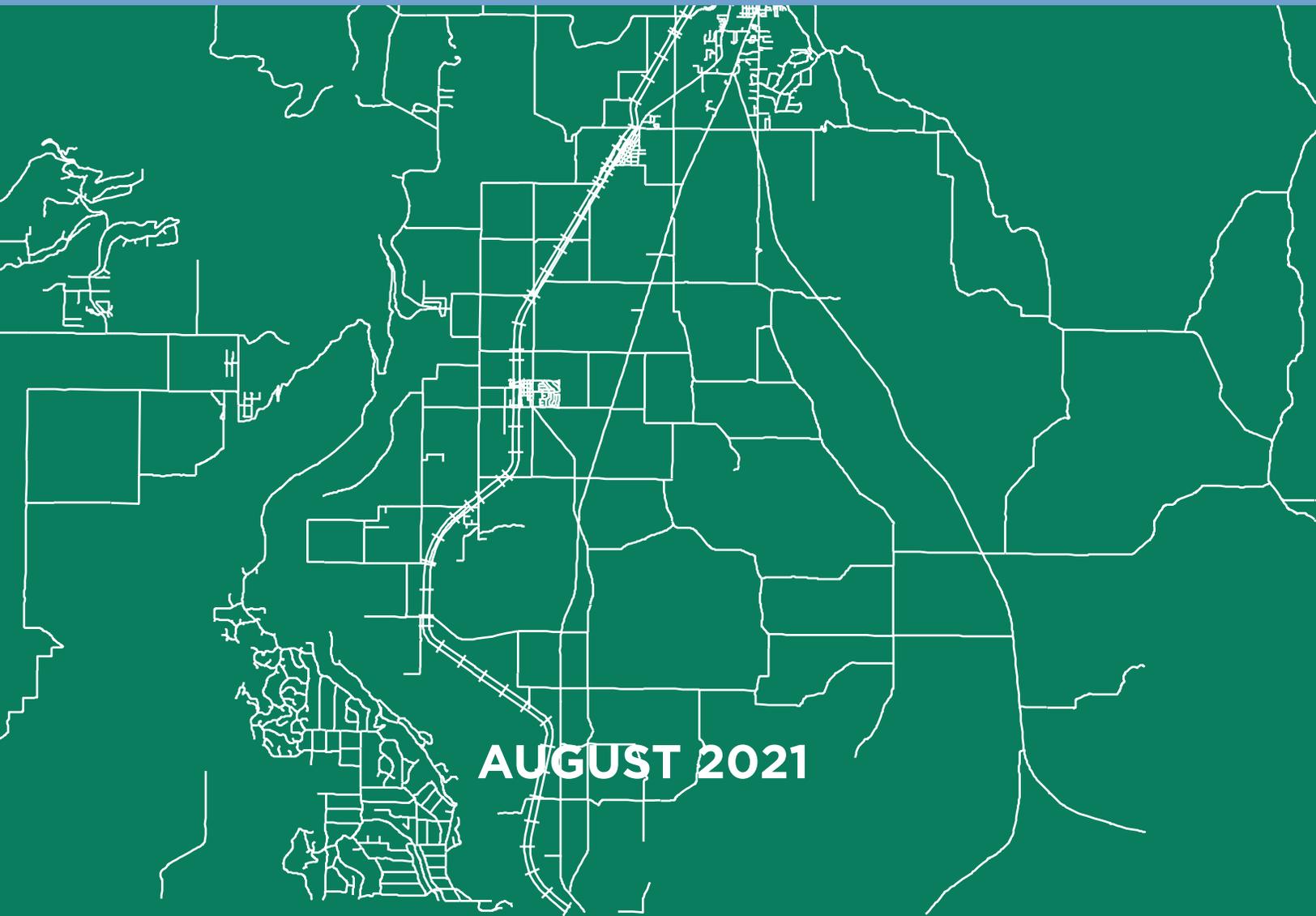




TRANSPORTATION SYSTEM PLAN UPDATE



AUGUST 2021



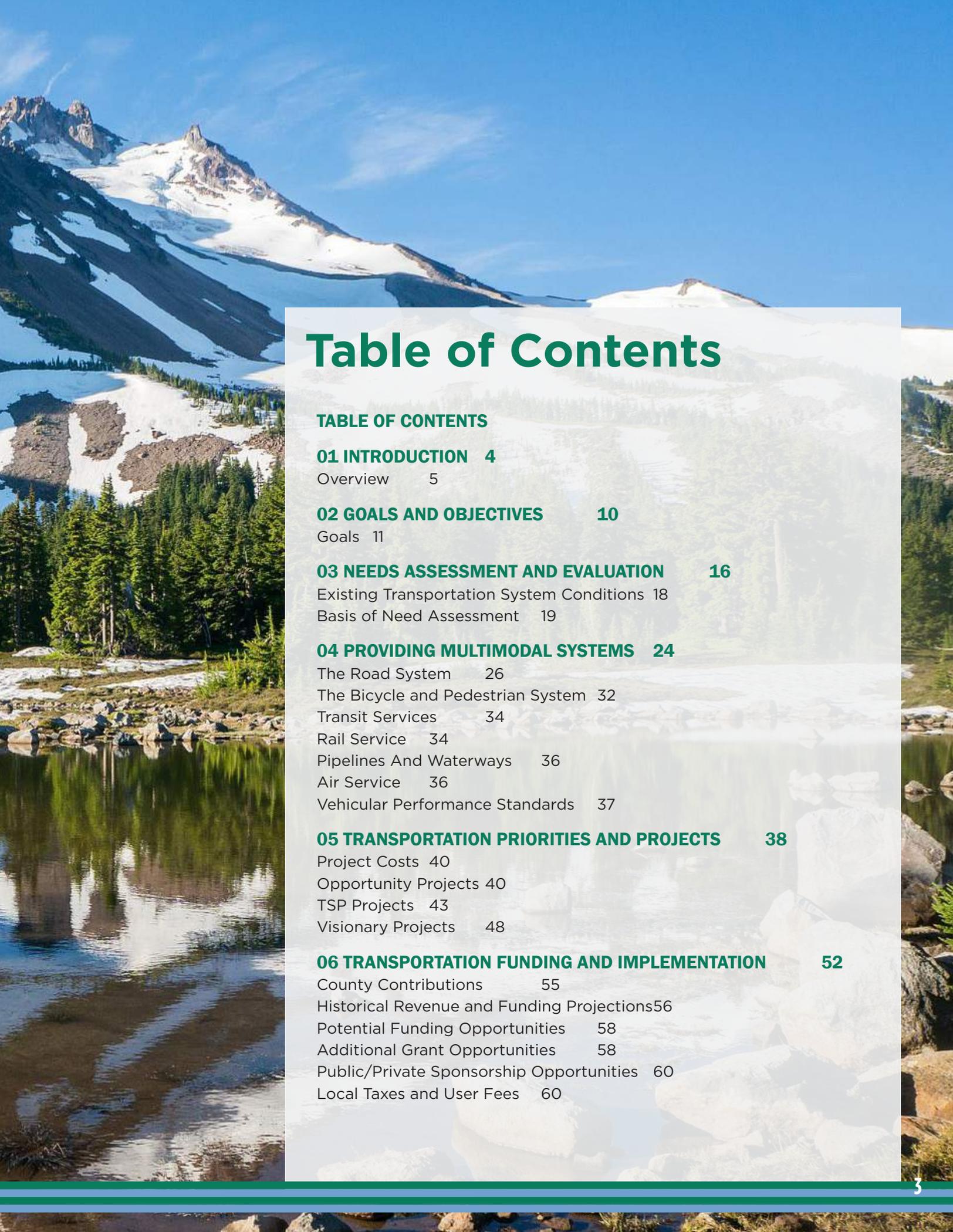


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01 INTRODUCTION



OVERVIEW

Welcome to the Jefferson County Transportation System Plan (TSP) – a policy document that outlines a system of transportation facilities and programs needed to serve the County over the next 20 years. The TSP serves as the transportation element of the County’s Comprehensive Plan and updates its TSP, which was adopted in 2007. A number of changes have occurred since 2007 that helped guide this TSP Update, such as:

- ▲ Increasing population, continued economic development, and changes to commuting patterns throughout Central Oregon have placed additional demands on the County’s transportation system.
- ▲ Freight traffic has continued to play an increasingly important role in both regional and statewide economic development, which places additional stress on the maintenance of key arterials and highways in the County.
- ▲ More facilities are needed to serve all people (including the transportation disadvantaged) to travel via car, bike, walking and transit.
- ▲ Prioritization of safety-related improvements is supported by state and local policies and funding sources.
- ▲ Improved transportation-related technology can help inform people traveling about choices of routes, modes, and times to travel.

The updated TSP reflects the County’s current policies and priorities and provides a list of construction projects and programs to ensure that the transportation system continues to support the County and Region’s needs and visions, an economically vital, healthy, and equitable community, and conforms to state and regional policies.

TSP ORGANIZATION

The TSP is comprised of two volumes. Volume 1 is the main document and includes the items that will be of interest to the broadest audience. Volume 2 contains the technical memoranda, data, and related transportation plans that enhance and support Volume 1.

Volume 1

Chapter 01 – a brief overview of the planning context for the TSP;

Chapter 02 – goals and policies that express the County’s long-range vision for the transportation system;

Chapter 03 – the transportation system deficiencies and needs as well as the process to develop the TSP’s list of planned capital improvements and transportation programs;

Chapter 04 – an overview of the recommended projects for the multimodal system (this chapter also serves as the Transportation Element of the Comprehensive Plan);

Chapter 05 – a list of the multimodal projects and the costs estimated for their construction; and,

Chapter 06 – a summary of transportation funding and implementation, including estimated revenue, cost of 20-year needs, and potential funding sources.

Volume 2

Appendix A: Plans and Policy Review Memo;

Appendix B: Goals and Objectives Memo;

Appendix C: Methodology Memo;

Appendix D: Transportation System Conditions, Deficiencies, and Needs Memo;

Appendix E: Solutions Analysis Memo;

Appendix F: Preferred Alternatives and Funding Plan Memo;

Appendix G: Regulatory Review Memo

Appendix H: Implementation Memo

Appendix I: Title VI Report

While not all of Volume 2 is adopted as part of the TSP, all of the documents provide useful information regarding the basis for the decisions represented in Volume 1.

PURPOSE

The TSP addresses transportation needs in Jefferson County except within the Madras Urban Growth Boundary (UGB) and the Confederated Tribes of Warm Springs (CTWS) area (tribally owned land).

The Madras TSP governs the area within the Madras UGB, and the Warm Springs Transportation Plan provides the vision for the area owned by the CTWS. The US26 corridor within the CTWS is included in the TSP because it is owned and operated by ODOT.

The TSP identifies transportation facilities and services that can support the County's adopted Comprehensive Plan and continued regional economic development. This TSP provides for a long-term vision to support growth in jobs and population in the County as well as improving the safety for all transportation-users over the next 20 years. The TSP serves as a resource for the County to make decisions about transportation and land use by providing:

- ▲ Solutions to address existing and future transportation needs for people driving, riding bikes, walking, using transit, and traveling via air and rail as well as the movement of goods and services;
- ▲ A blueprint for future County transportation investments that improve safety for all travelers and that support Regional economic development priorities;
- ▲ A tool for coordination with state, regional and local agencies;
- ▲ Information to ensure prudent land use and transportation choices;
- ▲ Order of magnitude cost estimates for transportation infrastructure investments needed to support economic development and growth, and possible sources of funding for these improvements;
- ▲ Function, capacity and location of future roadways, sidewalks, bikeways, transit, and other transportation facilities; and
- ▲ Potential programs to help improve opportunities to travel by walking, bicycling and riding transit in the future.

The TSP satisfies the state's requirements as prescribed by Oregon Statewide Planning Goal 12: Transportation.



GUIDING PRINCIPLES AND CONTEXT

The TSP provides a flexible, adaptable framework for making transportation decisions in an increasingly unpredictable and financially constrained future. Decisions about the County’s transportation system will be guided by the goals contained in Chapter 2, but ultimately the decisions will be made within the overall context of the County’s land use plans and support for local and regional Economic Development. These guiding plans and principles provide a foundation for the TSP’s goals, policies, and potential actions.

The Oregon Revised Statutes require that the TSP be based on the Comprehensive Plan land uses and provide for a transportation system that accommodates the expected growth in population and employment. Development of this TSP was guided by Oregon Revised Statute (ORS) 197.712 and the Department of Land Conservation and Development (DLCDD) administrative rule known as the Transportation Planning Rule (TPR, OAR 660-012-0060).

Per the TPR, this TSP identifies multimodal transportation needs to serve users of all ages, abilities, and incomes. As such, solutions to address existing and future transportation needs for bicycling, walking, transit, motor vehicles, freight, and rail, and improved safety for all travelers are included. Further, one of the implementation steps of the TSP will include adoption of land use and land division ordinance amendments needed to protect transportation facilities and to provide transportation facilities for people walking, riding bikes, taking transit, and driving between residential, commercial, and employment/institutional areas. Finally, as required by the TPR, this TSP was developed in coordination with local, regional and state transportation plans.

Per the TPR, this TSP identifies multimodal transportation needs to serve users of all ages, abilities, and incomes.



REGIONAL COORDINATION & COMMUNITY ENGAGEMENT

The TSP reflects the County's continued commitment to coordinating transportation and land use planning within Central Oregon. This update was collaboratively developed by community members, businesses, ODOT, Madras, Metolius, Culver, Camp Sherman, and Crooked River Ranch. Opportunities for engagement included:

- ▲ Project website that included all technical reports, draft goals and objectives, and links to other relevant documents;
- ▲ Project Management Team Meetings attended by County and ODOT staff;
- ▲ Three Project Advisory Committee (PAC) Meetings;
- ▲ Two Public Open Houses;
- ▲ Targeted outreach with community and social service organizations;
- ▲ Briefings with ODOT, County, and City of Madras staff and policy-makers regarding US 97 safety-related needs; and
- ▲ Updates, work sessions, and public hearings with the Board of County Commissioners.

