

TRANSPORTATION SYSTEM PLAN

HOOD RIVER COUNTY

**ADOPTED JULY 2003 – COUNTY ORDINANCE #249
AMENDED JUNE 26, 2009 – COUNTY ORDINANCE #295
AMENDED MARCH 31, 2010 – COUNTY ORDINANCE #299
AMENDED NOVEMBER 21, 2011 – COUNTY ORDINANCE #306**

Prepared for

Hood River County

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With assistance from

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Oregon Department of Transportation
Hood River County Transportation System Plan Technical Advisory Committee**

This project was funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Department of Land Conservation and Development. TGM grants rely on federal Intermodal Surface Transportation Efficiency Act and Oregon Lottery Funds.

HOOD RIVER COUNTY TRANSPORTATION SYSTEM PLAN
TECHNICAL ADVISORY COMMITTEE
1997 Draft
2003 Update (Adopted)

Hood River County (1997 + 2003)
City of Hood River (1997 + 2003)
City of Cascade Locks (1997 + 2003)
Port of Hood River (1997 + 2003)
Mt. Hood National Forest (1997 + 2003)
Hood River County Transportation District (1997 + 2003)
Hood River School District (1997 + 2003)
Mt. Hood Railroad (1997 + 2003)
Mt. Hood Meadows Ski Area (1997 + 2003)
Hood River Valley Residents Committee (1997 + 2003)
Hood River Chamber of Commerce (1997 + 2003)
Oregon Department of Transportation (1997 + 2003)
Transportation Growth Management (2003)
Hood River County Public Works Advisory Committee (2003)
West Side Rural Fire Protection District (2003)
Citizens for Responsible Growth (2003)
USFS, National Scenic Area Office (2003)
Oregon Department of Land Conservation & Development (1997)
Hood River Growers & Shippers Association (1997)
Oregon Department of Forestry (1997)
Columbia River Gorge National Scenic Area (1997)
Hood River County Sheriff's Office (1997)
City of Hood River Police Department (1997)
Clackamas County (1997)
Washington Department of Transportation (1997)
Columbia Gorge Windsurfing Association (1997)
Young & Morgan (1997)
Edgefield Station, Inc. (1997)

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INTRODUCTION

In the mid-1970s, Oregon adopted 19 statewide planning goals to be implemented through local comprehensive plans. The aim of Goal 12, Transportation, is “to provide and encourage a safe, convenient, and economic transportation system.”

One purpose of this Transportation Systems Plan (TSP) is to update the transportation element of the Hood River County comprehensive plan according to the following guidelines set forth in Goal 12:

“A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian; (2) be based upon an inventory of local, regional, and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) reduce principal reliance upon any one mode of transportation; (5) minimize adverse social, economic, and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans.

This TSP for Hood River County will guide the design, implementation, and new management of existing transportation facilities for the next 20 years. This transportation system plan satisfies the requirements of the Oregon Transportation Planning Rule.

PLANNING AREA

The Hood River County planning area includes all unincorporated areas within Hood River County. This includes lands along the Columbia River Gorge to the north and Mount Hood to the south, as well as the urban growth areas (between the city limits and urban growth boundaries) of the cities of Cascade Locks and Hood River. **Figure 1-1** illustrates the Hood River County planning area.

Transportation system plans for the Cities of Hood River and Cascade Locks describe existing conditions, traffic forecasts and proposed standards and improvements for transportation facilities within the limits of those two cities. After areas within Hood River County are annexed to the two cities, city standards will be applied in those areas. In anticipation of future urbanization and annexation of these areas, the County’s TSP incorporates by reference and adopts similar or identical city standards for road improvements, connectivity and access management for county facilities to be constructed in the urban growth areas (UGAs). City standards also will be referenced and applied within the UGAs through provisions in the County’s subdivision and zoning ordinances. In addition, selected urban standards will be applied in some portions of designated unincorporated communities in the County, as specified in the County’s subdivision ordinance and zoning ordinances. Furthermore, City and County TSPs include a consistent list of transportation improvement projects in the urban growth areas.

PLAN ORGANIZATION

The TSP was developed through technical analysis combined with input and review by a project management team, a technical advisory committee, and the public. The plan was initially prepared in 1995-1997 and subsequently updated and adopted in 2002-2003. Key elements of the TSP include:

- Plans and Studies (Chapter 1)
- Community Involvement/Project Goals and Objectives (Chapter 2)
- Current Conditions (Chapter 3)
- Forecasts and Analysis (Chapter 4)
- Transportation System Alternatives (Chapter 5)
- Transportation System Plan (Chapter 6)
- Capital Improvement Financing Plan (Chapter 7)

REVIEW OF EXISTING PLANS AND POLICIES

Chapter 1 provides an overview of the existing County and State plans and policies that will impact or guide the decision-making process for this Transportation Systems Plan. These include county and state policies and plans.

COMMUNITY INVOLVEMENT/GOALS AND OBJECTIVES

Community involvement was an important part of developing and updating the TSP. Interaction with the community was achieved by holding open community meetings and forming a Management Team and a Transportation Advisory Committee (TAC) to prepare the TSP. The Management Team and the Advisory Committee included representatives from Hood River County, the City of Hood River, the City of Cascade Locks, the Oregon Department of Transportation (ODOT), and the public. These two groups were formed to provide guidance to the consultant, review work products, and aid the county in making decisions regarding the TSP.

In developing the plan in 1997, open houses were held jointly in Cascade Locks and Hood River. Two open houses were held in each community and included discussion and inquiry about the countywide and community efforts. This enabled residents throughout the county to learn about and provide input on both rural and urban transportation issues. Through this process, both the county and the cities became better positioned to coordinate future transportation system projects.

Project goals, objectives, and implementation actions were developed early in the planning process by the Management Team and the Transportation Advisory Committee and reviewed by the general public. The goals and objectives were used to formulate and evaluate system improvements. They are discussed in Chapter 2.

A similar process was used in updating the plan. A team of consultants and representatives of the County, the cities, and ODOT prepared the plan with guidance from a Technical Advisory Committee. A public open house was conducted in December 2002 to review a draft of the updated TSP. In addition to the public Open House on the TSP, public meetings to designate Odell and Parkdale as unincorporated communities as part of the County's Goal 14 ('Urbanization') Periodic Review Work Task took place at the same time as the 2002-2003 TSP update. This provided an opportunity to disseminate information on the County's TSP at the public meetings in those communities.

Review and Inventory of Existing Public Facilities and Conditions

To begin the planning process, existing plans and policies were reviewed and an inventory of public facilities was conducted. The purposes of these efforts were twofold. The review assesses historical planning efforts in the County, including how population and employment were projected and how those projections compare with current measurements, what street system improvements were planned and which were implemented, how other transportation facilities were planned and implemented, and how the county currently manages its ongoing development.

The inventory of existing facilities catalogs the current transportation system and identifies how that system currently operates. The results of the inventory are described in Chapter 3 (Current Transportation Conditions), while Chapter 6 (Transportation System Plan) describes measures to address existing system deficiencies, including proposed improvement projects.

The current transportation volumes of the state highways within Hood River County are detailed in Chapter 3. The highway volumes were available for state highways, I-84, OR 35, US 30 (Cascade Avenue and Oak Street), 281 (Tucker and Lost Lake Road), and 282 (Odell Highway). A countywide road inventory provides traffic volumes, roadway classifications, and other information for county and city arterial and collector roads.

Information on current conditions was updated in 2002-2003 as part of the update process described above.

Future Transportation System Demands

The Transportation Planning Rule requires the TSP to address a 20-year forecasting period. The 20-year travel forecasts were developed based on traffic volumes along the state highways and projections of population and employment. This process (described in greater detail in Chapter 4) provides a conservative estimate of the transportation needs of Hood River County.

Transportation System Alternatives

Based upon public and TAC input, and travel forecasting, Chapter 5 identifies and considers a series of transportation system alternatives. These consist of: a "No Build" Alternative which is defined as the existing transportation system plus any committed land use changes and transportation projects, and which is used as a comparison to other alternatives; a Transportation System Management (TSM) Alternative; a Transportation Demand Management (TDM) Alternative; and a Roadway Improvement Alternative. The Roadway Improvement Alternative has been identified as the preferred alternative for the TSP; it also incorporates elements of the TSM and TDM alternatives. The specific transportation system improvements recommended for the preferred alternative are detailed in Chapter 6.

Transportation System Plan

Based upon public and TAC input, current conditions, and travel forecasting, Chapter 6 identifies a recommended transportation system, including functional road classifications, design standards and improvements to address the goals and objectives addressed in Chapter 2, and to correct or mitigate the problems identified in Chapters 3 and 4. Improvements are those recommended to meet a variety of transportation needs throughout the county. However, inclusion of specific projects in the recommended list of improvements does not obligate the

County or any other entity to complete those specific improvements. Completion is dependent on availability of funding and other factors.

Modal Plans and Implementation Program

The TSP addresses the following transportation modes: automobile, freight, bicycle, pedestrian, rail, transit (intercity and intracity), pipeline, and air. The street system plan was developed from the inventory, forecasting, and public input process described above. The bicycle and pedestrian plans were developed based on the requirements set forth by the Transportation Planning Rule and on public input. The public transportation, air, water, rail, and pipeline plans were developed based on existing plans and discussions with service providers. Road standards, access management guidelines, modal plans, and an implementation program are detailed in Chapter 6. Additional implementing standards and ordinances are provided in an appendix and will be incorporated and adopted in other County implementing ordinances.

FINANCING

The financing chapter examines financing the transportation improvements recommended in Chapter 6. Since many of the selected improvement options are on or adjacent to state highways, Hood River County will need to closely coordinate future funding with ODOT.

1. PLANS AND STUDIES

1.1 INTRODUCTION

Improvements recommended in the TSP need to take into account relevant applicable plans and policies as well as previously approved projects. This section of the plan summarizes the major findings of recent plans and studies conducted in or affecting the study area. These documents can be broken into four categories: federal and statewide plans and studies, OR 35 Corridor specific studies, jurisdictional specific studies, and other related plans/studies.

1.2 PLANS AND STUDIES AFFECTING HOOD RIVER COUNTY

1.2.1 Federal and Statewide Plans and Studies

1.2.1.1 Transportation Equity Act for the 21st Century (TEA-21)

This federal legislation sets forth the federal transportation funding eligibility requirements. It mandates consistency between state, regional, and local transportation improvement plans; and requires that local plans include only projects with identified funding sources. Like its predecessor, the Intermodal Surface Transportation Efficiency Act (ISTEA), TEA-21 requires the planning process to include: cooperation with all interested and affected parties; data collection, analysis, and development of various management systems; consideration of various factors designed to enhance the performance of the system; consideration of the transportation options available to meet transportation needs, including all modes and their connections; and development of the Statewide Transportation Improvement Program (STIP). The US Congress authorized ISTEA in 1991 and renewed the legislation as TEA-21 in 1998. TEA-21 is expected to be reauthorized in 2003 as "TEA3" - the third iteration of the multi-modal transportation vision promulgated by Congress with ISTEA.

1.2.1.2 2002-2005 Statewide Transportation Improvement Program (STIP) - September 2002

The Statewide Transportation Improvement Program (STIP) fulfills the requirements of ISTEA, TEA-21 and the TPR by providing a staged, statewide, intermodal program of transportation projects. The STIP is not a planning document, rather it is a project prioritization and scheduling document developed through various planning processes with local and regional agencies and transportation agencies. Projects listed in the document receive funding by ODOT.

There are nine projects listed for Hood River County in the 2002-2005 STIP. These projects are included as appropriate in the project list in Chapter 6. ODOT intends to implement these projects in the timeline identified in the document. However, some projects may be delayed due to future funding limitations or be replaced by more effective solutions to transportation problems.

1.2.1.3 The Oregon Transportation Plan (1991)

The OTP, adopted by the OTC in September 1992, identifies how the state will meet the transportation and land use requirements of the Oregon Statewide Planning Goals and ISTEA. It lays out planning and performance

guidelines to help ensure that city and county plans are consistent with the state plan. (The Transportation Planning Rule requires that local plans be consistent with the OTP.)

The OTP establishes standards for each mode of travel and minimum levels of service. Standards applying to Hood River County include:

- Local public transit services and elderly and disadvantaged service providers should regularly connect with intercity passenger service. Intercity passenger service should be available for an incorporated city or groups of cities within five miles of one another having a combined population of over 2,500, and located 20 miles or more from the nearest Oregon city with a larger population and economy. Service should include a round-trip made within a day.
- Air service connections between Portland, or other West Coast hubs, and other areas of Oregon should be provided whenever commercially viable.
- Open access should be provided to and from all railroad facilities and to major ports.
- Bicycle and pedestrian networks should be developed and promoted in all urban areas to provide safe, direct, and convenient access to all major employment, shopping, educational, and recreational destinations in a manner that would double person trips by bicycle and walking.
- Secure and convenient bicycle storage available to the public should be provided at all major employment and shopping centers, park and ride lots, passenger terminals, and recreation destinations.

1999 Oregon Highway Plan

The Oregon Highway Plan (OHP) is one of the modal elements of the Oregon Transportation Plan. It outlines the current status of the highway system and standards for modernization, preservation, maintenance, bridge operations, and other programs. The plan projects growth trends and provides a vision for the future with policies and strategies to meet that vision. It also outlines specific policies to meet transportation needs including highway classifications, access management and mobility standards, truck load restrictions, as well as revenue requirements to meet needs from 2000 to 2017.

1.2.1.4 The Transportation Planning Rule

The Transportation Planning Rule (TPR), adopted by the Oregon Land Conservation and Development Commission (LCDC) in 1991, is implementing regulation of Statewide Planning Goal 12 (Oregon Administrative Rule 660-012).

Among other things, the Transportation Planning Rule requires that cities, counties, metropolitan planning organizations, and state agencies prepare and adopt Transportation System Plans. A Transportation System Plan is “a plan for one or more facilities that are planned, developed, operated, and maintained in a coordinated manner to supply continuity of movement between modes, and within and between geographic and jurisdictional areas.”

The goal of the TPR is to encourage a multimodal transportation network throughout the state that will reduce reliance on the automobile and ensure that local, state, and regional transportation systems “support a pattern of

travel and land use in urban areas which will avoid the air pollution, traffic, and livability problems faced by other areas of the country.”

TPR requirements vary based on population size and geographic location of each jurisdiction. The County of Hood River is responsible for creating a regional transportation plan for the area that is consistent with adopted elements of the OTP.

Hood River County has a population less than 25,000 and the following six plan elements are required to satisfy the TPR.

1. A determination of transportation needs.
2. A street system plan for a network of arterial and collector roadways.
3. A public transportation plan.
4. A bicycle and pedestrian plan.
5. An air, rail, water, and pipeline plan.
6. Policies and land use regulations for implementing the transportation system plan.

The TPR states that its intent is not to duplicate or to supplant existing applicable transportation plans and programs. The jurisdictions may incorporate existing plans into their transportation system plans to meet some or all of the rules’ requirements.

1.2.1.5 Oregon Benchmarks

The State of Oregon has set up measures to assess how well it is attaining its goals of developing an outstanding quality of life; exceptional people; and a diverse, robust economy. Each of the benchmarks listed has a goal that is to be attained by the year 2010. A number of these benchmarks affect transportation.

The urban mobility benchmark sets the goal of increasing the percentage of Oregonians commuting during peak hours by means other than single-occupancy automobiles to 60 percent. The air quality benchmark is measured by the percentage of Oregonians living where the air meets government ambient air quality standards. Its goal is for 100 percent of the population to live where the air meets these standards. Livability benchmarks call for 88 percent of Oregonians to be commuting (one-way) between work and home within 30 minutes; the percent of limited access highways in urban areas not heavily congested during peak hours to increase to 60 percent; and the transit hours per capita per year in metropolitan areas to increase to 1.7 hours. Also, economic prosperity benchmarks pertaining to Hood River County call for the percentage of access Oregon highways handling traffic at a steady 55 mph rate to increase to 90 percent; the percentage of Oregonians living within 50 miles of an airport with daily scheduled air passenger service to increase to 75 percent; and the backlog of city, county, and state roads and bridges in need of repair and preservation to be reduced to five percent.

1.2.1.6 Oregon Bicycle and Pedestrian Plan (June 1995)

The Oregon Bicycle and Pedestrian Plan, an element of the Oregon Transportation Plan, provides direction for establishing efficient and interconnected bicycle and pedestrian facilities on state, county, and city transportation systems. The plan is divided into two sections. Section One establishes policies and implementation strategies, while Section Two presents design, maintenance, and safety information.

The plan envisions Oregon developing “a transportation system where walking and bicycling are safe and convenient transportation modes for urban trips.” Its primary goal is “to provide safe, accessible, and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking.”

1.2.1.7 Oregon Rail Passenger Policy and Plan (1992)

The Oregon Rail Passenger Policy and Plan (ORPP) is a comprehensive long-range plan for rail passenger service prepared in coordination with the OTP. The ORPP provides detailed strategies for the rail passenger mode and policies based upon OTP rail policies. The ORPP was created to meet the requirements of Senate Bill 763, which states that ODOT “shall develop and maintain a state transportation policy for railroad passenger service and a comprehensive, long-range plan for railroad passenger service....” It is the policy of the State of Oregon to support intercity rail passenger service as part of a balanced transportation system. According to the ORPP, the rail passenger system “shall operate efficiently, be reliable, provide access to all potential users, and comply with state environmental and land use standards.” It will also have convenient connections with all other modes of transportation.

The ORPP specifies the Union Pacific (UP) mainline, which runs along the Columbia Gorge through Hood River County, as a corridor of statewide significance warranting further study. This is because it contains cities with populations greater than 2,500 (including Hood River). According to the Multimodal System Element of the OTP, cities with populations over 2,500 are required to have at least one daily round-trip to the nearest city of higher importance.

1.2.1.8 Oregon Transportation Safety Action Plan (1995)

The Oregon Transportation Safety Action Plan (OTSAP) was developed as the safety element of the Oregon Transportation Plan and is considered part of the Statewide Transportation Plan. It is one of several modal or multimodal plans called for in the OTP that defines in greater detail system improvements and legislative and financial needs. The OTSAP lists 70 actions that could be taken to improve Oregon transportation safety. Of these key actions, 11 were identified to reduce transportation-related deaths and injuries. These key actions are intended to be implemented by the year 2000.

1.2.1.9 State of Oregon Continuous Aviation System Plan Draft

The Draft Oregon Continuous Aviation System Plan outlines the roles of Oregon’s system airports and evaluates their adequacy to meet the state’s economic development needs.

The plan defines the role of the Hood River Airport, maintained by the Port of Hood River, and the Cascade Locks State Airport to be community access, local support, and economic development. As a (State Aviation) Level of Significance 4 airport, the Hood River Airport is part of NPIAS (National Plan of Integrated Airport Systems). It is designated as a general aviation facility by the NPIAS. It is a public-use airport, has a paved runway/takeoff and landing area, and limited passenger and pilot facilities. It also has limited land for expansion both on and adjacent to the airport, provides access from geographically remote areas, and functions as a reliever to a primary, commercial air service airport.

The Cascade Locks State Airport has a State Aviation Level 5 airport designation. Level 5 airports support the system through community, remote, emergency, and US government access; accommodate agricultural business,

recreation/tourism, or commercial aviation-related businesses, or support the Portland Metropolitan Area Airport System; and are non-NPIAS and public-use.

The plan identifies the key industry for a region of the state and then evaluates whether the airport facilities in that region are sufficient to support the industry. Hood River County's key industries are agriculture and tourism. Tourism is ideally supported by a system of both commercial service and general aviation airports, which provide facilities for both scheduled service and private aircraft.

The Draft Plan calls for the Hood River Airport to be upgraded to meet at least the second-tier economic development airport requirements. To do so, the airport must develop an instrument approach and a longer runway, upgrade its lighting (adding medium intensity runway lights and runway end identifier lights), and improve its weather reporting capabilities.

The Oregon Continuous Aviation System Plan also projects the level of operations for each state system airport. It envisions Hood River Airport operations increasing from 13,700 per year in 1994 to 17,130 per year in 2014. Even with the increase, Hood River Airport would remain at a Level 4 significance (State Aviation designation). It also projects constant activity for the Cascade Locks State Airport with operations remaining at 1,100 per year through 2014, and the airport maintaining a Level 5 significance (State Aviation designation).

1.2.1.10 Historic Columbia River Highway Master Plan

The Master Plan for the Historic Columbia River Highway (HCRH) provides direction for the rehabilitation of the highway and the construction of connecting trails along the abandoned sections. The highway, constructed from 1914 to 1922, originally ran from Portland to The Dalles. Much of the original highway in Hood River County was abandoned or destroyed when I-84 was built. Many short, discontinuous segments still remain parallel to I-84 in various stages of disrepair. The HCRH exists as city streets through Cascade Locks and Hood River. In Cascade Locks, it is Wa-Na-Pa Street and Forest Lane, and in Hood River it is portions of Cascade Avenue, Oak, Front and State Streets.

The only long, contiguous segment of HCRH in the county is east of Hood River connecting OR 35 to Mosier. This segment of the HCRH, through the twin tunnels between Hood River and Mosier is an active recreation corridor for bicyclists and pedestrians. Managed by the Oregon Parks and Recreation Department, it is closed to motor vehicle traffic and is part of the State Trail System. In the summer of 2002, it was designated a National Recreation Trail by the US Department of the Interior. This and other portions of the highway have high recreational potential and are slated for development of hiking, biking, and wheelchair trails.

1.2.1.11 Management Plan for the Columbia River Gorge National Scenic Area

The Management Plan for the Columbia River Gorge National Scenic Area (NSA) was prepared to ensure that land within the National Scenic Area is used consistently with the purposes and standards of the Columbia River Gorge National Scenic Area Act. The Act divides the gorge into three distinct categories: Special Management Area (SMA), General Management Area (GMA), and Urban Areas. The land within the SMA and GMA are managed to maintain the scenic, natural, cultural, and recreational resources. Urban Areas (including Cascade Locks and Hood River) are exempt from Scenic Area requirements.

The majority of NSA land within Hood River County is SMA land. The Plan calls for transportation facilities in the SMA and GMA "to meet the needs of the traveling public and to implement the recreation development plan and land use designations while protecting scenic, cultural, recreational, and natural resources." A goal for the

GMA and SMA is that the portions of I-84, OR 35 and the HCRH within the Scenic Area be designated as key viewing areas and that resources within the areas be protected and enhanced.

The Plan encourages ODOT to improve the visual quality of key viewing areas through the use of color, native vegetation in rights-of-way, and reduction of sign clutter. Also, railroads and utility companies are encouraged to use colors that are visually subordinate for existing equipment, and to place signal wires and power lines underground in areas where such features would be visually dominant and detract from the visual quality of scenic travel corridors.

1.2.1.12 Intelligent Transportation System Study (I-84 Portland to Boise)

The Federal Highway Administration and Oregon, Washington, and Idaho transportation departments recently conducted a study to determine how the use of Intelligent Transportation System (ITS) technology could improve service in the Interstate 84 corridor from Portland to Boise. The study evaluated the benefits of using available technologies like electronic traffic signs to alert drivers to accidents, road closures, and adverse weather conditions on the highway. It also looked at transportation on a corridor basis including alternate highways (SR 14 in Washington), the Columbia River, and both railroads (Union Pacific and Burlington Northern). In response to the results of the study, variable message signs (VMS) have been constructed on a number of Oregon highways, including a weather station and roadway cameras located along Interstate 84 in Hood River County.

1.2.1.13 SR-35 Columbia River Crossing Feasibility Study

The Oregon and Washington State Departments of Transportation (ODOT and WSDOT) and the Southwest Washington Regional Transportation Council (RTC) are conducting a study to assess the feasibility of long term improvements to the bridge over the Columbia River between Hood River and White Salmon/Bingen, Washington. The first two phases of the study have been completed. A third tier of the study, which will result in a draft environmental impact statement (DEIS) was initiated in September 2002 and is expected to be completed in 2003. The DEIS will assess alternatives for long term improvements. Short and medium term actions, including improvements to intersections adjacent to the bridge also will be evaluated, along with a proposed financing plan for short, medium and long-term actions.

1.2.2 OR 35 Corridor-Specific Plans and Studies

1.2.2.1 Hood River-Mt. Hood (OR 35) Corridor Plan (Volumes 1 and 2)

The OR 35 Corridor Plan (Volume 1) and Supporting Documentation (Volume 2) was adopted by the Oregon Transportation Commission (OTC) as an amendment to the OTP on August 13, 1999. It is the product of a cooperative effort between ODOT, Hood River County, the cities of Hood River and Cascade Locks, ports of Hood River and Cascade Locks, Confederated Tribes of the Warm Springs, transportation service providers, other interest groups, and the general public to develop a long-term, multi-modal program for management of and improvements to the Hood River-Mt. Hood Corridor, a priority corridor identified in the OTP.

1.2.2.2 Highway 35 Feasibility Study

The Western Federal Lands Highway Division of the Federal Highway Administration undertook this study on behalf of the Oregon Department of Transportation and the United States Forest Service in 2002. The impetus for

the study is a growing concern regarding the ongoing emergency repair needs at seven sites located along a 32 kilometer (20-mile) stretch of Oregon State Highway 35. These sites are located at: White River (MP 61.7), Clark Creek (MP 65.9), Newton Creek (MP 67.5), The Narrows (MP 73), Polallie Creek (MP 74), Dog River (MP 78), and Baseline Road (MP 80). Due to debris flows originating on Mount Hood, emergency repairs at these sites have been a regular occurrence over the last 20-30 years, placing a burden on the limited resources available for undertaking road maintenance activities. They also have had negative impacts on the natural environment. The purpose of the study is to identify and analyze a wide range of feasible engineering solutions for the seven sites, including on-site solutions and alternative routes. The feasibility study is intended for planning purposes and is not considered a decision document as defined under the National Environmental Policy Act. The study is intended for use by the Oregon Department of Transportation and the United States Forest Service as a 'spring board' for future projects in the study area.

1.2.2.3 State Highway 35 Viewshed Management Guide

State Highway 35 is considered part of the "Mount Hood Loop" road system, which also includes Highway 26 around Mt. Hood and Interstate 84 in the Columbia River Gorge. The Mount Hood Loop is one of the most popular scenic drives in the state, and the OR 35 viewshed has national, state, and local significance. Therefore, the State Highway 35 Viewshed Management Guide is being prepared to guide landscape management of the National Forest System lands within the viewshed of OR 35 from the Hood River District offices in Parkdale south to Bennett Pass. The document is intended as a resource for analyzing activities within the viewshed. It outlines existing conditions in the viewshed, the desired visual condition for the viewshed, general guidelines for all activities within the viewshed, and visual quality objectives and guidelines for specific areas within the viewshed. ODOT currently is studying the Mt. Hood Loop Road's eligibility for inclusion on the National Register of Historic Places. The study is expected to be completed in 2003.

1.2.2.4 Mt. Hood Meadows Ski Area Supplemental Environmental Impact Statement/Record of Decision

A Supplemental Environmental Impact Statement (SEIS) discloses the environmental consequences of implementing a proposed master plan, and alternatives to the proposed plan for expansion of winter and summer recreation at the Mt. Hood Meadows Ski Area. The SEIS evaluates the potential impacts of five alternative development scenarios on the physical, biological, and human environments. In doing so, it describes many of the current characteristics of the area. It also describes mitigation measures that can be taken to avoid or reduce impacts from the alternatives considered.

Based upon the SEIS, the Forest Supervisor issued a Record of Decision (ROD) in January 1997 that provides conceptual direction for expansion of the Mt. Hood Meadows Ski Area over the next 10 to 20 years. Key aspects of the decision include:

- Approximately, a 60 percent increase in winter capacity (from 8,600 to 13,900 persons at one time);
- Limited increase in summer recreational opportunities with a long-term maximum capacity of 1,500 persons at one time;
- Expansion of existing parking by up to eight acres, with construction of additional parking to be phased, based upon an annual average background traffic growth rate of 2.6 percent on US Highway 26 (i.e., 0.8 acres of parking could be developed annually);
- Expansion of the permit area boundary by 96 acres in the Hood River Meadows area;

- Requirement that Mt. Hood Meadows, in cooperation with ODOT, develop a mitigation plan to address peak period congestion on Highway 26 attributable to the ski area prior to the approval of any additional parking; and
- Monitoring of the effectiveness of traffic mitigation measures and the correlation of ski area usage to total traffic volumes on Highway 26 and 35.

1.3 PLANS FOR HOOD RIVER COUNTY

The Hood River County Comprehensive Plan and zoning ordinances consist of four elements: the County Policy Document, the Comprehensive Plan Map, the Background Report, and the Exceptions Document.

1.3.1 County Policy Document (1991)

This is a statement of public policy, goals, strategies, and land use designations and standards. Goal 12, Transportation, is: “to provide a safe, convenient, and economic transportation system which is in harmony with the county’s land uses” and “a balanced transportation system to serve area needs.” There are 33 policies and 29 strategies to implement this goal. Many of the policies and strategies are very specific. Goal 12 (Transportation) of the County Policy Document was updated to reflect the Goals, Policies, and Strategies consistent with those in the TSP. Where needed, the original Goals, Policies, and Strategies of Goal 12 of the Policy Document have been retained; those that are duplicative or outdated have been removed.

1.3.2 Background Report (Amended August 1986)

The report contains an inventory and analysis for each county goal. The substantial background information it provides is the basis for the Policy Document, the plan and zoning delineations, and the zoning and subdivision ordinance text. The inventories and information in the County TSP serve as the Background Report for Goal 12.

1.3.3 Zoning Map (1995) and Zoning and Subdivision Ordinances (1989), The Comprehensive Plan Map (1984), and the Exceptions Document (1984)

The Comprehensive Plan Map implements the County Policy Document by delineating the land use designations intended for the planning period (Year 2000) on a plan map. The zoning maps and ordinances, in turn, implement the Comprehensive Plan Map. The zoning map gives zoning designation for specific parcels, while the ordinance provides standards and criteria for land use and development within the zones. The Exceptions Document presents data explaining why specific areas that would otherwise be designated for farm or forest use under the Statewide Planning Goals are instead designated for residential, commercial, or industrial uses.

1.3.4 Hood River County Draft Bicycle Plan (Summer 1990)

Hood River County Bicycle Plan inventories existing bicycle facilities; proposes future facilities; and presents guiding policies for bicycle facility planning. This document has been adopted by the County.

The guiding direction of the Plan is:

- The Hood River County Department of Public Works, Engineering Section, shall coordinate and facilitate the planning of proposed bicycle facilities to ensure concordance.
- Hood River County shall, within its means, accommodate and balance the needs of all bicyclists including, utilitarian, recreational, and mountain bike users.
- When conditions dictate, emphasis on the selection of a bikeway facility will be directed towards the existing county roadway system.
- Priority of selected routes considered are subject to revenue resources, expected use, and safety factors.

1.3.5 Hood River County Road Standards (Adopted April 1, 1985)

The county has written standards for eleven street types: driveways, local roads (rural), collector roads (rural); arterial roads (rural), residential roads (rural), residential roads (urban), commercial/industrial roads, cul-de-sacs (rural), cul-de-sacs (urban), forest/recreation access roads, and county/public or county forest roads. New standards have been developed as part of the 2002/03 update of this Plan. In May 2003, the County Commission adopted ‘Criteria for Acceptance of Roads into the Hood River County’s Road Maintenance System’ as an addendum to the County Road Standards document. The Hood River County Road Standards Document includes the engineering specifications for each road section; it will be updated by County Public Works to reflect the standards developed through this TSP.

Table 1-1 shows design standards for nine of these street classifications implemented on roads constructed between 1985 and part of 2003.

TABLE 1-1

HOOD RIVER COUNTY STREET DESIGN STANDARDS, 1985 - 2002

Street Classification	Right-of-Way Width	Travel Lanes (# - Width)	Sidewalks	Shoulder
Local Road Rural	60 ft (50*)	2 lanes, 11 ft	None	3 ft, unpaved
Collector Road Rural	60 ft	2 lanes, 12 ft	None	3 ft, unpaved
Arterial Road Rural	80 ft	2 lanes, 12 ft	None	6 ft, unpaved
Residential Road Rural	30 ft**, 50 ft***	2 lanes, 12 ft** 16 ft***	None	None
Residential Road Urban	60 ft	2 lanes, 15 ft	5 ft	None
Commercial/Industrial Road	80 ft	2 lanes, 20 ft	8 ft	None
Driveway Private	None	2 lanes, 6 to 24 ft	None	None
Cul-de-sac Rural	50 ft radius at turnaround	2 lanes, 11 ft	None	3 ft
Cul-de-sac Urban	50 ft radius at turnaround	2 lanes, 15 ft	5 ft	None

Street Classification	Right-of-Way Width	Travel Lanes (# - Width)	Sidewalks	Shoulder
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* Allowed if road is less than 1,320 ft long and serving ten or fewer dwellings.

** If serving four or less dwellings.

*** If serving five to ten dwellings.

The two types of streets not addressed in the table have lower standards. Streets classified as forest/recreation access roads are required to be 20 feet wide with a minimum 50-foot-wide right-of-way. Public or county forest roads must be a minimum of 12 feet wide with a turnout constructed at least every 1,000 feet. Also, curves in these streets with sight distance restricted to less than 300 feet must be widened to at least 20 feet. Neither classification requires a shoulder.

The county mandates that all roads have geometric designs conforming to the American Association of State Highway and Transportation Officials (AASHTO) standards for the anticipated traffic and classification of the road and structural and drainage designs based on accepted engineering practice.

1.3.6 Hood River County Fire Chiefs Association: Fire & Life Safety Requirements for Fire Department Access and Water Supplies

The Hood River County Fire Chiefs Association has designated standards for roads, intersections and accessways in the County. These standards include requirements for surface and loading capacities, turning radius, and grade conditions. These standards may supersede other County standards for local rural residential roads. However, the District Fire Chief also has the discretion to take exceptions to them where appropriate. On Residential Roads (Rural, Non-County Public or Private), County Public Works typically defers to the Fire District standards.

1.3.7 Findings of Compliance with Statewide Planning Goals and Acknowledged Plan Policies

As a result of reviewing and comparing the statewide plans and studies with this TSP for Hood River County, it was found that this TSP complies with the statewide goals and acknowledged plan policies.

1.4 OTHER RELEVANT PLANS AND STUDIES

1.4.1 City of Hood River Transportation System Plan (TSP) (Amended October, 2001)

The City of Hood River TSP describes existing conditions, traffic forecasts and proposed standards and improvements for transportation facilities within the City of Hood River. It also includes transportation-related goals, policies and actions for the City. It is organized by mode of transportation, including plans and standards for pedestrian, bicycle, transit and motor vehicle facilities, as well as information about other modes of travel including rail, air, water and major pipeline facilities. It describes transportation demand management strategies, estimated costs and funding sources for proposed improvement projects.

Standards identified in the City’s TSP are to be applied in existing and future areas of the City as transportation facilities are constructed and improved. The County’s TSP incorporates and adopts similar or identical standards

for road construction improvements, connectivity and access management for county facilities to be constructed in urban areas (e.g., urban developments within the urban growth area of Hood River). Both documents include a consistent list of transportation improvement projects in the Hood River urban growth area.

1.4.2 City of Cascade Locks Transportation System Plan (TSP) (Adopted November, 2001)

The City of Cascade Locks TSP describes existing conditions, traffic forecasts and proposed standards and improvements for transportation facilities within the City of Cascade Locks. It is organized in a manner similar to the County's TSP. It includes information on existing conditions, traffic forecasts, a proposed Transportation System Plan, standards for street design and access management, modal plans and information about historic and future funding of transportation projects.

Standards identified in the City's TSP are to be applied in existing and future areas of the City as transportation facilities are constructed and improved. The County's TSP incorporates similar standards for road improvements to be constructed in urban areas (e.g., urban developments within the urban growth area of Cascade Locks, including the portion of the Historic Columbia River Highway within the City of Cascade Locks – Forest Lane). However, some standards may vary, recognizing that there are few areas within the County that ultimately will be annexed into the City of Cascade Locks.

1.4.3 Hood River Airport Draft Master Plan 1990-2010 (July 1993)

The Hood River Airport Master Plan defines Hood River Airport needs and identifies methods to respond to those needs for the planning period 1990 to 2010. The plan consists of an inventory of the airport's facilities and local demography, a forecast of aviation demand, an inventory of the airport's facility requirements, an evaluation of current environmental conditions and environmental impacts of implementing the Master Plan, existing and future airport layout plans, airport land use plans, and a financial plan.

The Hood River Airport is owned and operated by the Port of Hood River. Located two miles southwest of the City of Hood River adjacent to Tucker Road/Highway 281, its service area includes all of Hood River County and portions of nearby Klickitat and Wasco Counties.

The Airport Master Plan calls for improvements in order to meet forecasted increases in demand for air service resulting from population and tourism/recreation growth in Hood River County. The plan recommends an extension to the runway and taxiway to increase approachability. This would entail relocation, closure, or lowering of Orchard Road and the eventual acquisition of approximately 103 acres of land. The plan also advocates relocating the fixed-base operator terminal area to the northern side of the runway and developing a new airport access road, an auto parking lot, and a public rest area. It also calls for adding 72 new T-hangar units and fencing in the active aircraft operating areas. The Port of Hood River currently is in the process of updating the Master Plan and expects to be finished in July 2003. The existing Master Plan being updated is 'Hood River Airport Master Plan, 1990-2010: Technical Report,' which was prepared by Century West Engineering Corporation.

1.4.3.1 East Fork Hood River Watershed Analysis

The Northwest Forest Plan requires that a watershed assessment be completed prior to authorizing and implementing new projects within key watersheds. A site-specific watershed analysis for the East Fork Hood River was completed in 1994 in association with expansion at the Mt. Hood Meadows Ski Area.

The analysis concluded that, overall, the East Fork Hood River watershed is in good condition. Natural disturbances, such as debris flows and high sediment loads of glacial origin, dominate the landscape. Timber harvest and associated road construction have had the most extensive management related impacts to the watershed. Present and future management direction emphasizes preservation of high quality habitat, maintenance and enhancement of viewsheds, maintenance of good water quality, and the provision of recreational opportunities. This management emphasis, in combination with the existing condition, is expected to ensure that the future condition of the East Fork Hood River watershed will, for the most part, remain within the range of natural conditions.

Under the Northwest Forest Plan, watershed analysis is recognized as an iterative process that evolves, as information gathering and analysis techniques are refined and as appropriate to consider additional information, changing conditions and potential effects associated with long-term management issue and needed actions. The site-specific East Fork Hood River watershed analysis was considered an “interim analysis,” and was based on existing information with the intent of providing a framework from which to build future analyses. The Forest Service is currently preparing a comprehensive East Fork/Middle Fork watershed analysis. Preliminary findings confirm the conclusion of the 1994 site-specific East Fork analysis.

1.4.3.2 White River National Wild and Scenic River Management Plan

Sections of the White River have been designated a Wild and Scenic River and are protected under the Wild and Scenic Rivers Act. The 1988 Omnibus Oregon Wild and Scenic Rivers Act (P.L. 100-557) designated that section of the White River from its headwaters to the confluence with the Deschutes River, just above Sherars Bridge, as Recreational River. The Forest Service administers the upper half, while the lower half is administered by the Bureau of Land Management (BLM). Outstandingly Remarkable Values for the designated sections include geology, hydrology, botany, fish habitat/populations, wildlife/populations, historic resources, recreation, and scenic resources.

A November 1994 DN/FONSI prepared jointly by the Mt. Hood National Forest and the Bureau of Land Management, Prineville District, adopted a management plan for the Wild and Scenic River. The adopted management plan includes management standards and guidelines, a recommended corridor boundary, and a designated viewshed. The management plan emphasizes naturalness over management such that resource management should not be readily apparent to most observers. Management would occur only as needed to protect river-related resources and to aid species recovery. Vegetation manipulation should occur as needed to repair any damage caused by recreational use or natural events, such as fire or blowdown, or to prevent the imminent loss of habitat from catastrophic levels of insects and disease. Limited vegetation management is allowed to improve scenic quality and to provide additional vistas in the upper segments of the river. Recreational uses should cause little disturbance of the other river-related values and should not create large areas of bare ground, cause excessive erosion, or disturb sensitive areas and plant and animal species. Facility redesign would limit recreation use to the same as present but afford better protection to the Outstandingly Remarkable Values. A wide variety of recreational activities are accommodated with preference for non-motorized pursuits, such as Nordic skiing and hiking. Recreational use levels would be allowed a slight increase over present levels.

Key management direction specific to Highway 35 includes:

- Rehabilitate openings, roads, parking areas, and other facilities to meet the established visual quality objectives (VQO) for the site or area.

- Achieve the VQO of Retention in the foreground and Partial Retention in the middle ground and background from White River.
- Achieve the VQO of Partial Retention from all distance zones from Mt. Hood Meadows and Highway 35 snow-parks.
- Properly locate all recreation facilities, such as trails, trailheads, parking, and so forth, in relation to the outstandingly remarkable values for the river and in relation to threatened, endangered, and sensitive plant and animal species populations and habitat, and in relation to cultural resource sites.
- Prohibit motorized recreational vehicle use north of Highway 35 and its parking area.

1.4.3.3 Hood River Watershed Assessment, December, 1999

The Hood River Watershed Assessment was a project of the Hood River Soil & Water Conservation District and the Hood River Watershed Group, a forum of landowners, businesses, growers, sports fishers, irrigation/water districts, individuals, state, federal and tribal agencies, and local government. The purpose of the assessment was to characterize watershed and stream habitat conditions to support planning for watershed health and fish recovery efforts. Its geographic scope covers the whole Hood River sub-basin. The Hood River watershed supports bull trout, spring chinook salmon, summer and winter steelhead, rainbow and cutthroat trout, and lesser numbers of fall chinook and coho salmon. In 1998, bull trout and steelhead in the Hood River were listed as threatened under the Endangered Species Act. The Assessment focuses on freshwater habitat conditions. It was used to develop the Hood River Watershed Action Plan.

1.4.3.4 The Hood River Watershed Action Plan, June, 2002

The Hood River Watershed Action Plan is a voluntary community-based plan to protect the watershed prepared by landowners, agriculture, and affected interests working with local-level natural resource managers. In developing the goals of the Action Plan, the Watershed Group drew on the Hood River Watershed Assessment prepared in 1999, which identified stream areas that are particularly important from a biological standpoint given current information.

