



MEMORANDUM

Technical Memorandum #1: Plans, Policy, and Funding Review Jefferson County TSP Update

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OVERVIEW

This memorandum presents a review of existing plans, regulations, and policies that affect transportation planning in Jefferson County. The review explains the relationship between the documents and planning within the County, identifying key issues that will guide the Transportation System Plan (TSP) update process. This memorandum is intended to guide later decisions regarding the development and selection of preferred transportation solutions and necessary amendments to related plan documents and regulations.

Some documents included in this review establish transportation-related standards, targets, and guidelines with which the TSP update must coordinate and be consistent with; others contain transportation improvements that will need to be factored into the future demand modeling and otherwise reflected in the draft TSP update. Regional policy and regulatory requirements described in this review, such as the Jefferson County Zoning Ordinance, may be subject to amendments in order to implement the recommendations of the updated TSP; this memorandum helps set the stage for those potential amendments, which will be prepared as part of project implementation (Task 7).

Key findings include the following:

- The updated Oregon Highway Plan mobility policy (Policy 1F) embodies more flexibility for meeting "targets" for state highways.
- Significant updates to the Oregon Bicycle and Pedestrian Plan were adopted in 2016 and the Jefferson County TSP update can benefit from new state policy.
- The Transportation Planning Rule (TPR) has been updated since the last Jefferson County TSP update.

- There are several local and regional plans that have been completed subsequent to the 2006 TSP. To the extent that policies, standards, and recommendations therein have an impact on the transportation system, these plans will be considered for consistency as part of this TSP update.

The following plans were reviewed.

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STATEWIDE PLANS

Statewide Planning Goals

The foundation of Oregon's statewide land use planning program is a set of 19 Statewide Planning Goals. The goals express the state's policies on land use and on related topics, such as citizen involvement, housing, and natural resources. Oregon's Statewide Goals are achieved through local comprehensive planning, including the development and implementation of TSPs.

All of Oregon's Statewide Goals have an influence on transportation planning, either directly or indirectly. However only certain Goals directly apply to transportation planning at a local level; the Goals listed in Table 1 are most relevant to Jefferson County's TSP update.

Table 1: Statewide Planning Goals

Statewide Planning Goal	Relevancy to the Jefferson County TSP Update
Goal 1: Citizen Involvement	Establishes citizen involvement as the primary goal of the land use planning process in Oregon. The Jefferson County TSP Update process is guided by a robust public involvement plan that includes public involvement goals and identified affected and interested stakeholder and target audiences. In addition, this project will be guided by a project advisory committee that will inform the TSP update throughout the course of the project.
Goal 2: Land Use Planning	Establishes a process and policy framework for all decisions and actions related to uses of land; ensures that such decisions and actions are premised on an adequate factual base. Existing and future transportation needs will be based on inventories of existing conditions in Technical Memorandum #3, including existing and planned land uses, as well as improving efficient multi-modal connections to housing, public services, employment areas, and recreational opportunities.
Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces	Existing natural resources and environmental features influence the siting, construction, and cost of transportation improvements. Technical Memorandum #3 will provide inventories of these resources and describe areas within the County that may pose barriers to providing transportation access or improvements
Goal 7: Natural Hazards	The risk of natural hazards affects site selection and alignment decisions and design standards. Transportation improvement projects in the County should avoid natural hazard areas, such as floodplains, to the extent feasible.

Statewide Planning Goal	Relevancy to the Jefferson County TSP Update
Goal 9: Economic Development	Addresses the need for a variety of economic opportunities in support of the health, welfare, and prosperity of Oregon’s citizens. The TSP update process should be coordinated with current and planned economic development activities.
Goal 10: Housing	Cities and counties are required to anticipate ongoing needs for housing, and to provide adequate infrastructure to serve residential uses. Transportation facilities and project prioritization will be based, in part, on the demands generated by current and projected housing needs.
Goal 11: Public Facilities and Services	Local governments are required to provide adequate public facilities, including transportation facilities, in a timely and efficient manner. The TSP Update will coordinate with or consider the provision of other public facilities and be consistent with adopted plans.
Goal 12: Transportation	<p>Requires multi-modal transportation plans for transportation service providers that need to:</p> <ul style="list-style-type: none"> • Be based upon factual inventories, • Minimize adverse social, environmental, economic, and energy impacts, • Meet the needs of the transportation disadvantaged, • Facilitate the flow of goods and services, and • Be consistent with related local and regional plans. <p>As described in more detail in this technical memo, Goal 12 is implemented through the Transportation Planning Rule (OAR 660, Division 12).</p>
Goal 13: Energy Conservation	Land uses shall be managed and controlled to maximize the conservation of all forms of energy based upon sound economic principles. In transportation planning, this includes consideration of travel distances and mode share.
Goal 14: Urbanization	Requires land within the Urban Growth Boundary to “provide an orderly and efficient transition from rural to urban land use.” Findings of feasibility of providing adequate transportation and other public facilities is required for expansion of UGB’s.

Project Relevance: The TSP update will be consistent with the Statewide Planning Goals.

Oregon Transportation Plan (2006)

The Oregon Transportation Plan (OTP) is the state's long-range multi-modal transportation plan that addresses the future transportation needs of the State of Oregon through the year 2030. The primary function of the OTP is to establish goals, policies, strategies, and initiatives that are translated into a series of modal plans, such as the Oregon Highway Plan and Oregon Bike and Pedestrian Plan. The OTP considers all modes of Oregon's transportation system, including Oregon's airports, bicycle and pedestrian facilities, highways and roadways, pipelines, ports and waterway facilities, public transportation, and railroads. It assesses state, regional, and local public and private transportation facilities. In addition, the OTP provides the framework for prioritizing transportation improvements based on varied future revenue conditions, but it does not identify specific projects for development.

The OTP provides broad policy guidance and sets seven overarching goals for the state.¹ Through these goals and associated policies and strategies, the OTP emphasizes:

- Maintaining and maximizing the assets in place.
- Optimizing the performance of the existing system through technology.
- Integrating transportation, land use, economic development, and the environment.
- Integrating the transportation system across jurisdictions, ownerships, and modes.
- Creating sustainable funding.
- Investing in strategic capacity enhancements.

