City of Pilot Rock

Transportation System Plan

Final Report

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CHAPTER 1: INTRODUCTION

The City of Pilot Rock Transportation System Plan (TSP) guides the management of existing transportation facilities and the design and implementation of future facilities for the next 20 years. This Transportation System Plan constitutes the transportation element of the City's Comprehensive Plan and satisfies the requirements of the Oregon Transportation Planning Rule established by the Department of Land Conservation and Development. It identifies and prioritizes transportation projects for inclusion in the Oregon Department of Transportation's (ODOT's) Statewide Transportation Improvement Program (STIP).

PLANNING AREA

The City of Pilot Rock's Transportation System Plan planning area covers the entire area within the Pilot Rock Urban Growth Boundary (UGB). The planning area is shown on Figure 1-1. Roadways included in the Transportation System Plan fall under three jurisdictions: the city of Pilot Rock, Umatilla County, and the state of Oregon.

Pilot Rock is located in the central portion of Umatilla County in the northeastern corner of Oregon. The City has a population of roughly 1,600 people. It is laid out in a grid pattern, which is broken up by three creeks and US 395 which runs through the middle of the City. The City's commercial development is concentrated along US 395 in the downtown. The City's biggest employers are lumber companies and there are numerous farms within the UGB. Pilot Rock has its own school district and is conveniently located approximately 15 miles south of Pendleton, which is the largest city in the county.

The US 395 runs northeast-southeast through Pilot Rock acting as both a through route and as the primary commercial street downtown. The highway connects the cities to Pendleton, Stanfield, Hermiston, Umatilla and Washington State to the north; and Ukiah, John Day, and California to the south. Five paved county roads also provide access to the City; (1) County Road No 1375 (East Birch Creek Road) which runs south from US 395, (2) County Road No. 1386 (Circle Road) which runs north from the City, (3) County Road No. 1150 (Stewart Creek Road) which runs east along the city limits, (4) County Road No. 1391 (known locally as Delwood Street) in the southwest, and (5) County Road No. 1151 (known locally as Elm Street) in the east. Additionally, County Road No. 1388 (Stock Drive Road), a dirt road, provides access to Pilot Rock from the west. These roadways allow easy access to the regional production, distribution, and marketing centers in the area and function as arterials and collectors throughout the City. The Oregon Department of Transportation (ODOT) has jurisdiction over US 395, the county has jurisdiction over the county roads, and the City has jurisdiction over the rest of the existing roadways.

The Union Pacific Railroad right-of-way runs northeast to southwest into the UGB and city limits stopping just north of downtown.

Pilot Rock is a major wood processing center for the county. The City's three largest employers in May 1986, were Louisiana Pacific, U.S. Gypsum (USG Industries), and Pine-Lam, Inc. The labor force is subject to seasonal unemployment due to the cyclical nature of natural resource-based industries.

PLANNING PROCESS

The Pilot Rock Transportation System Plan 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. 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 Pilot Rock community (Chapter 1)
- Defining goals and objectives (Chapter 2)
- Reviewing existing plans and transportation conditions (Chapters 3, 4, and Appendices A and B)
- Developing population, employment, and travel forecasts (Chapter 5, and Appendix C)
- Developing and evaluating potential transportation system improvements (Chapter 6)
- Developing the Transportation System Plan and a capital improvement plan (Chapter 7)
- Evaluate funding options and develop financial plan(Chapter 8)
- Developing recommended policies and ordinances (Chapter 9)

Community Involvement

Community involvement is an integral component in the development of a TSP for the city of Pilot Rock, Umatilla County and each of the other seven cities covered under the Umatilla County TSP process. Since the communities faced many similar transportation and land use issues, a public involvement program involving all the jurisdictions was used. This process allowed for individual attention when needed, and general problem solving for all jurisdictions as appropriate. Several different techniques were utilized to involve each local jurisdiction, ODOT, 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, from 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 Pilot Rock 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 community, the county, and the management team/TAC, a set of goals and objectives were defined for the TSP. These goals and objectives were used to make decisions about various potential improvement projects. They are described in Chapter 2.

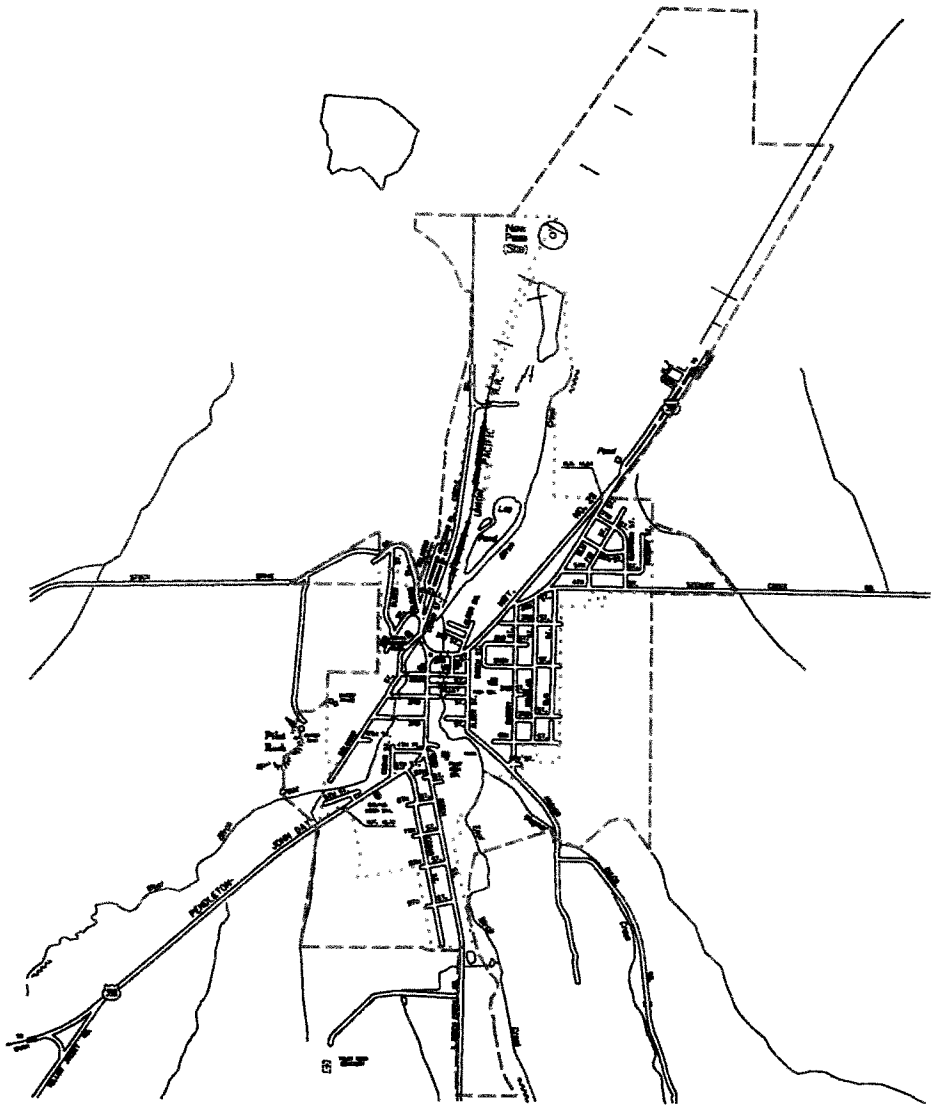
Review and Inventory of Existing Plans, Policies, and Public Facilities

To begin the planning process, all applicable Pilot Rock and Umatilla County transportation and land use plans and policies were reviewed and an inventory of public facilities was conducted. The purpose of these

LEGEND:

- - - - - - URBAN GROWTH BOUNDARY

. . . . . CITY LIMITS



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NORTH
(NOT TO SCALE)

FIGURE 1-1

Planning Area -Pilot Rock

City of Pilot Rock TSP

UMC00001/PILO1-1.DGN/TNT/07-03-98

efforts was to understand the history of transportation planning in the Pilot Rock area, including the street system improvements planned and implemented in the past, and how the City 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 arterial and collector street 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 and 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. The evaluation of potential transportation improvements was 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 local working group, 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 street system plan was developed from the forecasting and potential improvement evaluations 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. Chapter 7 details the plan elements for each mode.

