Umatilla County

Transportation System Plan

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CHAPTER 1: INTRODUCTION

The Umatilla County Transportation System Plan (TSP) guides the management of existing transportation facilities and the design and implementation of future facilities in Umatilla County for the next 20 years. This Transportation System Plan constitutes the transportation element of the County's Comprehensive Plan and satisfies the requirements of the Oregon Transportation Planning Rule (TPR) (OAR 660-12-045) established by the Department of Land Conservation and Development. It identifies transportation projects for implementation under a Umatilla County Capital Improvement Program (CIP) and inclusion in the Oregon Department of Transportation (ODOT) Statewide Transportation Improvement Program (STIP).

TSP VISION AND MISSION STATEMENTS WITH GUIDING PRINCIPLES

Mission Statement: Develop and maintain superior transport systems in Umatilla County throughout the millennium.

Vision Statement: Establish and maintain a functional, efficient and effective system for the coordinated transport of people, goods, services, information and data appropriate for current and future needs.

Guiding Principles: (This set of guiding principles will help Umatilla County achieve the above vision and perform the above mission. The Guiding Principles need to be understood and adhered to by all so that our communities are all marching down the same path.)

SAFETY is paramount and it shall not be compromised during the planning, development, maintenance, or improvement of a transport system.

The ECONOMIC viability of Umatilla County's industries, enterprises, communities, and citizens shall benefit from cost effective, sustainable, and efficient transport systems.

A transport system's PLANNING CRITERIA WILL CONSIDER the following areas of influence: Community growth, land use planning, multi-modal, Urban Growth Boundary, environmentally sound, dominant use, service-friendly, rural-urban relationship, integrated, accessible, flexible, innovative, and livable.

A transport system's FUNCTIONALITY shall be politically feasible, equitable, innovative, and have connectivity between systems and communities where feasible.

The TECHNICAL CHARACTERISTICS of a transport system shall consider the present and future volume of utilization, and shall be technologically state-of-the-art and in everyway revolutionary in both design and development.

PLANNING AREA

The planning area for the Umatilla County TSP is shown in Figure 1-1. It primarily covers the rural or unincorporated areas that lie outside the Urban Grown Boundaries (UGBs) of cities and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). Each individual city within Umatilla County has or is in the process of developing TSPs and implementing ordinances which include the area within their UGBs.

Existing streets and roads within the county fall under several jurisdictions: Umatilla County, the individual cities, the state of Oregon, the Bureau of Indian Affairs (BIA) representing the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the US Forest Service and the Bureau of Land Management (BLM).

The CTUIR has adopted a separate TSP for reservation lands. Figure 7-8 in Chapter 7 of this plan identifies the CTUIR as District 5 since the majority of its roads are part of the County Road system and maintained by the County Public Works Department. Although several roadway improvement and bridge replacement projects are identified in District 5, the CTUIR TSP has a more detailed list. The inclusion of District 5 in this document is to recognize that there is an overlap in the two TSPs since the majority of roads on the CTUIR are under County jurisdiction.

Umatilla County is located in northeast Oregon occupying an area of 3,231 square miles. The county has a population of 65,500. Pendleton is the county seat and the largest city in the county, with nearly 25 percent of the population. Other major population centers in the county include the city of Hermiston with a population of around 11,000 (approximately 17% of the county total), the city of Umatilla with a population around 3,300 (approximately 5% of the county total), and the Confederated Tribes of the Umatilla Indian Reservation with around 2,100 tribal members (approximately 3% of the county total). The county is bordered by Washington State to the north, Wallowa and Union counties to the east, Grant County to the south, and Morrow County to the west. Portions of eastern and southern Umatilla County lie within the Umatilla National Forest. The elevation at Pendleton is 1,068 feet above mean sea level and several mountains in the county reach elevations of 5,000 to nearly 7,000 feet above mean sea level. The topography blends heavily forested lands with areas described as “high desert.” The area only receives about 12 inches of precipitation a year.

Two interstate highways and 16 state highways which combine to provide nearly 465 highway miles within the county serve Umatilla County. I-84 (Old Oregon Trail Highway) serves as the primary east-west route through the county with additional east-west routes served by: US 730 (Columbia River Highway), US 30 (Pendleton Highway), OR 204 (Weston-Elgin Highway), OR 74 (Heppner Highway), OR 244 (Ukiah-Hilgard Highway), OR 37 (Pendleton-Cold Springs Highway), the Athena-Holdman Highway, and the Sunnyside-Umapine Highway. North-south routes are served by: I-82 (McNary Highway), US 395 (John Day – Burns and Lakeview – Burns Highways), OR 11 (Pendleton – Milton-Freewater Highway), OR 207 (The Hermiston and Lexington-Echo Highways), the Umatilla-Mission Highway, the Havana-Helix Highway, and the Freewater Highway.

Agriculture, food processing, wood products, tourism, manufacturing, and recreation serve as the principal industries within Umatilla County.

PLANNING PROCESS

The Umatilla County Transportation System Plan (TSP) was prepared as part of an overall effort in Umatilla County to prepare TSPs for Umatilla County and eight small municipalities: the cities of Adams, Athena, Echo, Helix, Pilot Rock, Stanfield, Ukiah, and Weston. Each plan was developed through a series of technical analyses combined with systematic input and review by the county, the cities, the management

team, the Transportation Advisory Committee (TAC), ODOT, and the public. Although the planning process involved a combined effort, each plan was individualized to each community.

The TAC consisted of staff, elected and appointed officials, residents, and business people from Umatilla County and the eight cities. Key elements of the process include:

- Involving the Umatilla County community (Chapter 1).
- Defining goals and objectives (Chapter 2).
- Reviewing existing plans and transportation conditions (Chapters 3, 4; Appendices A, B, and C).
- Developing population, employment, and travel forecasts (Chapter 5; Appendix D).
- Developing and evaluating potential transportation system improvements (Chapter 6).
- Developing the Transportation System Plan (Chapter 7; Appendix E).
- Evaluating funding options and financial plans (Chapter 8).
- Developing recommended policies and ordinances (Chapter 9).
- Developing a Capital Improvement Plan (Separate Document).

Community Involvement

Community involvement was an integral component in the development of the County's TSP and each of the eight small cities. Since each of the communities needed to address similar transportation and land use issues, a public involvement program involving all the jurisdictions was used. Several different techniques were utilized to involve each local jurisdiction, ODOT, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and the general public.

A combined management team and transportation advisory committee (TAC) provided guidance on technical issues and direction regarding policy issues to the consultant team. Staff members from each local jurisdiction and ODOT and a local resident from each community served on the TAC. This group met several times during the course of the project.

The second part of the community involvement effort consisted of community meetings within Umatilla County. The first public meeting was held in June 1998. The general public was invited to learn about the TSP planning process and provide input on transportation issues and concerns. A second public meeting was held in July 1998. The third and final public meeting was held in September 1998. The public was notified of the public meetings through public announcements in the local newspapers and on the local radio station.

Goals and Objectives

Based on input from the county, the management team/TAC, and the community, a set of goals and objectives were defined for the County's TSP. These goals and objectives were used to make decisions about various potential improvement projects. They are described in Chapter 2.

Review and Inventory of Existing Plans, Policies, and Public Facilities

To begin the planning process, all applicable Umatilla County transportation and land use plans and policies were reviewed and an inventory of public facilities was conducted. The purpose of these efforts was to understand the history of transportation planning in Umatilla County, including the road system improvements planned and implemented in the past, and how the county is currently managing its ongoing development. Existing plans and policies are described in Appendix A of this report.

The inventory of existing facilities catalogs the current transportation system. The results of the inventory are described in Chapter 3, while Chapter 4 describes how the system operates. Appendix B summarizes the inventory of the existing state highway system.

Future Transportation System Demands

The Transportation Planning Rule requires the Transportation System Plan to address a 20-year forecasting period. Future traffic volumes for the existing plus committed transportation systems were projected using ODOT's *Level 1 – Trending Analysis* methodology. The overall travel demand forecasting process is described in Chapter 5.

Transportation System Potential Improvements

Once the travel forecasts were developed, it was possible to evaluate a series of potential transportation system improvements. Potential transportation improvements were evaluated based on a qualitative review of safety, environmental, socioeconomic, and land use impacts, as well as estimated cost. These improvements were developed with the help of the management team, and they attempt to address the concerns specified in the goals and objectives (Chapter 2). After evaluating the results of the potential improvements analysis, a series of transportation system improvements were selected. These recommended improvements are described in Chapter 6.

Transportation System Plan

The Transportation System Plan addresses each mode of transportation and provides an overall implementation program. The road system plan was developed from the forecasting and potential improvements evaluation described above. The bicycle and pedestrian plans were developed based on current usage, land use patterns, and the requirements set forth by the Transportation Planning Rule. The public transportation, air, water, rail, and pipeline plans were developed based on discussions with the owners and operators of those facilities. All modal plans were written to be consistent with statewide policies including Planning Goal 12. Chapter 7 details the plan elements for each mode.

Funding Options

Umatilla County will need to work with ODOT and the incorporated jurisdictions to finance new transportation projects over the 20-year planning period. An overview of funding and financing options that might be available to the community are described in Chapter 8.

Recommended Policies and Ordinances

Suggested Comprehensive Plan policies and implementing zoning and subdivision ordinances are included in Chapter 9. These policies and ordinances are intended to support the TSP and satisfy the requirements of the Transportation Planning Rule (TPR).

Capital Improvement Plan

In the interests of the County Board of Commissioners and the numerous communities represented within Umatilla County, the Capital Improvement Plan (CIP) for the county has been developed as a separate document to the TSP. Typically, the CIP is contained within the TSP but the Board of Commissioners has

decided to adopt the CIP under a separate resolution, so that the projects outlined in this plan may be updated and prioritized on an annual basis.

RELATED TRANSPORTATION PLANS AND STUDIES

The Umatilla County TSP addresses the regional and rural transportation needs in the county. There are several other plans and studies, some complete and others in-process, which address specific transportation needs in Umatilla County. The needs identified within completed plans and studies were reviewed for relevance to the Umatilla County TSP process and, if applicable, were integrated into the county plan. Other transportation needs identified in on-going studies and plans were also reviewed and, depending on the current status of these plans, were incorporated into this report.

In-Process or Completed Transportation System Plans

David Evans and Associates, Inc. (DEA) has recently (1999) completed a TSP for the city of Milton-Freewater. Kittelson and Associates, Inc. is also preparing a similar plan for the city of Umatilla. DEA also prepared a TSP for the city of Hermiston in May 1997, and a TSP was previously prepared for the city of Pendleton, also by Kittelson and Associates, Inc. The city TSPs address the needs of the community within each Urban Growth Boundary (UGB). They provide road standards, access management standards, and modal plans. In some cases, a project or need may be identified in a city TSP that involves a county facility or perhaps extends beyond the city's UGB. These projects and needs must be addressed in the Umatilla County TSP as well. Examples of such projects include:

- Construction of a new bridge over the Umatilla River either along an extension of Punkin Center Road or Elm Avenue in Hermiston. (Hermiston and Umatilla County TSPs).
- Roadway improvements along Powerline Road between US 730 and I-82. (Umatilla and Umatilla County TSPs).
- Roadway improvements along SW Hailey Avenue in Pendleton, and the need for a road from the Pendleton Airport to the Barnhart Road interchange with I-84. (Pendleton and Umatilla County TSPs).

Other In-process or Completed Plans

The following references were reviewed for relevance to the Umatilla County TSP process and to ensure the Umatilla County TSP was compliant with existing applicable plans.

Umatilla County Comprehensive Plan

The Umatilla County Comprehensive Plan was written in 1983 to meet the statewide requirements for planning. It was last amended in 1987. The plan is broken into three sections: the Introduction; Plan Elements – Findings, Recommended Policies; and the Plan Map. The Plan Elements section is broken into sections dealing with the fourteen goals. This includes a Transportation Element with findings and recommended policies. A more detailed review of this reference is provided in Appendix A.

Umatilla County Development Code

The Umatilla County Development Ordinance was adopted in 1983, and last amended in November of 1991. In 1997 this ordinance was recodified and retitled as Chapter 152 Development Code. The portions of the code most relevant to the Transportation System Plan include sections on off-street parking requirements, driveways, and road standards. Amendments to the development code include road standards for county roads. A more detailed summary of this referenced document is provided in Appendix A.

Development Ordinance for the Confederated Tribes of the Umatilla Indian Reservation

The Land Development Code for the Confederated Tribes of the Umatilla Indian Reservation was adopted in 1983. The Ordinance contains 19 chapters covering each land use zone, supplementary development standards, and administration. The only section that directly applies to the transportation system is the sections on off-street parking. A more detailed summary of this reference is provided in Appendix A.

US 395 Corridor Strategies

The US 395 corridor is covered in two studies: *the US Highway 395 North (Umatilla-Stanfield) Draft Corridor Strategy* prepared in 1997 and the *US Highway 395 South (Pendleton-California Border) Corridor Strategy* prepared in 1996. The *Corridor Strategies* were developed to identify projects for the Oregon State Transportation Improvement Program (STIP). Generally, the *Corridor Strategies* translate the policies of the Oregon Transportation Plan (OTP) into specific actions; describe the functions of each transportation mode, consider trade-offs, and show how they will be managed; identify and prioritize improvements for all modes of travel; indicate where improvements should be made; resolve any conflicts with local land use ordinances and plans; and establish guidelines for how transportation plans will be implemented. A more detailed review of this reference is provided in Appendix A.

The *US 395 Corridor Strategies* contain a corridor overview that includes population and employment forecasts, highway data such as traffic volumes and pavement conditions and descriptions of other modes of travel (air, rail, bicycle, etc.). The overall corridor strategy is to, "accommodate efficient movement of through travel, while maintaining environmental integrity, enhancing travel safety and supporting economic development." The reports set forth objectives which are intended to embody this overall strategy for the corridor, and to set direction and provide guidance for corridor-wide transportation plans and improvements.

US 395 North Corridor Plan

Corridor planning is a new approach to transportation planning in which ODOT and the communities bordering major transportation corridors work together to create plans for managing and improving transportation modes along entire corridors. The US 395 Corridor Plan prepared by OTAK, Inc. and Kittelson and Associates, Inc., covers a section of US 395 extending from the city of Echo (south of I-84) to US 730 in the city of Umatilla. This plan addresses transportation system improvement projects and an access management plan for the entire US 395 north corridor. The Corridor Plan builds upon the US Highway 395 North (Umatilla-Stanfield) Draft Corridor Strategy prepared in 1997.

OR 11 Corridor Plan

The OR 11 Corridor Plan is currently being prepared by David Evans and Associates, Inc. for the Oregon – Washington Highway (OR 11) which is the major north-south route through eastern Umatilla County. The OR 11 Corridor Plan includes objectives that define the policy direction for all modes in the Corridor, as well as for several functional issues such as connectivity, congestion and environmental and energy impacts. The plan includes a list of projects prioritized by funding. The Corridor Plan projects are derived from the county and local TSPs, the Milton-Freewater to Stateline Land Use and Transportation Plan, the STIP, the Umatilla County Needs Assessment, as well as input from the project management team, technical advisory committees and the public. Projects and strategies focus on managing the highway to minimize congestion and improve connectivity while ensuring safety.

Milton-Freewater Stateline Highway 11 Corridor Land Use and Transportation Plan

The *Milton-Freewater Stateline Highway 11 Corridor Land Use and Transportation Plan* is a refinement plan for the OR 11 Corridor which focuses on the OR 11 Corridor between Milton-Freewater and Stateline Road. The plan was a cooperative effort of Umatilla County, the city of Milton-Freewater, and the Oregon Department of Transportation. It was developed by planning consultants at David Evans and Associates,

Inc., with input from these jurisdictions, the local residents, Walla Walla County, and the Washington Department of Transportation. The plan was prepared in 1997 and evaluated existing and projected conditions within the corridor regarding basic layout and connectivity; conditions of transportation facilities, land use, and population and employment. It analyzed existing deficiencies and proposed strategies for addressing them. The primary deficiencies in the corridor were physical design of facilities, insufficient access control, and inadequate or nonexistent facilities for pedestrians and bicyclists. Recommended actions to improve these corridor conditions include policy and ordinance amendments and transportation system improvements.

Airport Master Plans

The *1986 Hermiston Municipal Airport Master Plan Update* provides a comprehensive analysis of the Hermiston Airport including an inventory of facilities, a discussion of use for a twenty year planning period (ending in 2006), and recommendations for facility improvements. The introduction of the plan also provides a good overview of all the major transportation facilities serving Hermiston and northeast Oregon. This plan was recently updated by Aaron Fagre & Associates.

The primary objective of the *Master Plan Update for Eastern Oregon Regional Airport at Pendleton* was to re-evaluate the recommendations of previous airport planning studies, to determine the long-range requirements for airport development, to identify and assess development alternatives, and to produce an airport development/improvement plan that will yield a safe, efficient, economical, and environmentally acceptable public facility with capacity for future air transport needs of the eastern Oregon area. When approved by the various local, regional, state, and federal agencies, the Airport Master Plan represents the long-term intentions of all agencies regarding the location and extent of airport improvements. This permits long-range programming and budgeting, reduces lengthy review periods for each project, and provides for orderly and timely development. A more detailed summary of this reference is provided in Appendix A.

Traffic Impact Analysis

A Traffic Impact Analysis for the Wal-Mart Distribution Center, located on 220 acres in rural Umatilla County, approximately 1 1/2 miles north of Stanfield, and 2 miles south of Hermiston was prepared in October 1994, and revised in August 1995. The project includes a distribution center with approximately 1.2 million square feet of floor area and paved parking, receiving and shipping areas. Traffic generated is estimated at about 700 trucks per day and about 300 passenger vehicles per day. The purpose of the study was to assess the traffic impact of the proposed development on the nearby road system and to recommend any required mitigation measures. Primary roadways impacted by the development include: Feedville Road, US 395, US 730, I-82, and I-84. A more detailed summary of the report findings is available in Appendix A of this TSP.

Other State Plans

In addition to the ODOT corridor strategy, coordination with the following state plans is required:

- Oregon Transportation Plan (1992)
- Oregon Highway Plan (1999)
- Oregon Bicycle and Pedestrian Plan (1995)
- Oregon Public Transportation Plan (1996)
- Oregon Rail Freight Plan (1994)
- Oregon Rail Passenger Policy and Plan (1992)
- Oregon Traffic Safety Action Plan (1995)
- Oregon Aviation System Plan (in development).

CHAPTER 2: GOALS AND OBJECTIVES

The purpose of the TSP is to provide a guide for Umatilla County to meet its transportation goals and objectives. The following goals and objectives were developed from information contained in the county's comprehensive plan and reflect public concerns expressed during public meetings. An overall goal was drawn from the plan, along with more specific goals and objectives. Throughout the planning process, each element of the plan was evaluated against these parameters.

OVERALL TRANSPORTATION GOAL

To provide and encourage a safe, convenient, and economic transportation system.

Goal 1

Preserve the function, capacity, level of service, and safety of the local streets, county roads, and state highways.

Objectives

A. Develop access management standards.
B. Develop alternative, parallel routes.
C. Promote alternative modes of transportation.
D. Promote transportation demand management programs.
E. Promote transportation system management.
F. Develop procedures to minimize impacts to and protect transportation facilities, corridors, or sites during the development review process.

Goal 2

Ensure that the road system within the county is adequate to meet public needs, including those of the transportation disadvantaged.

Objectives

A. Develop a countywide transportation plan.
B. Meet identified maintenance level of service standards on the county and state highway systems.
C. Evaluate the transportation needs and land use characteristics of the unincorporated communities within the county to ensure adequate mobility for these areas.
D. Develop and adhere to a 20-year road program for maintenance and improvement of the existing county road system (including bridges).
E. Review and revise, if necessary, road cross-section standards for local, collector, and arterial roads to enhance safety and mobility.
F. Work with ODOT to develop access management strategies for Highways US 395, US 730, OR 11, OR 37, OR 74, OR 204, OR 207, OR 244, and Highways 332, 334, 335, and 339.
G. Evaluate the need for traffic control devices, particularly along the highways.

H. Evaluate areas where safety is a concern.

I. Use the development review process to protect future right of way and to ensure roadway improvements are provided in a timely manner and are constructed to county standards.

Goal 3

Improve coordination among the cities of Umatilla County, the Oregon Department of Transportation (ODOT), the US Forest Service (USFS), the Federal Highway Administration (FHWA), and the county.

Objectives

A. Promote county concerns with USFS regarding road matters, including the construction of permanent roads in conjunction with timber sales.

B. Cooperate with ODOT in the implementation of the Statewide Transportation Improvement Program (STIP).

C. Work with cities in establishing right of way needed for new roads identified in the transportation system plans.

D. Take advantage of federal and state highway funding programs.

E. Encourage the federal government to improve the existing road system and bridges within the National Recreation Area.

F. Continue to work with cities planning for the county land within their urban growth boundaries.

G. Seek notification of special hazardous materials shipment for county review, comment, and possible control.

H. Work with Umatilla Army Depot on any emergency evacuation plans for possible chemical weapons accidents.

Goal 4

Increase the use of alternative modes of transportation (walking, bicycling, and public transportation) through improved access, safety, and service.

Objectives

A. Support existing public transit and seek additional opportunities.

B. Provide sidewalks or shoulders and safe crossings on collectors and arterials.

C. Amend and implement a county bicycle plan.

D. Seek Transportation and Growth Management (TGM) and other funding for projects evaluating and improving the environment for alternative modes of transportation.

E. Continue to encourage large employers to sponsor carpooling programs.

Goal 5

Support efforts to maintain the airport facilities for commercial, small aircraft, and charter services.

Objectives

A. Encourage the state and local municipalities to improve and maintain airport facilities.

B. Continue to cooperate with cities to protect airports from incompatible neighboring land uses through the use of airport hazard overlay zones and joint management agreements with the cities.
C. Cooperate with airport master planning efforts.
D. Incorporate airport master plans into local comprehensive plans.
E. Provide good overland access to important air facilities. In particular, consider designating an arterial road classification from the Barnhart Road interchange on I-84, to the industrial park near the Pendleton Airport.

Goal 6

Encourage the continued and improved rail transportation of goods and reinstatement of rail passenger service.

Objectives

A. Encourage the preservation and reactivation of existing lines and rail company service.
B. Support efforts to reinstate passenger service by Amtrak through the county.

Goal 7

Encourage continued and improved water transportation of goods.

Objectives

A. Promote development and expansion of the Port of Umatilla.
B. Support the Port of Umatilla by maintaining good overland transportation access to the port.

Goal 8

Encourage continued and improved pipeline transportation of goods.

CHAPTER 3: TRANSPORTATION SYSTEM INVENTORY

As part of the planning process, DEA conducted an inventory of the existing transportation system in Umatilla County. This inventory covered the roadway system as well as the pedestrian, bikeway, public transportation, rail, air, water, and pipeline systems.

ROADWAY SYSTEM

The most common understanding of transportation is 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 clearly seen in the existing Umatilla County transportation system, which consists almost entirely of roadway facilities for cars and trucks. The road system will most likely continue to be the basis of the transportation system for the 20-year planning period; therefore, the emphasis of this plan is on improving the existing road system for all users.

The existing road system inventory reviewed all interstate, state, and US highways, and the primary county roads that are within the Transportation System Plan planning area. Appendix B contains a complete inventory of all highways in the county. Inventory elements include:

- road classification and jurisdiction;
- road width;
- number of travel lanes;
- presence of on-street parking, sidewalks, or bikeways;
- speed limits; and
- general pavement conditions.

Detailed information on county roads is presented in Chapter 4.

ROADWAY CLASSIFICATION

The roads in the unincorporated or rural areas of Umatilla County fall under five jurisdictions: State, county, US Forest Service (USFS), Bureau of Land Management (BLM) and Bureau of Indian Affairs (BIA). The state highways generally function as major or principal arterials through the county. At the time this TSP was drafted, county roads were divided into four basic classification levels based on whether they are located in urban areas, suburban areas or rural areas: arterials, collectors, minor streets, or local roads. These, previous County Road Design Standards are described in Figure 7-1 in Chapter 7. The future road functional classifications and road design standards recommended by this TSP are described in Fugure 7-2. The USFS and BLM roads are broken down into different “maintenance levels” based on their function, physical condition, and use. BIA roads are located on the Confederated Tribes of the Umatilla Indian Reservation and generally function as local roads. The functional classification of these roads will be addressed in an upcoming transportation plan for the reservation.

State Highways, USFS Roads, BLM Roads, BIA Roads

In terms of the roadway system, the primary focus of this plan is on county owned roadways. Consequently, inventory information pertaining to the state highways is located in Appendix B, and information on UFSF and BLM roads has been placed in Appendix C. An inventory of BIA roads in the county will be covered in the CTUIR transportation plan for the reservation.

County Roads

Although the state highways form the backbone of the county's roadway system, county roads are an important part of the circulation system.

Description

Umatilla County has 439 roads under its jurisdiction covering more than 1,620 miles. These roadways are an integral part of the transportation system. In addition to providing alternate or more direct routes than the state highways, they also serve rural areas, connecting them with each other, state highways, and cities.

The Umatilla County Roadway Department maintains detailed maps of all roads in the county under its jurisdiction. These maps were last updated in 2001 and include details such as roadway jurisdiction, county road numbers and whether county roads are paved, gravel-based, dirt or primitive.

Maintenance

The Umatilla County Road Department completes a visual survey of the county road system each spring. The roads determined to be deficient are then repaired by chip sealing in August. Over the past five years, the county has chip sealed an average of 74 miles of roadway per year. The county is currently working on a program to make their maintenance process more efficient.

Bridges

Umatilla County has 260 bridges which are included in the state bridge inspection inventory. Currently, 17 county-owned bridges are identified as structurally deficient, including:

- Bridge #59C069 on Birch Creek Road over the Umatilla River
- Bridge #59C119 on South Juniper Canyon over South Fork Juniper Canyon
- Bridge #59C145 on South Fork Cold Springs Road over South Fork Cold Springs
- Bridge #59C164 on Van Sycle over Van Sycle Canyon
- Bridge #59C203 on South Edwards Road over Stage Gulch Ditch
- Bridge #59C025 on Stage Gulch Road over US Feed Canal
- Bridge #59C209 on Bartley Road over US Feed Canal
- Bridge #59C212 on Cooper Road over US Feed Canal
- Bridge #59C213 on Loop Road over Stanfield Drainage Ditch
- Bridge #59C325 on Emert Road over Hunt Ditch
- Bridge #59C358 on County Road 979 over Wild Horse Creek
- Bridge #59C401 on Wild Horse Road over Wild Horse Creek
- Bridge #59C421 on Sams Road over Dry Creek
- Bridge #59C529 on County Road 708 over Pine Creek
- Bridge #59C535 on Pit Road over Pine Creek

- Bridge #59C542 on Schrimpf Road over Pine Creek
- Bridge #59C562 on Gerking Road over Gerking Flat

Twenty more are identified as functionally obsolete, including:

- Bridge #59C001 on SW Quinney Avenue over McKay Creek
- Bridge #59C065 on Yellow Jacket Road over West Birch Creek
- Bridge #59C093 on Nolin Bridge over the Umatilla River
- Bridge #59C099 on Cunningham Road over the Umatilla River
- Bridge #59C111 on County Road 983 over the Umatilla River
- Bridge #59C198 on Townsend Road over "A" Line Canal
- Bridge #59C227 on SE 10th Street over "A" Line Canal
- Bridge #59C231 on North Ott Road over "A" Line Canal
- Bridge #59C356 on Wild Horse Road over Wild Horse Creek
- Bridge #59C422 on Steen Road over Dry Creek
- Bridge #59C440 on MF Cemetery Road over the Walla Walla River
- Bridge #59C455 on Nursery (eastside) over Walla Walla River
- Bridge #59C483 on Birch Creek Road over Walla Walla River
- Bridge #59C568 on County Road 825 over Wild Horse Creek
- Bridge #59C703 on Thiesen Road over Furnish Ditch
- Bridge #59C705 on Rieth Road over US Feed Canal
- Bridge #59C706 on Rieth Road over Furnish Ditch
- Bridge #59C708 on Rieth Road over Furnish Ditch
- Bridge #59C721 on Rieth Road over Furnish Ditch
- Bridge #59C752 on Rieth Road over Furnish Ditch

There are 22 county bridges, which have sufficiency ratings less than 55 which were not identified as either being structurally deficient or functionally obsolete. These include:

- Bridge #59C018 on County Road 1061 over Dry Gully
- Bridge #59C081 on County Road 1411 over Bear Creek
- Bridge #59C117 on County Road 983 over North Fork Cold Spring
- Bridge #59C206 on County Road 1183 over Furnish Ditch
- Bridge #59C222 on County Road 1201 over Furnish Ditch
- Bridge #59C226 on County Road 1219 over Ma Well Ditch
- Bridge #59C229 on County Road 1217 over IRR Canal
- Bridge #59C240 on County Road 1197 over IRR Ditch
- Bridge #59C241 on County Road 1251 over IRR Canal
- Bridge #59C264 on County Road 1250 over North Canal
- Bridge #59C280 on County Road 1196 over Ma Well Ditch

- Bridge #59C284 on Lloyd Road over Ma Well Ditch
- Bridge #59C286 on County Road 1191 over "A" Line Canal
- Bridge #59C287 on County Road 1187 over Ma Well Ditch
- Bridge #59C312 on County Road 1231 over Westland A Canal
- Bridge #59C407 on County Road 641 over Hay Creek
- Bridge #59C457 on County Road 550 over Dry Gully
- Bridge #59C572 on County Road 844 over Greasewood Creek
- Bridge #59C581 on County Road 814 over Sand Hollow
- Bridge #59C628 on County Road 953 over Greasewood Creek
- Bridge #59C726 on IRR River Road over Meacham Creek
- Bridge #59C727 on IRR River Road over the Umatilla River

Four of the bridges rated as structurally deficient have been identified under the ODOT 2000-2003 STIP Update. County Bridge #59C212, #59C358 and #59C535 are scheduled for replacement in fiscal year 2001 at approximate costs of $182,000, $425,000, and $549,000, respectively. County Bridge #59C542 is scheduled for replacement in fiscal year 2002 at an estimated cost of $340,000.

One bridge rated as functionally obsolete (#59C001) has been identified for replacement in the 2001-2003 STIP Update in fiscal year 2001, at an estimated cost of $655,000.

PEDESTRIAN SYSTEM

The most basic transportation option is walking. Walking is the most popular form of exercise in the United States and can be performed by people of all ages and all income levels. However, it is not often considered as a means of travel. This is mainly because pedestrian facilities are generally an afterthought, which are not planned as an essential component of the transportation system.

The majority of pedestrian traffic in the county is found within the cities. Most of the cities contain a downtown grid layout with some sidewalks. There is little, if any, demand for pedestrian facilities between the cities. Attempts to encourage people to walk the sometimes long distances between these destinations would likely be ineffective.

The only pedestrian facilities that exist outside of the cities are the many hiking trails found in recreation areas. These trails are concentrated in the Meacham and Tollgate areas in eastern Umatilla County.

BIKEWAY SYSTEM

Like pedestrians, bicyclists are often overlooked when considering transportation facilities. However, cycling is a very efficient mode of travel. Bicycles take up little space on the road or parked, do not contribute to air or noise pollution, and offer relatively higher speeds than walking.

Bicycling should be encouraged for short trips in order to reduce some of the negative aspects of urban growth and automobile use. Noise, air pollution, and traffic congestion could be mitigated if more short trips were taken by bicycle or on foot. Typically, a short trip that would be taken by bicycle is around two miles; on foot, the distance commonly walked is around 1/2 mile.

The only designated bikeways within Umatilla County are located within the cities of Pendleton, Hermiston, Pilot Rock, Stanfield, and Echo. Pendleton has a fairly extensive bike system in its downtown. Bicycle lanes are provided on many of the arterials including US 395 south of the I-84 interchange. Hermiston has 1.3 miles of roads with striped bike lanes and two multi-use paths. Pilot Rock has a multi-use path on the east side of US 395 between Alder Street and 4th Street and bike lanes on Cedar Street between Delwood Street and the last mill near the city limits. Stanfield has an asphalt path and sidewalk on the west side of Main Street between Rosalyn Drive and Harding Avenue. Echo has a short multi-use asphalt path connecting Thielsen Street and Buckley Street. In addition, Milton-Freewater is currently pursuing a grant to study the feasibility of creating a multi-use path connecting Milton-Freewater to Walla Walla, Washington, along the Highway 11 corridor.

Umatilla County currently has no sanctioned bikeways. On low volume roadways, bicyclists, and autos can both safely and easily use the roadway. On higher volume roadways, particularly the arterial streets, safety for bicyclists is an important issue.

While the cities do see some recreational users, the majority of them are found on state and county roads. Bicycle traffic does exist between the cities and an improvement in facilities would help to support and increase this use. Back roads near Helix, Adams, and Athena are often used for recreational bicycle use, and there have been bicycle races near Helix.

PUBLIC TRANSPORTATION

The only intercity bus service in Umatilla County is provided by Greyhound Bus Lines which provides service along Highway I-84, US 395, and Oregon 11 within Umatilla County. Greyhound has terminals located in Hermiston and Pendleton which connect these cities to each other and major population centers outside of the county. The Hermiston terminal has two departures heading southeast (with stops in Pendleton, La Grande, Boise, and Salt Lake City); three buses running west to Portland; and two buses heading north on US 395 to Pasco and Spokane daily. The Pendleton terminal has three departures southeast (with stops in La Grande, Boise, and Salt Lake City); three departures west to Portland; and two departures north to Seattle via Walla Walla, Pasco, and Spokane daily. The line to Seattle could serve Milton-Freewater as it runs through the city along Oregon Highway 11.

Pendleton, Hermiston, Pilot Rock, and the Confederated Tribes of the Umatilla Indian Reservation have dial-a-ride type transit service available for the transportation disadvantaged. Dial-a-ride service is defined as door-to-door service initiated by a user's request for transportation service from their origins to specific locations on an immediate or advance reservation basis. These services are provided by Elite Taxi Service in Pendleton, the Confederated Tribes of the Umatilla Indian Reservation on the Umatilla Indian Reservation, the Hermiston Senior Center in Hermiston, and the Pilot Rock Lions Club in Pilot Rock.

Other transportation services in the county include taxi-subsidy and charter services. A taxi-subsidy program involves a user subsidy under which vouchers are sold or given to eligible riders who are able to call and receive service from a participating taxi operator. The vouchers are provided in lieu of fare and are then submitted to the funding agency for redemption. Pendleton has a taxi-subsidy service provided by Elite Taxis, Inc. Charter services are provided in Pendleton and Milton-Freewater by Mid Columbia Bus Company and in Hermiston by School Bus Services, Inc.