One of the main goals of the Hood River Watershed Action Plan is to improve fish passage conditions where affected by artificial impediments. Dams and road culverts impede the upstream migration of juvenile and adult salmonids at numerous sites in the watershed. The Action Plan also includes these transportation-related measures: 1) address floodplain confinement along Highway 35; 2) reduce road sediment runoff into streams; 3) replace culverts that are inadequately sized to pass storm flows; 4) improve roadside ditch maintenance practices; and 5) address road kill of wildlife caused by existing Highway 84 median barrier design. (Appendix 1 from the Watershed Action Plan, prepared by ODOT and ODFW, identifies all currently known fish passage remediation needs at road crossings in Hood River County.)

2. PUBLIC INVOLVEMENT/GOALS AND OBJECTIVES

2.1 INTRODUCTION

One of the purposes of this document is to identify goals, policies and objectives for the Hood River County Transportation System. This plan and the objectives, goals and policies it incorporates were prepared as a cooperative effort of the Oregon Department of Transportation, the cities of Hood River and Cascade Locks, and Hood River County in 1997. Local government staff and consultants drafted the document, with guidance from a Technical Advisory Committee consisting of key stakeholders. In 2002/2003, the plan was updated by a similar project team, again with guidance from a Technical Advisory Committee representing a broad range of local stakeholders and interests.

The goals, objectives and policies outlined in this plan are consistent with the same elements of the Transportation System Plans of the cities of Cascade Locks and Hood River, as well as the Hood River-Mt. Hood Summit (OR 35) Corridor Plan, adopted by the Oregon Transportation Commission in 1999.

Primary functions of the rural Hood River County transportation system are to ensure the safe and efficient movement of people, goods, and services within the county and to provide local access to residences, commercial businesses, agricultural and forestry operations and recreational sites. County roads also serve as alternate routes during state highway closures.

2.2 ASSUMPTIONS

A number of assumptions are made related to other planning efforts, use of the transportation system, and other factors. These assumptions, which are not repeated as goals, policies or objectives, include:

- Standard levels of roadway maintenance and repair.
- The majority of growth occurring outside the Hood River and Cascade Locks urban growth boundaries (UGBs) is concentrated in Odell and exception areas (i.e., areas zoned for non-farm or non-forest use).
- Increasing recreational use of the transportation system, including increasing bicycle and pedestrian traffic within urbanized areas and along OR Highway 35, the Historic Columbia River Highway (HCRH), and other roads.
- Environmental constraints to highway improvements.
- Establishment of management direction for the Historic Columbia River Highway (HCRH) through the HCRH Master Plan.
- Regulation of design and development within portions of the county by the Columbia River Gorge National Scenic Area Management Plan.
- Refinement of management direction and uses of Forest Service roads through the Mt. Hood National Forest Access Travel Management Plan.

- With the reduction of National Forest timber receipts, an increased need for new funding sources to maintain the existing County road system.
- Construction of new roads expected to be limited to “local” roads, rather than state facilities, in the foreseeable future.
- Continued operation of the Hood River Highway (281) and Odell Highway (282) by ODOT as district level facilities.
- No I-84 capacity improvements except for interchange improvements where warranted, e.g., OR 35/I-84 interchange.

2.3 PUBLIC AND AGENCY INVOLVEMENT

The Hood River County Transportation System Plan was developed with the active participation of local governments in the County, transportation and other stakeholder groups, and the general public. These participants have been involved in development of the Plan through the following mechanisms.

2.3.1 Project Management Team

A Project Management Team (PMT) is composed of local government and ODOT staff representatives and transportation planning and public involvement consultants. The 10-member PMT served as the project staff, developing draft products for Technical Advisory Committee and local government review and approval. A similar project team updated the Plan in 2002-2003.

2.3.2 Technical Advisory Committee

A Technical Advisory Committee (TAC) composed of representatives of the cities of Hood River and Cascade Locks, Hood River County, the Confederated Tribes of the Warm Springs Reservation, the ports and other local governments within the county, other transportation service providers in the county, and key stakeholder groups. This group served as a review and steering committee for development of the TSP. It met eight times between 1995 and 1997, as the plan was prepared. A similar group was convened to assist in updating the plan in 2002-2003. The TAC met four times during this period.

2.3.3 Issues Survey

A survey of transportation interest groups and other parties was distributed in October 1995 to solicit input on issues to be addressed in the Plan. This survey and other information about the planning process was also distributed at the October 1995 Hood River Harvest Festival.

2.3.4 Project Newsletters

To assist in preparing the initial TSP, a newsletter update on the Transportation Plan was widely distributed in September 1996. The newsletter provided notice of open houses to be conducted on the Plan and solicited input through a questionnaire on key objectives drafted by the TAC. During the TSP update, informational materials

were provided to interested parties in Hood River County. Media releases also were distributed to announce public meetings to review the updated Plan.

2.3.5 Open Houses

In developing the TSP in 1995-1997, two public open houses were held in Hood River and in Cascade Locks. The purpose of the open houses was to disseminate information on the transportation planning process and to solicit public input on preliminary goals, objectives and implementation actions to be addressed in the TSP. The open houses were advertised through a September 1996 newsletter, press releases, public service announcements and paid advertisements in the *Hood River News*. During the process of updating the TSP in 2002-2003, a public open house was conducted in December 2002 with similar objectives. In addition to the public Open House on the TSP, public meetings to designate Odell and Parkdale as unincorporated communities as part of the County's Goal 14 ('Urbanization') Periodic Review Work Task took place at the same time as the 2002-2003 TSP update. This provided an opportunity for information on the County's TSP to be disseminated at the public meetings in those communities.

2.3.6 State Agency Review

A draft of the 1997 TSP was reviewed by ODOT headquarters and regional staff and by two statewide groups established by ODOT to provide input on the agency's corridor planning process - Statewide Agency Coordinating Committee and Statewide Stakeholders Group. Similarly, the update of the plan was reviewed by ODOT regional staff and representatives of the Transportation and Growth Management program.

2.4 GOALS, POLICIES AND STRATEGIES FOR HOOD RIVER COUNTY

The following goals, policies, and strategies are intended to guide future development of transportation facilities in Hood River County.

Goals are broad statements indicating a desired end or aspiration including the direction the County will take to achieve that end. Goals are consistent with statewide planning goals.

Policies indicate a definitive course of action to implement a goal. It may not be the only action the County takes to implement the goal. The County must follow relevant policies when administering decisions or developing other plans or ordinances that affect transportation planning.

Strategies outline specific County activities, actions, projects or standards, which if executed, would implement goals and policies. They also refer to course of action the County may desire other jurisdictions to take in implementing this Plan. Strategies are suggestions to County decision-makers on ways to implement goals and policies. Completion of projects, adoption of standards, or creation of relationships or agreements outlined in strategies will depend on a number of factors such as County priorities, finances and staff availability.

Policies in the County's Policy Document were amended as part of the process of updating the TSP.

2.4.1 Goal A: Transportation Balance

Design a balanced transportation system that maximizes the efficiency of the existing system, provides transportation options at appropriate minimum service standards, reduces reliance on the single occupant

automobile where other modes or choices can be made available, and takes advantage of the inherent efficiencies of each mode, while providing a safe, convenient, and economic transportation system to serve area needs that is in harmony with the County's land uses.

A1. Automobile

Policies

- Establish a network of arterials, collectors, and local streets that are interconnected, appropriately spaced to meet needs, and minimize out-of-direction travel.
- Provide a county road system that meets the needs for travel between and through the county, recognizing the needs for both local and through travel, with OR 35 and the Hood River Highway (281) as the primary through routes.
- Identify solutions to address the need for westside north-south circulation to accommodate westside growth.

Strategies

- Accommodate needs for all modes of travel through Transportation Demand Management (TDM) strategies and other measures.
- To improve westside north-south circulation, investigate improvements to the existing road system, construction of a new westside access, TDM measures, and other alternatives.
- Accommodate increased tourist traffic through better access to attractions, improved signage, and other measures.
- Promote strategies that increase average automobile occupancy.

A2. Bicycles and Pedestrians

Policies

- Provide a network of safe and convenient bicycle and pedestrian facilities that connects residential areas to parks, school, commercial centers, and other areas and is integrated into the overall transportation system.
- Locate and design recreational and bicycle pathways so as to balance the needs of human use and enjoyment with resource preservation in identified Natural Resource areas.
- Develop a safe, complete, attractive, and efficient system of pedestrian and bicycle ways, including bike lanes, shared roadways, off-street pathways and sidewalks. Road standards shall address bicycle and pedestrian paths.
- When development or redevelopment of land occurs, provide bike and pedestrian facilities that are consistent with standards and policies of this plan.

- Provide connectivity to each area of the County for convenient multi-modal access.

Strategies

- Recognize both local and through travel needs in designing bicycle and pedestrian facilities.
- Improve signing of bikeways, particularly destination signing.
- Require bikeways along arterials and major collectors.
- Add or improve bike lanes or widen shoulders as part of improvements to the roadway system, including improvements to roads used to access recreational bicycle areas.
- Locate and design recreational and bicycle pathways to balance the needs of people with resource protection in identified Natural Resource protection areas.
- Create alternative routes to specific destinations to avoid conflicts with other modes; provide signage to direct bicyclists to alternative routes.
- Investigate opportunities to site services, e.g., parking and camping, for cyclists.
- Investigate alternative funding sources, use of volunteer groups, and other methods for off-highway bikeway maintenance.
- At a minimum, provide five-foot shoulders to accommodate bicycle use on state highways and local arterial streets, and a minimum 4' shoulder on collector streets where warranted.
- Provide connections to local bicycle and hiking systems where feasible; provide signage or other means to facilitate access, as appropriate.
- Improve the safety of pedestrian crossings in rural centers, e.g., AGA and Davis Roads in Odell.
- Improve signing and lighting of pedestrian crossings in rural centers to improve pedestrian safety.
- Develop an interconnected pedestrian system that includes Trail 400, HCRH, and Chinook Trail (loop hiking trail).
- Promote strategies that increase the share of bicycle and pedestrian trips as a percentage of all trips.
- Access should be provided to the following trailheads: Perham Creek (Wygant Trail), Mt. Defiance Trail (No. 413), Herman Creek Trail (No. 406), Wyeth Trail (No. 411), Ruckle Creek Trail (No. 405), Cabin Creek Trail, and the trail leading to the Old Dalles-Sandy Wagon Road on Shellrock Mountain.

- The construction and maintenance of the Columbia Gorge Trail and other State and Federal hiking, horse, and bicycle trails shall be supported.

A3. *Public Transit*

Policy

- Promote the increased use of transit as a current and future alternative to automobiles and to serve the needs of the transportation disadvantaged in all areas of the County.

Strategies

- Ensure the continuity of transit services.
- Investigate the feasibility of transit services to Washington communities to reduce commuting.
- Utilize public transit as a primary means to ensure transportation accessibility for the transportation disadvantaged.
- Incorporate public transit service needs in land use decisions.
- Investigate opportunities to provide shuttle services to ski areas.
- Establish a multi-modal transportation center.
- Encourage the Transit District to conduct an education campaign on available transit services.
- Work with public transit providers to develop “Park and Ride” and “Park and Pool” lots and additional bus stops and shelters, as needed.
- Promote strategies that increase the transit trips as a percentage of all trips.
- The provision of bus service connecting at least the communities of Parkdale, Mt. Hood and Odell with the City of Hood River shall be encouraged.
- A local service organization or other group should be encouraged to promote carpooling.

A4. *Rail Service*

Policies

- Accommodate the movement of freight and excursion uses on rail.
- Ensure interconnection of rail with other modes.

Strategies

- Make infrastructure improvements (railroad, streets, utilities, etc.) needed to enhance the investment climate for rail users.
- Upgrade rail crossings in conjunction with other roadway improvements.
- Maintain historic access points across the railroad to the river and to recreation sites. Develop additional formal crossings to allow recreational access to the Columbia River.
- Promote excursion tourism uses on the Union Pacific Railroad (UPRR), with connections to the Washington side of the Gorge.
- Explore opportunities for dedicated service to ski areas from Portland via railroad/buses.
- Provide additional signage, flashing lights at railroad crossings, e.g., at Government Rock.
- Investigate opportunities for grade-separated crossings to replace at-grade crossings.
- Explore railbanking opportunities if the Mt. Hood Railroad is closed.
- Consistent with environmental constraints, promote double-tracking of UPRR sections to provide more capacity.
- Maintain active rail service to Parkdale for both freight and excursions.
- Target industrial recruitment on rail shippers.
- Promote passenger rail service to Hood River and Cascade Locks.

A5. *Truck Freight*

Policy

- Ensure accommodation of truck freight to serve the farming and forestry sectors of the county's economy.

Strategies

- Address conflicts between farm vehicles and autos in the upper valley through signage and increased highway shoulder widths.
- Improve truck access to industrial sites, including turn and acceleration/deceleration lanes where appropriate.
- Develop a management plan for truck refuge during I-84 emergency and weather closures.

- Review and modify if needed, the current hazardous materials response program. Identify potentially unsafe locations (e.g., access/egress points to industrial sites) and develop necessary improvements to accommodate customary freight transport needs.
- Participate in efforts to explore the need for and feasibility of long-term improvement to the bridge between Hood River and White Salmon/Bingen, Washington.

A6. *Other Modes (e.g., air service, water transport, pipelines, telecommunications)*

Policies

- Promote transportation modes that reduce the reliance upon automobiles as the primary transportation mode.
- In order to not preclude future expansion of the airport, new residential and commercial land use that is not airport-related shall be controlled in the Airport Approach Zone “overlay zone.”
- Barge service facilities will be expanded where warranted by industrial needs.
- Cascade Locks Airport will be maintained as an important emergency landing facility for the Columbia Gorge Area.
- Placement of new utility routes on existing transportation rights-of-way will be encouraged.

Strategies

- Implement land use regulations to protect against land use encroachments adjacent to airports.
- In lieu of developing new airports, protect existing public use airports.
- Investigate means to address conflicts associated with the proximity of private airports to highways, e.g., signage, land use controls, etc.
- Improve access to port facilities.
- Identify means to reduce conflicts among commercial and recreational waterway users.
- Accommodate pipelines in highway rights-of-way.
- To the extent feasible, utilize pipeline rights-of-way as bicycle and pedestrian pathways and wildlife corridors.
- Promote telecommunication technologies and programs that reduce vehicle miles traveled.
- Coordinate the installation of fiber optics with highway improvements.

- Coordinate with the Department of Transportation to implement the highway improvements listed in the Statewide Transportation Improvement Program (STIP) that are consistent with the Transportation System Plan and comprehensive plan.
- The “Hood River Airport Master Plan, 1977-2000: (Century West Engineering Corporation)” shall be used as a guideline when decisions are made regarding land uses in and around the airport.
- The Airport Approach Overlay Zone shall be used to administer land use and height restrictions on lands in the Columbia Gorge Area adjacent to the Cascade Locks Airport and in the area adjacent to the Hood River Airport to comply with Federal Aviation Regulation #77.

2.4.2 GOAL B. CONNECTIVITY

Provide a transportation system with connectivity among modes within and between the County’s urban areas and rural service centers, with ease of transfer among modes and between local and state transportation systems.

Policies

- In lieu of major capacity expansions, strive to maintain existing travel times for both autos and freight through high levels of facility management (acceleration/deceleration lanes, turn refuges, coordinated signals, and access management).
- Provide an interconnected network of local streets (alternate routes) in urban and rural community centers as development occurs.
- Extensions and improvements of existing roads will be considered as a means to help alleviate high traffic volume areas and mismatched streets.
- The alternatives recommended in the Hood River County, Westside Area North-South Feasibility Study will be taken into consideration when developing the County’s transportation system (Spanovich-McFarlane and Associates, June, 1982), including the possibility of re-routing Hwy 281 from the west freeway exit to Windmaster Corner.

Strategies

- Construct additional passing/climbing lanes as appropriate to maintain travel times, e.g., 13th Street in Hood River, Highway 281, OR 35 north of Neal Creek Road and between US 26 and Mt. Hood Meadows.
- Investigate improvements to the Highway 35/Highway 281 junction to promote safety and maintain travel times.
- Promote use of parallel routes to reduce reliance on state facilities for local trips.
- Improve signage to inform travelers of route choices available. Support development of traveler information systems, especially on the Mt. Hood Loop and SR 14.

- Develop an intermodal center(s) in the City of Hood River to improve both regional and local intermodal connectivity.
- Investigate opportunities and implications of county assumption of Forest Service roads and state highways.
- Investigate the need for improvements to reduce congestion and delay at Button Junction.
- Investigate the need for improvements to the Highway 35/I-84 interchange. Participate in other studies that are exploring changes to this intersection.
- Investigate the need for a left turn lane from Highway 35 to Cooper Spur Road.
- Participate in efforts to explore the need for and feasibility of long-term improvement to the bridge between Hood River and White Salmon/Bingen, Washington.
- Within the urban growth area of Hood River, implement policies of the City of Hood River regarding local street connectivity as urban development occurs. Policies include:
 - Design local streets to serve local traffic and limit non-neighborhood cut-through traffic.
 - For large developments, require creation of complete blocks bounded by a network of public and private streets.
 - Implement standards for block and cul-de-sac length appropriate for urban areas, as identified in the County development codes.
 - Provide additional pathways for bicycles and pedestrians for large blocks or cul-de-sacs that exceed certain standards as identified in the County development codes.
- Utilize the City of Hood River’s Local Street Connectivity Plan in identifying locations for future local streets in the Hood River urban growth area, recognizing that proposed locations are conceptual in nature and may be modified based on factors such as topography, geography, demand for growth and services, and other conditions.

2.4.3 GOAL C. HIGHWAY & ROADWAY CONGESTION

Define minimum levels of service and assure balanced, multi-modal accessibility to existing and new development to achieve the goal of compact, highly livable urban areas and rural community centers.

Policies

- Access management and other transportation related land use controls will be used to help protect the rural nature of agricultural lands.
- Industrial collectors shall be developed to provide for direct routes to industrial areas.

- The use of common driveway access from two or more properties onto arterials and collectors shall be encouraged. Additional driveways should be connected to minor collectors and local roads when possible, and connected to arterials only as a last resort.

Strategies

- Ensure coordination between the County and the State to effectively implement access management requirements as mandated for state highways in OAR 734-051 and to balance state requirements with the needs of specific land uses and property owners.
- Ensure consistency in street classifications, and speed and access standards with other jurisdictions in the county.
- Consolidate access points in rural centers; encourage creation of shared driveways on state highways, while maintaining existing access to individual properties and land uses where possible.
- Adopt and implement access management standards for collector streets in urban growth areas consistent with those implemented by the cities of Hood River and Cascade Locks.
- Adopt additional access management standards for other roads in the County, as appropriate and needed.
- Achieve mobility standards for state facilities as established in the Oregon Highway Plan and further described in Chapter 3, Section 3.7 of the County TSP.
- Investigate improvements included in Section 2.4.4 of the County TSP to improve traffic safety.
- Develop requirements for special events to effectively manage traffic (e.g., required traffic management plans as part of a special event permitting process).
- Descriptive direction signs should be placed on arterials carrying traffic from freeway interchanges.

2.4.4 GOAL D. ROADWAY CONDITIONS

Ensure adequate roadway conditions to meet goals regarding accessibility, levels of service and reduced congestion.

Policies

- Maintain existing facilities as the highest priority for the allocation of resources.
- In laying out future road networks, where possible, roads shall parallel existing lots to avoid division of land under one ownership, unless no feasible alternative exists.

- Performance standards should be considered as a possible means to help regulate commercial and industrial development.
- High capacity road networks shall be developed for expected high growth and high density areas.

Strategies

- Preserve the roadway by investing in roadbed and pavement reconstruction as needed to minimize maintenance costs.
- Maintain state roadway surface conditions pursuant to state pavement management system standards.
- Maintain County roadway network Pavement Condition Index at 70 or above.
- Ensure that speed limits are consistent with roadway geometry and other factors used to determine and designate appropriate posted speeds.
- Improve intersections with limited sight distances by realignment and/or other means.
- Target realignment and widening to sections with above average accident rates and to sections with high congestion rates where there is a favorable cost/benefit ratio.
- In the short term, target pavement of substandard shoulders to “easy fix”/low cost areas.
- Review and modify as needed maintenance priorities to focus on key locations, e.g., steep grade entering into Hood River and between Mt. Hood Meadows and the US 26/OR 35 intersection.
- Strengthen enforcement of speed and weight restrictions to extend roadway longevity.
- Upgrade substandard guardrails and shoulders.
- Require mitigation for storm runoff with new developments.
- Address drainage problems including those that affect the function and condition of the roadway (e.g., along Clark Creek section of OR 35 and steep downhill into Hood River); water ponding; lack of drainage systems for older highway sections; and drainage from I-84, US 30 and other state facilities onto private property.
- Explore the use of cooperative agreements between the County and other road jurisdictions as a means to reduce maintenance costs on all agency-maintained roads.
- Work with the Gorge Commission, ODOT, and Forest Service to identify additional long-term aggregate sources.
- Explore use of a “green street” standard for use on selected roads to reduce stormwater runoff and impervious surfaces.

- Investigate long-term solutions to road wash-out problems along Highway 35 between Baseline Road and White River.¹
- The State Highway Department should be encouraged to place warning signals at all locations where arterials and collectors cross railways in the County.

2.4.5 GOAL E. SAFETY

Integrate safety as a primary consideration in the design, improvement and maintenance of the transportation system.

Policy

- Identify and implement measures to enhance transportation user safety and reduce accident rates.

Strategies

- Target improvements to highway sections with above average accident rates based on Safety Priority Index System (SPIS) accident data compiled by ODOT.
- Apply facility management techniques, including access management, to improve safety in congested areas.
- Promote cooperative enforcement among police and sheriff offices and target enforcement activities to high-accident locations.
- Investigate the need for more deer crossing warning signs in upper Hood River Valley.
- Explore the need for larger clear zones to improve ice melt and decrease road kill.
- Investigate the feasibility of signage to indicate lane locations when snow-covered.
- Improve lighting at key locations (e.g., I-84/OR 35 intersection) and maintain delineation (e.g., fog lines, reflector buttons) to be highly visible.
- Install safety barriers, e.g., guard rails, gabions, in high hazard locations to meet highway safety standards.
- Install weather condition monitoring devices at strategic locations.
- Review and modify if needed, the current hazardous materials response program. Identify potentially unsafe locations (e.g., access/egress points to industrial sites) and develop necessary improvements to accommodate customary freight transport needs.

¹ This action is being investigated as part of the Highway 35 Feasibility Study, due to be completed in 2003.

- Address needed safety improvements at OR 35/Odell Highway intersection, e.g., better signage, more downhill turning storage.
- Investigate the need for additional school bus stop signage.
- Investigate the need for and feasibility of reducing lateral grades to safe levels on all corners on Highway 35 between Highway 26 and Mt. Hood Meadows.
- Encourage ODOT to establish appropriate speed zones on County roads.
- All dangerous intersections and curves shall be studied by the Public Works Department and needed improvements recommended.

2.4.6 GOAL F. ENVIRONMENTAL AND ENERGY IMPACTS

Avoid effects to the natural and built environments in the design, construction and operation of the transportation system. Where adverse effects cannot be avoided, minimize or mitigate their effect on the environment.

Policies

- Transportation improvement projects shall avoid impacting identified natural areas, and will seek to rectify previous negative impacts to these resources when possible.
- Transportation improvement projects shall minimize impacting identified scenic areas, and will seek opportunities to rectify previous negative impacts to these resources when possible.
- The adverse effects of transportation on air quality should be minimized.
- Energy efficient and low pollution transportation modes shall be encouraged.
- The roadside stabilization role of living vegetation should be recognized.

Strategies

- Integrate vegetation management measures into road management and maintenance activities to create and protect scenic vistas, e.g., scenic buffers for timber harvests, and to replace or mitigate for vegetation lost to transportation system projects.
- Limit use of billboards and signs, particularly in scenic areas, consistent with County sign ordinances and related regulations. Investigate alternatives to billboards, e.g., Oregon Tourism Alliance travel information program.
- Identify and construct additional roadside turnoffs at scenic viewpoints.
- As part of transportation projects, implement protection measures for scenic resources identified in the Comprehensive Plan, where practical and feasible.

- Implement recommendations on road improvement and maintenance practices from the Governor's Salmon Recovery Plan, the Oregon Plan for Salmon and Watersheds, and the Hood River Watershed Action Plan.
- Minimize impacts from the transportation system, particularly local roads connecting to OR 35, on wildlife migration routes.
- Work with state, federal and local agencies and groups to reduce visual, air and noise pollution impacts related to Interstate 84.
- Promote more energy-efficient freight movement by rail and water.
- Promote the use of alternative fuels.
- Design roadway improvements and new facilities to minimize surface runoff and pollutants.
- Identify solutions to resolve existing drainage problems.
- Improve the collection of sand and gravel from roadways to avoid/minimize impacts to water courses.
- Encourage and implement standards for road construction that minimize pavement width, consistent with other goals and policies related to safety and bicycle and pedestrian mobility.
- Investigate use of natural drainage facilities in developing/constructing transportation facilities.
- Encourage undergrounding of utilities, where feasible and appropriate.
- Minimize noise impacts through enforcement of current County noise ordinances and consideration of other measures (e.g., sound walls).
- Transportation systems should be planned to utilize existing facilities and rights-of-way, wherever possible, provided that such use is consistent with the environmental and energy policies of the State.
- The State shall be encouraged to provide litter cans on all State-funded highways.

2.4.7 GOAL G. SOCIAL AND LAND USE IMPACTS

Develop a transportation system that supports planned land uses and balances the expansion of transportation facilities with the protection of social, cultural and environmental resources.

Policies

- Encourage efficient transportation services that reduce vehicle miles traveled and promote a live/work balance, e.g., increased densities, infill and clustered development, mixed uses, maximum parking ratios, and circulation systems that reduce out-of-direction travel.

- Design transportation system improvements to preserve community livability and to avoid, minimize or eliminate impacts to sensitive cultural resources and other community resources.
- Ensure that land use regulations support the provision of efficient transportation services.
- Major transportation facilities shall avoid dividing existing economic farm units unless no feasible alternatives exist.
- Additional transportation facilities that would detract from the County's scenic beauty should not be constructed.
- Recreational opportunities should be served by public transportation.
- All area-wide transportation studies and plans should conform with the County's comprehensive plan.
- Historical roads should be revitalized for recreational use and historic preservation.

Strategies

- Integrate transportation system improvements identified through rural community planning efforts into the county Transportation System Plan.
- Promote cooperation between ODOT and local governments in planning and project development.
- Utilize access management to limit the impacts of new development on highway congestion.
- Work with ODOT to ensure that the needs and input of local property owners in the County are balanced with mobility objectives and state requirements in approving or controlling access to properties located adjacent to state highways.
- Maintain standards for setbacks adjacent to state rights-of-way.
- Take advantage of multi-modal capabilities/capacities to promote development that is not solely auto/truck dependent.
- Encourage building siting and design to reduce noise and visual impacts from adjacent transportation facilities.
- Encourage compact development patterns in urban areas to reduce infrastructure needs and miles traveled.
- Consider the findings of ODOT's draft Environmental Impact Statements and Environmental Assessments as integral parts of the land use decision-making procedures.

- Transportation systems should be planned to utilize existing facilities and rights-of-way provided that such use is consistent with the social or land use policies of the State.
- The County Planning Commission shall review all local and regional transportation plans to ensure compliance with the Comprehensive Plan.
- The Public Works Department, Planning Department and interested citizens shall design a plan to improve traffic circulation, parking, and pedestrian safety in Odell.
- Additional interpretive signs should be provided at rest areas, turnouts and the Old Dalles-Sandy Wagon Road to give travelers a better understanding of the Gorge's geological and cultural characteristics.

2.4.8 GOAL H. ECONOMIC IMPACTS

Expand and diversify the County's economy through the efficient movement of goods, services and passengers in a safe, energy-efficient and environmentally sound manner.

Policies

- Recognize Regional Strategies for important County industries such as agriculture, developed and other recreation, tourism and software.
- Grant high priority to projects that promote efficient transportation system connections to existing and planned industrial and commercial sites.
- Improve convenient access to a variety of recreational opportunities.

Strategies

- Promote I-84/OR 35 as an alternative route from Portland to Mt. Hood recreation areas. Specific strategies could include signage on I-84 near Troutdale and Hood River identifying OR 35 as an alternative route.
- Provide connections to recreational trails.
- Promote the marketing of the Mt. Hood Loop, the "Fruit Loop" and other tour routes within the County.
- Promote bicycle-related tourism and recreation.
- Promote excursions, water, and year-round recreation uses.
- Support projects identified through the Regional Strategies Program and other economic development activities through appropriate transportation system improvements.

- In coordination with ODOT and the Forest Service, provide adequate sno-parks to meet recreation demand.
- Participate in efforts to explore the need for and feasibility of long-term improvement to the bridge between Hood River and White Salmon/Bingen, Washington.
- Transportation systems should be planned to utilize existing facilities and rights-of-way provided that such use is consistent with the economic policies of the State.

2.4.9 GOAL I. FUNDING

Ensure adequate funding of needed transportation system improvements.

Policies

- Identify sources and strategies to fund needed transportation system improvements.
- The transportation system shall provide facilities and services at the least possible cost to the community and the environment, as long as it does not conflict with other goals.

Strategies

- Allocate resources to highway and roadway projects according to the following priorities:
 - (1) Maintenance of the existing facility to ensure that it remains safe and functional, e.g., fixing potholes;
 - (2) Preservation of the roadway by investing in roadbed and pavement as needed to minimize maintenance costs;
 - (3) Safety improvements;
 - (4) Managing the existing system to maximize capacity/operation; and
 - (5) Capacity improvements.
- Investigate alternative mechanisms to finance transportation system improvements, e.g., public/private partnerships, tollways, road maintenance improvement districts, systems development charges, etc.
- County Planning and Public Works shall establish a Capital Improvements Program (CIP) to implement the Transportation System Plan.

3. CURRENT CONDITIONS

3.1 INTRODUCTION

Current transportation conditions of the planning area serve as a basis for the Transportation System Plan. These conditions are the result of many factors, including policies, employment, population, and funding availability. The traffic generated in the county is a combination of both external and internal forces. The existing roadway and traffic conditions illustrated in this chapter will be used as the basis for forecasts made in Chapter 4.

As part of the planning process, David Evans and Associates, Inc. (DEA) conducted an inventory of the existing transportation system in Hood River County. This inventory covered the street system as well as the pedestrian, bikeway, public transportation, rail, air, water, and pipeline systems as they apply to Hood River County.

3.2 ROADWAY SYSTEM

Many people think of transportation in terms of roadways carrying cars and trucks. Most transportation dollars are devoted to building, maintaining, or planning roads to carry automobiles and trucks. The mobility provided by the personal automobile has resulted in a great reliance on this form of transportation. Likewise, the ability of trucks to carry freight to nearly any destination has greatly increased their use.

Encouraging the use of cars and trucks must be balanced against costs, livability factors, the ability to accommodate other modes of transportation, and negative impacts on adjacent land uses. However, the basis of transportation in all American cities is the roadway system. This trend is evident in the existing Hood River County transportation system, which consists predominantly of roadway facilities for cars and trucks. The street system most likely will continue to be the primary foundation of the transportation system for at least the 20-year planning period; therefore, the emphasis of this plan is on improving the existing street system for all users, including alternative modes of travel.

The existing road system inventory was reviewed for all state highways (arterials) and major county roadways (collectors and one arterial segment) within the Hood River County TSP planning area. **Appendix B** includes a complete inventory of state highways and major county collector roads prepared by DEA based on information provided by ODOT and Hood River County.

The roads in the unincorporated or rural areas of Hood River County fall under three categories: state, county, and other public and private roadways that are not under state or county jurisdiction. The state highways generally function as arterials throughout the county. The county roads generally function as collectors and local roads, and the other public and private roads generally function as local roads. **Figure 3-1** shows the existing functional classification of the state highway and major county road system in the Hood River County TSP planning area.

3.2.1 State Highways

State highways often function as arterial streets, forming the primary roadway network within and through a region. They provide a continuous road system that distributes traffic between cities. Generally, arterial streets are high capacity roadways that carry high traffic volumes. However, in Hood River County, the state highways that act as arterial streets often serve a combination of statewide, regional, and local traffic demands.

Although Hood River County has no direct control over the state highways, the highways heavily influence adjacent development as well as traffic patterns. The five state highways listed in **Table 3-1** serve Hood River County. They are the county’s major transportation routes, with much of the county’s commercial and industrial development focused along them.

TABLE 3-1
STATE HIGHWAYS

Highway Route	Highway Name	Classification (Special Purpose Classification)	ODOT Highway Number
I-84/US 30	Columbia River Highway	Interstate (I-84 is a statewide freight route)	2
US 30	Historic Columbia River Highway	District	100
OR 35	Mt. Hood Highway	Statewide	26
Hwy 281	Hood River Highway	District	281
Hwy 282	Odell Highway	District	282

Source: 1999 Oregon Highway Plan

3.2.2 State Highway Classification System

The *1999 Oregon Highway Plan (OHP)* classifies the state highway system into five categories based on function: interstate, statewide, regional, district, and local interest roads. Hood River County highway classifications are listed in **Table 3-1**.

According to the OHP, the primary function of interstate highways is to "provide connections to major cities, regions of the state, and other states." Providing connections for regional trips within the metropolitan area is a secondary function. The management objective for interstate highways is to " provide for safe and efficient high-speed continuous-flow operation in urban and rural areas."

The primary function of a statewide highway is to “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.” Providing connections for intra-urban and intra-regional trips is a secondary function. The management objective for statewide highways is to “provide safe and efficient, high-speed, continuous-flow operation.”

The OHP states that district highways are facilities of county-wide significance and function largely as county and city arterials or collectors. The primary function of a district highway is to “provide connections and links between small urbanized areas, rural centers and urban hubs, and also serve local access and traffic.” The management objective for a district highway is to “provide 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.

3.2.3 Special Purpose Classification System

In addition to the state highway classification system, the OHP establishes four special purpose classifications: land use, statewide freight route, scenic byways, and lifeline routes. These have been established to address the special expectations and demands placed on segments of the highway system by land uses, the movement of trucks, the Scenic Byway designation, and significance as a lifeline or emergency response route. Both the highway classification system and the special purpose classifications were developed to guide management, needs analysis, and investment decisions regarding state highway facilities.

The special purpose classification that applies to Hood River County is statewide freight route. Using key criteria, including freight volume, tonnage, connectivity, and linkages to the National Highway System, the OHP designates a state highway freight system. The only highway traveling through Hood River County included in the state highway freight system is I-84 (Columbia River Highway). To ensure freight is able to move efficiently across Oregon, special management strategies for the state highway freight system have been developed that include higher highway mobility standards.

3.2.3.1 I-84 and US 30 (Columbia River Highway)

I-84 is part of the National Highway System and is the major east-west Interstate Highway in Oregon. US 30 shares an alignment with I-84 through most of its length through Hood River County. Beginning in Portland at the junction of I-5 near the Willamette River, I-84 winds throughout the Columbia River Gorge and Eastern Oregon before continuing into Idaho. Throughout Hood River County, I-84 operates as a four-lane freeway with two travel lanes in each direction. The posted speed is 55 mph for trucks and 65 mph for passenger vehicles. Roadway shoulders on the left side of the highway in each travel direction are generally two to six feet wide and paved. Roadway shoulders on the right side of the highway in each direction are generally eight to ten feet wide, paved, and adequate to accommodate bicyclists. Shoulders on both sides constrict to two to four feet wide when crossing most bridges.

Throughout much of Hood River County, I-84 is bordered by the expansive Columbia River to the north and steep mountain slopes and towns to the south. For the majority of the highway in Hood River County, both travel directions are adjacent and separated by a concrete median; the highway shoulders are lined with intermittent paved vehicle pull-outs.

Through the cities of Cascade Locks and Hood River, US 30 serves as the main street and primary business route and as an alternate route to I-84. In Cascade Locks US 30 shares alignment with Wa-Na-Pa Street, and in Hood River US 30 shares alignment with Cascade Avenue, Oak Avenue, Front Street, and East State Avenue. Where US 30 shares alignment with I-84 it is classified as an Interstate Highway, and it is classified as a District Highway where it follows a separate alignment. The highway is a two-lane roadway where it deviates from the I-84 alignment through the cities. It has asphalt shoulders on both sides that are typically zero to twelve feet wide. Bicyclists generally share the road with passenger vehicles within the cities of Cascade Locks and Hood River.

3.2.3.2 Historic Columbia River Highway

The Historic Columbia River Highway (HCRH), constructed from 1913 to 1922, originally connected Portland to The Dalles. Most of the original highway in Hood River County was abandoned or destroyed when I-84 was

constructed. Some short, discontinuous segments of the original highway remain parallel to I-84 in various stages of disrepair. HCRH is listed on the National Register of Historic Places (NRHP) as a National Historic District through the County and has been honored as an All-American Road, placing it among a handful of the most treasured routes in the country.

ODOT has designated segments of existing highway and other roadways in Hood River County as the HCRH. The HCRH is located on city and county streets in the cities of Cascade Locks and Hood River and it is classified as a District Highway. The City of Hood River and ODOT have adopted a joint standard for this road which is located along Cascade Avenue from 13th Street west to I-84. The standard provides two 11' travel lines with a 12' turn lane in the middle and 5' bike lanes on either side with an 8' sidewalk with tree wells every 30'. The standard will also provide classic light standards. The HCRH shares alignment with Wa-Na-Pa Street and Forest Lane Road in Cascade Locks, and Cascade Avenue, Oak Avenue, Front Street, and E. State Avenue in Hood River and the Old Columbia River Highway Drive east of OR 35.

In Cascade Locks, the HCRH is a two-lane roadway where it follows a surface street alignment. It has asphalt shoulders on both sides that are typically zero to twelve feet wide. In the City of Hood River (along Cascade Avenue between 13th Street and I-84), the HCRH is a two-lane roadway with a center turn lane, bicycle lanes, sidewalks, and tree wells on either side. With the exception of Cascade Avenue, bicyclists generally share the road with passenger vehicles within the cities of Cascade Locks and Hood River.

3.2.3.3 OR 35 (Mt. Hood Highway)

OR Highway 35 (Mt. Hood Highway) is the primary north-south route between Mt. Hood and the Columbia River Gorge, and provides access from rural communities, orchards, timber operations and recreational areas to the City of Hood River. OR 35 via I-84 provides an alternate route to US 26 for access to Mount Hood from the Portland area. The northern terminus of OR 35 is the East Hood River interchange at the eastern edge of the City of Hood River and the southern terminus is the intersection with US Highway 26 near the summit of Mt. Hood in Clackamas County. The highway coincides with Button Bridge Road between I-84 and US 30 and the HCRH east of Hood River.

The highway is a two-lane roadway except for several areas where passing lanes are provided. The route is comprised of numerous curves and moderate grade changes. Through Hood River County, the posted speed on OR 35 is 55 mph except within the city of Hood River and UGA, through certain rural communities, and at curves where advisory posted speeds range from 25 to 45 mph. The highway has shoulders on both sides of the roadway that are typically two to eight feet wide comprised of asphalt or a combination of asphalt and gravel. Due to minimal shoulder widths and the presence of loose gravel, some sections of OR 35 are not adequately designed to accommodate shoulder bicycle use.

3.2.3.4 Hood River Highway (Hwy 281)

OR Highway 281 (Hood River Highway) is classified as a district highway connecting the City of Hood River to Parkdale and other rural communities of the upper valley. The highway starts within Hood River where 12th Street intersects Cascade Avenue and follows the same alignment as 12th Street and Tucker Road. The highway continues south to Parkdale, east along Baseline Road, and then southeast to intersect with OR 35 near milepost 85. This highway provides an alternative north-south route to much of OR 35 (Mt. Hood Highway).

The highway is a two-lane roadway with a posted speed of 55 mph except where the speed is reduced within the urban areas of Hood River and Parkdale. The highway typically has shoulders zero to six feet wide on both sides

of the roadway; they generally are loose gravel or a combination of asphalt and gravel. Due to minimal shoulder widths and the presence of loose gravel, some sections of Hwy 281 are not adequately designed to accommodate shoulder bicycle use.

3.2.3.5 Odell Highway (Hwy 282)

OR Highway 282 (Odell Highway) begins just south of Tucker Bridge. It runs south from Highway 281 to Odell and then east to connect to OR 35 near milepost 95. The highway is classified as a district highway. This highway also acts as an alternative north-south route for a portion of OR 35.

The highway is a two-lane roadway with a posted speed of 55 mph except where the speed is reduced. The highway typically has two to eight feet wide shoulders on both sides of the roadway constructed of loose gravel or a combination of asphalt and gravel. Due to minimal shoulder widths and the presence of loose gravel, some sections along Hwy 282 are not adequately designed to accommodate shoulder bicycle use.

3.2.4 Interstate and Regional Connectivity

I-84 provides connections to destinations running through the Columbia Gorge west to Portland and east to Idaho. Interstate connections are provided to Stevenson, Washington, by the Bridge of the Gods in Cascade Locks via US 30, and to White Salmon, Washington, by the Hood River Bridge in Hood River. The Hood River Bridge, which lacks bicycle and pedestrian facilities, is just north of and accessible by the OR 35/I-84 interchange. Both of these bridges are toll bridges operated by the ports of Cascade Locks and Hood River, respectively. OR 35 also connects to US 26, which travels west to the Portland metropolitan area and east to central and eastern Oregon.

3.2.5 County Roads

Although the state highway system forms the backbone of the roadway system in Hood River County, county roads are a vital part of the circulation system. Often times, county roads provide a more direct connection to destinations within the county.

Hood River County has 165 roads under its maintenance jurisdiction covering approximately 200 miles. Of these roadway miles, approximately 180 miles (90 percent) are paved, and the remaining 20 miles (10 percent) are gravel roads. These roadways are an integral part of the transportation system. In addition to providing alternate and in some cases more direct routes than the state highways, they also serve rural areas, connecting them with state highways, recreational areas, other rural areas, and cities. Hood River County representatives have identified eight county roads as being particularly critical due to their function of providing connectivity and agricultural farm-to-market access, as well as access to recreational areas. County collectors and arterials are referenced in Appendix B. These county roads are estimated to carry the highest volume of daily traffic of all county roads and include the following:

- Country Club Road
- Belmont Drive
- Indian Creek Road
- Barrett Drive
- Frankton Road

- May Drive
- Brookside Drive
- Summit Drive

Hood River County's Public Works Department is responsible for all aspects of county road maintenance including, but not limited to the maintenance of pavements, shoulders, ditches, culverts, bridges, signs, pavement markings, and vegetation. Winter maintenance also includes snow plowing and the application of sand and de-icing chemicals.

Pavement maintenance and rehabilitation priorities are developed after considering input from the County's Pavement Management Program (PMP), the maintenance crews, and through the help of recommendations from citizens. Roadside features such as culverts, signs, and guardrails are inventoried in the County's "Integrated Road Inventory System" (IRIS), which assists the County in scheduling maintenance.