Through these activities, the County provided community members with a variety of forums to identify their priorities for future transportation projects, programs, and policies.



02 GOALS AND OBJECTIVES



The Transportation System Plan (TSP) provides the County with a coordinated guide for changes to its transportation infrastructure and operations over the next twenty years.

A basic assumption in the development of this document is that the transportation system not only meets daily travel needs but also affects the physical, social, and economic health of the County and the region. As such, planning the future system must be conducted within regional and community goals and values, support local and regional economic development activities, and enhance the quality of life that residents and visitors enjoy and expect.

GOALS

The TSP is guided by a set of goals intended to characterize the County's desires and visions for the future transportation system. The goals are intended to be aspirational and may not be fully attained within the 20-year planning horizon of the plan. The goals are supported by a set of objectives that can be used to help the County implement the identified projects and policies after the TSP has been adopted. The goals and objectives that guide the TSP are outlined below.



MOBILITY AND CONNECTIVITY

Promote a multimodal transportation system that moves people and goods between rural communities and Madras, Metolius, Culver, Camp Sherman, Crooked River Ranch and other key destinations within the County as well as to the adjacent counties, Central Oregon, and the state.

Objectives

- 1.1 Identify the 20-year roadway system needs to accommodate developing or undeveloped areas.
- 1.2 Promote an integrated system of principal roadways and highways that move people and goods throughout the County, offers access to other areas of the region and state, and provides access to employment, commercial, and residential areas.
- 1.3 Collaborate with ODOT, the local communities and the railroad to prioritize safety improvements and maintenance needs.
- 1.4 Update transportation performance standards to ensure the efficient movement of people, goods, and commodities.
- 1.5 Update policies and standards that address street connectivity, spacing, and access management.
- 1.6 Balance local and state goals related to the highways that run through local communities.
- 1.7 Provide comfortable, convenient, and safe walking and cycling facilities within and between the local communities.
- 1.8 Support transit service to improve mobility within the County and connectivity to Bend, Redmond, Prineville, and other regional and state destinations.



ECONOMIC DEVELOPMENT

Plan a transportation system that supports existing industry and encourages economic development in the County.

Objectives

- 2.1 Develop and promote a multi-modal transportation network that supports the existing industrial, data storage, agricultural, and tourism industries and supports economic diversification in the future.
- 2.2 Support efforts to improve multimodal connectivity to industrial lands, including the Madras airport and surrounding industrial lands.
- 2.3 Promote railroad freight service, when possible, through integration of road and rail transportation. Upgrade highways facilitating key freight routes in areas where rail is not an option.
- 2.4 Prioritize improving and maintaining the key freight routes of US97, US26, and US20 to promote movement of goods and services within the region.
- 2.5 Identify the 20-year roadway system needs to accommodate developing or undeveloped areas.
- 2.6 Improve coordination between the private sector and the County to better integrate the industrial areas with these future transportation system improvements.
- 2.7 Encourage recreational tourism by developing connections and promoting access to major recreational locations and destinations and key services in the County, including parks, reservoirs, and trail systems.
- 2.8 Encourage bicycle tourism by prioritizing and improving recreational routes through the County.



SAFETY

Provide a transportation system that promotes the safety of current and future travel modes for all users.

Objectives

- 3.1 Use a data-driven process to reduce fatal and serious injury crashes.
- 3.2 Develop a multi-modal transportation system that incorporates safety and operational improvements for all users.
- 3.3 Promote a transportation system that balances the need for mobility for through traffic with access to the unincorporated communities.
- 3.4 Provide multimodal facilities that support safe, livable, and vibrant communities.
- 3.5 Ensure that transportation facilities are designed, constructed, and maintained consistent with their expected use, vehicular travel speeds, and volumes.
- 3.6 Reduce the number and severity of crashes.
- 3.7 Maintain and improve key emergency vehicle routes.
- 3.8 Promote railway and highway safety at and near railway intersections.
- 3.9 Update County access management and design standards for all county roads.
- 3.10 Evaluate opportunities for providing Transportation Systems Management and Operations (TSMO) improvements that address safety and efficiency for all modes.
- 3.11 Consider traffic calming techniques to encourage appropriate use of local and residential roads and support the addition of pedestrian crossings along roads when appropriate.



MULTIMODAL USERS

Provide a multimodal transportation system that supports a safe, efficient, and low-stress environment for walkers, cyclists and transit users as well as benefits the overall health and environment within the County.

Objectives

- 4.1 Promote walking and cycling, public transportation, micro mobility options, and rideshare/carpool programs through community awareness and education.
- 4.2 Support the development of a safe and efficient regional public transportation system, including development of mobility hubs and park-and-rides.
- 4.3 Promote an interconnected network of bicycle, pedestrian, and transit facilities throughout the County.
- 4.4 Add bicycle, pedestrian, and transit facilities when new roads are constructed and/or existing roads are reconstructed.
- 4.5 Promote a transportation system that includes comfortable and convenient pedestrian, bicycle and transit facilities to and from schools, community gathering places, grocery stores, and other services.
- 4.6 Develop plan elements that provide safe, multimodal connections between bicycle, pedestrian, transit, and vehicle facilities.
- 4.7 Develop a plan that supports a County-wide pedestrian, bicycle and public transportation system that interfaces with existing and planned facilities in the City of Madras, Culver, Metolius, Crooked River Ranch, and state and regional parks (i.e., The Cove Palisades).
- 4.8 Promote a transportation system that includes pedestrian, bicycle and public transportation connections to recreational and tourist destinations throughout the County.
- 4.9 Support widening roadway shoulders or shared use pathways as part of maintenance and operational activities to provide for bicycle travel.

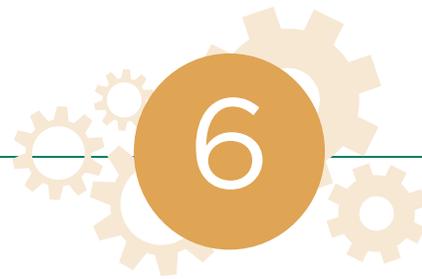


ENVIRONMENT

Provide a transportation system that balances transportation services with the need to protect the environment.

Objectives

- 5.1 Develop a multi-modal transportation system that supports walking, cycling and public transportation as viable options, minimizes energy consumption, and lessens air quality impacts.
- 5.2 Develop and upgrade transportation facilities to be consistent with the adopted Oregon Transportation Plan (OTP), the Oregon Highway Plan (OHP), and the Transportation Planning Rule (TPR).
- 5.3 Comply with applicable state and federal noise, air, water, and land quality regulations.
- 5.4 Ensure valuable soil, water, scenic, historic, and cultural resources are preserved within the County.
- 5.5 Evaluate and implement, where cost-effective, environmentally friendly materials and design approaches (e.g., storm water retention/treatment to protect waterways, solar infrastructure, impervious surfaces, etc.).
- 5.6 Consider the needs for safe wildlife passage as part of transportation facility design and construction.



PLANNING AND FUNDING

Maintain the safety, physical integrity, and function of the County's multi-modal transportation network, consistent with Goal 6 of the OTP.

Objectives

- 6.1 Seek and maintain long-term funding stability for transportation maintenance projects.
- 6.2 Evaluate new, innovative funding sources for transportation improvements.
- 6.3 Ensure that the existing transportation network is conserved and enhanced through maintenance and preservation.
- 6.4 Identify areas where refinement plans, interim measures, and/or intelligent transportation measures would increase the life of a facility or delay the need for improvements.
- 6.5 Review and revise where necessary local land use and development requirements to ensure that future land use decisions are consistent with the planned transportation system.
- 6.6 Continue to enhance relationships and improve coordination among Madras, Culver, Metolius, Cascades East Transit (CET), ODOT, and the Federal Highway Administration (FHWA).

6. Planning and Funding Cont.

- a. Cooperate with ODOT in the implementation of the Statewide Transportation Improvement Program (STIP) and Statewide Transportation Improvement Funding (STIF);
- b. Encourage the improvement of state highways;
- c. Encourage planning coordination between Madras, Culver, Metolius, and the State by establishing standards for County roadways within urban growth boundaries, cooperative road improvement programs, funding alternatives, and schedules;
- d. Work with applicable jurisdictions in establishing the right-of-way needed for new roads identified in the TSP;
- e. Leverage federal and state highway funding programs;
- f. Coordinate with and provide guidance to CET in programming public transportation funds received by Jefferson County; and,
- g. Encourage citizen involvement in identifying and solving transportation issues.



Provide access to the transportation system for all users.

Objectives

- 7.1 Provide transportation mode choices supportive of users of all abilities and ages, and provide equal access to fare/route booking.
- 7.2 Improve walking, cycling and transit options, especially to those areas serving specific sociodemographic characteristics such as poverty status, race/ethnicity, youth populations, elderly populations, and persons with disabilities.
- 7.3 Consider impacts to the transportation disadvantaged when assessing transportation infrastructure projects.



03
**NEEDS ASSESSMENT AND
EVALUATION**



The TSP goals, policies, projects, and potential implementing actions are based on analysis by, and input received from, the community and Jefferson County and partner agency staff and policy-makers. The public review included analysis of existing transportation conditions for all modes of travel, forecast deficiencies in the transportation system, and an evaluation of possible system changes that can meet the transportation needs for all users (including the transportation disadvantaged) and address the need for movement of goods and services to support local and regional economic development priorities.

The list of recommended projects and programs was identified based on the needs analysis, potential changes to the existing system, and a detailed review of relevant state, regional, and local plans, policies, and funding opportunities.

The following sections outline the key findings from the existing and future needs analyses that helped shape the TSP's recommended transportation projects and programs.

EXISTING TRANSPORTATION SYSTEM CONDITIONS

Existing transportation needs, opportunities, and constraints reflect an inventory of the system characteristics conducted in 2020. This inventory included all major transportation-related facilities and services at that time. Key roadway features, traffic conditions, safety performance, bicycle and pedestrian facilities, and transit service, among other topics, were analyzed. Detailed findings of the results of the existing needs analysis are summarized in Volume 2, Appendix D: Transportation System Conditions, Deficiencies, and Needs; Existing Conditions Analysis. Key findings related to the existing County system are highlighted below.

- ▲ The areas with highest percentages of the elderly and disabled populations are in the Crooked River Ranch, Camp Sherman, and areas around Metolius. Because these areas are outside of incorporated communities, a need to provide strong rural transit service will continue to be important to these areas in particular.
- ▲ The highest proportion of minority residents are in areas in the northwest of the County on the Confederated Tribes of Warm Springs land and southeast of Madras; these same areas have high portions of households with low income and without vehicles. Although the Warm Springs Reservation is not addressed in this TSP, this data illustrates the need for strong multimodal transportation connections and options to the Reservation.
- ▲ Given the rural nature of the County, there are limited roadway and bicycle facilities to connect people, goods and services between the cities and unincorporated areas. In particular, additional transportation connections are desired that:
 - Connect the Cove Palisades recreational area with the state highway system;
 - Provide non-highway options between Madras, Culver, Metolius, Camp Sherman and Crooked River Ranch;
 - Provide alternative routes to the highway, especially in the event of incidents; and,
 - Complete the connection of Cherry Lane between US97 and US26.
- ▲ US 97, especially the segment south of Madras, has experienced several injury and fatal crashes. A number of non-highway intersections also experienced crashes that could benefit from both systemic and programmatic changes to reduce crash frequency, severity, and risk.
- ▲ Many segments of US 97, US 26, and key County roadways do not have shoulders wide enough to provide a comfortable area for people riding bikes or walking. In particular, the Madras Mountain Views Scenic Bikeway, a 29-mile bicycle route through Madras, Metolius, the Cove Palisades State Park, and Culver does not have dedicated bicycle lanes or shoulders of sufficient width along the majority of the route.
- ▲ The communities of Culver and Metolius lack sidewalks and bike facilities between residential, school, commercial and employment areas as well as to transit stops.
- ▲ Expanded dial-a-ride and CET Community Connector services is desirable to and between the unincorporated areas as well as to key shopping and medical services within the County and Central Oregon.
- ▲ Thirteen bridges within the County were noted to be structurally deficient and/or weight-restricted due to existing deficiencies. The County is developing a Bridge Resiliency Plan that identifies priority bridges for upgrade and/or replacement.

BASIS OF NEED ASSESSMENT

The TSP addresses the projects, programs, and policies needed to support growth in population and jobs within the County as well as the travel associated with regional and state economic growth between now and the year 2040. The identified set of recommendations reflects County policy makers’ and community members’ priorities to maintain existing facilities and reduce congestion, save money, improve safety, and provide health benefits without costly increases to automobile-oriented infrastructure. Over time, the County and ODOT will periodically update the TSP to respond to changing conditions and funding opportunities.

The existing land use patterns, economic development opportunities, and population and job forecasts helped inform the analysis of year 2040 needs. This information helped identify future changes to the transportation system (and the supporting policies and programs) to address deficiencies and support economic development in a manner consistent with the County’s Comprehensive Plan and Zoning Map.

Growth in County Population

By Oregon Revised Statute 195.034, incorporated cities and counties formulate and adopt coordinated population projections. Table 1 shows the coordinated population and forecasts through 2060 for the County and incorporated cities. Based on this data, the County is anticipated to experience a population increase of less than one percent per year within the rural and unincorporated areas. This expected population increase helped inform the potential growth in vehicular traffic volumes for use in understanding future needs in the County.