Funding Options

The city of Pilot Rock will need to work with Umatilla County and ODOT 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).

RELATED DOCUMENTS

The city of Pilot Rock TSP addresses the regional and rural transportation needs in the City. There are several other documents that address specific transportation elements or areas in Umatilla County that may directly or indirectly impact transportation elements in and around Pilot Rock.

Other Transportation System Plans Prepared Concurrently with the Pilot Rock TSP

In addition to the Pilot Rock TSP, seven small city TSPs were prepared in conjunction with the Umatilla County TSP project. These documents include:

- City of Adams TSP
- City of Athena TSP
- City of Echo TSP
- City of Helix TSP
- City of Stanfield TSP
- City of Ukiah TSP
- City of Weston TSP

Pilot Rock Comprehensive Plan

The Pilot Rock Comprehensive Plan was adopted in 1978, and amended in 1986. The plan provides goals and policies for guiding the future growth and development of the City. Two of the City's 13 goals strongly impact the development of the Transportation System Plan – Goal K: Transportation and Goal J: Public Facilities and Services. The policies enacted by the City in support of these goals are summarized in Appendix A.

Goal K: Transportation

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

Applicable Policies

1. To repave city streets and provide curbs and sidewalks as resources are available.

2. To encourage development and use of alternate means of transportation to the private automobile.

3. To work with ODOT to minimize conflicts between through and local traffic on US 395, to reduce traffic hazards and expedite the flow of traffic by limiting access to and from the highway with the Urban Growth Area, and planning for adequate access to property adjacent to the highway.

4. To development of good transportation linkages (vehicular, pedestrian, bicycle, etc.) between residential areas and major activity centers.

5. To encourage the continuing availability of rail transportation linkages to mainline services. for the industrial area.

6. To work with Umatilla County to develop joint policies concerning local roads and streets within the Urban Growth Boundary.

7. To adopt the recommendation in the Oregon Department of Transportation Six-Year Highway Improvement Plan that occurs within the Urban Growth Boundary.

Goal J: Public Facilities and Services

To plan and develop a timely, orderly, and efficient arrangement of public facilities and services to serve as a framework for urban development.

Applicable Policies

1. To develop, maintain, update, and expand police and fire services, streets and sidewalks, water and sewer systems, and storm drains as necessary to provide adequate facilities and services to the community.

Pilot Rock Technical Report

The Pilot Rock Technical Report offers background information for the City regarding the natural environment, the socioeconomic environment (including population indicators) and establishment of the Urban Growth Boundary (UGB). The report contains road classifications for roadways through the City. The classifications are listed in the Appendix: Table X, 1997 Major Street Inventory. This report was last revised in 1986. Therefore, much of the data is now outdated. Key findings regarding transportation facilities are summarized in Appendix A of this TSP.

Pilot Rock Subdivision Ordinance

The city of Pilot Rock Subdivision Ordinance was adopted in 1986. It regulates all subdivisions and partitions of lands, within the city limits. (Umatilla County is responsible for regulating subdivision and partitions outside of the city limits but within the Urban Growth Boundary. However, the City reviews and comments on all plans, plats, or maps for those areas). It also regulates the construction of new or undeveloped streets within the City and Urban Growth Boundary as well as general requirements and design standards for streets including the provision of sidewalks and bicycle facilities to support safe and efficient pedestrian and bicycle mode use. The ordinance explains the Pilot Rock street classifications and street standards and are summarized in Appendix A of this TSP.

Pilot Rock Zoning Ordinance

The Pilot Rock Zoning Ordinance was adopted in 1986. The purported purpose of zoning ordinance is as follows:

> To promote the public health, safety, and welfare; to encourage the most appropriate use of property within the City; to stabilize and protect the value of property; to provide adequate light and air; to prevent overcrowding; to lessen traffic congestion; to facilitate adequate and economical provision for public improvements, all to implement the Comprehensive Plan of the city of Pilot Rock; to provide a method of administration and to provide penalties for violation of the provision herein.

The Ordinance contains 12 sections. The only section that applies directly to transportation is the section on off-street parking and loading.

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.

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 1528 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.

Corridor Strategies

Corridor strategies have been prepared for both US 395 and OR 11.

The US 395 corridor is covered in two studies: *the US Highway 395 North (Umatilla-Stanfield) Draft Corridor Strategy* and the *US Highway 395 South (Pendleton-California Border) Corridor Strategy*. The Corridor Strategies were developed to identify projects for the Oregon State Transportation Improvement Program. 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.

The US 395 Corridor Strategies contain a corridor overview, which 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 that are intended to embody this overall strategy for the corridor, and to set direction and provide guidance for corridor-wide transportation plans and improvements.

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 the city of Pilot Rock to meet its transportation goals and objectives. The following goals and objectives were developed from information contained in the City's Comprehensive Plan and reflect public concerns as 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 nearby highways.

Objectives

A. Develop access management standards.

B. Develop alternative, parallel routes where practical.

C. Promote alternative modes of transportation to the private automobile.

D. Promote transportation demand management programs.

E. Promote transportation system management.

F. Develop procedures to minimize impacts and protect transportation facilities, corridors, or sites during the development review process.

Goal 2

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

Objectives

A. Meet identified maintenance level of service standards on the county and state highway systems.

B. Repave city streets and provide curbs and sidewalks as resources are available.

C. Develop and adhere to a five-year road program for maintenance and improvement of the existing city road system.

D. Review and revise, if necessary, street cross section standards for local, collector, and arterial streets to enhance safety and mobility.

E. Develop access management strategies with ODOT for US 395 through the Urban Growth Boundary to ensure adequate access to property adjacent to the highway while limiting access to and from the highway.

F. Develop access management strategies for anywhere else needed.

G. Evaluate the need for traffic control devices.

H. Evaluate the safety of the street system and develop plans to mitigate any safety hazards.

I. Encourage the provision of transportation alternatives for elderly and handicapped citizens.

Goal 3

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

Objectives

A. Work with Umatilla County to coordinate roadway maintenance and improvements and to develop joint policies concerning local roads and streets within the Urban Growth Boundary.

B. Work with ODOT to minimize conflicts between through and local traffic and reduce traffic hazards on US 395.

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

D. Work with the county in establishing right-of-way needed for new roads identified in the Transportation System Plans.

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

F. Consider pooling resources with other cities and the county to provide services that benefit areas both in and outside the City.

Goal 4

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

Objectives

A. Cooperate with other cities and the county to create inter-city transit service.

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

C. Explore opportunities for bicycle facilities and coordinate with the county bicycle planning efforts.

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

Goal 5

Encourage the continued rail transportation linkage to mainline services.

Objective

A. Maintain operational status of the Union Pacific rail line.

CHAPTER 3: TRANSPORTATION SYSTEM INVENTORY

As part of the planning process, David Evans and Associates, Inc., conducted an inventory of the existing transportation system in Pilot Rock. This inventory covered the street system as well as the pedestrian, bikeway, public transportation, rail, air, water, and pipeline systems.

STREET 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 nearly all American cities is the roadway system. This trend is clearly seen in the existing Pilot Rock transportation system, which consists almost entirely of roadway facilities for cars and trucks. Because of the rural nature of the area, the street system will most likely continue to be the basis of the transportation system for at least the 20-year planning period; therefore, the emphasis of this plan is on improving the existing street system for all users.