The Implementation Framework section of the OTP describes the implementation process and how state multimodal, modal/topic plans, regional and local TSPs and master plans will further refine the OTP's broad policies and investment levels. Local TSPs can further OTP implementation by defining standards, instituting performance measures, and requiring that operational strategies be developed.

The last chapter of the OTP provides implementation and investment frameworks and key initiatives to be consulted in developing TSP projects and implementation measures.

Project Relevance: The OTP's policies and strategies will guide the TSP Update, specifically in the areas of system management, maximizing performance of the existing transportation system using technology and creative design solutions, integrating multimodal options, pursuing sustainable funding sources, and investing strategically in capacity projects.

¹ The seven goals are Goal 1 – Mobility and Accessibility; Goal 2 – Management of the System; Goal 3 – Economic Vitality; Goal 4 – Sustainability; Goal 5 – Safety and Security; Goal 6 – Funding the Transportation System; and Goal 7 – Coordination, Communication, and Cooperation.

Oregon Transportation Safety Action Plan (2016)

An element of the OTP, the Oregon Transportation Safety Action Plan (TSAP) provides long-term goals, policies and strategies and near-term actions to eliminate deaths and life-changing injuries. The TSAP addresses all modes on all public roads in Oregon. Over the long term, the goals of the TSAP are:

- Infrastructure – Develop and improve infrastructure to eliminate fatalities and serious injuries for users of all modes.
- Healthy, Livable Communities – Plan, design, and implement safe systems. Support enforcement and emergency medical services to improve the safety and livability of communities, including improved health outcomes.
- Technology – Plan, prepare for, and implement technologies (existing and new) that can affect transportation safety for all users.

The Plan identifies actions that jurisdictions can take to increase transportation safety. They include adopting a Safe Communities Program and Safe Routes to School, which is a collaborative partnership with the National Highway Traffic Safety Administration and the ODOT to promote safety. The Safe Routes to School program is a local initiative supported by grant funding that targets safety improvements to encourage walking and biking to school.

In addition, the TSAP also identifies activities and roles for counties that can improve safety. They include:

- Evaluate local spot-specific systemic safety needs; develop plans and programs to address needs.
- Collaborate with the state and stakeholder partners to educate the public about transportation safety-related behavioral issues.
- Integrate safety programming, planning, and policy into local planning.

Project Relevance: The TSAP will be used as a resource while updating the TSP to develop local goals, policies, and strategies to increase safety in the County.

Oregon Highway Plan (1999, last amended 2018)

The Oregon Highway Plan (OHP) is a modal plan of the OTP that guides Oregon Department of Transportation's (ODOT's) Highway Division in planning, operations, and financing. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems.

The following OHP policies are relevant to the TSP update process.

Policy 1A: State Highway Classification System

The OHP classifies the state highway system into four levels of importance: Interstate, Statewide, Regional, and District. ODOT uses this classification system to guide management and investment decisions regarding state highway facilities. The system guides the development of facility plans, as well as ODOT's review of local plan and zoning amendments, highway project selection, design and development, and facility management decisions including road approach permits.

- **Statewide Highways** (US 97, US 26 north of Madras, & US 20/OR 126) typically provide inter-urban and inter-regional mobility and provide connections to larger urban areas, ports, and major recreation areas that are not directly served by Interstate Highways. A secondary function is to provide connections for intra-urban and intra-regional trips. The management objective is to provide safe and efficient, high-speed, continuous-flow operation.
- **Regional highways** (US 26 south of Madras) typically provide connections and links to regional centers, Statewide or Interstate highways, or economic or activity centers of regional significance. The management objective for these facilities is to provide safe and efficient, high-speed, continuous-flow operation in rural areas and moderate to high-speed operations in urban and urbanizing areas. A secondary function is to serve land uses in the vicinity of these highways.
- **District highways** (OR 361) are facilities of county-wide significance and function largely as county and city arterials or collectors. They provide connections and links between small urbanized areas, rural centers, and urban hubs, and serve local access and traffic. The management objective is to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas reflecting the surrounding environment and moderate to low-speed operation in urban and urbanizing areas for traffic flow and for pedestrian and bicycle movements.

Policy 1C: State Highway Freight System

The primary purpose of the State Highway Freight System is to facilitate efficient and reliable interstate, intrastate, and regional truck movement through a designated freight system. This freight system, made up of the Interstate Highways and select Statewide, Regional, and District Highways, includes routes that carry significant tonnage of freight by truck and serve as the primary interstate and intrastate highway freight connection to ports, intermodal terminals, and urban areas. Highways included in this designation have higher highway mobility standards than other statewide highways.

Both US 97, US 26, and US 20/OR 126 are designated as freight routes.

Policy 1D: Scenic Byways

Several highways throughout the state have been designated Scenic Byways which have exceptional scenic value. To protect the scenic assets of its Scenic Byways, ODOT has developed guidelines for aesthetic and design elements within the public right-of-way that are appropriate for Scenic Byways. US 20/ OR 126, partially located in southwest Jefferson County, is designated as a National Scenic Byway.

Policy 1F: Highway Mobility Policy

Policy 1F sets mobility targets for ensuring a reliable and acceptable level of mobility on the state highway system. The standards are used to assess system needs as part of long range, comprehensive planning, and transportation planning projects (such as a TSP), during development review, and to demonstrate compliance with the TPR.

Significant amendments to Policy 1F were adopted at the end of 2011. These most recent revisions were made to address concerns that state transportation policy and requirements have led to unintended consequences and inhibited economic development. Policy 1F now provides a clearer policy framework for considering measures other than volume-to-capacity (v/c) ratios for evaluating mobility performance. Also, as part of these amendments v/c ratios established in Policy 1F were changed from being standards to “targets.” These targets are to be used to determine significant effect pursuant to TPR Section -0060.

Table 2 includes the mobility targets for the state facilities in the TSP study area. Pursuant to the OHP, US 97 is classified as a Statewide Highway and a Freight Route. Portions of the highway are designated as Expressways. Portions of US 26 are classified as a Statewide Highway or a Regional Highway. Similarly, portions of US 26 are designated as a Freight Route. OR 361 is classified a District Highway and does not have additional classifications.