Table 1. Population Projects

YEAR	JEFFERSON COUNTY (Total)	JEFFERSON COUNTY (Unincorporated Areas)	CITY OF CULVER	CITY OF METOLIUS	CITY OF MADRAS
CERTIFIED POPULATION ESTIMATES					
2014	22,205	13,865	1,380	700	6,260
2019	23,840	15,075	1,560	825	6,380
PROJECTED POPULATION ESTIMATE FORECASTS					
2020	24,139	14,168	1,511	1,158	7,302
2030	26,375	15,199	1,678	1,249	8,249
2040	28,145	15,932	1,850	1,328	9,035
2050	29,528	16,352	2,008	1,392	9,777
2060	30,979	16,748	2,171	1,449	10,610



Cañon
Road, Bull's Dam
Lake, Billy Choosh
1/2 mi

Traffic Volume Development

The expected increase in traffic volumes on ODOT highways and key roadways within the County was based on a review of past changes in traffic volumes as well as expected increases in population and area jobs. Further details on the anticipated growth in traffic volumes on roadways within the County is provided in Volume 2, Appendices C (Methodology Memo) and D (Transportation System Conditions, Deficiencies, and Needs).

As part of the deficiencies analyses, existing and future roadway and intersection capacity needs were reviewed at nine intersections and along 50 roadway segments within the County. The estimation of future traffic volumes at these locations and the resulting capacity analyses were performed using the procedures outlined in ODOT's Analysis and Procedures Manual (APM) and compared to applicable agency performance targets.

BASELINE ROADWAY AND INTERSECTIONS ANALYSES

The baseline (future) analysis forms the basis of the project list reflected in Chapter 4. This baseline analysis was guided by the transportation needs identified in previously adopted plans and policies for the County, ODOT, and other agency partners, the 2040 population forecasts and the County's land use map, the anticipated growth in traffic volumes, and the fact that there are no major construction projects that are funded at this time that could materially change traveler behaviors or traffic volumes on the County's roadway network in the future.

BASELINE (YEAR 2040) TRANSPORTATION NEEDS

The results of the year 2040 Analyses are summarized in **Volume 2, Appendix D: Transportation System Conditions, Deficiencies, and Needs**. In addition to the summary of existing deficiencies identified in the previous section, the future deficiencies analysis revealed:

- ▲ All of the highway intersections and roadway segments are anticipated to meet ODOT performance targets as defined in the Oregon Highway Plan (OHP) related to vehicular capacity in 2040. At two of the nine intersections analyzed (US26/Colfax Lane/US97 and US97/Iris Lane), people using the County roadway approaches could experience high delays and congestion. These conditions likely reflect the delays that could be experienced in the future at several other County intersections along the US97 corridor south of Madras.
- ▲ The existing County intersections and roadway segments analyzed as part of the TSP are anticipated to have adequate capacity to accommodate future growth without needing any material changes in design or traffic control.
- ▲ Birch Lane, Clackamas Drive, and Dogwood Lane may be annexed as collector roadways by the City of Madras in the future. Through an updated Urban Growth Area Management Agreement (UGMA), the City and County may consider requiring County roads be brought up to City standards at the time of annexation. Any new road extensions into the County from the UGB boundary should involve coordination between the County and City.
- ▲ Although no vehicular capacity needs were identified, changes to the County's roadway system in the future are needed to improve the safety, comfort and convenience for people traveling between the unincorporated areas, the City of Madras, the recreational areas and within the region.

- ▲ Following adoption of the TSP, the County and ODOT should conduct a more focused analysis of 20-year safety improvements on the section of US 97 south of the Madras UGB. This detailed review will likely identify more costly and broader changes to existing intersections and access points along the corridor that can help to reduce the crash risk. This safety study will need to be shaped by both technical analyses as well as public engagement within the community and with County, ODOT and City of Madras policy-makers.
- ▲ Although most County and ODOT roadways do not have adequate width for comfortable and convenient connections for people walking and riding bikes, providing shoulders on all major county roadways and state highways in the next twenty years is not feasible due to constraints such as right-of-way, built or natural environmental impacts, and high costs to construct. To the extent possible, the County and ODOT should look for opportunities to provide shoulders and shared-use pathways, when feasible, especially in areas with significant curves, hills, bridges, and other locations that could be beneficial where vehicles and people biking and walking may be at increased risk for sharing the road.
- ▲ Additional public transportation services are needed to provide options for people who cannot or may choose not to drive vehicles. In the future, transit service will continue to be coordinated and operated by CET. The County will need to continue to collaborate with CET and ODOT on the prioritization of funding and operating public transportation services within and to the County. Consideration should be made to support ride sharing services in the future.
- ▲ No changes to existing freight systems, air, rail, or pipeline facilities were identified to serve the future needs of the County.

EVALUATION OF TRANSPORTATION SYSTEM ALTERNATIVES TO ADDRESS IDENTIFIED NEEDS

The Project Advisory Committee (PAC), Project Management Team (PMT), and participants at open houses and other community forums identified transportation system alternatives that had the potential to address existing and future transportation needs. These alternatives address all modes of travel and include programs that could reduce vehicular travel demand. Further, these potential system alternatives avoid principal reliance on any one mode of transportation and increase transportation choices for all users. The PMT developed these ideas into a potential project list that was screened by agency staff against the TSP's goals and objectives. The potential solutions were reviewed and refined through community members and policy-makers to form the 20-year list of projects reflected in Chapter 5. Through this process, evaluation of solutions that could address the identified needs as well as serve to accomplish key County objectives were identified. Some of the issues that shaped the final list of recommended projects include:

- ▲ Balancing impacts to existing and developable parcels with overall transportation system and community needs;
- ▲ Minimizing impacts to Goal 5 resources (natural resources, scenic and historic areas, and open spaces);
- ▲ Supporting and enhancing key state and regional economic plans and priorities;
- ▲ Leveraging future transportation investments to reduce access, economic, safety and health disparities within the County, particularly those areas identified as serving populations of low income, minority, youth and/or the elderly.
- ▲ Providing additional roadway connections between the City of Madras and the communities of Metolius, Culver, Camp Sherman, Crooked River Ranch and key recreational areas;

- ▲ Addressing known safety issues;
- ▲ Increasing connections for people walking and riding bikes, especially in the unincorporated areas and to key transit stops;
- ▲ Improving freight mobility on designated freight, truck, rail and air routes;
- ▲ Improving mobility for through traffic on state highways; and,
- ▲ Leveraging funding opportunities with key partner agency and private investments.

The resultant 20-year project list is intended to address the identified transportation needs, meet the TSP goals and reflect the criteria included in ORS 660-012-0035.

The TSP projects are organized into the following categories for implementation based on the complexity, likely availability of funding, and assessment of need:

- ▲ Opportunity Project: These are low-cost projects that can be implemented relatively easily, often through regular maintenance work.
- ▲ TSP Project: These are projects that are anticipated within the 20-year planning horizon but will require additional funding or design work to implement.
- ▲ Visionary Project: These are projects that are unlikely to occur in the 20-year planning horizon. However, the County and cities would like to maintain these projects to document the longer-term desires and provide flexibility to adapt if circumstances change that may warrant the projects sooner. These projects are not considered within the 20-year list of financially feasible changes to the transportation system.

The intent of these categories is to provide the County and cities with flexibility to adapt to changing economic development and community needs over the next 20 years. The “Opportunity Projects” should be implemented in the near-term, as staff and funding resources are available.

The project lists and maps of the potential locations were posted to the County’s website prior to adoption. Details of the recommended project lists are provided in Chapter 5.



04
**PROVIDING MULTIMODAL
SYSTEMS**



The TSP is a coordinated set of multimodal policies, programs, and projects that address the transportation needs within the rural and unincorporated areas of the County over the next 20 years. This chapter provides an overview of these programs and projects; the detailed project list and associated cost estimates are shown in Chapter 5.

Although driving will continue to be a primary mode of travel in the County and the preservation and improvement of the existing roadway system will continue to remain important, the TSP projects, policies, and programs are intended to increase transportation choices, reduce reliance on the automobile by better accommodating and encouraging travel by foot and bike for short trips, improve safety for all transportation users, and provide for improved transit service.

The TSP, in partnership with the County's adopted land use plans and regulations will ultimately result in land use patterns and transportation systems that make walking, cycling, and use of transit convenient so that, on balance, people need to and are likely to drive less than they do today.

THE ROAD SYSTEM

People driving, walking, biking, and taking transit all rely on the roadway network to access destinations locally within the County as well as regionally within Central Oregon. The identified roadway solutions address mobility, access, freight, and safety needs.

Functional Classification

The County’s functional classification system provides a street hierarchy based on their primary function (moving people across regions or providing access to local destinations). The Oregon Department of Transportation (ODOT) identifies the appropriate classifications for state facilities whereas the County identifies the appropriate classifications for County streets. The classification levels also describe how the roadway “looks and feels” to the users and provides recommendations for vehicular lane width, roadside treatments, the presence of bicycle lanes and the need for sidewalk or trails adjacent to the road. Figure 1 presents the County’s functional classification map.

Roadway Design Standards

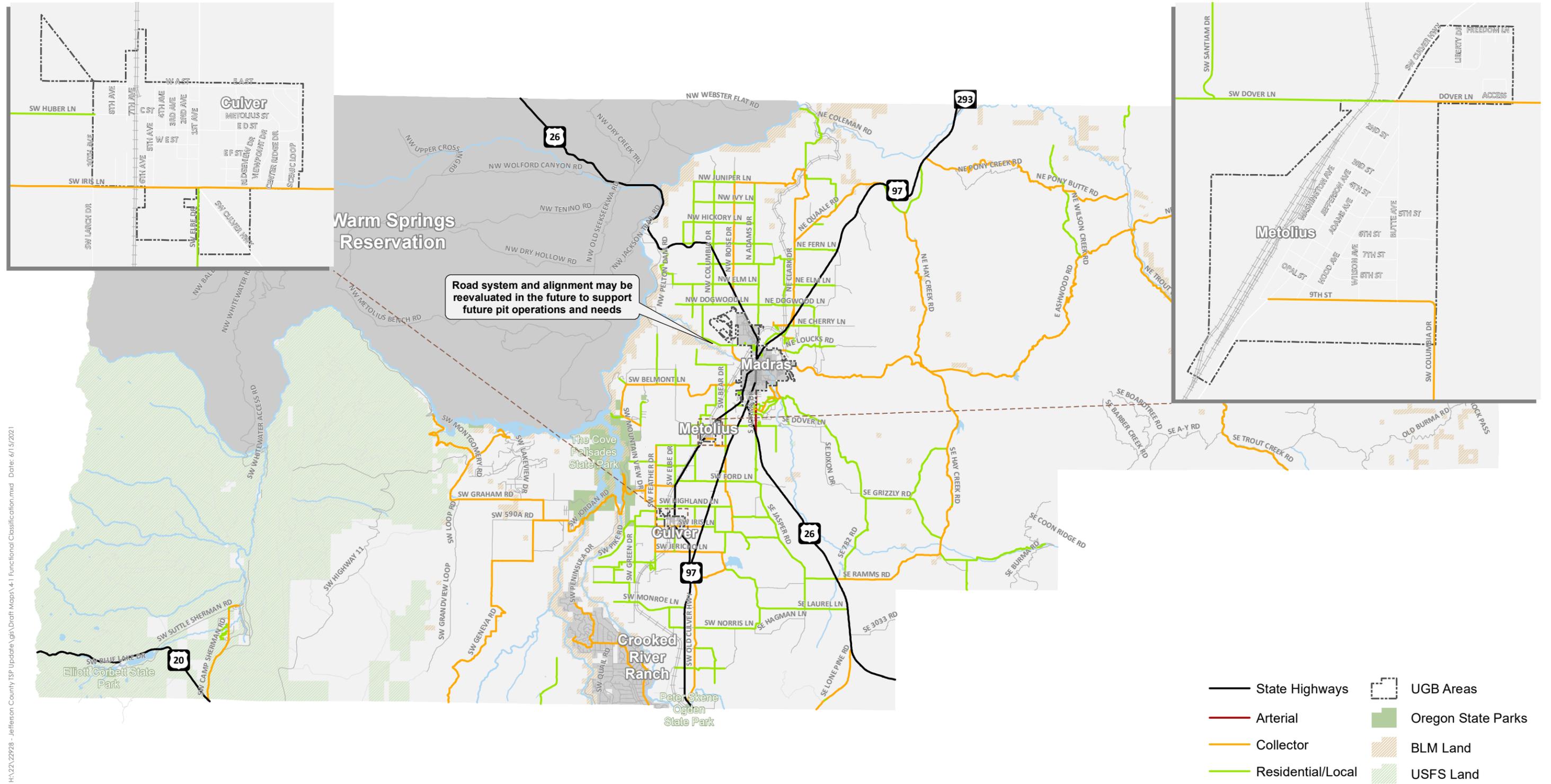
The proposed cross-section standards are presented in Table 2. Due to the rural nature of the County, dedicated sidewalks and bicycle lanes are not required nor practical to construct. Instead, people walking and biking can use the shoulder or share the lane. In unique circumstances where a dedicated sidewalk, bike lane, or shared-use path may be more appropriate than a shoulder or shared lane, the Public Works director has the ability to approve deviation from the standard cross section.

Table 2. Jefferson County Cross Section Standards¹

FUNCTIONAL CLASSIFICATION	RIGHT OF WAY (FT)	PAVEMENT WIDTH (FT)*	SHOULDER (FT)
Arterial	80	40	8
Major Collector	80	36	6
Minor Collector	72	36	6
Local	50	30	3

**Turning lanes, when required, will add additional width. Lane widths are to be 12 feet for each classification.
1 Design for standard unless approved by the public works director. The public works director has the ability to allow deviation from standards in circumstances with unique constraints. In rural areas where cross section standards are not met on the existing roadway, the County has the ability to match the existing roadway and deviate from these standard when approved by the Public Works Director.*

Figure 1. Functional Classification



H:\22\22928 - Jefferson County TSP Update\GIS\Draft Maps\4-1 Functional Classification.mxd Date: 6/15/2021

Data Source: Jefferson County
 Madras UGB and Warm Springs not included in TSP.