The existing street system inventory was conducted for all highways, arterial roadways, and collector roadways within Pilot Rock, as well as those in Umatilla County that are included in the TSP planning area. Inventory elements include:

- Street classification and jurisdiction
- Street width
- Number of travel lanes
- Presence of on-street parking, sidewalks, or bikeways
- Speed limits
- General pavement conditions

Figure 3-1 shows the roadway functional classification and jurisdiction. Appendix B lists the complete inventory.

Street Classification

The Pilot Rock Technical Report, the background information for the City's Comprehensive Plan, provides functional classifications for the streets within the City. The Technical Report is not adopted as part of the Comprehensive Plan, but remains the supporting document that is subject to revisions as new technical data become available. When new data indicate that the City's plan should be revised, amendments to the technical report shall be made.

The Pilot Rock Technical Report designates streets within the City as arterials, major collectors or minor collectors. All streets not classified are assumed to be local streets. No definitions are provided for the street classifications. There is some inconsistency with the Pilot Rock Zoning Ordinance which classifies (but does not designate) streets as arterials, collectors, local streets, cul-de-sacs, alleys, and marginal access streets. The zoning ordinance also provides definitions for these roadway classifications, as well as road

design standards. DEA will recommend a consistent street classification system, including definitions and roadway design standards, as part of the development of this TSP.

Typically, a city the size of Pilot Rock would classify streets as either arterials, collectors, or local streets. Definitions for these classifications are provided below. Based on conditions observed during the field reconnaissance (traffic volumes, street widths, etc.), DEA verified the classification of the streets classified in the Pilot Rock Technical Report, as described below. The roadway classifications shown in Figure 3-1 reflect the classifications as designated in the Pilot Rock Technical Report. The inventory includes city, county, and state roadways.

Arterials

Arterials form the primary roadway network within and through a region. They provide a continuous road system that distributes traffic between cities, neighborhoods, and districts. Generally, arterials are high capacity roadways that carry high traffic volumes entering or leaving the City.

In Pilot Rock, there is one street which functions as an arterial: US 395 (also called Pendleton–John Day Highway). This roadway serves as the focus for most of the commercial development in the City.

Collectors

Collectors serve traffic within the commercial, industrial, and residential neighborhood areas. They connect local neighborhoods or districts to the arterial network. Collectors help form part of the grid system; however, they are not intended to function as alternate routes to the arterial system.

The Pilot Rock Technical Report classified six streets as major collectors: NW Cedar Street, Birch Street, Main Street (east of US 395), Alder Street (between Main Street and US 395), and 4th Street/Stewart Creek Road,.

Seven streets were classified as minor collectors: Delwood Street (south of 2nd Street), 2nd Street (west of US 395), Alder Street, SE 5th Street, Cherry Street, Elm Street, and Delwood Place. Field reconnaissance by DEA indicated that Delwood Place is currently a dirt road and does not function as a collector, therefore it is not shown as a collector on Figure 3-1.

Local Streets

Local streets provide access to all parcels of land and serve travel over relatively short distances. They are designed to carry the very low traffic volumes associated with the local uses which abut them. Through traffic movements are discouraged on local streets.

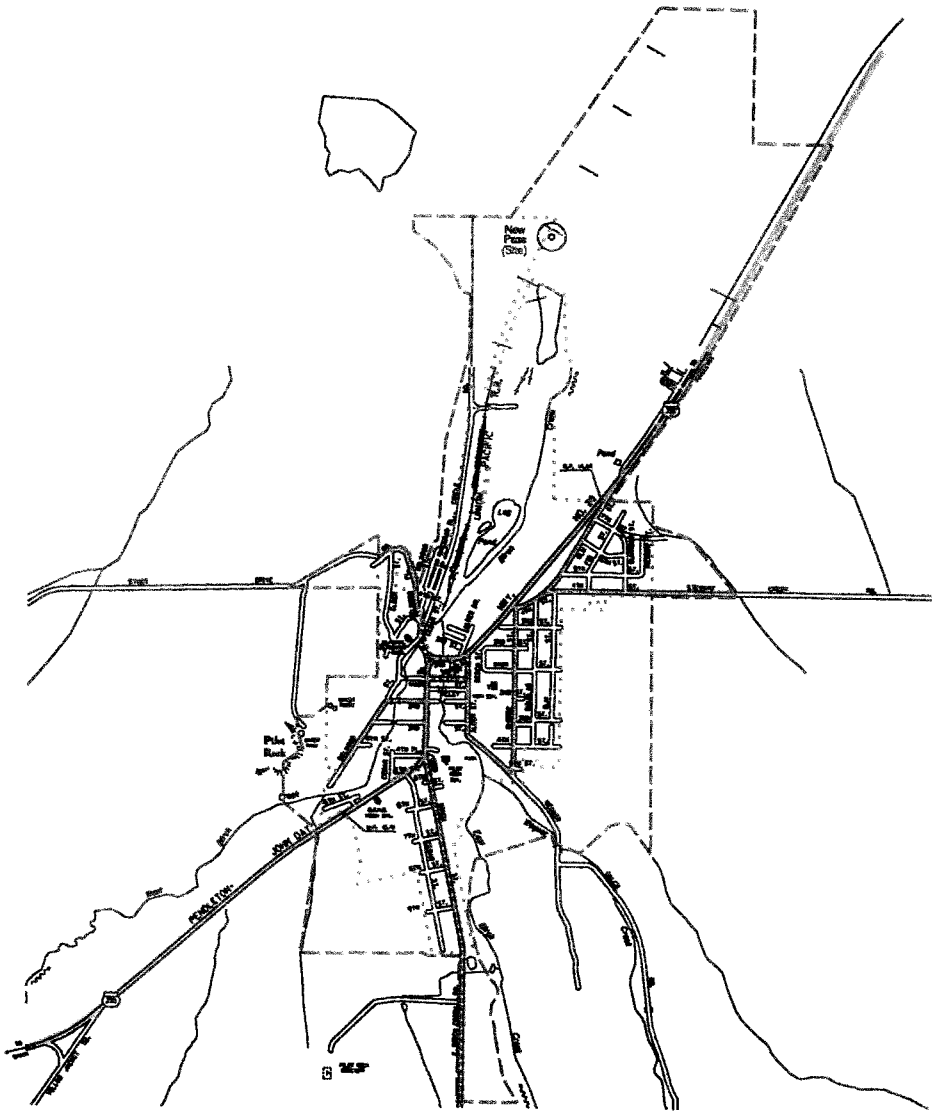
The local streets in Pilot Rock are comprised of all streets not classified as either arterials or collectors.

Street Layout

The development of the Pilot Rock street system is constricted by natural hazards. Pilot Rock is situated at the confluence of three creeks. East and West Birch Creek come together just north of the downtown area and form Birch Creek. Also, Wegner Creek flows into East Birch Creek near the south city limits. In addition, the

LEGEND:

ARTERIAL
MAJOR COLLECTOR
MINOR COLLECTOR
INDUSTRIAL / COMMERCIAL STREET
LOCAL STREET
URBAN GROWTH BOUNDARY
CITY LIMITS



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NORTH
(NOT TO SCALE)

FIGURE 3-1

Roadway Functional Classification -Pilot Rock

City of Pilot Rock TSP

UMCO0001/PILO3-1.DGN/TNT/07-03-98

basalt rock formation on the west side of the City has steep slopes which constrain development. For these reasons, the City did not develop in a regular grid pattern, although there are small sections of the City which are laid out in a grid. The City also contains many discontinuous, or dead-end, streets due to a lack of vehicular bridges over the creeks; however; there are many useful pedestrian bridges over the creeks, which connect the dead-end streets. US 395 is the main arterial through the City and runs north-south, connecting Pilot Rock to Ukiah to the south, and to Pendleton to the north.

State Highways

Discussion of the Pilot Rock street system must include the state highways that traverse the planning area. Although Pilot Rock has no direct control over the state highways, adjacent development and local traffic patterns are heavily influenced by the highways. Pilot Rock is served by one state highway, US 395. This highway serves as the major route through the City with commercial and industrial development focused along its corridor.