The Hood River County Public Works Department consists of 28 employees that include road maintenance workers, equipment mechanics, engineering, surveying, and GIS departments, and administration. Work on the county roads is performed by the Department and by private contractors.

Historically, timber receipts from logging in the national forests have been the largest source of funding for the County road department. Due to reductions in the annual timber harvests, these receipts have fallen dramatically. The County Payments bill which passed in Congress in 2001 has brought funding levels back to the averages from prior timber harvesting years, however it is due to sunset in 2006. As this new funding is not considered "permanent" the county has largely focused its efforts on maintaining the existing county road system. State Highway funds from vehicle registration, fuel taxes, and weight mile taxes, are the other main sources of funding for the county road department. These funds have not increased significantly in recent years.

Recommended County road design standards are presented in Chapter 6.

3.2.6 Other Roadways

In addition to the state and county roadways identified above, a number of Forest Access Roads have County jurisdiction, with the US Forest Service (USFS) responsible for maintenance. In the past the County and USFS have discussed potential transfer of maintenance responsibilities for selected roads of this type. The long-term goal of the USFS is to transfer maintenance responsibility to the County. In some cases, selected road sections have been transferred out of the National Forest to private or County ownership through trades made to secure land within the Columbia River Gorge National Scenic Area. Appendix B lists roads indicated by the USFS as potential candidates for transfer or other agreements regarding shared maintenance or improvement responsibility.

There are also a number of public and private roads that are privately maintained in Hood River County. Private roads are on private land and are owned and maintained by those landowners. Other roads have been dedicated to the public, but if the County has not accepted the road into its road maintenance system, the maintenance responsibility falls on those who use the road as direct access to their properties. In May 2003, the County Commission adopted criteria for a public road to be accepted into the County's Road Maintenance System. The criteria are included as an addendum to the County Road Standards Document administered by County Public Works.

3.2.7 Intelligent Transportation Systems

Existing Intelligent Transportation System (ITS) features located within Hood River County include:

- One weather (RWIS) site located in Cascade Locks along I-84 at milepost 45;
- Two roadway cameras located in Cascade Locks along I-84, one eastbound and one westbound;
- Cascade Locks Port of Entry (I-84 Eastbound), Green Light weigh station preclearance systems;
- Wyeth Weigh Station (I-84 Westbound at MP 55), Green Light weigh station preclearance systems and Weigh-in-motion (WIM) systems; and
- Variable message signs west-bound on I-84 near Hood River and on the Mt. Hood Meadows access road used during the winter.

Access to the RWIS site and roadway cameras is at www.tripcheck.com/RoadCams/roadcamsindex.htm.

3.3 URBAN AND CULTURAL FEATURES

The cities of Hood River and Cascade Locks are the only incorporated cities and are the dominant urban areas in Hood River County. In 2001, the City of Hood River's population was 6,020. Hood River is the county seat and provides urban amenities not found elsewhere in the county. Cascade Locks' 2001 population was 1,130 (Center for Population Research and Census, PSU). Parkdale and Odell are small, unincorporated communities with limited commercial and residential uses.

A number of historical resources are listed in the 1976 Statewide Inventory of Historic Sites and Buildings in Hood River County. Some of these sites include: Potter Miles House South, Hazel Rebekah Lodge 156 and Kemp I.O.O.F. Lodge 181, Kollas House "Starvation Flats," Kroeger House, McCan House, Mt. Hood School (Mt. Hood Town Hall and Recreation Center), Methodist Episcopal Church (Odell United Methodist Church), United Church Upper Hood River Valley (Parkdale Community Church), Morton House (Struck, Sheldon House), Tucker House, Connaway and Lafferty store (Weber Bros. Hardware), First Congregational Church (Windmaster Community Church of God), Union Church (Church of Christ), English House, Oak Grove School House. There were also 19 potential sites of Historic Significance listed in the inventory.

The southern portion of the county contains the Cloud Cap-Tilly Jane Recreation Area Historic District with the Cloud Cap Inn, Cooper's Tent Camp, the Snowshoe Club Cabin, the American Legion Amphitheater (1920), a Campground, and the Civilian Conservation Corps Campsite 1934. Also, in the Columbia River Gorge, Starvation Creek State Park has an original marker of the Historic Columbia River Highway consisting of two bronze plaques mounted on a base of basalt.

The OR 35 corridor is part of the Mount Hood Loop scenic road system, and runs through a portion of the Columbia Gorge National Scenic Area. Some of the key land use features along OR 35 are historic cemeteries, recreational facilities, power lines, and the eastside irrigation ditch. The highway also connects the Historic Columbia River Highway, which runs through parts of the National Scenic Area, furnishing motorists, hikers, and bicyclists with some of the Gorge's most spectacular views. I-84 replaced much of the Historic Columbia River Highway in Hood River County. Portions still exist, but not continuously. These remaining sections contain important recreational and historical qualities. The Oregon Department of Transportation is working to reconnect the section as the Historic Columbia River State Trail.

3.4 TRAFFIC VOLUMES

ODOT reports traffic count data on the state highways (rural and urban sections) every year at the same locations. The most current volumes available, and the ones reported in this TSP, are from 2001. ODOT annually counts one-third of the state highway system, meaning Hood River County highways are counted once every three years. Hood River County traffic volumes for locations not physically counted during a certain year are estimated based on nearby regional traffic volume growth trends. All of the traffic volume data was obtained from the *ODOT Daily Traffic Volume Tables*.

Information on the major roadway system is categorized according to the four major highways in the county: I-84, OR 35, Highway 281, and Highway 282; and additional county roadways. US 30 is not addressed separately because it is the same route as I-84 through the majority of the county.

3.4.1 Average Daily Traffic

Average Daily Traffic (ADT) represents the typical average volume of traffic in all lanes passing a given roadway location in both directions over a 24-hour period. The ADT is measured for some period of time greater than one day and less than one year and provides a snapshot of the magnitude of use along a particular roadway.

The 2001 ADT volumes for the four major highways and various county roads are presented in **Figure 3-2** and **Figure 3-3**. Traffic volumes along the highways were obtained from the 2001 ODOT *Traffic Volume Tables*, published in May 2002, and from traffic count data provided by Hood River County. Traffic volumes are highest in the cities and drop off in the rural sections.

3.4.1.1 Interstate 84

As shown in **Figure 3-2**, Interstate 84 is the most heavily traveled highway in the county. In 2001, traffic volumes along the rural portions of the highway reached 21,400 vehicles per day (vpd), west of Cascade Locks, and approximately 21,000 vpd and 26,300 vpd near the west and east ends of the City of Hood River, respectively.

ODOT does not have permanent recorder information on traffic volumes specific to the Hood River County portion of I-84. However, the ADT counts taken at permanent recorders located near The Dalles and near the Sandy River Bridge to the east of Troutdale can be used to estimate trends in the county. Both recorders indicate traffic has increased between 1992 and 2001 along Interstate-84. A permanent traffic recorder located 6.3 miles west of The Dalles showed ADT rising from 15,910 in 1992 to 19,080 in 2001, while a traffic recorder located east of Troutdale showed an increase from 25,730 to 27,390 within the same time period. These increases equate to average annual compounded traffic increases of 1.8 and 0.63 percent each year, respectively.

Both recorders also show that ADT varies by season. The May through October counts were over 100 percent of the average daily count at the recorder near The Dalles, with traffic peaking in August. Similar to The Dalles traffic recorder, the Troutdale recorder had traffic counts over 100 percent of the average daily count from May through October, with traffic peaking in August. These patterns probably reflect the types of industry using the interstate. Tourism and agricultural traffic peak in the summer.

Since I-84 is the primary east-west corridor through the state, truck traffic and freight movement is high. According to the Overview of Statewide Corridors (ODOT June 1995), average daily traffic for trucks was between 1,500 and 2,999 on 63 percent of the corridor, and above 3,000 on 37 percent of the corridor.

Although the Overview of Statewide Corridors provides a great deal of information on the interstate, the data is not broken down by highway segments. Specific volumes of freight moved through Hood River County alone on I-84 have not been recorded. However, freight volumes recorded at sites east and west of the county can be used to estimate amounts shipped through the county. In 1992, 32.1 million net tons of freight were moved across the Troutdale counter and 23.5 million net tons were moved across the counter west of The Dalles. Freight moved through the county during 1992 along I-84 would be expected to fall between these two amounts.

3.4.1.2 Oregon Highway 35

2001 ADT volumes along Highway 35 were comparatively low between the southern county line and the intersection of the Hood River Highway near Parkdale (1,300 to 2,100 vehicles per day), and increased steadily towards and up to the highway's connection with Interstate 84 (3,200 to 6,700 vpd). Information from the permanent recorder located about two miles south of The Hood River Highway indicates that OR 35's traffic growth rate from 1992 to 2001 was about 0.6 percent per year with ADT volumes of 1,134 and 1,201 during these respective years.

The permanent recorder also indicates traffic volumes varied by season. During the months of June through September as well as December, traffic volumes were over 100 percent of the ADT with traffic peaking in July at 142 percent of average. The 2001 permanent recorder data on OR 35 indicates that traffic volumes are substantially higher on weekends than weekdays.

The permanent recorder on Highway 35 also tracked the amount of truck traffic on the highway. The percentage of trucks along Highway 35 was 22.4 percent in 2001; average truck volumes are estimated to be about 270 trucks per day.

Most of the truck movement within the corridor involves shipping freight. In 1992, trucks moved 400,000 net tons of freight along the corridor. According to the Hood River Growers and Shippers Association, fresh fruit and wood products constitute the majority of the freight. Pears are the most common fruit hauled (four million boxes are shipped yearly), apples are the second largest cargo, and cherries are a distant third. Fruit shippers in the area report seasonal peaks and lulls. June and July are very slow months, while September through February are peak shipping months. Some of the slack in the summer fruit shipping is picked up by the wood industry, as the milder months are best for logging.

3.4.1.3 Highway 281 (Hood River Highway)

Based upon 2001 counts, traffic volumes on Highway 281 vary widely by location; those portions within the City of Hood River have the greatest ADT. The highest ADT recorded was 16,000 vehicles just south of Belmont Road.

Traffic volumes between Hood River and the Odell Highway ranged between 9,700 and 7,200 vpd. The traffic volumes ranged between 1,100 to 2,100 vpd between the Odell Highway and Parkdale. In the downtown core of Parkdale, ADT's increased to 2,200 vpd, tapering off to 1,400 vpd east of the Parkdale community.

3.4.1.4 Highway 282 (Odell Highway)

ADT volumes on Highway 282 were more consistent, ranging from 3,300 to 4,300 vpd in 2001. The traffic volumes were highest near the connections with the Hood River Highway and the Mt. Hood Highway.

3.4.1.5 Major County Roadways

Traffic volumes along county roads were obtained from 24-hour road tube counts. **Figure 3-3** presents ADT volumes along county roads throughout Hood River County. The volumes range between 116 vpd and 2,821 vpd., with exception of volumes in City of CL TSP, no count(s) for Forest Lane.

3.4.2 Design Hour Volumes

The design hourly volume (DHV) is the hourly volume that is used for design. For any roadway, it represents the 30th highest hourly traffic volume recorded along the roadway segment throughout the year. For example, if the total number of vehicles in both directions is counted at a specific roadway location for every hour throughout the year and then the hourly volumes are ranked from highest to lowest, the 30th highest hourly volume of the year would represent the DHV. Past examples have shown that the 30th highest hourly volume as a percentage of ADT fluctuates minimally each year, even in cases of significant ADT variations. Typical values for the 30th highest hourly volumes range from approximately 10 to 35 percent of the ADT.

The only locations along state highways in Oregon where hourly roadway volumes are counted on a daily basis throughout the year are at ODOT’s Automatic Traffic Recorder (ATR) stations. Information regarding ADT, 30th highest hourly volume, vehicle classification, seasonal variations, and more are available. Following guidelines established by the ODOT Transportation Planning and Analysis Unit (TPAU), DEA averaged three out of the last five years worth of data to determine representative 30th highest hour percentages. The high and low percentages were eliminated to account for construction activity, which may have occurred near the ATR site. **Table 3-2** lists the ATR locations, representative truck percentages, truck volumes, representative 30th highest hour percentages, and DHVs to be used in calculating DHVs along the state highways throughout Hood River County.

Table 3-2

RELATIONSHIP BETWEEN ADT and DHV FROM ATR SITES WITHIN and NEAR HOOD RIVER COUNTY

ATR		3-Year Average				
ATR	Location	ADT	Truck %	Truck Vol.	Design Hour %	Design Hour Vol.
26-001	I-84, west end of Sandy River Bridge, Troutdale	26,985	22.0%	5,935	13.3%	3,590
33-001	I-84, 6.3 miles west of The Dalles	18,695	28.5%	5,330	12.3%	2,305
14-003	OR 35, 2.12 miles south of Hwy 281 junction	1,270	22.4%	285	25.7%	325
03-007	OR 35, 0.1 mile east of Warm Springs Hwy (US 26)	1,840	21.6%	395	32.3%	595
26-012	US 30, 0.6 mile west of Bridal Veil	735	1.4%	10	37.0%	270

Source: 1994-2001 Oregon Department of Transportation Daily Traffic Volume Tables

Using the representative design hour percentages the DHVs along state highways in Hood River County where ODOT maintains ADT records were calculated according to the following:

- Average ATRs 26-001 and 33-001 - I-84 (Columbia River Highway)
- ATR 14-003 - OR 35 (Mt. Hood Highway) between Hwy 281 and I-84, Hwy 281 (Hood River Highway), and Hwy 282 (Odell Highway)
- ATR 03-007 - OR 35 (Mt. Hood Highway) between Clackamas/Hood River Co. line and Hwy 281
- ATR 19-008 - US 30 (Historic Columbia River Highway)

The resulting DHVs along with ADT volumes for state highways are reported on **Figure 3-2**.

3.5 TRAVEL TIME

Travel time indicates how long it takes to drive through a corridor and is an important indicator of efficiency. One section of the *Overview of Statewide Corridors*, June 1995 evaluates the travel time along each highway corridor in Oregon. ODOT uses The Highway Performance Monitoring System Analytical Package (HPMSAP) to calculate travel times for interstate and state highways based on speed limits, congestion levels, development types (rural, community, or urban), number of lanes, passing sight distance (rural only), pavement conditions, curves, grades, speed changes and stop cycles, and idling times.

Several different scenarios were analyzed.

- 1996 (base year) and 2016 with varying levels of improvements to the roadways and varying levels of management.
- The no-improvement scenario assumes that pavements will be maintained, but that neither roadway geometry (width, curvature, and grades) nor roadway capacity (number of traffic lanes) will be improved.
- The geometric improvement scenario assumes that all geometric deficiencies are improved.
- The capacity improvement scenario assumes that all capacity deficiencies are improved. Geometric and capacity deficiencies occur when performance levels fall below the minimum tolerable conditions identified in the 1991 Oregon Highway Plan within the planning horizon.

Two management options, high management and low management, were analyzed in the *Overview of State Corridors*. High management assumes that despite changes in land use, the general operating characteristics of the highway will not change, due to judicious land use planning, local road construction, and access management. The low management scenario assumes that highway operating characteristics will change as a result of future changes in land use. Specifically, it is assumed that urban fringe areas within urban growth boundaries will become urban and lower speed zones will result in these areas.

3.5.1.1 Interstate 84

Data on travel times on Interstate 84 are not broken down for Hood River County. 1996 travel times along the entire corridor are projected to average 0.95 minutes per mile for cars and 1.21 minutes per mile for trucks. This would correspond to a travel time of 14.9 minutes for cars and 18.9 minutes for trucks to traverse the county.

Travel times are predicted to significantly increase over the next 20 years (1996-2016). Travel times for cars are projected to increase 19 percent, while times for trucks should increase by 29 percent.

3.5.1.2 OR 35

The travel time for the OR 35 corridor (I-84 junction to US 26 junction) is estimated to be 49 minutes for cars and 70 minutes for trucks. This is an average of 1.27 minutes per mile for cars and 1.81 minutes per mile for trucks. Corridor travel time is close to the statewide average of 1.36 minutes per mile for cars and 1.80 minutes per mile for trucks.

Travel times are predicted to increase slightly by 2016, if current trends continue and no major improvements are made to the highway.

The return of time savings per investment dollar is low compared to the statewide average. In fact, if \$100 million were spent on improvements, the time savings would only be five minutes per trip.

3.6 CAPACITY AND LEVEL-OF-SERVICE CRITERIA

Although the OHP Highway Mobility Standards are the overriding operational standards for Oregon Highways, level of service (LOS) is a widely recognized and accepted measure and descriptor of traffic operations and is used by the County in certain development reviews. Transportation engineers have established various standards for measuring traffic operations of roadways and intersections. Each standard is associated with a particular Level-of-service (LOS) and/or the Volume-to-Capacity (V/C) ratio. Both the LOS and V/C ratio concepts require consideration of factors such as traffic demand, capacity of the intersection or roadway, delay, frequency of interruptions in traffic flow, relative freedom for traffic maneuvers, driving comfort, convenience, and operating cost.

Six standards have been established to define LOS. They range from LOS "A" where traffic flow is relatively free flowing to LOS "F" where the highway or intersection is totally saturated with traffic and movement is very difficult. V/C ratios range from 0.0 to greater than 1.0. When the V/C ratio is near 0.0, traffic conditions are generally good with free flow travel conditions. As the V/C ratio approaches 1.0, traffic becomes more congested along roadways and "platoons" of traffic are formed, while at intersections traffic conditions become more unstable with longer delays.

3.7 CONGESTION

ODOT has established several policies in the 1999 Oregon Highway Plan (OHP) aimed at maintaining highway mobility. The Highway Mobility Standards (Policy 1F) establish maximum volume-to-capacity (V/C) ratios for peak hour operating conditions for all highways in Oregon. The V/C ratio represents the ratio of measured traffic demand (volume) on a highway section (or for individual movements at an intersection) divided by the maximum volume that the facility can accommodate under prevailing roadway and traffic conditions (capacity).

The V/C standards apply to the state highways in Hood River County and the OHP policy specifies that the V/C standards be maintained for ODOT facilities through a 20-year period. The OHP Highway Mobility Standards that apply to the highways located in Hood River County are as follows:

- Where there are no intersections along the highway, the V/C ratio shall not exceed 0.70 along I-84 and OR 35, and 0.75 along US 30 (own alignment), Hwy 281, and Hwy 282.
- At unsignalized intersections and road approaches where highway traffic is not required to stop, the V/C ratio shall not exceed 0.70 for I-84 and OR 35, and 0.75 along US 30 (own alignment), Hwy 281, and Hwy 282. An exception to these standards is where highway traffic must stop or yield the right-of-way (such as the termination point of a highway, a county road approach to a state highway, or at the intersection of state highways). The V/C ratio in this case shall not exceed 0.80.
- At signalized intersections other than crossroads of freeway ramps, the V/C ratio for the intersection considering all critical movements shall not exceed 0.70 for OR 35, and 0.75 along US 30 (own alignment), Hwy 281, and Hwy 282. Where two state highways of different classifications intersect, the lower of the V/C ratios applies. Where a state highway intersects with a local road or street, the V/C ratio for the state highway shall apply.

At freeway interchanges, the maximum V/C ratio for the ramp terminals shall be 0.70 for I-84 and OR 35, and 0.75 for US 30 (own alignment), Hwy 281, and Hwy 282.

Congestion data from the Highway Economic Requirement System (HERS) was analyzed to determine congested areas within Hood River County. The data represents a snapshot of the state highway system as of January 2001. The HERS system is similar to the Highway Performance Monitoring System - Analytical Package (HPMSAP) with the major difference being that the HERS uses economic criteria for determining improvements while the HPMSAP uses engineering criteria. The volume-to-capacity ratios were calculated using the 1997 Highway Capacity Manual (HCM) that was adopted for use in the HERS system.

Hood River County has established a mobility standard of LOS C that applies to all roads and intersections under County jurisdiction.

3.7.1 Freeway/Highways

3.7.1.1 Interstate 84

Congestion data from HERS indicates that 100% of highway mileage within Hood River County along I-84 is under capacity.

3.7.1.2 OR 35

According to the HERS, there currently are no problems associated with congestion along OR 35. Volume to service flow ratios, calculated using the HERS, show that the whole corridor within Hood River County experiences low congestion on average.

3.7.1.3 Highway 281 (Hood River Highway)

Review of congestion data from HERS indicates that approximately 90% of the state highway mileage is currently under capacity. Slightly over five percent of the state highway mileage is at or near capacity and the remaining five percent is over capacity. The two sections, which are at or near capacity, are just north of the intersection with Hwy 282 and near the intersection with OR 35. The nearly one mile section which is currently over capacity is between Eliot Drive and Gravenstein Drive.

3.7.1.4 Highway 282 (Odell Highway)

According to the HERS, there are currently no problems with congestion along Hwy 282. Volume to service flow ratios, calculated using the HERS, show that the entire 3.45-mile corridor experiences low congestion on average.

3.7.2 Intersections

Within and in the vicinity of the City of Hood River, congestion tends to be a peak hour problem at several intersections. A number of intersections were identified in the 1999 Hood River-Mt. Hood OR 35 Corridor Plan, including three intersections which are located within the Urban Growth Area (area within the Urban Growth Boundary and outside of the city limits). The two intersections at the I-84/OR 35 (East Hood River) interchange were identified as having major congestion and capacity deficiencies. Both intersections are unsignalized and STOP-controlled on the off-ramp approaches to I-84. The eastbound off-ramp operates as a T-shaped intersection with the on-ramp located about 150 feet south of this intersection. Currently, the off-ramp left-turn operates at LOS E, approaching unstable conditions with a long period of delay (37 seconds). The intersection at the I-84 westbound on/off-ramp operates as a four-way intersection with STOP-control on the off-ramp approach. The off-ramp left-turn operates at LOS E with moderate delay (31 seconds). Members of the TAC have mentioned that during peak/special event periods, traffic on the eastbound off-ramp at this location can back up to the freeway itself.

The four-way STOP-controlled intersection of State Street/HCRH and OR 35 (Button Junction) has also been identified as being congested at times. Existing operations indicates the intersection operates at LOS C, with a relatively short average delay (13 seconds). However, traffic demand at this intersection during peak seasonal periods pushes operations to LOS F, particularly where northbound traffic experiences increased delay and queuing of vehicles develops.

The corridor plan indicates that OR 35 has high levels of congestion near its connection with I-84 with V/C ratios ranging between 0.7 and greater than 1.0.

A traffic impact study prepared for the proposed Wal-Mart Supercenter at the southeast corner of the Country Club/Frankton Roads intersection resulted in findings of existing weekday PM peak LOS F conditions at the intersections of Cascade Avenue/Country Club Road, and Cascade Avenue/Rand Road. This same study found that the Cascade Avenue/I-84 Westbound ramps intersection operates at LOS C. (The study is: "Updated Supplemental Transportation Impact Analysis: Hood River Wal-Mart Supercenter, prepared by The Transpo Group, June 2002.)

3.8 OPERATING COSTS AND FUEL CONSUMPTION

The Oregon Transportation Plan calls for an efficient and environmentally responsible transportation system. Therefore, operating costs and fuel consumption were analyzed along interstate and statewide corridors (I-84 and OR 35).

3.8.1 Interstate 84

The HPMSAP was used to calculate total annual operating costs for cars and trucks traveling along the entire I-84 corridor. The costs represent total operating costs including fuel, lubricating oil, tires, maintenance and repairs, use-related depreciation, and the value of time for all cars and trucks utilizing I-84. The costs relate to all of I-84 and are not categorized by county. Therefore, costs of using the Hood River County portion of I-84 can only be inferred from the data.

Yearly costs estimated for I-84 were \$408.3 million for cars and \$597.3 million for trucks in 1996. Without improvements, costs are estimated to increase to \$724.3 million for cars and \$1.13 billion for trucks by the year 2016. This is a 77 percent increase in the cost for cars and an 89 percent increase for trucks.

Projected increases in operating costs were estimated using the same factors (cost of fuel, lubricating oil, tires, maintenance and repairs, use-related depreciation, and the value of time) plus projected increases in traffic. The projected costs were figured for seven scenarios with varying improvements (geometric and capacity) and varying levels of management (high and low). The resulting costs were derived by averaging the projected cost under each scenario.

3.8.2 OR 35

Operating costs for cars and trucks using OR 35 have also been calculated using HPMSAP. The costs represent the total operating costs described above. Unlike I-84, all of OR 35 corridor falls within the study area, therefore, the data reflect the precise costs of using the highway.

1996 costs were predicted to be \$13.7 million for cars and \$3.2 million for trucks. Predicted costs for 2016 depend upon whether improvements are made to the highway. With no improvements, predicted costs are \$21.6 million for cars and \$4.9 million for trucks. With improvements, predicted costs are \$19.8 million for cars and \$4.4 million for trucks.

Projected increases in operating costs were estimated using the same factors (cost of fuel, lubricating oil, tires, maintenance and repairs, use-related depreciation, and the value of time) plus projected increases in traffic. The projected costs were figured for seven scenarios with varying improvements (geometric and capacity) and varying levels of management (high and low). The resulting costs were derived by averaging the projected cost under each scenario.

3.9 SAFETY

The Oregon Transportation Plan calls for the creation of a transportation system that is not only “balanced, efficient, accessible, environmentally sound, and connective,” but also safe and secure. DEA reviewed crash data along the state highways within Hood River County to identify high crash locations, potential crash patterns, and any potential safety concerns at these locations. The two sources of crash data reviewed included:

- Crash summaries generated by ODOT's Transportation Development Branch for the three-year period from January 1, 1998 to December 31, 2000.
- Crash summaries generated from the ODOT Crash Summary Database for locations along the state highways in Hood River County.

ODOT's Crash Summary Database calculates two useful factors for comparison with statewide statistics based on crash information over the three-year period studied. The first factor is a computed average three-year crash rate, which compares the number of crashes with the ADT volume and the length of the segment analyzed. The crash rate for a stretch of roadway is typically calculated as the number of crashes per million vehicle miles (crash/mvm) traveled along that segment of roadway. The second factor is the Safety Priority Index System (SPIS) value. This factor evaluates crash frequency, severity, and traffic volumes to create an index for prioritizing state highway locations with safety concerns.

Additionally, ODOT produces detailed crash reports along all state highways. The detailed crash reports include the number of fatalities and injuries, property damage only versus injury crashes, roadway surface conditions, time of day, and cause of crash. The detailed reports also indicate the overall crash frequencies and rates for sections of each highway.

3.9.1 Historic

Table 3-3 presents the crash rates for state highways in Hood River County and the Oregon statewide average crash rates for rural and urban freeway and non-freeway primary and secondary state highways from January 1, 1998 to December 31, 2000.

During the three-year analysis period the crash rates along I-84 are near the statewide averages for rural freeway primary highways and below the statewide averages for urban freeway primary highways.

During the three-year analysis period the crash rates along OR 35 exceeded the statewide averages for rural non-freeway primary highways each year.

The crash rates for the rural and urban segments of US 30 during the three years analyzed are lower than the statewide averages for secondary non-freeway state highways.

The rural sections of Hwy 281 and Hwy 282 are near or slightly exceed the statewide averages for secondary non-freeway state highways. The urban section of Hwy 281 exceeded the statewide averages each of the three years analyzed.

TABLE 3-3
HISTORIC CRASH RATES FOR STATE HIGHWAYS
(Crashes per Million Vehicle Miles Traveled)

Highway	2000	1999	1998
Primary State Highways			
<i>I-84 (Columbia River Highway)</i>			
Rural: Hood River Co to Cascade Locks	0.00	0.26	0.49
Urban: Cascade Locks	0.25	0.40	0.43
Rural: Cascade Locks to Hood River	0.35	0.33	0.23
Urban: Hood River	0.33	0.45	0.00
Rural: Hood River to Wasco Co.	0.05	0.27	0.42
<i>OR 35 (Mt. Hood Highway)</i>			
Rural: Hood River Co. Line to Hood River	1.19	1.49	1.41
Secondary State Highways			
<i>Highway 100 (Historic Columbia River Highway)</i>			
Rural: Troutdale to Cascade Locks	0.00	0.00	0.00
Urban: Cascade Locks	0.00	0.00	0.64
Rural: Cascade Locks to Hood River	0.00	0.81	0.84
Urban: Hood River	0.90	1.64	2.42
Rural: Hood River to Wasco Co.	0.00	0.00	0.00
<i>Highway 281 (Hood River Highway)</i>			
Urban: Hood River	3.72	5.28	4.05
Rural: Hood River to Mt Hood Hwy	1.11	1.35	1.46
<i>Highway 282 (Odell Highway)</i>			
Rural: Hood River to Mt Hood Hwy	0.72	1.49	1.52
Average for all Rural Non-freeway Primary State Highways	0.89	0.88	0.85
Average for all Urban Non-freeway Primary State Highways	2.95	3.50	3.83
Average for all Rural Freeway Primary State Highways	0.25	0.19	0.25
Average for all Urban Freeway Primary State Highways	0.67	0.60	0.71
Average for all Rural Non-freeway Secondary State Highways	1.14	1.11	1.17
Average for all Urban Non-freeway Secondary State Highways	2.67	2.98	2.97

Source: 1998-2000 Oregon Department of Transportation State Highway Crash Rate Tables

Table 3-4 contains detailed crash information on I-84, OR 35, US 30, Hwy 281, and Hwy 282 in Hood River County from January 1, 1998 to December 31, 2000. It shows the number of fatalities and injuries, property damage only crashes, the total number of crashes, and the high SPIS value of these highways in Hood River County.

TABLE 3-4
HIGHWAY CRASH SUMMARIES

(January 1, 1998 to December 31, 2000)

Location	Fatalities	Injuries	PDO ¹	Total Crashes	High SPIS Value
<i>I-84 (Columbia River Highway)</i>					
Rural: Hood River Co. to Cascade Locks (MP 42.1 - MP 43.5)	2	2	6	8	27.06
Urban: Cascade Locks (MP 43.5 - MP 47.1)	2	19	14	25	20.71
Rural: Cascade Locks to Hood River (MP 47.1 - MP 62.9)	1	20	45	64	24.83
Urban: Hood River (MP 62.9 - MP 64.8)	0	13	15	26	16.62
Rural: Hood River to Wasco Co. (MP 64.8 - MP 67.7)	0	11	9	16	19.51
<i>OR 35 (Mt. Hood Highway)</i>					
Rural: Hood River Co. Line to Hood River (MP 59.7 - MP 104.8)	2	100	90	150	52.34
<i>Highway 100 (Historic Columbia River Highway)</i>					
Rural: Hood River Co. to Cascade Locks (MP 28.7 - MP 30.2)	0	0	0	0	0.00
Urban: Cascade Locks (MP 30.2 - MP 33.1)	0	3	1	2	0.00
Rural: Cascade Locks to Hood River (MP 33.1 - MP 49.2)	0	0	3	3	0.00
Urban: Hood River (MP 49.2 - MP 51.1)	0	14	18	27	19.15
Rural: Hood River to Wasco Co. (MP 51.1 - MP 52.2)	0	0	0	0	0.00
<i>Highway 281 (Hood River Highway)</i>					
Urban: Hood River (MP 0.0 - MP 1.2)	1	41	55	81	53.81
Rural: Hood River to Mt Hood Hwy (MP 1.2 - MP 19.1)	2	60	42	82	56.96
<i>Highway 282 (Odell Highway)</i>					
Rural: Hood River to Mt Hood Hwy (MP 0.0 - MP 3.5)	0	7	15	20	33.60
2001 SPIS Cutoff for Top 10%					46.24

1. PDO: Property Damage Only Crash.

2. Acc/mvm represents crashes per million vehicle miles traveled

Source: Oregon Department of Transportation Crash Summary Database 1998-2000; information compiled by DEA.

3.9.1.1 Interstate 84 (Columbia River Highway)

Within Hood River County during the three-year period analyzed, there were 139 ODOT-reported crashes along I-84. Over half of the crashes (89) resulted in property damage only. The 139 crashes resulted in 5 fatalities, eight severe injuries, 29 moderate injuries, and 28 minor injuries. Over half of the crashes (88) occurred during daylight hours. Sixteen of the accidents occurred at intersections and twenty trucks were involved in the crashes. The most common type of crash involved vehicles hitting fixed objects (72), sideswipe overtaking maneuvers (21), and rear-end crashes (17). The high SPIS value along I-84 within Hood River County was 27.06, below the state's 2001 cutoff value for top ten percent of 46.24.

Statistics from the crashes reported between January 1, 1998 and December 31, 2000, showed five or more crashes occurring at the following sites along the highway:

Interstate 84 (MP 50.0) Near Wyeth Interchange (County)

There were six recorded accidents at this location, with three fixed object type, two sideswipe-overtaking type, and one miscellaneous type accident. Four people were injured. The SPIS value for this section of roadway is 16.54, compared to the 2001 cutoff of 46.24 for similar roadway segments.

Interstate 84 (MP 67.00) Between the Hood River Bridge and Mosier Interchanges (County)

There were six recorded accidents at this location, with three fixed object type, one sideswipe-overtaking type, one rear end, and one miscellaneous type accident. Four people were injured. The SPIS value for this section of roadway is 19.51, compared to the 2001 cutoff of 46.24 for similar roadway segments.

Interstate 84 (MP 47.00) Near Herman Creek Interchange (County)

There were five accidents recorded at this location--three fixed object type, and two sideswipe-overtaking type accidents. There were two people injured in the five accidents. The SPIS value for this section of roadway is 15.22, compared to the 2001 cutoff of 46.24 for similar roadway segments.

Interstate 84 (MP 55.00) Near Viento Interchange (County)

There were five accidents recorded at this location--one fixed object type, one parking type, one rear end type, one sideswipe-meeting and one sideswipe-overtaking type accident. One person was injured in the five accidents. The SPIS value for this section of roadway is 13.67, compared to the 2001 cutoff of 46.24 for similar roadway segments.

Interstate 84 (MP 60.00) Near Hood River Interchange (County)

There were five accidents recorded at this location--three fixed object type, one rear end type, and one sideswipe-overtaking type accident with no injuries reported. The SPIS value for this section of roadway is 12.15, compared to the 2001 cutoff of 46.24 for similar roadway segments.

Interstate 84 (MP 63.00) Near Western City limits of Hood River

There were five accidents recorded at this location--four fixed object type and one sideswipe-overtaking type accident. Three people were injured. The SPIS value for this section of roadway is 16.62, compared to the 2001 cutoff of 46.24 for similar roadway segments.

3.9.1.2 OR 35 (Mt. Hood Highway)

Within Hood River County during the three-year period analyzed, there were 153 ODOT-reported crashes along OR 35. Over half of the crashes (92) resulted in property damage only. The 153 crashes resulted in 2 fatalities, nine severe injuries, 54 moderate injuries, and 38 minor injuries. Over two-thirds of the crashes (106) occurred during daylight hours. Twenty-one of the accidents occurred at intersections and six trucks were involved in the crashes. The most common type of crash involved vehicles hitting fixed objects (61), rear-end crashes (28), turning crashes (14), and sideswipe meeting maneuvers (14). Two locations along OR 35 have SPIS values exceeding the state's 2001 cutoff value for top ten percent of 46.24. The two locations are at mileposts 67.99 and 68.0. They resulted in SPIS values exceeding the state's 2001 cutoff based on the high number of crashes that occurred over the three-year period.

Statistics for accidents reported between January 1, 1998 and December 31, 2000, showed more than four accidents occurring at the following sites along the highway:

OR 35 (MP 60.00) Near Warm Springs Highway (County)

There were six accidents recorded at this location-one rear end type, two fixed object type, two sideswipe-meeting, and one sideswipe-overtaking. Three people were injured in the six accidents. The SPIS value for this section of roadway is 28.99, compared to the 2001 cutoff of 46.24 for similar roadway segments.

OR 35 (MP 62.00) Near Warm Springs Highway (County)

There were eight accidents recorded at this location-two rear end type, three fixed object type, one sideswipe-meeting, one sideswipe-overtaking, and one miscellaneous type accident. One person was injured in the eight accidents. The SPIS value for this section of roadway is 33.27, compared to the 2001 cutoff of 46.24 for similar roadway segments.

OR 35 (MP 68.00) Near Lookout Mountain Loop Road (County)

There were five accidents recorded at this location-one rear end type, two fixed object type, one sideswipe-meeting, and one turning type accident. There were twelve people injured in the five accidents. The SPIS value for this section of roadway is 49.63, which exceeds the state's 2001 cutoff of 46.24 for similar roadway segments.

3.9.1.3 US 30 (Historic Columbia River Highway)

Within Hood River County during the three-year period analyzed, there were 32 ODOT-reported crashes along US 30. Over half of the crashes (22) resulted in property damage only. The 32 crashes resulted in zero fatalities, zero severe injuries, four moderate injuries, and 13 minor injuries. The majority of the crashes (28) occurred during daylight hours. Sixteen of the crashes occurred at intersections and one truck was involved in the crashes. The most common type of crash involved rear-end crashes (14), turning crashes (9), and angle crashes (4). The crashes were scattered along the highway and the high SPIS value along US 30 of 19.15 was below the state's 2001 cutoff value for top ten percent of 46.24.

Statistics for accidents reported between January 1, 1998 and December 31, 2000, showed more than four accidents occurring at the following sites along the highway:

US 30 (MP 49.79) Near 20th Street in the City of Hood River

There were four accidents recorded at this location-one angle type, one turning type, and two rear end type crashes. One person was injured in the four crashes. The SPIS value for this section of roadway is 15.64, compared to the 2001 cutoff of 46.24 for similar roadway segments.

3.9.1.4 Hwy 281 (Hood River Highway)

Within Hood River County during the three-year period analyzed, there were 163 ODOT-reported crashes along Hwy 281. Over half of the crashes (97) resulted in property damage only. The 163 crashes resulted in three fatalities, seven severe injuries, 38 moderate injuries, and 56 minor injuries. Over seventy-five percent of the crashes (126) occurred during daylight hours. Seventy-nine of the crashes occurred at intersections and three trucks were involved in the crashes. The most common type of crash involved rear-end crashes (52), turning crashes (51), angle crashes (22), fixed object crashes (15) and sideswipe overtaking maneuver crashes (13). Five locations had SPIS values exceeding the state's 2001 cutoff value of 46.24. The locations, which exceeded the cutoff value, were mileposts 0.30, 0.32, 0.33, 2.0, and 3.13. These SPIS values were a result of the high number

of crashes relative to the low ADT volumes. The designation places these five crash locations in the top ten percent of serious crash locations in the state over the three-year analysis period.

Statistics for accidents reported between January 1, 1998 and December 31, 2000, showed four or more accidents occurring at the following sites along the highway:

Highway 281 (MP 0.33) Near May Street (County)

There were 11 accidents recorded at this location-eight angle eight-angle type, two turning type, and one rear end type accidents. Ten people were injured in the 11 crashes. The SPIS value for this section of roadway is 51.31, higher than the 2001 cutoff of 46.24 for similar roadway segments.

Highway 281 (MP 0.51) Near Belmont Avenue (County)

There were four accidents recorded at this location-two angle type and two turning type. Two people were injured in the four crashes. The SPIS value for this section of roadway is 21.66, compared to the 2001 cutoff of 46.24 for similar roadway segments.

Highway 281 (MP 0.66) Near Union Avenue (County)

There were five accidents recorded at this location-one angle type, two rear-end type, and two sideswipe by overtaking crashes with no injuries reported. The SPIS value for this section of roadway is 18.66, compared to the 2001 cutoff of 46.24 for similar roadway segments.

Highway 281 (MP 0.92) North of Brookside Drive (County)

There were 11 accidents recorded at this location-eight turning type and three rear end type crashes. Ten people were injured in the 11 crashes. The SPIS value for this section of roadway is 45.26, compared to the 2001 cutoff of 46.24 for similar roadway segments. A traffic signal has recently been installed at the Brookside/Eliot intersection.

Highway 281 (MP 1.17) Brookside Drive (County)

There were nine accidents recorded at this location-one angle type and eight turning type accidents. Five people were injured in the nine crashes. The SPIS value for this section of roadway is 31.34, compared to the 2001 cutoff of 46.24 for similar roadway segments.

Highway 281 (MP 2.00) Near Orchard Road (County)

There were seven accidents recorded at this location-two turning type and five rear end type crashes. Five people were injured in the seven crashes. The SPIS value for this section of roadway is 56.96, compared to the 2001 cutoff of 46.24 for similar roadway segments.

Highway 281 (MP 3.13) at and Barrett Drive (County)

There were nine accidents reported at this intersection with five angle type, two turning type, and two rear-end type accidents. Seven injuries resulted. The SPIS value for this section of roadway is 49.70, compared to the 2001 cutoff of 46.24 for similar roadway segments.

Hwy 282 (Odell Highway)

Within Hood River County during the three-year period analyzed, there were 20 ODOT-reported crashes along Hwy 282. Seventy-five percent of the crashes (15) resulted in property damage only. The 20 crashes resulted in zero fatalities, one severe injury, one moderate injury, and five minor injuries. Over seventy-five percent of the crashes (16) occurred during daylight hours. Ten of the crashes occurred at intersections and no trucks were involved in the crashes. The most common type of crash involved rear-end crashes (5), turning crashes (5), and angle crashes (5). The crashes were scattered along the highway and the high SPIS value along Hwy 282 of 33.6 was below the state's 2001 cutoff value for top ten percent of 46.24.

Major County Roads

A traffic impact study for the proposed Wal-Mart Supercenter at the southeast corner of the Country Club/Frankton Roads intersection revealed the following accident report data between the years of 1998 through 2001: a total of 11 accidents were reported at the Country Club/Frankton Roads intersection, five accidents were reported at the Country Club Road/Cascade Street intersection, three accidents were reported at the Country Club/Post Canyon Roads intersection, and one accident at each intersection was reported at Country Club/Wooded Acres Roads, Frankton/Post Canyon Roads, and Country Club Road/West Ridge Drive.

3.10 PAVEMENT CONDITIONS

Oregon state highways are surveyed and assessed annually by ODOT staff to determine current pavement conditions. The most recent available data is from 2001. The five pavement condition categories used include: Very Good, Good, Fair, Poor, and Very Poor. A brief definition of the pavement condition categories used by ODOT for both asphalt and Portland cement concrete pavements is provided.

Very Good

Asphalt pavements in this category are stable, display no cracking, patching or deformation and provide excellent riding qualities. Nothing would improve the roadway at this time. Concrete pavements in this category provide good ride quality, display original surface texture, and show no signs of faulting (vertical displacement of one slab in relation to another). Jointed, reinforced pavements display no mid-slab cracks and continuously reinforced pavements may have tight transverse cracks with no evidence of spalling (chipping away).