Table 2: Volume to Capacity Ratio Targets Outside Metro²

Highway Category	Inside UGB					Outside UGB	
	STA	MPO	MPO MPH <35	Non-MPO/STA, MPH 35-45	Non-MPO/STA, MPH >45	Uninc. Comm.	Rural Land
Interstate Hwy	N/A	0.85	N/A	N/A	0.80	0.70	0.70
Statewide Expressway	N/A	0.85	0.85	0.80	0.80	0.70	0.70
Statewide (Non-freight Rte)	0.90	0.85	0.85	0.80	0.80	0.70	0.70
Statewide (Freight Rte)	0.95	0.90	0.90	0.85	0.80	0.75	0.70
Regional/District (Freight Rte)	0.95	0.90	0.90	0.85	0.85	0.75	0.70
Regional/District Expressway	N/A	0.90	N/A	0.85	0.85	0.75	0.70
Regional	1.0	0.95	0.90	0.85	0.85	0.75	0.70
District/Local	1.0	0.95	0.95	0.90	0.90	0.80	0.75

Policy 1G: Major Improvements.

This policy requires maintaining performance and improving safety on the highway system by improving efficiency and management on the existing roadway network before adding capacity. The state's highest priority is to preserve the functionality of the existing highway system. Tools that could be employed to improve the function of the existing transportation network include access management, transportation demand management, traffic operations modifications, and changes to local land use designations or development regulations.

After existing system preservation, the second priority is to make minor improvements to existing highway facilities, such as adding ramp signals, or making improvements to the local street network to minimize local trips on the state facility.

The third priority is to make major roadway improvements such as adding lanes to increase capacity on existing roadways. As part of this TSP process, ODOT will work with Jefferson County and other stakeholders to determine appropriate strategies and tools that can be implemented at the local level that are consistent with this policy.

² Portions of US 97 and OR 361 extend into the Madras, Metolius, or Culver Urban Growth Boundaries

2B: Off-system Improvements

This policy recognizes that the state may provide financial assistance to local jurisdictions to make improvements to local transportation systems if the improvements would provide a cost-effective means of improving operations of the state highway system. As part of this TSP update process, ODOT will work with the County and project stakeholders to identify improvements to the local road system that support the planned land use designations in the study area and that will help preserve capacity and ensure the long-term efficient and effective operation of high functional class facilities.

Policy 3A: Classification and Spacing Standards

State policy seeks to manage the location, spacing, and type of road intersections on state highways in a manner that ensures the safe and efficient operation of state highways consistent with their highway classification.

Action 3A.2 calls for spacing standards to be established for state highways based on highway classification, the type of area, and posted speed limit. Tables in OHP Appendix C present access spacing standards which consider urban and rural highway classification, traffic volumes, speed, safety, and operational needs. The access management spacing standards established in the OHP are implemented by access management rules in OAR 734, Division 51, addressed later in this report. The TSP Update process will include an analysis of how existing ODOT facilities in the study area compare to these standards.

Policy 4A: Efficiency of Freight Movement

This policy emphasizes the need to maintain and improve the efficiency of freight movement on the state highway system. US 97 and US 26 are designated Freight Routes. A principal function of these routes is to accommodate safe and efficient freight movements by providing free-flow movements for through-traffic in the Interstate system and for traffic accessing existing (and future planned) industrial areas.

Policy 4B: Alternative Passenger Modes

Policy 4B encourages the development of alternative passenger services and systems as part of broader corridor strategies. The policy promotes the development of alternative passenger transportation services in commute highway corridors, as well as those located off the highway system to help preserve the performance and function of the state highway system. Cascades East Transit (CET) provides public transportation service in the study area. Improving safety, access, and mobility for pedestrians and bicyclists to local transit service and to community destinations throughout the County is an objective of this Update process.

Project Relevance: The TSP planning process will be guided by policies in the OHP for any improvements, modifications, or local policies that would affect state facilities within the County. OHP policies provide guidance in developing recommended improvements that would impact

accessibility, mobility, or function of each highway. The TSP is being developed in coordination with ODOT so that projects, policies, and County regulations proposed as part of the TSP will comply with or move in the direction of meeting the standards and targets established in the OHP related safety, access, and mobility.

Oregon Public Transportation Plan (2018)

The Oregon Public Transportation Plan (OPTP) is the modal plan of the OTP that provides guidance for ODOT and public transportation agencies regarding the development of public transportation systems. The guiding vision for the State is to create:

- A public transportation system that is an integral, interconnected component of Oregon's transportation system that makes Oregon's diverse cities, town, and communities work.
- Public transportation that is convenient, affordable, and efficient helps further the state's quality of life and economic vitality and contributes to the health and safety of all residents, while reducing greenhouse gas emissions.

The OPTP is designed to respond to trends, opportunities, and challenges that exist today, while providing an adaptable foundation for the future. The policies and strategies advance public transportation as an important piece of the overall transportation system, linking people to destinations, services, opportunities, as well as to communities in neighboring states. Key initiatives of the plan include plan integration, regional and intercity service, and transit technologies.

Project Relevance: Regarding developing the transit element of the updated TSP, the planning process will coordinate with Cascades East Transit long-range and strategic planning in the TSP study area. A representative from CET will be invited to participate in the project advisory committee or to receive copies of each deliverable for review to ensure coordination between the recommendations of the TSP and transit plans.

Oregon State Rail Plan (2014)

The Oregon State Rail Plan is a state modal plan under the OTP that addresses long-term freight and passenger rail planning in Oregon. The Plan provides a comprehensive assessment of the state's rail planning, freight rail, and passenger rail systems. It identifies specific policies concerning rail in the state, establishes a system of integration between freight and passenger elements into the land use and transportation planning process, and calls for cooperation between state, regional, and local jurisdictions in planning for rail.

Its goals, policies, and strategies are based on the vision that "Oregon will have a safe, efficient, and commercially viable rail system that serves its businesses, travelers and communities through private resources leveraged as needed, by strategic public investments." It establishes the following goal areas: partnership, collaboration, and communication; a connected system; system

investments and preservation; funding, finance, and investment principles; system safety; preserving and enhancing quality of life; and economic development.

The plan categorizes rail as Class I or Non-Class I and accordingly identifies needs related to rail elements including track, signals, weight, clearance, speed, and bridges and tunnels. There is a Class I rail line that extends north-south through the County, with connections to The Dalles to the north and Bend and Klamath Falls to the south.