The *1999 Oregon Highway Plan* (OHP) classifies the state highway system into five categories: Interstate, Statewide, Regional, District, and Local Interest. ODOT has established primary and secondary functions for each type of highway and objectives for managing the operations for each one.

US 395

US 395 between Pendleton and John Day running through the city of Pilot Rock is classified as a State Highway. According to the 1999 OHP, the primary function of a State Highway is to "provide connections and links to larger urban areas, ports, and major recreation areas that are not directly served by interstate highways." The management objective for statewide highways is to provide for safe and efficient high-speed, continuous-flow operation in rural areas and high- to moderate-speed operations with limited interruptions of flow in urban and urbanizing areas. This means that design factors such as controlling access and providing passing lanes are of primary importance.

The stretch of US 395 between Pendleton and John Day is also known as the *Pendleton - John Day Highway* and is a State Highway. Beginning in Pendleton at the I-84 junction and extending south through Pilot Rock to John Day, it ends at the California State border. The rural stretch of highway is primarily two lanes with a speed limit of 55 mph, except within the Pilot Rock city limits where the highway is two to four lanes and traffic is subject to lower speeds varying between 25 and 45 mph with 20 mph school zones. US 395 traverses Pilot Rock from north to south and serves as the major route through the City with commercial and industrial development focused along its corridor.

In 1997, an ODOT study team and Corridor Management Team developed the US 395 South (Pendleton–California Border) Draft Corridor Strategy, an overall corridor strategy and objectives for managing, operating, and improving the transportation corridor between Pendleton and California over the next 20 years. The Corridor Strategy was developed to identify projects for the Oregon STIP. Development of the US 395 South Corridor Strategy is the first step in the corridor planning process. Corridor planning is intended to implement the goals and policies set for the by the 1992 Oregon Transportation Plan (OTP), the 1999 Highway Plan, and the recent modal plans for rail, freight, bike/pedestrian, aviation, and public transportation plus the safety action plan.

Generally, the Corridor Strategy translates the policies of the OTP into specific actions; describes the functions of each transportation mode, considers trade-offs, and shows how they will be managed; identifies and prioritizes improvements for all modes of travel; indicates where improvements should be made;

resolves any conflicts with local land use ordinances and plans; and establishes guidelines for how transportation plans will be implemented.

The US 395 South Corridor Strategy contains a corridor overview, which 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 report sets forth objectives that are intended to embody this overall strategy for the corridor, and sets direction and provides guidance for corridor-wide transportation plans and improvements.

The US 395 South Corridor Strategy will be followed-up by the US 395 South Corridor Plan which will build upon objectives developed in the Strategy to identify, refine, and facilitate the acceptance of specific decisions related to corridor transportation management, capital improvements and service improvements. The Corridor Plan will identify and discuss the decisions considered to meet each objective, technical analysis of alternatives, and recommendations for action.

GENERAL PAVEMENT CONDITIONS

City Streets

The ODOT Pavements Unit published a 1994 report entitled, Pavement Rating Workshop, Non-National Highway System. This report thoroughly defines the characteristics that pavements must display to be categorized as Very Good and so on. The report also provides color photographs of roadways that display these characteristics, which aids in field investigation and rating of pavement condition. These established guidelines were employed by DEA in conducting a subjective evaluation of pavement condition for all collectors within the city of Pilot Rock.

An inventory of the City's collectors, conducted by DEA in November 1997, indicated that pavement on Birch Street, Cedar Street, Stewart Creek Road/4th Street and Elm Street is in fair condition, where pavement on Alder Street and Cherry Street is in poor condition.

State Highways

The Oregon Department of Transportation's (ODOT's) Pavement Unit surveys the state highway system on an annual basis. Observed severity levels of certain distress types are used to determine a pavement condition rating score. These scores are used to stratify pavement segments into five condition categories: (1) Very Good, (2) Good, (3) Fair, (4) Poor, and (5) Very Poor. The *Umatilla County Transportation System Plan* briefly defines these condition categories.

The section of US 395 extending through Pilot Rock was repaved in 2000 and is in very good condition.

BRIDGES

The Oregon Department of Transportation maintains an up to date inventory and appraisal of Oregon bridges. Part of this inventory involves the evaluation of three mutually exclusive elements of bridges. One element identifies which bridges are structurally deficient. This 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. Another element identifies which bridges are functionally obsolete. This element is determined based on the appraisal rating for the deck geometry, under-clearances, approach roadway alignment, structural condition, or waterway adequacy. The third element summarizes the sufficiency ratings for all bridges. 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 0 to 100 with higher ratings indicating optimal conditions and lower ratings indicating insufficiency. Bridges with ratings under 55 may be nearing a structurally deficient condition.

There are a total of five bridges within the city of Pilot Rock; three are city-owned and maintained, one is county owned and maintained, with the remaining bridge along US 395 under state jurisdiction. These bridges are all structurally sound.

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. Because pedestrian facilities are generally an afterthought, they are not planned as an essential component of the transportation system.

The relatively small size of Pilot Rock indicates that walking could be employed regularly, weather permitting, to reach a variety of destinations. Encouraging pedestrian activities may not only decrease the use of the personal automobile but may also provide benefits for retail businesses. Where people find it safe, convenient, and pleasant to walk, they may linger and take notice of shops overlooked before. They may also feel inclined to return to renew the pleasant experience time and again.

The sidewalk system in the core of Pilot Rock is relatively complete. Sidewalks exist on the east and west side of US 395 between 4th Place and Main Street Sidewalk exists along the west side of the highway, between 4th Street and Main Street. Main Street has sidewalks on both sides between the pedestrian bridge West Birch Creek and Alder Street. Sidewalks exist on the west side of Alder Street from Main Street to just south of 5th Street. Short sections of sidewalk exist on 2nd Street and 3rd Street, west of US 395, but most are in poor condition. Curb cuts for wheelchair access are largely lacking even where sidewalks exist. There are some locations were there are built-up curb ramps; however, they are too steep to meet Americans with Disabilities Act (ADA) requirements. Crosswalks exist at the intersections of US 395 and 3rd Street, US 395 and Main Street and US 395 and Alder Drive. The complete pedestrian system inventory is shown in Figure 3-2.

BIKEWAY SYSTEM

Like pedestrians, bicyclists are often overlooked when considering transportation facilities. Bicycles are not often considered as a serious mode of transportation. 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. Because of the small size of Pilot Rock, a cyclist can travel to any destination in town within a matter of minutes.

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 one-half mile.

Pilot Rock currently has sanctioned bikeways in the northern part of town on two streets, Cedar Street and US 395. The bike lane on Cedar Street is 6 feet wide and roughly a mile long, running north on the west side of the street from the intersection with Delwood Street to the last mill near the city limits. The other bike lane is also 6 feet wide. It is located on the east side of US 395 from the intersection with Alder Street north to the intersection with 4th Street. On the rest of the city's streets, bicyclists must share the roadways with motorized vehicles. On low volume roadways, such as many of the local streets, bicyclists and automobiles can both safely and easily use the roadway. On higher volume roadways, particularly US 395, safety for the bicyclists is an important issue.

An impediment to bicycle use is the lack of parking and storage facilities for bikes throughout the city of Pilot Rock.

PUBLIC TRANSPORTATION

The only intercity bus service in Umatilla County is provided by Greyhound bus lines which provides service along I-84, US 395, and OR 11 within Umatilla County. Greyhound has terminals located in Hermiston and Pendleton that 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 OR 11.

Pilot Rock has a dial-a-ride type 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. This service is provided by the Pilot Rock Lions Club.

Pilot Rock has no local fixed-route transit service at this time. The small size and low traffic volumes on city streets indicate that mass transit is not necessary or economically feasible at this time. The Transportation Planning Rule exempts cities with a population of less than 25,000 from developing a transit system plan or a transit feasibility study as part of their Transportation System Plans.