ODOT records show that 143,950 total transit trips occurred within Umatilla County in the 96-97 fiscal year. Of these, 80,877 (56 %) were trips taken by elderly and disabled passengers. The state provides funding for transportation assistance for elderly and disabled passengers. The state allocated $84,126 in Special Transportation Funds (STF) to the county in 96-97. The total cost of providing services was $209,216 that year. The average cost per ride was $1.45, compared to $1.75 for the last six fiscal years.

The only fixed-route service in the county is within the city of Milton-Freewater and between Milton-Freewater and Walla Walla. Valley Transit formerly provided this service with relatively high ridership, but discontinued operations due to a lack of funding. After extensive work on the part of the city of Milton-Freewater, funding and a suitable transit provider were located to reinstate the service. Consequently, as of December 1998, Gnat Enterprises has provided fixed-route bus service four days a week within the city and between Milton-Freewater and Walla Walla via OR 11.

The following table provides a summary of the transportation service providers operating within Umatilla County.

TABLE 3-1
TRANSIT PROVIDERS IN UMATILLA COUNTY

Service Provider	**Service Area**	**Service Type**	**Estimated Ridership (96-97)**	**Major Revenue Sources**
Betah Enterprises	Echo, Stanfield, Umatilla, Hermiston	Client Transportation	NA	16 (B)(2)
Bethphage Mission West, Inc.	Pendleton	Fixed Route, Client Transportation	No service in 1996-97. 5,431 trips in 1995-96.	16(B)(2) , STF
Confederated Tribes of Umatilla	Umatilla Tribe Reservation	Dial-a-ride, Volunteer Driver Program, Client Transportation	392 total trips.	STF
Foster Grandparents/SR Companions	Umatilla County	Dial-a-ride, Volunteer Driver Program	8,465 total trips.	STF
Greyhound Bus	Stops in Hermiston and Pendleton to Boise, Salt Lake, Portland, Seattle	Intercity Bus	NA	Fares, Package Service
Hermiston Senior Center	Hermiston Area	Demand Response, Dial-a-ride, Fixed Route, Meal Site Transport	3,482 total trips.	16(B)(2), STF
Horizon Project	Milton-Freewater /Walla Walla	Client Transportation	82,995 total trips.	STF
City of Milton-Freewater	Milton-Freewater /Walla Walla	Taxi-Ticket, Fixed Route/Intercity*	6,064 total trips. (*Valley Transit stopped serving Milton-Freewater in 1997.)	S18, STF, Fares
Pendleton Senior Center, CAPECO	Pendleton	Dial-a-ride	No trips in 96-97. 2,998 trips in 95-96.	STF
City of Pendleton (Elite Taxis)	Pendleton	Taxi-ticket	18,008 total trips.	S18, STF
Pilot Rock Lions Club	Corp. City Limits out to 5 miles	Dial-a-ride	NA	STF
RSVP of Eastern Oregon	Umatilla County	Dial-a-ride	35 total trips.	STF
Umatilla County Mental Health Program	Umatilla County	Dial-a-ride, Taxi-ticket	No trips in 1996-97.	STF

RAIL SERVICE

Passenger Rail

Until recently, the Amtrak Pioneer line provided passenger service to and from Hermiston and Pendleton four days a week. The line from Portland continued on to other eastern Oregon cities such as La Grande and Baker City as well as cities further east outside of Oregon, such as Boise, Ogden, Denver, and Chicago. Amtrak is currently experiencing a funding crisis. As a result, passenger service between Portland and Denver, including service to cities within Umatilla County, was discontinued in May 1997. Passenger rail is an important form of transportation. With highway funding limited and an extensive rail infrastructure already in place in the county, the reinstatement of Amtrak service should be supported.

Freight Rail

A majority of the freight rail lines in Umatilla County are owned and operated by Union Pacific Railroad (UPRR), a Class I line-haul freight railroad. Active UPRR rail lines pass through several cities in the county including Hermiston, Umatilla, Stanfield, Echo, Pendleton, and Pilot Rock.

The Hinkle Yard south of Hermiston is a major maintenance and repair facility. At present, the Hinkle Yard handles 794 rail cars a day. This includes fueling, switching, and assembly activities. With the recent merger of the Southern Pacific and Union Pacific Railroads, rail traffic is expected to increase by 43 percent at the Hinkle Yard. In addition, the rail yard was recently precertified to receive Enterprise Zone benefits in order to attract a maintenance facility. The facility is expected to add up to 200 new jobs to the Hinkle Yard in the near future. From the Hinkle Railyard area, the Spokane main line carries 10 trains per day through Hermiston, with most trains being 70 cars or less. The Port of Umatilla is served by the Umatilla branch line and sends one train per day of 10 cars or less through Hermiston.

Around 21 to 26 trains per day (roughly one per hour) pass through the west side of Stanfield and through the heart of Echo. Stanfield has not expressed any crucial concerns over rail activity within the city, but the city of Echo has several concerns that should be addressed. Issues range from the unsightliness of the landscaping along the mainline ROW, the storage of rail cars along spur lines, safety for pedestrians when crossing the main line, and response time for emergency vehicles that need to cross the rail line.

Thirty-five trains per day pass through Pendleton on the UPRR main line. These trains vary in size with the longest being up to 90 cars in length. Tracks in the western portion of Pendleton are maintained by the Hinkle Yard in Hermiston. Tracks in the Eastern part of Pendleton are maintained by the office in La Grande. In addition, a freight line runs between Pendleton to Pilot Rock two to three times per week.

There is rail service between Milton-Freewater and Weston on the Blue Mountain Railroad consisting of one freight train per day (maximum) or some local switching. Train service connects to the UPRR at Wallula Junction, Washington via Walla Walla.

There is no rail service in Adams, Athena, Helix, or Ukiah, although some of these cities have inactive or abandoned facilities near or within them.

AIR SERVICE

There are many airport facilities that serve Umatilla County: Eastern Oregon Regional Airport in Pendleton, Hermiston Municipal Airport in Hermiston, Buttercreek Airport and Walla Walla Airport in Walla Walla, Washington.

Eastern Oregon Regional Airport in Pendleton is a tower controlled airport which had 40,600 annual operations in 1993 with 9,681 total enplanements (persons boarding and deboarding) and 68 based aircraft. It is the only primary service airport in Northeast Oregon and serves the counties of Baker, Grant, Umatilla, Morrow and Union. The existing facility consists of a 6,301-foot primary runway and two crosswind runways. Passenger service includes 15 scheduled flights per day by Horizon Airlines, with flights to Portland and Seattle. The airfield is also home to 60 locally owned fixed-wing aircraft, four rotor, and eight CH-47 Chinook helicopters with the Oregon Army Air Guard.

The city of Pendleton has established zoning regulations to protect airspace around the airport by designating an Airport Hazard Subdistrict (AHS). The area of influence will not impact future highway developments along US 30 or I-84 to the south. The county has also established an Airport Hazard Overlay (AH-8) zone around the Pendleton Airport to protect airspace.

The city of Hermiston owns and operates a municipal airport. No regularly scheduled commercial flights are available at the present time, but there is charter service available. The Hermiston Municipal Airport is located 1.5 miles from downtown Hermiston and had 12,380 annual operations in 1995 with about 40 based aircraft. The airport is at an elevation of 641 feet above mean sea level and has one runway which is 4,500 feet long and positioned in a northeast-southwest direction. The airport is often used by businesses such as Simplot, Gilroy foods, Les Schwab Tires, UPS, and other large organizations such as PGE, Bonneville Power, and the Army Corps of Engineers. There is an agricultural spray operation based at the airport, and local residents also use the airport for recreational purposes. The county has established an Airport Hazard Overlay (AH-H) zone around the Hermiston Airport to protect airspace.

Other airports in the county include: Barrett Field northwest of Athena, the Pea Growers' Field south of Athena, Curtis Airfield northwest of Pendleton, Oregon Sky Ranch near Milton-Freewater, and Kings Airport near Milton-Freewater. These airports are small, private, uncontrolled airstrips mainly used for crop dusting and other agricultural operations.

Although it is not in the county, Walla Walla Airport provides commercial service less than ten miles from the county border. Walla Walla Airport is owned and operated by the Port of Walla Walla in the state of Washington. Located three miles from downtown Walla Walla, it is a tower controlled airport with 25,000 annual enplanements. Passenger service includes ten scheduled flights per day to Seattle (five daily flights provided by Horizon Airlines). The airport is at an elevation of 1,205 feet above mean sea level and has three runways varying in length from 6,450 feet to nearly 7,200 feet.

One other airport which was not included in either of the categories above, is the Buttercreek Airstrip. This airport is located south of Hermiston just off of State Highway 207 on the east side and is approximately 8 miles south of Interstate 84. This airport is considered a public use airport with a paved runway and at least three enplanements. However, this airport does not provide instrument landings. Landing is by sight only. Buttercreek Airstrip is utilized by crop dusters and other agricultural operations and has a hanger and repair facility. As part of this TSP implementation, Umatilla County is developing an Airport Zone and Airport Safety Overlay Zone to meet the requirements of ORS 836.

PIPELINE SERVICE

Although not often considered transportation facilities, pipelines carry liquids and gases very efficiently. The use of pipelines can greatly reduce the number of trucks and rail cars carrying fluids such as natural gas, oil, and gasoline. Natural gas is supplied to the county via three different lines which all connect to the state of Washington. One line runs northwest to southeast across the county. This line crosses US 395 north of Hermiston, OR 11 northeast of Pendleton, and I-84 within the Confederated Tribes of the Umatilla Indian Reservation and south of Meacham. A second gas line runs southwest to northeast in the northwestern

portion of the county. This line crosses US 395 just north of Stanfield. The third line runs roughly north-south on the east side of Milton-Freewater crossing under OR 11 just south of Milton-Freewater and just northwest of Athena. The third line connects with the first gas line east of Mission.

Cascade Natural Gas uses these lines to provide natural gas to consumers in nine cities in Umatilla County. These include Athena, Hermiston, Milton-Freewater, Mission, Pendleton, Pilot Rock, Stanfield, Umatilla, and Weston.

An oil pipeline, the Salt Lake Pipeline, runs northwest to southeast through Umatilla County. This line runs just south of Helix, crosses OR 11 southwest of Adams, crosses I-84 in the Umatilla Indian Reservation, runs east of the community of Meacham, and crosses I-84 once more just north of the Union county line. There is also a four-inch diesel line to the Hinkle Yard, five miles south of Hermiston, provided by the Kaneb Corporation. The pipeline originates in the city of Umatilla to the north and proceeds along the east side of East 10th Street in Hermiston. The pipeline is running at about 75 percent capacity.

WATER TRANSPORTATION

The only port in Umatilla County is the Port of Umatilla located on the Columbia River in Umatilla, Oregon. This port provides container shipping down the Columbia through the Port of Portland to Pacific Rim locations. The majority of the freight shipped is potato products (over 70 percent) and corn products (around 25 percent). Some meat and flour is also shipped from the port. Overland access to the Port of Umatilla from the county is via US 395, US 730, and then I-82 in Washington.

CHAPTER 4: CURRENT TRANSPORTATION CONDITIONS

As part of the planning process, the current operating conditions for the transportation system were evaluated. This evaluation focused primarily on street system operating conditions since the automobile is by far the dominant mode of transportation in Umatilla County. Census data were examined to determine travel mode distributions. Traffic counts and intersection analyses were used to determine how well traffic is currently flowing on county roads.

TRAFFIC VOLUMES

A large base of traffic volume counts exists for the state highway system in Umatilla County. Extensive 24-hour counts were performed by ODOT in 1996 and in 1999 on the state highways throughout the county. This information is documented in Appendix B.

County Roads

Traffic volumes on the primary county roads (those in the Federal Aid System) were collected by ODOT until 1991 and are summarized in Appendix C. Between 1991 and 1998, various traffic counts were performed along various sections of these roads. This information is also displayed in the Appendix alongside the 1991 ODOT counts.

As shown in Appendix C, daily traffic volumes along most rural county roads are under 1,000 vehicles per day (vpd). However, there are dozens of county roads that have daily traffic volumes exceeding 1,000 vpd. These roads are typically located within the urban area of a city. Some of them serve only local uses. Others serve rural needs such as providing connections to higher functioning facilities such as a state highway or interstate freeway, accessing large businesses in rural areas, and accessing rural communities and farms. Since this plan focuses mainly on the rural portions of the county, it is these types of roads that are considered to be of higher importance to Umatilla County. Table 4-1 displays some examples of these types of roads. In addition to showing where the Average Daily Traffic exceeds 1,000 vpd along particular roadway segments, the primary and possible secondary functions of each road are listed. The roads shown in this table and others that have similar functions and relatively high traffic volumes, act as the backbone of the rural county road system. The criteria listed in Table 4-1 should be used to help define the needs for rural roadway improvements in the future.

USFS and BLM Roads

Traffic volume information along US Forest Service roads and Bureau of Land Management roads is presented in Appendix C.

BIA Roads

Roads under the jurisdiction of the Bureau of Indian Affairs will be addressed in the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Transportation Plan.

TABLE 4-1
IMPORTANT COUNTY ROADS

Roadway	Higher Traffic Volume Section	Year Counted	ADT	Importance of Road
Hermiston Area				
Westland/Highland Rd (County Rd 1215)	I-84 to Bridge Rd	1997	3,275-6,315	Provides connections to I-82 and I-84 and access to large industrial businesses
Bridge Rd (County Rd 1200)	Powerline Rd to Westland Rd	1991	860-2,500	Provides connection to I-84 north via Powerline Road and access to rural residences
Umatilla River Rd (County Rd 1275)	US 730 in Umatilla to Cooney Ln in Hermiston	1991	2,900-3,200	Provides alternative route to city of Umatilla and serves rural residences
Hermiston-Hinkle Rd (County Rd 1245)	Feedville Rd to Gettman Rd	1991	1,400-1,500	Provides access to the Hinkle Railyards and industrial developments along Feedville Road
Feedville Rd (County Rd 1000)	OR 207 to US 395	1991	620-1,200	Provides access to agricultural and industrial businesses
Punkin Center Rd (County Rd 1250)	US 395 to OR 207	1995	2,340	Provides connection between US 395 and OR 207 and serves rural residences
Powerline Rd (County Rd 1225)	I-82 to Bridge Rd	NA	≈2,000	Provides connection between OR 730 and I-82 and serves rural residences
Echo Area				
Thielsen Rd (County Rd 1300)	I-84 to city limits of Echo	1998	2,150	Provides major connection to I-84 for entire city
Milton-Freewater Area				
Walla Walla River Rd (County Rd 610)	Couse Creek Rd to Milton-Freewater UGB	1991	1,000-1,500	Provides access to rural residences and agricultural uses
County Rd (County Rd 650)	Chuckhole Ln to Milton-Freewater UGB	1991	980-1,000	Provides access to rural residences and agricultural uses
Stateline Rd (County Rd 500)	Winesap Rd to OR 11	1991	1,300-1,900	Provides access to OR 11 from rural residences and agricultural uses
Pendleton Area				
Rieth Rd (County Rd 1300)	Birch Creek Rd to I-84	1991	580-1,200	Provides access to town of Rieth and alternative route to Echo
Umatilla Indian Reservation Area				
Mission Rd (County Rd 900)	East of Hwy 30 to Emigrant Rd	1991	890-2,500	Provides important access to Pendleton
Weston Area				
Key Rd (County Rd 682)	OR 11 to Water St	1991	1,150-1,450	Provides connection to OR 11 and access to industrial businesses
Banister Rd (County Rd 750)	OR 11 to OR 204	1991	810-1,650	Provides connection to OR 11

ROADWAY CAPACITY

Transportation engineers have established various standards for measuring traffic capacity of roadways or intersections. Each standard is associated with a particular level of service (LOS). The LOS concept requires consideration of factors that include travel speed, delay, frequency of interruptions in traffic flow, relative freedom for traffic maneuvers, driving comfort and convenience, and operating cost. In the 1991 OHP, levels of service were defined by a letter grade from A-F, with each grade representing a range of volume to capacity (v/c) ratios. A volume to capacity ratio (v/c) is the peak hour traffic volume on a highway divided by the maximum volume that the highway can handle. If traffic volume entering a highway section exceeds the section's capacity, then disruptions in traffic flow will occur, reducing the level of service. LOS A represents relatively free-flowing traffic and LOS F represents conditions where the road system is totally saturated with traffic and movement is very difficult. The 1999 OHP maintains a similar concept for measuring highway performance, but represents LOS by specific v/c ratios to improve clarity and ease of implementation. Table 4-2 presents the level of service criteria and equivalent range of v/c ratios for freeways, Table 4-3 presents the level of service criteria and equivalent range of v/c ratios for two-lane highways, and Table 4-4 presents the level of service criteria and equivalent range of v/c ratios for unsignalized intersections.

TABLE 4-2
LEVEL OF SERVICE CRITERIA FOR FREEWAYS

Service Level (v/c Ratio)[2]	Typical Traffic Flow Conditions
A (0.00-0.48)	Average operating speeds at the free-flow speed generally prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. Even at the maximum density for LOS A, the average spacing between vehicles is over 500 ft., or 26 car lengths, which affords the motorist with a high level of physical and psychological comfort.
B (0.49-0.59)	Average operating speeds at the free-flow speed are generally maintained. The lowest average spacing between vehicles is about 330 ft., or 18 car lengths. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high.
C (0.60-0.69)	Speeds are still at or near the free-flow speed of the freeway. Freedom to maneuver within the traffic stream is noticeably restricted at LOS C, and lane changes require more vigilance on the part of the driver. Minimum average spacing is in the range of 220 ft., or 11 car lengths.
C-D (0.70-0.73)	
D (0.74-0.83)	Speeds begin to decline slightly with increasing flows. In this range, density begins to deteriorate somewhat more quickly with increasing flow. Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort levels. Vehicles are spaced at about 165 ft., or nine car lengths.
D-E (0.84-0.87)	
E (0.88-0.97)	LOS E describes operation at capacity. Operations in this level are volatile, because there are virtually no usable gaps in the traffic stream. Vehicles are spaced at approximately six car lengths, leaving little room to maneuver within the traffic stream at speeds that still exceed 50 mph. At capacity, the traffic stream has no ability to dissipate even the most minor disruptions, and any incident can be expected to produce a serious breakdown with extensive queuing. Maneuverability within the traffic stream is extremely limited, and the level of physical and psychological comfort afforded the driver is extremely poor.
E-F	

(0.98-0.99)	
F (>1.00)	LOS F describes breakdowns in vehicular flow. Such conditions generally exist within queues forming behind breakdown points. Breakdown occurs when the ratio of arrival flow rate to actual capacity or the forecast flow rate to estimated capacity exceeds 1.00. Whenever LOS F conditions exist, there is a potential for them to extend upstream for significant distances.

Source: Transportation Research Board, Highway Capacity Manual, Special Report 209. National Research Council, 1994.

Although a freeway interchange serves both the freeway and the crossroad to which it connects, it is important that the interchange be managed to maintain safe and efficient operation of the freeway through the interchange area. The maximum volume to capacity ratio for ramp terminals of interchange ramps shall be the smaller of the values of the volume to capacity ratio for the crossroad, or 0.85.

The *1999 Oregon Highway Plan* (OHP) establishes mobility standards for the state highway system.[1] Highways of Statewide importance, such as US 395 (Pendleton-John Day Highway) should operate at a v/c ratio of 0.80 inside the Urban Growth Boundary and at a v/c ratio of 0.70 or better in rural areas. For highways of district importance, such as Highway 37, the roadways should operate at a v/c ratio of 0.85 within the Urban Growth Boundary and at a v/c ratio of 0.75 or better in rural areas.

TABLE 4-3
LEVEL OF SERVICE CRITERIA FOR TWO-LANE HIGHWAYS

Service Level	Typical Traffic Flow Conditions
A (0.00-0.48)	Motorists are able to drive at their desired speed which, without strict enforcement, would result in average speeds approaching 60 mph. Passing demand is well below passing capacity, and almost no platoons of three or more vehicles are observed.
B (0.49-0.59)	Speeds of 55 mph or slightly higher are expected on level terrain. Passing demand needed to maintain desired speeds becomes significant and approximately equals the passing capacity.
C (0.60-0.69)	Further increases in flow result in noticeable increases in platoon formation, platoon size, and frequency of passing impediment. Average speed still exceeds 52 mph on level terrain, even though unrestricted passing demand exceeds passing capacity. While traffic flow is stable, it is becoming susceptible to congestion due to turning traffic and slow-moving vehicles.
C-D (0.70-0.73)	
D (0.74-0.83)	Unstable traffic flow as passing demand is very high. Average platoon sizes of 5 to 10 vehicles are common, although speeds of 50 mph can still be maintained under ideal conditions. This is the highest flow rate that can be maintained for any length of time over an extended section of level terrain without a high probability of breakdown.
D-E (0.84-0.87)	
E (0.88-0.97)	Under ideal conditions, speeds will drop below 50 mph. Average travel speeds on highways with less than ideal conditions will be slower, as low as 25 mph on sustained upgrades. Passing is virtually impossible and platooning becomes intense when slower vehicles or other interruptions are encountered.
E-F (0.98-0.99)	
F (>1.00)	Heavily congested flow with traffic demand exceeding capacity.

Source: Transportation Research Board, Highway Capacity Manual, Special Report 209. National Research Council, 1994.

TABLE 4-4
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Service Level	Typical Traffic Flow Conditions
A (<0.48)	Reserve capacity ≥ 400 passenger cars per hour (PCPH) with little or no delay.
B (0.49-0.59)	Reserve capacity of 300 to 399 PCPH with short traffic delays.
C (0.60-0.69) C-D (0.70-0.73)	Reserve capacity of 200 to 299 PCPH with average traffic delays.
D (0.74-0.87)	Reserve capacity of 100 to 199 PCPH with long traffic delays.
E (0.88-0.97) E-F (0.98-0.99)	Reserve capacity of 0 to 99 PCPH with very long traffic delays.
F (>1.00)	The demand volume exceeds the capacity of the lane, and extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement to the intersection.

Source: Transportation Research Board, Highway Capacity Manual, Special Report 209. National Research Council, 1985.

The operations analysis of Umatilla County's state highway system focused on the rural sections of the highways (those sections outside the incorporated cities). Capacity along those roadway segments was evaluated in two different ways: traffic operations along the roadway alone, and traffic operations at unsignalized intersections. No urban sections of roadway were addressed as part of this analysis (i.e. within a city's UGB). The urban section analyses can be found in the separate TSP reports prepared for each city.

Rural Highway Operations

The traffic operations along the rural highway sections were determined using the 1994 Highway Capacity software. This software is based on the *1994 Highway Capacity Manual, Special Report 209*, published by the Transportation Research Board. The peak hour traffic was assumed to be 10 percent of the 24-hour ADT volume and the directional split was assumed to be 60/40. In segments where more than one volume was reported, a worst case analysis was performed using the highest reported volume for that segment. Roadway features such as the percentage of no-passing zones, general terrain, and land and shoulder widths were determined from the roadway inventory. For I-82 and I-84, where summer volumes are 30 to 40 percent higher than average annual volumes, capacity analysis was also conducted for the summer condition.

Freeway Operations

Analysis of freeway segments is based on traffic volumes and composition (i.e., percent trucks), lane widths, lateral clearance between the edge of the travel lane and the nearest roadside or median obstacle or object influencing traffic behavior, and driver population (i.e., regular and familiar users of the facility).

The operations on the rural sections of the freeways were analyzed for a typical peak hour during 1996 average annual and summer conditions. The resulting level of service for each highway segment is shown in

Table 4-5. All rural segments of the freeways in Umatilla County operate at LOS A (<0.48 v/c) or better during average conditions and at LOS B (0.49-0.59 v/c) or better during peak summer conditions.

TABLE 4-5
SUMMARY OF OPERATIONS ON FREEWAYS

Location	Level of Service for 1996 Average Daily Conditions (v/c)	Level of Service for 1996 Peak Summer Conditions (v/c)
I-82		
OR/WA border	A (<0.48)	B (0.49-0.59)
0.30 miles south of US 730	A (<0.48)	A (<0.48)
0.30 miles north of I-84	A (<0.48)	A (<0.48)
I-84		
West of I-82	A (<0.48)	A (<0.48)
Stanfield to Pendleton	A (<0.48)	A (<0.48)
East of the Umatilla-Mission Hwy	A (<0.48)	A (<0.48)

Two-Lane and Multi-Lane Highway Operations

Analyses of rural two-lane and multi-lane highways take into account the magnitude, type, and directional distribution of traffic as well as roadway features such as the percentage of no-passing zones, general terrain, and lane and shoulder widths.

The operations on the rural sections of the two-lane and multi-lane highways were analyzed for a typical peak hour during 1996 average annual conditions. The resulting level of service for each highway segment is shown in Table 4-6. All but one rural segment of the two-lane and multi-lane highways in Umatilla County operate at LOS C (0.60-0.69 v/c) or better. The only segment operating below LOS C (0.60-0.69 v/c) is along US 730 near the Umatilla/Morrow County line.

TABLE 4-6
SUMMARY OF OPERATIONS ON RURAL SECTIONS
OF TWO-LANE AND MULTI-LANE HIGHWAYS

Location	Two-Lane or Multi-Lane Highway Section	**Level of Service for 1996 Peak Hour Conditions (v/c)**
US 30		
West I-84 terminus	Two-Lane	C (0.60-0.69)
East I-84 terminus	Two-Lane	B (0.49-0.59)
US 395 *(Pendleton-John Day Hwy)*		
OR 74 and OR 244 junctions	Two-Lane	A (<0.48)
US 730		
Umatilla/Morrow Co. line	Two-Lane	D (0.74-0.87)
OR/WA border	Two-Lane	B (0.49-0.59)
OR 207 *(Hermiston Highway)*		
0.06 miles south of US 730	Two-Lane	C (0.60-0.69)
0.10 miles north of OR 207 (Lexington-Echo Hwy)	Two-Lane	B (0.49-0.59)
Lexington-Echo Highway		
Umatilla/Morrow Co. line to Hermiston Hwy junction	Two-Lane	A (<0.48)
Hermiston Hwy junction to Echo west city limits	Two-Lane	A (<0.48)
OR 37		
Pendleton north city limits	Two-Lane	B (0.49-0.59)
0.01 miles west of Athena-Holdman Hwy	Two-Lane	A (<0.48)
OR 74		
Umatilla/Morrow Co. line	Two-Lane	A (<0.48)
0.10 miles west of US 395 (Pendleton-John Day Hwy)	Two-Lane	A (<0.48)
OR 11		
0.01 miles northeast of Havana-Helix Hwy	Two-Lane	C (0.60-0.69)
OR/WA border	Multi-Lane	A (<0.48)
OR 204		
ODOT automatic recorder near Weston	Two-Lane	B (0.49-0.59)
Umatilla/Union Co. line	Two-Lane	A (<0.48)
OR 244		
0.2 mile east of Pendleton	Two-Lane	A (<0.48)
Umatilla National Forest Boundary (MP 10.0)	Two-Lane	A (<0.48)
Umatilla-Mission Highway		
OR 11 junction	Two-Lane	B (0.49-0.59)
I-84 junction	Two-Lane	C (0.60-0.69)
Athena-Holdman Highway		
OR 37 to Havana-Helix Hwy	Two-Lane	A (<0.48)
Havana-Helix Highway		
Helix to OR 11 junction	Two-Lane	A (<0.48)
Freewater Highway		
OR/WA border	Two-Lane	B (0.49-0.59)
Sunnyside-Umapine Highway		
OR/WA border	Two-Lane	A (<0.48)
0.01 miles west of Or Hwy 11	Two-Lane	B (0.49-0.59)

Unsignalized Intersection Operations of Highways

Traffic operations were determined at intersections along the rural highway sections using the 1985 Highway Capacity software for unsignalized intersections. Since all intersecting roads are controlled by stop signs in these areas, the analysis was performed for unsignalized intersections.

Analysis of unsignalized intersections is based on traffic volumes on both the major street and side street approaches as well as the distribution of gaps in the major street traffic stream.

Traffic operations were analyzed for intersections located along the highest volume rural sections of the state highways. Traffic operations were analyzed using a peak hour two-way traffic volume of 10 percent of the daily traffic. Also, a 60/40 directional split was used to reflect the distribution of traffic on the highways during the peak hour.

Under these assumptions, all of the left turns from the major highways and the left and right turns from the minor approaches operate at LOS A (<0.48 v/c) except at the intersection of Sunnyside-Umapine Highway and Highway 11, north of Milton-Freewater. On the eastbound approach of Sunnyside-Umapine Highway to Highway 11, vehicles turning left will experience long delays as they attempt to turn onto Highway 11 which carries over 14,000 vehicles per day along this section. Although the traffic volume on this approach is relatively low, approximately 125 vehicles per hour, long delays for vehicles turning left result in LOS D (0.74-0.83 v/c) on this approach. The level of service for each unsignalized intersection is shown in Table 4-7.

TABLE 4-7
SUMMARY OF OPERATIONS AT CRITICAL RURAL HIGHWAY INTERSECTIONS

Location	Movement	1996 LOS
Lexington-Echo Highway (E-W) at OR 207 (N-S)	Westbound; Left and Right Southbound; Left	A (<0.48) A (<0.48)
OR 37 (N-S) at US 730 (E-W)	Northbound; Left and Right Westbound; Left	A (<0.48) A (<0.48)
Athena-Holdman Highway (E-W) at OR 37 (N-S)	Westbound; Left and Right Southbound; Left	A (<0.48) A (<0.48)
Sunnyside-Umapine Highway (E-W) at OR 11 (N-S)	Eastbound; Left and Right Northbound; Left	D (0.74-0.83) A (<0.48)
OR 204 (E-W) at OR 11 (N-S)	Westbound; Left and Right Southbound; Left	A (<0.48) A (<0.48)
Athena-Holdman Highway (E-W) at OR 11 (N-S)	Eastbound; Left and Right Northbound; Left	A (<0.48) A (<0.48)
Havana-Helix Highway (N-S) at OR 11 (E-W)	Southbound; Left and Right Eastbound; Left	A (<0.48) A (<0.48)
Umatilla-Mission Highway (N-S) at OR 11 (E-W)	Northbound; Left and Right Westbound; Left	A (<0.48) A (<0.48)
OR 74 (E-W) at US 395 (N-S)	Eastbound; Left and Right Northbound; Left	A (<0.48) A (<0.48)
OR 244 (E-W) at US 395 (N-S)	Westbound; Left and Right Southbound; Left	A (<0.48) A (<0.48)

Note: The level of service is shown for all evaluated movements of the unsignalized intersections.

RURAL COUNTY ROAD OPERATIONS

The analysis of rural county roadway operations includes the areas outside the urban boundaries of incorporated cities. Traffic operations along county roads that are within the urban areas of cities should be addressed in each city's own TSP.

Since the observed traffic flows along many of the rural county roads are less than 1,000 vpd, peak hour traffic operations along these roads and at lower volume intersecting roads, are at excellent levels (LOS A, <0.48 v/c). Even where daily traffic volumes range between 1,000 and 6,000 vpd, such as along the "highly important" roads depicted in Table 4-1, roadway traffic operations are still at excellent levels (LOS A, <0.48 v/c). Access to and from these "highly important" roads at intersecting minor roads is also adequate, reaching an estimated LOS B (0.49-0.59 v/c), where peak hour minor road traffic volumes reach up to 150 vph.

At intersections where county roads intersect state highways maintaining acceptable operating levels, and providing safe access to and from the highway is an important concern to ODOT. The following table was developed summarizing the existing p.m. peak hour traffic operations for these types of intersections where existing information was available.

TABLE 4-8
SUMMARY OF OPERATIONS AT SELECTED INTERSECTIONS
OF RURAL COUNTY ROADS AND HIGHWAYS

Location	Year of Analysis	Critical Approach	LOS	v/c
Powerline Road at US 730 (Umatilla)	1997	NB	B[1]	(0.49-0.59)
Powerline Road at I-82 SB Ramp	1997	SB	A[1]	(<0.48)
Powerline Road at I-82 NB Ramp	1997	NB	A[1]	(<0.48)
Bensel Road at US 395	1994	NA	C[2]	(0.60-0.69)
Baggett Lane at US 395	1994	NA	D[2]	(0.74-0.87)
Joy Lane at US 395	1994	NA	D[2]	(0.74-0.79)
Theater Lane at US 395 (Hermiston)	1995	WB	C[3]	(0.60-0.69)
Highland Avenue at OR 207 (Hermiston)	1995	All	B[3]	(0.49-0.59)
Stateline Road at OR 11	1997	EB	D[4]	(0.74-0.79)
Ferndale Road at OR 11	1997	EB	C[4]	(0.60-0.69)
Crockett Road at OR 11	1997	EB	C[4]	(0.60-0.69)
Airport Road at US 30 (Pendleton)	1996	SB	B[5]	(0.49-0.59)
Old Reith Road at US 30 (Pendleton)	1996	NB	A[5]	(<0.48)
Southgate Place at US 395	1996	All	B[5]	(0.49-0.59)

(1) Hayden River Estates, Kittelson and Assoc., Inc., October 1997
(2) Hermiston-Umatilla Highway 395 Corridor Land Use/Transportation Plan, Kittelson and Assoc., Inc., June 1995
(3) Hermiston TSP, David Evans and Assoc, Inc., May 1998
(4) Highway 11 Corridor Land Use and Transportation Plan, David Evans and Assoc., Inc.
(5) Pendleton TSP, Kittelson and Assoc., Inc., Dec. 1996

TRANSPORTATION DEMAND MANAGEMENT MEASURES

This section briefly describes two elements that may impact transportation demand management: 1) distribution of departure time to work; and 2) distribution of travel modes.

Alternative Work Schedules

One way to maximize the use of the existing transportation system is to spread peak traffic demand over several hours instead of a single hour. Statistics from the 1990 Census show the spread of departure to work times over a 24-hour period (see Table 4-9). Approximately 30 percent of the total employees (those not working at home) depart for work between 7:00 a.m. and 8:00 a.m. Another 34 percent depart in either the hour before or the hour after the peak. Therefore, nearly two-thirds of all morning commute trips occur between 6:00 a.m. and 9:00 a.m.

TABLE 4-9
DEPARTURE TO WORK DISTRIBUTION

	1990 Census	
Departure Time	**Trips**	**Percent**
12:00 a.m. to 4:59 a.m.	693	2.9%
5:00 a.m. to 5:59 a.m.	2,100	8.7%
6:00 a.m. to 6:59 a.m.	5,103	21.1%
7:00 a.m. to 7:59 a.m.	7,313	30.3%
8:00 a.m. to 8:59 a.m.	3,149	13.0%
9:00 a.m. to 9:59 a.m.	935	3.9%
10:00 a.m. to 10:59 a.m.	459	1.9%
11:00 a.m. to 11:59 a.m.	244	1.0%
12:00 p.m. to 3:59 p.m.	2,252	9.3%
4:00 p.m. to 11:59 p.m.	1,898	7.9%
Total	**24,146**	**100.0%**

Source: US Bureau of Census.