Roads near the Madras Urban Growth Boundary (UGB), such as Birch Lane, Clackamas Drive, and Dogwood Lane, may be annexed by the City of Madras over time as the City grows. These three roads will become Collectors for the City. The City and County will be updating their Urban Growth Area Management Agreement (UGMA) in the Spring/Summer 2021. The City and County may consider requiring County roads be brought up to City standards at the time of annexation. The County’s minimum right-of-way standards for collectors and arterials exceeds the City’s right-of-way for collectors; this should help to provide adequate right-of-way to upgrade facilities as needed in the future. New road extensions into the County from the UGB boundary should involve coordination between the County and City.

Culver and Metolius Street Design Standards

The City of Culver’s Standard Details provide the typical sections for collector streets and local streets. The City of Metolius’ Standard Detail Street Design provides street design standards for arterials, collectors, local residential streets, alleys, accessways and multi-use paths, and County collector roads. The street standards for Culver and Metolius are summarized in Table 3 and 4.

Table 3. City of Culver Cross Section Standards⁴

FUNCTIONAL CLASSIFICATION	RIGHT OF WAY (FT)	PAVEMENT WIDTH (FT)	LANE WIDTH	SHOULDER (FT)	CURB AND GUTTER	SIDEWALK (FT)
Collector	60	38	12	7	Yes	5
Local	60	38	12	7	Yes	5

Data Source: City of Culver, Oregon Standard Details, Figures R1 and R2



Table 4. City of Metolius Cross Section Standards¹

FUNCTIONAL CLASSIFICATION	RIGHT OF WAY (FT)	PAVEMENT WIDTH (FT)	LANE WIDTH	CURB AND GUTTER	SIDEWALK (FT)	PLANTING STRIP/ DRAINAGE SWALE (EACH SIDE)	ON-STREET PARKING (WHEN ALLOWED)
Arterial i.e. Jefferson Ave	60	28	12	Yes	5 to 10	7 to 8	Per ODOT Standard
Collector							
Existing Residential:							
Butte Ave	60	28 to 36	12	Yes	5 to 8	7 to 8	Parallel
Washington Ave	60	28 to 36	12	Yes	5 to 8	7 to 8	Parallel
“New Collector”	60 to 64	26 to 28	12	Yes	5 to 8	7 to 8	Parallel
Commercial							
“New Commercial”	60 to 64	38	12	Yes	5 to 10	7 to 8	Parallel
Local Residential							
Existing (as of 2006)	60	24	12	Optional	N/A	None	Parallel
“New Residential”	60 to 64	38	12	Yes	5 to 6	6 to 7	Parallel
Alleys							
	16	N/A	N/A	None	None	None	None
Accessways & Multi-use Paths							
	10 to 18	6 to 10	3 to 5	None	None	None	None
County Collector Roads:							
9th Street	60	22	11	None	N/A	None	Parallel
Dover Lane	60	25	12.5	None	N/A	None	Parallel

Data Source: City of Metolius Standard Detail Street Design

Access Management

Providing adequate access to streets, land uses, and key destinations is a critical part of operating and planning for an effective transportation system for all users. ODOT and the County maintain standards to help balance the needs for both “through travelers” (including freight and public transportation) as well as serving the needs of area residents, employees, and visitors.

Movement of Freight

The movement of goods and services within the County and the overall region will continue to rely upon the state highways as the designated freight routes.

In addition, the City of Madras’ Industrial Site Readiness Plan identifies infrastructure improvements, including railroad and street system improvements, necessary to support the development of the Industrial Park in Northeast Madras. The County and City should reference the Industrial Site Readiness Plan as part of future development in this area to implement planned infrastructure improvements.

Traveler Information/ITS

Intelligent Transportation System (ITS) infrastructure enhances traffic flow, maintenance activities, and safety through the application of technology. The provision of reliable ITS infrastructure to inform motorists about incidents, weather conditions, and congestion is a useful and cost-effective tool for rural areas, such as Jefferson County.

To provide cost-effective and flexible solutions over time, the County will collaborate with ODOT to develop an ITS plan. This plan should address traffic incident management, traveler information, transportation operations center, asset management, mobility, and work management, which are elements of the ODOT Statewide Transportation Systems Management and Operations (TSMO) Plan. Potential outcomes for Jefferson County could likely include provision of variable message signs at key locations to inform drivers about roadway context changes, locations prone to changes in weather conditions due to elevations, locations prone to congestion, safety concerns, and locations with a lack of cell phone service or fiber network connectivity. The Plan may reference ODOT’s future Statewide Broadband Strategy Plan, which will help identify network capabilities in Jefferson County. The potential locations for variable message signs should be further evaluated through an ITS Plan development that would follow adoption of the TSP. Additional components of an ITS Plan may include identifying locations for fiber, weather stations, video monitoring cameras, dynamic speed limit or speed advisory signs, curve speed warning signs, intersection warning signs, and real-time transit information. The Jefferson County ITS Plan should coordinate with the Deschutes County and Lower John Day ITS Plans, which identify ITS elements on the south and north ends of the County.

Safety

Several of the safety-based needs for the County reflect conditions best addressed through education, enforcement, or outreach programs. Others may be addressed through systemic intersection and roadway treatments at specific locations. The type of treatments that could be considered by the County in the future include:

- ▲ **Roadway Treatments to Reduce Roadway Departure Crashes** – With new road construction and roadway maintenance projects, the County could consider the construction of shoulders (as required by roadway standards), centerline and shoulder rumble strips, edge-line striping, recessed or raised pavement markers, and/or curve signing upgrades.
- ▲ **Roadway Treatments to Reduce Speed** – With new road construction and roadway maintenance projects, the County could consider lane narrowing at targeted locations, transverse speed reduction markings, and speed feedback signs in conjunction with posted speed limit signs. At rural

communities, changes in roadside elements can be used to indicate a change in context to reduce In addition, enhanced enforcement at key corridors could focus on driving at appropriate speeds.

- ▲ **Safety Data Monitoring** – County staff, in collaboration with ODOT, will continue to periodically analyze crash data and identify the need for engineering, enforcement and educational treatments at specific locations. Tools such as ODOT’s Safety Priority Index System (SPIS) and All Roads Transportation Safety (ARTS) programs may be used to assist with prioritizing locations.
- ▲ **Safe Routes to School** – The County, Culver, and Metolius should seek projects that improve safety near schools and school routes, particularly for those walking and biking to school. These efforts should be coordinated with infrastructure projects such as ADA projects.
- ▲ **Enhanced Intersection Signing and Striping Options** – At identified collector and arterial intersections, the County could consider enhancements such as advanced warning signs, double advance signs, reflective striping and signage, oversized stop signs, double stop signs, stop ahead pavement markers, transverse rumble strips, and edge-line treatments to help increase visibility and awareness of an intersection. The County should prioritize the use of treatments that have documented effectiveness through the *Highway Safety Manual (HSM)* or documented Crash Modification Factors (CMFs).

Examples of potential candidate corridors for systemic treatments focused on roadway departure crashes or speed reduction include Chinook Drive, Mustang Road, Shad Road, Peninsula Drive, and Cinder Drive in Crooked River Ranch. Priority may be placed on key curves where patterns of crashes is observed, such as the curve on Chinook Drive just south of Deer Drive. Candidate locations for systemic intersection treatments (signing and striping options) include rural intersections, particularly those with skew or visibility constraints such as the intersection of Badger Road/Rainbow Road, or those located along long high-speed roadway segments, where drivers may not be expecting a stop-controlled intersection ahead.

The TSP also recommends a **focused corridor analysis of 20-year safety improvements** on the section of US 97 south of the Madras UGB.

Safety on the US 97 Corridor

The TSP focuses on near-term safety improvements that can be implemented to reduce crash risk without closing accesses or intersections, changing the existing traffic control, or modifying the movements permitted at each intersection.

This corridor study will be conducted following adoption of the TSP and will be guided by technical analyses and public engagement. Potential solutions will likely be higher in cost than the projects included in the TSP and could have broader impacts to existing accesses and change travel patterns on the County roadway system. Based on discussions between ODOT and the County, some of the key considerations of this future study may include:

- ▲ Facilitating turning movements and east-west crossing traffic at key intersections such as Colfax Lane/US 26, Dover Lane, Iris Lane, and OR 361;
- ▲ Closing or modifying allowable turning movements at key intersections throughout the corridor;
- ▲ Identifying County roadway projects necessary to support the highway changes;
- ▲ Accommodating local needs such as agricultural traffic and school traffic;
- ▲ Improving safety along the corridor by reducing crash frequency, severity, and risk;
- ▲ Providing adequate capacity along the corridor;
- ▲ Encouraging appropriate speeds and behavior; and
- ▲ Accommodating freight traffic.



THE BICYCLE AND PEDESTRIAN SYSTEM

In rural Jefferson County, people walking and biking generally share the same roadside shoulders and/or shared-use paths. Facilities that are deficient for one user are usually deficient for the other, thus recommended improvements can benefit both users. In urban areas and within one-half mile of transit stops, dedicated pedestrian facilities such as sidewalks are appropriate.

Suggested general policy and program considerations for improving access and circulation for people walking and cycling are provided below.

Roadway Standards

When feasible, Jefferson County should add shoulders on all new roadways or as part of projects involving major reconstruction.

- ▲ Providing shoulders consistent on all roads may not be feasible due to constraints such as right-of-way, built or natural environmental impacts, high costs to construct, etc. Ultimately, the inclusion of shoulders to provide spaces for people walking or biking on existing and new roads will not only expand the non-motorized transportation network but will also provide more travel options. The County Public Works Director may approve alternate options, such as shared-use paths, when appropriate. These facilities should provide transitions to different facilities as needed.
- ▲ A priority bicycle network of roadways could be identified to help the County identify the specific roadways in need of shoulders or shared use paths as well as the financial and staffing resources needed to implement.
- ▲ Install wayfinding on the priority bicycle network to encourage use of these roads
- ▲ Placing additional priority for widening shoulders at key curves, hills, bridges, and other locations could be beneficial where vehicles and people biking may be at increased risk for sharing the road with limited visibility (curves) or higher speed differentials (hill climbs).
- ▲ The County and ODOT can collaboratively identify priority locations along the state highways for added or increased shoulder widths and/or shared use paths.



Monitoring System

Pending availability of resources, the County could establish a data monitoring or counting program that helps to identify and prioritize locations with higher levels of walking and cycling activity. Resources such as Strava data may also help inform usage. In combination with safety reviews, this data monitoring program can help the prioritization of resources in the future.

Safety Program

In collaboration with other agencies, a countywide bicycle/pedestrian safety program could be implemented. Key activities may include:

- ▲ Ensure that Jefferson County employees, particularly Sheriff's Department staff, have adequate training regarding bicycle/pedestrian safety and enforcement issues.
- ▲ Encourage and support efforts by County schools or other organizations to develop and add a bicycle/pedestrian safety curriculum for students of all ages.
- ▲ Consider installing signage along roadways where bicycle touring or other significant bicycling activity is expected advising travelers of the "rules of the road" pertaining to motorists and non-motorized travelers.

Maintenance

The County could develop a specific schedule (and associated budget) to prioritize maintenance activities along key cycling routes.

- ▲ Ongoing maintenance is important to maximize the investment in bicycle and pedestrian facilities. Maintenance should provide for periodic removal of debris including small branches and other roadside debris that could create safety hazards for a bicyclist or pedestrian. Cracks and potholes impede safe non-motorized travel and should also be remedied promptly as is feasible. Explore opportunities for coordination and cooperation with state and federal agencies in examining innovative means of providing or funding pathways, trails, and equestrian facilities.
- ▲ Rails to Trails - Explore opportunities for development of non-motorized transportation facilities in the railroad right-of-way, or in abandoned railroad rights-of-way as these become available.

Intersection Safety

The County may identify intersections where changes are needed to enable adequate sight distance for pedestrians and bicyclists looking to cross the roadway. Appropriate sight distance should be calculated according to AASHTO's A Policy on Geometric Design of Highways and Streets. Additional treatments to enhance crossings at major intersections should be considered where appropriate.

TRANSIT SERVICES

The provision of high-quality, available, and reliable transit service fundamentally supports the environment, economic development, and equity for all travelers. Cascades East Transit (CET) will continue to provide public transportation services within and to/from Jefferson County. CET, in partnership with the County, cities, and Confederated Tribes of Warm Springs, is planning to enhance the existing transit service within the next twenty years to provide additional options for people who cannot or choose not to drive. Some of the strategies that may be implemented in the future include:

- ▲ Additional service area coverage within the County via the Community Connector;
- ▲ Provision of on-demand retail and medical shuttle service within and to/from the County;
- ▲ Expansion of the existing Dial-A-Ride to add coverage to Crooked River Ranch, Metolius, and Culver;
- ▲ Adding a new transit stop in Crooked River Ranch; and,
- ▲ Constructing transit hubs in Metolius and Culver

The County and CET will continue to work to refine these transit strategies to better serve the community.

RAIL SERVICE

Freight rail service will continue to be an important, energy efficient mode of transportation. The TSP supports the continued use of freight rail tracks and service provided in the County by the Burlington Northern Santa Fe (BNSF) Railway and Union Pacific Railroad. The Madras Industrial Site Readiness Plan includes changes to the railroad infrastructure to support the development of the Industrial Park in the northeast part of the City. The County and City should reference the Industrial Site Readiness Plan as part of future development in this area to implement planned infrastructure.

The nearest passenger rail service is and will continue to be provided in Portland and in Chemult. No passenger rail service is anticipated within the County within the next twenty years.



PIPELINES AND WATERWAYS

Today, there is one natural gas pipeline that runs through Jefferson County. The TSP recommends continued coordination with Pacific Gas Transmission to provide services within the County.