RAIL SERVICE

Pilot Rock has freight rail service. Until recently, AMTRAK service was available in Hermiston and Pendleton along the rail line that follows the I-84 corridor from Portland to Boise, Idaho and points east. 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. This line serves only freight traffic now.

The Union Pacific Railroad right-of-way runs northeast to southwest into the UGB and city limits stopping just north of downtown. This rail line carries freight between Pilot Rock and Pendleton one to two times per week. The line connects to the Union Pacific main line that runs through Pendleton. In addition to this line, there are two nearby lines. A major freight line owned and operated by Union Pacific Railroad, a Class I line-haul freight railroad, stops in Hermiston. Also, a limited rail service exists between Milton-Freewater and Weston on the Blue Mountain Railroad consisting of one freight train per day (maximum) or some local switching.

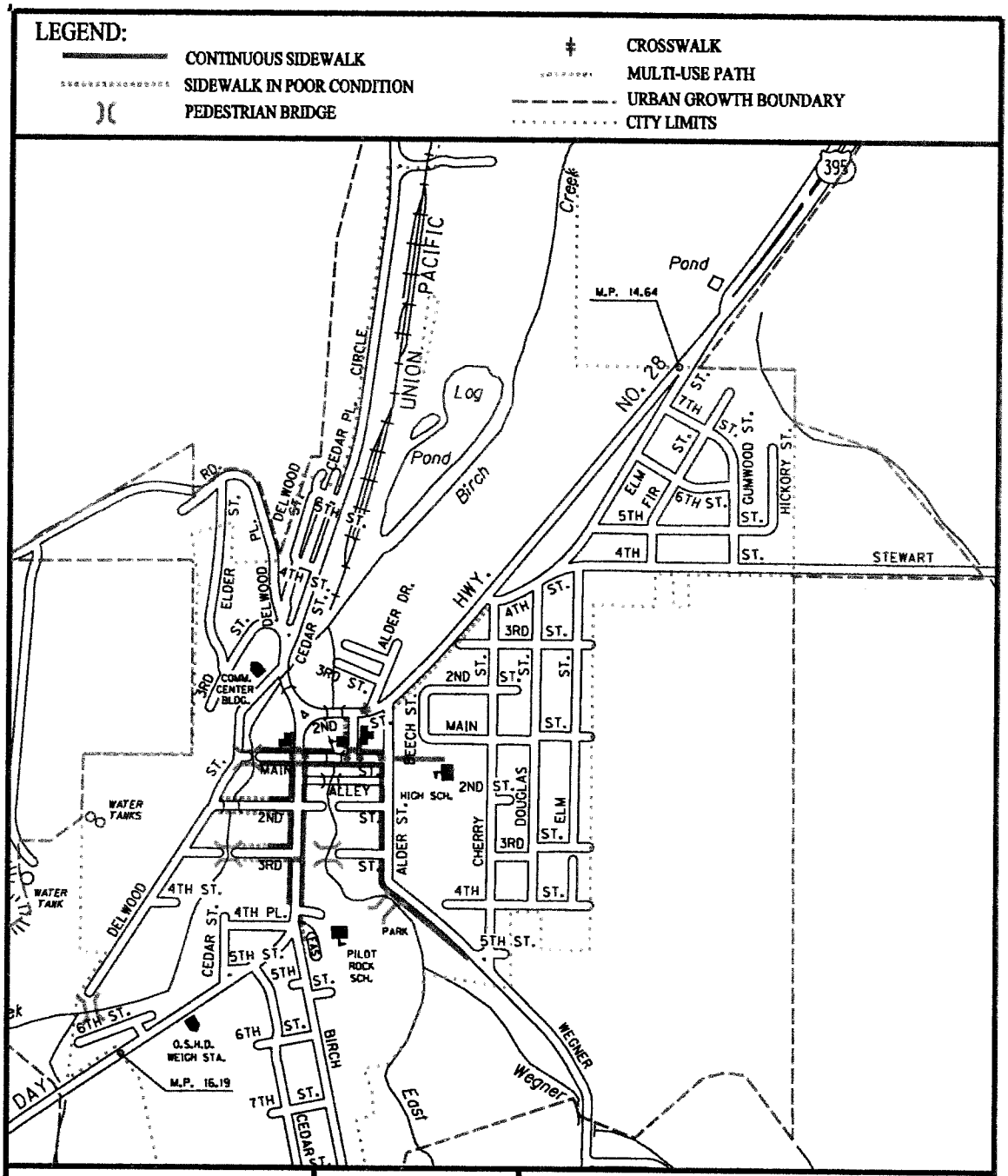

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FIGURE 3-2

Pedestrian System Inventory -Pilot Rock

City of Pilot Rock TSP

UMC00001/PILO3-2.DGN/TNT/07-03-98

AIR SERVICE

The city of Pilot Rock is served by Eastern Oregon Regional Airport in Pendleton, which is approximately 20 miles north of Pilot Rock and by Hermiston Municipal Airport, which is approximately 40 miles northwest of Pilot Rock.

Eastern Oregon Regional Airport in Pendleton is a tower controlled airport with 40,600 annual operations. Passenger service includes 16 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, 4 rotor, and 8 CH-47 Chinook helicopters with the Oregon Army Air Guard.

The city of Hermiston owns and operates a municipal airport. No 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. 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.

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. Cascade Natural Gas uses these lines to provide natural gas service to Pilot Rock residents.

WATER TRANSPORTATION

Pilot Rock has no water transportation services. The nearest commercial port is the Port of Umatilla located in the northwest corner of the county along the Columbia River.

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 Pilot Rock. Census data were examined to determine travel mode distributions. Traffic counts were used to determine how well traffic is currently flowing.

TRAFFIC VOLUMES

Historic traffic volume counts, documented in the ODOT *Traffic Volume Tables*, exist for US 395 in Pilot Rock.

Average Daily Traffic

The Average Daily Traffic (ADT) volumes on US 395 in Pilot Rock are shown in Figure 4-1. Traffic volumes are highest on US 395 in the center of town (between Second Street and Main Street), at 4,400 vehicles per day (vpd). Traffic volumes on US 395 range from 2,100 vpd to 3,700 vpd in the rest of the urbanized and drop off dramatically outside the urbanized area. US 395 volumes are approximately 1,300 vpd at the south city limit and approximately 3,100 at the north city limit. Traffic volumes on US 395 in Pilot Rock have seen little growth since 1990. Some locations showed an average annual growth rate of 2 to 3 percent per year; however, other locations reported lower average daily traffic volumes in 1996 than in 1990.

The traffic volumes shown on Figure 4-1 and other volume figures are average volumes for the year. Summer is the season when volumes are highest. ODOT data on US 395 west of Pilot Rock indicate that during the summer season, volumes are about 25 percent higher than average volumes.

No other daily or hourly traffic data were available for the city streets in Pilot Rock, nor were any counts taken. Because the daily volumes on US 395 in the City were fairly low, traffic volumes on the other city streets were expected to be very low, and capacity deficiencies on city streets do not appear to be an issue in Pilot Rock.

Street 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 street 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 4-1 presents the level of service criteria for arterial roadways.

TABLE 4-1
LEVEL OF SERVICE CRITERIA FOR ARTERIAL AND COLLECTOR STREETS

Service Level[1] (v/c Ratio)[2]	Typical Traffic Flow Conditions
A (0.00-0.48)	Relatively free flow of traffic with some stops at signalized or stop sign controlled intersections. Average speeds would be at least 30 miles per hour.
B (0.49-0.59)	Stable traffic flow with slight delays at signalized or stop sign controlled intersections. Average speed would vary between 25 and 30 miles per hour.
C (0.60-0.69) C-D (0.70-0.73)	Stable traffic flow with delays at signalized or stop sign controlled intersections. Delays are greater than at level B but still acceptable to the motorist. The average speeds would vary between 20 and 25 miles per hour.
D (0.74-0.83) D-E (0.84-0.87)	Traffic flow would approach unstable operating conditions. Delays at signalized or stop sign controlled intersections would be tolerable and could include waiting through several signal cycles for some motorists. The average speed would vary between 15 and 20 miles per hour.
E (0.84-0.97) E-F (0.98-0.99)	Traffic flow would be unstable with congestion and intolerable delays to motorists. The average speed would be approximately 10 to 15 miles per hour.
F (≥1.00)	Traffic flow would be forced and jammed with stop and go operating conditions and intolerable delays. The average speed would be less than 10 miles per hour.