Assuming an average nine-hour work day, the corresponding afternoon peak can be determined for work trips. Using this methodology, the peak work travel hour would occur between 4:00 and 5:00 p.m., which corresponds with the peak hour of activity measured for traffic volumes.

TRAVEL MODE DISTRIBUTION

Although the automobile is the primary mode of travel for most residents in Umatilla County, some other modes are used as well. Modal split data is not available for all types of trips. The 1990 Census statistics that were reported for journey to work trips are shown in Table 4-10 and reflect the predominant use of the automobile in Umatilla County.

In 1990, 89.3 percent of all trips to work were in a private vehicle (auto, van, or truck). Trips in single-occupancy vehicles made-up 74.2 percent of all trips, and carpooling accounted for 15.1 percent.

Bicycle usage was lower than in many other counties (approximately 0.4 percent) in 1990. Since the census data does not include trips to school or other non-work activities, overall bicycle usage may be greater. None of Umatilla County's rural roadways include dedicated bicycle lanes; however, the cities of Pendleton, Hermiston, Stanfield, and Echo do have some dedicated bikeways. Dedicated bicycle lanes can encourage bicycle commuting, as can other facilities, such as bicycle parking, showers, and locker facilities.

Pedestrian activity was fairly average (4.8 percent of trips to work) in 1990. Statewide, 4.2 percent of the population travel to work on foot. Again, the census data only report trips to work; trips to school or other non-work activities are not included.

TABLE 4-10
JOURNEY TO WORK TRIPS

	1990 Census	
Trip Type	**Trips**	**Percent**
Private Vehicle	22,456	89.3%
Drove Alone	*18,656*	*74.2%*
Carpooled	*3,800*	*15.1%*
Public Transportation	40	0.2%
Motorcycle	105	0.4%
Bicycle	98	0.4%
Walk	1,212	4.8%
Other	235	0.9%
Work at Home	1,005	4.0%
Total	**25,151**	**100.0%**

Source: US Bureau of Census.

ACCIDENT ANALYSIS

The Oregon Department of Transportation (ODOT) collects detailed accident information on an annual basis along the two Interstate and 16 State Highways in Umatilla County. A detailed analysis of accidents along these highways is located in Appendix B.

No detailed information is available on reported accidents along county roadways; therefore, no analysis could be performed.

CHAPTER 5: TRAVEL FORECASTS

The traffic volume forecasts for Umatilla County are based on historic growth on the state highway system taking into account historic and projected population growth. Forecasts were only prepared for the state highway system in the county, since the volumes on these roadways are much higher than on any of the county roads.

LAND USE

Land use and population growth play an important part in projecting future traffic volumes. Historic trends and their relationship to historic traffic growth on state highways are the basis of those projections. Population forecasts were developed to help determine future transportation needs. The amount of growth, and where it occurs, will affect traffic and transportation facilities in the study area. This report is not intended to provide a complete economic forecast or housing analysis, and it should not be used for any purpose other than that for which it is designed.

The population projections for Umatilla County are based on historic growth rates, the original population and employment forecasts made by the State of Oregon Office of Economic Analysis (OEA), and a recent study [1] identifying new economically-driven factors that will result in a higher population total than what was projected in the DEA forecast.

Both historic and projected population estimates for Umatilla County are summarized in Table 5-1. Factors that will affect the future growth rate of Umatilla County include employment opportunities, available land area for development, and community efforts to manage growth.

TABLE 5-1
UMATILLA COUNTY POPULATION TRENDS

Year	Population	Average Annual Growth Rate	Total Growth
1970	44,923	–	–
1980	58,855	2.7%	31.0%
1990	59,249	0.07%	0.7%
1997	65,500	1.44%	10.6%
2000	70,548	-	19.1%
2020 Projected	86,650	1.22%	32.2%

Umatilla County worked with the OEA (1999) to increase the official population projections for the County. Even though higher estimates have been adopted for the County than were used for the forecasting in this document, the new estimates will not impact travel projections for the TSP. This is because travel forecasts are based primarily on historic traffic levels taking into account population and land use. The difference between the original estimates and new official estimates is not great enough to impact travel projections.

A detailed description of existing and future land use projections, including the methodology and data sources used, is contained in the Umatilla County Population Analysis located in Appendix D. This appendix contains both the original estimates of the OEA and the new official estimates for the county.

[1] *Umatilla County Population Analysis*, December 16, 1998, produced by David Evans and Associates, Inc.

Historic Growth

The population of Umatilla County has grown since the 1970s, with significantly slower growth in the 1980s, reflecting a general slowdown in the state's economy. Helix, Pilot Rock, and Weston actually experienced a net population loss between 1970 and 1990. The number of people residing in Stanfield nearly doubled between 1970 and 1980. This population growth may have been fueled by some significant housing developments and the location of several food processing plants in Stanfield during this time.

Estimated at 65,500 in 1997, the population of Umatilla County has grown relatively rapidly since the 1990 Census, with an average annual growth rate of 1.44 percent. Most of the jurisdictions in Umatilla County have grown at a healthy rate, comparable to the annual growth rate of 1.44 percent for the county overall. The smaller jurisdictions of Adams and Helix have grown at a slightly faster rate, starting from the smaller population bases of 223 (Adams) and 150 (Helix) in 1990.

Projected Growth

Umatilla County is expected to experience population gains for the next 20 years. Like much of rural Oregon, the economy of Umatilla County remains largely seasonal, with nearly one-quarter of all employment agriculture-based. Therefore, population increases are difficult to predict, and are not likely to be as stable as the forecasts appear to imply.

An ad-hoc HUES (Hermiston, Umatilla, Echo, and Stanfield) Impact Planning Group was formed in early 1997 to lead cooperative efforts to address growth concerns in western Umatilla County arising from four major employers locating or expanding in the region. The HUES Growth Impact Study, conducted by the Benkendorf Associates Corporation, Hobson Johnson & Associates, and Martin Davis Consulting, quantifies the impact of the construction and operation of these four facilities. Employment impacts are translated into household and population impacts, and disaggregated across the four HUES communities, Pendleton, and rural Umatilla County.

Of these four employers (the Two Rivers Correctional Institution, the Umatilla Chemical Agent Disposal Facility, the Union Pacific Railroad Hinkle Locomotive Shop, and the Wal-Mart Distribution Center and Truck Maintenance Facility), only one (the Wal-Mart Distribution Center) had been announced and incorporated in the long-range population and employment forecast prepared by the Office of Economic Analysis. Because the Umatilla County site was selected as the location for the Wal-Mart Distribution Center in 1994, its impacts were already incorporated in the Office of Economic Analysis long-term population and employment forecast. Applying the HUES methodology, DEA, Inc. subtracted out the impact of the Wal-Mart Distribution Center, in order to identify the population impacts resulting from the three "big four" employers otherwise not accounted for in the OEA forecast. These estimated impacts were then applied to the original population forecasts for Echo and Stanfield.

As mentioned earlier, Umatilla County has concluded work with the OEA to revise the state's official population estimates for the county to account for the impact of the major employers. The new projections are higher than those initially estimated by the OEA, but are not different enough to require any revisions to travel projections.

Overall, Umatilla County is expected to experience healthy rates of population growth, averaging nearly one and a half percent annually over the planning horizon. The western portion of Umatilla County is expected to grow faster than the rest of Umatilla County, fueled by the four major employers.

Potential Development Impact Analysis

To supplement the demographic analysis and to determine more specific potential growth areas in Umatilla County, DEA reviewed ODOT's Potential Development Impact Analysis (PDIA). The PDIA provides estimates for a maximum development scenario in rural Umatilla County. Potential growth areas or "polygons" are identified around the county based on zoning. A detailed summary of the PDIA is contained in Appendix D.

The analysis is based on a number of assumptions, some of which are acknowledged to overstate potential development. Some of the key assumptions include the following:

- No adjustments were made for slopes, bodies of water, riparian areas, or other physical development constraints.
- Development estimates do not account for market factors.
- Where the zoning ordinance does not specify a parking requirement, no adjustment was made for parking.

The analysis concludes that there is potential for development of residential land use designations in rural Umatilla County as shown in Table 5-2.

TABLE 5-2
POTENTIAL DEVELOPMENT IMPACT ANALYSIS SUMMARY

	Acreage		Residential Units/1,000 Square Feet		
Designated Use	**Net Area**	**Vacant**	**Existing**	**Potential**	**Maximum**
Residential	20,104	14,338	2,944	44,888	47,832
Commercial	437	201	NA	2,048.7	NA
Industrial	3,643	2,243	NA	NA	NA

Approximately 20,104 acres of land is zoned for rural residential uses with 2,944 existing residential units. Of the residential land, approximately 14,338 acres are vacant representing development potential of 44,888 units. This methodology combines existing units with the potential units to achieve a maximum development potential. This potential is estimated at 47,832 residential units.

In terms of non-residential uses, approximately 437 acres of land are zoned for commercial uses, while 3,643 acres are zoned for industrial uses. Of the commercially-designated land, an estimated 201 acres are vacant, yielding potential development of 2,048,700 square feet. Additionally, there are an estimated 2,243 acres vacant industrially-designated lands. The PDIA analysis did not provide an estimate of the potential development represented by these 2,243 acres.

TRAFFIC VOLUMES

Traffic volume projections are based on historic growth trends for highway volumes taking into account current and future land use projections.

Historic

Before projecting future traffic growth, it is important to examine past growth trends on the Umatilla County roadway system. Historic data are only available for the state highway system in Umatilla County; however, these roadways carry far more traffic than any other roads in the county. ODOT collects traffic count data on the state highways (rural and urban sections) every year at the same locations.

Historical growth trends on the state highways in and around Umatilla County were established using the average annual daily traffic (AADT) volume information presented in the ODOT Traffic Volume Tables for the years 1976 through 1996. The AADT volumes were obtained for each of these years at several locations along each highway. Using a linear regression analysis of the average AADT volumes between 1976 and 1996, an average annual growth rate was determined. Table 5-3 summarizes the historic total growth experienced on each of these sections.

TABLE 5-3
HISTORIC GROWTH RATES ON STATE HIGHWAYS

Location	Average Annual Growth 1976-1996	Total Growth 1976-1996
I-82		
OR/WA border	1.91%(1)	46.0%(1)
0.30 miles south of US 730	2.23%(1)	55.6%(1)
0.30 miles north of I-84	2.13%(1)	52.6%(1)
I-84		
West of I-82	2.95%	78.9%
Stanfield to Pendleton	1.96%	47.4%
East of the Umatilla-Mission Hwy	2.87%	76.0%
US 30		
0.01 miles west of Rieth Road	0.79%	17.0%
Pendleton urban area	1.41%	32.2%
US 395 ***(Pendleton-John Day Hwy)***		
Pendleton – I-84 undercrossing	1.89%	45.5%
Pendleton – south city limits	-0.15%	-2.9%
between OR 74 and OR 244 junctions	2.18%	53.8%
US 395 ***(Umatilla-Stanfield Hwy)***		
Hermiston – 0.01 miles south of Jennie Avenue	2.55%	65.3%
Stanfield – north city limits	1.70%	40.0%
0.50 miles north of I-84	1.95%	47.3%
US 730		
Umatilla/Morrow Co. line	1.54%	35.7%
0.50 miles east of I-82 (Umatilla urban area)	2.18%	54.0%
OR/WA border	1.38%	31.4%

TABLE 5-3, Cont.
HISTORIC GROWTH RATES ON STATE HIGHWAYS

OR 207 ***(Hermiston Highway)***		
0.10 miles southwest of Hooker Road	2.42%	61.4%

Hermiston Avenue – 0.01 miles south of Orchard Avenue W.	4.85%	157.9%
Hermiston south city limits to I-84 junction	2.38%	60.0%
0.10 miles north of OR 207 (Lexington-Echo Hwy)	5.11%	170.8%
Lexington-Echo Highway		
Umatilla/Morrow Co. line to Hermiston Hwy junction	0.63%	13.3%
Hermiston Hwy junction to Echo	0.60%	12.7%
Echo urban area	0.85%	18.4%
Echo east city limits	-0.08%	-1.17%
OR 37		
Pendleton north city limits	4.32%	132.9%
Pendleton – 0.01 miles north of US 30	-0.34%	-6.7%
0.01 miles west of Athena-Holdman Hwy	-1.63%	-28.0%
OR 74		
Umatilla/Morrow Co. line	0.53%	11.1%
0.10 miles west of US 395 (Pendleton-John Day Hwy)	1.45%	23.3%
OR 11		
Pendleton – 0.40 miles north of I-84	3.61%	103.1%
0.01 miles northeast of Havana-Helix Hwy	1.23%	27.8%
Adams-east city limits	0.73%	16.1%
Milton-Freewater – south city limits	1.58%	37.0%
Milton-Freewater – north city limits	2.72%	70.9%
Milton-Freewater – 0.01 miles north of Sunnyside-Umapine Hwy	2.70%	71.0%(2)
Milton Automatic Recorder	2.70%	71.0%(2)
OR 204		
ODOT automatic recorder near Weston	1.80%	42.9%
Umatilla/Union Co. line	1.85%	44.2%
OR 244		
0.2 miles east of US 395 junction	1.32%	30.0%
0.01 miles east of Camas Road (Ukiah)	1.41%	32.4%
At Umatilla National Forest Boundary (MP 10.0)	1.24%	28.0%
Umatilla-Mission Highway		
OR 11 junction	4.59%	145.2%
0.01 miles south of Mann Road	4.37%	135.2%
Athena-Holdman Highway		
OR 37 to Havana-Helix Hwy	2.23%	55.6%
Athena – 0.01 miles east of 3rd Street	1.91%	45.9%
0.01 miles east of OR 11	2.05%	50.0%
Havana-Helix Highway		
Helix to OR 11 junction	2.66%	69.0%
Freewater Highway		
OR/WA border	2.41%	60.9%
Milton-Freewater – north city limits	-0.74%	-13.8%
Milton-Freewater – 0.01 miles E. of W. Main St. on Broadway St.	-0.53%	-10.1%
Sunnyside-Umapine Highway		
OR/WA border	1.77%	41.9%
0.01 miles west of OR 11 (Milton-Freewater urban area)	3.80%	110.8%

(1) Growth based on 1988 to 1996 period after ODOT began keeping records in 1988.
(2) Based on historical trends from 1975-1995 taken from the Milton-Freewater/Stateline Rd Highway 11 Corridor Land Use and Transportation Plan, David Evans and Assoc., Inc., June 1997, pp. 3-8.
Source: ODOT 1976-1996 Transportation Volume Tables; information compiled by DEA, Inc.

Over the 20-year period from 1976 to 1996, average growth on the rural sections of state highways in Umatilla County ranged from a low of -1.63 percent per year along OR 37 just west of the Athena-Holdman Highway to a high of 5.11 percent per year along OR 207 (Hermiston Highway) just north of the Lexington-Echo Highway

junction. Average annual growth along the rural sections of freeways in the county was nearly 2.4 percent over the period.

In general, growth on the rural sections of the state highways exceeded the population growth in Umatilla County. This relationship reflects the modern trend toward an increase in per capita vehicle miles traveled and the increase in commercial and tourist traffic. The total county population has been increasing at a rate just over one percent per year over the last twenty years, whereas traffic volumes on the rural sections of the state highways in Umatilla County have been increasing at rates between two and four percent per year. One highway, OR 207 (Lexington-Echo Highway) grew at a rate of over seven percent per year during the same period. Traffic volumes on the urban sections of the state highways have been increasing at a slower pace, generally between zero and two percent per year. The lower growth rates on the urban sections of the state highways could be a result of the decreases in population in some of the cities in the county during this period.

Future Traffic Volumes

The forecasting methodology was based on the available existing and historic traffic data while taking into account population growth trends. The traffic forecast for the state highway system in Umatilla County was performed using a Level 1 - Trending Forecast[2] analysis. This type of forecast projects future traffic volumes based on one or more of the following growth rates: the historical growth on the state highway system, the historical population growth, and the projected population growth.

The forecasting methodology used in this forecast assumed that traffic demand on the state highways will grow at a rate equivalent to the historical traffic growth trend of each highway. To confirm that using the historical traffic growth trend in the Trending Forecast analysis was the best projection methodology, comparisons were made with the historical and projected population growth for the county.

Comparisons show that historical traffic growth rates on most of the rural sections of the state highways in the county are higher than the historic and projected population growth rates for the county. (This is the case even if population projections are adjusted upward to the new county estimates.) Therefore, it was decided that the most appropriate growth rates to project future traffic are those rates which were calculated from the historic traffic growth and not those rates which were calculated from the historic and future population forecasts. Using the same linear regression analysis used to calculate the historic growth rate of traffic, forecasts were made for the years 1998 through 2018. On the urban sections of the state highways, more consideration was given to the historic and projected population growth rates in the individual urban areas. For a detailed description of the traffic forecasts on the urban sections of the state highways, refer to the TSPs for the individual cities.

It is important to note that using the historical growth trends assumes that future traffic patterns will remain consistent with historical patterns, without consideration of future planned developments.

The forecast future traffic volumes and total growth from 1996 to 2018 are shown in Table 5-4.

[2] ODOT *Transportation System Planning Guidelines*, August 1995, p. 29.

TABLE 5-4
FORECAST TRAFFIC VOLUMES AND TOTAL GROWTH ON STATE HIGHWAYS

Location	1996 ADT (vehicles/day)	2018 ADT (vehicles/day)	Total Growth 1996-2018
I-82			
OR/WA border	12,700	19,340	52.3%
0.30 miles south of US 730	6,300	9,595	52.3%
0.30 miles north of I-84	7,400	14,240	92.4%
I-84			
West of I-82	8,500	21,100	148.3%
Stanfield to Pendleton	11,500	28,510	148.3%
East of the Umatilla-Mission Hwy	6,800	12,700	86.4%
US 30			
West I-84 terminus	4,100	4,890	19.2%
Pendleton urban area	15,700	18,710	19.2%
East I-84 terminus	1,600	3,125	95.3%
US 395 *(Pendleton-John Day Hwy)*			
Pendleton – I-84 undercrossing	22,400	28,250	26.1%
Pendleton – south city limits	6,700	8,450	26.1%
Between OR 74 and OR 244 junctions	800	1,250	55.9%
US 395 *(Umatilla-Stanfield Hwy)*			
Hermiston – 0.01 miles south of Jennie Avenue	20,500	34,540	68.5%
Stanfield – north city limits	8,540[(1)]	13,660[(2)]	60.0%[(3)]
Stanfield – north of I-84	8,600[(1)]	13,760[(2)]	60.0%[(3)]
US 730			
Umatilla/Morrow Co. line	5,700	9,300	63.2%
0.50 miles east of I-82 (Umatilla urban area)	9,700	15,825	63.2%
Umatilla east city limits	3,900	4,760	22.1%
OR/WA border	2,300	2,805	22.1%
OR 207 *(Hermiston Highway)*			
0.06 miles south of US 730	3,300	6,930	110.0%
Hermiston Ave– 0.01 miles south of Orchard Avenue W.	9,800	10,890	11.1%
Hermiston south city limits to I-84 junction	4,400	4,890	11.1%
0.10 miles north of OR 207 (Lexington-Echo Hwy)	1,300	6,125	371.2%
Lexington-Echo Highway			
Umatilla/Morrow Co. line to Hermiston Hwy junction	1,250	1,385	10.6%
Hermiston Hwy junction to Echo	550	610	10.6%
Echo urban area	1,110	1,385	24.5%
Echo east city limits	590	735	24.5%
OR 37			
Pendleton north city limits	1,700	2,625	54.3%
Pendleton – 0.01 miles north of US 30	3,500	5,400	54.3%
0.01 miles west of Athena-Holdman Hwy	180	190	5.6%
OR 74			
Umatilla/Morrow Co. line	100	155	54.6%
0.10 miles west of US 395 (Pendleton-John Day Hwy)	200	310	54.6%

TABLE 5-4, Cont.
FORECAST TRAFFIC VOLUMES AND TOTAL GROWTH ON STATE HIGHWAYS

OR 11			
Pendleton – 0.40 miles north of I-84	6,500	11,190	72.2%
0.01 miles northeast of Havana-Helix Hwy	4,600	6,075	32.0%
Adams – east city limits	4,000	4,640	16.1%
Milton-Freewater – south city limits	6,300	6,865	8.9%
Milton-Freewater – north city limits	13,500	14,705	8.9%
Milton-Freewater– 0.01 miles N of Sunnyside-Umapine Hwy	14,700	21,500	46.1%(4)
OR/WA border	14,200	20,800	46.1%(4)
OR 204			
ODOT automatic recorder near Weston	1,200	1,175	48.1%
Umatilla/Union Co. line	620	905	46.2%
OR 244			
0.2 miles east of Pendleton to US 395 junction	650	1,070	64.9%
0.01 miles east of Camas Street (Ukiah)	900	1,305	45.2%
At Umatilla National Forest Boundary (MP 10.0)	320	510	59.3%
Umatilla-Mission Highway			
OR 11 junction	1,300(5)	3,055	135.0%
I-84 junction	3,700(5)	8,695	135.0%
Athena-Holdman Highway			
OR 37 to Havana-Helix Hwy	140	225	62.5%
Athena – 0.01 miles east of 3rd Street	2,700	3,525	30.6%
Athena – east city limits	2,000	2,610	30.6%
Havana-Helix Highway			
Helix to OR 11 junction	430	765	78.2%
Freewater Highway			
OR/WA border	1,400	2,015	44.0%
Milton-Freewater – north city limits	2,500	2,800	12.1%
Milton-Freewater – 0.01 miles E. of W. Main St. on Broadway St.	6,200	6,950	12.1%
Sunnyside-Umapine Highway			
OR/WA border	440	810	84.0%
0.01 miles west of OR 11 (Milton-Freewater urban area)	2,100	3,765	79.3%

(1) ADT volumes shown are taken from June 1998 ODOT traffic counts.
(2) The forecast volume shown is consistent with the Highway 395 North Corridor Study currently being prepared by OTAK, where an ADT volume of between 12,000 and 15,000 is projected for the year 2018.
(3) Total growth rate shown is for the 20-year planning period (1998-2018).
(4) Growth rate shown was established using the 20-year (1997-2017) growth rate of 41.4% identified in the Milton-Freewater/Stateline Rd Highway 11 Corridor Lane Use and Transportation Plan, David Evans and Assoc., Inc., June 1997, pp. 3-10. This growth rate was then factored into a 22 year (1996-2018) growth rate.
(5) It is expected that volumes along the Umatilla-Mission Highway will increase substantially after the cultural center and related development is completed in spring 1998.

Source: ODOT 1976-1996 Transportation Volume Tables; compiled by DEA, Inc.

HIGHWAY SYSTEM CAPACITY

Both existing and future level-of-service (LOS) analyses were performed on the rural sections of state highways in Umatilla County. The future LOS analysis was performed for the year 2018 by applying the overall growth expected during the 1996 to 2018 forecast period to the 1996 traffic volumes. The traffic operation of mainstream traffic along rural freeway sections, two-lane highway sections, and signalized

intersections were determined using the 1994 Highway Capacity Software. This software is based on the *1994 Highway Capacity Manual, Special Report 209,* published by the Transportation Research Board. The traffic operation of rural unsignalized intersections was determined using the 1985 Highway Capacity Software which is based on the *1985 Highway Capacity Manual, Special Report 209,* published by the Transportation Research Board.

Freeway Operations

Analysis of freeway segments is based on traffic volumes and composition (i.e., percent trucks), lane widths, lateral clearance between the edge of the travel lane and the nearest roadside or median obstacle or object influencing traffic behavior, and driver population (i.e., regular and familiar users of the facility). Table 5-5 compares freeway level of service operations under average and summer conditions for the 1996 and future 2018 periods.

All rural segments of the freeways in Umatilla County are expected to operate at LOS B (0.49-0.59 v/c) or better during year 2018 average and summer conditions except for the segment of I-84 between Stanfield and Pendleton which is expected to operate at LOS C (0.60-0.69 v/c) under both future average and summer conditions.

TABLE 5-5
SUMMARY OF FUTURE RURAL FREEWAY OPERATIONS

Location	Level of Service for Average Daily Conditions (v/c)		Level of Service for Peak Summer Conditions	
	1996	2018	**1996**	**2018**
I-82				
OR/WA border	A (<0.48)	B (0.49-0.59)	B (0.49-0.59)	B (0.49-0.59)
0.30 miles south of US 730	A (<0.48)	A (<0.48)	A (<0.48)	A (<0.48)
0.30 miles north of I-84	A (<0.48)	A (<0.48)	A (<0.48)	B (0.49-0.59)
I-84				
West of I-82	A (<0.48)	B (0.49-0.59)	A (<0.48)	B (0.49-0.59)
Stanfield to Pendleton	A (<0.48)	C (0.60-0.69)	A (<0.48)	C (0.60-0.69)
East of the Umatilla-Mission Hwy	A (<0.48)	A (<0.48)	A (<0.48)	B (0.49-0.59)

Two-Lane and Multi-Lane Highway Operations

The two-lane and multi-lane highway peak hour analyses indicate that all but one of the highway segments analyzed operated at level-of-service C (0.60-0.69 v/c) or better in 1996, while all but seven are expected to operate at LOS C (0.60-0.69 v/c) or better under 2018 peak hour future traffic volumes. Eleven of the 27 two-lane rural highway sections analyzed are expected to experience decreased LOS over the 20-year planning horizon. Total traffic growth along the analyzed rural highway locations is expected to range from a low of 5.6 percent along OR 37 just west of the Athena-Holdman Highway to a high of 371 percent along OR 207 (Hermiston Highway) just north of the Lexington-Echo Highway junction. The median total 20-year growth of the analyzed sections is expected to be nearly 56 percent. The results of the two-lane and multi-lane highway analyses are shown in Table 5-6.

Unsignalized Operations at Highway Intersections

Unsignalized peak hour intersection analyses were performed at 10 rural highway intersections in Umatilla County for both the existing and future conditions.

In general, the unsignalized intersections on the rural sections of the state highways in Umatilla County are expected to continue to operate very well throughout the 20-year planning period. All but two intersection movements are expected to operate at LOS B (0.49-0.59 v/c) or better under peak hour future year 2018 traffic volumes. The results of the unsignalized intersection analyses are shown in Table 5-7.

TABLE 5-6
SUMMARY OF FUTURE OPERATIONS ON RURAL SECTIONS OF TWO-LANE AND MULTI-LANE HIGHWAYS

Location	Two-Way or Multi-Lane Highway Section	Level of Service (v/c) for 1996 Peak Hour Conditions	Level of Service (v/c) for 2018 Peak Hour Conditions
US 30			
West I-84 terminus	Two-Way	C (0.60-0.69)	D (0.74-0.83)
East I-84 terminus	Two-Way	B (0.49-0.59)	C (0.60-0.69)
US 395 *(Pendleton-John Day Hwy)*			
OR 74 and OR 244 junctions	Two-Way	A (<0.48)	B (0.49-0.59)
US 730			
Umatilla/Morrow Co. line	Two-Way	D (0.74-0.87)	E (0.84-0.97)
OR/WA border	Two-Way	B (0.49-0.59)	B (0.49-0.59)
OR 207 *(Hermiston Highway)*			
0.06 miles south of US 730	Two-Way	C (0.60-0.69)	D (0.74-0.83)
0.10 miles north of OR 207 (Lexington-Echo Hwy)	Two-Way	B (0.49-0.59)	D (0.74-0.83)
OR 207 *(Lexington-Echo Highway)*			
Umatilla/Morrow Co. line to Hermiston Hwy junction	Two-Way	A (<0.48)	A (<0.48)
Hermiston Hwy junction to Echo west city limits	Two-Way	A (<0.48)	A (<0.48)
OR 37			
Pendleton north city limits	Two-Way	B (0.49-0.59	B (0.49-0.59)
0.01 miles west of Athena-Holdman Hwy	Two-Way	A (<0.48)	A (<0.48)
OR 74			
Umatilla/Morrow Co. line	Two-Way	A (<0.48)	A (<0.48)
0.10 miles west of US 395 (Pendleton-John Day Hwy)	Two-Way	A (<0.48)	A (<0.48)
OR 11			
0.01 miles northeast of Havana-Helix Hwy	Two-Way	C (0.60-0.69)	C (0.60-0.69)
OR/WA border	Multi-Lane	A (<0.48)	A/B (0.48-0.59)
OR 204			
ODOT automatic recorder near Weston	Two-Way	B (0.49-0.59)	B (0.49-0.59)
Umatilla/Union Co. line	Two-Way	A (<0.48)	A (<0.48)
OR 244			
0.2 mile east of Pendleton	Two-Way	A (<0.48)	B (0.49-0.59)
Umatilla National Forest Boundary (MP 10.0)	Two-Way	A (<0.48)	A (<0.48)
Umatilla-Mission Highway			
OR 11 junction	Two-Way	B (0.49-0.59)	C (0.60-0.69)
I-84 junction	Two-Way	C (0.60-0.69)	E (0.84-0.97)
Athena-Holdman Highway			
OR 37 to Havana-Helix Hwy	Two-Way	A (<0.48)	A (<0.48)
Havana-Helix Highway			
Helix to OR 11 junction	Two-Way	A (<0.48)	A (<0.48)
Freewater Highway			
OR/WA border	Two-Way	B (0.49-0.59)	B (0.49-0.59)
Sunnyside-Umapine Highway			
OR/WA border	Two-Way	A (<0.48)	A (<0.48)
0.01 miles west of Or Hwy 11	Two-Way	B (0.49-0.59)	C (0.60-0.69)

TABLE 5-7
SUMMARY OF FUTURE OPERATIONS AT CRITICAL RURAL INTERSECTIONS

Location	Movement	1996 LOS (v/c)	2018 LOS (v/c)
Lexington-Echo Highway (E-W) at OR 207 (N-S)	Westbound; Left and Right	A (<0.48)	D (0.74-0.83)
	Southbound; Left	A (<0.48)	A (<0.48)
OR 37 (N-S) at US 730 (E-W)	Northbound; Left and Right	A (<0.48)	A (<0.48)
	Westbound; Left	A (<0.48)	A (<0.48)
Athena-Holdman Highway (E-W) at OR 37 (N-S)	Westbound; Left and Right	A (<0.48)	A (<0.48)
	Southbound; Left	A (<0.48)	A (<0.48)
Sunnyside-Umapine Highway (E-W) at OR 11 (N-S)	Eastbound; Left and Right	D (0.74-0.83)	E (0.84-0.97)
	Northbound; Left	A (<0.48)	A (<0.48)
OR 204 (E-W) at OR 11 (N-S)	Westbound; Left and Right	A (<0.48)	B (0.49-0.59)
	Southbound; Left	A (<0.48)	B (0.49-0.59)
Athena-Holdman Highway (E-W) at OR 11 (N-S)	Eastbound; Left and Right	A (<0.48)	B (0.49-0.59)
	Northbound; Left	A (<0.48)	A (<0.48)
Havana-Helix Highway (N-S) at OR 11 (E-W)	Southbound; Left and Right	A (<0.48)	A (<0.48)
	Eastbound; Left	A (<0.48)	A (<0.48)
Umatilla-Mission Highway (N-S) at OR 11 (E-W)	Northbound; Left and Right	A (<0.48)	B (0.49-0.59)
	Westbound; Left	A (<0.48)	A (<0.48)
OR 74 (E-W) at US 395 (N-S)	Eastbound; Left and Right	A (<0.48)	A (<0.48)
	Northbound; Left	A (<0.48)	A (<0.48)
OR 244 (E-W) at US 395 (N-S)	Westbound; Left and Right	A (<0.48)	A (<0.48)
	Southbound; Left	A (<0.48)	A (<0.48)

Note: The level of service is shown for all evaluated movements of the unsignalized intersections.

RURAL COUNTY ROAD OPERATIONS

The analysis of future rural county roadway operations should include only the areas outside the urban boundaries of incorporated cities. Traffic operations along county roads that are within the urban areas of cities should be addressed in each city's own TSP.

Congestion is generally not an issue along most of the rural county roads, where traffic volumes are less than 1,000 vpd. Peak hour traffic operations along these roads and where they intersect lower volume roads, are at excellent levels (LOS A, <0.48 v/c). Even where daily traffic volumes range between 1,000 and 6,000 vpd, such as along the "highly important" roads depicted in Table 4-1, roadway traffic operations are still at excellent levels (LOS A, <0.48 v/c). Access to and from these "highly important" roads at intersecting minor roadways are also adequate, reaching an estimated LOS B (0.49-0.59 v/c), where peak hour minor road traffic volumes reach up to 150 vph.

Concern has been raised by ODOT officials over the traffic operations at intersections where county roads intersect state highways. The following table was developed summarizing the existing p.m. peak hour traffic operations for these types of intersections where existing and future traffic operations information was available.

TABLE 5-8
SUMMARY OF OPERATIONS AT SELECTED INTERSECTIONS
OF RURAL COUNTY ROADS AND HIGHWAYS

Location	Year of Analysis	**Critical Approach**	**LOS (v/c)**	**20-Year No Build LOS (v/c)**
Powerline Road at US 730 (Umatilla)	1997	NB	B (0.49-0.59)	D[1, 2] (0.74-0.83)
Powerline Road at I-82 SB Ramp	1997	SB	A (<0.48)	B[2] (0.49-0.59)
Powerline Road at I-82 NB Ramp	1997	NB	A (<0.48)	B[2] (0.49-0.59)
Bensel Road at US 395	1994	NA	C (0.60-0.69)	F[3] (>1.00)
Baggett Lane at US 395	1994	NA	D (0.74-0.83)	E[3] (0.84-0.87)
Joy Lane at US 395	1994	NA	D (0.74-0.83)	E[3] (0.84-0.97)
Punkin Center Road at US 395 (Hermiston)	1995	WB	D (0.74-0.83)	F[4] (>1.00)
Theater Lane at US 395 (Hermiston)	1995	WB	C (0.60-0.69)	F[4] (>1.00)
Elm Avenue at US 395 (Hermiston)	1995	EB	F (>1.0)	F[4] (>1.00)
Highland Avenue at OR 207 (Hermiston)	1995	All	B (0.49-0.59)	F[4] (>1.00)
Stateline Road at OR 11	1997	EB	D (0.74-0.83)	F[5] (>1.00)
Ferndale Road at OR 11	1997	EB	C (0.60-0.69)	E[5] (0.84-0.97)
Crockett Road at OR 11	1997	EB	C (0.60-0.69)	D[5] (0.74-0.83)
Airport Road at US 30 (Pendleton)	1996	SB	B (0.49-0.59)	F[6] (>1.00)
Old Reith Road at US 30 (Pendleton)	1996	NB	A (<0.48)	C[6] (0.60-0.69)
Southgate Place at US 395	1996	All	B (0.49-0.59)	B[6] (0.49-0.59)

(1) LOS shown is for a 6-year projection (year 2004).
(2) Hayden River Estates, Kittelson and Assoc., Inc., October 1997
(3) Hermiston-Umatilla Highway 395 Corridor Land Use/Transportation Plan, Kittelson and Assoc., Inc., June 1995
(4) Hermiston TSP, David Evans and Assoc, Inc., May 1998
(5) Highway 11 Corridor Land Use and Transportation Plan, David Evans and Assoc., Inc.
(6) Pendleton TSP, Kittelson and Assoc., Inc., Dec. 1996

CHAPTER 6: IMPROVEMENT OPTIONS ANALYSIS

As required by the Oregon Transportation Planning Rule (TPR), transportation alternatives were formulated for the Umatilla County Transportation System Plan (TSP). These potential improvements were developed with the help of county and state officials, local officials involved in city TSPs, and stakeholders in the region. Each of the transportation system improvements options was developed to address specific deficiencies, access, or safety concerns and attempt to address the concerns specified in the goals and objectives (Chapter 2).