Project Relevance: The TSP will consider the needs of the rail freight system in developing recommended policies and projects related to improving safety and mobility in the County. In addition, the project advisory committee will include ODOT representatives who will advise on rail and freight interests.

Oregon Bicycle and Pedestrian Plan (2016)

The intent of the Oregon Bicycle and Pedestrian Plan (OBPP) is to create a policy foundation that supports decision-making for walking and biking investments, strategies, and programs that help to develop an interconnected, robust, efficient, and safe transportation system. The OBPP established the role of walking and biking as essential modes of travel within the context of the entire transportation system and recognizes the benefit to the people and places in Oregon.

The OBPP also provides background information related to state and federal law, funding opportunities, and implementation strategies proposed by ODOT to improve bicycle and pedestrian transportation. It outlines the role that local jurisdictions play in the implementation of the Plan, including the development of local pedestrian and bicycle plans as stand-alone documents within TSPs.

Project Relevance: The TSP Update process will consider OBPP policies and strategies for their applicability to the County and, where appropriate, the updated TSP will reflect the OBPP through policies and project selection. The State standards and strategies for pedestrian and bicycle improvements can serve as “best practices” and inform recommended bicycle and pedestrian improvements in the updated TSP. The TSP planning process will identify and address areas where enhancements are needed to improve sidewalk accessibility, including curb ramps, to better comply with the American with Disabilities Act (ADA). The TSP planning process will consider OBPP standards and designs where pedestrian and bicycle projects are recommended on, or parallel to, state facilities. In addition, advisory committees for the project include members that represent pedestrian and bicycle interests.

Statewide Transportation Improvement Program (2018-2021)

The State Transportation Improvement Program (STIP) is the four-year programming and funding document for transportation projects and programs for state and regional transportation systems, including federal land and Indian reservation road systems, interstate, state, and regional highways, bridges, and public transit. It includes state- and federally funded system improvements that have

approved funding and are expected to be undertaken during the upcoming four-year period. The projects and programs undergo a selection process managed by ODOT Regions or ODOT central offices, a process that is held every two years to update the STIP. The current STIP identifies planned improvements for 2018-2021. The following projects are listed in the STIP and located within Jefferson County.

- Perry South Campground connection - Project number: 20726. Reconstruct roadbed, install proper drainage, chip seal roadway, new signing, and striping
- US26: Clear Lake Road - NW Dogwood Lane - Project number: 20002. Repair or replace critical and poor culverts on priority routes. Replace Clear Creek Bridge
- US26: Warm Springs safety corridor - Project number: 19640. Grind out existing surface and inlay new asphalt, roadside and bike/ped safety improvements, rockfall mitigation and multi-use trail
- US97: Willowdale - Madras - Project number: 20010. Pavement preservation (Grind out existing surface and replace with new asphalt) and sign upgrades.
- City of Madras Industrial Center Phase 2 IOF - Project number: 21353. Remove and replace structurally deficient sections of pavement and subgrade on Conroy and Earl Streets and from the intersection of US 26 and Earl to the intersection of Canal and Adler streets.
- US20: Santiam Junction-Jack Lake Rd. - Project number: 20126. Grind existing surfacing and inlay the travel lanes.
- US97: Spanish Hollow Creek & Trout Creek bridges - Project number: 19075. Climbing lane extension. Seismic retrofit, rehabilitation and removal of streambed material that compromises the stability of the bridge on six bridges. Replace two bridges.
- Rail crossing alterations - NE Fir Ln and NE Elm Ln - Project number: 21420. Eliminate the railroad crossing at NE Elm Lane and upgrade the NE Fir Lane with active train warning devices.

The Oregon Transportation Commission released the draft 2021-2024 STIP for public comment at its January 2020 meeting. The public comment period closed in April 2020: final federal approval of the 2021-2024 list is expected by September 2020. The following projects are included in the list:

- US 26: Clear Lake Rd to NW Dogwood Lane – Project number: 02204. Repair or replace critical and poor culverts on priority routes and replace Clear Creek Bridge.
- Bear Drive: Irrigation Canal bridge. Project number: N/A. Design for a future construction project to replace the bridge in order to meet current road standards and to span the existing canal.

Project Relevance: The 2018-2021 STIP includes several projects in the County. The TSP Update analysis will take into account projects that are programmed in the STIP. An expected outcome of this planning process is proposed recommendations for a future STIP amendment to include projects from the updated TSP. The STIP projects will most likely involve improvements that are eligible for funding through a competitive application process.

ODOT Highway Design Manual (2012)

The 2012 Highway Design Manual (HDM) provides ODOT with uniform standards and processes for project development for the state's roadways. It is intended to provide guidance for the design of new construction; major reconstruction (4R); resurfacing, restoration, and rehabilitation (3R); or resurfacing (1R) projects. It is generally in agreement with the American Association of State Highway and Transportation Officials (AASHTO) document *A Policy on Geometric Design of Highways and Streets – 2011*. However, sound engineering judgment must continue to be a vital part in the process of applying the design criteria to individual projects. The flexibility contained in the HDM supports the use of Practical Design concepts and Context Sensitive Design practices.

The HDM is to be used for all projects that are located on state highways. National Highway System or Federal-aid projects on roadways that are under local jurisdiction will typically use the 2011 AASHTO design standards or ODOT 3R design standards. Table 3 shows which design standards are applicable for certain projects based on project type, and whether the project involves a state route. State and local planners will also use the manual in determining design requirements as they relate to the state highways in TSPs, Corridor Plans, and Refinement Plans. Some projects under ODOT roadway jurisdiction traverse across local agency boundaries. Some local agencies have adopted design standards and guidelines that may differ from the various ODOT design standards. Although the appropriate ODOT design standards are to be applied on ODOT roadway jurisdiction facilities, local agency publications, and design practices can also provide additional guidance, concepts, and strategies related to roadway design.