Source: (1) Transportation Research Board, *Highway Capacity Manual*, Special Report 209. National Research Council, 1985.
(2) ODOT, *SIGCAP Users Manual.* ODOT, 1994.

The 1999 *Oregon Highway Plan* (OHP) establishes mobility standards for the state highway system[1]. Highways of statewide importance, such as US 395, should operate at a v/c ratio of 0.80where the average speeds are less than 45 mph in urban and urbanizing areas inside the urban growth boundary.

The traffic operation was determined at a representative intersection (Cedar Street) along US 395 using the 1985 Highway Capacity Software for unsignalized intersections. This software is based on the 1985 Highway Capacity Manual, Special Report 209, published by the Transportation Research Board. Since all intersecting streets and driveways are controlled by stop signs in the City, the analysis was performed for an unsignalized intersection. The peak hour traffic on the highway was assumed to be 10 percent of the 24-hour ADT volume and the directional split was assumed to be 60/40. Because side street traffic volumes were unavailable, an assumed volume of 100 vph was used and unsignalized intersection level-of-service calculations were made for the intersection. The peak hour operations at the intersection are shown in Table 4-2.

[1]1999 *Oregon Highway Plan*, Table 6. MAXIMUM VOLUME TO CAPACITY RATIOS OUTSIDE METRO.

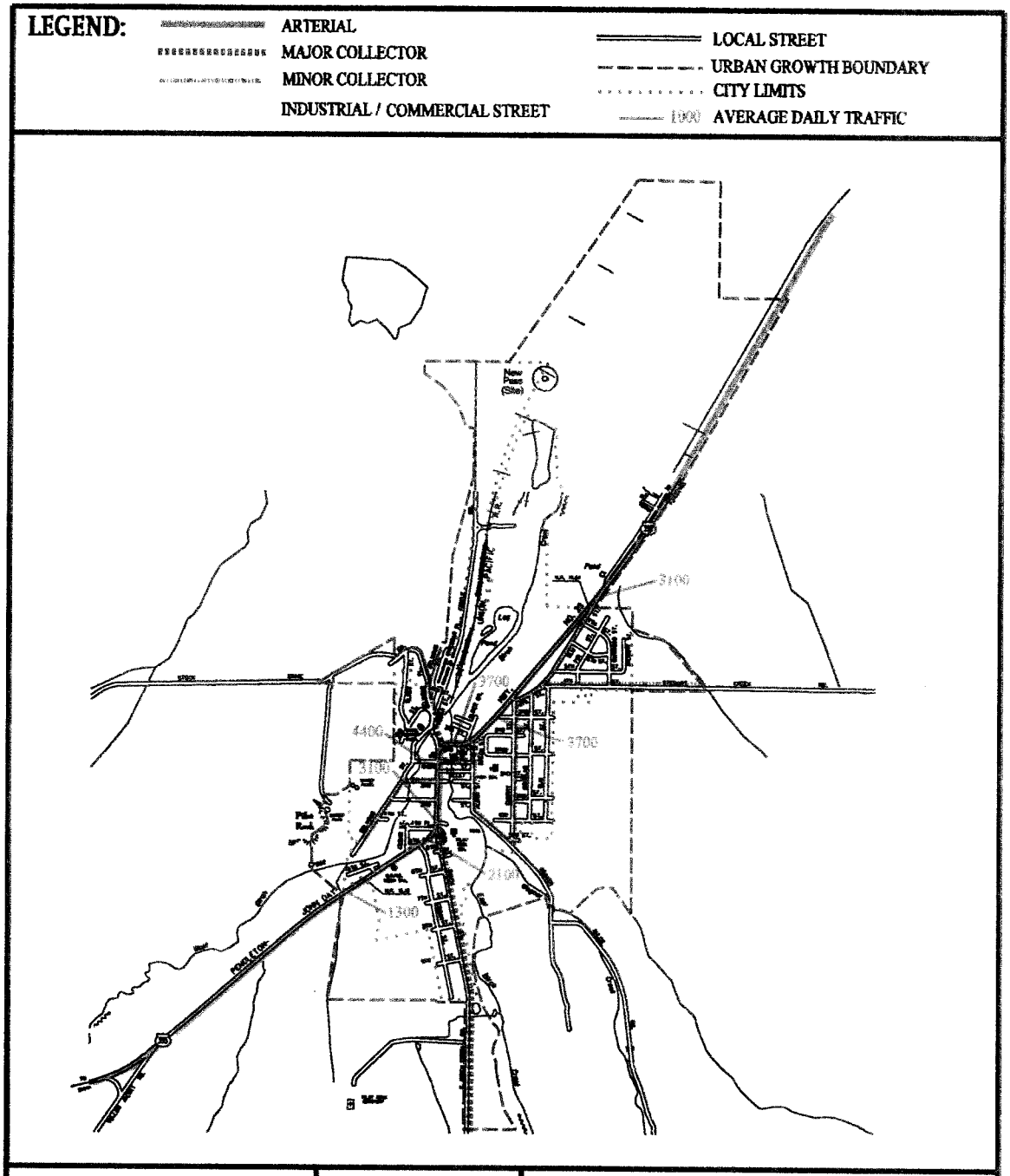

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FIGURE 4-1

1996 Average Daily Two-Way Traffic Volumes -Pilot Rock

City of Pilot Rock TSP

UMC00001/PILO4-1.DGN/TNT/07-03-98

TABLE 4-2
SUMMARY OF OPERATIONS AT US 395 AND CEDAR STREET

Location	Movement	1996 LOS (v/c)
US 395 and Cedar Street	Northbound; Left	A (<0.48)
	Eastbound; Left, Right	A(<0.48)

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

In general, the intersection currently operates very well at LOS A (v/c ratio less than 0.48). Traffic on the arterial streets flow smoothly and the northbound left turn at this T-intersection. These left-turn movement levels of service correlate to maximum v/c ratios of less than 0.48.

TRANSPORTATION DEMAND MANAGEMENT MEASURES

In addition to inventorying the transportation facilities in Pilot Rock, an inventory was performed of any Transportation Demand Management (TDM) strategies that may currently be in place. TDM strategies are designed to relieve congestion on the street system by spreading peak hour traffic over a longer period of time, encouraging the use of alternative modes of transportation (i.e. sidewalks, bike lanes, public transit), and encouraging the single car driver to ride with others through local carpool programs. Other than the sidewalk and bicycle facilities that exist in Pilot Rock, no formal TDM strategies exist in the City.

This following sections briefly describe two elements that may impact future transportation demand management decisions in the City: 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 4-3). Morning to work trips are spread over a wider time period than is the case for most Oregon cities. Approximately 45 percent of the total employees (those not working at home) depart for work between 6:00 and 8:00 a.m. Another 23 percent depart in either the hour before or the hour after the peak. Therefore, over two-thirds of all morning commute trips occur between 5:00 a.m. and 9:00 a.m.