The following list includes all of the potential transportation system improvements considered:

1. Implement Transportation Demand Management (TDM) Measures.
2. Umatilla County Roadway Improvement Projects.
3. Umatilla County Bridge Replacement Projects.
4. ODOT Modernization, Preservation, Safety, Interstate Maintenance, and Bicycle/Pedestrian Needs.
5. ODOT Bridge Replacement Needs.

The transportation system improvements evaluated in this section of the Umatilla County TSP include state highway and county road projects. **It should be noted that not all of the transportation improvement options recommended along the county and state systems have identified funding. Therefore, recommended transportation improvements cannot be considered as committed projects, but are subject to the county's and ODOT's abilities to meet these current and future needs financially.**

EVALUATION CRITERIA

The evaluation of the potential transportation improvements in Umatilla County was based on review of transportation needs assessments performed by the county and state of Oregon.

Cost was also considered in the evaluation of most of these transportation needs improvements. Costs were estimated in 1998 dollars based on preliminary alignments for each potential transportation system improvement.

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM PROJECTS

The Oregon Department of Transportation (ODOT) has a comprehensive transportation improvement and maintenance program that covers the entire state highway system. The Statewide Transportation Improvement Program (STIP) identifies all the highway improvement projects in Oregon. The STIP lists specific projects, the counties in which they are located, and their construction year.

A draft list of the 2000 to 2003 STIP projects has recently been distributed by ODOT Region 5. The list identifies 39 projects within Umatilla County. Most of these projects are located along highways under state jurisdiction, with six projects along county roads, and four projects along city roads. STIP projects scheduled for construction in the county include bridge replacements, highway preservation, modernization, and safety improvements.

Table 6-1 outlines all 39 STIP projects for the county and includes project name, length, roadway location, type of work, estimated date of construction, and cost. These projects are also shown graphically in Figure 6-1.

TABLE 6-1
2000-2003 STIP UPDATE

Project No.	Project Name	Length (Miles)	Highway or Road No.	Type of Work	Program Year	Cost
1S	Jct. Oregon-Washington Hwy Merge Lane (Pendleton)	0.20	Pendleton Hwy. (US-30)	Extend Merge Lane at Junction OR-11.	2000	$98,000
2S	West Birch Creek Bridge No. 59C900 (Pilot Rock)	0.01	SW 2nd Street	Replace Structure.	2000	$275,000
3S	10th Street – Eastgate (Pendleton)	0.43	Pendleton Hwy. (US-30)	Bridge replacement, realignment, and traffic signal installation.	2000	$13,100,000
4S	Wayside Rockfall	2.00	I-84 / US-30	Rockfall Correction.	2000	$959,000
5S	Milton-Freewater – WA State Line Signing Project	5.32	Oregon-WA Hwy. (OR 11)	Install signs.	2000	$300,000
6S	Pendleton Paving Project	13.07	US-395	Pavement Reconstruction, Guardrail, and Bridge Rail Retrofit.	2000	$7,428,000
7S	Wildhorse Creek Bridge No. 005002 (Adams)	0.01	Main Street	Replace Structure.	2001	$225,000
8S	USRS Feed Canal Bridge No. 59C212	0.07	Cooper Road (Co. Rd. #1171)	Replace Structure.	2001	$182,000
9S	Wildhorse Creek Bridge No. 59C358	0.07	McCormach Road (Co. Rd. #979)	Replace Structure.	2001	$425,000
10S	Dry Creek Bridge No. 59C535	0.16	Harris Road (Co. Rd. #697)	Replace Structure.	2001	$549,000
11S	McKay Creek Bridge No. 59C001	0.07	SW Quinney Avenue (Co. Rd. #1320)	Replace Structue.	2001	$655,000
12S	Oregon-Washington Hwy / State Line Road Traffic Signal	0.00	Oregon-WA Hwy. (OR 11)	Install traffic signal / Cooperative project with Washington DOT.	2001	$315,000
13S	Pendleton-John Day Hwy / Perkins Avenue Traffic Signal	0.00	Pendleton-John Day Hwy. (US 395)	Install traffic signal.	2001	$298,000
14S	Col. River Hwy / Umatilla-Stanfield Hwy. Traffic Signal	0.00	Umatilla-Stanfield Hwy. (US 395 / 730)	Install traffic signal.	2001	$236,000
15S	Jct. Hwy 8 – Basket Mountain Road Section	10.50	Weston-Elgin Hwy. (OR 204)	Pavement Reconstruction, Guardrail Improvements, & Minor Realignment.	2001	$3,857,000
16S	Oregon-Washington / Athena Holdman Hwy Intersection		Oregon-WA Hwy. (OR 11)	Reconstruct Intersection.	2001	$412,000
17S	McKay Creek Bridge No. 8050	0	Pendleton-John Day Hwy. (US 395)	Scour Protection.	2001	$136,000
18S	Umatilla River Bridge No. 59C111 (Pendleton)		8th Street (Co. Rd. #983)	Replace Structure.	2002	$1,080,000
19S	Pine Creek Bridge No. 59C542	0.07	Johnson Road (Co. Rd. #678)	Replace Structure.	2002	$340,000
20S	Columbia River Hwy Variable Message Sign (MP 203.2)	0.00	Columbia River Hwy. (US 730/ 395)	Variable Message Sign.	2002	$240,000

TABLE 6-1, Cont.
2000-2003 STIP UPDATE

21S	Pendleton Variable Message Sign (Westbound)	0.00	(I-84 / US-30)	Variable Message Sign.	2002	$240,000
22S	Hermiston Hwy @ Highland Avenue Traffic Signal	0.00	Hermiston Hwy. (OR 207)	Install traffic signal.	2002	$261,000
23S	SE 4th Street (Hermiston) - I-84 Section	6.87	Umatilla-Stanfield Hwy. (US 395)	Pavement Reconstruction.	2002	$2,722,000
24S	McKay Dam - Pilot Rock	8.78	Pendleton-John Day Hwy. (US 395)	Pavement Preservation	2002	$2,720,000
25S	Cape Horn Summit - Albee Road Section	7.95	Pendleton-John Day Hwy. (US 395)	Pavement Reconstruction and Cut Slope Excavation.	2002	$4,223,000
26S	Milton-Freewater Median Section	2.70	Oregon-WA Hwy. (OR 11)	Install Raised Median.	2002	$621,000
27S	NW Elm Ave. - NW Harding Ave. Median Section	5.94	Umatilla-Stanfield Hwy. (US 395)	Install Raised Median.	2002	$1,246,000
28S	Hermiston Hwy @ Highland Avenue Section	N/A	Hermiston Hwy. (OR 207)	Reconstruct intersection.	2002	$315,000
29S	I-84 Overpass Screening	70.88	I-84	Overpass Screening.	2002	$273,000
30S	Tollgate Section	11.30	Weston-Elgin Hwy. (OR 204)	Overlay, widening, minor realignment, safety upgrades.	2003	$12,107,000
31S	East 4th Street Extension (Hermiston)	0.50	East 4th Street	Extension of East 4th Street from Elm Avenue to Theater Lane.	2003	$832,000
32S	20th Street Extension (Pendleton)	0.40	Pendleton Hwy. (US-30)	Extend 20th Street to US-30 (Westgate), widening, and bridge work.	2003	$8,774,000
33S	Pendleton-John Day Hwy / Jct. I-84 Ramp (WB) Traffic Signal	0.00	Pendleton-John Day Hwy. (US 395)	Install traffic signal.	2003	$265,000
34S	Jct. Hwy 2 – Elm Avenue Section	5.50	Hermiston Hwy. (OR 207)	Pavement Preservation and Guardrail Improvements.	2003	$1,197,000
35S	Uxing NE 8th (Eastside) Bridge No. 6979A	0	Oregon-Washington Hwy. (OR 11)	Deck Overlay.	2003	$304,000
36S	Umatilla River (Ball Park) Bridge No. 2117	0	(US-30)	Bridge Replacement.	2003	$3,009,000
37S	Umatilla River Bridge No. 00624A	0	Columbia River Hwy. (US 730)	Bridge Replacement.	2004	$3,069,000
38S	Oxing @ Cold Springs Bridge No. 1637A	0	Columbia River Hwy. (US 730)	Bridge Rail.	2004	$136,000
39S	Umatilla River (Hinkle) Bridge No. 2318A	0	Hermiston Hwy. (OR 207)	Overlay and Bridge Rail.	2004	$386,000
					Total:	**$73,810,000**

IMPROVEMENT OPTIONS EVALUATION

Through the transportation analysis and input provided from the public involvement program, multiple improvement projects were identified. These options included replacing bridges, constructing new and reconstructing existing roadways, and providing improved pedestrian and bicycle facilities.

Option 1. Implement Transportation Demand Management (TDM) Strategies

One of the goals of the Oregon Transportation Planning Rule (TPR) is to reduce the reliance on the automobile. The TPR recommends that counties evaluate TDM measures as part of their TSPs. These strategies are designed to change the demand on the transportation system by providing facilities for other modes of transportation, implementing carpooling programs, and developing other transportation measures within the community, such as staggering work schedules at local businesses. These types of TDM strategies may be more effective in a large urban city, but some strategies can still be useful in the rural and urban areas of Umatilla County.

There are two types of TDM measures that would be useful in Umatilla County. One is the development of facilities for alternative modes of transportation. This would include paved or improved shoulders, paths, sidewalks, and bike lanes that would handle pedestrians and bicyclists. Another TDM measure would be to implement a countywide carpooling program.

Umatilla County can implement TDM strategies by changing its road standards. (This is discussed in more detail in Chapter 9.) The county should require all future road improvement projects to include the addition of some sort of pedestrian facility, such as new sidewalks or walkways, which will effectively separate pedestrians from motorized traffic. All new road improvement projects should consider providing bikeways or improved shoulders, depending on traffic volumes.

Implementing a countywide carpool program could also be effective. Because intercity commuting is a factor in Umatilla County, residents who live in Umatilla County and residents who live in other cities and rural areas should be encouraged to carpool with a fellow coworker or someone who works in the same area.

Cost

No direct costs for revising road standards have been determined. However, the cost for several types of facilities which promote walking and biking in the county are summarized below (1998 dollars).

- Paved Shoulders – Shoulders constructed along both sides of a road that are six feet in width would cost around $36 per linear foot of road. This would include four inches of asphalt and nine-inches of aggregate.
- Multi-Use Paths – A multi-use path ten feet in width would cost around $16 per linear foot. This includes two inches of asphalt and four inches of aggregate. (Example: Along the abandoned NPRR rail line between Milton-Freewater and Washington State.)
- Concrete Sidewalks – The estimated cost to install new sidewalks on one side of an existing road is around $25 per linear foot. This includes a five-foot wide walkway composed of four inches of concrete and two inches of aggregate.
- Bike Lanes – The cost to install bike lanes on both sides of an existing road is around $45 per linear foot. This cost includes widening the roadway by five feet on both sides, installing curbs, using a fill composed of four inches of asphalt and nine inches of aggregate, and placement of an eight-inch painted stripe.

These costs are for stand-alone improvements. The costs can be reduced by adding these facilities when implementing needed roadway improvements throughout the Umatilla County area.

Costs associated with a countywide carpool program were not determined as part of this plan.

Recommendation

Although the primary goal of TDM measures is to reduce the number of vehicle trips made within the county, especially during peak periods, road capacity for automobiles and trucks is generally not an issue in Umatilla County. However, providing adequate facilities for pedestrians and bicyclists increases the livability of urban and rural areas of the county, and improves driver, pedestrian, and bicycle safety. With more emphasis on walking or biking in the county, conditions such as air quality and noise levels would be improved, as well. Therefore, the TDM strategies summarized above are recommended.

Option 2: Umatilla County Roadway Improvement Projects

In 1998, the Umatilla County Roadway Department devised a roadway improvement plan for the preservation and modernization of existing county roads as well as construction of new roadways. A total of 22 projects were identified. These projects are summarized below in Table 6-2 and illustrated in Figure 6-2.

Many of the roadway improvements identified in this plan were devised from a Needs Assessment made by county officials for roadways under direct control of the county. Three projects in this plan were extracted from recommended road improvement projects identified in the *Pendleton TSP* and *Hermiston TSP* and the completed *Highway 11 Corridor Land Use and Transportation Plan*. These projects were selected through coordination with other city and/or state officials who have an expressed interest in or have shared jurisdiction over these projects.

TABLE 6-2
UMATILLA COUNTY ROADWAY IMPROVEMENT PROJECTS

Map No.	Project Name	County Rd. No.	Location	Miles	Type of Work	Cost ($ x 1,000)
1R	Key Rd.	682	Hwy 11 to Water St.	2	Widen, Align, Shoulder and Pave	$300
2R	Reith Rd.[(1)]	1300	I-84 to West end of Reith	1.8	Align, Widen, Shoulder and Pave	$250
3R	Craig Rd.[(2)]	1259	Spearman Rd. to Hwy 730	1.3	Reconstruct and Pave	$300
4R	N. Ott Rd.	1261	Punkin Center Rd. to Bensel Rd.	2	Reconstruct and Pave	$450
5R	Bensel Rd.	1268B	N. Ott to Hwy 395	2.6	Reconstruct and Pave	$600
6R	Ballou Rd. [(3)]	518	Ballou Rd. and Hwy 11 Intersection	NA	Reconstruct and Raise Intersection	$350
7R	Adams Rd.	973	Hwy 11 at Pendt. to Adams	11.8	Align, Widen, Shoulder and Pave	$1,800
8R	SW Hailey Ave[(4)]	1305	SW 30th to Kirk Ave on SW 37th	0.5	Curb, Gutter, Sidewalk and Pave	$500
9R	Sunquist Rd.	512	Intersection with Sunquist and Triangle Sta.	NA	Realign intersection and Widen	$250
10R	Gettman Rd.	1196	Hwy 207 to Hermiston Hinkle Rd.	1	Align, Widen, Repave and Shoulder	$225
11R	Milton Cemetery Rd.	564MC	M-F City Limits to Whiteman Rd.	4	Align, Widen, Shoulder and Pave	$900
12R	Emigrant Rd.	937	Poverty Flat to Mission Rd	9	Repave and Shoulder	$1,400
13R	Townsend Rd.	1217	Hwy 207 to E. Loop Rd.	0.9	Reconstruct and Pave	$300
14R	Couse Creek Rd.	613	W.W. River Rd. to Blue Mtn. Sta. Rd.	2.8	Align, Widen, Shoulder and Pave	$750
15R	S. Ott Rd.	1211	Hwy 207 to E. Loop Rd.	1.1	Reconstruct and Pave	$300
16R	Reith Rd.	1300	Barnhart Rd. to Nolin	9.6	Align, Widen, Shoulder and Pave	$1,500
17R	Kirk Rd.	648	Weston City Limits to Hwy 204	3.5	Widen, Align, Shoulder and Pave	$600
18R	Highland Ext.	1198	S. Edwards to Canal Rd.	0.75	Reconstruct and Pave	$200
19R	Punkin Center Rd.[(5)]	1250	Sunshine Lane West to Powerline Rd.	2	New Construction with Bridge	$14,800
20R	Sagebrush Rd.	1269	Bowdin Lane to Hwy 730	1	New Construction	$750
21R	Powerline Rd.	1225	I-82 South to Westland Rd.	2.5	Widen and Repave	$1,200
22R	Westland Rd.	1215	Intersection w/Lamb, Walker and Westland	NA	Align and Reconstruct Intersection	$250
					Total	**$27,975,000**

Notes: (1) The project has already been completed.
(2) This project is currently under construction (to be completed in 1999).
(3) Recommended in the Highway 11 Corridor Land Use and Transportation Plan, David Evans and Assoc., Inc., June 1997, pg. 5-2.
(4) Recommended in the Pendleton TSP, Kittelson & Assoc., Inc., December 26, 1996, pg. 9-19.
(5)Recommended in the Hermiston TSP, David Evans and Assoc., Inc., May 30, 1997, pg. 7-17.

Many county related projects recommended in the aforementioned city TSPs and Corridor Plan are not included in the county's roadway improvement plan. It is recommended that the city, county, and state public officials coordinate efforts to ensure implementation of these projects over the next 20 years.

Recommendation

Since the projects identified in the county roadway improvement plan reflect the transportation needs for county roads, they are recommended.

Option 3: Umatilla County Bridge Replacement Projects

In 1998, the Umatilla County Roadway Department also devised a bridge replacement plan for various bridges under county jurisdiction. Many, but not all these bridges, have been identified as being structurally deficient, functionally obsolete, or having a sufficiency rating less than 55, as determined from the state bridge inspection inventory.

As mentioned earlier, there are three mutually exclusive elements used to rate bridge conditions in the state bridge inspection inventory: structural deficiency, functional obsolescence, and sufficiency rating. 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 deck geometry, under-clearances, approach roadway alignment, structural condition, or waterway adequacy. The sufficiency rating is a complex formula which 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. Sufficiency ratings of 55 or less indicate an insufficiency. Bridges with ratings under 50 may be nearing a structurally deficient condition.

County-Identified Bridge Projects

In 1998, a total of 35 projects were identified by the county. The estimated timeline to replace these bridges is over the next 10 years, with two to four bridges being replaced each year. These projects are summarized below in Table 6-3 and illustrated in Figure 6-3. Projects are assigned a unique project number (#B) to make a connection between the table and figure. As indicated in the table, one project has already been completed with three others scheduled for construction this year (1999).

TABLE 6-3
UMATILLA COUNTY BRIDGE REPLACEMENT PROJECTS

Project No.	Bridge No.	Bridge Location	Length (feet)	Width (feet)	Estimated Year of Replacement	Funding Source	Estimated Cost[3]
1B[1]	59C562	Gerking Flat	25	25	1998	County	$43,000
2B	59C607	West Fork Greasewood	20	21	1998	County	$33,900
3B	59C274	Hermiston Canal	15	25	1998	County	$25,800
4B[2]	59C329	South Coyote Creek	18	24	1999	County	$30,800
5B	59C420	Drain Ditch	7	20	1999	County	$11,800
6B[2]	59C616	Hagen Creek	16	23	1999	County	$27,300
7B	59C169	Wildhorse Creek	13	20	2000	County	$22,000
8B	59C178	S. Fork Juniper Canyon	21	21	2000	County	$35,500
9B	59C203	Stanfield	33	24	2001	County	$56,500
10B	59C212	Furnish Ditch	30	24	2001	County	$51,300
11B	59C240	Southeast 9th	18	24	2001	County	$30,800
12B	59C284	Maxwell Ditch	20	21	2002	County	$33,900
13B	59C325	Emigrant Butte/Hunt Ditch	28	24	2002	HBRR or County	$47,900
14B	59C457	Buchanon/Birch Cr. Rd.	20	24	2002	County	$34,300
15B	59C473	Irrigation Ditch/Cobb Rd.	8	22	2002	County	$13,600
16B[2]	59C551	Frog Flat/Dry Creek	20	24	2003	County	$34,300
17B	59C727	Gibbon/Umatilla River	104	23	2003	HBRR/County	$189,100
18B	59C754	Barnhart	8	24	2003	County	$13,700
19B	59C603	Greasewood Creek	25	24	2003	HBRR/County	$42,800
20B	59C164	Vansycle Canyon	25	17	2004	HBRR/County	$41,800
21B	59C358	Rutten/Wildhorse Creek	71	20	2004	HBRR/County	$127,800
22B	59C206	Furnish Ditch	20	19	2004	County	$33,700
23B	59C205	South Ash/Feed Canal	60	30	2004	HBRR/County	$111,600
24B	59C194	Stanfield Drain	36	21	2005	HBRR/County	$60,900
25B	59C675	South Fork Cold Springs	24	21	2005	HBRR/County	$40,600
26B	59C680	Stanfield Drain	25	21	2005	HBRR/County	$42,400
27B	59C067	Boylen/W. Birch Creek	20	24	2005	County	$34,300
28B	59C490	Fir Creek	19	22	2006	County	$32,300
29B	59C422	Dry Creek	63	21	2006	HBRR/County	$113,700
30B	59C602	Greasewood Creek	20	24	2006	County	$34,300
31B	59C207	Furnish Ditch	20	19	2006	County	$33,700
32B	59C069	Rieth/Umatilla River	245	22	2007	HBRR/County	$443,900
33B	59C455	Milton Nursery/W-W River	225	24	2007	HBRR/County	$410,400
34B	59C378	Thornhollow Cattle Pass	20	24	2007	County	$34,300
35B	59C327	Hunt Ditch	40	20.5	2007	HBRR/County	$67,600
						Total	**$2,441,600**

Notes:

(1) Project has already been completed.

(2) Project is scheduled for construction this year (1999).

(3) Estimated cost includes bridge removal and new construction costs. Construction cost estimates assumed at least a 28-foot bridge width to account for a sidewalk on at least one side of bridge.

The total cost to remove and replace the existing bridges was determined using 1997 square foot construction cost estimates, supplied by ODOT, which were taken from the latest prospectus completed for the federal Highway Bridge and Roadway Rehabilitation (HBRR) fund. These estimates assume a cost of $6 per square foot for bridge removal, and $56 to $60 per square foot for bridge construction, depending on the bridge span. Existing bridge widths and lengths were used when calculating bridge construction costs.

Other Deficient Bridges/Potential Projects

The current Umatilla roadway department's bridge replacement program does not include a number of county bridges identified as deficient in the state bridge inspection program. This is partly because the planning period for the county's bridge replacement program only covers a ten year period. This plan recommends that the Umatilla County roadway department extend its program to cover a 20-year period to allow for short- and long-term planning. An extended planning period would permit the department to expand its bridge replacement project list to include needed projects.

The county's project list should be expanded to include, at least, the bridges identified as being structurally deficient and functionally obsolete. (Replacement of structurally deficient and functionally obsolete bridges should receive higher priority than replacement of bridges with low sufficiency ratings, less than 55.)

Eight county bridges were identified in the state bridge inspection inventory as being structurally deficient which were not included in the ODOT 2000-2003 STIP Update or the county's list of bridge replacement projects. Table 6-4 describes each of these bridges and includes replacement cost estimates. The location of these bridges are illustrated in Figure 6-3 and are identified by a project number (#D) unique to their condition.

TABLE 6-4
REPLACEMENT OF STRUCTURALLY DEFICIENT BRIDGES

Project No.	Bridge No.	Bridge Location	Length (feet)	Width (feet)	Estimated Cost*
1D	59C119	South Juniper Canyon over South Fork Juniper Canyon	25	21.6	$42,500
2D	59C145	South Fork Cold Springs Road over South Fork Cold Springs	42	22.8	$71,600
3D	59C025	Stage Gulch Road over US Feed Canal	65	28.0	$120,100
4D	59C209	Bartley Road over US Feed Canal	49	18.5	$82,300
5D	59C213	Loop Road over Stanfield Drainage Ditch	25	22.2	$42,500
6D	59C401	Wild Horse Road over Wild Horse Creek	26	19.8	$43,900
7D	59C421	Sams Road over Dry Creek	42	18.7	$70,600
8D	59C529	County Road 708 over Pine Creek	40	20.6	$67,700
				Total:	**$541,200**

Note: *Estimated cost includes bridge removal and new construction costs. Construction cost estimates assumed at least a 28-foot bridge width to account for a sidewalk on at least one side of bridge.

There are 16 more bridges which were identified as being functionally obsolete in the state bridge inspection inventory that were also not included in the ODOT 2000-2003 STIP Update or the county's list of bridge replacement projects. Table 6-5 presents these bridges along with their replacement costs. The location of these bridges are also illustrated in Figure 6-3 and were assigned a project number (#F) unique to their condition.

TABLE 6-5
REPLACEMENT OF FUNCTIONALLY OBSOLETE BRIDGES

Project No.	Bridge No.	Bridge Location	Length (feet)	Width (feet)	Estimated Cost[1]
1F	59C065	Yellow Jacket Road over West Birch Creek	35	20.0	$59,100
2F	59C093	Nolin Bridge over the Umatilla River	144	18.5	$257,900
3F	59C099	Cunningham Road over the Umatilla River	135	20.2	$243,200
4F	59C198	Townsend Road over "A" Line Canal	28	19.0	$47,100
5F	59C227	SE 10th Street over "A" Line Canal	28	16.2	$46,600
6F	59C231	North Ott Road over "A" Line Canal	31	20.1	$52,400
7F	59C356	Wild Horse Road over Wild Horse Creek	82	20.2	$147,700
8F	59C440	MF Cemetery Road over the Walla Walla River	158	27.1	$291,100
9F	59C483	Birch Creek Road over Walla Walla River	112	22.8	$203,500
10F	59C568	County Road 825 over Wild Horse Creek	59	22.0	$100,300
11F	59C703	Thiesen Road over Furnish Ditch	31	24.0[2]	$73,100
12F	59C705	Rieth Road over US Feed Canal	37	22.8	$63,100
13F	59C706	Rieth Road over Furnish Ditch	25	22.4	$42,600
14F	59C708	Rieth Road over Furnish Ditch	28	22.3	$47,700
15F	59C721	Rieth Road over Furnish Ditch	23	22.5	$39,200
16F	59C752	Rieth Road over Furnish Ditch	30	22.3	$51,100
				Total:	**$1,765,900**

Note: (1) Estimated cost includes bridge removal and new construction costs. Construction cost estimates assumed at least a 28-foot bridge width to account for a sidewalk on at least one side of bridge.
(2) The estimated replacement width of this bridge is 40 feet.

Furthermore, there are 17 additional bridges which have sufficiency ratings less than 55 that were also not included in the ODOT 2000-2003 STIP Update or the county's list of bridge replacement projects. A description of these bridges is as follows:

- Bridge #59C018 on County Road 1061 over Dry Gully
- Bridge #59C081 on County Road 1411 over Bear Creek
- Bridge #59C117 on County Road 983 over North Fork Cold Spring
- Bridge #59C222 on County Road 1201 over Furnish Ditch
- Bridge #59C226 on County Road 1219 over Maxwell Ditch
- Bridge #59C229 on County Road 1217 over IRR Canal
- Bridge #59C241 on County Road 1251 over IRR Canal
- Bridge #59C264 on County Road 1250 over North Canal
- Bridge #59C280 on County Road 1196 over Maxwell Ditch
- Bridge #59C286 on County Road 1191 over "A" Line Canal
- Bridge #59C287 on County Road 1187 over Maxwell Ditch
- Bridge #59C312 on County Road 1231 over Westland A Canal
- Bridge #59C407 on County Road 641 over Hay Creek
- Bridge #59C572 on County Road 844 over Greasewood Creek
- Bridge #59C581 on County Road 814 over Sand Hollow

- Bridge #59C628 on County Road 953 over Greasewood Creek
- Bridge #59C726 on IRR River Road over Meacham Creek.

Recommendation

It is recommended that the structurally deficient and functionally obsolete bridges listed above be added to the county's bridge replacement program and that the plan be expanded to cover a 20-year time period. The county should also consider options for improving bridges with low sufficiency ratings.

Option 4: ODOT Modernization, Preservation, Safety, Interstate Maintenance, and Bicycle/Pedestrian Needs

ODOT Region 5 has formulated a needs assessment document for all interstate, state and US highways in Umatilla County. This document identifies and describes needed projects dealing with the modernization, preservation, and safety of roadways and bridges. It also includes interstate highway maintenance needs and bicycle/pedestrian needs for highways in the county.

Recommendation

It is recommended that the ODOT needs assessment projects summarized in Appendix B along with the potential roadway and bridge improvement projects identified in Options 2 and 3, be evaluated and prioritized through a coordinated effort between ODOT and county officials. This process will also involve earmarking projects for future STIP submittal.

SUMMARY

Table 6-6 summarizes the recommendations of the road system modal plan based on the evaluation process described in this chapter. Chapter 7 discusses how these improvement options fit into the modal plans for Umatilla County.

TABLE 6-6
TRANSPORTATION IMPROVEMENT OPTIONS: RECOMMENDATION SUMMARY

Option	Recommendation
1. Implement Transportation Demand Measures	• Implement
2. Umatilla County Roadway Improvement Projects	• Implement
3. Umatilla County Bridge Replacement Projects	• Implement
4. ODOT Modernization, Preservation, Safety, Interstate Maintenance, and Bicycle/Pedestrian Needs.	• Implement; ODOT has jurisdiction but project should be coordinated with county or affected cities.
5. ODOT Bridge Needs	• Implement; ODOT has jurisdiction but project should be coordinated with county or affected cities.

CHAPTER 7: TRANSPORTATION SYSTEM PLAN

The purpose of this chapter is to provide detailed operational plans for each of the transportation systems within Umatilla County. The Umatilla County TSP covers all the transportation modes that exist within the county. This is typically the area outside the urban growth boundaries (UGB's) of incorporated cities, the Umatilla National Forest boundaries, and the Confederated Tribes of the Umatilla Indian Reservation. Components of the Umatilla County TSP include roadway classification and design standards, access management recommendations, transportation demand management measures, modal plans, and a system plan implementation program.

Some areas located on the Umatilla Indian Reservation and within the UGB's of specific cities are addressed in this plan. Located in the modal plans section of this report, there are recommended transportation improvements, either identified previously in this plan or taken from a related study, which include a facility under county jurisdiction and require coordination between the county and another jurisdiction. Depending on the nature of each improvement project, the county may be responsible for providing all, none, or a portion of the funding necessary to implement each project. In some cases, coordination may consist of the county relinquishing ownership of a roadway to another jurisdiction with all subsequent improvements being the responsibility of that jurisdiction.

It should be noted that the Umatilla County TSP is not a plan for any specific city or the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). ODOT will be working with representatives from the CTUIR to develop a transportation system plan for the reservation. It should also be noted that the Joint Management Agreements the county has with the cities within the County address transportation needs as well as jurisdictional issues. The individual City TSPs apply to lands within their Urban Growth Boundaries and the County TSP applies to lands outside of established UGBs.

Previous Road Functional Classifications and Road Design Standards

At this time, Umatilla County has no official road functional classifications for roadways under county jurisdiction. However, existing road design standards do exist for county roads. Ordinance 87-2 was adopted in 1987 and has designations for urban, suburban, and rural county roads. Urban roads are classified as either arterials, collectors, minor roads, service and industrial roads, or cul-de-sacs. Suburban roads are classified as either arterials, collectors, or minor roads. Rural roads are classified as either recreational or local roads. Table 7-1 presents the existing design criteria for each of the county roadway standards which are to be replaced with the standards displayed in Table 7-2.

TABLE 7-1
PREVIOUS COUNTY ROAD DESIGN STANDARDS

Road Classification	Minimum Right of way	Minimum Surface Width	Curbing	Sidewalks
Urban Areas:				
Arterials	50 feet	36 feet	Yes	5 feet (both sides)
Collectors	50 feet	34 feet	Yes	5 feet (both sides)
Minor Streets	50 feet	32 feet	Yes	5 feet (both sides)
Service and Industrial Streets	80 feet	42 feet	Yes	5 feet (both sides)
Cul-de-Sacs	60 feet (Bulb Radius - 50 feet)	32 feet (Bulb Radius - 40 feet)	Yes	5 feet (both sides)
Suburban Areas:				
Arterial	60 feet	32 feet	No	No
Collector	60 feet	30 feet	No	No
Minor Street	60 feet	28 feet	No	No
Rural Areas:				
Recreation Roads[(1)]	60 feet	22 feet	No	No
Local Roads	60 feet	32 feet (unpaved)	No	No

Note: (1) A second option includes a 28-foot wide gravel road with a 60-foot ROW.

Future Road Functional Classifications and Road Design Standards

The development of the Umatilla County TSP provides the county with an opportunity to review and revise the functional classification of rural county roads and corresponding road design standards. These standards will ultimately be adopted as part of this plan.

It should be noted that the road functional classifications and road design standards identified in this section of the Umatilla County TSP apply only to the sections of county roads, *which lie outside the urban growth boundaries of incorporated cities*. Within the urban growth boundaries of cities, adopted city street classifications and design standards are to be employed, even along county-maintained roads. Although the outlying areas in many cities may presently have a rural appearance, these lands will ultimately be part of the urban area. Retrofitting rural roads in these areas to urban standards in the future is expensive and controversial. Therefore, an attempt should be made to bring them up to a more acceptable urban standard should always be considered, especially when development occurs.

The functional classification of a road system relates the design of a roadway to its function. The function is determined by operational characteristics such as travel demand, road capacity, and the operating speed of the roadway. Based on the existing and anticipated future use of the state and county roadway system, and the professional judgment of Umatilla County roadway department officials, a functional road classification system for the county has been devised. This system is shown graphically in Figure 7-1.

The new county road classification system includes four road classes. All arterials in Umatilla County are interstate, national, and state highways, part of the state highway system. Rural county roads are classified as either rural major collectors, rural minor collectors, or rural local roads and are assigned a County Road Number by the County Public Works Department. The rural major and minor collector roads are listed below in Table 7-2.

Other roads not identified as an arterial or collector, and are not located inside the urban growth boundary of a city, are **private roads or public rights of way. These roads are not County Roads** and are not

maintained by the County. Umatilla County allows for the establishment of easements to provide legal access to parcels according to partitioning standards.