Table 3: Design Standards Selections Matrix, ODOT Highway Design Manual

Project Type	Roadway Jurisdiction				
	State Highways			Local Agency Roads	
	Interstate	Urban State Highways	Rural State Highways	Urban	Rural
Modernization/ Bridge New/Replacement	ODOT 4R/New Freeway	ODOT 4R/New Urban	ODOT 4R/New Rural	AASHTO	
Preservation/ Bridge Rehabilitation	ODOT 3R Freeway	ODOT 3R Urban	ODOT 3R Rural	AASHTO	ODOT 3R Rural
Preventive Maintenance	1R	1R	1R	NA	NA
Safety- Operations- Miscellaneous/ Special Programs	ODOT Freeway	ODOT Urban	ODOT Rural	AASHTO	ODOT 3R Rural

The HDM includes mobility standards related to project development and design that are applicable to all modernization projects, except for development review projects (see Table 4, "Outside UGB"). The v/c ratios in the HDM are different than those shown in the OHP. The v/c ratio values in the OHP are used to assist in the planning phase to identify future system deficiencies; the HDM v/c ratio values provide a mobility solution that corrects those previously identified deficiencies and provides the best investment for the State over a 20-year design life.

Table 4: 20-Year Design Mobility Standards (Volume/Capacity [V/C]) Ratio

Highway Category	Inside UGB				Outside UGB	
	STA	MPO	Non-MPO/ STA, MPH <45	Non-MPO/ STA, MPH 45+	Uninc. Comm.	Rural Land
Interstate Hwy & Statewide (NHS) Expressways	N/A	0.75	0.70	0.65	0.60	0.60
Statewide (NHS, Freight Rte)	0.85	0.75	0.70	0.70	0.60	0.60
Statewide (NHS, Non-Freight Rte)	0.90	0.80	0.75	0.70	0.60	0.60
Regional/District Expressways	0.90	0.80	0.75	0.70	0.60	0.60
Regional Highway	0.95	0.85	0.75	0.75	0.70	0.65
District/Local Interest Roads	0.95	0.85	0.80	0.75	0.75	0.70

Blueprint for Urban Design (2020)

The Blueprint for Urban Design is a “bridging document” that establishes revised criteria to be used when designing urban projects on the state system. The document provides guidance for urban design on Oregon state highways until such time that all ODOT manuals related to urban areas are updated to include the revised design criteria.

ODOT Traffic Manual (2020)

The Traffic Manual provides guidance on traffic engineering policies, establishes uniform methods and procedures, and includes information about traffic engineering and operations on state highways. The Traffic Manual complements the HDM - it does not contain roadway design policies but rather contains standards and guideline, as well as lists any needed approvals and processes.

Project Relevance: The HDM and Blueprint for Urban Design provides design standards on state roadways; the Traffic Manual governs engineering methods and procedures for highway improvements. The analysis for the TSP Update and final project recommendations will need to be consistent with state requirements for state facilities in Jefferson County. The HDM and Blueprint for Urban Design can be referenced for additional guidance, concepts, and strategies for design.

Access Management Rule (OAR 734-051) (2014)

Oregon Administrative Rule (OAR) 734-051 defines the State’s role in managing access to highway facilities to maintain functional use and safety and to preserve public investment. OHP Policy 3A and OAR 734-051 set access spacing standards for driveways and approaches to the state highway system. The most recent amendments presume that existing driveways with access to state highways have written permission from ODOT as required by OAR 734. The standards are based on state highway classification and differ depending on posted speed and average daily traffic volume.

The TPR does not regulate access management. ODOT adopted OAR 734-051 to address access management and it is expected that ODOT, as part of this project, will coordinate with the County in planning for access management on state roadways consistent with its Access Management Rule.

Project Relevance: Analysis of the TSP Update and final project recommendations will need to reflect state requirements for state facilities; the updated TSP will comply or move in the direction of meeting access management standards for state facilities. Implementation measures that will be developed for the TSP Update may entail amendments to the County's Zoning Ordinance to ensure that it is consistent with these access management requirements as well as TSP recommendations related to access management.

REGIONAL PLANS

Jefferson County Comprehensive Plan (Adopted 2006, Amended 2013)

The Jefferson County Comprehensive Plan is a long-range policy guide for land use in the unincorporated areas within the county, outside of city urban growth boundaries (UGBs). The Comprehensive Plan includes background information and policies that address each of the 14 applicable statewide planning Goals. Comprehensive Plan Goal 12 addresses transportation policies for the County. Except for two policies, excerpted below, the Comprehensive Plan Goal defers to the adopted County Transportation System Plan for compliance and direction with statewide Goal 12.

Goal 12: Transportation

Policy 1: Adequate access should be required for all new development and proposed new lots or parcels.

1.1 Road access to new development should be adequate to safely handle the anticipated traffic load.

Policy 2: Airports should be protected from conflicting uses.

2.1: New development near existing airports should not create a hazard for aircraft

One other transportation-related policy can be found in Comprehensive Plan Goal 8: Recreational Needs. The policy is stated as follows:

Goal 8: Recreation Needs

Policy 1: Recognize the importance of recreation to both County residents and visitors.

1.3 Encourage the development of bicycle, equestrian and hiking trails and facilities.

Project Relevance: The updated TSP will be adopted as the transportation element of the County's Comprehensive Plan. Recommendations resulting from the TSP Update must either be consistent with existing policies, including those identified above, or the TSP process should result in proposed amendments to adopted policies. Amendments to the Zoning Ordinance will also likely be needed in order to implement the updated TSP; proposed amendments will be based on existing, revised, or new policies related to land use designations, plan and code amendment procedures, land use review coordination, and/or protection of transportation facilities.

Jefferson County Transportation System Plan (2007)

The Jefferson County Transportation System Plan (TSP) is a long-range policy guide for developing and managing the transportation system in the unincorporated areas within the county, outside of city urban growth boundaries (UGBs). The TSP addresses all travel modes currently available to move people and goods within or through the County. The TSP includes goals and objectives that were used to guide development of the key recommendations and policy directives established for each travel mode in the TSP; specific policies and recommendations to implement these goals and objectives are presented in the subsections for each mode within Section 4 and Section 5. Policy guidance and recommendations are grouped into the following categories and summarized below:

- Section 2: Objectives and Strategies. This section provides the TSP objectives and strategies for accomplishing the identified objectives. Note, that the TSP does not include goals and policies that is inferred by the County's Comprehensive Plan Goal 12 reference.
- Section 3: Existing Road System Inventory: A technical analysis of the existing road system, allowing for an objective assessment of the system's existing physical characteristics, operational performance, safety, and general function.
- Section 4: Road System Plan and Projects: A list of projects and implementing measures to address road system needs.
- Section 5: Other Transportation Systems: An existing system analysis and transportation plan for all other modes, including bicycle, pedestrian, public transportation, air, rail, and pipeline and transmission systems.
- Section 6: Transportation Financing: A financing plan, including analysis and a summary of existing transportation system funding sources, and alternative sources which potentially could be used to pay for the identified transportation system improvements.
- Section 7: TSP Implementation and amendments

Table 4-1 shows a list of ODOT-identified highway improvement projects, listed from short (0-5 years) to long-term (10-20 years). Table 4-2 contains the improvement projects on County roads, as identified by four issues: road connectivity, traffic operation, safety, and pavement condition. Table 4-3 lists potential transportation projects that are near the City of Madras to accommodate future growth.