Good

Asphalt pavements in this category are stable and may display minor cracking (generally hairline and hard to detect), minor patching, and possibly some minor deformation. These pavements appear dry or light colored, provide good ride quality, and display rutting less than 1/2 inch deep.

Concrete pavements in this category provide good ride quality. Original surface texture is worn in wheel tracks exposing coarse aggregate. Jointed, reinforced pavements may display tight mid-slab transverse cracks, and continuously reinforced pavements may show evidence of minor spalling. Pavements may have an occasional longitudinal crack but no faulting is evident.

Fair

Asphalt pavements in this category are generally stable while displaying minor areas of structural weakness. Cracking is easier to detect, patching is more evident (although not excessive), and deformation is more pronounced and easily noticed. Ride quality is good to acceptable.

Concrete pavements in this category provide good ride quality. Jointed, reinforced pavements may display some spalling at cracks and joint edges with longitudinal cracks appearing at less than 20 percent of the joints. A few areas may require a minor level of repair. Continuously reinforced pavements may show evidence of spalling with longitudinal cracks appearing in the wheel paths on less than 20 percent of the rated section. Shoulder joints may show evidence of deterioration and loss of slab support and faulting may be evident.

Poor

Asphalt pavements in this category are marked by areas of instability, structural deficiency, large crack patterns (alligatoring), heavy and numerous patches, and visible deformation. Ride quality ranges from acceptable to poor.

Concrete pavements in this category may continue to provide acceptable ride quality. Both jointed and continually reinforced pavements display cracking patterns with longitudinal cracks connecting joints and transverse cracks occurring more frequently. Occasional punchout (or pothole) repair is evident. Some joints and cracks show loss of base support.

Very Poor

Asphalt pavements in this category are in extremely deteriorated condition marked by numerous areas of instability and structural deficiency. Ride quality is unacceptable. Concrete pavements in this category display a rate of deterioration that is rapidly accelerating.

Table 3-5 summarizes the state highway pavement conditions as of 2001. Pavement conditions along the five state highway segments within Hood River County vary in both the rural and urban areas. There are nearly 100 miles of state highway in Hood River County. Approximately 42 percent of the highway mileage in Hood River County is in Good or Very Good condition while almost 26 percent is in Fair condition. Therefore, approximately 68 percent of all highway mileage meets ODOT's standard of "fair or better" pavement condition. The remaining 32 percent (32 miles) of highway mileage in Hood River County is in Poor or Very Poor condition.

Roughly 59 percent of the Poor condition state highway pavement identified in 2001 is located along I-84 between the East Cascade Locks and the Hood River Interchange (I/C). However, this segment of highway was repaved during the summer of 2002. Therefore, the percentage of roadway in fair or better condition currently is expected to be significantly higher than indicated here, with pavement rating of good or excellent in much of this area. Approximately six percent is located along OR 35 between milepost 66 and milepost 68. Another 19 percent is located along US 30 and the remaining 16 percent is located along Hwy 281 at its junction with US 30 and at its junction with Hwy 282.

Hood River County's road system is managed with support of a Pavement Management Program (PMP) developed by the Association of Oregon Counties. A representative sample of the road system is inspected each year and this data is entered into the system along with the maintenance and rehabilitation history for the year. The PMP calculates a "Pavement Condition Index" or "PCI" for each unique road segment. The PCI is a measurement of the total amount and type of distress found in the pavement surface. The PCI is indicated with the following condition categories: Very Good (PCI 75-100), Good (PCI 50-74) Poor (PCI 25-49), and Very Poor (PCI 0-24). The PMP also calculates a network PCI that is a weighted average for the entire road system. The

Public Works Department recommends that a network PCI of 70 be the minimum condition level to which the County intends to maintain its roads.

Of the nearly 180 miles of paved county roads in Hood River County approximately 87 percent are in very good condition, approximately 12 percent are in good condition, and less than 1 percent are in poor or very poor condition. The inventory table in Appendix B includes a summary of County road pavement conditions.

Table 3-5

2001 STATE HIGHWAY PAVEMENT CONDITIONS

Highway	Milepost	Section Description	2001 Pavement Condition
I-84	42.1 - 45.6	Hood River Co. line to E. Cascade Locks	Good
(Columbia River Highway) ¹	45.6 - 59.0	E. Cascade Locks to Mitchell Point	Very Good ²
	59.0 - 64.4	Mitchell Point to Hood River I/C	Very Good ²
	64.4 - 67.7	Hood River I/C to Wasco Co. line	Fair
OR 35	59.7 - 62.0	Clackamas Co. line to Bennett Pass	Fair
(Mt. Hood Highway)	62.0 - 66.1	Bennett Pass to MP 66.1	Good
	66.1 - 68.1	MP 66.1 to Robin Hood	Poor
	68.1 - 73.8	Robin Hood to Polallie Creek	Good
	73.8 - 84.9	Polallie Creek to Mount Hood	Fair
	84.9 - 85.1	Mount Hood to Jct. Hwy 281	Very Good
	85.1 - 96.1	Jct. Hwy 281 to Neal Creek Mill Road	Good
	96.1 - 97.2	Neal Creek Mill Road to Neal Creek	Fair
	97.2 - 104.8	Neal Creek to Wasco Co. line	Very Good
US 30	28.7 - 30.0	Common alignment with I-84	-
(Historic Columbia River Highway)	30.0 - 31.3	Cascade Locks	Poor
	31.3 - 33.1	Located Line	-
	33.1 - 34.5	East of Cascade Locks	Poor
	34.5 - 48.7	Common alignment with I-84	-
	48.7 - 52.2	Hood River	Poor ³
Hwy 281	0.0 - 5.1	Jct. US 30 to Jct. Hwy 282	Poor
(Hood River Highway)	5.1 - 13.3	Jct. Hwy 282 to Trout Creek Ridge Road	Good
	13.3 - 17.3	Trout Creek Ridge Road to MP 17.3	Fair
	17.3 - 19.1	MP 17.3 to Jct. OR 35	Good
Hwy 282	0.0 - 3.5	Jct. Hwy 281 to Jct. OR 35	Fair
(Odell Highway)			

1. Columbia River Highway consists of four lanes with two in each direction. It is a divided highway with separate ratings for each direction. If only one rating is shown then both directions have the same rating.
2. These sections were repaved during the summer of 2002
3. Scheduled to be repaved in __.

Source: 2001 Pavement Condition Report – Oregon Department of Transportation Pavements Unit

3.11 BRIDGE CONDITIONS

Hood River County bridge inventory data from July 2002 was obtained from ODOT’s Bridge Maintenance Section and reviewed. Two mutually exclusive elements are used to rate bridge conditions: structural deficiency

and functional obsolescence. Structural deficiency is determined based on the condition rating for the deck, superstructure, substructure, or culvert and retaining walls. It may also be based on the appraisal rating of the structural condition or waterway adequacy. Functional obsolescence is determined based on the appraisal rating for the bridge deck geometry, underclearances, and approach roadway alignment. It may also be based on the appraisal rating of the structural condition or waterway adequacy.

The third element used to evaluate bridge conditions is the sufficiency rating, which is a complex formula that takes into account four separate factors to obtain a numeric value rating the ability of a bridge to service demand. The scale ranges from zero to 100 with higher ratings indicating optimal conditions and lower ratings indicating insufficiency. The sufficiency rating is not applied until a bridge is already either structurally deficient or functionally obsolete. Once identified as either structurally deficient or functionally obsolete any bridge with a rating of 80 or less requires rehabilitation and any bridge with a rating of 55 or less requires replacement.

There are 97 bridges within Hood River County. Hood River County owns and maintains 19 bridges, which are located throughout Hood River County. The state owns and maintains 76 bridges throughout Hood River County. There are 33 bridges located along Interstate 84, 25 bridges located along OR 35, three bridges on US 30, seven bridges along Hwy 281, and three bridges along Hwy 282. The two remaining bridges are owned and maintained by the local port authorities. The bridges are the Bridge of the Gods in Cascade Locks and the Hood River Bridge that crosses the Columbia River from Hood River to White Salmon.

ODOT Region 1 bridge section staff have identified 16 bridges that are currently substandard or are estimated to become substandard within the 20-year planning horizon. Fourteen out of the sixteen substandard bridges are functionally obsolete and the remaining two bridges are structurally deficient. The 16 bridges identified in **Table 3-6** will require some form of rehabilitation or replacement within the next 20 year. Eleven of the 14 bridges deemed functionally obsolete are on Interstate 84; the others are located on OR 35, Highway 281, and a private toll bridge, The Bridge of the Gods located in the City of Cascade Locks. The two bridges deemed structurally deficient are located along Interstate 84. One of the bridges which received a structurally deficient status is owned by the state and located on I-84 near milepost 63.41W where the road crosses over the Union Pacific Railroad tracks. The second bridge is owned by the local port authority and is located across the Columbia River between the City of Hood River and the Cities of Bingen/White Salmon (the Hood River Bridge over the Columbia River). These bridges received low scores for deck, superstructure, and substructure. They both also received extremely low sufficiency ratings of 22.4 and 8.3, respectively.

**TABLE 3-6
SUBSTANDARD BRIDGES OF HOOD RIVER COUNTY**

Bridge #	Bridge Name	Hwy	Meets which Element	Sufficiency Rating	Owner
08611	I-84 over Hazel St.	I-84	Functionally Obsolete	79.0	ODOT
08611W	I-84 WB over Hazel St.	I-84	Functionally Obsolete	79.0	ODOT
08605W	I-84 WB over I-84 WB	I-84	Functionally Obsolete	50.3	ODOT
08605	I-84 EB over I-84 WB	I-84	Functionally Obsolete	50.3	ODOT
08634	I-84 Connection over Sawmill Rd.	I-84	Functionally Obsolete	87.3	ODOT
08623	I-84 over Herman Creek	I-84	Functionally Obsolete	81.5	ODOT
09017	US 30 over I-84	I-84	Functionally Obsolete	79.0	ODOT
08662	I-84 EB over UPRR	I-84	Functionally Obsolete	75.1	ODOT
02443	I-84 WB over UPRR	I-84	Structurally Deficient	22.4	ODOT
02444	Hood River, I-84 EB	I-84	Functionally Obsolete	76.6	ODOT
02471B	I-84 Conn. Over UPRR & Frontage Rd.	I-84	Functionally Obsolete	95.1	ODOT
07398	I-84 over Connection 2	I-84	Functionally Obsolete	60.2	ODOT
06645	Columbia River, I-84 Conn. to White Salmon	I-84	Structurally Deficient	8.3	Local Port Authority
00646A	Hwy 26 over MHR (Van Horn)	OR 35	Functionally Obsolete	81.0	ODOT
02592	Bridge of the Gods	Private	Functionally Obsolete	83.0	Local Port Authority
01600	Hood River, Hwy 281 (Tucker)	Hwy 281	Functionally Obsolete	46.2	ODOT

3.12 ACCESS MANAGEMENT

Access management is a process of managing vehicular access to adjacent land use while simultaneously preserving the flow of traffic on the surrounding road system. Access management policies and strategies apply to driveways and other intersecting roadways and are designed to achieve a balance between the need to provide safe and efficient travel and the ability to access individual destinations. Access management is essential for preserving the ‘functional integrity’ of the street system by reserving the high speed and high capacity roads for longer distance trips, and assigning the lowest restriction of access to local roads. Implementation of appropriate roadway access management measures can provide substantial benefits to a community.

Access management is an important tool for promoting safe and efficient travel for both local and long distance users along a roadway. Research has clearly shown a direct correlation between the number of access points and collision rates. Typically, as the number of access points increases so do collision rates. Experience throughout the United States also has shown that a well-managed access plan for a street system can minimize local cost for transportation improvements needed to provide additional capacity and/or access improvements along unmanaged roadways. Therefore, it is essential that all levels of government maintain the efficiency of existing roadways through better access management.

Access management is best implemented by integrating it into the land development and permitting process. The problem of applying access management to a developed roadway system poses a much greater challenge due to right-of-way limitations and concerns by the owners of the adjacent properties and the affected businesses. In such cases, access management can be implemented as part of roadway improvement plans or as part of roadway retrofit plans.

3.12.1 Current Access Spacing Conditions

The following is a summary of the access conditions for Hood River County.

Hood River County addresses access management in Sec. 18.32(B), “Streets” of the County Subdivision Ordinance (i.e., 150’ between street centerlines) and in Article 19 (“Access Management Standards”) of the County Zoning Ordinance. In addition, both the Cities of Hood River and Cascade Locks have adopted access management strategies in their respective TSPs (see pp. 57-60 of the City of Hood River’s TSP and pp. 6-7 through 6-10 of Cascade Locks’ TSP).

The five state highways within Hood River County were evaluated. The average spacing between interchanges was determined along I-84. For the other four highways, the average spacing between accesses was determined. Accesses include driveways, streets, and ramps.

The segment of I-84, MP 42.1 to MP 67.7, runs east-west through Hood River County. It consists of three half interchanges and five full interchanges. The average spacing is about 3.3 miles between interchanges. **Table 3-7** summarizes the spacing between the midpoints of each interchange (see **Figure 3-4**).

OR 35, from MP 59.7 to MP 101.8, runs north-south through Hood River County with a total of 261 access points. The average spacing is about six access points per mile.

Hood River Highway, MP 0.00 to MP 19.1, starts in the City of Hood River and ends in Ziba Dimmick Wayside Park. A total of 434 access points were recorded. The average spacing is about 20 access points per mile.

The Odell Highway runs through the community of Odell between OR 35 and Hwy 281. The highway is 3.5 miles long with a total of 117 access points. The average spacing is about 33 access points per mile.

For access management standards please refer to the Access Management Section in Chapter 6.

TABLE 3-7
INTERSTATE 84 INTERCHANGE SPACING
IN HOOD RIVER COUNTY

Interchange Location	MP	Spacing From Previous Interchange (mile)
Bonneville Dam (Multnomah County)	40.27	
West Cascade Locks City Limits*	43.54	3.27
East Cascade Locks City Limits*	45.11	1.57
Herman Creek*	47.53	2.42
Wyeth Interchange	50.99	3.46
Viento Park Interchange	56.04	5.05
Mt. Hood Hwy Junction	62.06	6.02
Hood River 2nd Street Interchange	63.92	1.86
East Hood River Interchange	64.44	0.52
Mosier-The Dalles Hwy Junction (Wasco County)	69.79	5.35
Average Spacing		3.28

*Note: *indicates that the interchange is a half interchange.*

3.13 RAIL SERVICE

Rail service in the county is provided on the Union Pacific Railroad (UPRR) main line, which runs through the gorge near I-84; the Mount Hood Railroad branch line, which runs from the City of Hood River to the upper Hood River valley; and spur lines in Hood River and Cascade Locks. The main station is located in the City of Hood River between I-84 and the downtown area on Railroad Street; it serves approximately 30 trains per day.

3.13.1 Freight

The UPRR line runs through the northern part of the county hauling freight to Portland where it links with north and south lines. It also travels southeast to Colorado, then east to Chicago. There are no major at-grade crossings for the UPRR in Hood River County. From its interchange in Hood River, the UPRR receives mostly fresh fruit cargo and some propane and wood products. From its Cascade Locks interchange, the line primarily hauls wood products. The UPRR line has a rail classification of I and is in federal class 4. The federal class allows freight to travel at speeds up to 60 mph.

Some local freight hauling is performed by the Mount Hood Railroad branch, which travels from the Hood River Depot up the valley to Parkdale.

3.13.2 Passenger Rail

Intercity passenger rail service is not provided in Hood River County. Passenger service on AMTRAK on the Union Pacific Line was discontinued in November 1996 due to a lack of federal funding. The nearest passenger rail line for the Hood River County area is located in White Salmon/Bingen, Washington. AMTRAK provides service on the Burlington Northern Santa Fe Railway (BNSF) line, which runs from Portland to Vancouver, Washington, then east to Bingen and White Salmon, then north to Spokane. In Spokane, the train meets the

Empire Builder Line. The two merged lines then run east to Chicago. Direct Portland to Denver rail service no longer exists. This BNSF passenger line runs once a day in both the east and west directions.

Although neither Hood River nor Cascade Locks has passenger rail service, they both have passenger facilities adjacent to the Union Pacific line that runs through them. Therefore, if federal funding is reinstated, it would be easy to supply service to these cities.

The Mount Hood Railroad is a light density rail line, which traverses the corridor between Hood River and Parkdale. OR 35 crosses this branch line in several places south of Hood River. The line starts at a depot in Hood River and travels through Pine Grove, Odell, Dee, and Parkdale. The Mount Hood Railroad has a line classification of III and a federal classification of 2. The federal classification of 2 allows passenger trains to travel up to 30 mph and freight trains to travel up to 25 mph. This line is generally used for tourism, operating seasonally from April through October and in December. It is also available year round for charter service.

As of 2002, the Mount Hood Railroad received an approximately \$2 million dollar loan to refinance and rehabilitate the rail line. Approximately \$1 million will be used to pay for improvements. The remaining \$1 million will be used to refinance the line. A portion of the loan to refinance the line will be backed by funds from a state credit pool. The Mount Hood Railroad does not currently have plans to alter its service. However, if tourist demand grows, the frequency of service will be increased.

3.14 AIR SERVICE

There are four airports in the region: Hood River County Airport, Cascade Locks State Airport, Hanel Airport, and Green Acres Airpark near Odell. Hood River Airport is a general aviation airport located south of Hood River adjacent to Highway 281. It is owned and operated by the Port of Hood River and provides no regular air service, being used primarily by small planes for agricultural, business, and personal uses. Hood River Airport has one 3,040 foot paved runway, and is classified as a Level 4 facility (State Aviation designation), meaning that it accommodates general aviation users and local business activities. In August of 2002, the Hood River Airport initiated a new Airport Master Plan process to guide future development at the airport. The Cascade Locks Airport is a Level 5 (State Aviation designation) airport in Cascade Locks, which provides facilities for emergency and recreational use. Currently, Cascade Locks airport is listed as a Warning Airport by the Oregon Department of Aviation due to its short runway length (1800 feet) and erratic wind currents. Private airports include the Hanel Airport located near OR 35 south of Odell and Green Acres Airpark, a small airport located near Highway 281 northwest of Odell. Hanel Airport has one 1925 foot asphalt/turf runway and one based aircraft.² Green Acres Airpark has one 850 foot turf runway with two based aircraft.

The closest commercial air service is approximately 40 miles west of Cascade Locks at the Portland International Airport in Portland. Portland International Airport is a full service airport, handling both passengers and cargo. The convenient accessibility of Portland Airport via I-84 and the wide range of services it offers limit the likelihood of significant expansions of the smaller airports in Hood River County.

Although the Hood River Airport does not have plans to provide commercial air service any time in the near future, it could accommodate much more traffic than it currently serves (possibly ten times the amount). The Port of Hood River is expanding the airport's hangar capacity to meet high demand for storage capacity. In 1995, the Port spent one million dollars on a new access road and a dozen new T-hangars holding around forty planes.

² Total runway width is 75 feet, 25 feet of which are asphalt.

Currently, the Port is exploring the possibility of constructing additional new hangers. This is due to the lengthy waiting list for the current hanger facility.

3.15 WATER TRANSPORTATION

There are two ports in Hood River County: the Port of Hood River and the Port of Cascade Locks. The Port of Hood River has extensive property holdings along the waterfront, in downtown Hood River, and west of Odell. The waterfront property consists of 80.8 acres along the Columbia River in the northeastern portion of the City of Hood River. This property is used for both recreational and commercial activities, including servicing of barges and other large commercial vessels. It includes a shallow draft port, an extensive marina park, and an industrial park. The shallow port (less than 28 feet deep) is not used for cargo handling, rather, serving as a private boat dock containing 140 boat slips, mostly used by tenants and their craft and occasionally cruise ships. The marina park is the regional center for sailing, boating, and swimming. It houses the Columbia Gorge Sailpark, known as one of the best boardsailing locations in the world. The industrial park is largely undeveloped, but plans call for building mixed-use development with a motel/convention center, a public park, and high density housing.

Other Port of Hood River holdings include a 21-acre site in downtown Hood River and a 29-acre industrial park immediately west of Odell. The Port has improved both of these sites and its Hood River property is included in the city's urban renewal district. The Port also owns and operates the Hood River/White Salmon Bridge and the Hood River Airport.

There are currently no plans for future commercial or shipping uses at the Port of Hood River. However, the port's capacity to handle commercial shipping may increase depending on the course of development decided upon in the waterfront planning process currently being undertaken. Also, an increase in passenger travel could be accommodated by the marina. Any new passenger travel is likely to serve tourism since the City of Hood River's tourism economy has increased dramatically and the trend should continue. The Columbia River Gorge cruise ships currently stop in Hood River.

The Port of Cascade Locks owns and operates several facilities in the Cascade Locks area. The Port operates the Bridge of the Gods, a toll bridge connecting Cascade Locks with Stevenson Washington. They also own and operate the Sternwheeler, a 600-passenger vessel that provides dinner and excursion trips. The Port owns several properties, including:

- 120-acre industrial park. The industrial park is zoned for a combination of industrial, heavy industrial, commercial and residential use. Approximately 60 acres have public facilities and are available for development.
- 20-acre Marine Park. This park includes a marina with approximately 30 slips, a campground with about 40 sites, and a Locks facility, facilitating passage upriver for tug boats and other vessels.
- One-acre parcel on Wa Na Pa Street zoned for commercial use.
- 40-acre parcel east of the Bridge of the Gods zoned for residential use.

3.16 TRANSIT

Transit is an important part of a multi-modal transportation system, and is an essential service for those without access to automobile travel. The *Transportation Planning Rule* calls for the creation of a multimodal

transportation network that will reduce reliance on the automobile and “support a pattern of travel and land use in urban areas which will avoid the air pollution, traffic and livability problems faced by other areas of the country.”

3.16.1 Local Service

Public transit service within Hood River County is coordinated by Hood River County Transportation District, operating as Columbia Area Transit (CAT). The district provides county-wide demand-responsive transportation services. The District also operates shuttle service from the City of Hood River to Mt. Hood Meadows and Cooper Spur ski area along OR 35. It operates during the ski season (usually December through March) on weekends and holidays.

CAT’s demand-responsive, door-to-door service operates Monday through Friday for the Hood River, Odell, Parkdale and Cascade Locks communities. There is no service during the weekend. Service is provided once a month to different designated locations in Portland. Medical transportation is provided to Portland only when the trip is funded by an outside source such as Medicaid. People who are dependent on transit are the majority of the transit service ridership in Hood River County.

As of July 2002, CAT had six (6) twenty (20) passenger vehicles, one (1) 16 passenger vehicle and one (1) forty-five (45) passenger vehicle. All vehicles are equipped with wheelchair lifts. The smaller vehicles are of the “cutaway” style and the large bus is an “over-the-road” style coach.

3.16.2 Intercity Transit

Greyhound bus lines provides intercity bus service to the Hood River and Cascade Locks depots. The buses stop in Hood River and Cascade Locks en route to Portland on I-84 west, and to The Dalles and Boise, Idaho, on I-84 east. This service operates four to five times a day. Greyhound also runs a bus from Hood River to Biggs and then north to Spokane, Washington.

3.17 BICYCLES

Bicycle travel is allowed on all state highway system roadway segments in Hood River County, including I-84, US 30, OR 35, Highway 281, and Highway 282.

Consistent with the 1995 Bicycle and Pedestrian Plan a shoulder bikeway shall be a minimum width of four (4) feet on rural roads. A shoulder bikeway accommodates bicyclists on a hard shoulder of the road. This provides better separation of cyclists from motorists and more safety than a shared roadway. The roadway inventory along I-84 indicated that the shoulders are wide enough to accommodate bicyclists. An inventory of the shoulder widths completed in 1998 as part of the OR 35 corridor study, indicated that the shoulders along the southern 10 miles of OR 35 are in good shape with shoulders exceeding four feet in width, the middle 18 miles are in poor shape with many deficient areas, and the northern 10 miles have fairly wide shoulders with few deficiencies. Therefore, although some sections of OR 35 can accommodate bicyclists on the shoulder the bicyclist must share the roadway with passenger vehicles for about half the length of OR 35. Similar to the majority of OR 35, the parallel district highways Hwy 281 and Hwy 282, have deficient shoulders for bicycle use therefore requiring bicyclists to share the roadway with passenger vehicles.

In 1990, Hood River County conducted a survey and created the Bicycle Informational Profile. This Profile gauged the demand for bicycle facilities on certain roads and likelihood that demand would increase if bicycle

facilities were improved. This study revealed that OR 35 is presently the third most used bicycle facility in the County. It also found that 80 percent of respondents said they were likely to bicycle more often if better bicycling facilities were developed in the county. Consequently, if facilities are improved within Hood River County, bicycle use of OR 35 is expected to increase.

As a result of the 1990 Bicycle Informational Profile, the county has added paved shoulders to portions of Belmont Drive (city limits to Fairview), Indian Creek Road (Belmont to Brookside), and Country Club Road (Sunset to Portland Drive), the county's three busiest collectors. The facilities are used for recreational use and commuting. They are all relatively new and in very good condition.

The 2010 Hood River County Bicycle Plan is incorporated by reference in the TSP and the County's Comprehensive Plan Background Document. New bicycle facilities have been constructed in Hood River County as part of the Historic Columbia River Highway State Trail.

Additional trails also have been added in the Mount Hood National Forest. The additional trails include the Laurance Lake High Route Trail (approximately 1.5 miles constructed to date, 3 additional miles planned), the Rainey-Kingsley Trail (approximately three miles), and the Skyline Trail (one mile open to bicycles in Lost Lake Campground area).

3.18 PEDESTRIANS

Pedestrian facilities within the rural portions of the county, as typical in Oregon, are minimal (at most a paved shoulder). Pedestrian travel along the OR 35 corridor occurs predominantly within the urban areas. No sidewalks are currently provided in those regions. In rural areas of the corridor, it is anticipated that the small number of pedestrians on the highway can be accommodated on the roadway shoulders.

The County provides three-foot gravel shoulders where space allows. There are four roadway segments with paved shoulders throughout the county: Belmont Drive (city limits to Fairview), Indian Creek Road (Belmont to Brookside), Country Club Road (Sunset to Portland Drive), and Wyeast Road (Highway 282 to Summit). In addition, the County requires streets with sidewalks and wheel chair ramps when urban density subdivisions are developed.

Recreational walking trails are present throughout the County, particularly in the Mount Hood National Forest, which added three trails. The Pacific Crest Trail can be accessed from Cascade Locks. Other improvements include making the trail from Starvation Creek to Viento more accessible.

3.19 OIL AND GAS PIPELINES

The NW Natural Gas Company has a high-pressure natural gas pipeline (lines over 100 pounds) that traverses and crosses twice along the length of the I-84 corridor. In addition a normal-pressure gas pipeline is located on an overpass that crosses I-84 at the west-end of town, MP 62.06. Northwest Natural also has a high-pressure pipeline that traverses OR 35, crossing the highway two times. While a normal-pressure gas pipeline runs parallel to OR 35 from 2500 feet south of Dethman Ridge Road until Old Mount Hood Loop Highway. No oil transmission lines cross or traverse the OR 35 corridor. The Northwest Pipeline Corporation has a transmission pipeline that crosses the Hood River Toll Bridge and stops on the Oregon side along with a metering station for their Washington pipeline. The metering station is located on the Oregon side of the Toll Bridge. The cities of Hood River and

Cascade Locks and the northern portion of the county are provided with natural gas service, while the southern portion of the county is not served.

3.20 PARK AND RIDE FACILITIES

There are no official park and ride facilities within Hood River County. However, several existing parking lots are used as informal park and ride areas. This may indicate the need for formal park and ride facilities.

Several areas serve as “de-facto” car pool parking areas, possibly indicating a need to preserve some of these areas, as well as find additional ones to serve future needs. Another alternative would be to look into securing permission to use parking lots not traditionally used during the week (e.g., churches). Some informal park & rides may present safety issues if they lead to conflicts between users and through traffic (e.g., parking of trucks up near Cooper Spur). Areas currently being used as informal park and ride lots include:

- Highway 35/30 junction. This is used by persons headed on the freeway, to Washington, and up highway 35. It probably gets the most use of any area in Hood River.
- Wal Mart parking lot. Used primarily by people headed west on I-84. The store varies in their tolerance of this practice.
- Mt Hood Town Hall/Mt. Hood Store. Used by upper valley residents. Most use occurs as people head up to ski during the winter. Use is probably not compatible with the lot’s main purpose.
- National Scenic Area lot/Sprint Telephone Building Lot. Probably used mostly by travelers to Portland.

3.21 INTERMODAL LINKS

The Oregon Transportation Plan identifies connectivity between different modes of travel as a key element in meeting the state’s quality-of-life and economic development goals. Many of the major transportation facilities in the county are clustered, making intermodal connections possible. In Cascade Locks, the airport is located adjacent to the Union Pacific Railroad, and very near I-84 and the Port of Cascade Locks. In Hood River, the port, I-84, and the rail lines are also very close to each other. The airport and the inter-city bus depot are the only major modes that are not centrally located in the city. (The airport is roughly two miles south of the city, and Greyhound stops at the Port of Hood River Marina.) Pedestrian and bicycle access to these transportation hubs is currently limited, although Highway 281 provides bicycle and pedestrian access to the airport, Greyhound station, and downtown Hood River. The demand responsive transit service operated by the Columbia Area Transit District can bring passengers to any of the transportation centers in the county.

3.22 POPULATION AND EMPLOYMENT

Population and employment within the study area strongly impact the service levels of the highways, local roads, and parts of the transportation system.

The county’s 2000 population was 20,411. Its largest city is Hood River, which had a population of 6,020 in 2001. Cascade Locks is the next largest city in the county with a 2001 population of 1,130. It is located 19 miles west of Hood River along the Columbia River. Unincorporated communities in the county are Parkdale, Odell,

Oak Grove, Mt. Hood, Dee, Wyeth, Viento, and Pine Grove. The county's principal industries are agriculture, lumber and wood products, retail trade, and recreation/tourism.

The attractiveness of the area and its appeal for recreation/tourism make continued economic development and population growth likely. The City of Hood River is fast becoming one of the most popular locations for windsurfing in the world. Wilderness along the Columbia River Gorge and in the Mount Hood National Forest offer beautiful hiking opportunities. Also, the Mt. Hood Meadows and Cooper Spur Ski Areas offer skiing and other winter and summer recreation opportunities.

4. TRAFFIC FORECASTS AND ANALYSIS

Travel demand forecasting helps identify future traffic demand along streets and at intersections. Future traffic volumes were projected based on existing and future land use projections and historical growth trends in traffic on the highway system. Forecasts focused on existing (2002) and future year (2020) traffic conditions during the design hour volume (DHV) along state highways or the average daily traffic (ADT) volume along higher volume county roads. The DHV is the 30th highest hourly traffic volume recorded along the state highway segments throughout the year.

The Hood River County forecasts focused on 24-hour traffic conditions for an average weekday. Existing (2002) traffic volume information was obtained from the ODOT *Traffic Volume Tables*, as well as daily traffic counts recorded by officials from the Hood River County Public Works Department.

A description of the steps used to project future traffic conditions in the county is described below.

4.1 STUDY AREA DEFINITION

The study area is defined by the Hood River County boundary, excluding the cities of Hood River and Cascade Locks, which are separate study areas with separate forecasts. Traffic forecasts were prepared for segments of the five state highways - the roads that experience the heaviest amount of traffic in the county. These include: I-84, OR 35 (The Mt. Hood Highway), Highway 281 (Hood River Highway), Highway 282 (Odell Highway), and the Historic Columbia River Highway (HCRH). The forecasts were prepared using ODOT's Level 1-Trending Forecast analysis methodology, as described later in this chapter. Because of the link between transportation growth and population trends, both historic and projected Hood River County population growth trends are presented for comparison to historic and projected traffic growth trends.

4.2 LAND USE

Land use and population growth is accounted for in the historic traffic volume trends used to forecast future traffic levels on state highways. Population forecasts were developed for comparison to forecast traffic volumes and to better determine the potential locations of future transportation needs. The amount of population growth, and where it occurs, has the potential to affect traffic and transportation facilities in the study area.

The State of Oregon Office of Economic Analysis (OEA) bases population projections in Hood River County on historic growth rates and forecasts. Factors that will affect the future population growth rate in Hood River County include employment opportunities, available land area for development, and community efforts to manage growth.

The study area was broken into five smaller areas or traffic analysis zones (TAZs). These five zones reflect the US Census County Divisions (CCDs). CCDs are subdivisions of a county that were delineated by the US Census Bureau, with state and local input, for statistical purposes. CCD boundaries are usually delineated to follow visible features and, in most cases, coincide with census tract or block numbering area boundaries. The five CCDs chosen were: Cascade Locks division, Dee division, Parkdale division, Hood River division, and Odell division. These zones were formed in order to tie land use activity and trips generated by land uses to physical locations within the county. An illustration of the TAZ's for Hood River County is shown in **Figure 4-1**.

4.2.1 Base Case (2000) Population

Historic and current population estimates were derived from the U.S. Census. **Table 4-1** presents historic and current population levels for the five CCDs. The 2000 census population for Hood River County is 20,411.

**TABLE 4-1
HISTORIC POPULATION GROWTH TRENDS**

Census County Division	1990 Population	2000 Population	Percentage of Total 2000 County Population	Growth Rate (AAGR ¹) (1990-2000)
Cascade Locks division	951	1,128	5.5%	1.7%
Dee division	917	1,024	5.0%	1.1%
Parkdale division	1,687	1,966	9.6%	1.5%
Hood River division	8,947	11,071	54.2%	2.2%
Odell division	4,381	5,222	25.6%	1.8%
Total	16,903	20,411	100.0%	1.9%

1. Average Annual Growth Rate (compounded)

Source: U.S. Census Bureau (County historic data)

4.2.2 Projected (2020) Population

Population projections for the five CCDs were estimated based on historical trends, consultation with the Hood River County planning department, and growth rates prepared by the Oregon Office of Economic Analysis (OEA). Countywide growth rates are based on OEA projections, as required by state laws and administrative rules.

Population growth is projected to occur at approximately one percent per year. Under these assumptions, the county would have a population of 25,888 in 2020.

In estimating how much growth will occur in each CCD, it is assumed that urban areas will absorb most of the County's anticipated growth. This is consistent with past and current local, state, and national trends. Currently, approximately 40 percent of the county's population live in rural areas outside the Hood River and Cascade Locks CCDs. This portion of the county's population residing in rural areas is projected to decline slightly as the county develops vacant land on the urban fringe. The Hood River census county division is expected to have the highest percentage of growth. None of the CCDs were assumed to decline in population over the next 20 years. **Table 4-2** presents year 2020 population estimates. Population estimates and projections are year-round estimates and do not reflect seasonal fluctuations related to recreation and tourism.

**TABLE 4-2
2020 POPULATION**

Census County Division	Population	Percentage of Total County Population	Growth Rate (AAGR¹) (2000-2020)
Cascade Locks Division	1,377	5.3%	1.0%
Dee Division	1,084	4.2%	0.3%
Parkdale Division	2,307	8.9%	0.8%
Hood River Division	14,686	54.2%	1.4%
Odell Division	6,434	25.6%	1.0%
Total	25,888	100.0%	1.2%

1. Average Annual Growth Rate (compounded)
Source: U.S. Census Bureau (County historic data)

4.3 TRAFFIC VOLUMES

The traffic volume forecasts for Hood River County are based on historic population growth as well as traffic growth on the state highway system. The forecasts were prepared using ODOT's Level 1-Trending Forecast analysis methodology, as described in the section titled Forecasting Methodology.

4.3.1 Historic

Before projecting future traffic growth, it is important to examine past growth trends on the Hood River County roadway system. ODOT reports traffic count data on the state highways (rural and urban sections) every year at the same locations. The most current volumes available, and the ones reported in this TSP, are from 1999 through 2001. ODOT annually counts one-third of the state highway system, meaning Hood River County highways are counted once every three years. Traffic volumes for locations not physically counted during a certain year are estimated based on nearby regional traffic volume growth trends.

Historical growth trends on the state highways in Hood River County were established using the Average Daily Traffic (ADT) volume information presented in the ODOT Traffic Volume Tables for the years 1980 through 2001. The ADT volumes were obtained for each of these years at several locations along each highway. Average traffic growth rates were determined along highway segments as presented in **Table 4-3**.

TABLE 4-3

HISTORIC TRAFFIC GROWTH RATES ON STATE HIGHWAYS

Highway Section	Milepost	Historic ADT Volumes ¹		Average Annual Linear Growth Rate ¹	Total Growth
		1980	2001	1980-2001	1980-2001
I-84 (Columbia River Highway)					
Rural- Multnomah/Hood River Co. line to Cascade Locks	42.1 - 43.5	11,000	21,600 ²	5.07% ²	96.4% ²
Urban- Cascade Locks	43.5 - 45.1	8,000	18,200 ²	6.71% ²	127.5% ²
Rural- Cascade Locks to Hood River	45.1 - 62.9	10,000	20,520 ²	5.54% ²	105.2% ²
Urban- Hood River	62.9 - 64.8	11,850	23,750 ²	5.29% ²	100.4% ²
OR 35 (Mt. Hood Highway)					
Rural- Clackamas/Hood River Co. line to Hwy 281	59.7 - 85.0	605	1,500 ³	7.40% ³	147.9% ³
Rural- Hwy 281 to Hwy 282	85.0 - 95.2	2,380	4,600 ³	4.66% ³	93.3% ³
Rural- Hwy 282 to Hood River	95.2 - 101.7	3,535	5,955 ³	3.42% ³	68.5% ³
US 30 and/or Historic Columbia River Highway					
Urban- Cascade Locks	30.3 - 33.1	3,700 ⁴	3,880	0.81%	4.9%
Urban- Hood River	49.2 - 51.1	7,925 ⁴	8,875	1.99%	11.9%
Rural- Hood River to Hood River/Wasco Co. line	51.1 - 52.1	555 ⁴	535	-0.50%	-3.0%
Hwy 281 (Hood River Highway)					
Urban- Hood River	0.0 - 1.2	7,100	9,870	1.86%	39.0%
Rural- Hood River to Hwy 282	1.2 - 5.1	3,920	6,300	2.89%	60.7%
Rural- Hwy 282 to OR 35	5.1 - 19.1	1,175	1,650	1.93%	40.6%
Hwy 282 (Odell Highway)					
Rural- Hwy 281 to OR 35	0.0 - 3.5	2,585	3,790	2.22%	46.6%

1. ADT volumes along highway segments defined by beginning and ending mileposts.

2. Volumes were counted in 1999.

3. Volumes were counted in 2000

4. Highway was established in 1995; therefore volumes were counted in 1995.

Note: Volumes were rounded to nearest 5.

Source: ODOT TPAU 2019 Traffic Forecast; information compiled by David Evans and Associates, Inc.

Over the past 20 years, traffic levels have grown throughout most of Hood River County. The average annual linear growth rates along highway segments in Hood River County are approximately 0.25 to 7.4 percent. The two highways that experienced the highest annual growth are I-84 and OR 35. The only highway segment that experienced a slight decline in traffic volume was the rural section of the HRCR between the city of Hood River and the Hood River/Wasco County line.

In general, historic linear average annual traffic volume growth on the rural sections of the state highways exceeded the 20-year compound historic population growth in Hood River County. Hood River County has experienced population gains during this decade of approximately 3,500 people (1.9 percent per year since 1990). Over the same 20-year period, for the most part, rural traffic volumes increased at a higher rate, reflecting recent trends of increasing per capita vehicle miles traveled and commercial and tourist traffic.

4.3.2 Forecasting Methodology

Future traffic volume forecasts along state highways in Hood River County were developed by ODOT's Transportation Planning and Analysis Unit (TPAU). The TPAU forecasts are based on a *Level 1-Trending Forecast*³ analysis methodology based on available existing and historical traffic data. This analysis takes into account the lack of existing information and the fact that the rural areas of Hood River County have less than 15,000 population. This methodology assumes that traffic demand on the state highways will grow over the 20-year planning period according to the linear 20-year historical traffic growth rate. TPAU developed a comprehensive summary of statewide traffic growth trendlines to support development of the 1999 Oregon Highway Plan (OHP). They intend to update the trendlines every few years and, for consistency, recommend that statewide transportation analysis be based on their growth rates.

TPAU develops historical traffic growth trendlines by assessing ADT volumes for each reported highway location in the years where actual ODOT counts were taken. They also investigate suspect count information and adjust volumes as needed. Using a linear regression process, the linear trendline that best fits the volume data points is determined. This historical trendline is then used to forecast future traffic volumes over the 20-year planning horizon. As new data is added to TPAU's database, the trendlines are refined.

State highway locations that have displayed increasing 20-year historical traffic growth are assumed to continue to grow according to the 20-year historical linear trendline growth rate. Locations displaying negative historical traffic growth are assumed to remain unchanged, displaying neither increased or decreased traffic volume growth. This supports TPAU's position that negative traffic volume growth is not generally sustained over long periods of time. DEA forecasted 2020 traffic volumes based on 2019 volumes provided by TPAU.

Based on historical volume data recently provided by Hood River County, DEA used a similar trendline growth rate methodology as that applied to state highway sections to forecast 2020 volumes for select county road sections. The methodology takes into consideration the forecast population growth (1.2% per year) for Hood River County and planned land uses by 2020.

4.3.3 Trendline Comparisons

Table 4-4 summarizes the 2020 traffic volumes forecast and resulting 20-year traffic volume growth rates. State highway volumes throughout Hood River County are expected to grow over the next 20 years. Comparisons between forecast linear growth rates in **Table 4-4** and historical linear growth rates in **Table 4-3** indicate that the annual and total linear growth rates are expected to continue to increase although at a slower rate than experienced historically. With the exception of the two segments along US 30 between Hood River and the Hood River/Wasco County line, all of the highway segments are forecast to experience less net traffic volume increase over the next 20 years than they experienced over the last 20 years.

Table 4-5 summarizes the 2020 county roadway traffic volumes forecast and resulting 20-year traffic volume growth rates. County roadway volumes throughout Hood River County are expected to grow over the next 20 years. Data for County roadways are collected when needed, thus there was not enough historical information to determine a linear growth rate. At the request of the County, growth rates of 2.0% were used for lower valley county roadways and 1.2% for upper valley county roadways.

³ ODOT *Transportation System Planning Guidelines*, May 2001, p. 29.