There are no navigable waterways located in Jefferson County but there are several waterways and lakes that are used recreationally. As local and regional destinations, access to these bodies of water facilitate tourism, economic development, and environmental conservation efforts. The TSP recommends enhancements to the roadways accessing these recreational areas to improve safety for all users.

AIR SERVICE

Within the County, the largest public use airport is the Madras Municipal Airport, which provides general aviation activities and supports wildland fire fighting tanker and rotor wing support in the summer as well other aeronautical and non-aeronautical uses (Daimler Trucks). There are also a number of private and one small public airport within the County. The TSP supports the continued use of these airports for service within the County in the future. Further, the County and City of Madras will continue to coordinate on implementation of the Industrial Site Readiness Plan to provide connections between freight, rail and landside services.

Primary passenger air transportation is and will continue to be offered at the Redmond Municipal Airport/ Roberts Field. The TSP supports continued coordination with Deschutes County and with ODOT to maintain safe and efficient connections to the airport for Jefferson County residents and visitors.

VEHICULAR PERFORMANCE STANDARDS

The County uses motor vehicle level of service (LOS) standards to evaluate acceptable vehicular performance on its street system. LOS standards are presented as grades A (free flow traffic conditions) to F (congested traffic conditions). ODOT uses mobility targets based on volume to capacity (V/C) ratios as defined in the OHP for planning evaluations of existing facilities and in the Highway Design Manual (HDM) for design of future facilities to evaluate acceptable vehicular performance on state facilities. As V/C ratios approach 1.0, traffic congestion increases.

In some cases, it may not be possible or desirable to meet the designated mobility target or LOS standards. In those cases, an alternative mix of strategies such as land use, transportation demand management, safety improvements or increased use of active modes may be applied.

The LOS and mobility targets to be applied in Jefferson County are listed below. ODOT mobility targets apply to state highways and intersections.

- ▲ County Roadways and Intersections - LOS C
- ▲ ODOT Highways and Intersections - along US 97 and US 26, a mobility target of 0.70 V/C; along OR 361, a mobility target of 0.80

Within the Madras UGB, the City's standards apply to its streets and intersections.



05
**TRANSPORTATION
PRIORITIES AND PROJECTS**



The TSP recommends transportation programs and infrastructure improvements to fulfill the plan’s goals and objectives. These are organized into the following three categories that suggest timeframes for implementation based on complexity, likely available funding (including potential funding sources), and assessment of need:

- ▲ **Opportunity Project:** These are low-cost projects that can be implemented relatively easily, often through regular maintenance work.
- ▲ **TSP Project:** These are projects that are anticipated within the 20-year planning horizon but will require additional funding or design work to implement.
- ▲ **Visionary Project:** These are projects that are unlikely to occur in the 20-year planning horizon. However, the County would like to maintain these projects to document the longer-term desires and provide flexibility to adapt if circumstances change that may warrant the projects sooner.

The intent of these categories is to provide the County with flexibility to adapt to changing economic development and community needs over the next 20 years.

Some projects may be accelerated, and others postponed due to changing conditions, funding availability, public input, or more detailed study performed during programming and budgeting processes. Further, the projects included in the preferred TSP list represent the best estimation for appropriate design available at this time.

PROJECT COSTS

The estimated construction costs for each project are provided in the subsequent tables. All costs are rounded and provided in 2020 dollars. Because the TSP is being drafted at a Countywide scale, project design may change before construction commences as public input, available funding, and unique site conditions are taken into consideration. As such, the design elements and cost estimates associated with the recommended projects are identified for discussion and planning purposes and for determining a reasonable planning cost estimate only. The actual design and permitting elements for any facility are subject to change, will ultimately be determined through a preliminary and final design process, and are subject to County and/or ODOT approval. Please note that cost estimates and County contributions and partnerships are for planning level purposes only. All projects will be scoped separately and individually based on project needs. The planning level cost estimates provided exclude right-of-way and significant environmental work.

Costs for transit services are not provided. The County and Cascades East Transit will continue to collaborate on providing service for area residents.

OPPORTUNITY PROJECTS

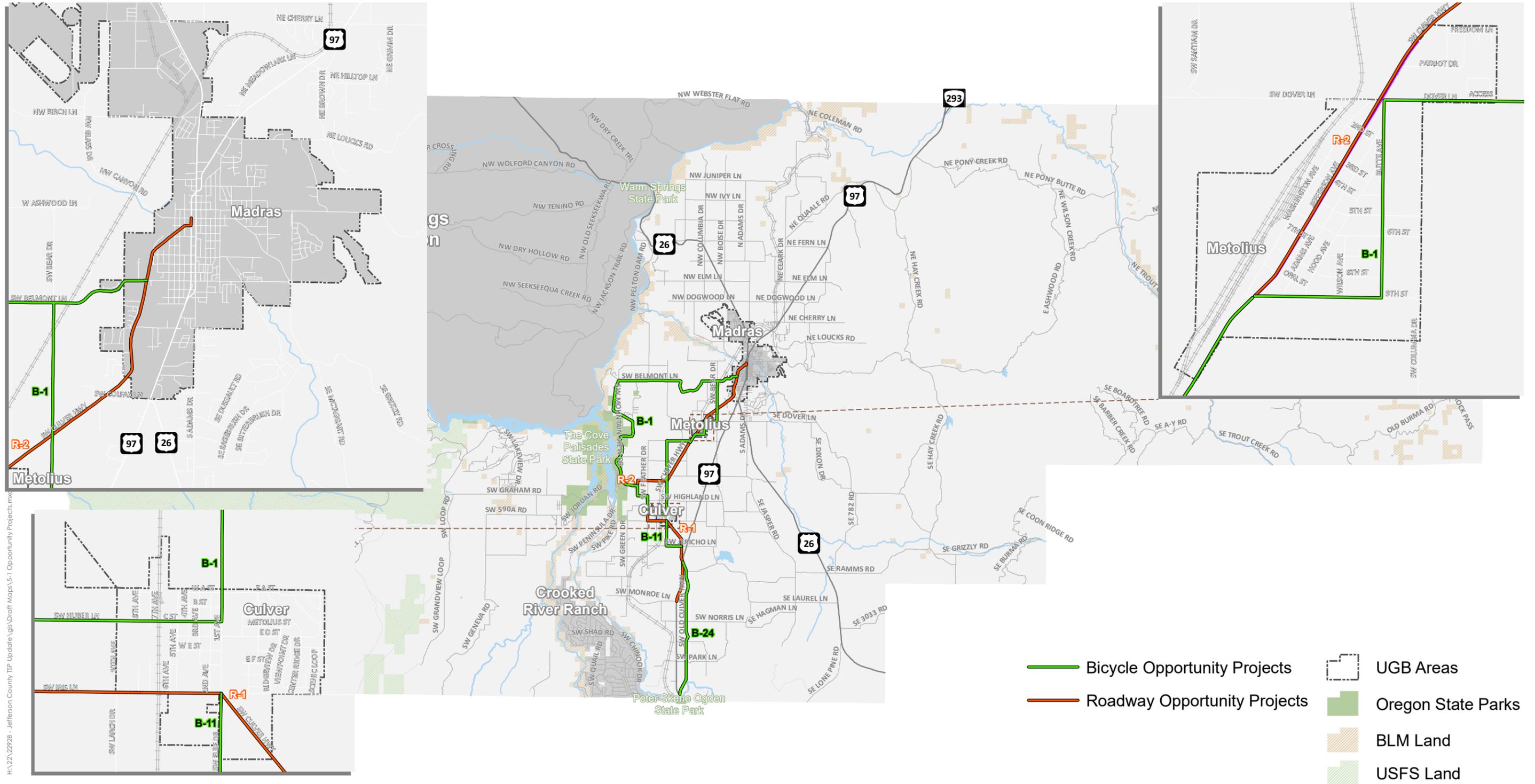
The projects shown in Table 5 represent projects that are generally lower in cost and can potentially be implemented as part of other County operation and maintenance activities. The TSP is not inclusive of all of the Opportunity Projects that the County may pursue over the next twenty years. Rather, these are those that the County can pursue to strategically improve the comfort, convenience and safety of people traveling within the County. In all cases, the County will review the appropriate design and implementation details at the time of project development and delivery. These projects are illustrated in Figure 2.

Table 5. Opportunity Projects

PROJECT ID	PROJECT NAME	DESCRIPTION	PLANNING LEVEL COST ESTIMATE*	EXPECTED COUNTY CONTRIBUTION	FUNDING PARTNER	LEAD AGENCY
Roadway Projects						
R-1	Improve Signage for Access to Cove Palisades from South	Designate and sign (or improve existing signage) preferred routes to access Cove Palisades from US 97. From the south, add/improve signage at Feather Drive/Iris Lane and Iris Lane/Culver Highway.	\$10,000	\$5,000	ODOT	County
R-2	Improve Signage for Access to Cove Palisades from North	Designate and sign (or improve existing signage) preferred routes to access Cove Palisades from US 97. Change the primary route to follow Gem Lane, instead of Huber Lane. From the north, add/improve signage at the intersections of Gem Lane/Culver Highway, Gem Lane/Feather Dr, and Gem Lane/Frazier Dr. Remove old sign south of the intersection of Gem Lane/Culver Hwy.	\$10,000	\$5,000	ODOT	County
SAFETY PROJECTS						
S-4	US97/Iris Lane Intersection Safety Improvements	Install advanced stop ahead signage on Iris Lane to increase visibility and awareness of the intersection.	\$20,000	\$2,000	ODOT	ODOT
S-6a	US97/Dover Lane Intersection Safety Improvements-Evaluations	Evaluate the intersection skew to determine if geometric or sight distance improvements are needed. Evaluate whether vertical curve restricts sight distance.	\$10,000	\$0	ODOT	ODOT
S-7	US97/Ford Lane Intersection Safety Improvements	Install signing, striping, and reflectivity enhancements to increase visibility and awareness of the intersection	\$40,000	\$0	ODOT	ODOT
S-8	Boise Drive/ Gumwood Lane Intersection Safety Improvements	Install signing and striping enhancements to increase visibility and awareness of the intersection.	\$15,000	\$15,000	N/A	County
S-11	Frazier Drive/ Fisch Lane Intersection Safety Improvements	Improve delineation along curve approaching intersection with additional chevrons and delineators. Consider widening the shoulders to increase recoverable area for vehicles and area for biking along Oregon Scenic Bikeway. (Note: Cost for shoulder widening is included in overlapping bicycle project.)	\$3,000 for delineation	\$3,000	N/A	County
BICYCLE AND PEDESTRIAN PROJECTS						
B-1	Oregon Scenic Bikeway Signing Improvements	Install new signing along the Oregon Scenic Bikeway to indicate that bicycles may be on the road/share the lane.	\$65,000	\$65,000	--	County
B-11	Elbe Drive (South Section) and Jericho Lane Signing Improvements	Install new signing along 2 mile section of road that directly serves Culver from the south and connects to Culver Highway to indicate that bicycles and people walking may be on the road.	\$10,000	\$10,000	--	County
B-24	Culver Hwy South Section Signing Improvements	Install new signing along a 6.8 mile section of road in order to enhance the county bicycle and pedestrian network and connectivity between Peter Skene Ogden State Park and Madras and to indicate that bicycles may be on the road/share the lane.	\$10,000	\$0	ODOT	ODOT

*Project cost estimates are planning level costs based on unit costs and do not include right-of-way costs or environmental constraints; these would be determined during project design.

Figure 2. Opportunity Projects



H:\22\22928 - Jefferson County TSP Update\GIS\Draft Maps\5-1 Opportunity Projects.mxd

TSP PROJECTS

The projects shown in Table 6 represent the County’s current priorities for investments in facilities for people driving, walking, riding bikes and for freight movement. These investments will help facilitate continued prosperity and health in the region and serve people of all ages, abilities, and incomes. These investments can strengthen mobility and connectivity as well as create opportunities to incorporate bicycle, pedestrian, and transit facilities where they do not exist. These projects are illustrated in Figure 3.