TABLE 7-2
FUNCTIONAL CLASSIFICATION OF ROADS IN UMATILLA COUNTY

Major Collectors		Minor Collectors	
Co. Rd. Number	**Road Names**	**Co. Rd. Number**	**Road Names**
528	Appleton Rd.	500	Stateline Rd.
575	Eastside Rd. (Milton-Freewater UGB to Birch Creek Rd.)	517	Edwards/County Rd.
610	Walla Walla River Rd.	550	Birch Creek Rd./Hood Rd.
900	Mission Rd., Cayuse Rd, Bingham Rd.	625	Winesap Rd.
1000	Feedville Rd., Despain Gulch Rd.	643	Winn/Stein Rd.
1075	Tutilla Creek Rd., Shaw Rd.	650	Prunedale Rd., Stephens Rd., County
1190	North Loop Rd., East Loop Rd.	700	Umapine Rd.
1200	Bridge Rd.	737	Pambrum Rd.
1215	Westland Rd.	750	Bannister Rd.
1225	Powerline Rd. (City of Umatilla UGB to Westland Rd.)	850	South Cold Springs Rd.
1245	Hermiston-Hinkle Rd. (UPRR to Feedville Rd.)	908	Short Mile Rd.
1250	Punkin Center Rd. (395 to Sunshine Lane Rd., and 395 to Highway 207)	932	Tutuilla Church Rd.
1275	Umatilla River Rd. (Bensel Rd. to Punkin Center Rd.)	986	Riverside Ave.
1300	Reith Rd. (Echo UGB to Pendleton UGB)	987	Goad Rd.
		1025	South Market Rd.
		1027	South Market Rd.
		1046	Ross Rd.
		1050	Spring Creek Rd.
		1086	McKay Dr.
		1182	East Harding (Edwards Rd. to Ash Rd.)
		1201	South Edwards Rd.
		1246	Baxter Rd.
		1259	Craig Rd.
		1285	Beach Access Rd.
		1307	Korvola Rd.
		1375	E. Birch Creek Rd. (Pilot Rock UGB to Pearson Creek)
		1386	Circle Rd.
		1475	Soap Hill Rd. (Ukiah UGB to National Forest Boundary)

Note: All ODOT facilities including Interstate, State and US Highways comprise the arterial roads in the county.

The existing road design standards for rural county roads have been revised to more closely fit with the road functional classification system. Road design standards ensure the design of a roadway supports its intended function. Road standards institute design parameters necessary to provide a community with roadways

which are relatively safe, aesthetic, and easy to administer when new roadways are planned or constructed. They are based on experience, and policies and publications of the profession.

The new road design standards for rural county roads are summarized in Table 7-3, and displayed in Figures 7-2A through 7-2C. These standards will be adopted as part of this plan.

TABLE 7-3
FUTURE RURAL ROAD DESIGN STANDARDS

Classification	Surface Width	Right of way Width	Min. Posted Speed
Private Roads and Public rights of way			
Option 1	16 feet	30 feet	--
Option 2	22 feet	60 feet	--
[1] Local Road			
Option 1 - residential	26-28 feet	60 feet	15-25 mph
Option 2 - industrial	30 feet	60 feet	15-25 mph
Major and Minor Collector			
Option 1	32-40 feet	60 feet	25-35 mph
Option 2 - Urban	40 feet	60 feet	35-55 mph
Arterial Roads			
Option 1	36-40 feet	60 feet	35-55 mph
Option 2 – Urban	40 feet	60 feet	35-55 mph

Note: The rural arterial road design standards above apply only to roadways that are under county jurisdiction, and do not apply to state highways.

Right of way widths identified above allow for safe conditions because of the extra clearance for vehicles on the road and the elimination of drivers' perception of a narrow road. Recommended shoulder widths, based on the amount of traffic expected along the road, are summarized in Table 7-4.

TABLE 7-4
RECOMMENDED SHOULDER WIDTHS ON RURAL ROADS**

Road Use	Local Roads	Major and Minor Collectors	Arterial Roads
ADT under 400	2 ft	2 ft	4 ft
ADT over 400 DHV* under 100	2 ft	4 ft	6 ft
DHV 100-200	4 ft	6 ft	6 ft
DHV 200-400	6 ft	8 ft	8 ft
DHV over 400	8 ft	8 ft	8 ft

* DHV (Design Hour Volume) is the expected traffic volume in the peak design hour (usually at commuter times).
Source: 1991 Oregon Bicycle and Pedestrian Plan.

[1] To be used in new County Road construction and in areas of County Road improvements needed due to development

*** Widths not provided for private roads and public rights of way*

Private Roads and Public Rights of Way

Umatilla County allows for the establishment of ingress-egress easements to provide legal access to parcels. Although these are not roads under County jurisdiction, they are included in this Plan to recognize their existence and to set the standards for their creation. County Development Code Standards for partitions addresses the minimum required widths of these easements based on the number of parcels it serves. Option 1 in Figure 7-2A is to be used for easements serving 3 parcels or less. This standard includes a 16 foot surface width with a 30 foot easement width. Option 2 is to be used for easements serving 4 or more parcels. This standard includes a 22 foot surface width (two 11-foot travel lanes) with a 60 foot easement width.

The specific engineering and design standards for private roads and public rights of way are addressed and approved by the Umatilla County Public Works Department. Option 2 may apply to roads dedicated as public roads within a platted subdivision.

Local Roads

Generally, the average weekday traffic volume on a rural local road averages less than 500 vehicles per day, and design speeds are 15 - 25 MPH. The recommended standard for a rural local road is a 26-28 foot roadway within a 60-foot right of way, as shown in Figure 7-2B. Travel lanes would be 12 to 13-foot wide with two-foot-wide shoulders on both sides of the road if needed based on engineering standards. The narrower roads and travel lanes generally improve the neighborhood aesthetics in residential areas, and discourage speeding. They also reduce construction costs, storm water run-off, and vegetation clearance. It is expected that on rural local roads, parking will be off-pavement. The large right of way width reserves plenty of room for future expansion of the roadway to urban residential or collector road standards.

For the most part, rural roads will not include sidewalks. Pedestrians are generally accommodated on the shoulder of the road, as are bicyclists. However, in areas with high pedestrian or bicycle use, a pathway should be considered, preferably located on both sides of the roadway, separated from the roadway by at least five feet of greenbelt or drainage ditch.

Rural Major and Minor Collector Roads

Collector roads are primarily intended to serve abutting lands and local access needs of neighborhoods. They are intended to carry between 1,200 and 10,000 vehicles per day. Collectors can serve residential, commercial, industrial, and mixed land uses. Figure 7-2C shows a cross section with a 60-foot right of way and a 32- to 40-foot paved width. This width allows two 12-foot travel lanes and four- to eight-foot shoulders. Width of the shoulder is determined by anticipated traffic volumes, as shown in Table 7-4. It is expected that on rural collector roads, parking will be off-pavement. The recommended right of way allows for future expansion of the roadway to urban residential or collector road standards.

In most instances, rural collectors will not include sidewalks. Pedestrians are generally accommodated on the shoulder of the road, as are bicyclists. As is the case for local roads, in areas with high pedestrian or bicycle use, a pathway should be considered, preferably located on both sides of the roadway, separated from the roadway by at least five feet of greenbelt or drainage ditch.

In the instance that a collector road is located in a rural area deemed by the County as needing a more urban road design standard, Option 2 should be used. Examples of possible areas that may need a more urban road design are unincorporated communities such as Umapine, Reith, and Meacham, or areas where there are existing high

density developments, such as subdivisions which already have sidewalks alongside the road. In these areas, a 40-foot paved surface should be provided, with two 12-foot travel lanes and on-street parking provided on both sides of the road. Curbing and 5-foot wide sidewalks should also be provided on both sides. A 60-foot right of way should be maintained.

If traffic volume forecasts exceed 5,000 vehicles per day, then driveways serving single-family houses should not be permitted on that section.

Rural Arterial Roads

Arterial roads form the primary roadway network within and through a region. As shown in the future street classification map, every rural arterial is a state highway linking major cities in the county and providing a connection to urban areas outside of the region. These provide a continuous roadway system which distributes traffic between different neighborhoods and districts. Generally, arterial roads are high capacity roadways which carry high traffic volumes with minimal activity. Access should be provided along an intersecting rural, local, or collector road. Direct access to residential property along a rural arterial should be discouraged.

In the event that the county decides to construct or reclassify a rural road as an arterial, Figure 7-2C shows the recommended design standard. This would include a 60-foot right of way and a 36- to 40-foot paved width. This width allows two 12-foot travel lanes and six- to eight-foot shoulders. Width of the shoulder is determined by anticipated traffic volumes, as shown in Table 7-4. No on-street parking should be allowed on this type of design standard.

For the most part, rural arterial roads will not include sidewalks. Pedestrians are generally accommodated on the shoulder of the road, as are bicyclists. However, in areas with high pedestrian or bicycle use, a pathway should be considered, preferably located on both sides of the roadway, separated from the roadway by at least five feet of greenbelt or drainage ditch.

In the instance that arterial road is located in a rural area deemed by the County as needing a more urban road design standard, Option 2 should be used. Examples of possible areas that may need a more urban road design are unincorporated communities such as Umapine, Reith, and Meacham, or areas where there are existing high density developments, such as subdivisions which already have sidewalks alongside the road. In these areas, a 40-foot paved surface should be provided, with two 12-foot travel lanes and on-street parking provided on both sides of the road. Curbing and 5-foot wide sidewalks should also be provided on both sides. A 60-foot right of way should be maintained.

Cul-de-Sac Roads

Cul-de-sac, or "dead-end" residential roads are intended to serve only the adjacent land in residential neighborhoods. These streets should be as short as possible.

The recommended road and shoulder width is the same as the local road standard. However, the required amount of right of way may be less than 60 feet.

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

Bike Lanes

In cases where a bikeway is proposed within the road right of way, five to six feet of roadway pavement (between curbs) should be striped for bike lanes on each side of the road. The striping should be done in conformance with the *State Bicycle and Pedestrian Plan* (1995). Where there will be curb parking 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 should be added when new roads are built or road improvements are made as part of the road system plan.

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

Sidewalks

Along rural county roads, sidewalks may not be necessary. However, paved or improved shoulders should be provided with a sufficient width to safely accommodate pedestrians (see Table 7-4).

Sidewalks should be constructed along the collector and arterial roads located in areas deemed by the county as "urbanizable." (See recommended road standards for rural major and minor collects and rural arterial roads.)

Another essential component of the sidewalk system is road crossings. Intersections must be designed to provide safe and comfortable crossing opportunities. This includes crosswalks, signal timing when traffic signals are present, (to ensure adequate crossing time) and other enhancements such as curb extensions, which are used to decrease pedestrian crossing distance and as traffic calming measures.

ACCESS MANAGEMENT

Access management is an important tool for maintaining a transportation system. Too many access points along arterial roads lead to an increased number of potential conflict points between vehicles entering and exiting driveways and through vehicles on the arterial roads. This leads to not only increased vehicle delay and a deterioration in the level of service on the arterial, but also a reduction in safety. Research has shown a direct correlation between the number of access points and collision rates. Experience throughout the United States has also shown that a well-developed access plan for a road system can minimize local cost for additional capacity and/or access improvements along unmanaged roadways. Therefore, it is essential that all levels of government maintain the efficiency of existing arterial roads through better access management.

The Transportation Planning Rule (TPR) defines access management as measures regulating access to streets, roads and highways from public roads and private driveways and requires that new connections to arterials and state highways be consistent with designated access management categories. As Umatilla County continues to develop, the arterial/collector/local road system will become more heavily used and relied upon for a variety of travel needs. As such, it will become increasingly important to manage access on the existing and future arterial/collector road system as new development occurs.

One objective of the Umatilla County TSP is to develop an access management policy that maintains and enhances the integrity (capacity, safety, and level-of-service) of the county's roads. Too many access points along a road can contribute to a deterioration of its safety, and on some roads, can interfere with efficient traffic flow.

Access Management Techniques

The number of access points to an arterial can be restricted through the following techniques:

- Restrictions on spacing between access points (driveways) and public/private roads based on the type of development and the speed along the arterial.

- Sharing of access points between adjacent properties.
- Providing access via collector or local roads where possible.
- Constructing frontage roads to separate local traffic from through-traffic.
- Providing service drives to prevent spill-over of vehicle queues onto the adjoining roadways.
- Providing acceleration, deceleration, and right-turn only lanes.
- Offsetting driveways to produce T-intersections to 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.
- Installing barriers to the property along the arterial to restrict access width to a minimum.

Recommended Access Management Standards

Access management is hierarchical, ranging from complete access control on freeways to increasing use of roads for access purposes, to including parking and loading at the local and minor collector level. Table 7-5 describes recommended general access management guidelines by roadway functional classification.

TABLE 7-5
RECOMMENDED ACCESS MANAGEMENT STANDARDS

	Intersections[2]			
	Public Road		Private Drive	
Functional Classification	**Type[1]**	**Spacing**	**Type**	**Spacing**
Arterial State Highways	(3)	(3)	(3)	(3)
Major Collectors (listed in Table 7-2)	At-grade	¼ mile	L/R Turns	500 ft.
Major and Minor Collectors (listed in Table 7-2)	at-grade	500 ft.	L/R Turns	250 ft.
Local Road	at-grade	250 ft.	L/R Turns	Access to Each Lot
Alley (Urban)	at-grade	100 ft.	L/R Turns	Access to Each Lot

Notes:
(1) For most roadways, at-grade crossings are appropriate.
(2) Allowed moves and spacing requirements may be more restrictive than those shown to optimize capacity and safety. Also, see section below on "Access Control Rights" along state highways.
(3) See Access Management Spacing Standards, Appendix C of the 1999 Oregon Highway Plan.

Application

These access management standards 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 meet these standards. 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.

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.

State Highways

Although state highways comprise some of the most important routes in the Umatilla County transportation system, these highways are under ODOT jurisdiction and are subject to access management spacing standards in

the *1999 Oregon Highway Plan*. Although Umatilla County may designate state highways as arterial roadways within their transportation systems, the access management for these facilities follow the Access Spacing Standards of the OHP. Table B-6 shows the 1999 OHP access management classifications and standards for highways of different highway classifications.

Access Management Spacing Standards for Interchanges

Although a freeway interchange serves both the freeway and the crossroad to which it connects, it is important that the interchange be managed to maintain safe and efficient operation of the freeway through the interchange area. The main problem to avoid is the formation of traffic queues on freeway off-ramps which back up into portions of the ramps needed for safe deceleration from freeway speeds. This is a significant safety concern. The purpose of these interchange access spacing standards is to preserve the function of the interchange to provide safe and efficient operations between connecting roadways and to minimize the need for major improvements of existing interchanges.

The access spacing standards for interchanges with two-lane County crossroads are shown in the table 7-6 and figure 7-3 below. It should be noted that the interchange access management standards displayed in the table supercede the general access management standards shown in Table 7-5 above, unless the latter standards are greater.

TABLE 7-6
MINIMUM SPACING STANDARDS APPLICABLE TO FREEWAY INTERCHANGES
WITH TWO-LANE COUNTY 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) These distances may be superceded 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

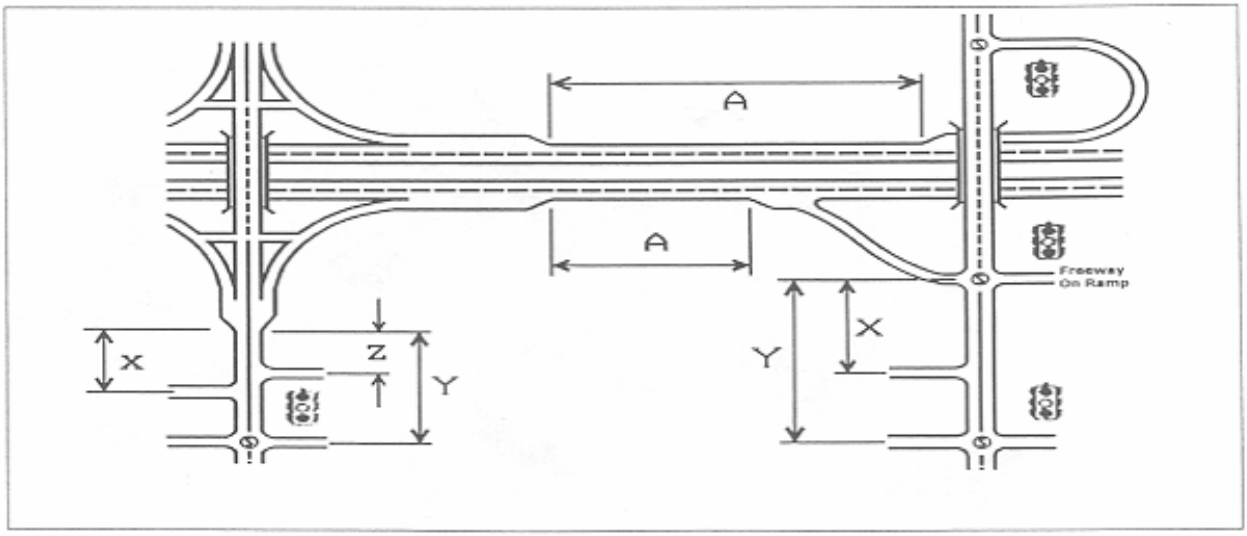
Y = Distance to first major intersection on the two-lane crossroad; no left turns allowed within this roadway section

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 7-3

MINIMUM SPACING STANDARDS APPLICABLE TO FREEWAY INTERCHANGES

WITH TWO-LANE COUNTY CROSSROADS



These standards are consistent with 1999 Oregon Highway Plan, Access Management Standards for Interchanges and apply mainly to new development. In general, new accesses are not allowed within 1320 feet of the intersection of the freeway ramps and the County crossroad, which are referred to as ramp terminals. Standards for Freeway Interchanges with multi-lane or two lane crossroads that are state highways are included in Appendix C of the 1999 Oregon Highway Plan.

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Access Control Rights

Historically, owners of property abutting public roadways have enjoyed a common law abutter's right of access to the roadway. However, in order to provide for a transportation system that would accommodate changing public needs, legislation has been passed to modify the rights of access. Oregon Revised Statutes specify among other property rights, the right of access can be purchased or condemned as deemed necessary for rights of way. The Oregon Department of Transportation has purchased access control rights from many properties along state highways.

Once the state has acquired the access rights to a property, road approach permits can only be issued at locations on the property where the right of access has been reserved. These "reservations of access" give the property owner the common law right of access to the state highway only at specific locations and they are clearly identified in the deed where the property owner sold the right of way to the state. If the owner wants to gain additional access rights to the highway, they must apply for a "grant" of access.

There may be local road connections shown in this Transportation System Plan that will require modifying the existing access rights or gaining additional access rights to the state highway system. Review of this TSP by ODOT does not imply tacit approval to modify or grant additional access rights. This must be

accomplished by applying to ODOT for such modification or grant.

An "Indenture of Access" is used to modify existing access rights such as moving or widening the reservation or lifting other restrictions that may have been placed on it. A "Grant of Access" is required to gain an additional access point to the highway and, depending on the circumstances, may require payment to the state for the market value of the grant. Application for both the Indenture and Grant of Access is made to local ODOT District Office.

Rural Major and Minor Collectors

The county has identified rural major and minor collectors throughout the county (see Figure 7-1 and Table 7-2). These designations are appropriate as these roadways are essential connectors between major destinations, but are secondary routes to the state highways (arterials).

MODAL PLANS

The Umatilla County modal plans have been formulated using information collected and analyzed through a physical inventory, forecasts, goals and objectives, and input from transportation management groups and area residents. They consider the transportation system needs for Umatilla County over the next 20 years considering the growth projections discussed in Chapter 5, and the recommended transportation improvements evaluated in Chapter 6 of this plan. The modal plans are also based on the recommendations of other transportation studies, completed or on-going, for other cities and highway corridors in the county, where coordination with the county will be necessary.

Road System Plan

The road system plan outlines a series of roadway and bridge improvements recommended for construction within Umatilla County over the next 20 years. The plan includes all county-specified projects recommended for implementation in Chapter 6 (Improvement Options), and any projects that are recommended in the eight city TSPs (Adams, Athena, Echo, Helix, Pilot Rock, Stanfield, Ukiah, and Weston) where coordination with and/or funding through the county is necessary, (i.e., projects involving county roads which are located inside a city's urban growth boundary). The road system plan also includes other projects recommended for implementation in other completed Transportation System Plans and Corridor Plans, where projects are located entirely along or partially along a county-maintained road. Such plans include:

- City of Hermiston TSP – prepared by David Evans and Assoc., Inc. (May 30, 1997)
- Pendleton TSP – prepared by Kittelson & Assoc., Inc. (December 26, 1996)
- Milton-Freewater/Stateline, Highway 11 Corridor Land Use and Transportation Plan – prepared by David Evans and Assoc., Inc. (January, 1998)
- City of Umatilla TSP –prepared by Kittelson & Assoc., Inc.
- US 395 North Corridor Plan –prepared by OTAK and Kittelson & Assoc., Inc.
- OR Highway 11 Corridor Plan –being prepared by David Evans and Assoc., Inc.
- Buildable Lands Inventory (Cities of Stanfield and Hermiston) –prepared by Shapiro and Assoc., Inc.

Several projects have also been identified by HUES, a growth impact strategic planning group of representatives from cities of Hermiston, Umatilla, Echo, and Stanfield, as well as the county, ODOT, and the Department of Corrections. The intention of the HUES Group is to identify the transportation needs of the Western County district and make sure these needs are recognized and included in the transportation

planning activities of both the county and state. In August 1998, the HUES Group produced a Road Transportation Priorities report. The projects in this report pertaining to the county road system plan have been included, along with a description of the work to be performed and planning level cost estimates. The HUES Group's report can be found in Appendix E.

Roadway Improvement and Bridge Replacement Projects

The road system plan contains a multitude of roadway improvement and bridge replacement projects. In order to represent the common interests of people living and working in a community, group of communities or region, the county was initially broken up into four transportation districts (Western, Central, Eastern and Southern). At a March 18, 1999 meeting with representation from the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), County Commissioners, and county officials, it was decided that the entire CTUIR be established as a single transportation district, separate from the other four districts, to create a total of five transportation districts. Projects identified for the county as a whole were then assigned to each of these districts. Figure 7-3 presents the five transportation districts with the communities they represent listed below. These districts were devised with the help of county and state officials.

1. Western County – Hermiston, Umatilla, Echo, Stanfield
2. Central County – Pendleton, Pilot Rock
3. Eastern County – Adams, Athena, Helix, Weston, Milton-Freewater
4. Southern County – Ukiah
5. Confederated Tribes of the Umatilla Indian Reservation

Tables 7-6 through 7-10 present all roadway improvement and bridge replacement projects for the five transportation districts in the county. The locations of projects in each district are displayed in Figures 7-4 through 7-8. The projects listed in each of the five transportation district tables do not reflect any level of prioritization. Projects are prioritized for each district in a capital improvement program (CIP), produced separately from the County TSP, and as a separate resolution. Each transportation district will be able to adjust the prioritization of projects in this CIP on a yearly basis. Once the CIP for all five districts has been established, each district will pursue project approval and implementation through the Umatilla County Board of Commissioners.

The inclusion of a project in the TSP does not constitute a commitment by ODOT or the county that either agency will participate in the funding of the project. ODOT's participation will be determined via the biennial updates of the multi-year STIP process, and the construction of any project is contingent upon the availability of future revenues. The county's participation will be according to project prioritization as indicated in the Capital Improvement Plan, and contingent upon available funding. Projects identified in the ODOT 2000-2003 STIP Update for Umatilla County have been omitted, under the assumption that they will eventually become approved projects scheduled for construction.

Even though a project is not listed, the project may still be completed by meeting other requirements in this TSP, County Comprehensive Plan, Development Code, or TSPs or Comprehensive Plans of other jurisdictions. The County may allow outright an improvement that is specifically identified in the Development Code as not requiring further land use regulation. This currently would allow the following categories of projects, even though not specifically listed in this TSP: (1) Normal operation, maintenance, repair and preservation activities of existing transportation facilities; (2) Installation of culverts, pathways, medians, fencing, guardrails, lighting and similar types of improvements within the existing right-of-way; (3) Landscaping as part of a transportation facility; (4) Emergency measures necessary for the safety and protection of property; (5) Acquisition of right-of-way for public roads, highways and other transportation improvements designated in this TSP or other jurisdiction's TSP except for those that are located in exclusive farm use or forest zone; (6) Construction of a street or road as part of an approved subdivision or

land partition that is consistent with the applicable land division ordinances; (7) Projects listed in the TSP of another jurisdiction that extend beyond the boundary limits of that jurisdiction into the County. It is specifically recognized that the factors of a project may prevent the time and the process necessary for a plan amendment and the project may be completed as an emergency measure necessary for the safety and protection of property.

TABLE 7-6
ROADWAY IMPROVEMENT AND BRIDGE REPLACEMENT PROJECTS – TRANSPORTATION DISTRICT 1 (WESTERN COUNTY)
(SEE FIGURE 7-4 FOR LOCATION)

Proj. No.	Project Name	County Rd/ Bridge No.	Location	Miles	Type of Work	Cost
1	Bensel Rd.	1268B	N. Ott to Hwy 395	2.6	Reconstruct and pave	$600,000
2	Highland Ave.[1] [2]	1215	Highland Ave. and 11th St. Intersection (Hermiston)	NA	Realign intersection and replace traffic signal	$209,000
3	Powerline Rd. /North of I-82 [2]	1225	US 730 to I-82	3.6	Widen to include 6-foot shoulders and repave	$1,728,000
4	Powerline Rd./US 730 Phase I [2][3]	1225	Intersection with US 730 (Umatilla)	NA	Install traffic signal	$150,000
5	Powerline Rd./US 730 Phase II [2] [3]	1225	Intersection with US 730 (Umatilla)	NA	Reconstruct Umatilla River Bridge, provide grade separation for the Powerline Rd./Hwy 730 intersection.	$2,000,000
6	Umatilla River Rd./US 730 [3]	1275	Intersection with US 730 (Umatilla)	NA	Install traffic signal	$130,000
7	Punkin Center Rd. [2]	1250	US 395 to Diagonal Rd. (Hermiston)	3.28	Widen, align, shoulder and pave rural section/ Urban upgrade [6]	$4,171,500
8	Westland Rd. [2]	1215	Intersection w/Lamb, Walker and Westland	NA	Align and reconstruct intersection	$250,000
9	Umatilla River Rd. Phase I [2]	1275	US 730 to Elm Ave (City of Umatilla, Hermiston)	5.2	Widen, align, shoulder and pave rural section/ Urban upgrade [6]	$3,512,000
10	Hermiston-Hinkle Rd. [2]	1245	Hinkle Rd. to Highland Ave. (Hermiston)	2.65	Widen, align, shoulder and pave rural section/ Urban upgrade [6]	$2,381,000
11	Feedville Rd. [2]	1000	End of Wal-Mart road improvement west to Hwy 207	2.63	Widen, align, shoulder and pave	$394,500
12	Edwards Rd. [2]	1201	US 395 to Diagonal Rd.	7.4	Widen, align, shoulder and pave	$1,110,000
13	Gettman Rd. [2]	1196	OR 207 to Hermiston Hinkle Rd. (Hermiston)	1	City acquisition/urban upgrade	$1,954,000
14	Umatilla River Rd. Phase II [1]	1275	Elm Ave. to Hermiston Ave. (Hermiston)	0.6	City acquisition/urban upgrade	$1,155,000
15	East 10th St. Phase I [1]	1219	Columbia Dr. to Elm Ave. (Hermiston)	1.3	City acquisition/urban upgrade	$2,542,000
16	East 10th St. Phase II [1]	1219	Elm Ave. to Punkin Center Rd. (Hermiston)	1.0	City acquisition/urban upgrade	$2,654,000
17	Theater Ln. Phase I [1]	1244	US 395 to East 7th St. Alignment (Hermiston)	0.5	City acquisition/urban upgrade	$988,000

TABLE 7-6, Cont.

ROADWAY IMPROVEMENT AND BRIDGE REPLACEMENT PROJECTS – TRANSPORTATION DISTRICT 1 (WESTERN COUNTY)

Proj. No.	Project Name	County Rd/ Bridge No.	Location	Miles	Type of Work	Cost
18	Theater Ln. Phase II [1]	1244	East 7th St. Alignment to East 10th St. (Hermiston)	0.5	City acquisition/urban upgrade	$1,195,000
19	Townsend Rd.	1217	OR 207 to E. Loop Rd. (Hermiston)	0.9	City acquisition/urban upgrade	$1,758,000
20	S. Ott Rd.	1211	OR 207 to E. Loop Rd. (Hermiston)	1.1	City acquisition/urban upgrade	$1,386,000
21	Highland Ext.	1198	S. Edwards to Canal Rd.	0.75	Reconstruct and pave	$200,000
22	Umatilla River Bridge [1] [2]	1250	Punkin Center Rd. from Hwy 395 west to Powerline Rd. (Hermiston)	2	New construction with bridge [6]	$14,800,000
23	Sagebrush Rd.	1269	Bowdin Lane to US 730	1	New construction	$750,000
24	Powerline Rd. /South of I-82	1225	I-82 South to Westland Rd.	2.5	Widen and repave	$1,200,000
25	N. Ott Rd.	1261	Punkin Center Rd. to Bensel Rd.	2	Reconstruct and pave	$450,000
26	E. Walls Rd.	1258	End of pavement at Marks Rd. to Hwy 37	3.75	Reconstruct and pave	$845,000
27	US 395 access to Maime Street/Canal Road [5]	1179	New intersection with US 395 (Stanfield)	NA	Construct new access to US 395 from Mamie Street, realign Canal Road approach, and install traffic signal.	$545,000
28	US 395 access to new city street/Edwards Rd. [5]	1201	New intersection with US 395 (Stanfield)	NA	Construct new access to US 395 from new city street and realign Edwards Road approach	$226,000
29	Bensel Road [4]	1268	Intersection with US 395	NA	Install traffic signal and geometric improvements	$432,000
30	Baggett Lane [4]	1266	Intersection with US 395	NA	Install traffic signal and geometric improvements	$432,000
31	Joy Lane [4]	1256	Intersection with US 395	NA	Install traffic signal and geometric improvements	$432,000
32	SE Airport Road [4]	1202	Intersection with US 395 (Hermiston)	NA	Install traffic signal and geometric improvements	$432,000

TABLE 7-6, Cont.
ROADWAY IMPROVEMENT AND BRIDGE REPLACEMENT PROJECTS –
TRANSPORTATION DISTRICT 1 (WESTERN COUNTY)

33	Feedville Road [4]	1000	Intersection with US 395 (Hermiston/Stanfield)	NA	Relocate intersection to the south and install traffic signal	$5,026,200
34	Hermiston Canal Bridge	59C274	Midway Rd.	NA	Bridge replacement	$25,800
35	Stanfield Bridge	59C203	South Edwards Rd.	NA	Bridge replacement (structurally deficient)	$56,500
36	9th Irrigation Ditch Bridge	59C240	SE 9th Street	NA	Bridge replacement (sufficiency rating<55)	$30,800
37	Maxwell Ditch Bridge	59C284	Lloyd Rd.	NA	Bridge replacement (sufficiency rating<55)	$33,900
38	Emigrant Butte/Hunt Ditch Bridge	59C325	Emert Rd.	NA	Bridge replacement (structurally deficient)	$47,900
39	Furnish Ditch Bridge	59C206	S. Ash Rd.	NA	Bridge replacement (sufficiency rating<55)	$33,700
40	Feed Canal Bridge	59C205	S. Ash Rd.	NA	Bridge replacement	$111,600
41	Stanfield Drain Bridge	59C194	N. Loop Rd.	NA	Bridge replacement	$60,900
42	Stanfield Drain Bridge	59C680	Cooper Rd.	NA	Bridge replacement	$42,400
43	Furnish Ditch Bridge	59C207	Irwin Rd.	NA	Bridge replacement	$33,700
44	Hunt Ditch Bridge	59C327	Rosenburg Rd.	NA	Bridge replacement	$67,600
45	US Feed Canal Bridge	59C025	Stage Gulch Rd.	NA	Bridge replacement (structurally deficient)	$120,100
46	US Feed Canal Bridge	59C209	Bartley Rd.	NA	Bridge replacement (structurally deficient)	$82,300
47	Stanfield Drainage Ditch Bridge	59C213	Loop Rd.	NA	Bridge replacement (structurally deficient)	$42,500
48	"A" Line Canal Bridge	59C198	Townsend Rd.	NA	Bridge replacement (functionally obsolete)	$47,100
49	"A" Line Canal Bridge	59C227	SE 10th Street	NA	Bridge replacement (functionally obsolete)	$46,600
50	"A" Line Canal Bridge	59C231	N. Ott Rd.	NA	Bridge replacement (functionally obsolete)	$52,400
51	Furnish Ditch Bridge	59C703	Thiesen Rd.	NA	Bridge replacement (functionally obsolete)	$73,100

TABLE 7-6, Cont.
ROADWAY IMPROVEMENT AND BRIDGE REPLACEMENT PROJECTS –
TRANSPORTATION DISTRICT 1 (WESTERN COUNTY)

52	US Feed Canal Bridge	59C705	Rieth Rd.	NA	Bridge replacement (functionally obsolete)	$63,100
53	Furnish Ditch Bridge	59C706	Rieth Rd.	NA	Bridge replacement (functionally obsolete)	$42,600
54	Furnish Ditch Bridge	59C708	Rieth Rd.	NA	Bridge replacement (functionally obsolete)	$47,700
					TOTAL	**$57,720,500**

Notes:
(1) Recommended in the city of Hermiston TSP, May 30, 1997.
(2) Project identified in the HUES Transportation Priorities Report, August 1998 (Appendix E).
(3) Project recommended in the city of Umatilla TSP.
(4) Project recommended in the US 395 North Corridor Plan.
(5) Project recommended in the city of Stanfield TSP.
(6) Improvements to the section of county roads located within the UGB of a city are assumed to be upgraded according to designated city street standards otherwise indicated in city's Transportation System Plan.