TABLE 4-4

FUTURE FORECAST TRAFFIC GROWTH RATES ON STATE HIGHWAYS

Highway Section	Milepost	Average				
		2001 ADT	2019 ¹ ADT	2020 ² ADT	Annual Linear Growth Rate ³ 2001-2020	Total Growth ³ 2001-2020
I-84 (Columbia River Highway)						
Rural- Multnomah/Hood River Co. line to Cascade Locks	42.1 - 43.5	21,600 ⁴	33,100	33,675	2.66%	55.9%
Urban- Cascade Locks	43.5 - 45.1	18,200 ⁴	26,800	27,230	2.36%	49.6%
Rural- Cascade Locks to Hood River	45.1 - 62.9	20,520 ⁴	28,340	28,730	1.91%	40.0%
Urban- Hood River	62.9 - 64.8	23,750 ⁴	34,500	35,040	2.26%	47.5%
OR 35 (Mt. Hood Highway)						
Rural- Clackamas/Hood River Co. line to Hwy 281	59.7 - 85.0	1,500 ⁵	2,250	2,290	2.63%	52.6%
Rural- Hwy 281 to Hwy 282	85.0 - 95.2	4,600 ⁵	6,420	6,515	2.08%	41.6%
Rural- Hwy 282 to Hood River	95.2 - 101.7	5,955 ⁵	9,285	9,460	2.94%	58.8%
US 30 and/or Historic Columbia River Highway						
Urban- Cascade Locks	30.3 - 33.1	3,880	5,880	5,990	2.86%	54.4%
Urban- Hood River	49.2 - 51.1	8,875	10,635	10,735	1.10%	21.0%
Rural- Hood River to Hood River/Wasco Co. line	51.1 - 52.1	535	935	955	4.11%	78.0%
Hwy 281 (Hood River Highway)						
Urban- Hood River	0.0 - 1.2	9,870	13,370	13,565	1.97%	37.4%
Rural- Hood River to Hwy 282	1.2 - 5.1	6,300	8,360	8,475	1.82%	34.5%
Rural- Hwy 282 to OR 35	5.1 - 19.1	1,650	1,835	1,845	0.63%	11.9%
Hwy 282 (Odell Highway)						
Rural- Hwy 281 to OR 35	0.0 - 3.5	3,790	5,870	5,985	3.05%	57.9%

1. 2019 Volumes were estimated by TPAU.
2. 2020 Volumes were estimated by DEA.
3. Average traffic volumes along highway segments defined by beginning and ending mileposts.
4. Volume was counted in 1999.
5. Volume was counted in 2000.

Note: Volumes were rounded to nearest 5.

Source: Information compiled by David Evans and Associates, Inc.

**TABLE 4-5
FUTURE FORECAST TRAFFIC GROWTH RATES ON COUNTY ROADWAYS**

Roadway Section	2002 ADT	2020¹ ADT	Average Annual Linear Growth Rate 2002-2020	Total Growth 2002-2020
Country Club Road near Cascade Avenue (HCRH)	4835	6570	2.00%	36.0%
Country Club Road just south of Post Canyon Drive	2565	3485	2.00%	36.0%
Country Club Road just north of Belmont Drive	2560	3480	2.00%	36.0%
Country Club Road just south of Barrett Drive	1590	2155	2.00%	36.0%
Country Club Road just north of Portland Drive	805	1090	2.00%	36.0%
Frankton Road just south of Country Club Road	1630	2215	2.00%	36.0%
Frankton Road just south of Post Canyon Drive	2425	3300	2.00%	36.0%
Frankton Road just north of Belmont Drive	1805	2455	2.00%	36.0%
Indian Creek Road just north of Brookside Drive	3485	4740	2.00%	36.0%
Indian Creek Road just south of Brookside Drive	3590	4880	2.00%	36.0%
Indian Creek Road just north of Barrett Drive	2895	3930	2.00%	36.0%
May Drive just east of Frankton Road	1745	2370	2.00%	36.0%
Fairview Drive just east of Frankton Road	825	1120	2.00%	36.0%
Fairview Drive just west of Belmont Drive	710	960	2.00%	36.0%
Belmont Road just east of Country Club Road	830	1125	2.00%	36.0%
Belmont Road just west of Frankton Road	1770	2405	2.00%	36.0%
Belmont Road just east of Alameda Road	2155	2930	2.00%	36.0%
Barrett Road just east of Markham Road	2450	3330	2.00%	36.0%
Barrett Road just west of Alameda Road	2520	3425	2.00%	36.0%
Barrett Road just west of Indian Creek Road	2825	3835	2.00%	36.0%
Portland Drive just east of Country Club Road	510	695	2.00%	36.0%
Portland Drive just west of Markham Road	775	1050	2.00%	36.0%
Portland Drive just west of Indian Creek Road	1135	1540	2.00%	36.0%
Dethman Ridge Road just east of Hwy 282	1655	2010	1.20%	21.6%
Dethman Ridge Road just west of OR 35	1570	1905	1.20%	21.6%
Summit Drive just east of Hwy 281	910	1105	1.20%	21.6%
Summit Drive just west of Wy East Road	1745	2120	1.20%	21.6%
Summit Drive just west of Hwy 282	1805	2190	1.20%	21.6%
Lost Lake Road just west of Hwy 281	935	1135	1.20%	21.6%
Lost Lake Road	555	675	1.20%	21.6%
Lost Lake Road (western count)	370	445	1.20%	21.6%
Woodworth Drive just west of Hwy 281	175	210	1.20%	21.6%
Woodworth Drive just east of Hwy 281	610	740	1.20%	21.6%
Woodworth Drive just west of Alan Road	770	935	1.20%	21.6%
Woodworth Drive just west of OR 35	920	1120	1.20%	21.6%
Clear Creek Road (1)	1335	1620	1.20%	21.6%
Clear Creek Road (2)	940	1140	1.20%	21.6%
Clear Creek Road (3)	235	285	1.20%	21.6%
Clear Creek Road (4)	185	225	1.20%	21.6%
Cooper Spur Road (1)	770	935	1.20%	21.6%
Cooper Spur Road (2)	935	1135	1.20%	21.6%
Cooper Spur Road (2)	155	190	1.20%	21.6%
Cooper Spur Road (4)	120	140	1.20%	21.6%

1. 2020 Volumes were estimated by DEA.

Note: Volumes were rounded to nearest 5.

Source: Information compiled by David Evans and Associates, Inc.

4.3.4 Future Traffic Volumes

Table 4-4 and **Table 4-5** summarize the average forecast 2020 traffic volumes along rural and urban state highway and county roadway sections in Hood River County. Future 2020 ADT traffic volume projections for the county are illustrated in **Figures 4-2** (state highways) and **4-3** (county roads).

Rural highway traffic volumes are expected to grow from 11.9 percent along Hwy 281 between Hwy 282 and OR 35 to 78.0 percent along US 30 between Hood River and Hood River/Wasco County line. The total expected growth for the urban sections ranges from 21 percent along US 30 in Hood River to 54.4 percent along US 30 in Cascade Locks.

Figure 4-3 illustrates future 2020 traffic volumes along higher volume county roads. This represents a background condition of 2% growth per year along lower valley county roads and 1.2% growth per year along upper valley county roads. Hood River County representatives have indicated that four proposed major developments could influence these future projections. The four proposed developments as well as the estimated site generated trips/additional growth rate are:

- Wal-Mart Supercenter located at the southeast corner of the Country Club/Frankton Roads intersection (7,900 ADT trips);
- Wind Master Corner Rezone (0.8% per year additional traffic growth);
- Cooper Spur/Mount Hood Four Seasons Resort with access via OR 35/Cooper Spur Road (1,945 ADT trips); and
- Casino in Hood River County operated by the Confederated Tribes of the Warm Springs.

It was determined that there is not enough information about the proposed casino to evaluate its potential traffic impacts. **Figures 4-4** and **4-5** indicate the results of adding the additional trips from the three proposed developments to the background volumes (**Figures 4-2** and **4-3**). For the Wal-Mart development, traffic analyses specifically prepared for the initial development proposal were reviewed and additional traffic counts were incorporated in the traffic model utilized for the TSP.⁴ For the Wind Master Corner area, an additional level of traffic growth was assumed based on potential increased densities in the area.⁵ For the potential Cooper Spur

⁴ DEA based its analysis on the traffic study submitted as part of Wal-Mart's 2001 application (LUP #01-354) for site plan review to the County: "Updated Supplemental Transportation Impact Analysis: Hood River Wal-Mart Supercenter," prepared by The Transpo Group, June 2002.

⁵ DEA based its analysis on the following study: "Transportation Impact Analysis for the Trail Theater Property Rezone" (prepared by Kittelson & Associates, Inc., June 2001), which was submitted as part of a request to rezone property (ZC #01-055) from Rural Residential to Commercial and Industrial at the southeast corner of the intersection of Barrett Drive and Tucker Road, where the old Drive-In Theater used to be.

resort development, additional traffic levels were based on preliminary development assumptions provided by Mt. Hood Meadows personnel.⁶ These additional trips are not included in the figures in Table 4-5.

4.4 ANALYSIS

The intersection of the junction of Indian Creek Road, Barrett Road, and Tucker Road (Windmaster Corner) was identified as a problem by TAC members during the draft 1996 TSP planning process. This intersection currently operates at LOS B. Based on the forecasts described here, it is expected to operate at LOS C or better for the next 20 years.

As identified in Chapter 3 (Existing Conditions), the 1999 Hood River-Mt. Hood OR 35 Corridor Plan documented three intersections where congestion will continue to be a problem without improvements. The three intersections are located within the urban growth boundary but outside of the city limits of Hood River. The three intersections, I-84/US 30 (East Hood River) EB and WB on/off-ramps and State Street/HCRH and OR 35 (Button Junction) will continue to experience congestion problems unless intersection improvements are completed.

In addition, future capacity deficiencies are projected at the westbound and eastbound ramps at the West Hood River (I-84/US 30) interchange, plus the Cascade Avenue intersections with Country Club Road and Rand Road based on review of the traffic impact study (The Transpo Group, June 2002) conducted for the proposed Wal-Mart Supercenter in 2001. Future LOS F conditions, v/c ratios that exceed the ODOT standard of 0.85, and increased delay are expected at each of these intersections. The Final Wal-Mart Supercenter traffic analysis provides additional details.

The major roadway segment volume forecasts for OR 35/Cooper Spur Road do not provide sufficient information to warrant specific improvements. However, additional traffic analysis is recommended for this area as plans for future resort development are advanced. The OR 35/Cooper Spur Road intersection also should be monitored for potential warrant of a future left-turn lane for northbound OR 35 traffic.

⁶ The source for this information was a discussion between David Riley, General Manager for Mt. Hood Meadows, and Scott Richman and Dwayne Hofstetter, DEA, at a meeting on October 24, 2002.

5. TRANSPORTATION SYSTEM ALTERNATIVES

As required by the Oregon Transportation Planning Rule (TPR) and recommended by the 2001 ODOT Transportation System Planning Guidelines, potential transportation system alternatives were identified and considered for the Hood River County TSP. The level of detail and analysis is geared toward the predominantly rural nature of Hood River County, and is not appropriate for larger and more densely populated urban areas. These potential alternatives are described in this chapter, and consist of:

- No-Build Alternative;
- Transportation Demand Management Alternative;
- Transportation System Management Alternative; and
- Roadway Improvements Alternative.

5.1 NO-BUILD ALTERNATIVE

Overview: The purpose of a No-Build Alternative is to examine future conditions without improvements to the transportation system beyond programmed maintenance activities. As it pertains to Hood River County, the No-Build Alternative would consist of no change to Hood River County's existing transportation system. This alternative would have no construction or right-of-way costs since it is based on the assumption that no new roadway construction would occur.

Impacts: The primary advantage of the No-Build Alternative would be no costs for construction or right-of-way acquisition. The disadvantages of this alternative would be continuous increases in traffic congestion and decreased safety in certain areas. The No-Build Alternative also could result in adverse economic impacts if bridges and highways are not upgraded and vehicle length and/or weight restrictions are placed on them.

Most of the highways in Hood River County currently meet ODOT's mobility standards, and are expected to continue to meet these standards under future conditions even with traffic growth forecast over the 20-year planning period. The only highway not meeting or projected to meet ODOT mobility standards is Highway 281. Two sections of Highway 281, which are at or near capacity, are just north of the intersection with Highway 282 and near the intersection with OR 35. In addition, the three intersections of I-84/US 30 (East Hood River) EB and WB on/off-ramps and State Street/HCRH and OR 35 (Button Junction) will continue to experience congestion problems unless intersection improvements are completed. Future capacity deficiencies also are projected at the westbound and eastbound ramps at the West Hood River (I-84/US 30) interchange, plus the intersection of Cascade Avenue and Country Club Road.

Only a limited number of the recommended improvement options identified in Chapter 6 are intended to increase capacity on the existing system. Instead, most improvement options evaluated would improve safety by realigning skewed intersections, straightening roadway curves, widening roadway shoulders, replacing pavement rated in poor condition, and repairing or replacing structurally deficient bridges. Foregoing these improvements likely would result in decreased safety for all travelers throughout the county.

Cost: There are no costs associated with the No-Build Alternative.

Recommendation: The No-Build Alternative is not recommended because it would result in unacceptable operating conditions at key intersections, as well as safety hazards and economic impacts. The No-Build Alternative does not comply with the goals of the TSP, which include preserving the function, capacity, level of service, and safety of the street system.

Priority: None.

5.2 TRANSPORTATION DEMAND MANAGEMENT ALTERNATIVE

Overview: The Transportation Demand Management (TDM) Alternative is intended to help manage travel demand on the existing transportation system by reducing single occupant vehicle traffic, moving traffic away from the peak period and improving traffic flow. TDM projects that would help make the transportation system operate more efficiently through better management of traffic demand include: rideshare services such as carpool and vanpool ridematching, development of employer-based commuter projects, alternative work schedules, increased public transit, improved bicycle and pedestrian facilities, telecommuting (working from home), park and ride facilities, and High Occupancy Vehicle (HOV) lanes.

Impacts: In rural communities, TDM strategies include providing additional mobility options. By providing these facilities, Hood River County is encouraging people to travel by modes other than the automobile. In rural areas of Hood River County, where traffic volumes are relatively low and the population and employment bases are dispersed broadly over a large geographic area, implementing TDM strategies is not practical in most cases. However, the transit, pedestrian and bicycle improvements recommended in Chapter 6 as well as ridesharing and telecommuting may be considered as effective TDM strategies in Hood River County.

Cost: The cost to implement a TDM Alternative was not estimated.

Recommendation: The TDM Alternative is not recommended as a “stand-alone” alternative for addressing the overall transportation system improvement needs in Hood River County, because it is generally not effective in a large, sparsely populated area where the distances between residential areas and employment centers is great and traffic volumes are very low. However, specific TDM strategies including the transit, pedestrian and bicycle improvements recommended in Chapter 6, as well as ridesharing (including potential improvements to existing informal park and ride lots), and employer-based programs such as telecommuting are recommended as effective strategies to manage travel demand. Intercity commuting may be a factor in Hood River County where residents live in one city or rural community and work in another. Where this occurs, people should be encouraged to carpool with a fellow coworker or someone who works in the same area. While it may not be considered a viable alternative without other improvements, the TDM Alternative should be encouraged through county policies and implementing ordinances.

Priority: None.

5.3 TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

Overview: The Transportation System Management (TSM) Alternative would maximize the existing system efficiency by managing traffic through the use of traffic control devices such as ramp meters, median barriers, traffic signal synchronization, turn lanes, and access management controls closing accesses to properties along congested corridors and re-routing traffic to other facilities.

Impacts: In rural Hood River County, where traffic volumes are relatively low on most major roadways and most of the highways meet ODOT's mobility standards, there is little benefit to implementing TSM strategies on a system-wide level above and beyond those studied and subsequently recommended at specific locations.

Cost: The cost to implement a TSM Alternative was not estimated.

Recommendation: The TSM Alternative is not recommended as a stand-alone alternative, because it is generally impractical in a large, sparsely populated area where the traffic volumes are relatively low, and it would not sufficiently address the overall transportation system needs in Hood River County. Given current transportation improvement funding constraints, TSM measures should be considered as a potential cost-effective means of addressing operational deficiencies at specific locations.

Priority: None.

5.4 ROADWAY IMPROVEMENTS ALTERNATIVE

Overview: The purpose of the Roadway Improvements Alternative is to examine future conditions with roadway and bridge improvements to the major roadway system in Hood River County. Each of the recommended transportation system projects identified in Chapter 6 was developed to address the goals and objectives of the TSP, and specific deficiencies, safety issues, or access concerns associated with the current and forecast transportation system.

Impacts: The Roadway Alternative has both advantages and disadvantages. The advantages of implementing the roadway alternative would be to address specific deficiencies, safety issues, and access concerns. The disadvantage would be the relatively high costs and potential impacts (i.e. right-of-way, environmental, etc.) associated with roadway improvement projects.

Cost: The individual costs associated with each project are identified in Chapter 6.

Recommendation: The Roadway Improvements Alternative, which incorporates elements of the TSM and TDM alternatives, is recommended to address the identified deficiencies, safety issues, and access concerns.

Priority: Each project has received individual priorities based on TAC recommendations.

6. TRANSPORTATION SYSTEM PLAN

The purpose of this chapter is to provide operational plans for each mode of the transportation system within Hood River County. Components of the transportation system plan include: 1) recommended street classifications and associated design standards, 2) access management recommendations, 3) transportation demand management measures, 4) modal plans, and 5) a systems plan implementation program.

6.1 RECOMMENDED STREET CLASSIFICATION STANDARDS

Street classification standards relate the design of a roadway to its function. The function is determined by operational characteristics such as traffic volume, traffic composition (through/local), operating speed, safety, and capacity. Street standards are necessary to provide a community with roadways that are relatively safe, aesthetically pleasing, and easy to administer when new roadways are planned or constructed. They are based on local needs, experience, and policies and publications of the transportation planning profession.

Figure 6-1 shows recommended street classifications for Hood River County including the Hood River urban growth area. Roadway functional classifications that apply to areas outside the urban growth boundaries of Hood River and Cascade Locks and outside established unincorporated communities in Hood River County include: rural principal arterial roads which are the roadway sections on the state highway system, rural collectors, and rural local roads. Street classifications for the Hood River and Cascade Locks urban growth areas and within established centers of the unincorporated communities consist of urban principal and minor arterials, urban collectors, and urban local streets. Each of these rural and urban street classifications is defined as follows in the 2001 American Association of Transportation and Highway Officials (AASHTO) publication, *A Policy on Geometric Design of Highways and Streets*. Proposed design standards for these general classifications and for various options within certain classifications are described in Section 6.2.

6.1.1 Rural Principal Arterial System

The rural principal arterial system consists of a network of routes with the following service characteristics:

1. Corridor movement with trip length and density suitable for substantial statewide or interstate travel.
2. Movements between all, or virtually all, urban areas with populations over 50,000 and a large majority of those with populations over 25,000.
3. Integrated movement without stub connections except where unusual geographic or traffic flow conditions dictate otherwise (e.g., international boundary connections or connections to coastal cities).

In the more densely populated states, this class of highway includes most (but not all) heavily traveled routes that might warrant multilane improvements in the majority of states; the principal arterial system includes most (if not all) existing rural freeways.

The principal arterial system is stratified into these two design types: (1) freeways and (2) other principal arterials.

6.1.1.1 Rural Minor Arterial System

The rural minor arterial road system, in conjunction with the rural principal arterial system, forms a network with the following service characteristics:

1. Linkages among cities, larger towns, and other traffic generators (such as major tourist or recreation destinations) that are capable of attracting travel over similarly long distances.
2. Integrated interstate and intercounty service.
3. Internal spacing consistent with population density, so that all developed areas of the state are within reasonable distances of arterial highways.
4. Corridor movements consistent with items (1) through (3) with trip lengths and travel densities greater than those predominantly served by rural collector or local systems.

Rural minor arterials therefore constitute routes designed to provide for relatively high travel speeds and minimum interference to through movement.

6.1.1.2 Rural Collector System

These routes generally serve travel of primarily intracounty rather than statewide importance. Regardless of traffic volume, they also typically are shorter than arterial routes. Consequently, more moderate speeds may be typical. To define rural collectors more clearly, this system includes the following subcategories:

- Major Collector Roads. These routes typically (1) serve county seats not on arterial routes, larger towns not directly served by the higher systems, and other traffic generators of equivalent intracounty importance, such as consolidated schools, shipping points, county parks, and important mining and agricultural areas; (2) link these places with nearby larger towns or cities, or with routes of higher classifications; and (3) serve the more important intracounty travel corridors.
- Minor Collector Roads. These routes should (1) be spaced at intervals consistent with population density to collect traffic from local roads and bring all developed areas within reasonable distances of collector roads; (2) provide service to the remaining smaller communities; and (3) link the locally important traffic generators with their rural hinterland.

6.1.1.3 Rural Local Road System

The rural local road system, in comparison to collectors and arterial systems, primarily provides access to land adjacent to the collector network and serves travel over relatively short distances. The local road system constitutes all rural roads not classified as principal arterials, minor arterials, or collector roads.

6.1.1.4 Urban Principal Arterial System

In every urban environment, one system of streets and highways can be identified as unusually significant in terms of the nature and composition of the travel it serves. In small urban areas (population under 50,000), these facilities may be very limited in number and extent, and their importance may be based primarily on the service they provide to through travelers. In urbanized areas, their importance also derives from service to rurally oriented traffic, but equally or even more importantly, from serving major circulation within urbanized areas.

The urban principal arterial system serves the major activity centers of urbanized areas, the highest traffic volume corridors, and the longest trips and carries a high proportion of the total urban area travel even though it constitutes a relatively small percentage of the total roadway network. The system should be integrated both internally and between major rural connections.

The principal arterial system carries most of the trips entering and leaving the urban area, as well as most through movements bypassing the central city. In addition, significant intra-area travel, such as between central business districts and outlying residential areas, between major inner-city communities, and between major suburban centers, is served by this class of facility. Frequently, the principal arterial system carries important intra-urban as well as intercity bus routes. Finally, in urbanized areas, this system provides continuity for all rural arterials that are within or connected to the urban boundary.

Because of the nature of the travel served by the principal arterial system, almost all fully and partially controlled access facilities are part of this functional class. However, this system is not restricted to controlled-access routes. To preserve the identification of controlled-access facilities, the principal arterial system should be stratified as follows: (1) interstate, (2) other freeways, and (3) other principal arterials (with partial or no control of access).

The spacing of urban principal arterials is closely related to the trip-end density characteristics of portions of the urban areas. Although no firm spacing rule applies in all or even in most circumstances, the spacing between principal arterials (in larger urban areas) may vary from less than 1.6 km [1 mile] in the highly developed central business areas to 8 km [5 miles] or more in the sparsely developed urban fringes.

For principal arterials, service to abutting land is subordinate to linkages among other similar roads. Only other principal arterials are capable of providing any direct access to land, and such service should be purely incidental to the primary functional responsibility of this class of roads.

6.1.1.5 Urban Minor Arterial Street System

The minor arterial street system interconnects with and augments the urban principal arterial system. It accommodates trips of moderate length at a somewhat lower level of travel mobility than do principal arterials. This system distributes travel to geographic areas smaller than those identified with the higher system.

The minor arterial street system includes all arterials not classified as principal. This system places more emphasis on land access and offers lower traffic mobility than the higher system. Such facilities may carry local bus routes and provide intracommunity continuity but ideally do not penetrate identifiable neighborhoods. This system includes urban connections to rural collector roads where such connections have not been classified as urban principal arterials for internal reasons.

The spacing of minor arterial streets may vary from 0.2 to 1.0 km [0.1 to 0.5 miles] in the central business district to 3 to 5 km [2 to 3 miles] in the suburban fringes but is normally not more than 2 km [1 miles] in fully developed areas.

6.1.1.6 Urban Collector Street System

The collector street system provides both access to local land uses and traffic circulation within residential neighborhoods and commercial and industrial areas. It differs from the arterial system in that facilities on the collector system may penetrate residential neighborhoods.

6.1.1.7 Urban Local Street System

The local street system comprises all facilities not in one of the higher systems. It primarily permits direct access to abutting lands and connections to the higher order systems. It offers the lowest level of mobility and usually contains no bus routes. Service to through-traffic movement usually is deliberately discouraged.

6.2 RECOMMENDED STREET DESIGN STANDARDS

As part of the TSP process, the TAC reviewed the existing street classification and street design standards of each jurisdiction in the county. The recommendations in **Figure 6-2 through Figure 6-10** are intended to (1) more closely integrate the street classifications among the three jurisdictions and (2) address the goals and objectives of the Transportation Plan. The recommended street design standards for all jurisdictions in the county are shown graphically in **Figures 6-2 through 6-10**, summarized in Table 6-1 and described in the following sections.

Although portions of the study areas, especially immediately outside city boundaries but within urban growth boundaries, may presently have a rural appearance, these lands will ultimately be part of the urban area. Urban road standards should also be applied to these outlying areas. They also may be applied to large developments in the urban unincorporated community of Odell or other designated unincorporated communities. Retrofitting rural streets to urban standards in the future is expensive and controversial; it is better to initially build them to an acceptable urban standard if expected to be urban in the future. Rural arterial design standards apply only to roads on the state highway system that are under ODOT jurisdiction and these design standards are contained in the 2001 ODOT Design Manual.

Standards in the TSP are intended for new streets and improvements to existing streets, as appropriate. Guidelines for use of specific standards, where different options are allowed, follow. Standards for roads within the city limits of Hood River and Cascade Locks are found in those cities' TSPs, including standards for the Historic Columbia River Highway in Cascade Locks (Forest Lane). Urban standards for road design also will be implemented in the Urban Growth Areas (UGAs) of Hood River and Cascade Locks. Towards this end, it is anticipated that the County will adopt the City of Hood River's TSP and ultimately adopt applicable standards in the City's Land Division Ordinance for application in the Hood River UGA. It also is anticipated that the County will adopt the City of Cascade Locks' TSP. The County will apply the City of Cascade Locks' road design and access management standards through the County's subdivision ordinance in Cascade Locks' UGA, which is very limited in size.

**TABLE 6-1
Recommended Street Design Standards**

Classification	ROW	Roadway	Travel lanes	Center lane	Bike lanes	Parking	Planting strip	Sidewalk	Utility easement*	
URBAN ROAD										
Urban Collector	60'	34'	Two 11'	None	Two 6'	None	Two 6'	Two 6'	One or two 0-10'	
Urban Commercial/Industrial Street (outside UGAs)	60-70'	30'-42' ¹	Two 11'	12' minimum	None	8'	See Note ²	Two 6-8'	One or two 5-10'	
Urban Industrial Street ³	40'	27'	Two 11'	None	None	None	None	One 5'	None	
Urban Minor Arterial (One-Way Street)	62'	36'	Two 11' minimum	None	One 6'	One 8'	Two 6'	Two 6'	One or two 5-10'	
Urban Minor Arterial (Two Lanes)	60'	36'	Two 12'	None	Two 6'	None	Two 6'	Two 6'	One or two 5-10'	
Urban Minor Arterial (Three Lanes)	74'	50'	Two 12'	14'	Two 6'	None	Two 6'	Two 6'	One or two 5-10'	
Urban Local Residential Option "A"	60'	34'	NA	None	None	Both sides	Two 6'	Two 6' minimum	One or two 0-10'	
Urban Local Residential Option "B"	50'	28'	NA	None	None	One or both sides ⁴	Two 6'	Two 6' minimum	One or two 0-10'	
Urban Local Residential Option "C"	50'	24'	NA	None	None	One side ⁴	Two 6'	Two 6' minimum	One or two 0-10'	
Urban Local Residential Option "D"	50'	20'	NA	None	None	None	Two 6'	Two 6' minimum	One or two 0-10'	
Urban Local Cul de sac (outside UGAs) – 500' max. length	Option A, B, C, or D	Option A, B, C, or D	NA	None	None	None	6'	6'	One or two 0-10'	
Cul-de-sac Street – applies to Hood River's UGA – 200' max. length (infill = 150' max. length)	42'	20'	NA	None	None	None	Two 5'	Two 6' minimum	One or two 0-10'	
Neighborhood Option "A" ³	Infill Street	32'	20'	NA	None	None	One 7'	none	One or two 5-10'	
Neighborhood Option "B" ³	Infill Street	42'	25.5'	NA	None	None	One side ⁴	One 6.5'	One	One or two 5-10'

Classification	ROW	Roadway	Travel lanes	Center lane	Shoulder	Parking	Planting strip	Sidewalk	Utility easement*	Other/ Comments
RURAL ROAD										
Rural Minor Collector	60'	24'	Two 11'	None	3' gravel shoulder both sides; 1' paved shoulder each side	None	None	None	One or two 5-10'	12' ditch, one or both sides
Rural Major Collector	60'	30'	Two 11'	None	4'	None	None	None	One or two 5-10'	12' ditch, one or both sides

Rural Local Residential Option A	60'	22'	Two 11' (paved)	None	3' gravel shoulder both sides	None	None	None	One or two 5-10'	12' ditch, one or both sides
Rural Local Residential Option B	50'	20'	Two 10' (gravel)	None	None	None	None	None	One or two 5-7'	Unpaved
Rural Local C	30'	20'	Two 10' (gravel)	None	None	None	None	None	One or two 5-7'	Unpaved
Rural Local Residential Cul de sac	Rural Option A, B, or C	Rural Option A, B, or C	NA	NA	3' for Option A	None	None	None	One or two 5-10'	
Rural Commercial/Industrial Road ⁵	60' - 68'	32' - 40'	Two 12'	None	None	8' one or both sides	None	None	One or two 5-10'	2' gravel shoulder both sides; 12' ditch, one or both sides

Notes:

* = optional

1. 42' roadway with center turn lane
2. 4'-6'-wide planting strip, or tree wells with 8' sidewalk
3. These standards only apply to the City of Hood River's Urban Growth Area. Infill standards would not meet standards for acceptance into the County Road Maintenance System. Infill cul de sacs have a maximum length of 150 feet.
4. Access control required per design guidelines.
5. Additional alternative standards for roads where parking should not be provided may be explored, particularly if they serve as primary access roads (e.g. to Airport Facilities).

The County will apply the City of Cascade Locks' street design standards in its Urban Growth Area, as shown in Figures 6-2, 6-3, and 6-4 of Cascade Locks' TSP. (Due to the limited size of the City of Cascade Locks' UGA, limited potential application by the County of those standards, and the minor degree of difference between County and Cascade Locks' standards, they are not incorporated in the above table.)

6.2.1 Urban Local Residential Streets

The design of a residential street affects its traffic operation, safety, and livability. The residential street should be designed to enhance the livability of the neighborhood, as well as to generally accommodate less than 1,200 vehicles per day. Speeds are normally not posted, with a statutory 25 mph applying. When traffic volumes exceed approximately 1,000 to 1,200 vehicles day, traffic becomes a noise and safety problem. To maintain neighborhoods, local residential streets should be designed to encourage low speed travel and to discourage through traffic.

A well-connected grid system of relatively short blocks can minimize excessive volumes of motor vehicles by providing a series of equally attractive or restrictive travel options. This street pattern is also beneficial to pedestrians and bicyclists.

The proposed standards for urban local residential streets are shown on **Figures 6-2 and 6-3**.

Within the Urban Growth Areas of the cities of Hood River and Cascade Locks, road design standards of those cities' TSPs shall apply. To coincide with the adoption of the County's TSP, the City of Hood River is updating its TSP to incorporate the urban standards the City of Hood River and Hood River County jointly developed as part of the process to update the County's TSP. In addition, the County plans to adopt the City's TSP and relevant sections of its Land Division Ordinance for application in the Hood River UGA. In the Cascade Locks UGA, the County will apply the City of Cascade Locks' road design standards through the County's Subdivision Ordinance and Major Partition provisions. Cascade Locks' road standards are compatible with the County's standards, though not identical. They will be applied to a very limited area and small number of new roads, if any, given the

relatively small size of the Cascade Locks UGA and likelihood of the City to annex much of its UGA within the next several years.

Within designated unincorporated communities and the Urban Growth Area of Hood River, urban local street design standards shall apply to roads in all “urban density developments.” In designated unincorporated communities, this is defined as new residential subdivisions and partitions that present both the potential to serve more than 10 parcels/lots (via build-out or street connectivity) and have an average potential lot size of 10,000 square feet or less. Four options are available to developers subject to approval by the County Planning and Public Works departments. Option “A” calls for a 34-foot wide street (paved area) with a 60’ right-of-way. This standard has been used to construct many existing urban local streets in the County. It is recommended when needed to extend an existing street or if the conditions noted for Local Urban Street Options B, C and D cannot be satisfied.

Three options are provided for narrow local streets (Options B, C and D). These standards have a number of benefits. They reduce the cost of construction, amount of storm run-off created by the roadway, and the amount of land needed for a given development. The successively narrower options provide enhanced benefits from these perspectives. Developers are encouraged to use any of these options when all of the following conditions are met, as recommended in the *Neighborhood Street Design Guidelines* prepared by the Oregon Transportation Growth Management Program.

- Off-street parking is provided for residents and visitors when there is no on-street parking, or on-street parking is limited to one side of the street.
- Where specified in the standards, driveway access spacing is maintained to allow queuing. These guidelines will be used by County Public Works personnel to review and approve use of narrow street standards on a case-by-case basis. Guidelines are illustrated in Figures 6-5, 6-6 and 6-7.
- Parking is restricted within 20 – 50 feet of each intersection.
- Where parking is restricted, parking restrictions will need to be enforced to maintain adequate vehicle passage.⁷
- Planting strips or other areas provide adequate space for snow removal.

The City of Hood River’s TSP provides standards for Neighborhood Infill Streets in Hood River’s Urban Growth Area under the following conditions:

- Limited land is available for right-of-way acquisition.
- The street serves a limited number of properties or residences (up to six).
- Off-street parking is available to serve adjacent residents.

In the City of Hood River’s Urban Growth Area (UGA), either Neighborhood Infill Street Options A or B (**Figure 6-3**) may be used, depending on considerations such as availability of right-of-way, adequacy of off-street parking

⁷ The *Neighborhood Street Design Guidelines* state that, “In the absence of such a commitment (to effective parking enforcement by the appropriate agency), these narrow street standards should not be adopted.”

and amount of traffic forecasted. It is unlikely that roads built to the neighborhood infill standards would meet the criteria to be accepted into the County Road Maintenance System. The neighborhood infill standards do not apply outside the City of Hood River's UGA.

Sidewalks are included on all streets designed to an urban standard, whether in the Urban Growth Areas, or in designated unincorporated communities. When sidewalks are located directly adjacent to the curb, impediments such as mailboxes, street light standards, and sign poles, will reduce the effective width of the walkway. Sidewalks buffered from the street by a planting strip eliminate obstructions in the walkway, provide a more pleasing design and buffer from traffic, and make the sidewalk more useable by persons with disabilities. To maintain a safe and convenient walkway for at least two adults, a six-foot sidewalk standard is applied in residential areas.

A stub street should not be confused with a cul-de-sac. Stub streets have a potential for connectivity at a later date and should be served by a temporary turn-around, if required by the County Engineer.

Cul-de-sac, or "dead end" residential streets are intended to serve only the adjacent land in residential neighborhoods. These streets should be short, with maximum lengths defined for urban and rural areas in the Hood River County Subdivision Ordinance. Because the streets are short and the traffic volumes relatively low, the street width can be narrower than a standard residential street, allowing for the passage of two lanes of traffic when no vehicles are parked at the curb or one lane of traffic when vehicles are parked at the curb.

In designated unincorporated communities, the urban residential cul de sac's street width will match the relevant Street Design Option (A, B, C, or D) that the road is to be built to; its maximum length is 500 feet. For the Hood River Urban Growth Area, cul-de-sacs have a 20-foot street width, curb face-to-curb face within a 42-foot right-of-way, with a maximum length of 200 feet; or 150 feet for infill streets. A six-foot-wide sidewalk should be located one foot from the right-of-way line on each side of the roadway, providing two five-foot planting strips, unless it is a neighborhood infill standard road.

Because cul-de-sac streets limit street and neighborhood connectivity, they will be used only where topographical or other environmental constraints prevent street connections. Where used, pedestrian and bicycle connections to adjacent cul-de-sacs or through streets should be included.

Figure 6-5. Queuing guidelines, parking allowed both sides, Local Street Option B

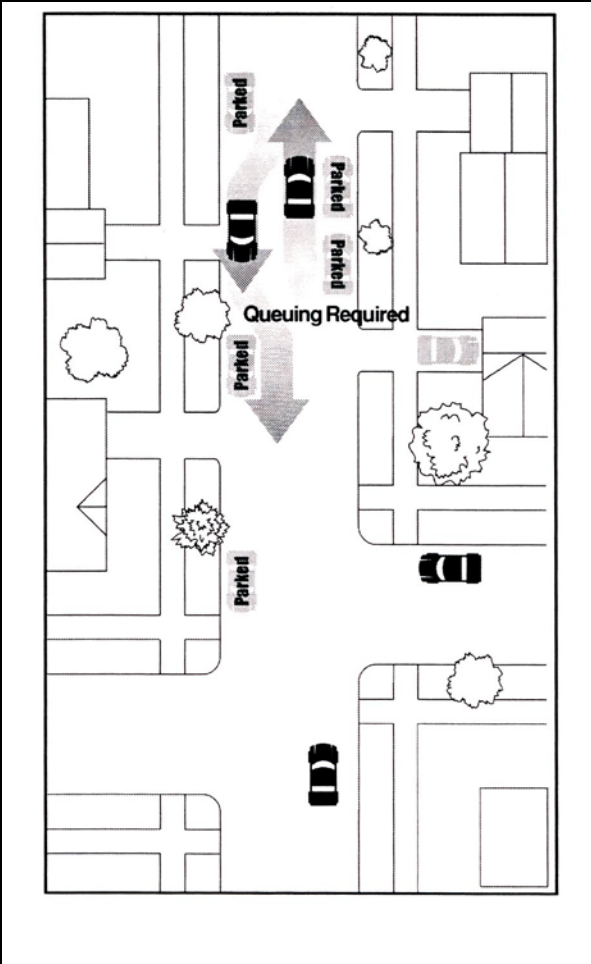


Figure 6-6. Queuing guidelines, parking allowed one side, Local Street Option C

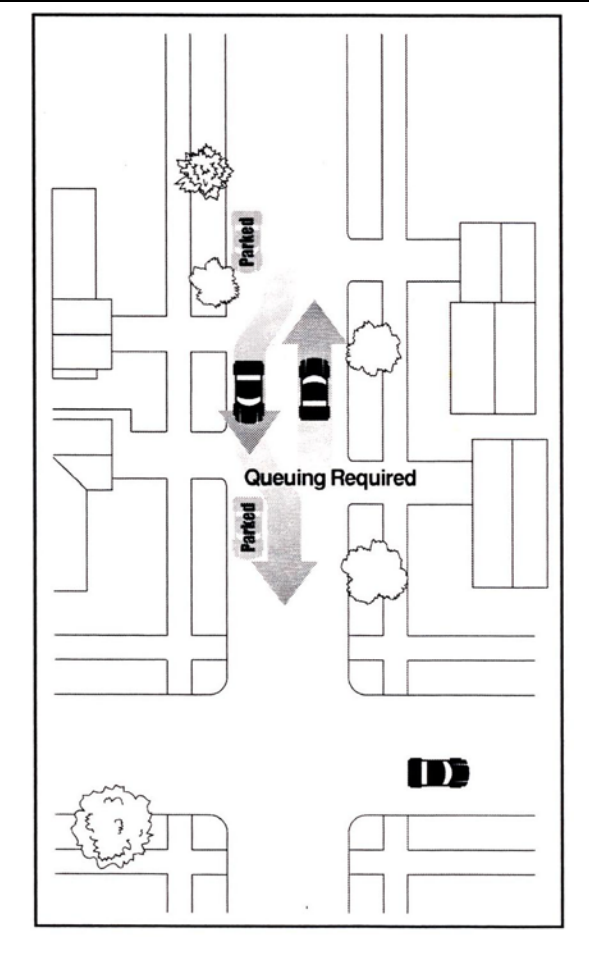
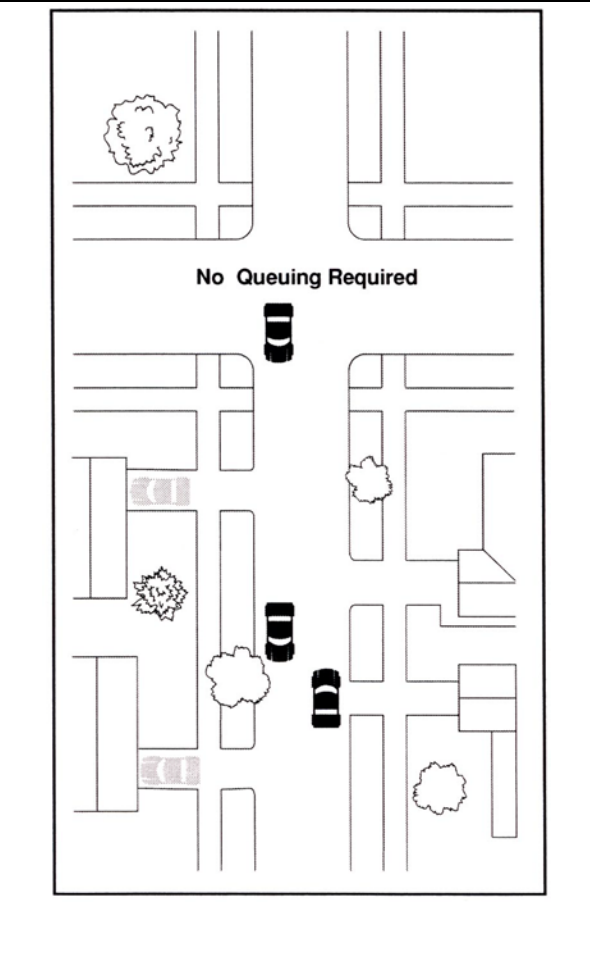


Figure 6-7. Queuing guidelines, no parking allowed, Local Street Option D



6.2.2 Rural Local Road System

In comparison to collectors and arterial systems, the rural local road system primarily provides access to land adjacent to the collector network and serves travel over relatively short distances. The local road system constitutes all rural roads not classified as principal arterials, minor arterials, or collector roads.

