat Lane as a Freight Route	LS	1	\$ 30,000	\$ 30,000
				2016 COSTS	\$ 30,000
TOTAL					\$ 30,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Designate Bear Flat Lane from Klamath County to OR 31 as a freight route.

Includes:

Cost to Designate Bear Flat Lane as a Freight Route



Lake County Railroad Crossings

Item	Description	Unit	Quantity	Unit Price	Total
1	Mobilization (10%)	LS	1	\$ 150,000	\$ 150,000
2	Traffic Control (2%)	LS	1	\$ 35,000	\$ 35,000
3	Improve Rail Crossings	LS	1	\$ 1,275,000	\$ 1,275,000
2016 CONSTRUCTION COSTS					\$ 1,460,000
	Construction Contingency (20%)				\$ 292,000
	Design Engineering/Surveying				\$ 146,000
	Construction Administration /Engineering/Inspection				\$ 146,000
	RR Coordination/Preliminary Engineering				\$ 50,000
	RR Flagging During Construction				\$ 50,000
	Permitting				\$ 146,000
TOTAL					\$ 2,290,000

*Does not include inflation. Typical Inflation rates vary and are between 3 and 5 percent per year.

Project Description:

Improve the Lake County Railroad Crossings. Assume \$135,000 without signal replacement and ±\$380,000 for full crossing with signals.

Includes:

Upgrade four Railroad Crossings in Lakeview (OR 140, S 3rd St, S 9th St and Missouri Ave).