TABLE 7-7
ROADWAY IMPROVEMENT AND BRIDGE REPLACEMENT PROJECTS – TRANSPORTATION DISTRICT 2 (CENTRAL COUNTY)
(SEE FIGURE 7-5 FOR LOCATION)

Proj. No.	Project Name	County Rd/ Bridge No.	Location	Miles	Type of Work	Cost
1	SW Hailey Ave. (1)	1305	SW 30th to Kirk Ave on SW 37th St. (Pendleton)	0.5	Curb, Gutter, Sidewalk and Pave	$500,000
2	SW 28th Dr. Ext. (1)	1306	Current terminus to proposed extension of SW 37th St. (Pendleton)	NA	New Construction of City Collector Street	$594,000
3	SW 28th Dr. and SW 30th St. (1)	1306	Current terminus on SW 28th Dr. to Hailey St. on SW 30th St. (Pendleton)	NA	City Acquisition/Urban Upgrade	$752,000
4	SE 10th St. (1)	992	Current terminus to Frazer Ave. (Pendleton)	NA	City Acquisition/Urban Upgrade	$681,000
5	Southgate Pl. (1)	1303	US 395 to Quinney Ave. (Pendleton)	NA	City Acquisition/Urban Upgrade	$176,000
6	Reith Rd. West	1300	Barnhart Rd. to Nolin Rd.	9.6	Align, Widen, Shoulder and Pave	$1,500,000
7	Clopton Rd. (1)	1302	All (Pendleton)	NA	City Acquisition/Urban Upgrade	$1,628,000
8	Riverside Ave. (1)	986	All (Pendleton)	NA	City Acquisition/Urban Upgrade	$1,073,000
9	SW 44th St. Upgrade (1)	1307	All (Pendleton)	NA	City Acquisition/Urban Upgrade	$530,000
10	S. Fork Juniper Canyon Bridge	59C178	S. Juniper Canyon Rd.	NA	Bridge Replacement	$35,500
11	Barnhart Bridge	59C754	Rieth Rd.	NA	Bridge Replacement	$13,700
12	Vansycle Canyon Bridge	59C164	Vancycle Rd.	NA	Bridge Replacement (structurally deficient)	$41,800
13	Fork Cold Springs Bridges	59C675	Bissinger Rd.	NA	Bridge Replacement (structurally deficient)	$40,600
14	Rieth/Umatilla River Bridge	59C069	Birch Creek Rd.	NA	Bridge Replacement (structurally deficient)	$443,900
15	S. Fork Juniper Canyon Bridge	59C119	S. Juniper Canyon Rd.	NA	Bridge Replacement (structurally deficient)	$42,500
16	S. Fork Cold Springs Bridge	59C145	S. Fork Cold Springs Rd.	NA	Bridge Replacement (structurally deficient)	$71,600
17	McKay Creek Bridge	59C001	SW Quinney Avenue	NA	Bridge Replacement (functionally obsolete)	$149,000
18	Umatilla River Bridge	59C093	Mac Hoke Rd.	NA	Bridge Replacement (functionally obsolete)	$257,900
19	Umatilla River Bridge	59C099	Cuningham Rd.	NA	Bridge Replacement (functionally obsolete)	$243,200
20	Wild Horse Creek Bridge	59C356	Wild Horse Rd.	NA	Bridge Replacement (functionally obsolete)	$147,700
21	Furnish Ditch Bridge	59C721	Rieth Rd.	NA	Bridge Replacement (functionally obsolete)	$39,200
22	Furnish Ditch Bridge	59C752	Rieth Rd.	NA	Bridge Replacement (functionally obsolete)	$51,100
23	NW "A" Ave. Extension to I-84	new	Extend NW "A" Ave from City of Pendleton to Barnhart Rd and I-84	TBD	Extension of a truck route from "A" Ave to Barnhart Rd just north of the I-84 interchange	$6,000,000
						$15,011,700

Note: (1) Recommended in the Pendleton TSP, Kittelson & Assoc., Inc., December 26, 1996.

TABLE 7-8
ROADWAY IMPROVEMENT AND BRIDGE REPLACEMENT PROJECTS – TRANSPORTATION DISTRICT 3 (EASTERN COUNTY) (SEE FIGURE 7-6 FOR LOCATION)

Proj. No.	Project Name	County Rd/ Bridge No.	Location	Miles	Type of Work	Cost
1	Key Rd.	682	OR 11 to Water St.	2	Widen, align, shoulder and pave	$300,000
2	Ballou Rd. (1)	518	Ballou Rd. and OR 11 intersection	NA	Reconstruct and raise intersection	$350,000
3	Adams Rd.	973	OR 11 at Pendt. to Adams	11.8	Align, widen, shoulder and pave	$1,800,000
4	Sunquist Rd.	512	Intersection with Sunquist and Triangle Sta.	NA	Realign intersection and widen	$250,000
5	Milton Cemetery Rd.	564MC	M-F City Limits to Whiteman Rd.	4	Align, widen, shoulder and pave	$900,000
6	Ferndale Rd.(1)	522	Ferndale Rd. and OR 11 intersection	NA	Install traffic signal, turning radius improvements	$208,000
7	Crockett Rd. (1)	526	Crockett Rd. and OR 11 intersection	NA	Grading and turning radius improvements	$47,000
8	Tum-A-Lum Rd. (1)	505	Tum-A-Lum Rd. and OR 11 intersection	NA	Turning radius improvements	$4,000
9	Appleton Rd. (1)	528	Appleton Rd. and OR 11 intersection	NA	Turning radius improvements	$4,000
10	Locust Rd. (1)	542	Locust Rd. and OR 11 intersection	NA	Grading and turning radius improvements	$24,000
11	Cobb Rd. (1)	544	Cobb Rd. and OR 11 intersection	NA	Turning radius Improvements	$4,000
12	Couse Creek Rd.	613	W.W. River Rd. to Blue Mtn. Sta. Rd.	2.8	Align, widen, shoulder and pave	$750,000
13	Kirk Rd.	648	Weston City Limits to OR 204	3.5	Widen, align, shoulder and pave	$600,000
14	West Fork Greasewood Bridge	59C607	Midway Rd.	NA	Bridge replacement	$33,900
15	Drain Ditch Bridge	59C420	Couse Creek Rd.	NA	Bridge replacement	$11,800
16	Wildhorse Creek Bridge	59C169	Adams Rd.	NA	Bridge replacement	$22,000
17	Buchanon Bridge	59C457	Birch Creek Rd.	NA	Bridge replacement	$34,300
18	Irrigation Ditch Bridge	59C473	Cobb Rd.	NA	Bridge replacement	$13,600
19	Greasewood Creek Bridge	59C603	Rodgers Rd.	NA	Bridge replacement	$42,800
20	Fir Creek Bridge	59C490	Stateline Rd.	NA	Bridge replacement	$32,300
21	Dry Creek Bridge	59C422	Steen Rd.	NA	Bridge replacement (functionally obsolete)	$113,700
22	Greasewood Creek Bridge	59C602	Deining Rd.	NA	Bridge replacement	$34,300
23	Milton Nursery/W-W River Bridge	59C455	Eastside Rd.	NA	Bridge replacement (functionally obsolete)	$410,400
24	Dry Creek Bridge	59C421	Sams Rd.	NA	Bridge replacement (structurally deficient)	$70,600
25	Pine Creek Bridge	59C529	Schubert Rd.	NA	Bridge replacement (structurally deficient)	$67,700
26	Walla Walla River Bridge	59C440	MS Cemetery Rd.	NA	Bridge replacement (functionally obsolete)	$291,100
27	Walla Walla River Bridge	59C483	Birch Creek Rd.	NA	Bridge replacement (functionally obsolete)	$203,500
28	Wild Horse Creek Bridge	59C568	Sand Hollow Rd.	NA	Bridge replacement (functionally obsolete)	$100,300
					TOTAL	**$6,723,300**

Note: (1) Recommended in the Highway 11 Corridor Land Use and Transportation Plan, David Evans and Assoc., Inc., June 1997.

TABLE 7-9
ROADWAY IMPROVEMENT AND BRIDGE REPLACEMENT PROJECTS – TRANSPORTATION DISTRICT 4 (SOUTHERN COUNTY) (SEE FIGURE 7-7 FOR LOCATION)

Proj. No.	Project Name	County Rd/ Bridge No.	Location	Miles	Type of Work	Cost
1	Boylen/W. Birch Creek Bridge	59C067	W. Birch Creek Rd.	NA	Bridge replacement	$34,300
2	W. Birch Creek Bridge	59C065	Yellow Jacket Rd.	NA	Bridge replacement (functionally obsolete)	$59,100
					TOTAL	**$93,400**

TABLE 7-10
ROADWAY IMPROVEMENT AND BRIDGE REPLACEMENT PROJECTS – TRANSPORATION DISTRICT 5 (UMATILLA INDIAN RESERVATION) (SEE FIGURE 7-8 FOR LOCATION)

Proj. No.	Project Name	County Rd/ Bridge No.	Location	Miles	Type of Work	Cost
1	Emigrant Rd.	937	Poverty Flat to Mission Rd.	9	Repave and Shoulder	$1,400,000
2	River Rd.	927/918	Cayuse Rd. to RR Crossing and White Rd. to Cayuse Rd.	2.1	Widen, Align, Shoulder, Pave	$314,900
3	White Rd.	918	Cayuse Rd. to River Rd.	1.1	Widen, Align, Shoulder, Pave	$164,900
4	North Cayuse Rd.	925	River Rd. to Mann Rd.	1.3	Widen, Align, Shoulder , Pave	194,900
5	Mann Rd.	925	Crawford Hollow Rd. to North Cayuse Rd.	3.3	Widen, Align, Shoulder , Pave	$494,800
6	Motanic Rd.	1031	Best Rd. to McKay Creek Rd.	4.8	Widen, Align, Shoulder , Pave	$719,800
7	Sumac Rd.	1050	Motanic Rd. to McKay Creek Rd.	3.3	Widen, Align, Shoulder , Pave	$494,800
8	McKay Creek Rd.	1050	Sumac Rd. to N. Fork McKay Creek Rd.	4.1	Widen, Align, Shoulder , Pave	$614,800
9	Kash Kash Rd./St. Andrews Rd.	934/931	End of Pavement Near I-84 to Niktyoway Rd.	2.6	Widen, Align, Shoulder , Pave, and Repave	$367,000
10	Gibbon/Umatilla River Bridge	59C727	Irr River Rd.	NA	Bridge Replacement/SR>55	$189,100
11	Thornhollow Cattle Pass Bridge	59C378	Sand Hollow Rd.	NA	Bridge Replacement (structurally deficient)	$34,300
12	Wild Horse Creek Bridge	59C401	Wild Horse Rd.	NA	Bridge Replacement (structurally deficient)	$43,900
					TOTAL	**$5,033,200**

Other Roadway Improvements Requiring County Coordination

Many roadway projects have been identified and recommended by Umatilla County cities, in their individual TSPs. Many of these projects are located within their Urban Growth Areas and, therefore, are not specifically listed in this TSP. The projects might involve the construction of new roads, intersections or extensions to roads as deemed necessary by the city jurisdiction. Although these projects are included in the city Plans, they involve coordination with County Public Works and the County Planning Department.

Land use planning, public facilities and transportation within UGAs are jointly managed by the cities and county as described in Joint Management Agreements. Most of these projects in the UGA involve County Roads that will eventually become city roads at some point in the future. Project coordination will apply the standards of the individual city's Plan for those projects within UGAs.

Projects such as the Barnhart Road Extension (extension of a truck route from "A" Avenue to Barnhart Road just north of the I-84 Barnhart Road interchange) addressed in the City of Pendleton TSP may be planned to extend beyond an UGB. This specific project has been included in the County TSP as well since it is planned to extend outside of the UGB.

There may be other situations where city TSP projects may extend outside of an UGB. Where these projects extend into the County TSP jurisdiction, County TSP standards may be applied and adjusted to provide continuity of the project from City UGA to County.

ODOT Needs Assessment

ODOT Region 5 has formulated a needs assessment document for all interstate, state and US highways in Umatilla County. This document is included in Appendix B and identifies and describes planned or needed projects dealing with the preservation, modernization, and safety of roadways and bridges. It also includes interstate highway maintenance needs and bicycle/pedestrian needs for highways in the county.

The needs assessment does not contain any projects which are under county jurisdiction. Because the Umatilla County TSP focuses mainly on transportation system improvements which are fully or partially under county control, these projects are not part of the road system plan. Although the county does not have direct control over these projects, they still affect traffic conditions in the county. Therefore, ODOT's plans to implement these projects should be coordinated with the county.

Pedestrian System Plan

In rural areas, it is typical to accommodate pedestrians on roadway shoulders. Many of the shoulders on both county roads and state highways in Umatilla County cannot safely accommodate pedestrians. Therefore, as Umatilla County's roads and the state highways are paved, repaved, or reconstructed, shoulders should be widened to meet the standards shown in Figures 7-2A through 7-2C . These standards should be applied to all roadway improvement projects identified in the road system plan, when relevant. New roads should be constructed with adequate shoulders.

In addition to accommodating pedestrians and bicyclists, shoulders also protect the roadway edge from deteriorating and increase safety for motorists. Costs for shoulder additions are approximately $2 per square foot.

Western County (Transportation District 1)

A total of ten pedestrian-specific projects located along a county road in the Western County Transportation District have been identified in the draft city of Umatilla TSP. Each project's location, construction cost, and primary funding source are as follows, with implementation expected over the next 10 to 20 years:

Project No. 55 - Bensel Road Sidewalk (City of Umatilla): Install sidewalk on Bensel Road, from Umatilla River Road to US 395. (*Construction Cost Estimate: $442,000; Primary Funding Agency: Umatilla County)*

Project No. 56 - Bud Draper Road Sidewalk (City of Umatilla): Install sidewalk on Bud Draper Road, from Roxbury Road to US 730. (*Construction Cost Estimate: $67,000; Primary Funding Agency: Umatilla County)*

Project No. 57 - Roxbury Lane Sidewalk (City of Umatilla): Install sidewalk on Roxbury Lane, from Bud Draper Road to Beach Access Road. (*Construction Cost Estimate: $181,000; Primary Funding Agency: Umatilla County)*

Project No. 58 - Beach Access Road Sidewalk (City of Umatilla): Install sidewalk on Beach Access Road, from McNary Beach Recreation Area to US 730. (*Construction Cost Estimate: $522,000; Primary Funding Agency: Umatilla County)*

Project No. 59 - Powerline Road Sidewalk (City of Umatilla): Install sidewalk on Powerline Road, from US 730 to south Urban Growth Boundary. (*Construction Cost Estimate: $823,000; Primary Funding Agency: Umatilla County)*

Project No. 60 - Umatilla River Road Sidewalk (City of Umatilla): Install sidewalk on Umatilla River Road, from US 730 to Bensel Road. (*Construction Cost Estimate: $642,000; Primary Funding Agency: Umatilla County)*

Project No. 61 - Ford Road Sidewalk (City of Umatilla): Install sidewalk on Ford Road, from "O" Canal to Bensel Road. (*Construction Cost Estimate: $522,000; Primary Funding Agency: Umatilla County)*

Project No. 62 - 3rd Street Sidewalk (City of Umatilla): Install sidewalk on 3rd Street, between "A" Street and DeVore Road. (*Construction Cost Estimate: $963,000; Primary Funding Agency: City of Umatilla/Umatilla County)*

Project No. 63 - Scapelhorn Road Sidewalk (City of Umatilla): Install sidewalk on Scapelhorn Road, from 3rd Street to US 730. (*Construction Cost Estimate: $302,000; Primary Funding Agency: City of Umatilla/Umatilla County)*

Project No. 64 - Power City Road Sidewalk (City of Umatilla): Install sidewalk on Power City Road, from US 730 to US 395. (*Construction Cost Estimate: $415,000; Primary Funding Agency: Umatilla County)*

Eastern County (Transportation District 3)

Project No. 29 - North Main Street Sidewalk (Milton-Freewater): One pedestrian-specific project located along a county road in the Eastern County Transportation District has been identified in the Draft Milton-Freewater TSP. This project includes widening North Main Street to include six-foot wide sidewalks along the east side of the road between 8th Avenue and 15th Avenue. This project will be funded by the Milton-Freewater Public Works Department. The total cost of this project is $40,000 with implementation expected over the next two to five years.

No other pedestrian-specific projects have been identified along county roadways in the remaining transportation districts of Umatilla County. There are, however, six multi-use pathway projects described below in the Bicycle System Plan that are devised for both bicycle and pedestrian use. There are also numerous roadway improvement projects identified in the street system plan above that include some type of pedestrian facility (e.g. sidewalks and paved shoulders).

Bicycle System Plan

At present, bicyclists in Umatilla County share the roadway with motorists on most of the county roads. Many of the shoulders on both the county roads and state highways are inadequate for accommodating bicyclists. These shoulders are also needed to accommodate pedestrians, as mentioned above.

Most of the rural county roadways in Umatilla County have one- to two-foot shoulders, which are usually gravel and not paved. Traffic volumes on county roads are generally low enough that bicyclists can share the roadway with motorized vehicles. A minimum two-foot wide shoulder is recommended for all roadways except arterials, as shown in Figures 7-2B and 7-2C. Arterial roadways should have a minimum four-foot wide shoulder. All shoulders should be paved for local, minor collector, major collector, and arterial roadways.

Many of the rural roadway improvement projects recommended in the street system plan include a roadway widening component. As these roads are paved, repaved, resurfaced, or reconstructed, shoulders should be widened to meet the standards shown in Table 7-4. All new roads should be constructed with adequate shoulders.

A project has been identified in the city of Echo TSP to widen the shoulders along Thiesen Road from the I-84/US 395 interchange to downtown Echo. Improvements would include adding 6-foot shoulders along both sides of the road, the replacement of two county bridges, acquisition of additional right of way, and installation of 6-foot wide raised sidewalks and new guardrails along the I-84 overpass. The total cost for this project is estimated at $1,941,300 with funding to be provided by the city of Echo, ODOT, and Umatilla County. Specific details on this project are outlined in the city of Echo TSP. This project has been identified as Project No. 65 – Thiesen Road for Western County (Transportation District 1).

Multi-Use Path Projects

A series of multi-use path projects have been added to this plan based on the recommendations of other completed or on-going studies, where the county is expected to take the lead role in implementation and financing. These improvements are designed to serve both bicyclists and pedestrians alike.

One recommendation, that is not associated with a specific listed project, is to construct a bicycle/pedestrian facility linking the Hermiston and city of Umatilla areas. It would begin at the intersection of Highland Avenue and Highway 207 (Buttercreek Highway), connect with the city of Hermiston bike path, continue west to Powerline Road, then continue north along Powerline Road, through the city of Umatilla, connecting with a future city bike facility. The route would then run along Highway 730, traveling east through the city of Umatilla to the intersection of River Road. The facility would then continue along River Road, intersecting with a proposed bike route in the city of Hermiston. The facility would follow River Road to11th Street (a continuation of Buttercreek Highway), then continue south on 11th Street to its origin at the intersection of Buttercreek Highway and Highland Avenue. This potential route would be a multi-jurisdiction venture with the cities of Umatilla and Hermiston, Umatilla County, and ODOT.

Western County (Transportation District 1)

Project No. 66 - Rieth Road Pathway (Echo): A multi-use path has been recommended in the city of Echo TSP along the east side of Rieth Road, between Gerone Street and the Oregon Trail Grave Marker, for a distance of 2,200 feet. City of Echo residents feel this pathway is necessary as it will provide an alternative means of visiting the Oregon Trail Grave Marker, other than by automobile. The Oregon Trail Grave Marker is part of the many Oregon Trail sites in Echo. Providing alternative access to the sites in the area, such as the proposed path, may increase tourism in the area, thus enhancing the community economy.

Establishing a multi-use path on the east side of Rieth Road would include adding an eight-foot wide paved shoulder to the roadway, with proper striping to define the pathway. An eight-foot wide path would allow for two-way bike and pedestrian travel.

The estimated cost to construct an 8-foot wide shoulder with striping is $105,600. This assumes a cost of $48/linear foot for a paved shoulder constructed according to highway standards with eight-inch-wide striping.

Most of the funding for this project should be provided by the county, since it will be located along a county owned road. The city of Echo has applied to ODOT to have Thiesen Road and Rieth Road be classified as the Umatilla County Scenic Road #1, which may enable projects like this to receive federal or state funding.

Project No. 67 - Bud Draper Pathway (City of Umatilla): This project has been recommended for implementation over the next 10 to 20 years in the Draft City of Umatilla TSP. The estimated project cost is $180,000 with primary funding to be provided by Umatilla County.

Project No. 68 - McNary Beach Recreation Area Pathway (City of Umatilla): This project has been recommended for implementation over the next 10 to 20 years in the Draft City of Umatilla TSP. The estimated project cost is $200,000 with primary funding to be provided by Umatilla County.

Project No. 69 - Powerline Road to "F" Street Pathway (City of Umatilla): This project has been recommended for implementation over the next 10 to 20 years in the Draft City of Umatilla TSP. The estimated project cost is $83,000 with primary funding to be provided by Umatilla County.

Project No. 70 - Powerline Road Pathway (City of Umatilla): This project has been recommended for implementation over the next 10 to 20 years in the Draft City of Umatilla TSP. The estimated project cost is $50,000 with primary funding to be provided by Umatilla County.

Eastern County (Transportation District 3)

Project No. 30 - Walla Walla Valley Rail Pathway (Milton-Freewater): A multi-use path, for bicyclists and pedestrians, has been proposed in the *Highway 11 Corridor/ Land Use and Transportation Plan*, along the abandoned Walla Walla Valley Railway, between the Freewater Highway and OR 11. The proposed pathway is about 3.5 miles in length and extends from the city of Milton-Freewater to the Washington State line. This pathway also has the potential to be extended further north into the state of Washington, providing a connection to the cities of Walla Walla and College Place. The total cost for this project is estimated at $304,500, assuming a ten-foot-wide path is constructed at a cost of around $16 per linear foot of trail. This cost also assumes additional right of way costs assessed at around $29,500. Acquisition of necessary rights-of-way may be difficult as there are several land owners along the proposed alignment; Burlington Northern Santa Fe Railroad (11.9 acres), City of Milton-Freewater (1.01 acres), and local landowners (3.49 acres).

Concerns have been raised regarding the proposed alignment of this path through agricultural areas. Potential conflicts could occur between path use and local farming practices, especially when farmers need to spray their crops. In times of spraying, access to the pathway may be closed.

This project is an excellent opportunity for improving bicycle and pedestrian travel through the OR 11 Corridor between the city of Milton-Freewater and the cities of Walla Walla and College Place to the north in the state of Washington. Since this project is located in a rural area of the county, it should be pursued by the county and considered for implementation over the next 5 to 10 years.

Other options for multi-use paths that were discussed in the plan are pathways along the Walla Walla River and beside Winesap Road. Although the likelihood that these projects will be implemented over the next 20 years is uncertain, the county should still consider them.

State Highways

The existing shoulder widths on some of the state highways are not wide enough to meet the recommendations in the *1991 Oregon Bicycle and Pedestrian Plan*. Most paved shoulders on state highways are 4- to 6-feet wide next to the sloping gravel roadway bed. Recommended minimum shoulder widths, based on forecasted traffic volumes for the year 2018, can be determined from Table 7-4. The results are summarized in Table 7-11.

TABLE 7-11
RECOMMENDED MINIMUM SHOULDER WIDTHS ON STATE HIGHWAYS

Location	2018 ADT (vehicles/day)	Recommended Shoulder Width
I-82 *(McNary Hwy.)*		
OR/WA border	19,340	8 feet
0.30 miles south of US 730	9,595	8 feet
0.30 miles north of I-84	14,240	8 feet
I-84 *(Oregon Trail Hwy.)*		
West of I-82	21,100	8 feet
Stanfield to Pendleton	28,510	8 feet
East of the Umatilla-Mission Hwy	12,700	8 feet
US 30		
West I-84 terminus	4,890	8 feet
Pendleton urban area	18,710	8 feet
East I-84 terminus	3,125	8 feet
US 395 *(Pendleton-John Day Hwy.)*		
Pendleton – I-84 undercrossing	28,250	8 feet
Pendleton – south city limits	8,450	8 feet
Between OR 74 and OR 244 junctions	1,250	
US 395 *(Umatilla-Stanfield Hwy.)*		
Hermiston – 0.01 miles south of Jennie Avenue	34,540	8 feet
Stanfield – north city limits	13,660	8 feet
0.50 miles north of I-84	13,760	8 feet
US 730 *(Columbia River Hwy.)*		
Umatilla/Morrow Co. line	9,300	8 feet
0.50 miles east of I-82 (Umatilla urban area)	15,825	8 feet
Umatilla east city limits	4,760	8 feet
OR/WA border	2,805	8 feet
OR 207 *(Hermiston Hwy.)*		
0.06 miles south of US 730	6,930	8 feet
Hermiston Avenue – 0.01 miles south of Orchard Avenue W.	10,890	8 feet
Hermiston south city limits to I-84 junction	4,890	8 feet
0.1 miles north of OR 207 (Lexington-Echo Hwy.)	6,125	8 feet
Lexington-Echo Highway		
Umatilla/Morrow Co. line to Hermiston Hwy. Junction	1,385	6-8 feet
Hermiston Hwy. junction to Echo	610	4-6 feet
Echo urban area	1,385	6-8 feet
Echo east city limits	735	4-6 feet

TABLE 7-11, Cont.
RECOMMENDED MINIMUM SHOULDER WIDTHS ON STATE HIGHWAYS

Location	2018 ADT (vehicles/day)	Recommended Shoulder Width
OR 37 *(Pendleton-Cold Springs Hwy.)*		
Pendleton north city limits	2,625	8 feet
Pendleton – 0.01 miles north of US 30	5,400	8 feet
0.01 miles west of Athena-Holdman Hwy.	190	4 feet
OR 74 *(Heppner Hwy.)*		
Umatilla/Morrow Co. line	155	4 feet
0.1 miles west of US 395 (Pendleton-John Day Hwy.)	310	4 feet
OR 11 *(OR-WA Hwy.)*		
Pendleton – 0.4 miles north of I-84	11,190	8 feet
0.01 miles northeast of Havana-Helix Hwy.	6,075	8 feet
Adams – east city limits	5,550	8 feet
Milton-Freewater – south city limits	6,865	8 feet
Milton-Freewater – north city limits	14,705	8 feet
Milton-Freewater – 0.01 miles N. of Sunnyside-Umapine Hwy	21,500	8 feet
OR/WA border	20,800	8 feet
OR 204 *(Westin-Elgin Hwy.)*		
ODOT automatic recorder near Weston	1,175	6-8 feet
Umatilla/Union Co. line	905	6-8 feet
0.2 miles east of Pendleton to US 395 junction	1,070	6-8 feet
0.01 miles east of Camas Street (Ukiah)	1,305	6-8 feet
At Umatilla National Forest Boundary (MP 10.0)	510	4-6 feet
Umatilla-Mission Highway *(Hwy. 331)*		
OR 11 junction	3,055	8 feet
I-84 junction	8,695	8 feet
Athena-Holdman Highway *(Hwy. 334)*		
OR 37 to Havana-Helix Hwy.	225	4 feet
Athena – 0.01 miles east of 3rd Street	3,525	8 feet
Athena – east city limits	2,610	8 feet
Havana-Helix Highway *(Hwy. 335)*		
Helix to OR 11 junction	765	4-6 feet
Freewater Highway *(Hwy. 339)*		
OR/WA border	2,015	8 feet
Milton-Freewater – north city limits	2,800	8 feet
Milton-Freewater – 0.01 miles E. of W. Main St. on Broadway St.	6,950	8 feet
Sunnyside-Umapine Highway *(Hwy. 332)*		
OR/WA border	810	6-8 feet
0.01 miles west of OR 11 (Milton-Freewater urban area)	3,765	8 feet

Transportation Demand Management Plan

Through transportation demand management (TDM) strategies, peak travel demands can be reduced or spread over time to more efficiently use the existing 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 rideshare programs (i.e. carpooling and vanpooling), alternative work schedules, creating or improving bicycle and pedestrian facilities, and programs focused on high density employment areas.

According the *1997 Oregon Public Transportation Plan (OPTP),* rideshare programs should be available in communities of 5,000 or more where there are large employers with a base of 500 employees who are not covered by a regional plan. Over the next several years there will be a number of large employers particularly in the western section of Umatilla County, that will be close to or over a base of 500 employees. They include Walmart, Simplot, Hinkle Railyards, the Umatilla Chemical Agent Disposal Center, and the Two Rivers Correctional Institution. Although some of these businesses may not meet the criterion of the OPTP, it is recommended that the county work together with all incorporated cities and these large employers to establish an employee rideshare program.

It was concluded in the *Umatilla County Public Transportation Needs Assessment,* produced by Nelson\Nygaard in August, that intercity work travel between Hermiston and Pendleton will increase due to anticipated job market growth. In addition to recommending the establishment of a rideshare service between Hermiston and Pendleton, this report also recommends establishing park and ride facilities at the I-84 interchanges near Pendleton and Hermiston. The Umatilla County TSP supports the idea of potentially developing park and ride facilities at these two locations.

Other TDM strategies that can be employed within the county include sidewalk and bicycle improvements. Many projects have been previously identified in the Pedestrian and Bicycle Plans. By providing these facilities, Umatilla County is encouraging people to travel by modes other than the automobile.

As part of the US 395 North Corridor Plan, currently being conducted by OTAK, Inc. and Kittelson and Associates, Inc., the development of a Transportation Management Association (TMA) is recommended. The TMA would consist of representatives from businesses along the US 395 corridor, from I-84 to US 730. The purpose of the association is to increase public involvement to improve mobility through the corridor by identifying, evaluating and ultimately implementing TDM strategies

Development of a TMA is encouraged as the cities of Echo, Stanfield, Hermiston and Umatilla, which lie along this corridor, strive to find alternative means of travel other than the automobiles.

Public Transportation Plan

The Umatilla County Public Transportation Plan supports the recommendations made in the *Umatilla County Public Transportation Needs Assessment*. In the conclusions section of this report, there are two key recommendations pertaining to public transportation in the county;

- Coordination - create a brokerage responsible for facilitating a county-wide public transportation service
- Intercity Service - create an intercity bus service

The first recommendation is for the current providers of general transit, the county, and its jurisdictions to consider establishing a brokerage to support coordination and cooperation among both transit and social service trip providers. A brokerage is an entity that can either coordinate rides and then dispatch individual

service providers or provide the service itself. A brokerage offers the advantage of being able to maximize the use of vehicles by coordinating riders by destinations. It might also allow services to be expanded to include the transportation disadvantaged. No specific costs were identified in the report to establish this type of service. Potential funding sources include Federal Transit Administration (FTA) Section 5310 funds, Department of Labor Welfare-to-Work Program, and the Umatilla County Special Transportation Fund (STF).

The second recommendation is for Umatilla County to take the lead in establishing an intercity bus service. This service should connect the CTUIR to Pendleton, Milton-Freewater to Walla-Walla, and Hermiston to the Tri-Cities. The county may wish to coordinate with the CTUIR, which is considering developing such a service in the eastern part of the county. The estimated cost for providing weekday service for eight hours a day for two routes would be about $140,000 a year. Each route would need a bus, the cost of which would be about $120,000 each. At this point, requirements for new programs are unclear and the amount of funding is unknown. Even with federal funding sources, such as an FTA Section 5311(F) grant, State of Oregon Surface Transportation Program (STP) funds, or Welfare-to-Work funds, Umatilla County and its communities will need to support these programs with local funding from general fund revenues, local option levies, or some sort of payroll or business tax.

Rail Service Plan

Passenger Service

With the termination of Amtrak's service from Portland to Salt Lake City and Denver back in May 1997, passenger rail service is no longer provided in Hermiston or Pendleton. The closest rail passenger service is now located in Pasco, Washington along the Portland-to-Chicago line. There is one departure daily to Portland and Chicago from the Pasco station. Access to the station is difficult for many Umatilla County residents, particularly those who live in the southern portions of the county, as the station is located 25 miles north of the Oregon-Washington border.

Although Greyhound Bus Lines provides an alternative means for Umatilla County residents to travel to Portland, Salt Lake City, or Denver from terminal locations in Hermiston and Pendleton, this plan supports the efforts that are still underway to restore Amtrak's service in Hermiston and Pendleton.

Freight Service

With the recent merger of the Southern Pacific and Union Pacific Railroads, rail traffic is expected to increase by 43 percent at the Hinkle Yard south of Hermiston. In addition, the rail yard was recently precertified to receive Enterprise Zone benefits in order to attract a maintenance facility. The facility is expected to add up to 200 new jobs to the Hinkle Yard in the near future. Assuming rail activity will increase by 43 percent in this area, rail traffic through the cities of Stanfield and Echo is expected to reach around 30 to 37 trains per day. Rail traffic along the Spokane line through Hermiston is estimated to reach around 14 trains per day. Rail traffic along the Umatilla branch line through Hermiston is expected to remain constant at around one train per day. Other than the planned expansion of the Hinkle Railyards, there are no plans for future expansion of the freight rail system in Umatilla County. There are also no plans at this time for increasing rail activity along the UPRR line between Pendleton and Pilot Rock and along the Blue Mountain Line serving Weston.

Air Service Plan

At this time, the Master Plan for the Hermiston Municipal Airport is being updated by Alan Fagre and Associates. The Master Plan for the Eastern Oregon Regional Airport at Pendleton was prepared by Bucher, Willis, & Ratcliff in December 1996. The primary objectives of each plan are to determine long-range needs, assess development alternatives, and to produce airport development/improvement plans that will

yield safe, efficient, economical, and environmentally acceptable facilities with capacity for future air transport needs.

Because both airports are governed by their own master plans, recommendations for future improvements are not within the scope of this Transportation Plan.

This plan does support, however, maintaining the Airport Hazard Overlay zones established by Umatilla County around both airports, to preserve airspace. Maintaining these zone boundaries should not affect recommended future roadway improvements around these areas.

Pipeline Service

There are no plans at this time for expanding the natural gas service provided to many of the cities in Umatilla County by Cascade Natural Gas.

The are no plans for expanding the Salt Lake Pipeline, running northwest to southeast through Umatilla County.

Water Transportation

As mentioned in the Existing Conditions section, the Port of Umatilla, located on the Columbia River, provides waterborne transportation services to the Port of Portland and other Pacific Rim locations. The Port of Umatilla has two marine facilities capable of accommodating future expansion that are expected to continue to grow with the surrounding community. No formal plans have been identified at this time for future expansion of the port facilities.

TRANSPORTATION SYSTEM PLAN IMPLEMENTATION PROGRAM

Implementation of the Umatilla County TSP will require changes to both the county comprehensive plan and the zoning code and preparation of a 20-year Capital Improvement Plan (CIP). These actions will enable Umatilla County to address both existing and emerging transportation issues throughout the county in a timely and cost-effective manner.

One part of the implementation program is the formulation of a 20-year CIP. The purpose of the CIP is to provide an organized list of the transportation system improvements that are needed over the next 20 years, and to provide a process to fund and implement these improvements. It is expected that the county may implement the CIP in a parallel process with other city CIPs and the ODOT STIP. This parallel process is important since the TSP proposes that city, county, and state governmental agencies participate in the funding for transportation improvement projects.

The Umatilla County Board of Commissioners has decided to separate the CIP from the TSP to be implemented by a separate resolution. This was done so that the projects identified in the CIP for the county could be updated and prioritized on a yearly basis, rather than being limited to a five-year interval when a TSP is typically updated. The Board of Commissioners believes this will create a more flexible and proactive implementation program capable of responding to the needs of the five transportation districts in the county. This will, however, require the county to adopt an annual CIP update process by resolution. (See the Umatilla County Capital Improvement Plan.)

Model policy and ordinance language that conforms to the requirements of the Transportation Planning Rule is included in Chapter 9. The proposed ordinance amendments will require approval by the City Council and

those that affect the unincorporated urban area will also require approval by the Board of County Commissioners.