Table 6. TSP Projects

PROJECT ID	PROJECT NAME	DESCRIPTION	PLANNING LEVEL COST ESTIMATE*	EXPECTED COUNTY CONTRIBUTION	FUNDING PARTNER	LEAD AGENCY
Roadway Projects Identified in Current TSP that are Recommended for Inclusion in Updated TSP						
R-3	Cherry Lane Extension	Extend Cherry Lane approximately 4,200 feet to complete the connection between US26 and US97. Potential project elements to be considered in the design include topography (large hill in the vicinity) and power lines in the vicinity. Project should include rail crossing safety enhancements at existing crossing.	\$3,360,000	\$3,360,000	--	County
R-4	Cherry Lane/US26 Intersection Realignment Improvements	Realign eastern leg of intersection to align with western leg at 90 degree angle to support increased traffic with Cherry Lane extension project R-3 and to eliminate conflicting left-turns. Evaluate the need for intersection control changes when realignment occurs.	\$1,200,000	\$600,000	ODOT	County/ ODOT
R-6	NW Hickory Lane Paving	Complete paving of NW Hickory Lane from approximately 3,750 feet west of Boise Drive to Boise Drive.	\$1,665,000	\$1,665,000	--	County
R-21	Pavement Analysis of Pony Butte Road	Conduct a study and pavement analysis to determine the cost of upgrading Pony Butte Road from US 97 to Trout Creek Road.	\$50,000	\$50,000	--	County
Safety Projects						
S-1	US 97 Corridor Study	Conduct a corridor study of US 97 south of Madras to determine the long-term safety and capacity needs and vision for the corridor. Operational data shows a high delay for side streets along this corridor. Crash history revealed 17 fatal/severe crashes on US97 between 2013 and 2017. Treatments to be evaluated may include access modifications, intersection control changes, highway capacity enhancements, roadway network modifications, and other treatments to reduce crashes.	\$150,000	\$15,000	ODOT	ODOT
S-2	Speed and Safety Education/ Enforcement Campaigns	Conduct outreach campaigns targeted at speed reduction and behavioral safety, in conjunction with increased enforcement along the US 97 corridor in partnership with The Oregon State Patrol (OSP) and Deschutes County	Varies	Varies	ODOT/ OSP/ Deschutes County	ODOT / OSP
S-3a	OR361/Iris Lane/Elbe Drive Intersection Safety Improvements	Install signing and striping enhancements (larger signs, wide stop bars, stop ahead pavement markings, etc.) to increase visibility and awareness of intersection. Improve delineation with recessed pavement markers, delineators, reflective signs, reflective posts, etc. If Iris Lane is transferred to the City in the future, the City of Culver may become a funding partner.	\$100,000	\$0	ODOT/ City of Culver	ODOT
S-3b	OR361/Iris Lane/ Elbe Drive Intersection Traffic Control Improvements	Evaluate intersection for potential traffic control improvement (left turn lane, mini roundabout, realignment, etc.) to encourage slower speeds, better delineate the intersection, and reduce crash risk. If Iris Lane is transferred to the City in the future, the City of Culver may become a funding partner.	\$50,000	\$25,000	ODOT/City of Culver	ODOT

PROJECT ID	PROJECT NAME	DESCRIPTION	PLANNING LEVEL COST ESTIMATE*	EXPECTED COUNTY CONTRIBUTION	FUNDING PARTNER	LEAD AGENCY
S-5a	US26/Colfax Lane/US97 Intersection Safety Improvements - Systemic	Install speed treatments on the northbound approach to the intersection to encourage slower speeds as vehicles approach Madras. Treatments may include: transverse speed reduction markings and speed feedback signs (in conjunction with posted speed limit signs). Create maintenance agreement between jurisdictions for speed feedback signs.	\$117,000	\$0	ODOT	ODOT
S-5b	US26/Colfax Lane/US97 Intersection Safety Improvements - Infrastructure	Modify intersection approaches to encourage slower turning speeds and reduce crossing distance for vehicles. Install activated intersection warning sign to warn drivers on US 97 when vehicles are waiting on the side streets at the intersection. Widen centerlines to reduce travel lane width.	\$1,000,000	\$0	ODOT	ODOT
S-6b	US97/Dover Lane Intersection Safety Improvements- Infrastructure	Install intersection warning system that is activated when vehicles are waiting on side streets. Widen shoulders near the intersection by 2'.	\$1,000,000	\$0	ODOT	ODOT
S-9	Mustang Road/Groundhog Road Intersection Safety Improvements	Reconstruct intersection to a 90 degree angle turn on Mustang Road; modify intersection approaches to reduce turning speeds; pave the approaches on Groundhog Road and Perch Road; install new stop bars; and install signing and striping enhancements to increase visibility and awareness of the intersection.	\$750,000	\$750,000	Crooked River Ranch Community	County
S-10a	Bear Drive/US97 Intersection Safety Improvements- Systemic	Install speed feedback signs. Create maintenance agreement between jurisdictions for maintaining and replacing speed feedback signs.	\$100,000	\$0	ODOT	ODOT
S-10b	Bear Drive/US97 Intersection Safety Improvements- Infrastructure	Install speed treatments. Consider lane narrowing (using centerline spacing or recessed pavement markers) to reduce speed. Consider limited shoulder widening to increase recoverable area for roadway departure crashes. (Cost is reflective of lane narrowing with recessed pavement markers and shoulder widening of 2').	\$1,000,000	\$0	ODOT	ODOT
S-12	Frazier Drive/ Gem Lane Intersection Safety Improvements	Install new 6' or wider shoulder for recovery area for vehicles. Improve delineation along curve with additional chevrons and delineators. Enhance signing and striping.	\$160,000	\$160,000	N/A	County
S-14	Feasibility Study for Geneva Road Upgrades	Conduct a feasibility study to determine the improvements needed to upgrade Geneva Road and provide a secondary year-round emergency access to the Three Rivers and Grandview areas.	\$100,000	\$100,000	--	County
Bicycle and Pedestrian Projects						
B-2	Culver Hwy Multi-Use Path	Install 10' shared use path along 11.5 mile stretch of road with sections along the Oregon Scenic Bikeway. This path would create a connection between Madras, Metolius, and Culver. Connect with B-24 to form connection between Madras and Peter Skene Ogden State Park. (Path may transition to sidewalks within Culver to align with Downtown Culver Streetscape Plan (P-7).)	\$13,500,000	--	ODOT	ODOT
B-10	Iris Lane Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 2.93 mile section of road in order to enhance the county bicycle network	\$3,315,000	\$3,315,000	--	County
B-34	Countywide Bicycle and Trails Plan	Develop a countywide bicycle plan, including a trail network in Crooked River Ranch and Camp Sherman.	\$75,000	\$75,000	--	County
BP-1	Dover Lane Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 3,300 ft section of the road that is part of the Oregon Scenic Bikeway.	\$1,065,000	\$1,065,000	--	County

PROJECT ID	PROJECT NAME	DESCRIPTION	PLANNING LEVEL COST ESTIMATE*	EXPECTED COUNTY CONTRIBUTION	FUNDING PARTNER	LEAD AGENCY
BP-2	9th Street Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 2,400' section of the roadway that is along the Oregon Scenic Bikeway.	\$775,000	\$775,000	--	County
P-1	Butte Avenue Sidewalk	Install new 5-10' sidewalk in accordance with Metolius street standards on both sides of 3,500 ft stretch of the road that will enhance pedestrian facilities, safe routes to school, and city connectivity. (Cost accounts for 5' sidewalk width)	\$1,925,000	\$0	Metolius	Metolius
P-2	C Street Sidewalks	Install new 5' sidewalk in accordance with Culver street standards on both sides of 2,600 ft stretch of road that will enhance pedestrian facilities, safe routes to school, and city connectivity.	\$1,430,000	\$0	Culver	Culver
P-8	Safe Routes to School Plans	Develop Safe Routes to School Plans for the schools in Culver and Metolius.	\$50,000	\$25,000	County, Culver, Metolius, Jefferson County School District 509J	County, Culver, Metolius
Bridge Projects						
D-1	Hay Creek, Old Hwy 97 Bridge	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID#00813		Bridge upgrade or replacement cost to be determined by County		County
D-2	Deschutes River, Jordan Rd Bridge	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID#16C01		Bridge upgrade or replacement cost to be determined by County		County
D-3	Camp Sherman Road Bridge at Lake Creek (MP 3.91)	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID#16C03		Bridge upgrade or replacement cost to be determined by County		County
D-4	Crooked River, Jordan	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID#16C06		Bridge upgrade or replacement cost to be determined by County		County
D-6	North Unit Canal, Feather Dr. Bridge	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID#31C11		Bridge upgrade or replacement cost to be determined by County		County
D-7	Irrigation Canal, Opal Ln Bridge	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID#31C42		Bridge upgrade or replacement cost to be determined by County		County
D-8	Norris Lane Bridge at an Irrigation Canal (MP 0.39)	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID#31C48		Bridge upgrade or replacement cost to be determined by County		County
D-9	Trout Creek, Coleman Rd Bridge	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID#31C553		Bridge upgrade or replacement cost to be determined by County		County
D-10	Elbe Drive Bridge at an Irrigation Canal (MP 0.89)	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided. This bridge is part of a route serving a rock quarry.		Bridge upgrade or replacement cost to be determined by County		County
D-11	Bridge Suicide Prevention Measures Feasibility Study	Conduct a feasibility study to determine potential suicide prevention measures that could be taken on ODOT bridges over Crooked River Canyon; Bridge ID #00600 and #18211	\$100,000	\$0	ODOT, Oregon State Park System	ODOT

PROJECT ID	PROJECT NAME	DESCRIPTION	PLANNING LEVEL COST ESTIMATE*	EXPECTED COUNTY CONTRIBUTION	FUNDING PARTNER	LEAD AGENCY
D-12	US 26 Bridge at an Irrigation Canal (MP 115.59) and Detour	Develop a plan for detour management on county roads around weight restricted bridge; Bridge ID #07074; the detour plan must be coordinated with County staff and include an agreed-upon funding plan, jurisdictional transfer, or upgrades to County bridges by ODOT to account for additional freight traffic on County roads	\$40,000	\$0	ODOT	ODOT
D-13	Bear Drive Bridge at an Irrigation Canal (MP 0)	Perform study to determine if the bridge need to be upgraded or replaced. Preliminary engineering is funded through ODOT's local bridge program.	Bridge upgrade or replacement cost to be determined by ODOT		County	
D-14	W Belmont- North Unit Irrigation Canal	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID#31C22A	Bridge upgrade or replacement cost to be determined by County		County	
D-15	Ashwood Road- Mud Springs	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID# 23171	Bridge upgrade or replacement cost to be determined by County		County	
D-16	NE Meadowlark- North Unit Irrigation Canal	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID# 31C97	Bridge upgrade or replacement cost to be determined by County		County	
D-17	Eureka Lane- North Unit Irrigation Canal	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID# 31C38	Bridge upgrade or replacement cost to be determined by County		County	
D-18	Monroe Lane- North Unit Irrigation Canal	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID# 15451	Bridge upgrade or replacement cost to be determined by County		County	
D-19	Gumwood Lane- North Unit Irrigation Canal	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID# 31C26	Bridge upgrade or replacement cost to be determined by County		County	
D-20	SW Irving Lane- North Unit Irrigation Canal	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID# 31C41	Bridge upgrade or replacement cost to be determined by County		County	
D-21	Highland Lane- North Unit Irrigation Canal	Perform study to determine if the bridge needs to be upgraded, replaced, or closed with a detour route provided; County bridge ID# 31C46	Bridge upgrade or replacement cost to be determined by County		County	

*Project cost estimates are planning level costs based on unit costs and do not include right-of-way costs or environmental constraints; these would be determined during project design.

VISIONARY PROJECTS

Projects that would be implemented after 20 years are still important to consider because they could be needed to address future transportation issues, or are simply not able to be funded within the 20 year planning horizon of the TSP. Inclusion of these “visionary” projects in the beyond 20 year category provides the County flexibility to re-evaluate priorities and to pursue a variety of funding opportunities that may arise over the life of the TSP. Table 7 and Figure 4 show the identified Visionary Projects; no cost estimates are provided for these projects. Rather, cost estimates will be developed at the time further refinements to the projects are completed.