TABLE 4-3
DEPARTURE TO WORK DISTRIBUTION

	1990 Census	
Departure Time	**Trips**	**Percent**
12:00 a.m. to 4:59 a.m.	45	7.5%
5:00 a.m. to 5:59 a.m.	98	16.2%
6:00 a.m. to 6:59 a.m.	136	22.5%
7:00 a.m. to 7:59 a.m.	138	22.8%
8:00 a.m. to 8:59 a.m.	42	7.0%
9:00 a.m. to 9:59 a.m.	11	1.8%
10:00 a.m. to 10:59 a.m.	6	1.0%
11:00 a.m. to 11:59 a.m.	0	0%
12:00 p.m. to 3:59 p.m.	91	15.1%
4:00 p.m. to 11:59 p.m.	37	6.1%
Total	**604**	**100.0%**

Source: US Bureau of Census.

Assuming an average nine-hour workday, the corresponding afternoon peak can be determined for work trips. Using this methodology, the peak work travel hour would occur between 3:00 and 5:00 p.m. which, in many cases, corresponds with the peak hour of measured traffic volumes.

Travel Mode Distribution

Although the automobile is the primary mode of travel for most residents in the Pilot Rock area, 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 4-4 and reflect the predominant use of the automobile in this area.

In 1990, 90.3 percent of all trips to work were in a private vehicle (auto, van, or truck). Trips in single-occupancy vehicles made-up 90.1 percent of these trips, and carpooling accounted for 9.9 percent.

The 1990 census data indicated that bicycles were not utilized for transportation. Since the census data do not include trips to school or other non-work activities, overall bicycle usage may be greater. Two roadways in northern Pilot Rock include dedicated bicycle lanes. Dedicated bicycle lanes can encourage bicycle commuting, as can other facilities such as bicycle parking, showers, and locker facilities.

Pedestrian activity was average (4.6 percent of trips to work) in 1990. Statewide, 4.2 percent of trips to work were made on foot. Again, the census data only report trips to work; trips to school or other non-work activities are not included.

TABLE 4-4
JOURNEY TO WORK TRIPS

	1990 Census	
Trip Type	**Trips**	**Percent**
Private Vehicle	567	90.3%
Drove Alone	*511*	*90.1%*
Carpooled	*56*	*9.9%*
Public Transportation	0	0%
Motorcycle	0	0%
Bicycle	0	0%
Walk	29	4.6%
Other	8	1.3%
Work at Home	24	3.8%
Total	**628**	**100.0%**

Source: US Bureau of Census.

ACCIDENT ANALYSIS

The Oregon Department of Transportation (ODOT) collects detailed accident information on an annual basis along US 395 (Pendleton-John Day Highway) within the Pilot Rock city limits (MP 14.64 to MP 16.19). The accident information data show overall accident rates for the routes and accident locations. The accident rate for a stretch of roadway is typically calculated as the number of accidents per million vehicle miles traveled along that segment of roadway.

Historic

Table 4-5 shows the accident rates for US 395 in Pilot Rock as well as the Oregon statewide average for urban non-freeway primary state highways from January 1, 1994 to December 31, 1996. The accident rates for US 395 during 1994 and 1995 are substantially lower than the statewide average for similar highways. The 1996 accident rate slightly exceeds the statewide average.

TABLE 4-5
HISTORIC ACCIDENT RATES FOR STATE HIGHWAYS
(ACCIDENTS PER MILLION VEHICLE MILES TRAVELED)

Highway	1996	1995	1994
US 395 in Pilot Rock	3.64	0.71	1.42
Average for all Urban Non-freeway Primary State Highways	3.63	3.98	3.45

Source: Oregon Department of Transportation Accident Rate Tables.

Table 4-6 contains detailed accident information on US 395 in Pilot Rock from January 1, 1994 to December 31, 1996. It shows the number of fatalities and injuries, property damage only accidents, the total number of accidents, and the overall accident frequencies and rates for the segments of these roadways in Pilot Rock.

TABLE 4-6
ACCIDENT SUMMARY FOR US 395
(JANUARY 1, 1994 TO DECEMBER 31, 1996)

Location	Fatalities	Injuries	Property Damage Only	Total Accidents	Accident Frequency (acc/mi/yr)	Accident Rate (acc/mvm)
MP 14.59 to MP 16.19	1	4	4	8	1.67	1.92

Source: Oregon Department of Transportation Accident Summary Database Investigative Report.

During the three-year period, there were a total of eight accidents, four of which were reported as resulting in property damage only. There was one fatality and four injuries on this roadway segment during the period. Five of the accidents occurred at intersections and three occurred on wet or icy pavement. The accidents were scattered along the roadway segment and overall, there were no definitive patterns in the accident locations, types or causes. There is no evidence to suggest that intersection operations (signals, signing, striping, etc.) were a contributing factor in any of the accidents.

CHAPTER 5: TRAVEL FORECASTS

The traffic volume forecasts for Umatilla County and its municipalities are based on historic growth of 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 plays an important part in projecting future traffic volumes. Population forecasts were developed to help determine future transportation needs since the amount of growth and where it occurs will affect traffic and transportation facilities in the study area. The population analysis presented here 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 was 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 initially projected in the DEA forecast.

Historic and projected population estimates for Umatilla County, Pilot Rock, and seven other cities in the county are summarized in Table 5-1. Factors that will affect the future growth rates of the county and incorporated cities include employment opportunities, available land area for development, and community efforts to manage growth.

TABLE 5-1
UMATILLA COUNTY POPULATION TRENDS

	1970[1]	1980[1]	1990[1]	1996[1] Estimate	2017[2] Projected
Umatilla County	44,923	58,855	59,249	65,500	80,073
Incorporated Cities					
Pilot Rock	**1,612**	**1,630**	**1,478**	**1,570**	**1,650**
Adams	219	240	223	260	310
Athena	872	965	997	1,105	1,360
Echo	479	624	499	530	660
Helix	152	155	150	185	230
Stanfield	891	1,568	1,568	1,755	2,490
Ukiah	NA	249	250	280	340
Weston	660	719	606	680	730

Sources:
1) Portland State University Center for Population Research and Census.
2) The population forecast shown for the county has been officially adopted, however there is no official breakdown in population for the incorporated cities in the county. The projected population numbers shown for the eight cities are based on the initial OEA forecast, solely for the purpose of producing travel forecasts for these cities.

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

Umatilla County recently worked with the OEA 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 C. This appendix contains both the original estimates of the OEA and the new official estimates for the county.

As mentioned, Umatilla County has adopted new population estimates for the county as a whole. The new estimates have been disaggregated to determine how much growth is likely to occur in each city.

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. Pilot Rock did grow between 1970 and 1980, but population losses in the 1980's reduced its population by 10 percent from the 1970 census figures. Other communities saw similar growth, but did not experience any losses for 1980 to 1990. In Stanfield, the number of people 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.. Since 1990, Pilot Rock has grown at a slightly slower rate than the rest of the county at 1.0 percent per year..

Projected Growth

The State Office of Economic Analysis prepared long-term population projections by county, but since the county has not yet allocated adopted population numbers to incorporated cities, preliminary population forecasts for the jurisdictions of Adams, Athena, Echo, Helix, Pilot Rock, Stanfield, Ukiah, and Weston were developed in five-year increments based on the initial OEA population forecast. (See Umatilla County Population Discussion – Appendix C.) This was done only for the purpose of producing the future traffic forecast and should not be used for anything other then the intended purpose.

The population forecast for Pilot Rock projects continued growth, although at a significantly slower rate than it experienced in the 1990's. It should maintain an average growth rate of .3 percent, which will increase its population to 1650 people in the next 20 years, which is an increase of 80 people since 1996 (Table 5-1).

Overall, Umatilla County is also expected to experience healthy rates of population growth, averaging nearly one percent annually over the next 20 years. The western portion of Umatilla County is expected to grow faster than the rest of Umatilla County,. However, like much of rural Oregon, the economy of Umatilla

County remains largely seasonal, with nearly one-quarter of all employment agriculture-based. This makes population projections difficult, and are not likely to be as stable as the forecasts imply.