CHAPTER 8: FUNDING OPTIONS AND FINANCIAL PLAN

The Transportation Planning Rule requires Transportation System Plans to evaluate the funding environment for recommended improvements. This evaluation must include a listing of all recommended improvements, estimated costs to implement those improvements, a review of potential funding mechanisms, and an analysis of existing sources' ability to fund proposed transportation improvement projects. The Umatilla County TSP identifies a total of 137 specific recommendations that address deficiencies, safety issues, or access concerns in addition to revisions to the development ordinance and the development transportation demand management strategies. This section of the TSP provides an overview of Umatilla County's revenue outlook and a review of some funding and financing options that may be available to Umatilla County to fund the improvements.

Pressures from increasing growth throughout much of Oregon have created disparity between needed improvements and available funding. Umatilla County will need to work with its incorporated cities, the CTUIR, and ODOT to finance new transportation projects over the 20-year planning horizon. The actual timing of these projects will be determined by the rate of population and employment growth actually experienced by the communities. This TSP assumes Umatilla County will grow at a rate slightly higher than the rate forecasted by the State Office of Economic Analysis. If population growth exceeds this rate, the improvements may need to be accelerated. Slower than expected growth will relax the improvement schedule.

HISTORICAL ROAD IMPROVEMENT FUNDING SOURCES

In Oregon, state, county, and city jurisdictions work together to coordinate transportation improvements. In addition to this overlapping jurisdiction of the road network, transportation improvements are funded through a combination of federal, state, county, and city sources.

Table 8-1 shows the distribution of road revenues for the different levels of government within the state by jurisdiction level. Although these numbers were collected and tallied in 1991, ODOT estimates that these figures accurately represent the current revenue structure for transportation-related needs.

TABLE 8-1
SOURCES OF ROAD REVENUES BY JURISDICTION LEVEL

	Jurisdiction Level			All
Revenue Source	**State**	**County**	**City**	**Funds**
State Road Trust	58%	38%	41%	48%
Local	0%	22%	55%	17%
Federal Road	34%	40%	4%	30%
Other	9%	0%	0%	4%
Total	**100%**	**100%**	**100%**	**100%**

Source: ODOT 1993 Oregon Road Finance Study.

At the state level, nearly half (48 percent in Fiscal Year 1991) of all road-related revenues are attributable to the State Highway Fund (State Road Trust), whose sources of revenue include fuel taxes, weight-mile taxes on trucks, and vehicle registration fees. As shown in the table, the state road trust is a considerable source of revenue for all levels of government. Federal sources (generally the federal highway trust account and federal forest revenues) comprise another 30 percent of all road-related revenue. The remaining sources of road-related revenues are generated locally, including property taxes, LIDs, bonds, traffic impact fees, road user taxes, general fund transfers, receipts from other local governments, and other sources.

As a state, Oregon generates 94 percent of its highway revenues from user fees, compared to an average of 78 percent among all states. This fee system, including fuel taxes, weight distance charges, and registration fees, is regarded as equitable because it places the greatest financial burden upon those who create the greatest need for road maintenance and improvements. Unlike many states that have indexed user fees to inflation, Oregon has static road-revenue sources. For example, rather than assessing fuel taxes as a percentage of price per gallon, Oregon's fuel tax is a fixed amount (currently 24 cents) per gallon.

Transportation Funding in Umatilla County

Historically, sources of road revenues for Umatilla County have included federal grants, state revenues, intergovernmental transfers, interest from the working fund balance, and other sources. Transportation revenues and expenditures for Umatilla County are shown in Table 8-2 and Table 8-3.

TABLE 8-2
UMATILLA COUNTY TRANSPORTATION-RELATED REVENUES

	1992-1993 Actual	1993-1994 Actual	1994-1995 Actual	1995-1996 Actual	1996-1997 Budget	1997-1998 Budget
Beginning Balance	$1,187,957	$992,044	$903,997	$1,762,230	$1,600,000	$1,300,000
DMV License & Gas Tax Fees	$2,956,777	$3,145,649	$3,258,762	$3,356,616	$3,400,000	$3,400,000
Misc. State Receipts			$635,655	$222,990	$209,000	$219,000
National Forest Rental	$1,061,341	$589,248	$534,150	$189,902	$180,000	$180,000
Mineral Leasing 75%				$125		
Misc. Federal Receipts	$1,968	$1,670	$1,208	$77,681		
Interest on Invested Funds	$72,834	$38,672	$77,885	$92,220	$75,000	$75,000
Refunds & Reimbursements		$75		$338		
Sale of Public Lands	$20,144	$14,363	$5,443	$102	$15,000	$5,000
Rentals/Sale of Supplies	$15,318	$16,565	$51,748	$74,498	$45,000	$27,000
BLM Maintenance Agreement		$2,000				
Misc. Receipts-Local	$26,662	$102,916	$143,691	$48,997		
Service Center	$46,996	$55,961	$53,361	$61,189	$58,500	$64,000
Rural Address fund					$30,000	
	$5,389,996	$4,959,163	$5,665,900	$5,886,887	$5,612,500	$5,270,000

Source: Umatilla County.

As shown in Table 8-2, revenues remained relatively stable (between a low of just under $5 million in 1993-1994 to a high of nearly $5.9 million in 1995-1996). Approximately $3 million of the annual revenues come from the State Highway Fund, rising slightly from $3 million in 1992-1993 to an estimated $3.4 million in 1996-1997. A declining amount has come from federal apportionment (mostly federal forest receipts). Twenty-five percent of federal forest revenue (the 25-percent fund) is returned to the counties based on their share of the total acreage of federal forests. Westside National Forests in Oregon and Washington are subject to the Spotted Owl Guarantee, which limits the decline of revenues from these forests to three percent annually. Oregon Forests under the Owl Guarantee include the Deschutes, Mount Hood, Rogue River, Siskiyou, Siuslaw, Umpqua, and Willamette National Forests. Forest revenues distributed to Umatilla County are from the Umatilla and Whitman forests, not subject to the Owl Guarantee and, therefore, are more difficult to predict. With a healthy working capital balance, the county has also been able to generate between $40,000 and $90,000 annually in interest on its invested funds.

TABLE 8-3
UMATILLA COUNTY TRANSPORTATION-RELATED EXPENDITURES

	1992-1993 Actual	1993-1994 Actual	1994-1995 Actual	1995-1996 Actual	1996-1997 Budget	1997-1998 Budget
Personal Services	$1,908,211	$1,878,969	$1,956,968	$2,077,603	$2,260,676	$2,304,704
Materials and Services	$1,897,273	$1,961,106	$1,564,591	$1,735,853	$2,131,925	$1,972,800
Capital Outlay	$601,846	$225,074	$385,176	$404,357	$400,000	$400,000
Contingency					$568,840	$334,224
Transfer to Road Improvement Fund					$11,555	
Transfer to General Fund						$58,272
	4,407,330	$4,065,149	$3,906,735	$4,217,813	$5,372,996	$5,070,000

Source: Umatilla County.

As shown in Table 8-3, Umatilla County has spent between $225,000 and $600,000 annually in capital improvements. The county also transfers money to a road improvement fund for larger-scale capital improvements. The bulk of expenditures in the road fund are for personal services and materials and services relating to maintenance.

In addition to the Road Department Fund, Umatilla County has a separate Bicycle Path Fund. Its revenues and expenditure history are shown below in Table 8-4. Like the road fund, the Bicycle Path Fund is developing a healthy working capital balance, supporting additional interest income, thereby reducing its dependence on the gas taxes collected through the State Highway Fund.

TABLE 8-4
UMATILLA COUNTY BICYCLE PATH FUND REVENUES AND EXPENDITURES

	1994-1995 Actual	1995-1996 Actual	1996-1997 Budget	1997-1998 Budget
Beginning Fund Balance	$230,059	$260,652	$299,775	$349,775
Resources				
DMV License & Gas Tax Fees	$32,917	$32,946	$34,000	$34,000
Interest	$13,073	$16,251	$16,000	$18,000
	$45,989	$49,197	$50,000	$52,000
Expenditures				
Materials & Services	$15,396		$150,000	$100,000
Capital Outlay				
	$15,396	$-	$150,000	$100,000

Source: Umatilla County.

Transportation Revenue Outlook in Umatilla County

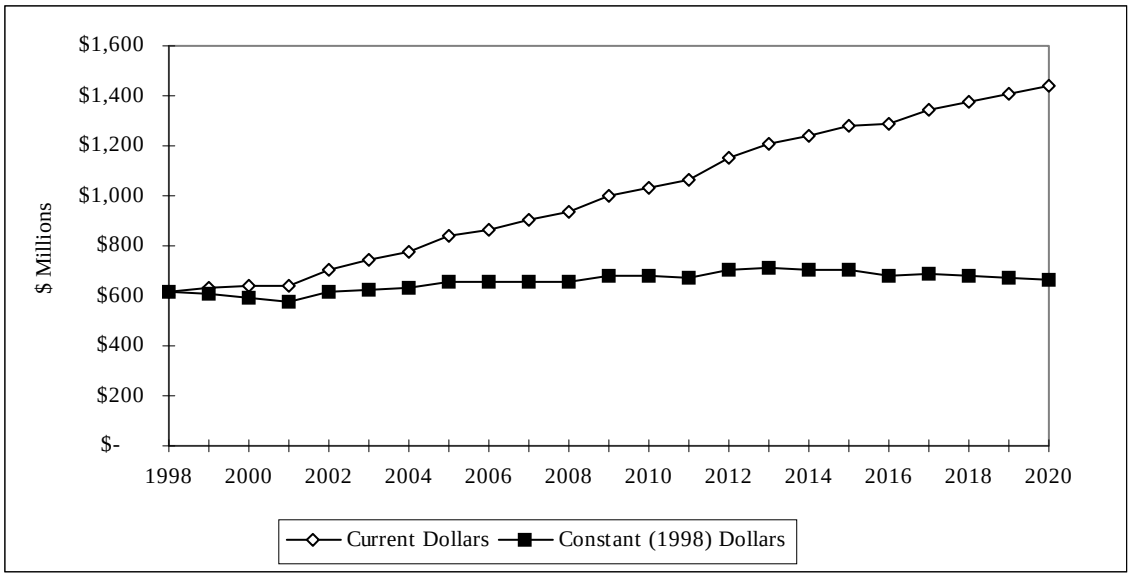
ODOT's policy section recommends certain assumptions in the preparation of transportation plans. In its Financial Assumptions document prepared in May 1998, ODOT projected the revenue of the State Highway Fund through year 2020. The estimates are based on not only the political climate, but also the economic structure and conditions, population and demographics, and patterns of land use. The latter is particularly important for state-imposed fees because of the goals in place under Oregon's Transportation Planning Rule (TPR) requiring a 10-percent reduction in per-capita vehicle miles of travel (VMT) in Metropolitan Planning

Organization (MPO) planning areas by year 2015, and a 20-percent reduction by year 2025. This requirement will affect the 20-year revenue forecast from the fuel tax. ODOT recommends the following assumptions:

- Fuel tax increases of 1 cent per gallon per year (beginning in year 2002), with an additional 1 cent per gallon every fourth year;
- Vehicle registration fees would be increased by $10 per year in 2002, and by $15 per year in year 2012;
- Revenues will fall halfway between the revenue-level generated without TPR and the revenue level if TPR goals were fully met; and
- The revenues will be shared among the state, counties, and cities on a "50-30-20 percent" basis rather than the previous "60.05-24.38-15.17 percent" basis;
- Inflation occurs at an average annual rate of 3.6 percent.

Figure 8-1 shows the forecast in both current-dollar and inflation-deflated constant (1998) dollars. As highlighted by the constant-dollar data, the highway fund is expected to grow slower than inflation early in the planning horizon until fuel-tax and vehicle-registration fee increases occur in year 2002, increasing to a rate somewhat faster than inflation through year 2015, continuing a slight decline through the remainder of the planning horizon.

FIGURE 8-1
STATE HIGHWAY FUND RECOMMENDED SCENARIO



Source: ODOT Financial Assumptions

As the State Highway Fund is expected to remain a significant source of funding for Umatilla County's road operations, the county is highly susceptible to changes in the State Highway Fund. In recent years, the State Highway Fund has supplied over one-quarter of Umatilla County's total road fund revenue.

In order to analyze the county's ability to fund the recommended improvements from current sources, DEA applied the following assumptions:

- The State Highway Fund will continue to account for a significant portion of the county's Street Fund;
- Federal disbursements will remain stable, secured by measures like the Owl Guarantee;
- Interest and other local sources continue to provide stable revenue streams; and
- The proportion of revenues available for capital expenditures for road improvements will be a small, but stable, proportion of overall road expenditures.

Applying these assumptions to the estimated level of the State Highway Fund resources, as recommended by ODOT, resources available to Umatilla County for all operations, maintenance, and capital outlay purposes are estimated at between $3.1 and $3.8 million annually (in current 1999 dollars), as shown in Table 8-5.

TABLE 8-5
ESTIMATED RESOURCES AVAILABLE TO UMATILLA COUNTY FROM STATE HIGHWAY FUND, 1999 DOLLARS

Year	Total Estimated Resources from State Highway Fund	Estimated Funds Available for Capital Outlay
1999	$3.230.000	$347.000
2000	$3,150,000	$339,000
2001	$3,080,000	$331,000
2002	$3,260,000	$351,000
2003	$3,310,000	$356,000
2004	$3,350,000	$361,000
2005	$3,500,000	$376,000
2006	$3,470,000	$373,000
2007	$3,490,000	$375,000
2008	$3,500,000	$377,000
2009	$3,600,000	$388,000
2010	$3,600,000	$388,000
2011	$3,590,000	$386,000
2012	$3,730,000	$401,000
2013	$3,790,000	$408,000
2014	$3,760,000	$404,000
2015	$3,720,000	$401,000
2016	$3,620,000	$389,000
2017	$3,650,000	$393,000
2018	$3,610,000	$388,000
2019	$3,560,000	$383,000

The amount actually received from the State Highway Fund will depend on a number of factors, including:

- the actual revenue generated by state gasoline taxes, vehicle registration fees, and other sources; and
- the population growth in Umatilla County (since the distribution of state highway funds is based on an allocation formula which includes population).

Based on the amount of resources historically available to fund capital improvements this analysis suggests that Umatilla County will have between $330,000 and $410,000 available annually for capital improvements.

REVENUE SOURCES

In order to finance the recommended transportation system improvements requiring expenditure of capital resources, it will be important to consider a range of funding sources. Although the property tax has traditionally served as the primary revenue source for local governments, property tax revenue goes into general fund operations, and is typically not available for road improvements or maintenance. Despite this limitation, the use of alternative revenue funding has been a trend throughout Oregon as the full implementation of Measures 5 and 47 have significantly reduced property tax revenues (see below). The alternative revenue sources described in this section may not all be appropriate in Umatilla County; however, this overview is being provided to illustrate the range of options currently available to finance transportation improvements during the next 20 years.

Property Taxes

Property taxes have historically been the primary revenue source for local governments. However, property tax revenue goes into general fund operations, and is not typically available for road improvements or maintenance. The dependence of local governments on this revenue source is due, in large part, to the fact that property taxes are easy to implement and enforce. Property taxes are based on real property (i.e., land and buildings) which have a predictable value and appreciation to base taxes upon. This is as opposed to income or sales taxes which can fluctuate with economic trends or unforeseen events.

Property taxes can be levied through: 1) tax base levies, 2) serial levies, and 3) bond levies. The most common method uses tax base levies which do not expire and are allowed to increase by six percent per annum. Serial levies are limited by amount and time they can be imposed. Bond levies are for specific projects and are limited by time based on the debt load of the local government or the project.

The historic dependence on property taxes is changing with the passage of Ballot Measure 5 in the early 1990s. Ballot Measure 5 limits the property tax rate for purposes other than payment of certain voter-approved general obligation indebtedness. Under full implementation, the tax rate for all local taxing authorities is limited to $15 per $1,000 of assessed valuation. As a group, all non-school taxing authorities are limited to $10 per $1,000 of assessed valuation. All tax base, serial, and special levies are subject to the tax rate limitation. Ballot Measure 5 requires that all non-school taxing districts' property tax rate be reduced if together they exceed $10 per $1,000 per assessed valuation by the county. If the non-debt tax rate exceeds the constitutional limit of $10 per $1,000 of assessed valuation, then all of the taxing districts' tax rates are reduced on a proportional basis. The proportional reduction in the tax rate is commonly referred to as compression of the tax rate.

Measure 47, an initiative petition, was passed by Oregon voters in November 1996. It is a constitutional amendment that reduces and limits property taxes and limits local revenues and replacement fees. The measure limits 1997-98 property taxes to the lesser of the 1995-96 tax minus 10 percent, or the 1994-95 tax. It limits future annual property tax increases to three percent, with exceptions. Local governments' lost revenue may be replaced only with state income tax, unless voters approve replacement fees or charges. Tax levy approvals in certain elections require 50 percent voter participation.

The state legislature created Measure 50, which retains the tax relief of Measure 47 but clarifies some legal issues. This revised tax measure was approved by voters in May 1997.

The League of Oregon Cities (LOC) estimated that direct revenue losses to local governments, including school districts, will total $467 million in fiscal year 1998, $553 million in 1999, and increase thereafter. The actual revenue losses to local governments will depend on actions of the Oregon Legislature. LOC also estimates that the state will have revenue gains of $23 million in 1998, $27 million in 1999, and increase thereafter because of increased personal and corporate tax receipts due to lower property tax deduction.

Measure 50 adds another layer of restrictions to those which govern the adoption of tax bases and levies outside the tax base, as well as Measure 5's tax rate limits for schools and non-schools and tax rate exceptions for voter approved debt. Each new levy and the imposition of a property tax must be tested against a longer series of criteria before the collectible tax amount on a parcel of property can be determined.

System Development Charges

System Development Charges (SDCs) are becoming increasingly popular in funding public works infrastructure needed for new local development. Generally, the objective of systems development charges is to allocate portions of the costs associated with capital improvements upon the developments which increase demand on transportation, sewer or other infrastructure systems.

Local governments have the legal authority to charge property owners and/or developers fees for improving the local public works infrastructure based on projected demand resulting from their development. The charges are most often targeted towards improving community water, sewer, or transportation systems. Cities and counties must have specific infrastructure plans in place that comply with state guidelines in order to collect SDCs.

SDCs are collected when new building permits are issued. Transportation SDCs are based on trip generation of the proposed development. Residential calculations would be based on the assumption that a typical household will generate a given number of vehicle trips per day. Nonresidential use calculations are based on employee ratios for the type of business or industrial uses. The SDC revenues would help fund the construction of transportation facilities necessitated by new development.

State Highway Fund

Gas tax revenues received from the state of Oregon are used by all counties and cities to fund road and road construction and maintenance. In Oregon, the state collects gas taxes, vehicle registration fees, overweight/overheight fines and weight/mile taxes and returns a portion of the revenues to cities and counties through an allocation formula.

Local Gas Taxes

The Oregon Constitution permits counties and incorporated cities to levy additional local gas taxes with the stipulation that the moneys generated from the taxes will be dedicated to road-related improvements and maintenance within the jurisdiction. At present, only a few local governments (including the cities of Woodburn and The Dalles and Multnomah and Washington counties) levy a local gas tax. Umatilla County may consider raising its local gas tax as a way to generate additional road improvement funds. However, with relatively few jurisdictions exercising this tax, an increase in the cost differential between gas purchased in Umatilla County and gas purchased in neighboring communities may encourage drivers to seek less expensive fuel elsewhere. Any action will need to be supported by careful analysis to minimize the unintended consequences of such an action.

Vehicle Registration Fees

The Oregon Vehicle Registration Fee is allocated to the state, counties and cities for road funding. Oregon counties are granted authority to impose a vehicle registration fee covering the entire county. The Oregon Revised Statutes would allow Umatilla County to impose a biannual registration fee for all passenger cars licensed within the county. Although both counties and special districts have this legal authority, vehicle registration fees have not been imposed by local jurisdictions. In order for a local vehicle registration fee program to be viable in Umatilla County, all the incorporated cities and the county would need to formulate an agreement which would detail how the fees would be spent on future road construction and maintenance.

Local Improvement Districts

The Oregon Revised Statutes allow local governments to form Local Improvement Districts (LIDs) to construct public improvements. LIDs are most often used by cities to construct localized projects such as streets, sidewalks or bikeways. The statutes allow formation of a district by either the city government or property owners. Cities that use LIDs are required to have a local LID ordinance that provides a process for district formation and payback provisions. Through the LID process, the cost of local improvements are generally spread out among a group of property owners within a specified area. The cost can be allocated based on property frontage or other methods such as traffic trip generation. The types of allocation methods are only limited by the Local Improvement Ordinance. The cost of LID participation is considered an assessment against the property which is a lien equivalent to a tax lien. Individual property owners typically have the option of paying the assessment in cash or applying for assessment financing through the city. Since the passage of Ballot Measure 5, cities have most often funded local improvement districts through the sale of special assessment bonds.

GRANTS AND LOANS

There are a variety of grant and loan programs available, most with specific requirements relating to economic development or specific transportation issues, rather than for the general construction of new streets. Many programs require a match from the local jurisdiction as a condition of approval. Because grant and loan programs are subject to change and statewide competition, they should not be considered a secure long-term funding source . Most of the programs available for transportation projects are funded and administered through ODOT and/or

the Oregon Economic Development Department (OEDD). Some programs which may be appropriate for the Umatilla County are described below. The primary contact for information on the following programs is ODOT Region 5 which can be reached at (541) 963-3177.

Bike-Pedestrian Grants

By law (ORS 366.514), all road, street or highway construction or reconstruction projects must include facilities for pedestrians and bicyclists, with some exceptions. ODOT's Bike and Pedestrian Program administers two programs to assist in the development of walking and bicycling improvements: local grants, and Small-Scale Urban Projects. Cities and counties with projects on local streets are eligible for local grant funds. An 80 percent state/20 percent local match ratio is required. Eligible projects include curb extensions, pedestrian crossings and intersection improvements, shoulder widening and restriping for bike lanes. Projects on urban state highways with little or no right of way taking and few environmental impacts are eligible for Small-Scale Urban Project Funds. Both programs are limited to projects costing up to $100,000. Projects that cost more than $100,000, require the acquisition of ROW, or have environmental impacts should be submitted to ODOT for inclusion in the STIP.

Access Management

The Access Management Program sets aside approximately $500,000 a year to address access management issues. One primary component of this program is an evaluation of existing approach roads to state highways. These funds are not committed to specific projects, and priorities and projects are established by an evaluation process.

Enhancement Program

This federally-funded program earmarks $8 million annually for projects in Oregon. Projects must demonstrate a link to the intermodal transportation system, compatibility with approved plans, and local financial support. A 10.27 percent local match is required for eligibility. Each proposed project is evaluated against all other proposed projects in its region. Within the five Oregon regions, the funds are distributed on a formula based on population, vehicle miles traveled, number of vehicles registered and other transportation-related criteria. The solicitation for applications was mailed to cities and counties the last week of October 1998. Local jurisdictions have until January 1999 to complete and file their applications for funding available during the 2000-2003 fiscal years which begin October 1999.

Highway Bridge Rehabilitation or Replacement Program

The Highway Bridge Rehabilitation or Replacement Program (HBRR) provides federal funding for the replacement and rehabilitation of bridges of all functional classifications. A portion of the HBRR funding is allocated for the improvement of bridges under local jurisdiction. A quantitative ranking system is applied to the proposed projects based on sufficiency rating, cost factor, and load capacity. They are ranked against other projects statewide, and require state and local matches of 10 percent each. It includes the Local Bridge Inspection Program and the Bridge Load Rating Program.

Transportation Safety Grant Program

Managed by ODOT's Transportation Safety Section (TSS), this program's objective is to reduce the number of transportation-related accidents and fatalities by coordination a number of statewide programs. These funds are intended to be used as seed money, funding a program for three years. Eligible programs include programs in

impaired driving, occupant protection, youth, pedestrian, speed, enforcement, bicycle and motorcycle safety. Every year, TSS produces a Highway Safety Plan that identifies the major safety programs, suggests countermeasures to existing safety problems, and lists successful projects selected for funding, rather than granting funds through an application process.

Federal Transit Administration (FTA) Section 5311-Non-urbanized Area Formula Program

Section 5311 is a federally sponsored program for general public transit services in small urban and rural areas. It supports both capital and operation needs. The ODOT Public Transit Division disbributes these funds. In FY00, the cities of Pendleton and Milton-Freewater received these funds to support transportation programs for the general public. Umatilla County would be eligible for these funds if it implemented intercity service or intracity services open to the general public. The recipient of these funds must provide matching funds of up to 50 percent for operating uses and up to 20 percent for capital expenses.

Section 5311(f) – Part of 5311 funds is allocated to intercity services. Intercity transit services connect communities to rail, bus and air hubs. These funds can be used for both capital and opeerating expenses. Local revenues must match these funds. Match requirements are the same as those for 5311 funds.

Surface Transportation Program (STP) Funds

TEA-21, the Federal Transportation Efficiency Act for the 21st Century, that funds programs for highways and transit, permits surface transportation program funding flexibility between modes. This gives the state more latitude in selecting the modal alternatives that would best address local congestion problems. STP funds are generally limited to capital projects with a few exceptions. In non-urbanized areas ODOT has the responsibility of allocating these funds. In Umatilla County, ODOT Region 5 makes funding decisions with public input.

Department of Labor Welfare-to-Work Program

The US Department of Labor provides grants to communities to give transitional assistance to move welfare recipients into unsubsidized employment. One of the areas applicants are encouraged to consider is the development of responsive transportation systems to move people to work or to career training. These grants must serve at least 100 welfare recipients. The Department of Labor expects the grants to range from one million to five million dollars over a period of three years. Applications must be a coordinated effort between transportation providers and Oregon Adult and Family Services. The funding can be used for capital and operating expenses and will cover up to 50 percent of the cost of a program.

ODOT has submitted a grant application for funding for Oregon programs. ODOT identified the Bend/Redmond area as the first demonstration program. Other areas of the state may be eligible after that. To be eligible for this funding, it is essential that communities bring together local ODOT staff, transit providers and AFS staff to begin the coordination process.

FTA Section 5310 Discretionary Grants

This program funds vehicles and other capital projects for programs that serve elderly and disabled people. In FY99 the city of Pendleton received $36,000 to purchase a new vehicle.

Special Transportation Fund

The Special Transportation Fund (STF) awards funds to maintain, develop, and improve transportation services for people with disabilities and people over 60 years of age. Financed by a two-cent tax on each pack of cigarettes sold in the state, the annual distribution is approximately $5 million. Three-quarters of these funds are distributed on a per-capita formula to mass transit districts, transportation districts, where such districts do not exist, and counties. The remaining funds are distributed on a discretionary basis.

County Allotment Program

The County Allotment Program distributes funds to counties on an annual basis; the funds distributed in this program are in addition to the regular disbursement of State Highway Fund resources. The program determines the amount of total revenue available for roads in each county and the number of road miles (but not lane miles) of collectors and arterials under each county's jurisdiction. Using these two benchmarks, a "resource-per-equivalent" ratio is calculated for each county. Resources from the $750,000 program are provided to the county with the lowest resource-per-equivalent road-mile ratio until they are funded to the level of the next-lowest county. The next-lowest county is then provided resources until they are funded to the level of the third-lowest county, and so on, until the fund is exhausted.

Immediate Opportunity Grant Program

The Oregon Economic Development Department (OEDD) and ODOT collaborate to administer a grant program designed to assist local and regional economic development efforts. The program is funded to a level of approximately $7 million per year through state gas tax revenues. The following are primary factors in determining eligible projects:

- Improvement of public roads;
- Inclusion of an economic development-related project of regional significance;
- Creation or retention of primary employment;
- Ability to provide local funds (50/50) to match grant; and
- Improvement to the quality of the community.

The maximum amount of any grant under the program is $500,000. Local governments which have received grants under the program include Washington County, Multnomah County, Douglas County, the city of Hermiston, Port of St. Helens, and the city of Newport.

Oregon Special Public Works Fund

The Special Public Works Fund (SPWF) program was created by the 1995 State Legislature as one of several programs for the distribution of funds from the Oregon Lottery to economic development projects in communities throughout the state. The program provides grant and loan assistance to eligible municipalities primarily for the construction of public infrastructure which support commercial and industrial development that result in permanent job creation or job retention. To be awarded funds, each infrastructure project must support businesses wishing to locate, expand, or remain in Oregon. SPWF awards can be used for improvement, expansion, and new construction of public sewage treatment plants, water supply works, public roads, and transportation facilities.

While SPWF program assistance is provided in the form of both loans and grants, the program emphasizes loans in order to assure that funds will return to the state over time for reinvestment in local economic development

infrastructure projects. Jurisdictions that have received SPWF funding for projects that include some type of transportation-related improvement include the Cities of Baker City, Bend, Cornelius, Forest Grove, Madras, Portland, Redmond, Reedsport, Toledo, Wilsonville, Woodburn, and Douglas County.

Oregon Transportation Infrastructure Bank

The Oregon Transportation Infrastructure Bank (OTIB) program is a revolving loan fund administered by ODOT to provide loans to local jurisdictions (including cities, counties, special districts, transit districts, tribal governments, ports, and state agencies). Eligible projects include construction of federal-aid highways, bridges, roads, streets, bikeways, pedestrian accesses, and right of way costs. Capital Outlays such as buses, light-rail cars and lines, maintenance years and passenger facilities are also eligible.

ODOT FUNDING OPTIONS

The state of Oregon provides funding for all highway related transportation projects through the Statewide Transportation Improvement Program (STIP) administered by the Oregon Department of Transportation. The STIP outlines the schedule for ODOT projects throughout the state. The STIP, which identifies projects for a three-year funding cycle, is updated on an annual basis. Starting with the 2000 budget year, ODOT will then identify projects for a four-year funding cycle. In developing this funding program, ODOT must verify that the identified projects comply with the Oregon Transportation Plan (OTP), ODOT Modal Plans, Corridor Plans, local comprehensive plans, and TEA-21 Planning Requirements. The STIP must fulfill ISTEA planning requirements for a staged, multi-year, statewide, intermodal program of transportation projects. Specific transportation projects are prioritized based on a review of the ISTEA planning requirements and the different state plans. ODOT consults with local jurisdictions before highway related projects are added to the STIP.

The highway-related projects identified in Umatilla County's TSP will be considered for future inclusion on the STIP. The timing of including specific projects will be determined by ODOT based on an analysis of all the project needs within Region 5. Umatilla County, its incorporated cities, and ODOT will need to communicate on an annual basis to review the status of the STIP and the prioritization of individual projects within the project area. Ongoing communication will be important for the city, county, and ODOT to coordinate the construction of both local and state transportation projects.

ODOT also has the option of making some highway improvements as part of their ongoing highway maintenance program. Types of road construction projects that can be included within the ODOT maintenance programs are intersection realignments, additional turn lanes, and striping for bike lanes. Maintenance related construction projects are usually done by ODOT field crews using state equipment. The maintenance crews do not have the staff or specialized road equipment needed for large construction projects.

An ODOT funding technique that will likely have future application to Umatilla County's TSP is the use of state and federal transportation dollars for off-system improvements. Until the passage and implementation of ISTEA, state and federal funds were limited to transportation improvements within highway corridors. ODOT now has the authority and ability to fund transportation projects that are located outside the boundaries of the highway corridors. The criteria for determining what off-system improvements can be funded has not yet been clearly established. It is expected that this new funding technique will be used to finance local system improvements that reduce traffic on state highways or reduce the number of access points for future development along state highways.

FINANCING TOOLS

In addition to funding options, the recommended improvements listed in this plan may benefit from a variety of financing options. Although often used interchangeably, the words financing and funding are not the same. Funding is the actual generation of revenue by which a jurisdiction pays for improvements, some examples include the sources discussed above: property taxes, SDCs, fuel taxes, vehicle registration fees, LIDs, and various grant programs. In contrast, financing refers to the collecting of funds through debt obligations.

There are a number of debt financing options available to Umatilla County. The use of debt to finance capital improvements must be balanced with the ability to make future debt service payments and to deal with the impact on its overall debt capacity and underlying credit rating. Again, debt financing should be viewed not as a source of funding, but as a time shifting of funds. The use of debt to finance these transportation-system improvements is appropriate since the benefits from the transportation improvements will extend over the period of years. If such improvements were to be tax financed immediately, a large short-term increase in the tax rate would be required. By utilizing debt financing, local governments are essentially spreading the burden of the costs of these improvements to more of the people who are likely to benefit from the improvements and lowering immediate payments.

General Obligation Bonds

General obligation (GO) bonds are voter-approved bond issues which represent the least expensive borrowing mechanism available to municipalities. GO bonds are typically supported by a separate property tax levy specifically approved for the purposes of retiring debt. The levy does not terminate until all debt is paid off. The property tax levy is distributed equally throughout the taxing jurisdiction according to assessed value of property. General obligation debts are typically used to make public improvement projects that will benefit the entire community.

State statutes require that the general obligation indebtedness of a city not exceed three percent of the real market value of all taxable property in the city. Since general obligation bonds would be issued subsequent to voter approval, they would not be restricted to the limitations set forth in Ballot Measures 5, 47, and 50. Although new bonds must be specifically voter approved, Measure 47 and 50 provisions are not applicable to outstanding bonds, unissued voter-approved bonds, or refunding bonds.

Limited Tax Bonds

Limited tax general obligation bonds (LTGOs) are similar to general obligation bonds in that they represent an obligation of the municipality. However, a municipality's obligation is limited to its current revenue sources and is not secured by the public entity's ability to raise taxes. As a result, LTGOs do not require voter approval. However, since the LTGOs are not secured by the full taxing power of the issuer, the limited tax bond represents a higher borrowing cost than general obligation bonds. The municipality must pledge to levy the maximum amount under constitutional and statutory limits, but not the unlimited taxing authority pledged with GO bonds. Because LTGOs are not voter approved, they are subject to the limitations of Ballot Measures 5, 47, and 50.

Bancroft Bonds

Under Oregon Statute, municipalities are allowed to issue Bancroft bonds which pledge the city's full faith and credit to assessment bonds. As a result, the bonds become general obligations of the city but are paid with assessments. Historically, these bonds provided a city with the ability to pledge its full faith and credit in order to obtain a lower borrowing cost without requiring voter approval. However, since Bancroft bonds

are not voter approved, taxes levied to pay debt service on them are subject to the limitations of Ballot Measures 5, 47, and 50. As a result, since 1991, Bancroft bonds have not been used by municipalities who were required to compress their tax rates.

FUNDING REQUIREMENTS

Umatilla County's TSP identifies both capital improvements and strategic efforts recommended during the next 20 years to address safety and access problems and to expand the transportation system to support a growing population and economy. They have been classified into five transportation districts. Within each transportation district, the projects are prioritized into two phases:

- Phase I: within the next five years; and
- Phase II: within the next 6 to 20 years.