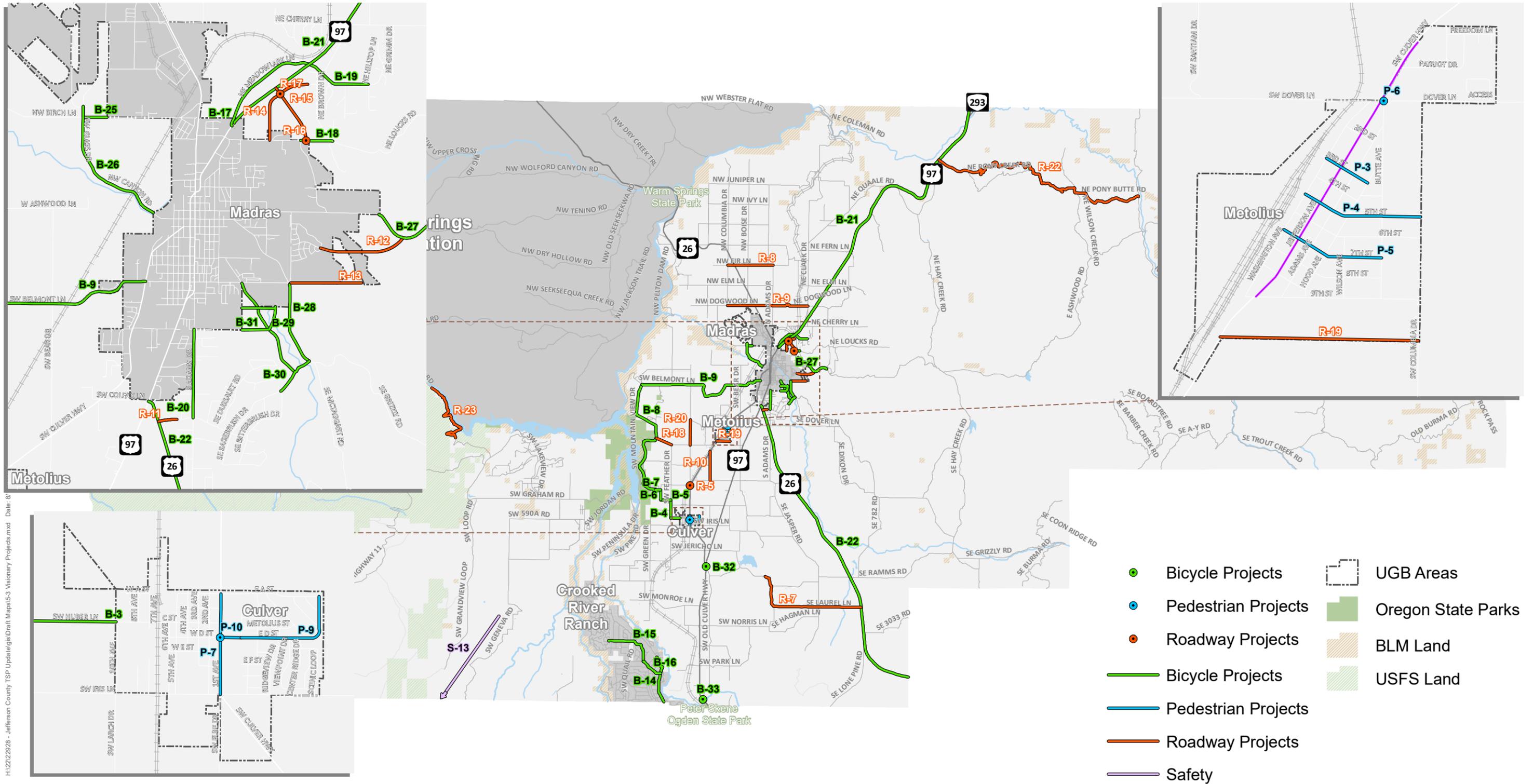
Table 7. Visionary Projects

PROJECT ID	PROJECT NAME	DESCRIPTION	FUNDING PARTNER	LEAD AGENCY
Roadway Projects				
R-5	OR361/Gem Lane Right-Turn Lane	Widen the southbound approach at the intersection of OR361/Gem Lane to allow for a right-turn lane and/or adequate width for traffic to queue without blocking through traffic. This provides storage during the event of a train blocking the tracks, in support of the Cove Palisades preferred route (R-2).	ODOT	ODOT
R-7	SE Laurel Lane/ SE Springer Road/ SE Haystack Reservoir Road Paving	Upgrade and pave SE Laurel Lane, SE Springer Road, and SE Haystack Reservoir Road from US26 to SW Southside Road to improve the connection from US97 to US26.	--	County
R-8	NW Fir Lane Improvements	Upgrade NW Fir Lane from NW Columbia Drive to N Adams Drive. Project need may be reevaluated pending the outcome of the US97 Corridor Study.	--	County
R-9	NW Dogwood Lane Improvements	Upgrade NW Dogwood Lane from NW Columbia Drive to NE Clark Drive to Minor Collector Road Standards. Project need may be reevaluated pending the outcome of the US97 Corridor Study.	--	County
R-10	SW Deschutes Drive Improvements	Upgrade SW Deschutes Drive to Minor Collector Road Standards between SW Highland Drive and OR361. Project need may be reevaluated pending the outcome of the US97 Corridor Study.	--	County
R-11	SE Crestview Lane Extension	Extend SE Crestview Lane from S Adams Drive to US 26 as a Minor Collector.	--	County
R-18	Eureka Lane Extension to Canyon Rim	Extend Eureka Lane west to the canyon rim to provide additional connectivity and access.	--	County
R-19	Eureka Lane Extension East	Extend Eureka Lane to complete the gap between US 97 and Culver Highway.	--	County
R-20	Elbe Drive Extension	Complete the Elbe Drive gap to connect Eureka Lane and Belmont Lane.	--	County
R-22	Pony Butte Road Pavement Upgrade	: Upgrade the pavement on Pony Butte Road from US 97 to Trout Creek Road, according to the outcomes of the study (project R-21).	--	County
R-23	Montgomery Road Paving	Pave or chip seal Montgomery Road from Perry South Campground to Monty Campground (approximately 4.2 miles in length).	--	County
Roadway Projects to Support Future Urban Growth				
R-12	SE Yarrow Avenue Extension	Extend SE Yarrow Avenue east as a Minor Collector.	Madras	Madras
R-13	SE J Street Extension	Extend SE J Street east as a Major Collector.	Madras	Madras
R-14	NE Kinkade Road Extension	Extend NE Kinkade Road north from the UGB as a Major Collector, to connect with the NE Bean Drive Extension (R-15) and NE Boxwood Lane.	Madras	Madras
R-15	NE Bean Drive Extension (North)	Extend NE Bean Drive north of Loucks Road as a Major Collector, to connect with US97 at a new intersection.	Madras	Madras

PROJECT ID	PROJECT NAME	DESCRIPTION	FUNDING PARTNER	LEAD AGENCY
R-16	NE Loucks Road/ NE Bean Drive Roundabout	Construct a roundabout at the future NE Loucks Road/NE Bean Drive intersection to accommodate future traffic volume. This is also in the Madras Urban Area TSP.	Madras	Madras
R-17	NE Hilltop Lane/ NE Brown Drive/ NE Meadowlark Lane Roundabout	Construct a roundabout at the NE Hilltop Lane/ NE Meadowlark Lane/ NE Brown Drive intersection to accommodate future traffic volume. This is also in the Madras Urban Area TSP.	Madras	Madras
Safety Project				
S-13	Geneva Road Upgrades and Emergency Access to Three Rivers Area	Upgrade Jordan Road, Geneva Road, and other roads as needed (based on the outcomes of project S-14) to provide an enhanced connection to Wilt Road and Camp Polk Road. This connection provides alternate access and important emergency access for the Three Rivers area.	--	County
Bicycle and Pedestrian Projects				
B-3	Huber Lane Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 2,400 ft stretch of the road that is along the Oregon Scenic Bikeway and provides connectivity to the city of Culver	--	County
B-4	Feather Drive Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 4,800 ft stretch of the road that is along the Oregon Scenic Bikeway.	--	County
B-5	Fisch Lane View Drive Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 2,650 ft stretch of the road that is along the Oregon Scenic Bikeway.	--	County
B-6	Frazier Drive Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 2,700 ft stretch of road that is along the Oregon Scenic Bikeway.	--	County
B-7	Peck Road Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 1,500 ft section of road that is along the Oregon Scenic Bikeway.	--	County
B-8	Mountain View Drive Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 7 mile stretch of road that is along the Oregon Scenic Bikeway	--	County
B-9	Belmont Lane Bicycle Facility	Install new 6' or wider shoulders, where possible, on 6.75 mile stretch of road that is along the Oregon Scenic Bikeway; Constraint for consideration include topography such as narrow road, rocky hill, and drop off area. Project design may consider other bicycle alternatives such as a multi-use path.	--	County
B-12	Camp Sherman Road Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 4.82 mile section of road in order to enhance the county bicycle network	--	County
B-13	Suttle Lake Rd Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 2620' section of road in order to enhance the county bicycle network	--	County
B-14	Chinook Drive Bicycle Facility	Widen existing shoulders, or construct other dedicated bicycle facility, to at least 6' along 2.5 mile section of road in order to enhance the county bicycle network.	--	County
B-15	Shad Rd Bicycle Facility	Widen existing shoulders, or construct other dedicated bicycle facility, to at least 6' along 2.55 mile section of road in order to enhance the county bicycle network.	--	County
B-16	Mustang Rd Bicycle Facility	Widen existing shoulders, or construct other dedicated bicycle facility, to at least 6' along 1.2 mile section of road in order to enhance the county bicycle network	--	County
B-17	Meadowlark Rd Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 1.2 mile section of road in order to enhance the county bicycle network	--	County
B-18	Loucks Rd Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 600 ft section of road in order to enhance the county bicycle and pedestrian network	--	County
B-19	Hilltop Lane Bicycle Facility	Install new 6' or wider shoulders, or other dedicated bicycle facility, along 3800 ft section of road in order to enhance the county bicycle network	--	County

PROJECT ID	PROJECT NAME	DESCRIPTION	FUNDING PARTNER	LEAD AGENCY
B-20	Adams Drive Bicycle Facility	Increase shoulder widths to 6' along 5000 ft section of road in order to enhance the county bicycle network	--	County
B-21	US 97 North Bicycle Facility	Increase shoulder widths to 8' along 17 mile section of road. Project design may include other alternatives such as a multi-use path instead. (Cost reflective of increasing shoulder widths).	ODOT	ODOT
B-22	US 26 East Bicycle Facility	Increase shoulder widths to 8' along 16 mile section of road. Project design may include other alternatives such as a multi-use path instead. (Cost reflective of increasing shoulder widths).	ODOT	ODOT
B-23	Feasibility Study for Connection Between Madras and Warm Springs	Look into options of providing additional connection between Madras and Warm Springs	ODOT, Madras, Warm Springs	
B-25	NW Birch Lane Bicycle Facility	Install bicycle facility on Birch Lane from Madras UGB to NW Glass Drive, consistent with the Madras TSP.	Madras	Madras
B-26	NW Glass Drive / NW Canyon Road Bicycle Facility	Install bicycle facility on NW Glass Drive/NW Canyon Road from NW Adler Street to Madras UGB, consistent with Madras TSP.	Madras	Madras
B-27	NE B Street Bicycle Facility	Install bicycle facility on NE B Street, extending approximately one mile east of Madras UGB, consistent with Madras TSP.	Madras	Madras
B-28	SE Grizzly Drive Bicycle Facility	Install bicycle facility on SE Grizzly Drive between SE J Street and SE Sagebrush Drive, consistent with the Madras TSP.	Madras	Madras
B-29	SE McTaggart Road Bicycle Facility	Install bicycle facility on SE McTaggart Road between Madras UGB and SE Sagebrush Drive, consistent with the Madras TSP.	Madras	Madras
B-30	SE Sagebrush Drive Bicycle Facility	Install bicycle facility on SE Sagebrush Drive between SE Dry Gulch Drive and SE Grizzly Road, consistent with the Madras TSP.	Madras	Madras
B-31	SE Madras Shared-Use Path	Install shared-use path system SE of Madras UGB, consistent with the Madras TSP.	Madras	Madras
B-32	Pedestrian/Bicycle Crossing Study at Culver HWY/US97 (MP105.74)	Evaluate opportunities for an enhanced crossing at intersection, potentially grade-separated, to provide opportunities for people biking and people walking to cross US97 for multimodal connection between Peter Skene Ogden State Park and Madras.	ODOT	ODOT
B-33	Pedestrian/Bicycle Crossing Study at US97 MP112.43 (Near Peter Ogden State Park)	Evaluate opportunities for an enhanced crossing at intersection, potentially grade-separated, to provide opportunities for people biking and people walking to cross US97 for multimodal connection between Peter Skene Ogden State Park and Madras.	ODOT	ODOT
P-3	3rd Street Sidewalks	Install new 5-10' sidewalk in accordance with Metolius street standards on both sides of 800 ft stretch of the road that will enhance pedestrian facilities, safe routes to school, and city connectivity. (Cost accounts for 5' sidewalk width)	Metolius	Metolius
P-4	5th Street Sidewalks	Install new 5-10' sidewalk in accordance with Metolius street standards on both sides of 1,950 ft stretch of the road that will enhance pedestrian facilities, safe routes to school, and city connectivity. (Cost accounts for 5' sidewalk width)	Metolius	Metolius
P-5	7th Street Sidewalks	Install new 5-10' sidewalk in accordance with Metolius street standards on both sides of 1,800 ft stretch of the road that will enhance pedestrian facilities, safe routes to school, and city connectivity. (Cost accounts for 5' sidewalk width)	Metolius	Metolius
P-6	Dover Lane/Butte Avenue Crosswalk	Install new continental crosswalk across Dover Lane with advance pedestrian warning signs that will enhance pedestrian facilities, safe routes to school, and city connectivity	-	-
P-7	Culver Streetscape Project	Complete Culver streetscape project along 1st Avenue from Iris Lane to A Street and along D Street, as defined in the Culver Streetscape Plan, by installing sidewalks and curb ramps on both sides of the street, on-street parking and other streetscape elements such as lighting as defined in the Plan.	Culver, ODOT	ODOT
P-9	D Street Sidewalks	Complete sidewalks on both sides of D Street from Culver Highway east to A Street.	Culver	Culver
P-10	Culver Highway Pedestrian Crossing at D Street	Install a pedestrian crossing of Culver Highway at D Street. Additional engineering study may be needed to determine the appropriate crossing treatments.	ODOT, Culver	ODOT

Figure 4. Visionary Projects



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Data Source: ODOT
 Madras UGB and Warm Springs not included in TSP.





06
**TRANSPORTATION FUNDING
AND IMPLEMENTATION**



The TSP includes projects under the jurisdiction and ownership of ODOT, Jefferson County, Metolius, Culver, and Cascades East Transit (CET), as well as projects that will be implemented by private developers.

Individual TSP projects will be funded through a different combination of federal, state, City, county, and/or private sources. This chapter discusses current and possible new funding mechanisms that may be available to implement projects during the life of the TSP. A complete list of the multimodal projects and planning level cost estimates is provided in Chapter 5.

Today's fiscal environment is beset by uncertainty about future federal, state, and local funding for transportation projects. This uncertainty provides challenges to accurately forecast the amount of funding available for transportation investments and what projects or programs will receive funding. In this context, the TSP provides a prudent and conservative list of capital construction projects, an emphasis on lower cost methods of improving personal mobility within the County, and an increased reliance on technologies that can improve the efficiencies of our streets.

Further, the County goals and priorities seek to improve the convenience and safety for people driving, walking, biking, and taking transit as well as for the continued support for the economic health and prosperity of the region.



The highest priority projects for strategic investments are those that (1) protect the existing system and (2) improve the efficiency and safety of existing multimodal facilities.

These projects are to be implemented first unless a lower priority measure is demonstrated to be more cost-effective or is one that better supports safety, growth management, or other livability and economic considerations. Further, the list of projects identified in Chapter Five are intended to make streets safer for all users as well as more efficient with use of emerging technologies.

The timing of project implementation will depend on future policy direction and funding availability at the federal, state, or local level; changes in local development priorities; or the formation of public-private or public-public partnerships.

In total, the Opportunity and TSP projects are estimated to cost: \$33.130 million¹

Table 8. Summary of Total Project Costs

PROJECT TYPE	TSP PROJECT	OPPORTUNITY PROJECT	TOTAL
Roadway	▲ \$6.275 million	▲ \$20,000	\$6,295,000
Safety	▲ \$4.527 million	▲ \$88,000	\$4,615,000
Pedestrian & Bicycle	▲ \$22.135 million	▲ \$85,000	\$22,220,000
Total	▲ \$32.937 million	▲ \$193,000	\$33,130,000

¹ Although projects are categorized as roadway, safety, bicycle, and pedestrian projects, the projects serve multimodal opportunities and may achieve funding from similar sources. For example, shoulder widening projects are roadway projects that may help reduce roadway departure crashes while also providing dedicate space for people riding bikes; these projects were identified initially as bicycle projects and therefore captured in the bicycle project cost total. Therefore, projects presented in Chapter 5 are not separated by project type.