In areas with non-county public or private rural residential roads, it may be acceptable to utilize unpaved or gravel roads (see Figure 6-3) when no more than 10 parcels will be served. Public or private roadways designed to serve no more than four parcels are to have a 20-foot gravel road surface width and a right-of-way width of 30 feet. At the discretion of the Fire Chief and County Engineer, the travel width may be reduced to 16 feet. A roadway designed to serve 5 to 10 parcels is to have a 20-foot gravel road surface width and a right-of-way width of 50 feet. Any roadway designed to serve more than 10 parcels, where the average potential lot size is greater than 10,000 square feet, shall be constructed according to the rural local residential street standard of 22 feet of paved road surface width with a 60 foot right-of-way. Urban Collector Streets

Urban collectors are intended to carry between 1,200 and 10,000 vehicles per day, including limited through traffic, at a minimum posted speed of 25 mph. A collector can serve residential, commercial, industrial, or mixed land uses. Major collectors focus on connecting arterials, typically in higher volume commercial areas.

Figure 6-8 shows a cross section with a 60-foot right-of-way and a 34-foot paved width. This allows two travel lanes, two bicycle lanes, and no parking allowed. Six-foot sidewalks and six foot planting strips should be provided on each side of the roadway. In commercial or business areas, the sidewalks may be eight feet wide, and may be located adjacent to the curb to facilitate loading and unloading at the curb.

A zero- to ten-foot utility easement also is recommended on both sides of the road, as needed.

6.2.3 Rural Collector Streets

- The rural collector routes generally serve travel of primarily intracounty rather than statewide importance and constitute those routes on which (regardless of traffic volume) predominant travel distances are shorter than on arterial routes.

Rural collectors are intended to carry less than 1,200 vehicles per day.

As shown in **Figure 6-8**, rural collectors will have two 11-foot lanes with either four-foot paved or three-foot gravel shoulders within a 60-foot right-of-way. The wide, paved shoulders are designed to provide space for pedestrians and bicycles. As indicated in the standard drawings four-foot paved shoulders are recommended where substantial pedestrian and bicycle demand is expected based on adjacent or connecting land uses and historical bicycle/pedestrian travel patterns. There is no provision for curbs, gutters, bike lanes or separate sidewalks in this rural standard.

6.2.4 Urban Major Arterials

As noted in Section 6.1, arterial streets form the primary roadway network within and through a region. They provide a continuous roadway system that distributes traffic between different neighborhoods and districts. Generally, arterial streets are high capacity roadways that carry high traffic volumes with minimal localized activity. A minimum posted speed should be 30 mph.

No new major urban arterials are expected to be constructed within the County within the planning period (next 20 years). Therefore no standards for these roads are provided in Table 6-1.

6.2.5 Urban Minor Arterials

Minor arterials provide service between collectors and major arterials. They may provide high volume connections, but still serve adjacent land uses.

Two-way minor arterial streets consist of two 12-foot travel lanes, two six-foot bike lanes, and no parking lanes, as shown in **Figure 6-9**. These streets will include six-foot sidewalks on both sides of the roadway with six-foot planter strips. Urban minor arterials should have a minimum 60-foot right-of-way. Three-lane minor arterials have a similar cross-section, with the addition of a 14' third (center turn) lane. They require 74' of right-of-way.

One-way minor arterial streets have a similar cross section to two-lane, two-way minor arterials, but with only one bike lane and one parking lane.

6.2.6 Rural Arterials

In Hood River County, the major arterial streets are roadways on the state highway system as described in Chapter 3. These highways form the primary road network within and through the county and provide regional connections to neighboring counties including Multnomah County, Clackamas County, and Wasco County, and to the State of Washington. Their function is described in more detail in Section 6.1. In Hood River County, the state highways/major arterial roads serve statewide, regional and local traffic demands. These roadways are under ODOT jurisdiction and design standards for these facilities are defined in the ODOT Design Manual.

6.2.7 Urban Commercial/Industrial Street

This type of street would serve urban-scale commercial and industrial development within the County's M-1; M-2; and C-1 Zones, as specified in the County's Commercial (C-1), Industrial (M-1) and Light Industrial (M-2) Zoning Ordinances. Adjacent land uses would be expected to provide parking for the majority of workers and visitors, with on-street parking provided on one side of the street only. Bicycles would be expected to share the roadway with cars in these areas, with no dedicated bicycle lanes. The proposed cross-section for these roads includes a 60-70foot right-of-way with two travel lanes, parking on one side, planting strips and 6-8-foot sidewalks on both sides of the street (**Figure 6-10**).

6.2.8 Urban Industrial Street

This type of street would serve urban industrial development within the City of Hood River's Urban Growth Area. The proposed cross-section for these roads includes a 40foot right-of-way with two travel lanes, 2-foot wide standard curb and gutter, and a 5-foot sidewalk on one side of the street (**Figure 6-10**).

6.2.9 Rural Commercial/Industrial Street

This type of street would serve commercial and industrial development in rural areas, including rural unincorporated areas where the need for dedicated pedestrian and bicycle areas would be limited and the level of development would not require construction of curbs, sidewalks and gutters. The proposed cross-section for these roads includes 60-68 feet of right of way, with two 12-foot travel lanes, parking on both sides of the street, and drainage ditches or swales on both sides.

6.2.10 Alleys

Alleyways can be a useful way to diminish street width by providing rear and delivery access in commercial areas and parking to residential areas. Including alleys in a subdivision design allows homes to be placed closer to the street and eliminates the need for garages to be the dominant architecture feature. This pattern, once common, has been recently revived as a way to build better neighborhoods. In addition, alleys can be useful in commercial and industrial areas, allowing access by delivery trucks that is off of the main streets. Alleys are encouraged when appropriate in the urban areas of Hood River and Cascade Locks and Hood River County. Alleys are to be 15 to 20 feet wide, with a 20-foot right-of-way.

6.2.11 Urban Bike Lanes

In cases where a bikeway is proposed within the street right-of-way, 12 feet of roadway pavement (between curbs) should be provided for a six-foot bikeway (major collector and arterial streets) on each side of the street. Except in rare circumstances, bike lanes on one-way streets are located on the right side of the roadway and flow in the same direction as vehicular traffic. The striping is done in conformance with the State Bicycle and Pedestrian Plan (1995). In cases where curb parking will exist with a bike lane, the bike lane will be located between the parking and travel lanes. In some situations, curb parking may have to be removed to permit a bike lane.

Bikeways must be integrated with the construction of new streets or as part of street improvement projects. The implementation program identifies an approximate schedule for street improvements.

On arterial and collector streets that are not scheduled to be improved as part of the street system plan, bike lanes may be added to the existing roadway at any time to encourage cycling or when traffic volumes exceed 2,500 to 3,000 vehicles per day. The striping of bike lanes on streets that lead directly to schools is a high priority.

6.2.12 Urban Sidewalks

A complete pedestrian system should be implemented in the urban portion of the Hood River planning area, as well as in designated unincorporated communities which have an urban density of development as specified in the "Street Section" of the County Subdivision Ordinance. Every urban street should have sidewalks on both sides of the roadway. Sidewalks on residential streets should have a six-foot wide paved width with up to a 6-foot-wide planting strip separating it from the street. Collector streets should have a six-foot-wide sidewalks with two-foot planting strips. Arterial streets should have six-foot sidewalks with a two- to six- foot planting strip, and commercial downtown streets are to have 12-foot wide curb sidewalks. In addition, pedestrian and bicycle connections should be provided between any cul-de-sac or other dead-end streets.

Another essential component of the urban sidewalk system is street crossings. Intersections must be designed to provide safe and comfortable crossing opportunities. This includes not only signal timing to ensure adequate crossing time and crosswalks, but also such enhancements as curb extensions and center medians.

6.2.13 Urban Curb Parking Restrictions

Curb parking should be prohibited at least 25 feet from the end of an intersection curb return to provide sight distance at street crossings.

6.2.14 Street Connectivity

Providing local street connectivity is an important objective in urban and urbanizing areas of the County. Local street connectivity plans and policies help assure that streets and bicycle/pedestrian facilities created as part of

new subdivisions and partitions integrate with the existing and planned County and City transportation system improvements in these areas. General policies to promote local street connectivity include the following, which also are included in Chapter 2 of this plan:

- Design local streets to serve local traffic and limit non-neighborhood cut-through traffic.
- For large developments, require creation of complete blocks bounded by a network of public and private streets.
- Implement standards for block and cul-de-sac length appropriate for urban areas, as identified in the County development codes.
- Provide additional pathways for bicycles and pedestrians for large blocks or cul-de-sacs that exceed certain standards as identified in the County development codes.

In addition, the City of Hood River has adopted a *Local Street Connectivity Plan for the Urbanizing Area*, which focuses on the Urban Growth Area (UGA) of Hood River between the city limits and UGB. This plan is intended to foster a safe and efficient transportation system while maintaining a smooth and effective process of development review. The *Local Street Connectivity Plan for the Urbanizing Area* considers physical and environmental constraints, minimizes the need for out-of-direction travel, prohibits right-of-way obstruction, and ensures a means of access to all lots, including those not adjacent to public streets. The plan is included in Chapter 8, Development Standards; Section E, Local Street Connectivity (pages 51-55) of the City of Hood River TSP, and the plan is intended to be used to guide plans for future local street connections. As mentioned previously, the County will adopt the City of Hood River TSP, including the city's local street connectivity map, as well as the City's Land Division Ordinance for application within the Hood River UGA. This will include application of the City's Planned Development Ordinance; Town Houses Ordinance; and Transportation Circulation and Access Management Ordinance. In the City of Cascade Locks, the County's Subdivision Ordinance will be applied in the City's UGA. The major partitioning section of the County's Subdivision Ordinance includes requirements for preparing tentative development and future street plans. As mentioned previously, given the relatively small size and limited amount of land available for development in the urban growth area (UGA) of Cascade Locks, application of these standards is expected to be relatively limited.

6.3 ACCESS MANAGEMENT

Access management is an important tool for maintaining an efficient and safe transportation system. The lack of a prudent access management plan can result in excessive numbers of access points along arterial streets. Too many access points can diminish the function of an arterial, mainly due to delays and safety hazards created by turning movements. Traditionally, the response to this situation is to add lanes to the street. However, this can lead to increases in traffic and, in a cyclical fashion, require increasingly expensive capital investments to continually expand the roadway.

Reducing capital expenditures is not the only argument for access management. Additional driveways along arterial streets lead to an increased number of potential conflict points between vehicles entering and exiting the driveway, and through vehicles on the arterial streets. This not only leads to increased vehicle delay and a deterioration in the level of service on the arterial, but also leads to a reduction in safety.

Research has shown a direct correlation between the number of access points and collision rates. In addition, the wider arterial streets that can ultimately result from poor access management can diminish the livability of a community.

Access management is hierarchical, ranging from complete access control on freeways to increasing use of streets for access purposes, parking and loading at the local and minor collector level. The access management techniques and spacing standards addressed here are applicable to arterial and collector streets. Local streets are intended to primarily provide access; therefore access management techniques are primarily limited to parking control needed along local streets.

These access management restrictions are generally not intended to eliminate existing intersections or driveways. Rather, they should be applied as new development or major construction occurs. Over time, as land is developed and redeveloped or the roadway is modernized, the access to roadways will meet these guidelines. However, where there is a recognized problem, such as an unusual number of collisions, these techniques and standards can be applied to retrofit existing roadways.

Access management along a roadway corridor incorporates planning, design, and implementation of land use and transportation policies and strategies that control the flow of traffic between the roadway and the surrounding land. Access management policies and strategies apply to driveways and other intersecting roadways and are designed to achieve a balance between the need to provide safe and efficient travel and the ability to access individual destinations. Implementation of appropriate roadway access management measures can provide substantial benefits to a community, including:

- Protecting the functional operation of a roadway, thus delaying or preventing costly roadway improvements;
- Improving safety conditions along roadways for all users, including pedestrians and bicyclists;
- Facilitating a more constant traffic flow, thus reducing congestion, delays, overall vehicle miles of travel (VMT), fuel consumption and air pollution;
- Promoting more desirable compact land development patterns; and
- Developing and adopting local ordinances that require inter-parcel circulation so traffic can go from lot to lot without traveling on the road system.

Access management is an important tool for promoting safe and efficient travel for both local and long distance users along a roadway. Research has clearly shown a direct correlation between the number of access points and collision rates. Typically, as the number of access points increases so do collision rates. Experience throughout the United States also has shown that a well-managed access plan for a street system can minimize local cost for transportation improvements needed to provide additional capacity and/or access improvements along unmanaged roadways. Therefore, it is essential that all levels of government maintain the efficiency of existing roadways through better access management.

6.3.1 Access Management Techniques

Access management can be accomplished through a number of strategies and specific techniques that differ in large urban areas versus rural areas. Based on the existing and forecast levels of traffic and development in Hood River County, the most suitable access management strategy would appear to be management of the number of access points and their spacing. The following techniques describe how the number of access points to a road can be restricted or reduced:

- Restrictions on spacing between access points (driveways) and public/private roads based on the type of development and the speed along the road;
- Sharing of access points between adjacent properties;

- Providing driveway access via collector or local roadways where possible;
- Constructing frontage roads to separate local traffic from through-traffic;
- Managing the location and spacing of traffic signals;
- Offsetting driveways at proper distances to produce T-intersections that minimize the number of conflict points between traffic using the driveways and through traffic;
- Installing median barriers to control conflicts associated with left-turn movements (in or out of driveway or roadway);
- Installing barriers to the property along the arterial to restrict access width to a minimum; and
- Planning for and managing grade-separated interchange areas.

6.3.2 Access Management Implementation

Access management guidelines are generally not intended to eliminate existing intersections or driveways. Rather, they should be applied as new development occurs. Over time, as land is developed and redeveloped, access to roadways will need to meet appropriate access guidelines. However, where there is a recognized problem, such as an unusual number of collisions, access management techniques and standards can be applied to retrofit existing roadways.

To summarize, access management strategies consist of managing the number of access points and providing traffic and facility improvements. The solution is a balanced, comprehensive program that provides reasonable access while maintaining the safety and efficiency of traffic movement.

6.3.3 Access Management Requirements for Highways

In Oregon, state statutory law, and several state policies and supporting documents guide planning and management of the State Highway System (SHS) including access management of highway segments within both urban and rural areas. Owners of property located adjacent to state highways in Oregon have a “common law” right of access to the state highway, but are required to obtain an approach⁸ road permit from the Oregon Department of Transportation (ODOT). ODOT is not required to issue an approach road permit if reasonable access is available through other means (e.g., by means of a city street or county road).

Statewide Planning Goal 12 serves as the State’s general transportation policy and the Transportation Planning Rule (TPR) guides state, regional and local implementation of Goal 12. The TPR requires ODOT and local governments to prepare Transportation System Plans (TSPs) that identify facility and service improvements adequate to meet identified needs over a 20-year planning period. All local TSPs must be consistent with the state TSP and associated modal and facility plans.

The Oregon Transportation Plan (OTP) is the State’s TSP and the Oregon Highway Plan (OHP) is the highway-specific modal element of the OTP. The OHP describes goals, policies, and strategies designed to meet the transportation goals outlined in the states TSP. The TPR also requires that local TSPs consider new connections to arterials and state highways that are consistent with designated access management categories (OAR 660-12-020(2)(b)). The current OHP, adopted by the Oregon Transportation Commission (OTC) in July 1999, contains

⁸ As defined in Oregon Administrative Rules (OAR) Division 51, *Public approach* refers to a public roadway connection serving multiple properties, which is owned and operated by a public entity, and provides connectivity to the local road system (OAR 734-051-0040(40)); *Private approach* refers to a private roadway or driveway connection serving one or more properties that does not provide connectivity to the local road system (OAR 734-051-0040(36)).

an access management goal (Goal 3) and several policies that provide guidance for access management along various types of state highway segments.

Access management along all state highways in Oregon is regulated by policies specified in the adopted 1999 Oregon Highway Plan (OHP). The OHP specifies an access management classification system for state facilities and establishes standards and guidelines to be applied when making access management assignments for highways based upon their classification.

The 1999 OHP classifies the state highway system into five categories based on function: interstate, statewide, regional, district, and local interest road. Hood River County has one Interstate highway, one Statewide highway, and three District highways. The access spacing standards for each level of highway are summarized in the following sections.

6.3.3.1 General Highway Access Spacing Standard

The 1999 OHP maintains access management standards that vary for the Interstate, Statewide, and District level highways within Hood River County. The standards further vary based on a number of other criteria including:

- Posted highway speed;
- Highway location in rural or urban areas;
- Whether adjacent accesses are streets only with no driveways between or where driveway-to-driveway or driveway-to-street accesses are being considered; and
- Urban areas where the highway passes through a designated Urban Business Area (UBA) or Special Transportation Area (STA).

Table 6-2 summarizes the ODOT access spacing standards for highways in Hood River County. The table clearly indicates that spacing increases as the highway classification and posted speed increase. Spacing also increases within rural areas where the need for access generally decreases and where the public expects to encounter fewer accesses. These standards apply to both streets and driveway approaches and are measured from the center of one access to the center of the next access on the same side of the road. They generally apply to unsignalized access points.

6.3.3.2 Deviations to Access Spacing Standards

Under some circumstances, deviations to the general access spacing standard are allowed. The two types of deviations are minor and major. The minor deviation limits to the access spacing standards are shown in **Table 6-2**. A permit for an access under a minor deviation is allowed per the review of the district highway engineer. Any request for an access at less than the minor deviation spacing standard shall be considered a major deviation. Although there are no spacing standards for a major deviation, the process for state approval is lengthy and thorough. To process a major deviation application, a technical group must be established to assist the regional highway engineer with the review. Rejected applications for an access permit under a major and minor deviation can be appealed through a formal appeals process.

6.3.3.3 Special Circumstances

In some cases, access will be allowed to a property at less than the designated spacing standards, but only where a right of access exists, that property does not have reasonable access, and the designated spacing cannot be accomplished. Other options such as joint access should be considered before allowing accesses at less than the designated standards. Additionally, ODOT may be required to purchase property which becomes landlocked, meaning that no reasonable access exists.

**TABLE 6-2
1999 OREGON HIGHWAY PLAN
RURAL AND URBAN ACCESS SPACING STANDARDS FOR STATE HIGHWAYS**

<i>Street-to-Street Access Spacing Standards (No Driveways between Streets)</i>			
Highway	Posted Speed	Rural & Urban Spacing^{1,3}	Rural/Urban Street Deviation^{2,3}
Statewide	≥55 mph	1320 ft	1150/1000 ft
	50 mph	1100 ft	900/810 ft
	40 & 45 mph	990 ft	810/740 ft
	30 & 35 mph	770 ft	675/600 ft
	≤25 mph	550 ft	525/400 ft
Regional	≥55 mph	990 ft	870/870 ft
	50 mph	830 ft	640/640 ft
	40 & 45 mph	750 ft	550/550 ft
	30 & 35 mph	600 ft	375/375 ft
	≤25 mph	450 ft	350/350 ft
District	≥55 mph	700 ft	660/660 ft
	50 mph	550 ft	525/525 ft
	40 & 45 mph	500 ft	475/475 ft
	30 & 35 mph	400 ft	325/325 ft
	≤25 mph	400 ft	245/245 ft
<i>Driveway-to-Driveway or Driveway-to-Street Access Spacing Standards</i>			
Highway	Posted Speed	Rural & Urban Spacing^{1,3}	Rural/Urban Driveway Deviation^{2,3}
Statewide	≥55 mph	1320 ft	950/870 ft
	50 mph	1100 ft	700/640 ft
	40 & 45 mph	990 ft	560/530 ft
	30 & 35 mph	770 ft	400/350 ft
	≤25 mph	550 ft	280/250 ft
Regional	≥55 mph	990 ft	700/700 ft
	50 mph	830 ft	540/540 ft
	40 & 45 mph	750 ft	460/460 ft
	30 & 35 mph	600 ft	300/300 ft
	≤25 mph	450 ft	220/220 ft
District	≥55 mph	700 ft	650/650 ft
	50 mph	550 ft	475/475 ft
	40 & 45 mph	500 ft	400/400 ft
	30 & 35 mph	400 ft	275/275 ft
	≤25 mph	400 ft	200/200 ft

¹ Spacing standards apply to rural and urban non-expressways.

² Minor deviation standards.

³ Spacing standards for Urban Business Areas (UBAs) and Special Transportation Areas (STAs) are summarized in the OHP on pages 193-201.

Source: 1999 OHP- Appendix C

Specific access management strategies concerning freeway interchanges and traffic signals are summarized in **Appendix C**.

6.3.4 Access Management Standards for Collectors, Arterials and Local Streets

Access management for arterials and collectors that are not part of the state highway system have been developed and will be implemented by the County adopting Article 19 (Access Management Standards). They include standards governing the following:

- Application of city access management standards within the Hood River and Cascade Locks urban growth areas as per the Access Management standards of those cities' TSPs.
- Application of state standards on state highways.
- Consolidation of access points encouraged.
- Conditions under which deviations from spacing standards may apply.
- Requirements to reduce interference with highway or pedestrian traffic.
- Related site plan requirements.
- Requirements for new approach road intersections.
- Situations where access management standards will be applied.
- Situations where new accesses may be denied.
- Spacing standards, as defined in Table 6-3.

TABLE 6-3

Classification of Intersecting Road	Minimum Spacing Between Public Roads*	Minimum Spacing Between Private Driveways
Collector	300 feet	100 feet
Local	150 feet	50 feet from Public Road

* Spacing standards shall be measured from center-line to center-line of roads and driveways on the same side of the roadway. Any two public roads intersecting on a given road shall have a continuous centerline or be separated by one hundred and fifty feet minimum.

6.4 MODAL PLANS

The Hood River modal plans are based on the TSP goals and objectives, physical inventory, forecasts, input from transportation service providers, and input from the TAC. Specific transportation system improvement projects for all modes of travel were identified to address identified needs. The combination of modal improvement projects constitutes a combination of the preferred Roadway Improvements and Transportation Demand Management (TDM) Alternatives summarized in Chapter 5. The timing for individual improvements will be guided by the changes in land use patterns and growth of the population in future years. Adjustment to specific

projects and improvement schedules will likely need to be adjusted depending on where growth occurs within the planning area.

This chapter discusses ten modal plans. These are: 1) Pedestrian System, 2) Bicycle System, 3) Street System, 4) Transportation Demand Management, 5) Public Transportation Plan, 5) Rail Service, 6) Air Service, 7) Pipeline Service, 8) Truck Freight, 9) Water Transport/Ports, and 10) Telecommunications. All of these plans closely interrelate; for example, the street system plan, although primarily designed around the motor vehicle traffic forecasts, will also serve pedestrians, bicyclists, and transit users.

Each modal plan also includes an implementation schedule and budgetary cost estimate. The funding strategy recommended for the Transportation System Plan is discussed in detail in Chapter 7.

6.4.1 Pedestrian System Plan

A complete pedestrian system should be implemented in the urban growth areas, and in residential areas zoned for urban levels of development (average lot size of 10,000 square feet or less, where there is the potential for street connectivity). Every paved street should have sidewalks on at least one side of the roadway meeting the requirements set forth in the street standards. Pedestrian access on walkways shall be provided between all buildings including shopping centers and abutting streets and adjacent neighborhoods. Pedestrian facilities within the rural portions of the county are minimal (at most a paved shoulder). Within Hood River and Cascade Locks, sidewalks are lacking in a number of sections and pedestrians must frequently share roads with cars.

The pedestrian improvements include sidewalk projects and trail projects. Future pedestrian trail improvements include creating a trail from the Indian Creek area that connects the Port to Post Canyon (approximately five to six miles), constructing a sidewalk along a portion of AGA Road, and improving sections of Post Canyon Road, as well as completion of other trail projects and proposed sidewalk improvements in the community of Odell.

Although shoulder additions can serve pedestrians, they are not ideal because they are not separated from the roadway; however, in rural areas where development may not occur quickly, the addition of shoulders is often the most practical improvement that can be implemented. Generally, shoulders are more of a benefit to cyclists than to pedestrians; therefore, proposed shoulder-widening or additions are discussed in the Bicycle System Plan section of this chapter.

A six-foot wide sidewalk with curbs already in place costs about \$30 per linear foot. Adding a curb as well as a six-foot wide sidewalk costs about \$35 per linear foot. In commercial areas, an eight-foot wide sidewalk with a curb would cost about \$45 per linear foot. A typical block in the cities of Hood River and Cascade Locks would require about 300 linear feet of sidewalk (2 x 150 ft). For a six-foot-wide sidewalk including curbs, the cost would be approximately \$10,500. With curbs already in place, the cost would be approximately \$9,000.

Other Streets: Missing sidewalk segments should be infilled whenever an opportunity presents itself (such as infill development, special grants, etc.), concentrating on arterial streets, collectors, and school routes.

Pedestrian Crossings: Improve the safety of pedestrian crossings through additional/improved signing and lighting, curb extensions, education, enforcement and traffic control measures.

6.4.2 Bicycle System

The 2010 Hood River County Bicycle Plan is incorporated by reference in the TSP and the County's Comprehensive Plan Background Document. The cities of Hood River and Cascade Locks identify bicycle system improvements in each of their respective adopted TSPs.

A list of recommended bikeway improvements for the entire county is displayed in **Table 6-4**. In addition to the projects proposed in Table 6-4, the new collectors and arterial streets recommended as part of the Street System Plan will include bike lanes.

6.4.3 Street System Plan

The street system plan outlines a series of improvement options that are recommended for construction within the planning area during the next 20 years. The street system plan was developed by applying recommended street classification standards to the year 2015 traffic forecasts for the recommended street system. The proposed street system plan is represented by roadway improvements summarized in **Table 6-4**.

6.4.4 Public Transportation Plan

Public transit service within the county is provided by the Hood River County Transit District. The district provides demand-responsive services countywide, regular trips to Portland, and a shuttle to Mt. Hood Meadows Ski Area.

The existing public transportation services already meet the requirements of the Oregon Transportation Plan. Connections are possible and convenient between all the services provided, and the service frequency meets the required daily trip to a larger city specified for communities the size of Hood River and Cascade Locks. However, growth should be guided so that it does not prevent transit development in the future.

6.4.5 Rail Service Plan

The Union Pacific freight service runs through the county parallel to I-84, with stops in Hood River and Cascade Locks. The Mount Hood Railroad branch line is a passenger rail line that runs south from Hood River alongside the OR 35 corridor. The Union Pacific carries cargo to Portland where it links with both north and south lines. Eastbound, it links with lines serving the Rocky Mountain states, midwest, and eastern portions of the country. No intercity passenger rail service is provided in Hood River County.

No plans are known to alter these services to the cities of Hood River and Cascade Locks. Efforts should be made by these cities and Hood River County to lobby appropriate agencies to retain or expand their rail service.

As of 2002, the Mount Hood Railroad received an approximately \$2 million dollar loan to refinance and rehabilitate the rail line. Approximately \$1 million will be used to pay for improvements. The remaining \$1 million will be used to refinance the line. A portion of the loan to refinance the line will be backed by funds from a state credit pool. The Mount Hood Railroad does not currently have plans to alter its service. However, if tourist demand grows, the frequency of service will be increased. Additional future improvements call for regular railroad tie and rail replacement, maintenance of bridge crossings and possible improvements to freight facilities. Future expansion of rail facilities to the southern portion of the County also may be undertaken.

6.4.6 Air Service Plan

There are four airports in the county: Cascade Locks State Airport, Hood River County Airport, Hanel Airport, and a small airport located near Highway 281 northwest of Odell. Cascade Locks State Airport is located within the city limits and is administered by the State Aeronautics Division. With one 1,800-foot paved runway, it is classified as a Level 5 facility (State Aviation designation), because it plays a supportive role to the state transportation systems in terms of agricultural, recreational, and emergency uses. Hood River airport is a general aviation airport located south of Hood River adjacent to Highway 281. It is owned and operated by the Port of Hood River and provides no regular air service, being used primarily by small planes for agricultural, business, and personal uses. Hood River Airport has one 3,040-foot paved runway, and is classified as a Level 4 facility (State Aviation designation), meaning that it provides local support and access and second-tier economic development. The Hanel Airport located near OR 35 south of Odell is a privately operated airport.

There are no commercial flights to any of these airports at this time. The accessibility of Portland Airport and the wide range of services it offers limit the likelihood of significant expansions of the smaller airports in Hood River County.

Projects and associated costs have been estimated for the Hood River Airport Master Plan as shown in Table 6-4.

The 2009 Airport Master Plan Update was adopted by the County on June 26, 2009 via County Ordinance #295. The plan update was also adopted by the Port of Hood River, the Airport Committee and the FAA in 2004. Several key safety and operational projects are outlined in the plan update, including a shift in the runway 550' east and away from Highway 281. This brings the Runway Protection Zone wholly onto airport property, and involves a planned vacation of a segment of Orchard Road in order to rebuild the runway and taxiway. The plan also proposes to relocate the taxiway further north to meet FAA separation standards, and proposes the Fixed Base Operator (FBO) office, fueling and services be relocated to the north side of the airport over time, to avoid planes taxiing across the runway. The plan update process was funded in part by a DLCD technical assistance grant, involved several public workshops and concluded with hearings and adoption in 2009. The plan is attached by reference to the TSP and the County's Comprehensive Plan Background Document (Appendix "____").¹

6.4.7 Pipeline Service Plan

The northern portion of the county is provided with natural gas service from a Northwest Pipeline Corporation transmission pipeline that extends south from Washington and crosses the Columbia River near the I-5 Interstate Bridge. No oil or natural gas transmission lines traverse the OR 35 corridor, and the southern portion of the county does not receive natural gas service.

The county plans to investigate the feasibility of accommodating pipelines in highway right-of-way. To the extent feasible, it also plans to utilize pipeline rights-of-way as bicycle and pedestrian pathways and wildlife corridors.

6.4.8 Truck Freight Service Plan

As a primary east-west corridor through the state, I-84 carries high volumes of truck traffic and freight movement. Annual freight volumes through Hood River County on I-84 are estimated at between 23 and 32 million tons. Additional modernization projects are not expected to be required on I-84.

Conversely, truck volumes on OR 35, Highways 281, and 282, and other roadways in the county are low. In 1992, average daily truck volumes on OR 35 were 499. During that same year, 400,000 net tons of freight were transported. Additional modernization projects are not expected to be required for freight on these highways other than the chain-up areas in the project list.

The county should review and modify, as needed, the current hazardous materials response program. The County needs to identify potentially unsafe locations (e.g., access/egress points to industrial sites) and develop necessary improvements to accommodate customary freight transport needs.

6.4.9 Water Transport/Ports Service Plan

Port of Hood River properties include 75 acres along the Columbia River in the northeastern portion of the city. Port facilities are not used for cargo handling, rather, they are used primarily as a private boat dock. The Port's waterfront properties are used for both recreational and commercial activities, including servicing of barges and other large commercial vessels. An extensive marina park includes 140 boat slips for cruise ships and the Columbia Gorge Sailpark. The waterfront property also contains an industrial park, which is largely undeveloped. Plans call for building mixed use development including motel/convention center, a public park, and high density housing.

¹ Added by County Ordinance #295 – Effective June 26, 2009

Port of Cascade Locks properties include a marine facility in the western portion of the city adjacent to the Union Pacific mainline and near US 30 and I-84. This shallow draft port sits just east of the locks. From the port, recreational trips on the Port's two sternwheeler boats make up the majority of the river traffic, as no commercial shipping or freight movement occurs.

In the City of Hood River, plans call for the creation of a pedestrian connection from the waterfront to downtown. Throughout the planning area, there are plans to identify mechanisms to reduce conflicts among commercial and recreational waterway users.

6.5 TRANSPORTATION DEMAND MANAGEMENT PLAN

Through transportation demand management, peak travel demands could be reduced or spread to more efficiently use the transportation system, rather than building new or wider roadways. Techniques that have been successful and could be initiated to help alleviate some traffic congestion include carpooling and vanpooling, alternative work schedules, bicycle and pedestrian facilities, and programs focused on high density employment areas.

6.5.1 Alternative Work Schedules

Alternative work schedules (such as flex-time or staggered work hours), especially with large employers, can help spread the peak period traffic volumes over a longer time period, thus providing greater service out of a fixed capacity roadway. Staggered work schedules shall be encouraged with new industries and be coordinated to eliminate high surges of traffic. Road capacity and large employers do not currently pose an issue for Hood River County, so alternative work schedules would have minimal or no impact on transportation.

6.5.2 Carpooling and Vanpooling

Ridesharing programs can be established to encourage carpooling. The service allows interested drivers to call a toll-free number, provide information about their trip, and receive a list of others in their general area. The park-and-ride lots in the project list can be used for carpools as well as for transit.

The county can work with large employers to establish a carpool and vanpool program. These programs, especially oriented to workers living in other neighboring communities, will help to reduce the travel and parking

requirements, and to reduce air pollution. Employers can encourage ridesharing by providing matching services subsidizing vanpools, establishing preferential car and vanpool parking and convenient drop-off sites, and through other promotional incentives.

6.5.3 Bicycle/Pedestrian Facilities

Bicycling and walking can be encouraged by implementing strategies discussed earlier in this plan. Providing bicycle lanes, parking, showers and locker facilities helps to encourage bicycle commuting and walking to work.

6.5.4 Telecommuting

Telecommuting is identified by the OTP as a TDM technique that reduces auto usage. The ability for people to work at home with telecommuting technology is likely to continue to grow during the next two decades. During the past ten years, the percentage of people working at home has more than doubled. If this trend continues, an additional three percent of the work force could stay home and work, thus reducing trips during the peak hour. This could reduce work trips during the peak hour by approximately one percent.

No costs have been estimated for this modal plan. Grants may be available to set up programs; other aspects of Transportation Demand Management can be encouraged through ordinance and policy.

6.6 TRANSPORTATION SYSTEM PLAN IMPLEMENTATION PROGRAM

Implementation of the Hood River Transportation Systems Plan will require both changes to the comprehensive plan and zoning ordinance of the county. These actions will enable Hood River County to address both existing and emerging transportation issues throughout the planning area in a timely and cost effective manner. The “Model Transportation Planning Rule Ordinances and Policies for Small Jurisdictions,” dated August 1996 and prepared by David Evans and Associates, Inc., has been used as a guide for amendments to ordinances and policies. This implementation program is geared towards providing these communities with the tools to fund and schedule transportation system improvements.

Another part of the implementation program is the formulation of a 20-Year Capital Improvement Plan (CIP). The CIP details necessary transportation system improvements as the planning area grows and provides a process to fund and schedule the identified improvements. It is expected that the transportation plan capital improvement plan can be integrated into the existing CIP of the Hood River County Road Plan, and the ODOT STIP. This integration is important since the Transportation Plan proposes that all four governmental agencies will fund some of the transportation improvement projects.

Table 6-4 summarizes the Hood River County Transportation Plan Improvement Program. The list consists of projects identified during the previous Hood River County TSP effort in 1996, projects included in the OR Highway 35 Corridor Plan, projects within the City of Hood River urban growth area identified in the City of Hood River TSP, and additional projects identified by the TAC for the TSP update. It lists the projects by type, prioritizes them by timeframe, and provides information about cost, justification and funding source (by agency or jurisdiction). Projects may be prioritized further through the county’s capital improvement planning process. The cost estimates for all the projects listed were prepared on the basis of 1996 dollars. These costs include design, construction, right-of-way acquisition, and contingencies where appropriate. The highway and street cost estimates are preliminary by road segment and do not include the cost of adding or relocating public utilities or detailed design of existing street intersections.

The 20-year Transportation Improvement Program is estimated to cost approximately \$178 million. The Transportation Plan Funding Chapter (7) adds information on transportation system improvements funding.

This table (6-4) is a list of potential transportation projects for Hood River County. This list provides possible solutions to transportation needs identified and forecasted over the next 20 years by Hood River County, the Oregon Department of Transportation and other entities such as the Port of Hood River, Mt. Hood Railroad, Columbia Area Transit System and US Forest Service. The list and the plan are intended to be periodically reviewed and updated or revised as needed. Inclusion of a project in this list does not obligate the County or any other agency to fund or complete it. Implementation of projects is dependent on availability of funding and a variety of other factors.

Inclusion of a project also does not necessarily constitute approval of a land use decision. Many of the projects included in the list are not expected to require further land use approval or review, such as the following:

- Operation, maintenance and repair of existing transportation facilities identified in the TSP.
- Dedication of right-of-way, authorization of construction and construction of facilities and improvements where improvements are consistent with clear and objective dimensional standards.
- Selected uses permitted outright under certain provisions of ORS 215 related to allowable uses in exclusive farm use zones.
- Changes in the frequency of transit, rail and airport services.
- Transportation facilities, services or improvements that concern application of a comprehensive plan provision or land use regulation, provided it is subject to standards that do not require interpretation or exercise of factual, policy or legal judgment.

However, other projects may require additional land use review or approval such as construction of new roads or other major improvement projects that do not meet the conditions described above. Amendments to the County's Zoning Ordinance provide further direction related to requirements for review and approval of transportation projects.

What follows are some basic definitions used to identify specific projects based on their justification; these include the following categories: modernization; safety; preservation; bridge; and operations. The source for the categories and their descriptions comes directly from Oregon Department of Transportation's STIP (State Improvement Program). A brief description is provided of each category below.

Modernization: Improvements to accommodate existing traffic and/or projected traffic growth, including facilities for bicycles and pedestrians.

Preservation: Improvements to rebuild or extend the service life of existing facilities, and rehabilitative work on roadways. Preservation projects add useful life to the road without increasing the capacity.

Safety: An investment program focused on improvements to address priority hazardous highway locations and corridors in order to reduce the number of fatal and serious injury crashes.

Operations: System management and improvements that lead to more efficient and safer traffic operations and greater system reliability.

Bridge: Improvements to rebuild or extend life of existing bridges and structures beyond the scope of routine maintenance.

Some of the completed improvement projects which the County has recently benefited from, include:

- Interstate 84 Overlay and Reconstruction
- Elliot/Brookside Intersection Improvements (new signal)
- Paved shoulders on parts of Country Club Road and Indian Creek Road for bicyclists and pedestrians
- Overpass and improvements to Mt. Hood Meadows Access Road

TABLE 6-4

TRANSPORTATION SYSTEM IMPROVEMENTS PROJECT LIST

Project No.	Description/Location	Project Justification					Cost (\$)	Jurisdiction
		Modernization	Preservation	Safety	Operations	Bridge		
<i>Roadway Projects</i>								
Short-Range								
R-1	Upgrade electronic reader board at Mt. Hood Meadows access road/OR 35 (MP 64.08)			S	O		\$80,000	State or Private
R-2	Restripe intersection markings for intersection of OR 35 and Hwy 282 to clarify turn movements and improve safety (STIP #03407).			S	O		\$50,000	State
R-4	Phase I Seismic Retrofit; West Hood River Interchange, Bridge #09017 (I-84 at MP 62.06)			S		B	\$110,000	State
R-5	Roadway improvements to Dethman Ridge Drive at Hwy 282			S			\$750,000	State & County
R-7	Realign Orchard Road adjacent to Hood River Airport				O		\$500,000	County & Port
R-8	Pull-off Chain-up Area on Country Club Road, West of Frankton Road			S			\$100,000	County
R-9	Realignment of Highway 281 at MP 12.80	M		S			\$1,500,000	State
R-10	Provide adequate rockfall area to reduce rockfall hazard at the Hood River Canyons Rockfall (Hwy 35 MP 72)(STIP #09388); scheduled for 2003.				O		\$2,691,000	State
R-11	Pave roadway, add sidewalk infill where possible on Country Club Rd-Historical Columbia River Hwy (STIP #10681); scheduled for 2003.	M	P				\$2,467,000	State
R-12	Preservation overlay, safety work as needed on Jct. Hood River Hwy – Polallie Creek (STIP #11939)		P	S			\$5,005,000	State
R-13	Preservation overlay, safety work as needed on Neal Creek Road – MP 91.5 (STIP #11940)		P	S			\$3,185,000	State
R-14	Realign intersection improve sight distance on Hood River Hwy at Highway 282 (STIP #03407)	M		S			\$473,000	State
R-15	Construct a signal at the Hood River/ Pacific Ave. intersection (STIP #11915)			S	O		\$370,000	State
R-16	Rockfall mitigation on the Columbia River Farley Slide Repair (I-84 MP 48) (STIP #10921)			S	O		\$656,000	State
R-17	Columbia River Highway culvert replacement MP 55.18-MP 58.63 (STIP #12077)	M				B	\$2,272,000	State
R-18	Conduct a comprehensive traffic study on OR 35 South of I-84 & OR 35 at US 30 to determine problems, identify and plan proposed intersection improvements; study would include environmental assessment, permits and Final Engineering Plans	M		S	O		\$150,000	State
R-69	Construct interpretive sites and sign project for the Historic Columbia River Highway				O		\$300,000	State
R-67	Identify additional right-of-way needs for Highways 281 and 282	M		S	O		NA	State

Project No.	Description/Location	Project Justification					Cost (\$)	Jurisdiction
		M	P	S	O	B		
R-68	Extend storm sewers, sidewalks, curbs and gutters on Forest Lane to the Cascade Locks industrial park	M	P	S	O		\$600,000	County & City & State
R-70	Reduce lateral grades on Highway 35 in selected areas			S	O		NA	State
R-71	Annual guardrail replacement (estimated annual cost of \$40,000)		P	S			\$200,000	County
Subtotal							\$21,459,000	
Intermediate-Range								
R-19	Install/upgrade culverts across OR 35 in the vicinity of Clark Creek (MP 65.88)					B	\$80,000	State
R-20	Improve Robinhood Quarry/bridge to allow disposal of roadway ditch material (OR 35 at MP 68.14)					B	\$100,000	State
R-21	Create a Mt. Hood scenic view site along OR 35 - ½ mile south of White River Br. (MP 61.24)				O		\$3,000	State
R-24	Construct signal/intersection improvements @ intersections of OR 35/I-84 and OR 35/HCRH	M		S	O		\$1,000,000	State
R-25	Arch Culverts to add drainage capacity along I-84 near MP 65.8					B	\$200,000	State
R-26	Add a turning lane to Belmont Drive at West Avalon Intersection			S			\$100,000	County
R-27	New rest area along I-84 at either Cascade Locks, Wyeth or Hood River				O		\$3,105,000	State
R-28	Install sidewalks along Belmont Avenue (collector) from 22 nd Street to 14 th Street, both sides	M					\$66,000	City
R-29	Develop a streetscape plan from the Historic Columbia River Highway from Country Club Road to 13 th Street that complies with the HCRH street plan. Include street section from City; no study needed.	M					\$50,000	City & State
R-31	Extend Rand to Belmont Drive	M					\$2,500,000	City & County
R-32	Realign Country Club/Cascade intersection	M		S			\$600,000	City & County & State
R-33	Improve Rebecca Drive to City standards (<i>City proposed project-no cost or schedule information provided</i>)	M					NA	City
R-34	Improve West Prospect to City standards (<i>City proposed project-no cost or schedule information provided</i>)	M					NA	City
R-35	Extend Belmont Drive to Post Canyon Road (<i>City proposed project-no cost or schedule information provided</i>)	M					NA	City
R-72	Realign and/or relocate Bennett Pass SnoPark area to the newly constructed Mt. Hood Meadows Interchange (on the overpass, northeast of the ramp)	M					NA	State or Federal
R-73	Reconstruct Cloud Cap/Tilly Jane Road – for back country parking (The \$260,000 may be included in the item below – need to check with USFS – Stewart Fletcher)	M					NA	State or Federal
R-74	Cooper Spur Access Road – Reconstruction of 1.85 miles (USFS gave 2 figures: \$2,300,000 + \$260,000)	M		S			\$2,560,000	Federal
R-75	Reconstruction of Hood River Meadows Access Road – 0.56 mile reconstruction project	M		S	O		\$300,000	State or Federal
R-76	Annual guardrail replacement (estimated annual cost of \$40,000)		P	S			\$200,000	County
R-77	Highway 35 Improvement Feasibility projects – realignment, bridge and other improvements in the vicinity of rivers and creeks*	M	P	S	O	B	NA	Federal

* Numerous alternative projects have been recommended as part of the Hwy 35 Improvement Feasibility Study, but refinement is needed before a specific alternative is selected.