Estimated project costs by transportation district and prioritization phase are shown in Table 8-6. Costs are also distributed to the various parties that are financially responsible.

TABLE 8-6
ESTIMATED COSTS OF RECOMMENDED PROJECTS BY TRANSPORTATION DISTRICT AND PHASE

	Costs ($ X 1,000)				
	City	**County**	**State**	**Private**	**Total**
District I					
Phase I	$2,977.1	$5,116.5	$1,300.1	$0.0	$24,193.7[1]
Phase II	$18,721.5	$14,360.3	$7,171.9	$200.0	$40,453.7
District 1 Subtotal	$21,698.6	$19,476.8	$8,472.0	$200.0	$64,647.4`
District II					
Phase I	$2,703.0	$35.5	$0.0	$0.0	$2,738.5
Phase II	$3,231.0	$2,161.2	$1,375.5	$0.0	$6,767.7
District II Subtotal	$5,934.0	$2,196.7	$1,375.5	$0.0	$9,506.2
District III					
Phase I	$40.0	$3,611.6	$104.0	$0.0	$3,755.6
Phase II	$0.0	$2,111.3	$1,200.9	$0.0	$3,312.2
District III Subtotal	$40.0	$5,722.9	$1,304.9	$0.0	$7,067.8
District IV					
Phase I	$0.0	$0.0	$0.0	$0.0	$0.0
Phase II	$0.0	$9.3	$84.1	$0.0	$93.4
District IV Subtotal	$0.0	$9.3	$84.1	$0.0	$93.4
District V					
Phase I Total	$0.0	$1,400.0	$0.0	$0.0	$1,400.0
Phase II Total	$0.0	$3,393.1	$240.6	$0.0	$3,633.7
District V Subtotal	$0.0	$4,793.1	$240.6	$0.0	$5,033.7
All Districts - Phase I Total	$5,720.1	$10,163.6	$1,404.1	$0.0	$32,087.8
All Districts - Phase II Total	$21,952.5	$22,035.2	$10,073.0	$200.0	$54,260.7
All Districts - Grand Total	**$27,672.6**	**$32,198.8**	**$11,477.1**	**$200.0**	**$86,348.5**

Note: 1. Includes a $14.8 million Umatilla River bridge not included in the jurisdiction subtotals.

Of the 137 projects identified in the CIP, there are a total of 70 projects identified in District 1 (Western County). Eleven of those projects, estimated to cost nearly $24.2 million, are classified as Phase I projects, to be implemented within the next five years. One of these projects is a proposed bridge over the Umatilla River. Estimated to cost $14.8 million, no party has been identified as the financial leader at this time for this project. It is estimated that the county will have a financial commitment of $5.1 million towards the Phase I projects.

In District 2 (Central County), there are a total of 23 projects identified. Six of these are classified under the Phase 1 category with a total cost estimate of $2.7 million. It is estimated that the county will have a financial commitment of $35,500 towards the Phase I projects.

In District 3 (Eastern County), there are a total of 30 projects identified. There are eleven projects classified under the Phase 1 category with a total cost estimate of $3.8 million. It is estimated that the county will have a financial commitment of $3.6 million towards the Phase I projects.

In District 4 (Southern County), there are a total of two projects identified, none of which are listed under the Phase 1 category.

In District 5 (Umatilla Indian Reservation), there are a total of 12 projects identified, one of which is listed under the Phase 1 category. The total cost for this project is $1.4 million with funding provided by the county.

In all five transportation districts, the total cost for the 29 Phase I projects is estimated at $32.1 million, with the level of county financial support estimated at $10.2 million. Phase II projects are estimated to cost a total of $54.2 million, with the county identified as providing $22.0 million.

Based on the resources available as estimated in Table 8-6 and the cost estimates provided in this Transportation System Plan, Umatilla County is expected to experience a severe budget shortfall, as shown in Table 8-7.

TABLE 8-7
ESTIMATED CAPITAL FUNDING BALANCE

	Cost ($x1,000)	
	Years 0-5	**Years 6-20**
Available	$2,085.0	$5,830.0
Needed for county-funded projects	$10,163.6	$22,035.2
Surplus (Deficit)	$(8.078.6)	$(13,411.8)
Cumulative Surplus (Deficit)	**$(8.078.6)**	**$(16,205.2)**

Given the existing cost estimates, the resources available as estimated in Table 8-7, and financial partners currently identified, Umatilla County is expected to experience a funding deficit of over $16.2 million over the 20-year planning period. However, some of the projects may be eligible for alternative funding sources. For example, several of the projects may serve to improve the overall operation of state highways. Where they do, such projects may qualify for off-system funds. Another example is the projects that include the provision of bicycle and pedestrian routes. Where such projects serve to improve the pedestrian and bicycle connectivity of the community, they may be eligible for grant funding. Finally, some of the projects may be necessitated by new development, thereby making them eligible for SDC funding. Such alternative funds would allow Umatilla County to implement additional projects within the 20-year planning horizon. Additional analysis will be required to evaluate the feasibility of these alternative funding sources.

Umatilla County will need to work with its incorporated cities and ODOT explore alternative funding sources, including the Federal Enhancement Program, bike and pedestrian grants, and other programs described in this chapter to implement the recommended improvements.

CHAPTER 9: RECOMMENDED POLICIES AND ORDINANCES

In 1991, the Oregon Transportation Planning Rule was adopted to implement State Planning Goal 12 — Transportation (amended in May and September 1995 and). The Transportation Planning Rule requires counties and cities to complete a Transportation System Plan (TSP) that includes policies and ordinances to implement that plan. Umatilla County's Land Use Plan was adopted in 1983 and amended in 1987. The County's Development Ordinance was also adopted in 1983 and last updated in 1991. In 1997, the Ordinance was recodified and given a new title: *Chapter 152: Development Code*. It is apparent that the transportation sections of these documents have not been significantly updated since the implementation of the Transportation Planning Rule. Therefore, this chapter provides language that can be adopted in order for these documents to meet the requirements of the Transportation Planning Rule and this TSP.

ELEMENTS REQUIRED BY THE TRANSPORTATION PLANNING RULE

The applicable portion of the Transportation Planning Rule is found in Section 660-12-045: Implementation of the Transportation System Plan. In summary, the Transportation Planning Rule requires that local governments revise their land use regulations to implement the TSP in the following manner:

- Amend land use regulations to reflect and implement the Transportation System Plan.
- Clearly identify which transportation facilities, services, and improvements are allowed outright, and which will be conditionally permitted or permitted through other procedures.
- Adopt land use or subdivision ordinance measures, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions, that include the following topics:
  - ⇒ access management and control;
  - ⇒ protection of public use airports;
  - ⇒ coordinated review of land use decisions potentially affecting transportation facilities;
  - ⇒ conditions to minimize development impacts to transportation facilities;
  - ⇒ regulations to provide notice to public agencies providing transportation facilities and services of land use applications that potentially affect transportation facilities; and
  - ⇒ regulations assuring that amendments to land use applications, densities, and design standards are consistent with the Transportation System Plan.
- Adopt land use or subdivision regulations for urban areas and rural communities to provide safe and convenient pedestrian and bicycle circulation, and to ensure that new development provides on-site roads and accessways that provide reasonably direct routes for pedestrian and bicycle travel.
- Establish road standards that minimize pavement width and total right of way.

These elements are discussed in the following sections, where they are grouped by similarity in terms of appropriate policy and ordinance.

APPROVAL PROCESSES FOR TRANSPORTATION FACILITIES

Section 660-12-045(1) of the Transportation Planning Rule requires that cities and counties amend their land use regulations to conform with the jurisdiction's adopted Transportation System Plan. This section of the Transportation Planning Rule is intended to clarify the approval process for transportation-related projects.

Recommended Policies for Approval Process

The Umatilla County Comprehensive Plan transportation section (Chapter 15) lists findings and policies to address the findings. Many of the policies listed call for the development of a transportation master plan to address the issues raised. The TSP acts as the transportation master plan discussed in the comprehensive plan. Therefore, Policies 1, 2, 5, 7, 9, and 15 should be updated to reflect the fact that the TSP has been adopted. Furthermore, policies should clarify the approval process for different types of projects. The following policies are recommended to be adopted and added in the transportation section of the Umatilla County Comprehensive Plan:

- The Transportation System Plan is an element of the Umatilla County comprehensive plan. It identifies the general location of transportation improvements. Changes in the specific alignment of proposed public road and highway projects shall be permitted without plan amendment if the new alignment falls within a transportation corridor identified in the Transportation System Plan.

- Operation, maintenance, repair, and preservation of existing transportation facilities shall be allowed without land use review, except where specifically regulated.

- Dedication of right of way, authorization of construction, and the construction of facilities and improvements for projects authorized in the Transportation System Plan, the classification of the roadway and approved road standards shall be allowed without land use review.

- For state projects that require an Environmental Impact Statement (EIS) or Environmental Assessment (EA), the draft EIS or EA shall serve as the documentation for local land use review, if local review is required.

- Umatilla County and the Oregon Department of Transportation will coordinate the planning and design of future transportation system improvement projects within the county.

Recommended Ordinances for Approval Process

Projects that are specifically identified in the Transportation System Plan and for which the jurisdiction has made all the required land use and goal compliance findings are permitted outright, subject only to the standards established by the Plan.

However, a jurisdiction may not allow outright an improvement that is included in the Transportation System Plan but for which no site-specific decisions have been made. Therefore, it is recommended that Umatilla County review these transportation projects as regulated land use actions, using conditional use process. This following process is recommended for inclusion in the supplementary provisions section or as a new section within the development code. Chapter 152 of the *Umatilla County Development Code* should be amended to include the following sections:

152.800 STANDARDS FOR TRANSPORTATION IMPROVEMENTS

152.801 Uses Permitted Outright. Except where otherwise specifically regulated by this ordinance, the following improvements are permitted outright:

(A) Normal operation, maintenance, repair, and preservation activities of existing transportation facilities.

(B) Installation of culverts, pathways, medians, fencing, guardrails, lighting, and similar types of improvements within the existing right of way.

(C) Projects specifically identified in the Transportation System Plan as not requiring further land use regulation.

(D) Landscaping as part of a transportation facility.

(E) Emergency measures necessary for the safety and protection of property.

(F) Acquisition of right of way for public roads, highways, and other transportation improvements designated in the Transportation System Plan except for those that are located in exclusive farm use or forest zones.

(G) Construction of a street or road as part of an approved subdivision or land partition that is consistent with the applicable land division ordinance.

152.802 Conditional Uses Permitted

(A) Construction, reconstruction, or widening of highways, roads, bridges or other transportation projects that are: (1) not improvements designated in the Transportation System Plan or (2) not designed and constructed as part of a subdivision or planned development subject to site plan and/or conditional use review, shall comply with the Transportation System Plan and applicable standards, and shall address the following criteria. For state projects that require an Environmental Impact Statement (EIS) or Environmental Assessment (EA), the draft EIS or EA shall be reviewed and used as the basis of findings for compliance with the following criteria:

(1) The project is designed to be compatible with existing land use and social patterns, including noise generation, safety, and zoning.

(2) The project is designed to minimize avoidable environmental impacts to identified wetlands, wildlife habitat, air and water quality, cultural resources, and scenic qualities.

(3) The project preserves or improves the safety and function of the facility through access management, traffic calming, or other design features.

(4) The project includes provision for bicycle and pedestrian circulation as consistent with the comprehensive plan and other requirements of this ordinance.

(B) Construction of rest areas, weigh stations, temporary storage, and processing sites.

(C) If review under this section indicates that the use or activity is inconsistent with the Transportation System Plan, the procedure for a plan amendment shall be undertaken prior to or in conjunction with the conditional permit review.

152.803 Time Limitation on Transportation-Related Conditional Use Permits

(A) Authorization of a conditional use shall be void after a period specified by the County as reasonable and necessary based on season, right of way acquisition, and other pertinent factors. This period shall not exceed three years.

In addition, the section on conditional uses will need to be amended to reflect the conditional uses permitted in Section 152.08. This section should be amended as follows:

- *Section 152.610 Definition to be amended as Section 152.609.*

- *Section 152.610 Roads and Transportation Improvements: Many roadway projects require a conditional use permit. These projects are described in Section 152.08: Conditional Uses Permitted.*

PROTECTING EXISTING AND FUTURE OPERATION OF FACILITIES

Umatilla County has ordinances in place to protect its airports with two separate Airport Overlay Zones. Additional protection of existing and planned transportation systems can be provided by ongoing coordination with other relevant agencies, adhering to the road standards, and to the access management policies and ordinances suggested below.

Section 60-12-045(2) of the Transportation Planning Rule requires that jurisdictions protect future operation of transportation corridors. For example, an important arterial for through-traffic should be protected in order to meet the community's identified needs. In addition, the proposed function of a future roadway must be protected from incompatible land uses. It is also important to preserve the operation of existing and proposed transportation facilities, such as airports, that are vulnerable to the encroachment of incompatible land uses.

Recommended Policies for Protection of Transportation Facilities

It is recommended that the following policies be added to the Transportation Section of the Umatilla County Comprehensive Plan.

- *Umatilla County shall protect the function of existing and planned roadways as identified in the Transportation System Plan.*
- *Umatilla County shall include a consideration of a proposal's impact on existing or planned transportation facilities in all land use decisions.*
- *Umatilla County shall protect the function of existing or planned roadways or roadway corridors through the application of appropriate land use regulations.*
- *Umatilla County shall consider the potential to establish or maintain accessways, paths, or trails prior to the vacation of any public easement or right of way.*
- *Umatilla County shall preserve right of way for planned transportation facilities through exactions, voluntary dedication, or setbacks.*
- *The function of airports shall be protected through the application of appropriate land use designations to assure future land uses are compatible with continued operation of the airport.*

Recommended Access Control Ordinances

The addition of a new section in the *Umatilla County Development Code* containing the following provisions is recommended to support the access management standards.

152.900 ACCESS MANAGEMENT

(A) General

The intent of this ordinance is to manage access to land development to preserve the transportation system in terms of safety, capacity, and function. This ordinance shall apply to all arterials and collectors within Umatilla County (under County jurisdiction) and to all properties that abut these roadways. This ordinance is adopted to implement

the access management policies of Umatilla County as set forth in the Transportation System Plan.

(B) Access to a State Highway

Access to state highways is regulated by the Oregon Department of Transportation (ODOT) as described in the Oregon Highway Plan and ORS 374.305. ORS 374.305 assigns ODOT the responsibility of managing access on the state highway system. Where access is proposed to a state highway, ODOT's access review under ORS 374.305 is exclusive, but will be coordinated with the cities and counties.

(C) Corner Clearance

(1) Corner clearance for connections shall meet or exceed the minimum connection spacing requirements for that roadway.

(2) New connections shall not be permitted within the functional area of an intersection or interchange as defined by the connection spacing standards of this ordinance, unless no other reasonable access to the property is available.

(3) Where no other alternatives exist, the County may allow construction of an access connection along the property line farthest from the intersection. In such cases, directional connections (i.e., right-in/out, right-in only, or right-out only) may be required.

(D) Joint and Cross Access

(1) Adjacent commercial or office properties classified as major traffic generators (i.e., shopping plazas, office parks), shall provide a cross-access drive and pedestrian access to allow circulation between sites.

(2) A system of joint use driveways and cross access easements shall be established wherever feasible and shall incorporate the following:

a) A continuous service drive or cross-access corridor extending the entire length of each block served shall have driveway separation consistent with the access management classification system and standards;

b) A design speed of 10 mph and a maximum width of 20 feet to accommodate two-way travel aisles designated to accommodate automobiles, service vehicles, and loading vehicles;

c) Stub-outs and other design features to make it visually obvious that the abutting properties may be tied-in to provide cross-access via a service drive;

d) A unified access and circulation system plan for coordinated or shared parking areas is encouraged.

(3) Businesses with shared parking areas shall be permitted a reduction in

required parking spaces if peak demands do not occur at the same time periods.

(4) Pursuant to this section, property owners shall:

a) Record an easement with the deed allowing cross-access to and from other properties served by the joint-use driveways and cross-access or service drive;

b) Record an agreement with the deed that remaining access rights along the roadway will be dedicated to the County and pre-existing driveways will be closed and eliminated after construction of the joint-use driveway;

c) Record a joint maintenance agreement with the deed defining maintenance responsibilities of property owners.

(5) The County may reduce required separation distance of access points where they prove impractical, provided all of the following requirements are met:

a) Joint-access driveways and cross-access easements are provided in accordance with this section.

b) The site plan incorporates a unified access and circulation system in accordance with this section.

c) The property owner enters into a written agreement with the County, recorded with the deed, that pre-existing connections on the site will be closed and eliminated after construction of each side of the joint-use driveway.

(6) The County may modify or waive the requirements of this section where the characteristics or layout of abutting properties would make a development of a unified or shared access and circulation system impractical.

(E) Access Connection and Driveway Design

(1) Driveways shall meet the following standards:

a) If the driveway is a one-way in or one-way out drive, then the driveway shall be a minimum width of 10 feet and a maximum width of 12 feet, and shall have appropriate signage designating the driveway as a one-way connection.

b) For two-way access, each lane shall have a minimum width of 10 feet and a maximum width of 12 feet.

(2) Driveway approaches must be designed and located to provide an exiting vehicle with an unobstructed view. Construction of driveways along acceleration or deceleration lanes and tapers shall be avoided due to the potential for vehicular weaving conflicts.

(3) The length of driveways shall be designed in accordance with the anticipated storage length for entering and exiting vehicles to prevent vehicles from

backing into the flow of traffic on the public road or causing unsafe conflicts with on-site circulation.

Section 152.01(A) pertaining to access shall be incorporated into this section as (E)(4). Section 152.010(B) pertaining to driveways shall be incorporated into this section as (E)(5).

(F) Requirements for Phased Development Plans

(1) In the interest of promoting unified access and circulation systems, development sites under the same ownership or consolidated for the purposes of development and comprised of more than one building site shall be reviewed as single properties in relation to the access standards of this ordinance. The number of access points permitted shall be the minimum number necessary to provide reasonable access to these properties, not the maximum available for that frontage. All necessary easements, agreements, and stipulations shall be met. This shall also apply to phased development plans. The owner and all lessees within the affected area are responsible for compliance with the requirements of this ordinance and both shall be cited for any violation.

(2) All access must be internalized using the shared circulation system of the principal development or retail center. Driveways shall be designed to avoid queuing across surrounding parking and driving aisles.

(G) Nonconforming Access Features

(1) Legal access connections in place as of (date of adoption) that do not conform with the standards herein are considered nonconforming features and shall be brought into compliance with applicable standards under the following conditions:

a) When new access connection permits are requested; or

b) Change in use or enlargements or improvements that will increase trip generation.

(H) Reverse Frontage

(1) Lots that front on more than one road shall be required to locate motor vehicle accesses on the road with the lower functional classification.

(2) When a residential subdivision is proposed that would abut an arterial, it shall be designed to provide through-lots along the arterial with access from a frontage road or interior local road. Access rights of these lots to the arterial shall be dedicated to Umatilla County and recorded with the deed. A berm or buffer yard may be required at the rear of through-lots to buffer residences from traffic on the arterial. The berm or buffer yard shall not be located with the public right of way.

(I) Flag Lot Standards

(1) Flag lots shall not be permitted when the result would be to increase the number of properties requiring direct and individual access connections to the

State Highway System or other arterials.

(2) Flag lots may be permitted for residential development when necessary to achieve planning objectives, such as reducing direct access to roadways, providing internal platted lots with access to a residential road, or preserving natural or historic resources, under the following conditions:

a) Flag lot driveways shall be separated by at least twice the minimum frontage requirement of that zoning district.

b) The flag driveway shall have a minimum width of 20 feet and maximum width of 30 feet.

c) In no instance shall flag lots constitute more than 10 percent of the total number of building sites in a recorded or unrecorded plat, or three lots or more, whichever is greater.

d) The lot area occupied by the flag driveway shall not be counted as part of the required minimum lot area of that zoning district.

e) No more than one flag lot shall be permitted per private right of way or access easement.

(J) Lot Width-to-Depth Ratios

(1) To provide for proper site design and prevent the creation of irregularly shaped parcels, the depth of any lot or parcel shall not exceed three times its width (or four times its width in rural areas) unless there is a topographical or environmental constraint or an existing man-made feature.

(K) Shared Access

(1) Subdivisions with frontage on the state highway system shall be designed to have shared access points to and from the highway. Normally a maximum of two accesses shall be allowed regardless of the number of lots or businesses served. If access off a secondary road is possible, then access should not be allowed onto the state highway. If access off a secondary road becomes available, then conversion to that access is encouraged, along with closing the state highway access.

(L) Connectivity

(1) The road system of proposed subdivisions shall be designed to connect with existing, proposed, and planned roads outside of the subdivision, as provided in this section.

(2) Wherever a proposed development abuts unplatted land or a future development phase of the same development, road stubs shall be provided to provide access to abutting properties or to logically extend the road system into the surrounding area. All road stubs shall be provided with a temporary turn-around unless specifically exempted by the Public Works Director, and the restoration and extension of the road shall be the responsibility of any future

developer of the abutting land.

(3) Minor collector and local residential access roads shall connect with surrounding roads to permit the convenient movement of traffic between residential neighborhoods or facilitate emergency access and evacuation. Connections shall be designed to avoid or minimize through-traffic on local roads. Appropriate design and traffic control such as four-way stops and traffic calming measures are the preferred means of discouraging through traffic.

(M) Variances to Access Management Standards

(1) The granting of the variance shall meet the purpose and intent of these regulations and shall not be considered until every feasible option for meeting access standards is explored.

(2) Applicants for a variance from these standards must provide proof of unique or special conditions that make strict application of the provisions impractical. Applicants shall include proof that:

a) Indirect or restricted access cannot be obtained;

b) No engineering or construction solutions can be applied to mitigate the condition; and

c) No alternative access is available from a road with a lower functional classification than the primary roadway.

(3) No variance shall be granted where such hardship is self-created.

Recommended Ordinances to Protect Public Use Airports

The Oregon Airport Land Use Compatibility Guidelines (November 1994), which have been distributed to all county and city planning departments, provide examples for ordinance development. While the Umatilla County Development Code contains guidelines for development in the Airport Overlay zones for the Hermiston and Pendleton Airport, these standards could be made more clear with the addition of definitions and a more detailed list of what is and is not permissible in the districts.

More recently, the Oregon Land Conservation and Development Department has adopted new Administrative Rules 660-013 to implement ORS 836.600 through 836.630 and Statewide Planning Goal 12. These Rules are intended to promote a convenient and economic system of airports and for land use planning to reduce risks to aircraft operations and nearby land uses. Counties and Cities are required to adopt comprehensive plan and land use regulations for airports consistent with the requirements of the ORS and OAR cited above and which are to be coordinated with transportation system plans.

Several model ordinances have been developed for local governments to use as a guide in implementing the Administrative Rule. It is recommended that these model ordinances be used to update Section 152.390 through 152.394 (AH-H, Hermiston Airport Hazard Overlay Zone), Sections 152.405 through 152.409 (AH-P, Pendleton Airport Hazard Overlay) and a new section to establish an overly zone for the Buttercreek Airport which has not been previously addressed but qualifies for protection under the new ORS and OAR.

PROCESS FOR COORDINATED REVIEW OF LAND USE DECISIONS

A lack of coordination between state and local decision processes can result in costly delays and changes in public road and highway projects, as well as some maintenance and operation activities. Section 660-12-045(2)(d) of the Transportation Planning Rule requires that jurisdictions develop a process for the coordinated review of land use decisions affecting transportation facilities. The following recommended policies will establish coordinated review. These should be included in the Umatilla County Comprehensive Plan Transportation Element.

Recommended Policies for Coordinated Review

- *Umatilla County shall coordinate with the Oregon Department of Transportation (ODOT) to implement the highway improvements listed in the Statewide Transportation Improvement Program (STIP) that are consistent with the Transportation System Plan and County comprehensive plan.*
- *Umatilla County shall provide notice to ODOT of land use applications and development permits for properties that have frontage or access onto a state highway.*
- *Umatilla County shall consider the findings of ODOT's draft Environmental Impact Statements and Environmental Assessments as integral parts of the land use decision-making procedures. Other actions required, such as a goal exception or plan amendment, will be combined with review of the draft EA or EIS and land use approval process.*

Recommended Process for Applying Conditions to Development Proposals

Section 660-12-045(2)(e) of the Transportation Planning Rule requires that jurisdictions develop a process to apply conditions to development proposals in order to minimize impacts on transportation facilities.

The site plan review process is a useful tool for a small jurisdiction. Umatilla County may want to amend its site plan review process (Umatilla County Development Code Section 152.647(G) so that applicants are required to provide data on the potential traffic impacts of a project through a traffic impact study or, at least an estimation of the number of trips expected to be generated. Recommended language to be included under site plan criteria is as follows:

- *The proposed use shall not impose an undue burden on the public transportation system. For developments that are not likely to generate more than 400 average daily motor vehicle trips (ADTs), the applicant shall provide adequate information, such as a traffic impact study or traffic counts, to demonstrate the level of impact to the surrounding road system. The developer shall be required to mitigate impacts attributable to the project.*
- *The determination of impact or effect and the scope of the impact study should be coordinated with the provider of the affected transportation facility*.

Section 152.647(G) contains conditions to be applied in the event that a proposed project is demonstrated to have potentially adverse effects on the transportation system. It is suggested that following be added Section 152.642(G)(3).

- *These improvements include paving, curbing, installation or contribution to traffic signals, construction of sidewalks, bikeways, accessways, paths, or roads that serve the proposed use where the existing transportation system may be burdened by the proposed use.*

Recommended Regulations to Provide Notice to Public Agencies

Review of land use actions is typically initiated by a notice. This process is usually defined by a procedures

ordinance or noticing policy. Section 152.770 Public Notices of the Umatilla County Development Code requires notice for Type I through IV land use processes. Section 152.770(C) states:

> The County will also send the notice to, and request comments from, all local, state, and federal agencies which staff can determine might or would be affected by the request, including but not limited to: irrigation districts, rural fire districts or fire service providers, nearby municipalities, utility companies with known easements or facilities on the property, the county road department, the Watermaster, and the county assessor.

This section should be expanded to include the following language:

> *ODOT should receive timely notice of any land use action on or adjacent to a state facility. Similarly, all actions by the County potentially affecting a city street should provide notice to that jurisdiction.*

Information that should be conveyed to reviewers includes:

- *Project location.*
- *Proposed land use action.*
- *Location of project access point(s).*

Additional information to be supplied upon request (provided the information is available) includes a site plan showing the following:

- *Distances to neighboring constructed access points, median openings, traffic signals, intersections, and other transportation features on both sides of the property;*
- *Number and direction of lanes to be constructed on the driveway, plus striping plans;*
- *All planned transportation features (lanes, signals, bikeways, walkways, crosswalks, etc.);*
- *Trip generation data or appropriate traffic studies;*
- *Parking and internal circulation plans for vehicles and pedestrians;*
- *Plat map showing property lines, right of way, and ownership of abutting properties;*
- *A detailed description of any requested variance; and*
- *If airport-related, proximity to nearest runway.*

Recommended Regulations to Assure that Amendments are Consistent with the Transportation System Plan

Section 660-12-045(2)(g) of the Transportation Planning Rule requires that jurisdictions develop regulations to assure that all development proposals, plan amendments, or zone changes conform with the Transportation System Plan. This requirement can be addressed by adding a policy to the Comprehensive Plan, as follows:

- *All development proposals, plan amendments, or zone changes shall conform with the adopted Transportation System Plan.*

Within the development code, development proposals can be addressed through site plan review, discussed above. Applicants for zone changes and plan amendments need to demonstrate that these changes will be consistent with the Comprehensive Plan (including the Transportation System Plan which comprises part of that document). The Development Code does address the need to comply with the Comprehensive Plan in Section 152.751 governing zone changes and plan amendments. However, additional statements should be added to the ordinance:

(A) A plan or land use regulation amendment significantly affects a transportation facility if it:

(1) Changes the functional classification of an existing or planned transportation facility;

(2) Changes standards implementing a functional classification system;

(3) Allows types or levels of land use that would result in levels of travel or access that are inconsistent with the functional classification of a transportation facility; or

(4) Would reduce the level of service of the facility below the minimum acceptable level identified in the Transportation System Plan.

(B) Amendments to the comprehensive plan and land use regulations which significantly affect a transportation facility shall assure that allowed land uses are consistent with the function, capacity, and level of service of the facility identified in the Transportation System Plan. This shall be accomplished by one of the following:

(1) Limiting allowed land uses to be consistent with the planned function of the transportation facility;

(2) Amending the Transportation System Plan to ensure that existing, improved, or new transportation facilities are adequate to support the proposed land uses consistent with the requirement of the Transportation Planning Rule; or,

(3) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes.

SAFE AND CONVENIENT PEDESTRIAN AND BICYCLE CIRCULATION

Bicycling and walking are often the most appropriate mode for short trips. Especially in small cities where the downtown area is compact, walking and bicycling can replace short auto trips, reducing the need for construction and maintenance of new roads. However, the lack of safe and convenient bikeways and walkways can be a strong discouragement to using these mode choices. The Transportation Planning Rule (660-12-045(3)) requires that urban areas and rural communities plan for bicycling and walking as part of the overall transportation system.

Recommended Ordinances for Bicycle and Pedestrian Circulation and Access

Sections 660-12-045(3)(b), (c), and (d) of the Transportation Planning Rule deals with providing facilities for safe and convenient pedestrian and bicycle circulation and access, both within new residential and commercial development, and on public roads. In order for walking and bicycling to be viable forms of transportation, especially in smaller cities where they can constitute a significant portion of local trips, the proper facilities must be supplied. In addition, certain development design patterns, such as orienting commercial uses to the road and placing parking behind the building, make a commercial district more accessible to non-motorized transportation and to existing or future transit.

The Transportation Planning Rule specifies that, at a minimum, sidewalks and bikeways be provided along arterials and collectors in urban areas. Separate bicycle and pedestrian facilities should be provided where these would safely minimize trips distances by providing a "short cut." Small cities should enhance existing ordinances by including the following recommended, additions and recommendations. The recommendations

should be placed within the appropriate section of the Development Code. Definitions should be placed in Section 152.003 of the of the Umatilla County Development Code.

Definitions:

Accessway. A walkway that provides pedestrian and bicycle passage either between roads or from a road to a building or other destination such as a school, park, or transit stop. Accessways generally include a walkway and additional land on either side of the walkway, often in the form of an easement or right of way, to provide clearance and separation between the walkway and adjacent uses. Accessways through parking lots are generally physically separated from adjacent vehicle parking or parallel vehicle traffic by curbs or similar devices and include landscaping, trees, and lighting. Where accessways cross driveways, they are generally raised, paved, or marked in a manner that provides convenient access for pedestrians.

Bicycle. A vehicle designed to operate on the ground on wheels, propelled solely by human power, upon which any person or persons may ride, and with two tandem wheels at least 14 inches in diameter. An adult tricycle is considered a bicycle.

Bicycle Facilities. A general term denoting improvements and provisions made to accommodate or encourage bicycling, including parking facilities and all bikeways.

Bikeway. Any road, path, or way that is some manner specifically open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are shared with other transportation modes.

Pedestrian Facilities (also Walkway). A general term denoting improvements and provisions made to accommodate or encourage walking, including sidewalks, accessways, crosswalks, ramps, paths, and trails.

Neighborhood Activity Center. An attractor or destination for residents of surrounding residential areas. Includes, but is not limited to existing or planned schools, parks, shopping areas, transit stops, and employment areas.

Reasonably direct. A route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.

Safe and convenient. Bicycle and pedestrian routes that are:

> *Reasonably free from hazards, and*
>
> *Provide a reasonably direct route of travel between destinations, considering that the optimum travel distance is one-half mile for pedestrians and three miles for bicyclists.*

Walkway. A hard-surfaced area intended and suitable for pedestrians, including sidewalks and the surfaced portions of accessways.

Umatilla County's land division review process should include a requirement to show the design and location of bicycle parking and bicycle and pedestrian circulation elements such as accessways and walkways. It is recommended that the following language be added to the land use regulations in Section 152.648 Creation of Streets, Easements and Private Streets and Right of way; Minimum Standards; Bicycle and Pedestrian Circulation Access:

(D) Bicycle Parking. The development shall include the number and type of bicycle parking facilities required in the Off-Road Parking and Loading section of this Title. The location and design of bicycle parking facilities shall be indicated on the site plan.

(E) Pedestrian Access and Circulation.

(1) Internal pedestrian circulation shall be provided in new commercial, office, and multi-family residential developments through the clustering of buildings, construction of hard surface walkways, landscaping, accessways, or similar techniques.

(F) Commercial Development Standards.

(1) New commercial buildings, particularly retail shopping and offices, shall be oriented to the road, near or at the setback line. A main entrance shall be oriented to the road. For lots with more than two front yards, the building(s) shall be oriented to the two busiest roads.

(2) Off-road motor vehicle parking for new commercial developments shall be located at the side or behind the building(s).

(G) All site plans (industrial and commercial) shall clearly show how the site's internal pedestrian and bicycle facilities connect with external existing or planned facilities or systems.

The County Development Code should reflect the intent of the Transportation Planning Rule by adding the following provision to Section 152.647 Improvement Agreements.

(H) Approval of Subdivision Tentative Plans and Final Plats. Information required shall include the location and design of all proposed pedestrian and bicycle facilities, including accessways.

The County Development Code should amend Section 152.648(C) Minimum Standards to incorporate the

following language into the existing requirements for cul-de-sac design.

(3b) Cul-de-sacs or permanent dead-end roads may be used as part of a development plan; however, through-roads are encouraged except where topographical, environmental, or existing adjacent land use constraints make connecting roads infeasible. Cul-de-sac lengths in excess of 300 feet are prohibited. Where cul-de-sacs are planned, accessways shall be provided connecting the ends of cul-de-sacs to each other, to other roads, or to neighborhood activity centers.

(3c) Accessways for pedestrians and bicyclists shall be 10 feet wide and located within a 20-foot-wide right of way or easement. If the roads within the subdivision are lighted, the accessways shall also be lighted. Stairs or switchback paths may be used where grades are steep.

(3d) Accessways for pedestrians and bicyclists shall be provided at mid-block where the block is longer than 600 feet.

(3e) The Hearings Body or Planning Director may determine, based upon evidence in the record, that an accessway is impracticable. Such evidence may include but is not limited to:

a) Physical or topographic conditions make an accessway connection impractical. Such conditions include but are not limited to extremely steep slopes, wetlands, or other bodies of water where a connection cannot reasonably be provided.

b) Buildings or other existing development on adjacent lands physically preclude a connection now or in the future.

c) Where accessways would violate provisions of leases, easements, covenants, restrictions, or other agreements existing as of May 1, 1995 that preclude a required accessway connection.