For other modes (Section 5), Table 5-1 identifies bicycle facility projects, including costs. No other modes have a specific list of projects, outside the future improvement needed for the BNSF improvements, which call for more clearance in the five tunnels located within Wasco and Jefferson Counties.

Project Relevance: The 2007 TSP goals and objectives were reviewed as a starting point for developing the updated goals and objectives that will guide the TSP update process (see Technical Memorandum #2). Recommended transportation projects in the adopted TSP that have not been completed will be evaluated to meet the projected needs of the next 20-year planning horizon. Updated data, stakeholder and community involvement, and evaluation criteria will be used to determine which policies and recommendations remain relevant and/or should be revised as part of the updated TSP.

Jefferson County Zoning Ordinance

The Jefferson County Zoning Ordinance regulates development within unincorporated Jefferson County and implements the long-range land use vision embodied in the Comprehensive Plan and TSP. The code contains several sets of the requirements that address the relationship between land use development and transportation system development. Those requirements are discussed below and address access, transportation improvements, clear vision areas, traffic impact analysis, and parking. Road design standards, including minimum rights-of-way, are addressed in Chapter 12.18 of the County Code, not in the zoning ordinance.

Access is primarily addressed in Section 401 (Access). The section establishes minimum access requirements and driveway connections. Most of the standards are referential to Section 12.18 of the County Code.

Transportation improvements are addressed in Section 402. The section addresses procedures, permitted improvements, and requirements for transportation improvements, including, but not limited to, the modification, extension, or relocation of an existing road or creation of a new public or private road. The section also includes conditions of approval that require, or may require, right-of-way dedications, easements, sidewalks, or bicycle facilities.

Clear-vision areas are addressed in Section 403, which identifies the dimensions of clear vision areas. Clear-vision areas apply to all development in all zones.

Airport protection provisions are addressed in Section 418. The provisions reduce risks between aircraft and nearby land uses by limiting development at the ends of runways and prohibiting structures, trees, and other objects from intruding into airport imaginary surfaces.

Traffic impact studies requirements are addressed in Section 421. A traffic impact study may be required as part of an application for Site Plan Review, a conditional use permit, a land division, or a zoning map amendment. The code includes what the study must address, but not methods, performance standards, or when a traffic impact study is specifically required.

Off-Street parking requirements are addressed in Section 423. This includes the parking minimum requirements for specified uses, off-street parking location requirements, and related general parking requirements such as space size, lighting, drainage, aisle access, and landscaping.

Project Relevance: Amendments to code provisions related to access, traffic impact analyses, and parking standards may be recommended as part of this planning process to implement the updated TSP, ensure consistency between the code and TSP, and strengthen compliance with the TPR.

Jefferson County Code Title 12 Roads, Parks, and Other Public Places

Chapter 12.18 of the Jefferson County Code addresses the road design standards. The road design standards in this chapter apply to new county roads, local access roads, private roads, and driveways unless otherwise specified. Requirements for improvement plans for new and reconstructed roads are outlined in Subsection 12.18.170. Intersection standards, driveway access standards, sidewalks, and bicycle facilities are also outlined. Table A of Chapter 12.18 outlines the minimum road design standards for County and Local Access Roads.

Project Relevance: Amendments to the code provisions related to road design may be recommended as part of the planning process to implement the updated TSP, ensure consistency between the code and TSP, and strengthen compliance with the TPR.

Jefferson County Adopted Budget (FY 19-20)

Jefferson County's Adopted Budget Resolution FY 2019-2020 provides general information on revenue sources and funding for capital improvements (see Table 5). The total annual budget amounts to approximately \$57,665,544.

Table 5 Jefferson County Road Funds Budget, 2016/2020

	Actuals FT 2016-17	Actuals FT 2017-18	Adopted Budget FY 2018-19	Adopted Budget FY 2019-20
202 Roads	\$4,380,533	\$5,013,073	\$4,280,239	\$5,996,455
203 Road Construction	\$386,928	\$499,215	\$526,600	\$1,169,696
204 Road Equipment	\$503,109	\$580,201	\$581,514	\$911,565
212 Footpath and Bicycle Trail	\$50,755	\$69,586	\$85,718	\$1,134,202
313 SDC Road	\$101,822	\$138,148	\$153,745	\$200,301
314 SDC CCR Roads	\$243,268	\$120,526	\$161,914	\$118,093
503 CDD- Planning	-	\$218,421	\$219,250	\$277,577
504 CDD- Onsite and Engineering	-	\$271,601	\$215,000	\$165,913
505 CDD- Building	-	\$1,711,498	\$1,250,600	\$1,366,769
TOTAL RESOURCES	\$5,666,415	\$8,622,269	\$7,474,580	\$11,340,571
202 Roads	\$2,174,432	\$1,975,959	\$3,745,677	\$3,966,144
203 Road Construction	\$263,727	\$199,214	\$526,600	\$1,155,683

	Actuals FT 2016-17	Actuals FT 2017-18	Adopted Budget FY 2018-19	Adopted Budget FY 2019-20
204 Road Equipment	\$4,300	\$142,831	\$581,514	\$900,884
212 Footpath and Bicycle Trail	-	-	\$85,718	\$110,640
313 SDC Road	-	-	\$153,745	\$200,301
314 SDC CCR Roads	\$160,800	-	\$161,914	\$188,093
503 CDD- Planning	-	\$153,288	\$178,298	\$236,467
504 CDD- Onsite and Engineering	-	\$174,546	\$192,645	\$151,974
505 CDD- Building	-	\$553,291	\$781,268	\$844,417
TOTAL EXPENDITURES	\$2,603,259	\$3,199,129	\$6,407,379	\$7,754,603

Jefferson County relies on multiple funding sources to fund the maintenance of its transportation network and make capital improvements. The County budget contains a summary of revenues and expenditures for major programs funded in part by state resources.