Project No.	Description/Location	Project Justification				Cost (\$)	Jurisdiction
Subtotal					\$10,864,000		
Long-Range							
R-36	Add turning lanes to Hwy 282 at Davis Drive (MP 2.72)	M	S			\$600,000	State & County
R-37	Install turning lanes at Hwy 282/Chevron/Mud Alley (MP 2.38)	M	S			\$150,000	State & County
R-38	Parking improvements at Clark Creek Tea Cup Sno-Park along OR 35 (MP 65.88)	M	S			\$25,000	State
R-39	Construct new road connecting HCRH and Fairview Drive (On 30 th Street from Fairview to May Street and on 30 th Street from Eugene Street to HCRH)	M				\$2,400,000	City & County
R-40	Shoulder widening/paving of Hwy 281 (project limits not provided)	M	S			NA	State
R-41	Hwy 282 shoulder widening county wide for bicycle use and roadside safety (MP 0.51-2.76)	M	S			\$610,000	State
R-42	Phase I Seismic Retrofit; East Fork Hood River Bridge, Bridge #01039 (Hwy 281 at MP 12.9)				B	\$80,000	State
R-43	Phase I Seismic Retrofit; Hood River Tucker Bridge, Bridge #01600 (Hwy 281 at MP 4.95)				B	\$70,000	State
R-44	Polallie Creek Bridge reconstruction to accommodate debris flow. (OR 35 at MP 73.82) *	M	P	S	B	NA	State
R-45	Replacement of the East Fork Hood River Bridge (OR 35 at MP 68.21) *				B	NA	State
R-46	Replacement of the East Fork Hood River Bridge (OR 35 at MP 73.2) *				B	NA	State
R-47	Replacement of the East Fork Hood River Bridge (OR 35 at MP 77.6) *				B	NA	State
R-48	Replacement of the East Fork Hood River Bridge, Bridge #01939 (Hwy 281 at MP 12.9)				B	NA	State
R-49	Replace East Fork/Woodworth Road Bridge				B	\$750,000	County
R-50	Major widening with alignment improvement along OR 35 between MP 94.43 - 95.45	M				\$3,285,000	State
R-51	Major widening improvement along OR 35 between MP 96.26 - 96.87	M				\$1,349,000	State
R-52	Major widening improvement along OR 35 between MP 97.97 - 98.62	M				\$2,278,000	State
R-53	Major widening with alignment improvement along OR 35 between MP 99.86 - 101.82	M				\$5,475,000	State
R-54	Major widening with alignment improvement along Hwy 281 between MP 1.24 - 2.07	M				\$1,800,000	State
R-55	Major widening with alignment improvement along Hwy 281 between MP 4.99 - 5.09	M				\$1,847,000	State
R-56	Major widening with alignment improvement along Hwy 282 between MP 0.00 - 0.51	M				\$1,464,000	State
R-78	HCRH improvements on Westcliff Drive from Meredith Motel to I-84	M				NA	State
R-58	Redesign Intersection at Indian Creek, Barrett Road and Hwy 281	M	S	O		\$200,000	State & County
R-59	Construct new road connecting Rand Road and Frankton Road	M				\$2,000,000	City & County
R-60	Reconstruct Davis Road to urban standards from Odell Highway 282 to A.G.A. Road	M				\$320,000	County

* Numerous alternative projects have been recommended as part of the Hwy 35 Improvement Feasibility Study, but refinement is needed before a specific alternative is selected.

Project No.	Description/Location	Project Justification				Cost (\$)	Jurisdiction
		M					
R-61	Reconstruct A.G.A. Road to urban standards from Davis Road to Odell Highway 282	M				\$730,000	County
R-62	Install 4 ft paved shoulders on Barrett Rd., Country Club Rd. to Indian Creek Rd	M				\$160,000	County
R-63	Install 4 ft paved shoulders on May Dr., Frankton Rd. to Rand Rd.	M				\$95,000	City & County
R-64	Install 4 ft paved shoulders on Portland Dr., Country Club Rd. to Tucker Rd	M				\$260,000	County
R-65	Install 4 ft paved shoulders on Hwy 281, Barrett Rd. to Portland Dr.	M				\$125,000	State
R-66	Shoulder widening and paving on Hood River Hwy 281	M				\$2,560,000	State
R-79	Annual guardrail replacement (estimated annual cost of \$40,000)		P			\$400,000	County
Subtotal						\$29,033,000	
Total All Roadway Projects						\$61,356,000	
<i>Bikeway Projects</i>							
Short-Range							
B-101	Westcliff Drive, multi-use path					\$2,400,000	County/State
B-125	HRCH Trails: Mitchell Pt to Hood River Segment, multi-use path	M				\$750,000	State
B-102	Country Club Road (north), bike lanes	M				\$1,200,000	County
B-105	Frankton Road (south), bike lanes	M				\$90,000	County
B-108	Brookside Road (east), bike lanes	M				\$60,000	County
B-110	Indian Creek Road, bike lanes	M				\$180,000	County
Subtotal						\$10,030,000	
Intermediate-Range							
B-125	HRCH trails: Wyeth to Starvation Creek; Viento to Mitchell Pt; Mitchell Pt	M				\$30,200,000	County
B-103	Country Club Road (south), bike lanes	M				\$408,000	County
B-104	Frankton Road (north), bike lanes	M				\$72,000	County
B-109	Brookside road (west), bike lanes	M				\$300,000	County
B-111	Barrett Drive, bike lanes	M				\$192,000	County
B-113	Summit Drive, bike lanes	M				\$378,000	County
B-114	Wy'east Road, bike lanes	M	S			\$252,000	County
B-116	OR-35 Mt. Hood Hwy (north); highway segment					\$1,200,000	State
B-117	OR-35 Mt. Hood Hwy (south); highway segment					\$1,800,000	State
B-118	OR-281 Hood River Hwy (north) (Tucker Rd); highway segment					\$1,440,000	State
B-119	OR-281 Hood River Hwy (south); highway segment					\$6,480,000	State
B-120	OR-282 Odell Hwy; highway segment					\$1,200,000	State
B-121	OR-35 & HCRH; highway intersection					Unknown	State
B-122	OR-281 & Indian Creek Rd. highway intersection					\$2,400,000	State
B-123	OR-35 & OR-282, highway intersection					Unknown	State
Subtotal						\$46,322,000	
Total Bicycle Projects						\$56,352,000	

Project No.	Description/Location	Project Justification				Cost (\$)	Jurisdiction
Pedestrian Projects							
P-1	Sidewalk on AGA Rd to Davis School	M				\$350,000	County/State
P-2	Sidewalks on both sides of Odell Hwy from RR to Davis Dr and Atkinson Dr from Odell	M				\$200,000	County/State
Subtotal						\$550,000	
Total Pedestrian Projects						\$550,000	
Railway, Airway, and Other Projects							
<i>Railway Projects</i>							
Short Range							
RW-1	Annual railway tie replacement (ongoing project over 20-year period – costs for years 1-5 only)		P			\$650,000	Private
RW-2	Annual rail replacement		P			\$75,000	Private
RW-3	On-going maintenance and repair of road crossings		P			\$50,000	Private
RW-4	Rail line extensions Baseline Road to Parkdale Grange	M				\$50,000	Private
RW-5	Improve industrial/commercial sites for freight service (siding and switches)				O	\$1,000,000	Private
RW-6	Potential Reload Center-e.g., Pine Grove (siding and switches)	M				\$250,000	Private
RW-7	Track extension at Mt. Hood Railroad location in Hood River for Steam locomotive, roundhouse and transportation museum	M				\$1,400,000	Private
Subtotal						\$3,475,000	
Intermediate-Range							
RW-1	Annual railway tie replacement (ongoing project over 20-year period – costs for years 5-10 only)		P			\$650,000	Private
RW-2	Annual rail replacement		P			\$75,000	Private
RW-3	On-going maintenance and repair of road crossings		P			\$50,000	Private
Subtotal						\$775,000	
Long Range							
RW-1	Annual railway tie replacement (ongoing project over 20-year period – costs for years 10-20 only)		P			\$1,300,000	Private
RW-2	Annual rail replacement		P			\$150,000	Private
RW-3	On-going maintenance and repair of road crossings				O	\$100,000	Private
RW-4	Resumption of Amtrak Service	M				NA	Private
RW-8	Bridges-on-going maintenance repair of road crossings				B	\$950,000	Private
RW-9	Rail extensions (Parkdale to Cooper Spur and Cooper Spur to Mt. Hood Meadows)	M				\$60,000,000	Private
Subtotal						\$62,500,000	
Subtotal All Rail Projects						\$66,750,000	
<i>Airway Projects</i>							
A-1	Runway extension and land acquisition at Hood River Airport	M			O	\$1,500,000	Port
A-2	Relocate operational terminal and add public rest area	M				\$300,000	Port
A-3	Install weather station	M				\$100,000	Port
A-4	Add 21 New T-Hangars	M				\$504,000	Port

Project No.	Description/Location	Project Justification				Cost (\$)	Jurisdiction
A-5	Install Fencing	M				\$100,000	Port
Subtotal Air Projects						\$2,504,000	
<i>Other Projects</i>							
O-1	Transit/multi-modal center and vehicle storage	M				\$691,500	All
O-2	Robinhood Campground toilet removal, and water source development	M				\$1,500	USFS
O-3	Trail improvements along the Indian Creek	M				\$75,000	City
O-4	US Forest Service (USFS) trail reconstruction Pacific Crest Trail (Lolo Pass to Bald Mountain	M				\$100,000	USFS
O-5	USFS trail reconstruction Pacific Crest Trail, Barlow Pass to Frog Lake, and Palmateer Trail	M				\$150,000	USFS
O-6	USFS bridge replacement Tamanawas Trail Bridge over East Fork				B	\$100,000	USFS
O-7	Countywide study of need for shared parking or park and ride lots to serve commuters and recreational travelers	M			O	\$100,000	County, City or Private
O-8	Replace deck of Hood River Bridge across Columbia River	M	S	O		\$8,000,000	Federal, County, City or Port
Subtotal Other Projects						\$9,218,000	
Total Cost of All Projects						\$178,084,000	
Note: These projects include sidewalks and bike lanes with construction or reconstruction of roadway segments.							
NA = No cost information available							

7. FUNDING TRANSPORTATION PROJECTS IN HOOD RIVER COUNTY

This chapter evaluates potential funding for projects included in this Transportation System Plan. The evaluation begins with a description of existing funding for transportation improvements in the County from local and non-local sources. This is followed by a description of project costs relative to the plan and information about potential funding sources that are outside of the County's budget.

7.1 PROJECT FUNDING IN HOOD RIVER COUNTY

Transportation improvement projects in Hood River County are funded with a mix of public and private funding sources, including those contributed by the private sector and Hood River County, the Port of Hood River (for airport improvements), the cities of Hood River and Cascade Locks on projects that overlap county and city boundaries, the Mt. Hood Railroad (for railroad improvements), and ODOT (which allocates State and Federal funding to jurisdictions and projects). This section describes the funding sources and existing level of funding, organized by jurisdiction.

7.1.1 Hood River County

Table 7-1 shows transportation-related revenue and expenditures by Hood River County between 1997-2001. Total revenue has been fairly stable in this period at about \$3 million/year. Transportation-related expenditures by Hood River County have been almost entirely for operation, maintenance, and preservation of the existing roadway system.

TABLE 7-1: TRANSPORTATION REVENUE AND EXPENDITURES IN HOOD RIVER COUNTY, 1998-2001

	1998	1999	2000	2001
Beginning Balance	5,630,002	6,167,650	7,202,050	7,949,811
Total Current Revenue				
Transfer from General Fund	∅	∅	∅	∅
Interest	403,793	411,529	451,175	544,790
Land Sales and Rentals	1,490	761	863	∅
Other County Revenues	366,307	369,289	302,409	398,142
State Highway Fund	973,420	1,028,001	1,080,091	1,059,398
National Forest Reserve Revenue	1,383,560	1,327,551	1,271,252	1,218,793
5% Distribution of BLM Land Sales	∅	∅	∅	∅
Federal Flood Control	661	∅	∅	∅
Surface Transportation Program	∅	∅	∅	∅
Total Current Expenditures				
Repair and Preservation	1,851,868	1,403,189	1,538,633	1,710,856
Operations and Maintenance	525,292	456,786	561,496	571,292
Administration and General Engineering	214,423	242,756	257,900	378,116
Transfers to Cities/Local Agencies	∅	∅	∅	∅

7.1.2 Cities of Hood River and Cascade Locks

The cities of Hood River and Cascade Locks may participate in financing transportation improvement projects within their urban growth boundaries in accordance with transportation system plans for those communities. The cities will participate as strategic partners with the county, state, and regional transportation partners on transportation projects that overlap jurisdictional boundaries.

7.1.3 Port of Hood River

The Port owns and operates the Hood River Airport, which serves general aviation users (the airport does not have scheduled commercial service). According to Port staff, the airport operation does not generate sufficient revenue and fees paid by users to cover the cost of airport operations and maintenance.

The Port is financing recently constructed T-hangers at the airport with revenue bonds issued by the Port. These bonds are being paid back with lease revenue from the hangers. The Port has a long waiting list for hanger space and would like to develop additional hanger space. The Port also is engaged in a planning process for extending the main runway so that the airport can handle small jet traffic. The plan includes options for extending the runway and related site improvements and land acquisition. If the plan is approved, the Port will pursue an FAA grant to fund 90% of the project. FAA grants typically require a local match of 10-20% of the project cost. The Port typically funds the local match for FAA grants from revenue generated by the Port's industrial property.

7.1.4 State Funds for Projects in Hood River County

ODOT allocates State funds for improvement projects through the Statewide Transportation Improvement Program (STIP). The STIP allocates funding over a four-year period, and is updated every two years. The current Draft STIP for 2002-2005 includes nine construction projects in Hood River County. These projects, with the total cost and year of completion, are:

- Hood River Canyons Rockfall - Provide adequate rockfall area to reduce rockfall hazard (2002)
- Country Club Road/Mt. Hood Highway- Pave roadway. Add sidewalk infill where possible (2003)
- Junction of Hood River Highway and Polallie Creek- Preservation overlay, safety work as needed (2004)
- Neal Creek Road- - Preservation overlay, safety work as needed (2005)
- Hood River Highway at Odell Highway- Re-align intersection (2004)
- Hood River Highway at Pacific Ave- Construct a signal at the intersection (2004)
- Farley Slide Repair- Rockfall mitigation (2003)
- Columbia River Highway Culvert Replacement-Culvert Replacement (2002)

ODOT also has allocated funding through the Oregon Transportation Initiative Act (OTIA) to the following project:

- State Highway 281 at Brookside/Elliott Traffic Signal- Provide Traffic Signal, Sidewalk and ADA Ramps 2 Intersections of Brookside/Elliott (2003/project completed)

Overall, the adopted STIP includes projects in Hood River County totaling over \$17 million in four years, or about \$4 million/year. An additional \$3.9 million in projects are identified in the draft 2004-2007 STIP for Hood River County. All of the roadway projects in the adopted and draft STIP are on State-maintained roadways.

In addition to the specific projects in Hood River County, ODOT provides transit grants to various transit agencies in ODOT's Region 1 outside of the Portland Metropolitan Planning Organization. The Elderly and Persons With Disabilities Program has supported the District with about \$14,000/year, and the Special Transportation Fund about \$40,000/year over the 2002-2005 planning period. These grants are earmarked by transit agencies in Region 1. Concerns have been raised about the stability of these funds given the current state budget crisis. The Transit District also expects to receive between \$50,000 and \$80,000 annually in grants from the Federal Transit Administration for vehicle maintenance and operating expenses.

7.2 PROJECT COSTS AND FUNDING SOURCES IN HOOD RIVER COUNTY

This section identifies project costs in this Plan by project type, and discusses potential funding from federal, state and local sources for these projects. More detailed information about specific projects can be found in Table 6-3, Chapter 6.

7.2.1 Roadway Projects

Table 7-2 summarizes roadway project development costs for Hood River County by period. This table shows substantial roadway costs in Hood River County - \$21.5 million in Years 1-5, \$10.9 million in Years 6-10, and \$29.0 million in Years 11-20. A large portion of these costs are for projects on State-maintained highways or I-84; these projects should be funded by ODOT through the STIP.

Funding for state highway improvement projects come from a variety of sources including the Federal Highway Administration, the Interstate Highway Fund, other federal agencies, state fuel taxes and vehicle registration fees, and other dedicated and discretionary state funds. In general, the state's transportation improvement program is under funded. The state allocates available resources using criteria established by the Oregon Transportation Commission and in collaboration with local partners.

Funding for local projects come from the County's Road Fund, shared state transportation revenue (e.g. gas tax receipts), and a variety of state and federal grant programs. For example, providing turning lane improvements where a County road intersects a state road may be eligible to received financial assistance from ODOT. Local projects that provide special benefits may be eligible for state grants, such as a Community Development Block Grant for projects that primarily benefit low income residents or Special Public Works Fund loans and grants for projects that promote economic development. Some local projects also may be eligible for funding outside of the County's budget through public/private partnerships. For example, privately financed improvements at the entrance to the Mt. Hood Meadows Ski Area would be one.

The local portion of the roadway capital improvement program requires an investment of about \$700,000 per year. Local resources, when combined with anticipated state and federal assistance, appear to be adequate to finance this need. The same is not true for financing roadway maintenance needs. Options for expanding local maintenance resources include adopting a county gas tax, county vehicle registration fees, forming local road maintenance districts, and, as a last resort, lowering functional and operating standards to match available resources.

In addition, other options are recommended to be explored for funding future capital improvements, including systems development charges and/or transportation impact fees. A System Development Charge (SDC) is a fee collected when property is developed. The SDC is based on the average impact of a development on the need for new facilities to support future growth and development. An SDC is a very flexible financing tool. Oregon law allows SDCs for transportation, water, sanitary sewer, storm drainage, and park and recreation facilities, though not schools. They typically supplement local government revenues and generally must be backed up by other

revenue sources. SDC fees must be budgeted and accounted for in a separate fund and can be used only to pay for activities directly related to capital improvements that benefit future growth. In order to establish an SDC for transportation, the county would need to prepare a master plan for the SDC area. The plan would include cost estimates for future public improvements to serve new proposed development. The county then would need to prepare an SDC “methodology” describing the assumptions used to estimate the SDC fee.

SDCs are more typically used by cities in Oregon. Relatively few counties have imposed rural transportation SDCs, though several have studied or are studying potential implementation of joint city/county SDCs in urban growth areas. SDCs can be relatively complex to establish and administer, necessitating that future revenues are available to offset costs.

Transportation impact fees are similar to SDCs in that they are assessed to new development to help pay for the cost of facilities required to support new growth and development. Transportation impact fees (TIFs) can be used to finance capital improvement projects, as well as operations and maintenance. They typically are based on the average number of trips expected to be generated by the development, which vary by size and land use. For example, commercial uses generate more trips than residential uses and typically pay a higher TIF.

TABLE 7-2: SUMMARY OF ROADWAY PROJECTS AND COSTS

Projects	Cost (\$)
Short-Range	
STIP projects	\$17,119,000
Other short-range projects	\$4,340,000
Short-Range Subtotal	\$21,459,000
Intermediate-Range	\$10,864,000
Long-Range	\$29,033,000
Total All Roadway Projects	\$61,356,000

7.2.2 Non-Motorized Projects

Table 7-3 summarizes bicycle and pedestrian project costs for Hood River County by period. A substantial portion of the non-motorized projects would construct pedestrian and bicycle trails or add shoulders for bicycles on County roadways. There are several federal and state funding programs that provide funding for pedestrians and bicycle improvements, including the federal Transportation Enhancement Program, the National Recreational Trails program and the Oregon Bicycle and Pedestrian Program. Federal and state grants for bicycle and pedestrian projects on local streets would require a local 20% match. In addition, some of these projects may help to promote tourism in Hood River County, making the projects eligible for funding by programs administered through Oregon Economic and Community Development (OECDD) or the federal Economic Development Administration (EDA). Hood River County should work with the ODOT Region 1 planner and OECDD representatives to seek grant funding for these non-motorized project costs. Portions of some projects may also be financed with private contributions.

TABLE 7-3: SUMMARY OF BIKEWAY AND PEDESTRIAN PROJECTS AND COSTS

Projects	Cost (\$)
Short-Range Bicycle Projects	\$10,030,000
Intermediate-Range Bicycle Projects	\$46,322,000
Long-Range Bicycle Projects	None
Short-Range Bicycle Projects	None
Intermediate-Range Pedestrian Projects	\$550,000
Long-Range Pedestrian Projects	None
Total All Bikeway & Pedestrian Projects	\$56,902,000

7.2.3 Transit, Rail and Airport Projects

Table 7-4 summarizes the cost transit, rail and airport improvement projects planned for in Hood River County. Transit improvement costs total \$691,500, railroad costs total \$66,750,000, and airport costs total \$2,504,000 in the 20-year planning period.

Transit service in Hood River County is provided by the Transit District. The District has an annual operating budget of around \$377,553 (fiscal year 2002/2003). About 30% of revenue comes from local property and payroll taxes and another 30% comes from operating receipts. The balance of the District's funding comes from a variety of state and federal transit funding programs, including the Community Transportation Program, The Special Transportation Program for Counties and Transportation Districts, and the Non-Urbanized Formula Program. Most of these funding programs are administered by the Public Transit Section of ODOT, which recommends projects for funding to the Oregon Transportation Commission. Concerns have been raised about the stability of state grants in view of the current budget crisis.

The District has tentative approval for a Federal Transit Administration Section 5307 grant to build a Multi-Modal Center and vehicle storage facility. The estimated project cost is around \$691,500. Prior to constructing this facility, the District needs to secure land for the facility and obtain environmental approvals. If the permitting process goes smoothly, the project will be constructed sometime in 2003.

The listed rail projects are on the Mt. Hood Railway (MHR) system. The MHR recently received a \$1 million federal loan from the Railroad Rehabilitation and Improvement Financing Program (RRIF). They plan to use this source to replace ties and to build a retaining wall at the switchback. Operating revenues are being used to repay the loan. MHR is participating in planning discussions to improve rail transportation service to industrial land in Odell and Parkdale. Related rail improvements may be eligible for funding through the Local Rail Freight Assistance program administered by ODOT, which provides grants to rehabilitate low density branch and short line railroads. ODOT has used the LRFA program to help retain short line railroads in other parts of Oregon. The MHR also may be eligible for funding through the OECDD, which has used lottery revenue to fund rail improvements in Oregon that are linked with regional economic development strategies. Other rail projects include rail replacement, bridge maintenance and repair, road crossings, sidings and spurs for freight service, a reload center at Pine Grove, and a museum and related facilities in Hood River.

The Port of Hood River, which owns and operates the airport, indicated that the Port may pursue two FAA grants. One would fund installation of a weather station that would then allow the airport to apply for an upgrade to its aviation rating. The estimated cost of that project is \$100,000. The second grant would fund a runway extension and related land acquisition. That project would cost around \$1.5 million. FAA grants typically require a 10% to 20% local match, which would be funded with revenue from the Port's industrial property investments. The Port is also considering adding more hanger space to alleviate a long waiting list. The current cost for a t-hanger

building is around \$24,000 per space. The Port is studying whether or not market rents can amortize the cost of adding more hanger space given current market conditions.

TABLE 7-4: SUMMARY OF RAILWAY, AIRWAY AND OTHER PROJECTS AND COSTS

Projects	Cost (\$)
<i>Railway Projects</i>	
Short-Range	\$3,475,000
Intermediate-Range	\$775,000
Long-Range	\$62,500,000
Subtotal Rail Projects	\$66,750,000
<i>Air Projects</i>	
	\$2,504,000
<i>Transit and Other Projects</i>	
	\$9,218,000
Total All Air, Rail and Other Projects	\$78,472,000

APPENDIX C

Interchange Spacing Standards

Interstate and Non-Interstate Freeways classified as part of the National Highway System (NHS) have interchange spacing standards of 3 miles within urban areas and 6 miles within rural areas. These standards apply to successive interchanges measured from the crossroad to crossroad centerline distance.

Access Spacing Standards for Freeway Interchange Areas

The OHP developed access spacing standards to protect the function of interchanges and provide safe and efficient operations between connecting roadways in and around interchanges. The access spacing standards for interchanges with two-lane crossroads are listed below in **Table C-1** and shown graphically in **Figure C-1**. It should be noted that the interchange access management standards displayed in **Table C-1** supercede the general access management standards unless the latter standards are greater.

The access spacing standards for interchanges with multi-lane crossroads are listed below in **Table C-2** and shown graphically in **Figure C-2**. Again, the interchange access management standards displayed in **Table C-2** supercede the general access management standards unless the latter standards are greater.

Signal Spacing Standards

In terms of signal spacing standards, the OHP requires that the location and spacing of traffic signals on state highways be managed to ensure the safe and efficient movement of people and goods. Traffic signals are not allowed on Interstate and Non-Interstate Freeways classified as part of the NHS. Similar to Statewide and Regional Highways, a distance of a half-mile is desirable for District Highways. ODOT supports ½ mile spacing for District Highways although no standard is provided in the OHP.

TABLE C-1
MINIMUM SPACING STANDARDS APPLICABLE TO FREEWAY INTERCHANGES
WITH TWO-LANE CROSSROADS

Category of Mainline	Type of Area	Spacing Dimension			
		A	X	Y	Z
FREEWAY	Fully Developed Urban	1 mile	750 ft	1320 ft	750 ft
	Urban	1 mile	1320 ft	1320 ft	990 ft
	Rural	2 mile	1320 ft	1320 ft	1320 ft

Notes:

- 1) If the cross road is a state highway, these distances may be superseded by the Access Management Spacing Standards, providing the distances are greater than the distances listed in the above table.
- 2) No four-legged intersections may be placed between ramp terminals and the first major intersection.

A = Distance between the start and end of tapers along freeway between adjacent interchanges

X = Distance to the first approach on the right side of the two-lane crossroad; right in/ right out only

Y = Distance to first major intersection on the two-lane crossroad; no left turns allowed within this roadway section

Z = Distance between the last right in/ right out approach to the two-lane crossroad and the start of the taper for the on-ramp to the freeway

FIGURE C-1
MINIMUM SPACING STANDARDS APPLICABLE TO FREEWAY INTERCHANGES
WITH TWO-LANE CROSSROADS

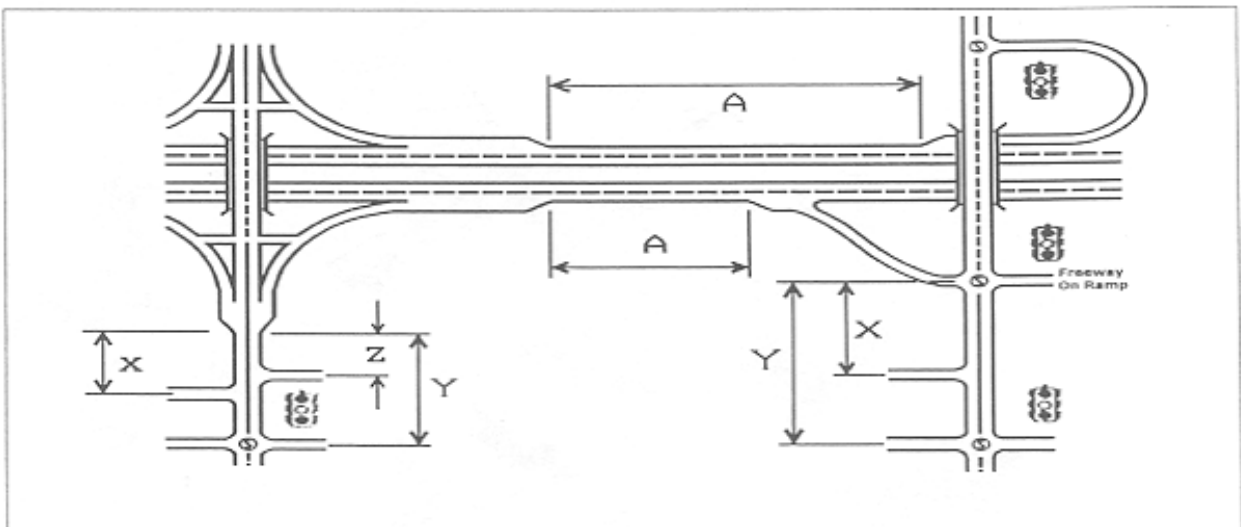


TABLE C-2

MINIMUM SPACING STANDARDS APPLICABLE TO FREEWAY INTERCHANGES WITH MULTI-LANE CROSSROADS

Category of Mainline	Type of Area	Spacing Dimension				
		A	X	Y	Z	M
FREEWAY	Fully Developed Urban	1 mile	750 ft	1320 ft	990 ft	1320 ft
	Urban	1 mile	1320 ft	1320 ft	1320 ft	1320 ft
	Rural	2 mile	1320 ft	1320 ft	1320 ft	1320 ft

Notes:

- 1) If the cross road is a state highway, these distances may be superseded by the Access Management Spacing Standards, providing the distances are greater than the distances listed in the above table.
- 2) No four-legged intersections may be placed between ramp terminals and the first major intersection.

A = Distance between the start and end of tapers of adjacent interchanges

X = Distance to the first approach on the right; right in/ right out only

Y = Distance to first major intersection

Z = Distance between the last approach road and the start of the taper for the on-ramp

M = Distance to first directional median opening. No full median openings are allowed in nontraversable medians to the first major intersection

FIGURE C-2

MINIMUM SPACING STANDARDS APPLICABLE TO FREEWAY INTERCHANGES WITH MULTI-LANE CROSSROADS

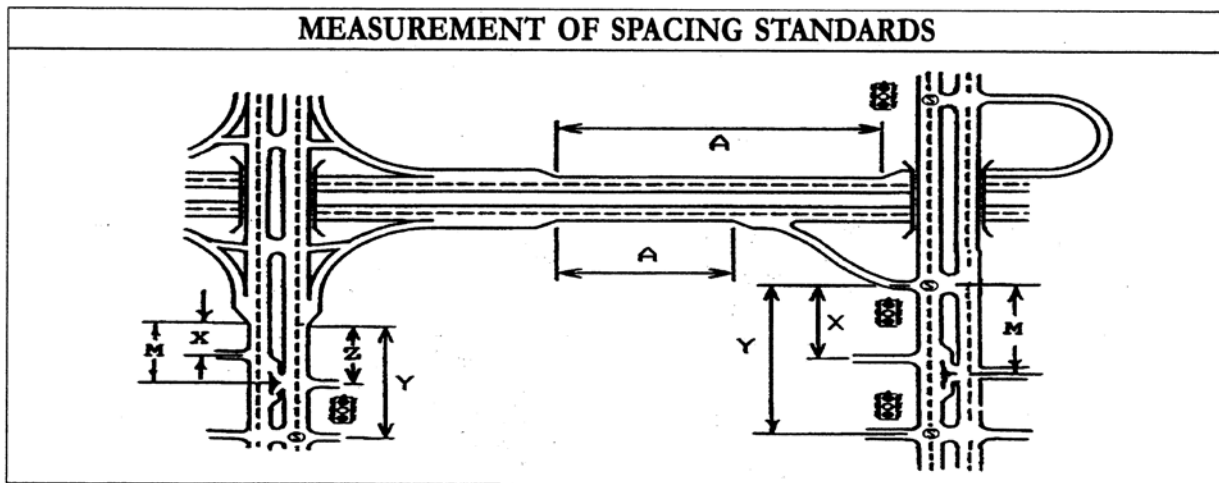


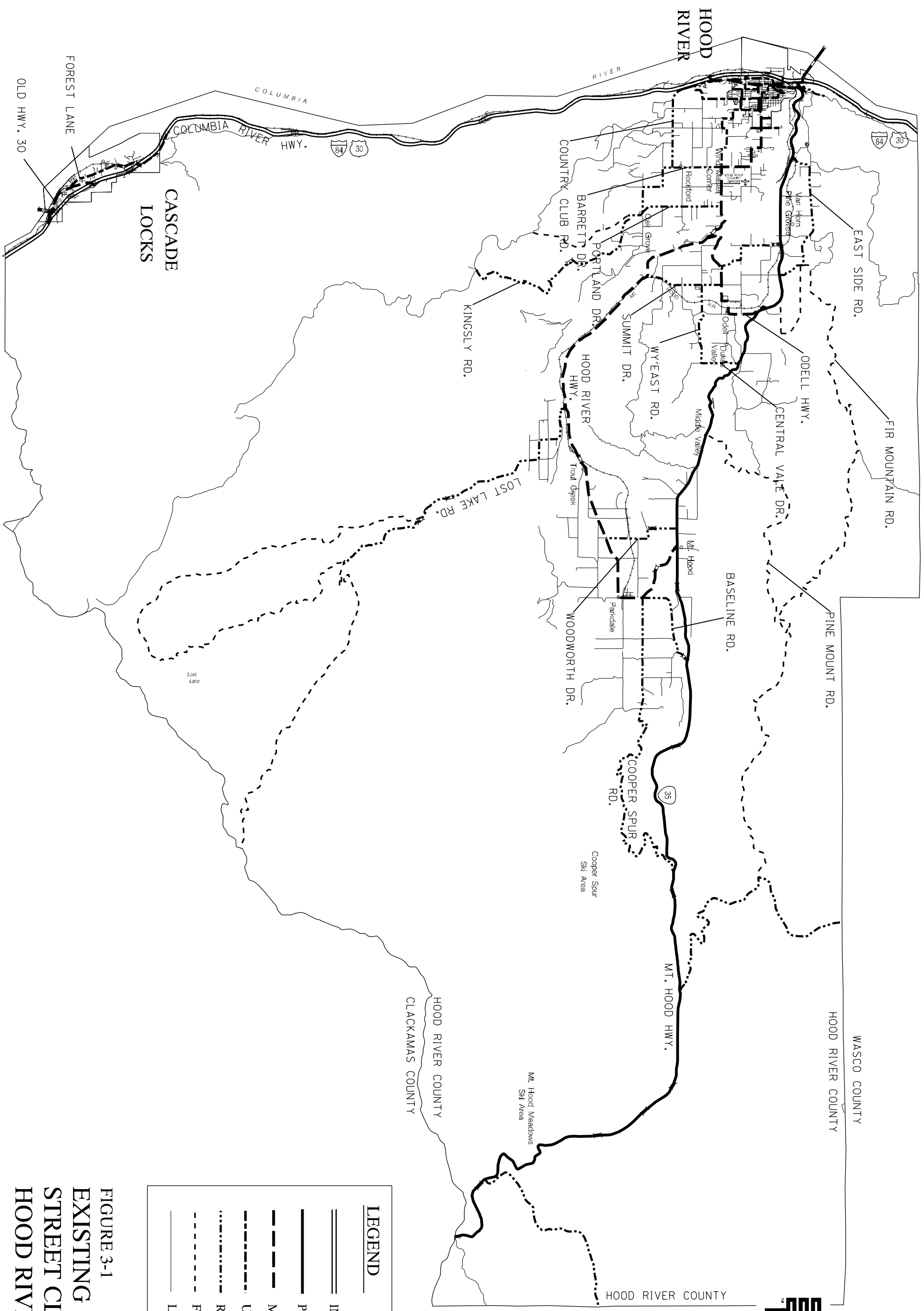
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NOT TO SCALE



**DAVID EVANS
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LEGEND	
	INTERSTATE
	PRINCIPAL ARTERIAL
	MINOR ARTERIAL
	URBAN COLLECTOR
	RURAL COLLECTOR
	FOREST ACCESS ROAD
	LOCAL STREETS

**FIGURE 3-1
EXISTING
STREET CLASSIFICATION
HOOD RIVER COUNTY**



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Portland Oregon 97201
Phone: 503.223.6663

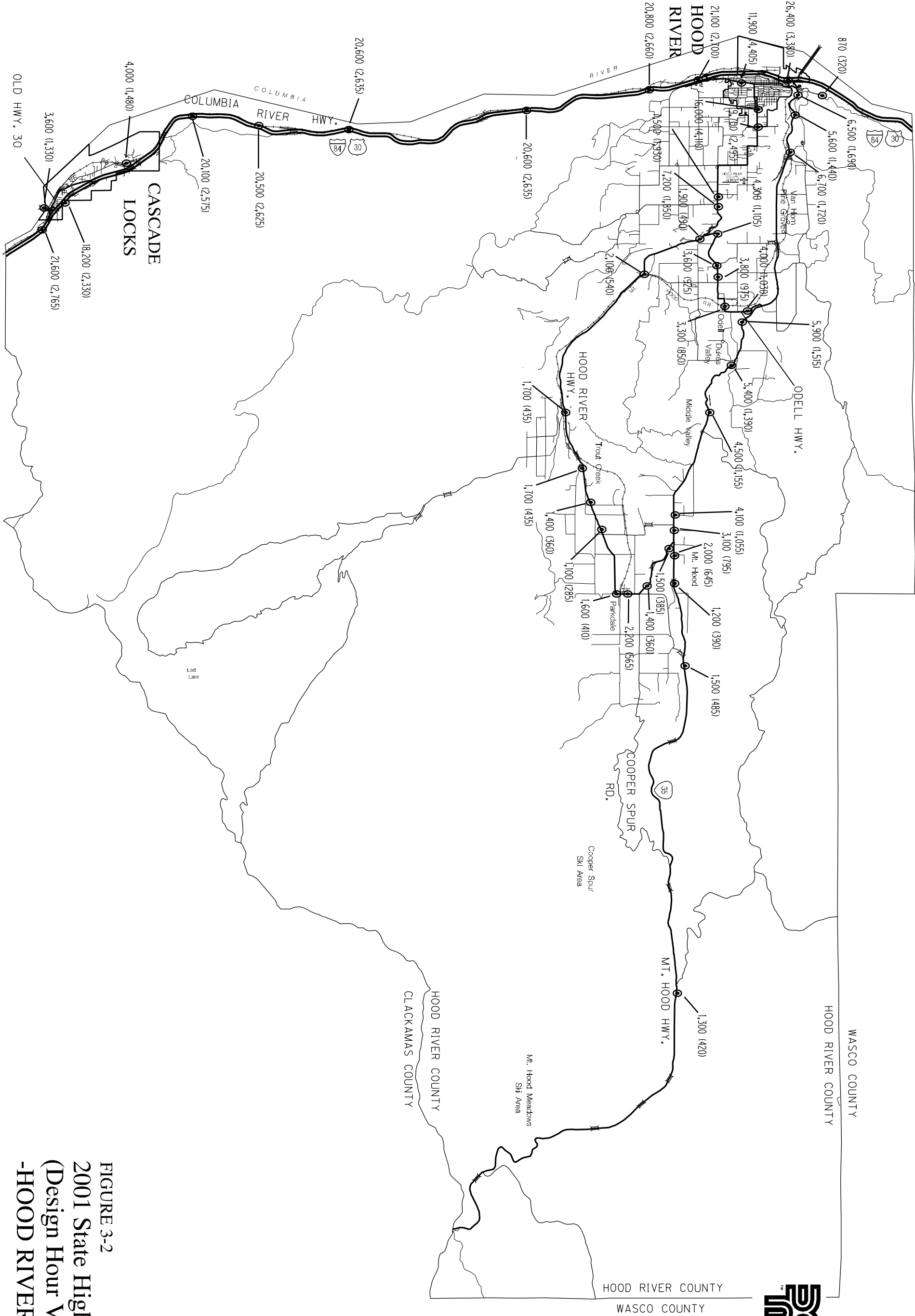


FIGURE 3-2
2001 State Highway ADT Volumes
(Design Hour Volume)
-HOOD RIVER COUNTY



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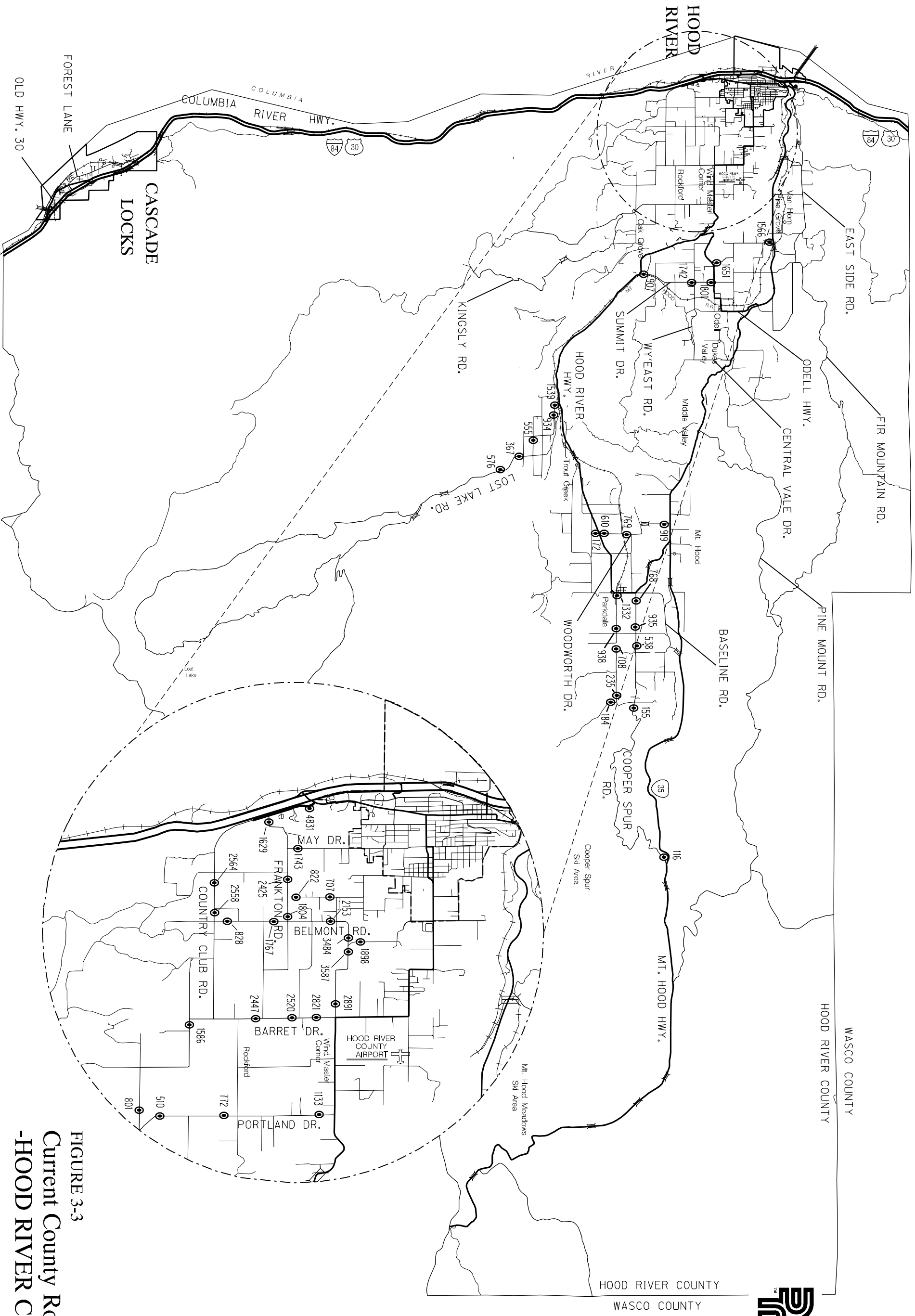