It is important to note that the total project costs identified for implementation exclude any projects that may be outcomes of the US 97 Corridor Plan, including projects at County road intersections along US 97 and/or along the County roadways that would involve intersection control changes, movement restrictions, and changes in traffic patterns. Upon completion of the US 97 Corridor Plan, the TSP should be amended to incorporate the outcomes and updated cost estimates.

COUNTY CONTRIBUTIONS

Of the total \$33.130 million identified to fund the TSP and opportunity projects (non-transit), the County is estimated to fund approximately 36 percent. Table 9 summarizes the total estimated County contribution by project type and priority for the draft TSP solutions.

Table 9. Summary of County Contribution Costs

PROJECT TYPE	TSP PROJECT	OPPORTUNITY PROJECT	TOTAL
Roadway	\$5,675,000	\$10,000	\$5,685,000
Safety	\$1,050,000	\$20,000	\$1,070,000
Pedestrian & Bicycle	\$5,255,000	\$75,000	\$5,330,000
Total	\$11,755,000	\$105,000	\$12,085,000

Transit funding comes through various channels. CET is primarily responsible for executing federal, state and discretionary funds. Jefferson County provides CET funding through the Special Transportation Fund and Statewide Transportation Improvement Fund.

CITY OF CULVER CONTRIBUTIONS

In addition to County contributions, the City of Culver's estimated share of TSP and Opportunity projects include:

- ▲ \$15,000 for a safety-related project/study at the OR 361/Iris Lane intersection;
- ▲ \$13,000 for a Safe Routes to School Plan; and
- ▲ \$1.43 million for sidewalks on C Street.

CITY OF METOLIUS CONTRIBUTIONS

The contributions envisioned from the City of Metolius for TSP and opportunity projects include a \$13,000 contribution towards a Safe Routes to School Plan and \$1.925 million for Butte Avenue sidewalks.

HISTORICAL REVENUE AND FUNDING PROJECTIONS

In reviewing the cost estimates, it is helpful to understand historic transportation revenue and expenditures associated with the County and the two cities. Although funding varies year-to-year based on grants and other fluctuations, reviewing the most recent ten-year history allows an understanding of the average funding available for transportation projects and programs. Assuming funding stays relatively constant in the future, an estimate of expected funding available over the next 20 years could reasonably be available to implement the TSP and opportunity projects.

Jefferson County Historic Funding

Table 10 summarizes the Jefferson County transportation revenue and expenditure data over the past ten years. The majority of the County's revenue comes from the State Highway Fund, which includes the County's funding from House Bill 2017 (HB2017). Based on the latest projections, the County is expected to receive approximately \$300,000 fewer dollars from the State Highway Fund for the 2020-2021 fiscal year, due to COVID-19 impacts.

The majority of the County's expenditures have gone to preservation and operations for maintenance of the system, as well as to administration. On average, the County has spent approximately \$750,000 per year on Capital expenditures and Special Projects. However, the expected decrease in revenue from HB2017 is anticipated to lower these expenditures. Assuming the County has approximately \$450,000 available per year to put towards capital projects, the County can be expected to contribute up to \$9 million over the 20 years. This results in a funding gap of approximately \$3 million to complete the Opportunity and TSP projects summarized in Table 9. The gap is likely to increase when future outcomes of the US 97 Corridor Plan are incorporated.

Table 10. Jefferson County Transportation Revenue and Expenditure Summary

Jefferson County Transportation Revenue and Expenditure Summary											
Revenue/Expense Sources	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
Revenue											
Grants	17,118	19,747	3,232	-	-	-	-	-	-	-	-
Interest	51,564	25,323	17,274	11,992	13,172	13,209	15,834	22,998	35,828	58,205	89,758
Loans- Project Revenue	-	17,109	91,056	90,946	-	-	-	-	-	-	-
Motor Vehicle Revenue	1,311,597	1,446,144	1,579,986	1,668,758	2,039,170	1,619,567	1,706,241	1,814,559	2,186,469	1,977,612	2,150,160
Other	181,976	143,568	357,355	367,284	603,901	119,523	581,238	495,650	638,487	678,951	534,875
Service Fees (SDCs)	755,234	266,881	290,465	289,288	276,323	228,984	298,288	312,157	274,962	242,380	259,944
SRS- Secure Rural Schools	447,101	402,922	657,405	394,963	361,073	336,534	345,044	65,532	331,981	367,044	348,754
STP- Fund Exchange	-	27,569	-	-	18,667	18,667	18,667	-	-	-	320,684
Total Revenue	2,764,589	2,349,264	2,996,774	2,823,230	3,312,306	2,336,483	2,965,311	2,710,895	3,467,727	3,324,192	3,704,175
Expenditures											
Administration	365,439	385,231	413,728	371,715	326,676	308,119	421,757	334,751	292,814	343,067	405,024
Bridge and Culvert	39,718	7,607	50,707	69,833	101,380	2,813	3,707	4,728	14,968	4,573	8,433
Capital	590,659	532,947	563,087	326,711	721,955	400,132	219,713	548,453	460,586	317,952	665,125
Footpath and Bicycle	-	-	130,000	-	-	88,000	-	-	-	-	12,000
Preservation and Operations Maintenance	1,606,628	1,973,855	1,812,248	1,523,376	1,675,542	1,446,745	1,832,893	1,775,457	1,720,557	1,729,201	1,707,102
Special Projects	132,943	120,516	441,359	349,142	647,537	97,536	66,850	125,000	10,503	675,977	228,304
Total Expenses	2,735,388	3,020,157	3,411,129	2,640,777	3,473,090	2,343,345	2,544,919	2,788,389	2,499,429	3,070,770	3,025,988
Revenue minus Expenditures	29,201	(670,893)	(414,355)	182,453	(160,784)	(6,862)	420,391	(77,494)	968,298	253,422	678,187

City of Culver Historic Funding

Culver’s primary sources of transportation revenue are ODOT’s Small Cities Allotment (SCA) program, State Gas Taxes, and General Fund support. Revenue varies year to year, depending on the availability of grants. Over the past 10.5 years, the City has received a total of \$1,590,803 primarily from State Gas Taxes (\$894,334); a transfer from the city’s general fund (\$518,300) and SCA grant funding (\$128,249). The remaining revenue is associated with investment interest (\$46,050) and Access Permits (\$3,870).

In fiscal year 2016-2017, the city transferred funds from the General Fund to the Streets fund to build a stormwater system to help control the flooding through downtown residential and commercial properties by diverting the stormwater outside City limits. This first phase of the Stormwater Construction project was completed in the late summer of 2020. A second phase, which will provide a stormwater treatment system, is planned for the future.

The City has been awarded \$200,000 in SCA Grant funds for street repairs; these funds are not yet accounted for in the totals above. Jefferson County will be completing the street repairs for the City in the Spring of 2021.

Based on an estimated share of \$1.938 million toward the identified TSP and opportunity projects, the City of Culver will need to work with the County and ODOT to identify new funding sources or pursue additional grants to implement the identified projects.

City of Metolius Historic Funding

Metolius’ primary transportation revenue source is ODOT’s SCA program. The City has received approximately \$183,000 from the SCA program between 2010 and 2020. Metolius has also collected \$124,000 in Transportation System Development Charges (SDCs) between 2010 and 2020.

The following summarizes Metolius’ transportation expenditures over the past ten years:

- ▲ 2013 - The City used \$49,950 of SCA funds to set base rock, grade, compact, and pave Washington Avenue from 6th Street to 8th Street, including streets heading east from Washington Avenue to Jefferson Avenue.
- ▲ 2015 - The City used \$24,000 of City funding to crack seal 90 percent of existing streets.

- ▲ 2018 – The City used \$19,250 of SCA funds to set base rock, grade, compact, and pave 9th Street and Opal Streets and to complete the paving of all existing streets within the City of Metolius.
- ▲ 2019 – The City used \$78,933.26 of SCA funds to chip seal all existing streets within the City of Metolius, with the exception of the portion of Washington Avenue that was completed in 2013.
- ▲ 2021- The City has been awarded \$35,000 in SCA funds to crack seal and chip seal all of Washington Avenue in the summer of 2021.

In addition, Metolius is in the process of expanding its UGB. Through this process, several roads will be transferred from the County to the City. The City and the County are identifying how those roads will be brought up to City standards.

Although the City of Metolius has a small amount of SDC funds available to contribute towards the transportation projects in the County's TSP, with an estimated share of \$1.458 million toward the identified TSP and opportunity projects, the City of Metolius will need to work with the County and ODOT to identify new funding sources or pursue additional grants to implement the identified projects.

POTENTIAL FUNDING OPPORTUNITIES

With an expected revenue of approximately \$9 million to be applied to the TSP and opportunity projects over the next 20 years, there is an approximate \$3 million funding gap for implementation. To continue preserving the transportation system while also implementing transportation solutions identified in the Plan, the County and cities will need to identify and implement additional funding sources.

The following sections present potential funding strategies which may be considered to address the funding gap for Jefferson County. Potential strategies for addressing the funding gap may generally be grouped into three categories: secure more external funding, identify public/private sponsorship opportunities, and raise local revenue through user fees and taxes. These strategies are discussed below; they are not mutually exclusive.

ADDITIONAL GRANT OPPORTUNITIES

ODOT offers multiple grant opportunities to support transportation projects, many of which are summarized in Table 10. The County should identify grants that may be applicable to their projects. Some of these programs require a local match. The County should begin identifying these programs early and review them annually with the Board of Commissioners 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 local funding even further.

Table 11. Potential Grant Opportunities

PROGRAM	INTENDED USE	APPLICABLE PROJECT TYPES
Federal Programs		
Federal Lands Access Program (FLAP)	Provides funds to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands	All project types; however, projects must provide access to Federal lands
State Programs		
All Roads Transportation Safety	Uses limited funds to make the highest-impact safety improvements on roads and highways	Safety-related projects, including some ITS devices
Connect Oregon	Invests in aviation, rail, and marine transportation system across Oregon	Aviation, Rail, and Marine-related projects
Multi-modal Active Transportation Fund	Invests in multimodal transportation infrastructure improvements across Oregon	Pedestrian and bicycle-related projects
Statewide Transportation Improvement Program	Establishes multi-year, statewide, intermodal program of transportation projects to fund	All project types including sidewalks, bikeways, crossing improvements, ITS devices
Safe Routes to School	Focuses on infrastructure and non-infrastructure programs to improve access and safety for children to walk or bike to school	Pedestrian and bicycle-related projects within the vicinity of local schools
Transportation and Growth Management (TGM) Program	Provides funds for projects that help local communities plan for streets and land use to create more livable communities.	Planning projects
ATV Grant Program	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
Recreational Trails Program	Recreational trail-related projects, such as hiking, running, bicycling, off-road motorcycling, and all-terrain vehicle riding.	Shared-use paths
Rivers, Trails, and Conservation Assistance Program	Provides technical assistance for recreation and conservation projects.	Shared-use paths

PROGRAM	INTENDED USE	APPLICABLE PROJECT TYPES
Oregon Parks and Recreation Local Government Grants	Primary use is recreation; transportation is allowed. Construction limited to outside road right-of-way, only in public parks or designated recreation areas.	Shared-use paths
Community Paths Program	Focused on helping communities create and maintain connections through shared-use paths.	Shared-use paths

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 their business.

Another form of public/private partnership to be considered is a communications/fiber partnership that would allow agencies to access dark fiber with private service providers.

LOCAL TAXES AND USER FEES

Many types of user fees and taxes may be collected to finance road construction and operations. The County and cities will need to develop local revenue sources to supplement or replace federal resources if it hopes to maintain current levels of service while also implementing multimodal enhancement and safety projects. Table 12 lists options that the County may wish to consider for funding local roads. The sources include a mix of fees and taxes. Some of these fees could also be used to provide a local match to obtain greater federal or state funding, further stretching local dollars. For example, if an annual fee of \$20 per person was applied to the unincorporated County population (approximately 15,000 people, as summarized in Technical Memorandum #3), this would result in approximately \$1.5 million in revenue over a five-year period. By using this revenue as a 10 percent local match to obtain a grant, the County could leverage these funds to complete a \$15 million project.

Table 12. Potential Local Funding Opportunities

PROGRAM	INTENDED USE	APPLICABLE PROJECT TYPES
Local Sources		
System Development Charges	Uses money from local development projects to fund capital transportation improvements	All project types; however, the projects must be required to accommodate growth associated with new development
Economic Improvement Districts (EIDs)	Pools funds from area businesses to make improvements in the business district.	All project types; however, the projects must be located within the EID area
Local Improvement Districts (LIDs)	Pools funds from property owners to make local transportation improvements	All project types; however, the projects must be located within the LID area
Local Bond Measures	Asks voters for bond funding to finance a set list of infrastructure investments	All project types
Local Fuel Tax	Adds a tax on top of gasoline costs that support street operation, maintenance, and preservation	All project types
Street Utility Fee/Road Maintenance Fee	Calculates trips generated for land uses and charges owners a fee relative to the number of trips	All project types
Road District	Localizes road construction through finance from members within the local community	All project types
Road Fund Serial Levy	This levy is a voter-approved property tax levied in addition to the permanent tax rate.	Operations or capital programs
Vehicle Registration Fee	An extra fee on all registered motor vehicles in the County.	Operations or capital programs
System Development Charges	Uses money from local development projects to fund capital transportation improvements	All project types; however, the projects must be required to accommodate growth associated with new development
Oregon Parks and Recreation Local Government Grants	Primary use is recreation; transportation is allowed. Construction limited to outside road right-of-way, only in public parks or designated recreation areas.	Shared-use paths
Community Paths Program	Focused on helping communities create and maintain connections through shared-use paths.	Shared-use paths