Project Relevance: The TSP update will estimate the total costs of identified improvements and assess funding needed to implement the improvements. The TSP may conclude that it is not feasible to fund all projects within the time horizon of the plan. The TSP will consider the department's current revenue levels, non-capital expenditures, anticipated short-term capital projects, and potential future revenue sources in developing the funding plan.

Central Oregon Rail Plan (2009)

The purpose of the Central Oregon Rail Planning effort was to develop a common regional strategy for Crook, Jefferson, and Deschutes counties to address various safety and congestion issues associated with roadway / railway at-grade crossings and to enhance freight mobility. The report addresses various rail-related safety, congestion, freight mobility, and economic development issues for central Oregon. The findings and recommendations are mostly focused around Deschutes County and Bend, but do also include the following:

- Existing at-grade railroad crossings high priority locations for bridging existing at-grade crossings for BNSF Line / Belmont Lane & Bear Drive (Jefferson County/Madras) ~\$4M.
- Freight Mobility and Rail Service implementation strategies, including:
 - Take advantage of and maximize opportunities with the area's shortline railroad, COPR, including industrial sites along the line, and freight terminal options such as at the Prineville Freight Depot and at the COPR interchange with BNSF at Prineville Junction.
 - For the Class 1 unit train operating model, ensure adequate on- and off-site support track along the BNSF mainline, and seek or create compatible (critical mass cargo) markets.
 - Seek agreement by shippers in Central Oregon to use a single designated intermodal complex.

- Discussion and recommendations for feasibility of a passenger or commuter rail in Central Oregon.

Project Relevance: The report is mainly focused on enhancements within the incorporated jurisdictions in Crook, Jefferson and Deschutes Counties but does include factors to consider for future multi-party agreements for future passenger and freight rail services.

Central Oregon Intergovernmental Council Regional Transit Master Plan (2013)

The Regional Transit Master Plan identifies where future transit services can support regional transportation and sustainability goals, as well as what is required to implement such services. Recommendations are based on analysis of available data and stakeholder inputs.

Goals and Objectives

- Identify how transit can support regional transportation and sustainability goals
- Establish a vision for transit in Central Oregon
- Identify and secure a local source of funding for transit
- Ensure CET remains an integrated regional transit service
- Identify short-term, cost-neutral “fixes” to service
- Develop a “vision” plan for the long-term (20 years)

Final Plan

The Regional Transit Master Plan Consists of Five Volumes:

- Volume I: Existing Conditions
- Volume II: Survey Report
- Volume III: Outreach and Engagement
- Volume IV: Service Plan
- Volume V: Funding Sustainability

Project Relevance: The transit plan identifies future planned extensions within Deschutes, Jefferson, and Crook Counties, and expected impacts on users. As COIC is currently updating the transit plan (see the Cascades East Transit Development Plan review in this memorandum), the TSP should consider the results and recommendations from the most recent planning effort when updating the transit element of the TSP.

Cascades East Transit Regional Transit Master Plan (update ongoing)

The purpose of the Cascades East Transit (CET) Regional Transit Master Plan is to create an updated regional transit master plan for Central Oregon. Currently in development, the Master Plan will synthesize and update the existing Central Oregon Regional Transit Master Plan (2013) and the Bend Metropolitan Planning Organization’s Public Transit Plan and Transit Corridor Land Use Assessment (2013). Because CET, which is operated by the Central Oregon Intergovernmental

Council (COIC), provides public transit service to Bend and the region, transit in Central Oregon will benefit from having a single up-to-date plan to help guide it through a planning horizon of 2040.

The Service Plan currently under review describes the Community Connector transit network, a network of fixed routes that connects riders between Bend and Redmond and the cities of Culver, La Pine, Madras, Metolius, Prineville, Sisters, and Warm Springs. Called a commuter bus service by the Federal Transit Administration (FTA), this service is considered an intercity bus service. The Community Connector is open to the general public and operates Monday through Friday. Community Connector Route 20 (Warm Springs to Madras) also offers deviated fixed-route service at either end of its intercity fixed route within Madras and Warm Springs at specific times and within $\frac{3}{4}$ mile distance of a transit stop.

The Service Plan currently under discussion adds additional flex route trips in Madras and a late morning/midday shopper medical shuttle to Redmond that would also serve Metolius and Culver. The shuttle would operate 2-3 days per week as part of Route 22 (Madras to Redmond); the service could expand to 5 days per week based on demand.

Project Relevance: The Regional Transit Master Plan is expected to be completed and adopted in late summer-early fall 2020. The TSP will reflect the service enhancements in Jefferson County, as well as be consistent with CET Master Plan policy and recommendations regarding transit planning in the region.

Central Oregon Large Lot Industrial Land Needs Analysis (2012)

The central Oregon large lot industrial land needs analysis evaluates central Oregon's opportunities, competitiveness, and ability to recruit new and locally grown firms requiring new large-scale development models (100-200 acres).

Within Jefferson County, the City of Madras was identified as having important industrial sites near the airport, including large lot industrial properties with rail access. The City's position at the intersection of Highways 26 and 97 provides logistical advantages for industrial users, particularly for firms needing access to the Portland metropolitan area and Interstate 84. The airport is also a major facility that provides an amenity for certain businesses. Within Central Oregon, the Madras area is at the northern edge of the region's population and economic base, placing it at a comparative disadvantage for regional distribution as well as for firms looking for large work forces.

Project Relevance: Larger lot development may require more specific transportation enhancements, especially to accommodate freight movement related to warehousing and distribution, or to access to rail or freeways. While Madras was identified in the strengths and challenges analysis as part of industrial large lot identification, unincorporated Jefferson County was not.