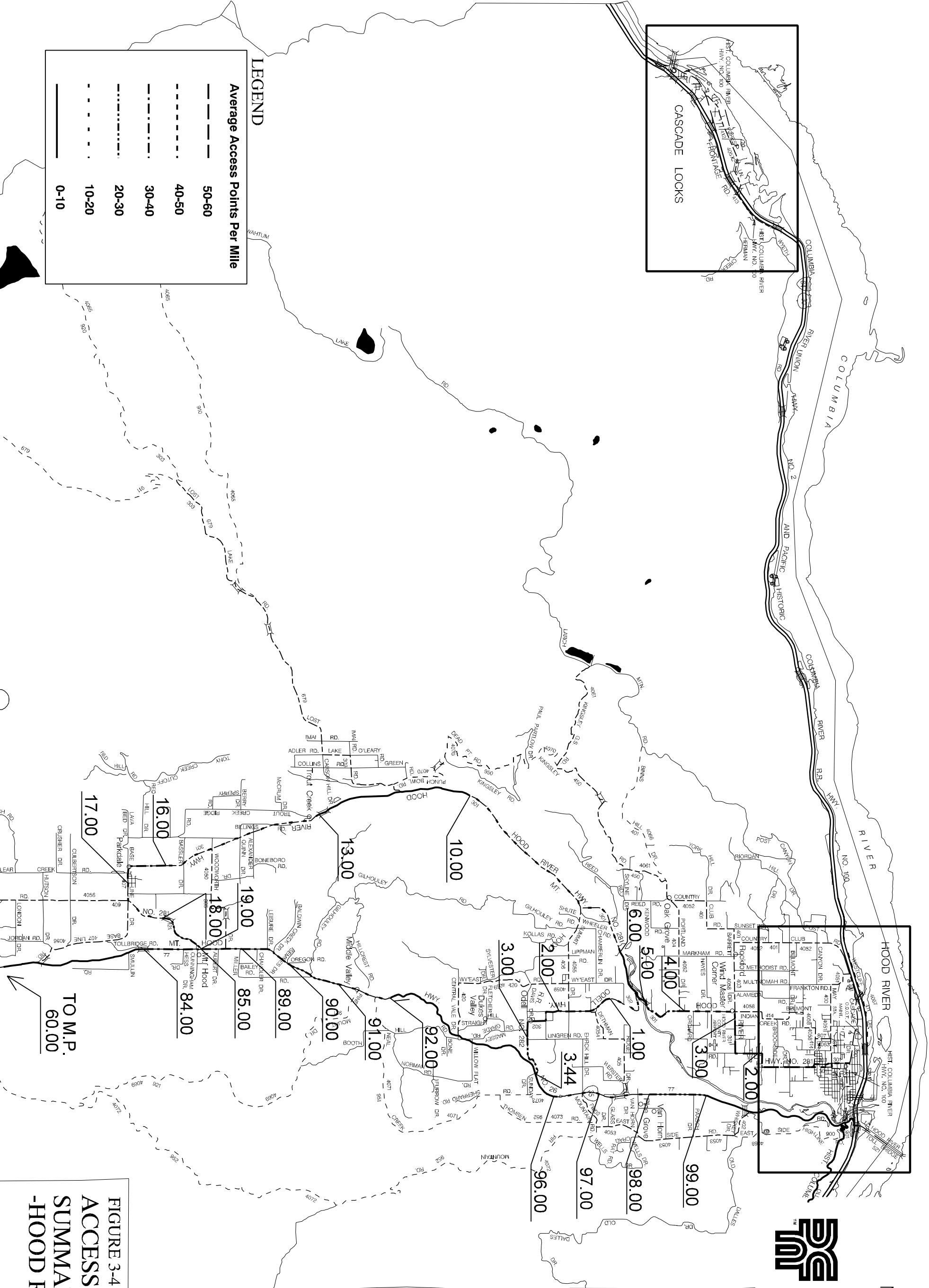
FIGURE 3-3
Current County Road ADT Volumes
-HOOD RIVER COUNTY



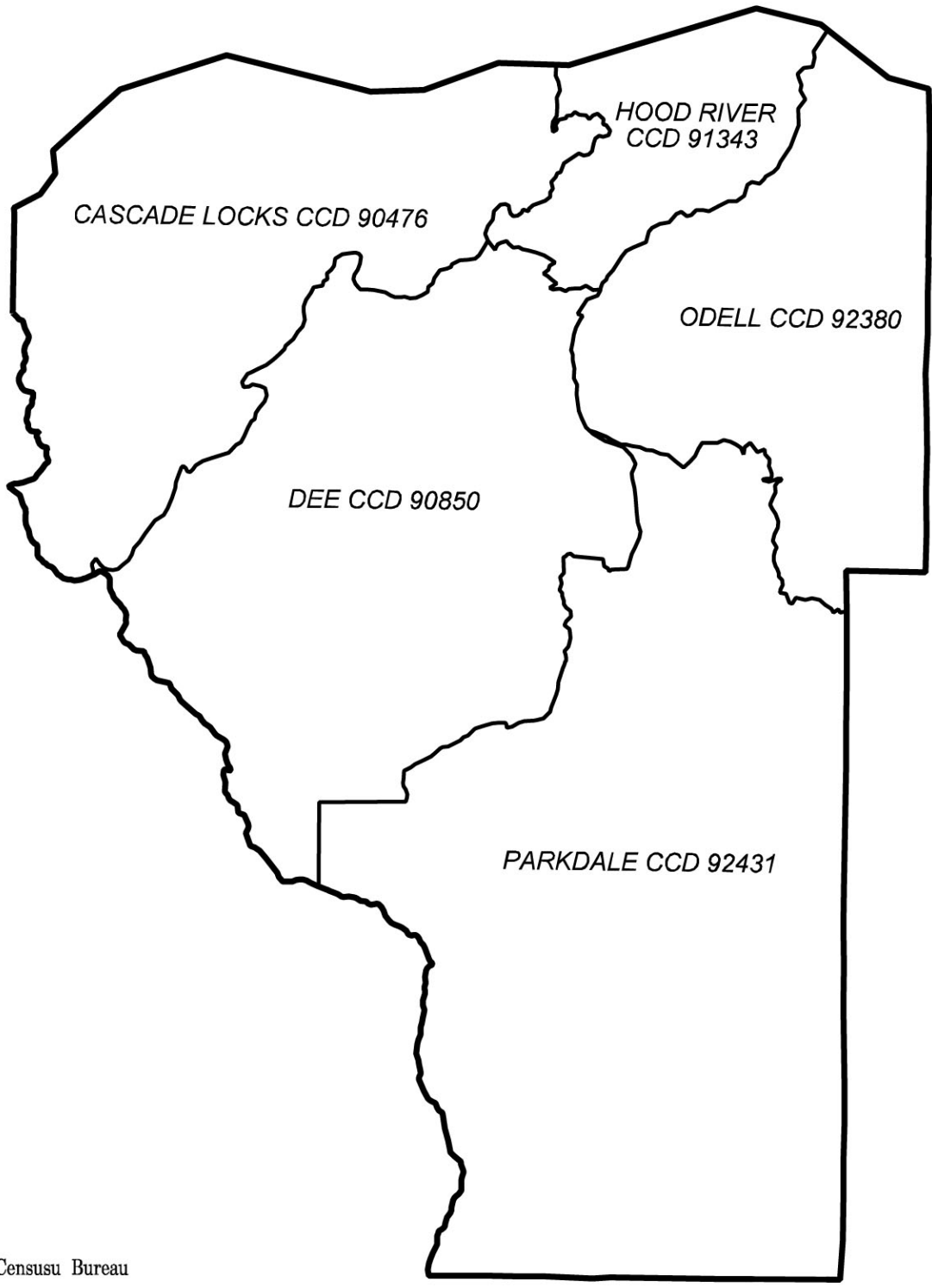
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**FIGURE 3-4
ACCESS LOCATIONS
SUMMARY
-HOOD RIVER COUNTY**



Source:
US Census Bureau

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LEGEND:
— Census County Division Boundary

FIGURE 4-1
Hood River County
Census County Division (CCD) Boundaries



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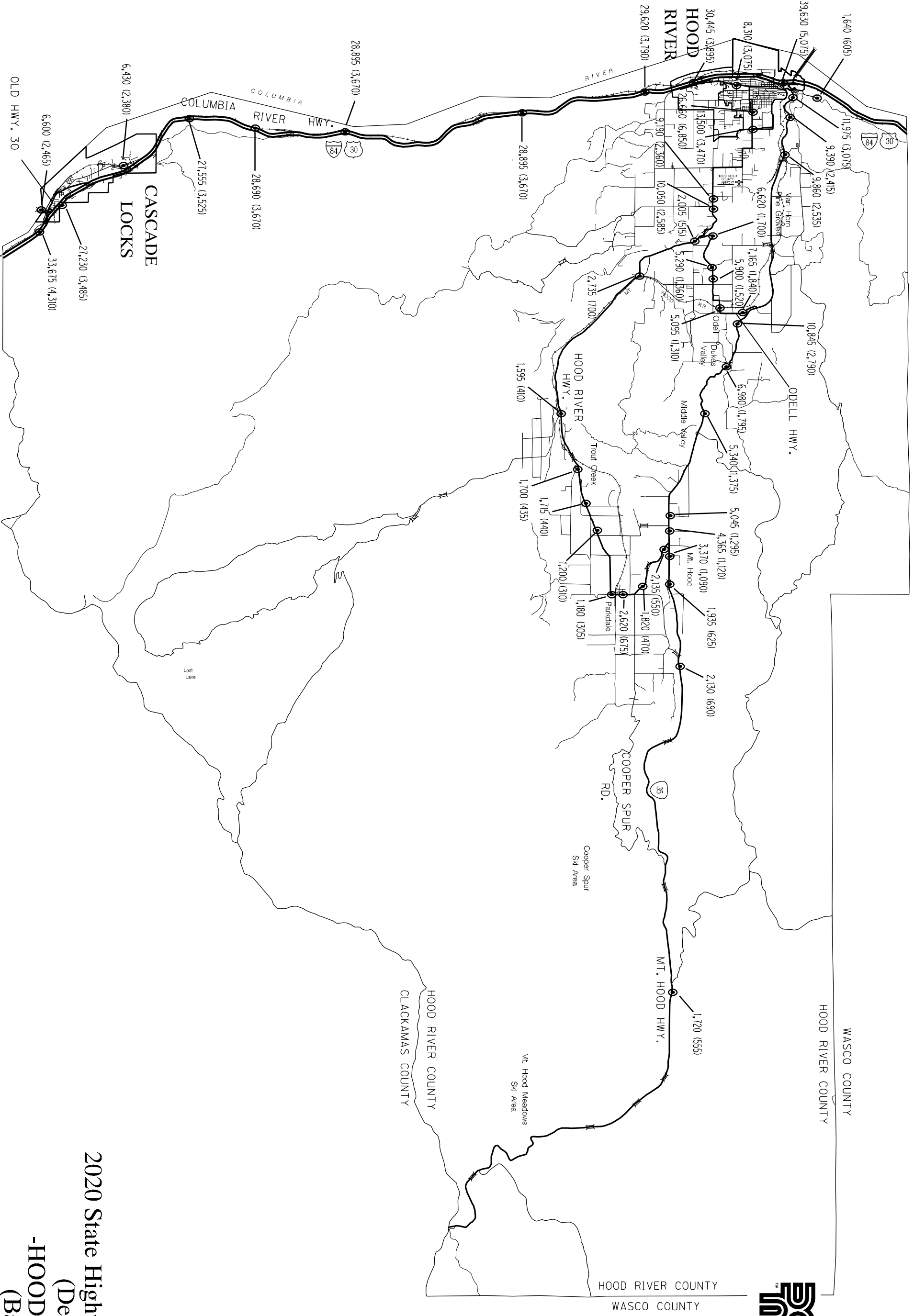


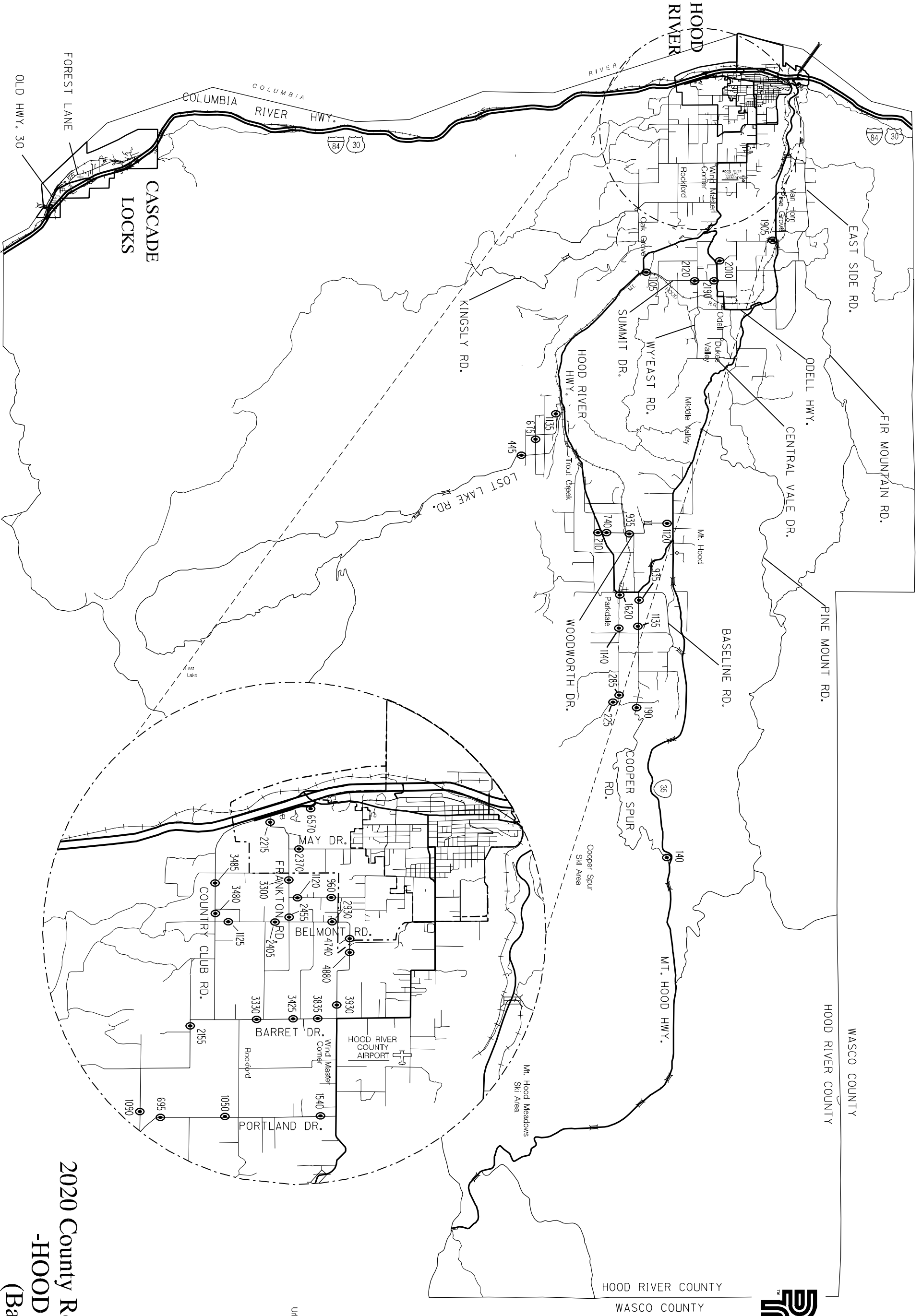
FIGURE 4-2
2020 State Highway ADT Volumes
(Design Hour Volume)
-HOOD RIVER COUNTY
(Background Growth)



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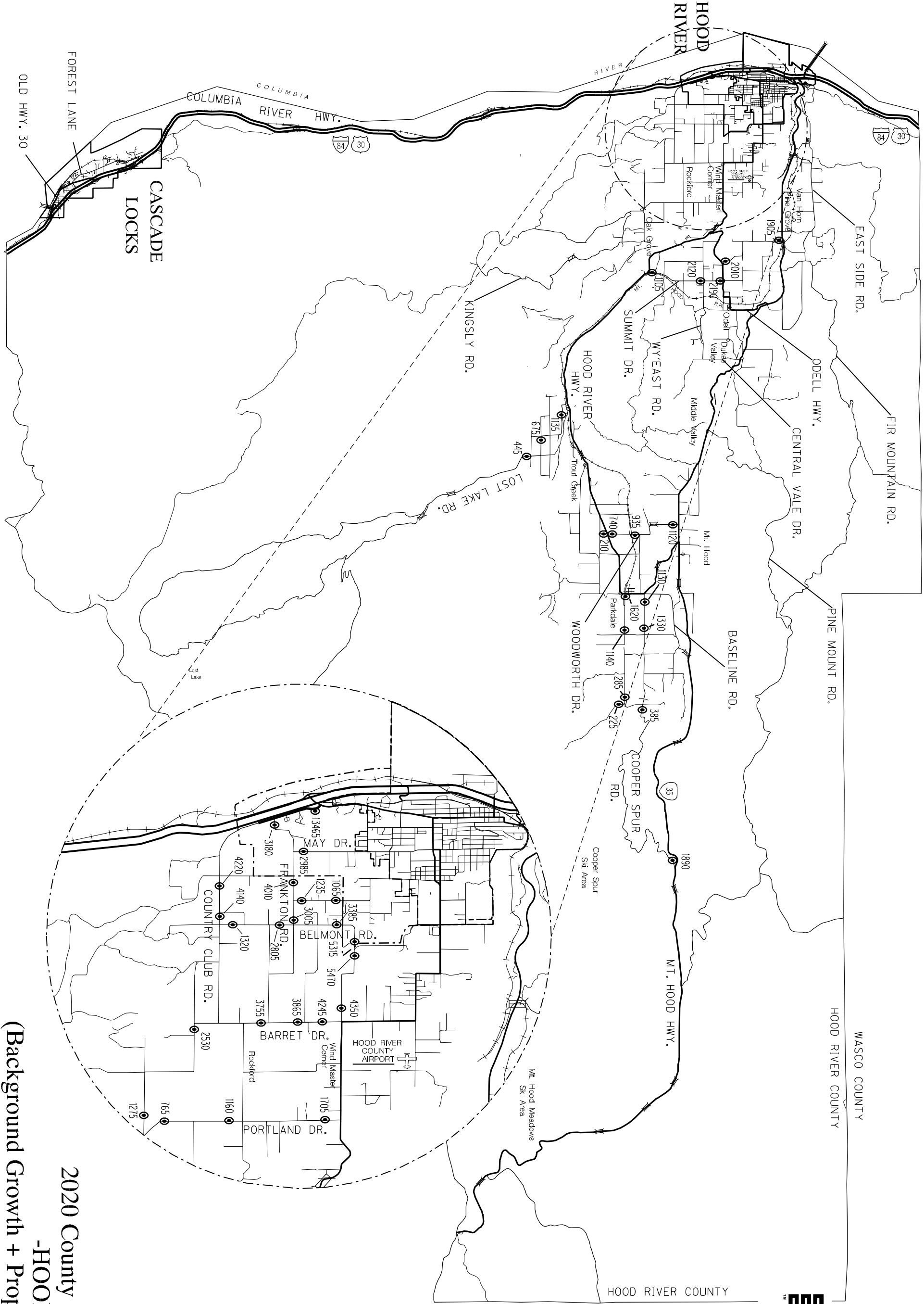
City Limits ———
 Urban Growth Boundary - - - - -

FIGURE 4-3
2020 County Road ADT Volumes
-HOOD RIVER COUNTY
(Background Growth)



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City Limits
Urban Growth Boundary

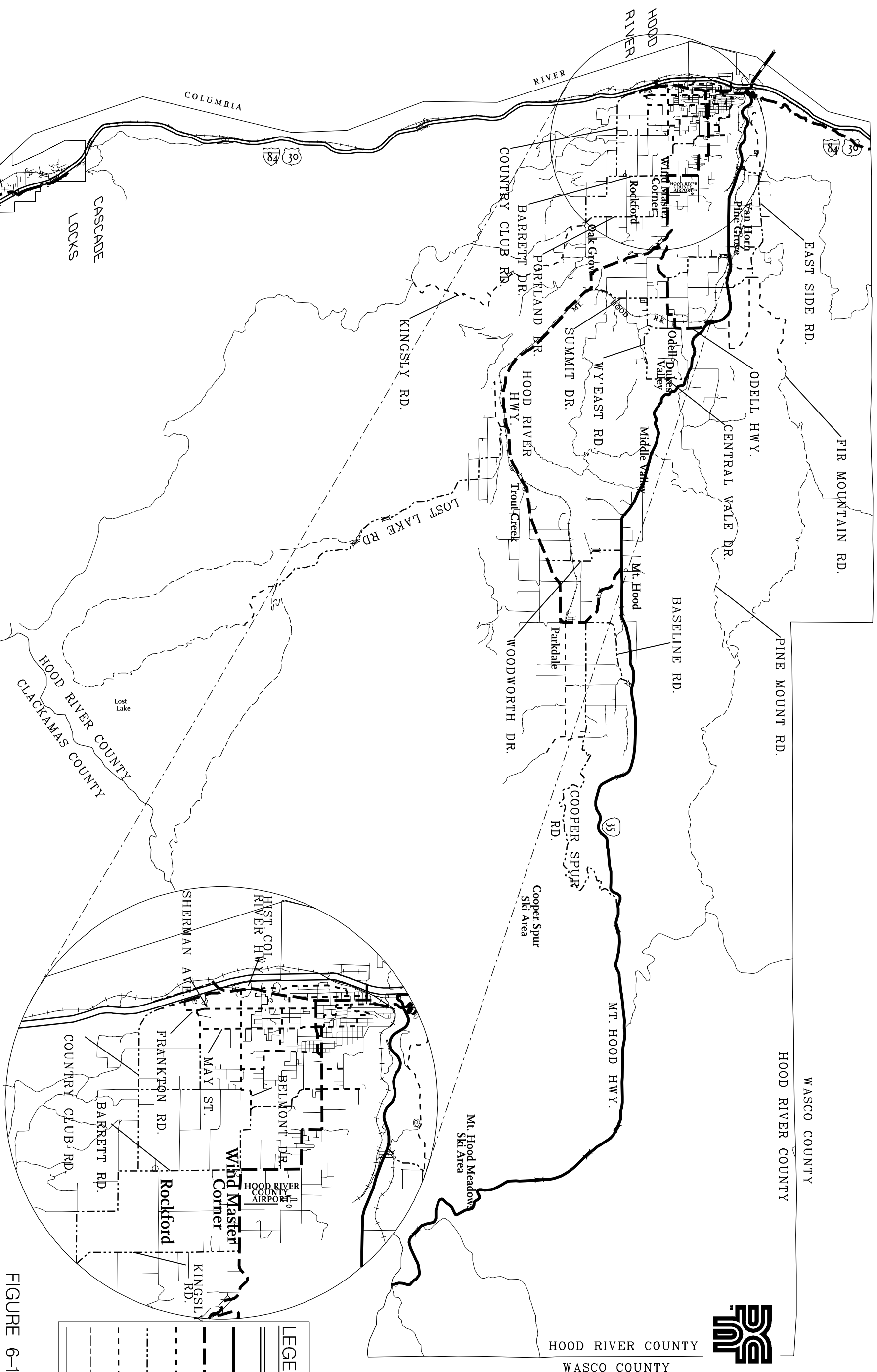
FIGURE 4-5
2020 County Road ADT Volumes
-HOOD RIVER COUNTY
(Background Growth + Proposed Developments)



Not To Scale

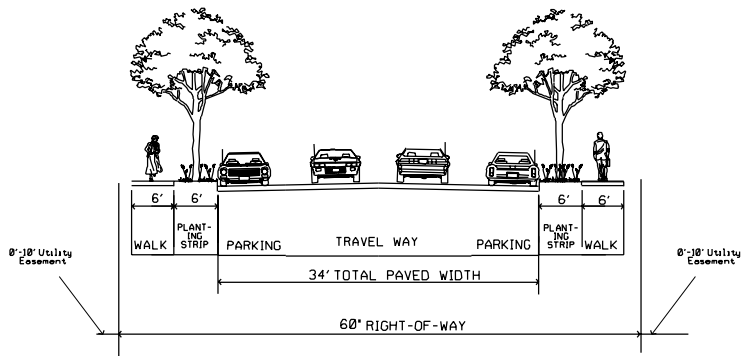


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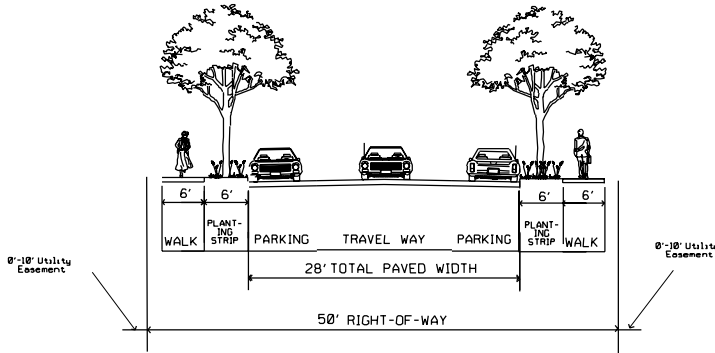


LEGEND	
	INTERSTATE
	MAJOR ARTERIAL
	MINOR ARTERIAL
	URBAN COLLECTOR
	RURAL MAJOR COLLECTOR
	RURAL MINOR COLLECTOR
	FOREST ACCESS ROAD
	LOCAL STREETS

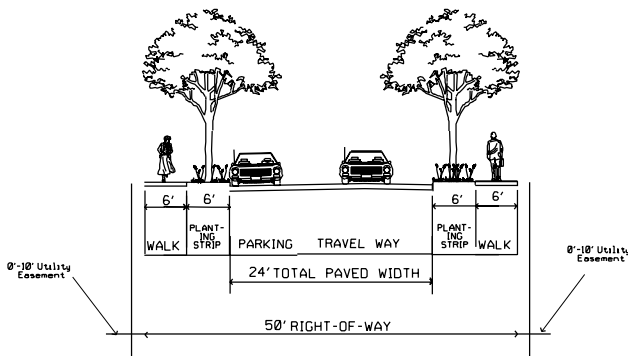
FIGURE 6-1
PROPOSED FUTURE
STREET CLASSIFICATION
HOOD RIVER COUNTY



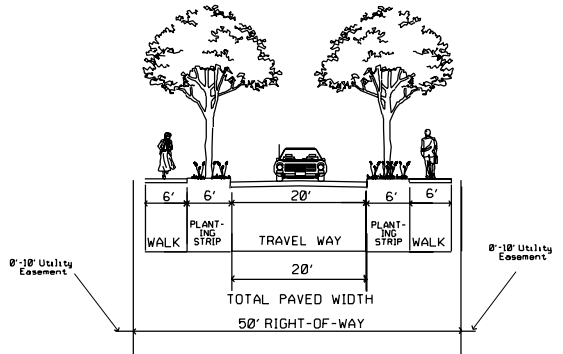
Urban Local Residential Option "A"



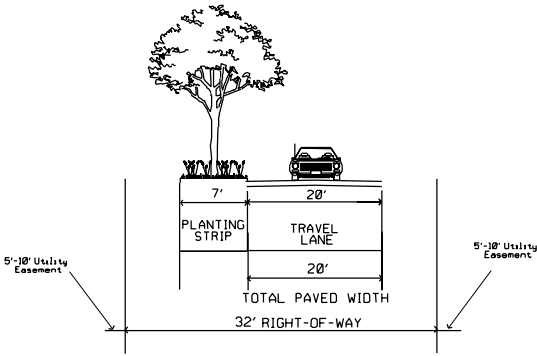
Urban Local Residential Option "B"



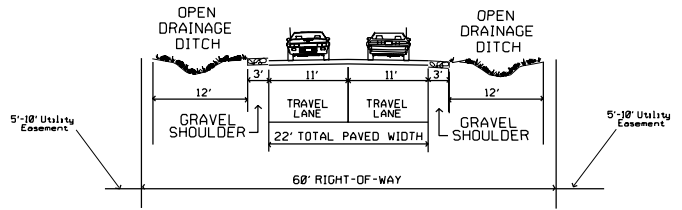
Urban Local Residential Option "C"



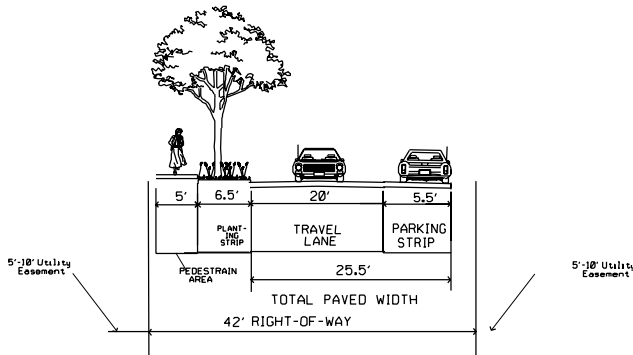
Urban Local Residential Option "D"



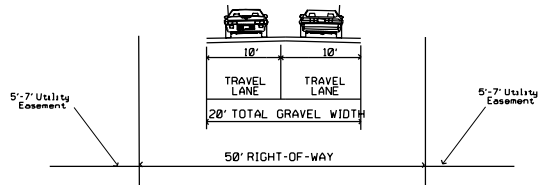
Neighborhood Infill Street Option "A" ^{(1), (2)}



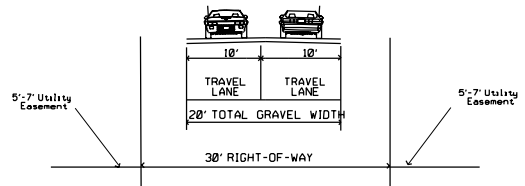
Rural Local Option "A"



Neighborhood Infill Street Option "B" ^{(1), (3)}



Rural Local Option "B"



Rural Local Option "C"*

*At the discretion of the Fire Chief and County Public Works the travel width may be reduced to 16'.

(1) Only applies within the City of Hood River UGA
 (2) Less than 100 vehicles per day
 (3) Less than 200 vehicles per day



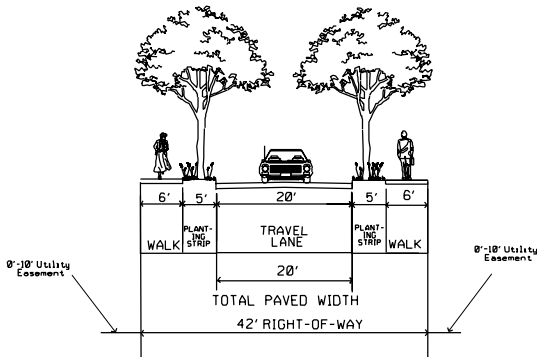
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AND ASSOCIATES INC.

709 N.W. Wall Street, Suite 102
 Bend Oregon 97701
 Phone: 541.389.7614

(Not to Scale)

FIGURE 6-3

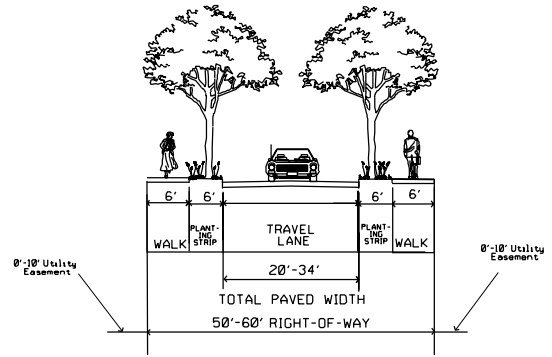
Proposed Street Design Standards
 Local Streets



Cul-de-sac Streets ^{(1), (2)}

Radii of cul de sac (Hood River UGA):

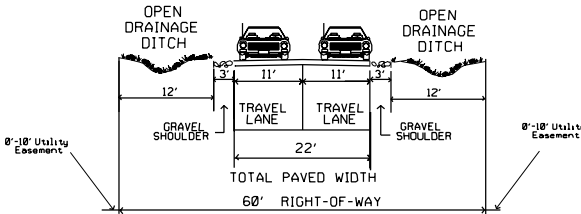
Right-of-way: 57'
 Face of curb: 43.5'
 Neck: 25'



Urban Local Cul-de-sac Option A,B,C or D Streets ⁽³⁾

Radii of cul de sac (Urban Local Options A-D):

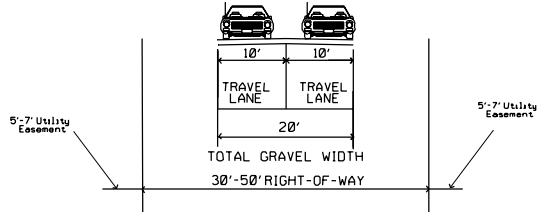
Right-of-way: 57'
 Face of curb: 45'
 Neck: 25'



Rural Local Cul-de-sac Option A Streets ⁽⁴⁾

Radii of cul de sac (Rural Local Options A-C):

Right-of-way: 50'
 Face of curb: 40'
 Neck: 15'



Rural Local Cul-de-sac Option B, or C Streets ⁽⁴⁾

- (1) Only applies within the City of Hood River UGA (maximum length 200')
- (2) Length not to exceed 200' (an infill length not to exceed 150'), and have not more than 20 dwelling units
- (3) Only applies in unincorporated communities; maximum length 500'
- (4) No maximum length

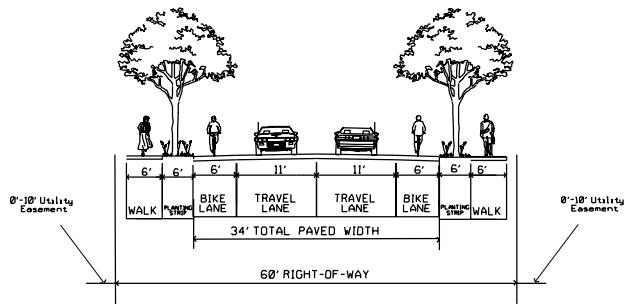
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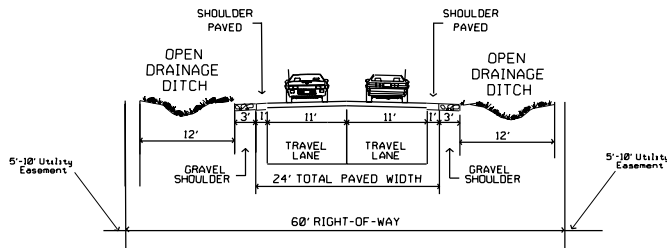
FIGURE 6-4

Proposed Street Design Standards
 Cul-de-sac Streets

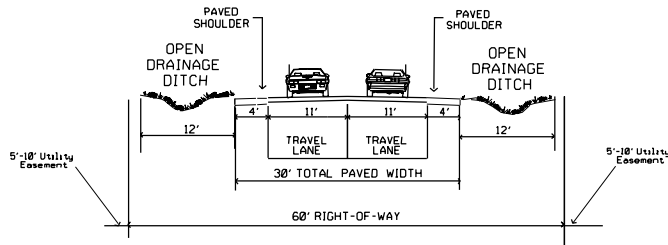
HOOD RIVER COUNTY TSP



Urban Collector



Rural Minor Collector



Rural Major Collector



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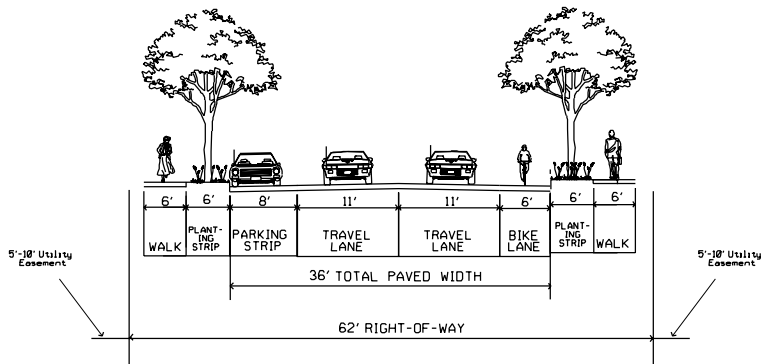
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Bend Oregon 97701
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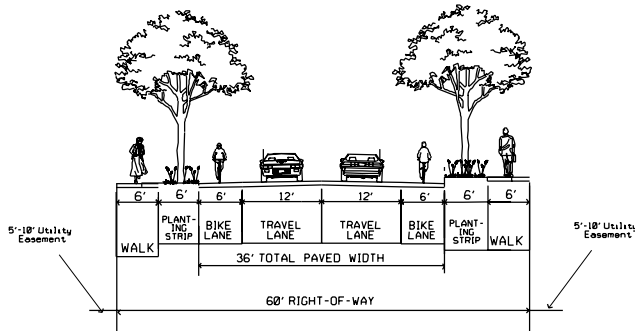
FIGURE 6-8

Proposed Street Design Standards
Collector Streets

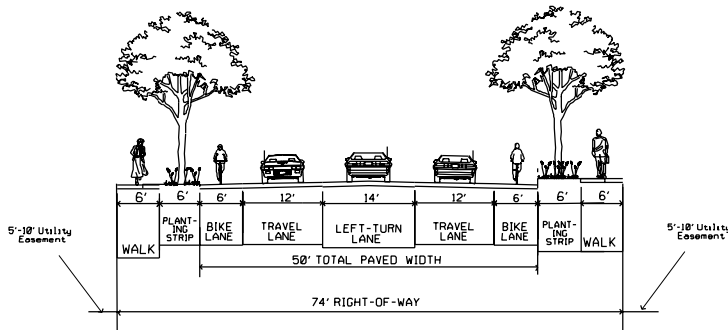
HOOD RIVER COUNTY TSP



Urban Minor Arterial (One-Way Street)



Urban Minor Arterial (Two Lanes)



Urban Minor Arterial (Three Lanes)



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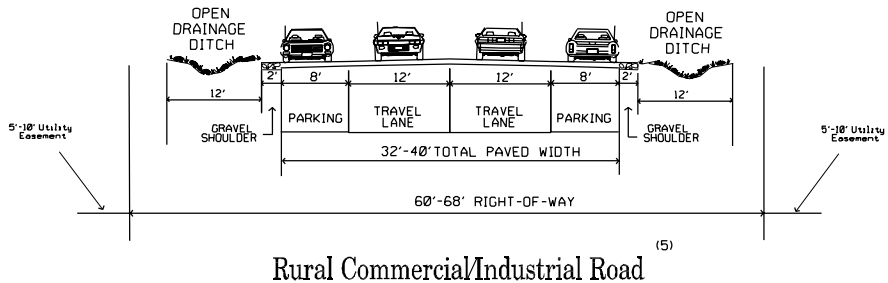
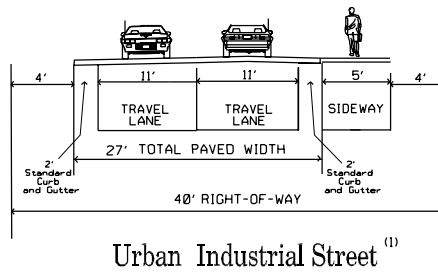
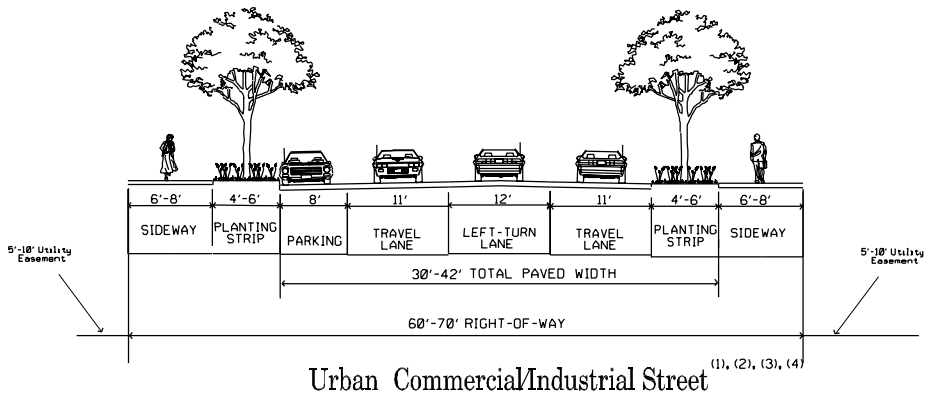
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(Not to Scale)

FIGURE 6-9

Proposed Street Design Standards
Urban Arterial Streets

HOOD RIVER COUNTY TSP



- (1) Only applies outside UGA
- (2) 42' Total Paved Width with center turn lane
- (3) 4'-6' wide planting strips, or tree wells with 8' sidewalk
- (4) Utility easement is optional
- (5) Access Control required per design guideline


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(Not to Scale)

FIGURE 6-10

**Proposed Street Design Standards
Commercial/Industrial Streets**