Metolius Area of Critical State Concern (OAR 660-043-0100)

In 2009, DLCD designated the Metolius Basin Management Plan as an Area of Critical Statewide Concern. The provisions in the OAR limit allowed uses to limit impacts on the Basin. The plan

includes supplemental land use regulations that prohibit new destination resorts, golf courses, residential development exceeding 10 dwelling units, and commercial or industrial development expected to have an annual consumption of 5 acre-feet of water. Allowed uses include:

- All uses allowed by the current provisions of the Jefferson County comprehensive plan and land use regulations concerning the Blue Lake, Camp Sherman Vacation Resort, Camp Sherman Rural Service Center, and Camp Sherman Rural Residential (3 acre and 5 acre) areas.
- Farm uses and forest uses allowed under Statewide Planning Goal 3 or Goal 4, including conditional uses of farm and forest land allowed by Goals 3 and 4 or their implementing rules (so long as any conditional use does not have an average annual consumptive use of water in excess of 5 acre-feet).
- Non-farm uses allowed under Statewide Planning Goal 3 and its implementing rules (so long as any non-farm use does not have an average annual consumptive use of water more than five acre-feet).
- A small-scale recreation-oriented development within the area mapped as eligible for destination resort development by Jefferson County in Township 13 South, Range 8 East, section 13.³

Project Relevance: Land use regulations including limitations and prohibitions can be used to inform future transportation demand and expected trip generation for the area.

The Cove Palisades State Park Master Plan (OR P&R 2002)

The Cove Palisades State Park Master Plan is an Oregon Parks and Recreation Department (ORPD) plan governing one of the largest state parks in Oregon. The plan documents that visitors are primarily from the Portland metro area, but that Deschutes and Jefferson County residents also heavily use the park, mainly during the summer months. This results in overflowing parking and crowded facilities, with inadequate staffing during peak season. Goals and proposals in the document include (but are not limited to):

- Support the county securing funding for bridge improvements
- Continue discussions with the county regarding the "fair share" for on-going Jordan Road maintenance funding.
- Offer emergency-only Crooked River Ranch access/egress with the park. Site to be selected through additional discussions.

Issues related to congestion on the roads are important to local residents. Jordan Road serves park visitors and residential and private camping lots in the Three Rivers Area. Given the existing parking

³ The subparagraph lists specific uses and development standards.

opportunities on the road and in the sites and the use patterns, estimates are that there are about 1,000 vehicles in the park on peak days. OPRD conducted a traffic study for Jordan Road over a one-year period ending in July 2000 and examined existing conditions and future year forecast conditions. The observations of existing traffic volumes throughout the year provided a determination of traffic that is generated by the state park and those generated by other destinations within the study area. The conclusion was that widening Jordan Road through the park is not feasible and discourages bicycling on the roadway during peak use periods. The plan recommends providing more designated parking, as space allows, to accommodate current boating and day use overflow parking on Jordan Road, to the extent that the total visitor parking capacity specified in the Master Plan is not exceeded.

Project Relevance: Access to The Cove Palisades State Park is limited to Jordan Road, which currently has significant seasonal traffic for visitors to the park. The plan identifies improvements to the road and mentions a potential County decision whether to allow parking along this road. Decisions related to this roadway should be revisited as part of the TSP update.

LOCAL PLANS

City of Madras TSP (2018)

The Madras TSP has the following goals and objectives that guide transportation planning in the City of Madras:

GOAL 1: MOBILITY AND CONNECTIVITY Promote a transportation system that provides efficient connections for all users within Madras and meets existing and future mobility needs.

GOAL 2: ECONOMIC DEVELOPMENT Provide a transportation system that supports existing industry and encourages economic development and job creation in the City, especially within key development areas. Improve short and long-term transportation infrastructure to support local and regional travel and livability.

GOAL 3: SAFETY Provide a transportation system that improves the safety and accessibility throughout the City and especially within the downtown core.

GOAL 4: MULTIMODAL USERS Provide a multimodal transportation system that permits the safe and efficient transport of people and goods through active modes.

GOAL 5: ENVIRONMENT Provide a transportation system that balances transportation services with the need to protect the environment.

GOAL 6: PLANNING AND FUNDING Maintain the safety, physical integrity, and function of the City's multi-modal transportation network.

This TSP includes Concept Area Plans for three key growth areas within the city. These plans address the possibility of significant economic development within each area and the needed transportation improvements to support future land use investments. These areas are:

- North Industrial Concept Area
- East Madras Concept Area
- South Madras Concept Area

Project Relevance: Many roadway, intersection, pedestrian, and bicycle projects identified near the edge of the Madras city limits will need to be coordinated with Jefferson County to ensure the City and County systems are compatible and supportive of each other. Beyond city limits, the City of Madras supports Jefferson County transportation improvement projects that provide route choices for users and limit out-of-direction travel where possible. Most notably, the City supports Jefferson County's goal to provide a continuous roadway connection along the Cherry Lane corridor between US 26 and US 97.

Madras Airport Master Plan (2010)

The Airport Master Plan was completed in 2010 and in the intervening years a majority of the projects identified in the plan have been completed.⁴ The 2010 report includes recommendations for both the City of Madras and Jefferson County regarding future developments and needed coordination between the jurisdictions.

The Madras Municipal Airport is a General Aviation Airport. The update to the plan is for a 20-year horizon following the FAA guidelines to include, but not limited to the following needs:

- Relocation of crosswind runway 4-22 (earlier identified in master plan).
- Extension of main runway 16-34.
- Addition of a helipad.
- Airport operations building to support Airport Rescue and Fire Fighting vehicle as well as snowplowing and maintenance equipment.
- The master plan will also provide input review for aeronautical and non-aeronautical uses for airport leases. The Airport has a significant amount of acreage still available for lease to be utilized for development.

Project Relevance: As the Airport Master Plan is updated, Jefferson County will want to coordinate planned roadway improvements with the airport operations and improvements identified at the airport, as well as ensure County policies are supportive. The 2010 Master Plan includes the recommendation that the City and Jefferson County maintain an airport overlay zone based on the FAR Part 77 airspace

⁴ Note that a request for qualifications is currently available online for a 2018/19 update:
<https://www.ci.madras.or.us/publicworks/page/madras-municipal-airport-master-plan>

surfaces in the update Airport Layout Plan, ensuring that development of lands in the vicinity of the airport is compatible with airport activities through their respective comprehensive plan and zoning code. The Master Plan also recommends that the County planning department verifies coordination with the FAA Airports District Office prior to approval for building permits, plat approval, site plans, etc.