TRAFFIC VOLUMES

Traffic volume projections for the year 2018 are based on historic growth trends of 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 Pilot Rock roadway system. Historic data are only available for the state highway system in Pilot Rock; however, this highway carries far more traffic than any other roads in the City. The Oregon Department of Transportation (ODOT) collects traffic count data on the state highways (rural and urban sections) every year at the same locations. These counts have been conducted at seven locations on US 395 (Pendleton-John Day Highway) in Pilot Rock.

Historical growth trends on US 395 in and around Pilot Rock 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 selected locations along the highway. Using a linear regression analysis of the average AADT volumes between 1976 and 1996, an average annual growth rate was determined. Table 5-2 summarizes the historic average growth rate on each of these sections.

TABLE 5-2
HISTORIC TRAFFIC GROWTH RATES ON STATE HIGHWAYS

Highway Section	Average Annual Growth Rate 1976-1996	Total Growth 1976-1996
US 395 (Pendleton-John Day Hwy)		
Rural section- Pendleton to Pilot Rock	1.45%	33.3%
Pilot Rock- north city limits	1.18%	26.5%
Pilot Rock- 0.01 miles south of 3rd Street	-0.69%	-12.9%
Pilot Rock- south city limits	1.63%	38.3%
Rural section- Pilot Rock to Long Creek	2.04%	49.7%

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

Based on volumes from ODOT's annual count locations over the 20-year period from 1976 to 1996, the average annual growth rate on US 395 in Pilot Rock has ranged from approximately -0.7 to 1.6 percent per year. On the rural section of the highway north of Pilot Rock, traffic has been growing at a rate of approximately 2.1 percent per year. South of Pilot Rock, traffic has also been growing at a rate of nearly 2.1 percent per year. In general, the increase in the number of trips over the 20-year period considered is highest north of Pilot Rock and lowest south of Pilot Rock. The higher growth rates at the south city limits and on the southern rural section from Pilot Rock to Long Creek are somewhat misleading since these locations experienced the smallest net increases in the number of trips; however, these locations experience low traffic volumes so the small increases in trips resulted in a higher percentage of the location's base year trips.

Traffic growth on US 395 in Pilot Rock averaged 0.61 percent per year over the last 20 years. Although modest, traffic growth between 1976 and 1996 exceeded the population growth in Pilot Rock itself, which was negative during that period. Pilot Rock experienced a growth spurt between 1990 and 1996 where

population growth averaged 1.0 percent per year (the result of an increase of 92 residents over the six years); however, traffic volumes on the highway grew at less than 1 percent per year during that period. Typically, the rate of traffic growth exceeds that of population growth, as it did over the past 20 years; however, that has not been the case in Pilot Rock since 1990.

Future Traffic Volumes

Based on the official OEA estimates for the county, the population in Pilot Rock is forecast to grow at a rate of 0.3 percent per year over the next 20 years. It was decided that the most appropriate growth rate to project future traffic is that rate which was 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 1996 through 2018. Traffic volumes are expected to grow at a rate of 0.61 percent per year (14.3 percent by the year 2018) to 3,085 vpd on the highway. This estimate is consistent with the traffic forecasts in the *Corridor Strategy of US Highway 395 South (Pendleton-California Border).*

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 5-3.

TABLE 5-3
FORECAST TRAFFIC VOLUMES AND TOTAL GROWTH ON STATE HIGHWAYS

Location	1996 ADT (vehicles/day)	2018 ADT (vehicles/day)	Total Growth 1996-2018
US 395 *(Pendleton-John Day Hwy)*			
Pilot Rock- north city limits	3,100	3,545	14.3%
Pilot Rock- 0.01 miles south of 3rd Street	3,700	4,230	14.3%
Pilot Rock- south city limits	1,300	1,485	14.3%

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

HIGHWAY SYSTEM CAPACITY

For the year 2018, unsignalized intersection analyses were performed using the overall growth (14.3 percent) expected on US 395 at the same intersection in Pilot Rock for which the existing conditions were analyzed. The analyses indicated that all three intersections are expected to exceed ODOT level of service standards over the 20-year forecast period. The results of the unsignalized intersection analyses are shown in Table 5-4. Traffic operations were determined at the intersection using the 1985 Highway Capacity Software for unsignalized intersections. This software is based on the 1985 *Highway Capacity Manual*, Special Report 209, published by the Transportation Research Board.

TABLE 5-4
SUMMARY OF FUTURE OPERATIONS AT US 395 AND CEDAR STREET

Location	Movement	1996 LOS	2018 LOS
US 395 and Cedar Street	Northbound; Left	A(< 0.48)	A(< 0.48)
	Eastbound; Left, Right	A(< 0.48)	A(< 0.48)

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

Analysis Results

Traffic movement volumes at the intersection of US 395 and Cedar Street are forecast to increase by nearly 15 percent over the 20-year forecast period. However, all traffic movements at the intersection are expected to continue to operate at LOS A (v/c ratio less than 0.48) throughout the 20-year forecast period.

CHAPTER 6: IMPROVEMENT OPTIONS ANALYSIS

As required by the Oregon Transportation Planning Rule (TPR), transportation alternatives were formulated and evaluated for the Pilot Rock Transportation System Plan (TSP). These potential improvements were developed with the help of the TAC, and city and state officials. 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. Improvement Options 2 through 7 are illustrated in Figure 6-1.

1. Extend North 6th Street to US 395.
2. Replace pedestrian bridge over West Birch Creek between Delwood Street and South 6th Street.
3. Replace vehicle bridge over East Birch Creek on alley road.
4. Establish a roadway maintenance and improvement program.

   4A. Pave Hickory Street up to Fir Street.
   4B Pave Alder/Beech Street between 5th Street and US 395.
   4C. Pave SW 4th Place and SW Cedar Street.

The proposed transportation system improvements evaluated for the Pilot Rock TSP include state highway, county, and local 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 the city of Pilot Rock was based on a quantitative analysis of existing and future traffic volumes and a qualitative review of four factors: 1) safety; 2) access; 3) environmental factors, such as air quality, noise, and water quality; and 4) socioeconomic and land use impacts, such as community livability, right-of-way requirements and impacts on adjacent lands.

Another factor considered in the evaluation of the potential transportation improvements was cost. 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.

The 2000 to 2003 STIP Update, recently released by ODOT Region 5, identifies two improvements within the city of Pilot Rock. The first improvement to replace West Birch Creek Bridge (County Bridge #

59C900) on SW 2nd Road was completed in the year 2000. The total cost of the project was estimated at $275,000. The second STIP project includes roadway preservation work along US 395 between the north city limits of Pilot Rock to McKay Dam, north of the City including development of a deceleration lane at the entrance of Kinzua. This project is scheduled for construction by the year 2003 with an estimated cost of $2,720,000. Both STIP projects are also shown in Figure 6-1.

IMPROVEMENT OPTIONS EVALUATION

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

Option 1. Extend North 6th Street To US 395

The city of Pilot Rock has identified a potential safety hazard at the highly skewed intersection of Elm Street at US 395. This intersection was created when US 395 was realigned and Elm Street was established along the highway's original alignment. The unrestricted sight distance along the highway from Elm Street is adequate. However, the potential hazard lies in a sight distance restriction along the highway to the south created by the orientation of a driver's vehicle when making a right turn.

Rather than realign this intersection to mitigate this restriction, the city of Pilot Rock has identified an alternative solution to extend North 6th Street to US 395. This would create a standard T-shaped intersection and would provide unrestricted sight distance in both directions along the highway.

The extension of 6th Street would require the construction of only 60 feet of new roadway. Sidewalks and curbs should also be included along the new road.

The area along the proposed 6th Street alignment is open land and a new connection to US 395 would not have any adverse impacts to the current land use. There are some grade problems associated with extending 6th Street to connect with US 395. As a result,the new connection to US 395 would be slightly offset from the newly constructed entrance to the Kinzua lumber mill but would allow an opportunity to also consider the addition of a truck deceleration lane on US 395.

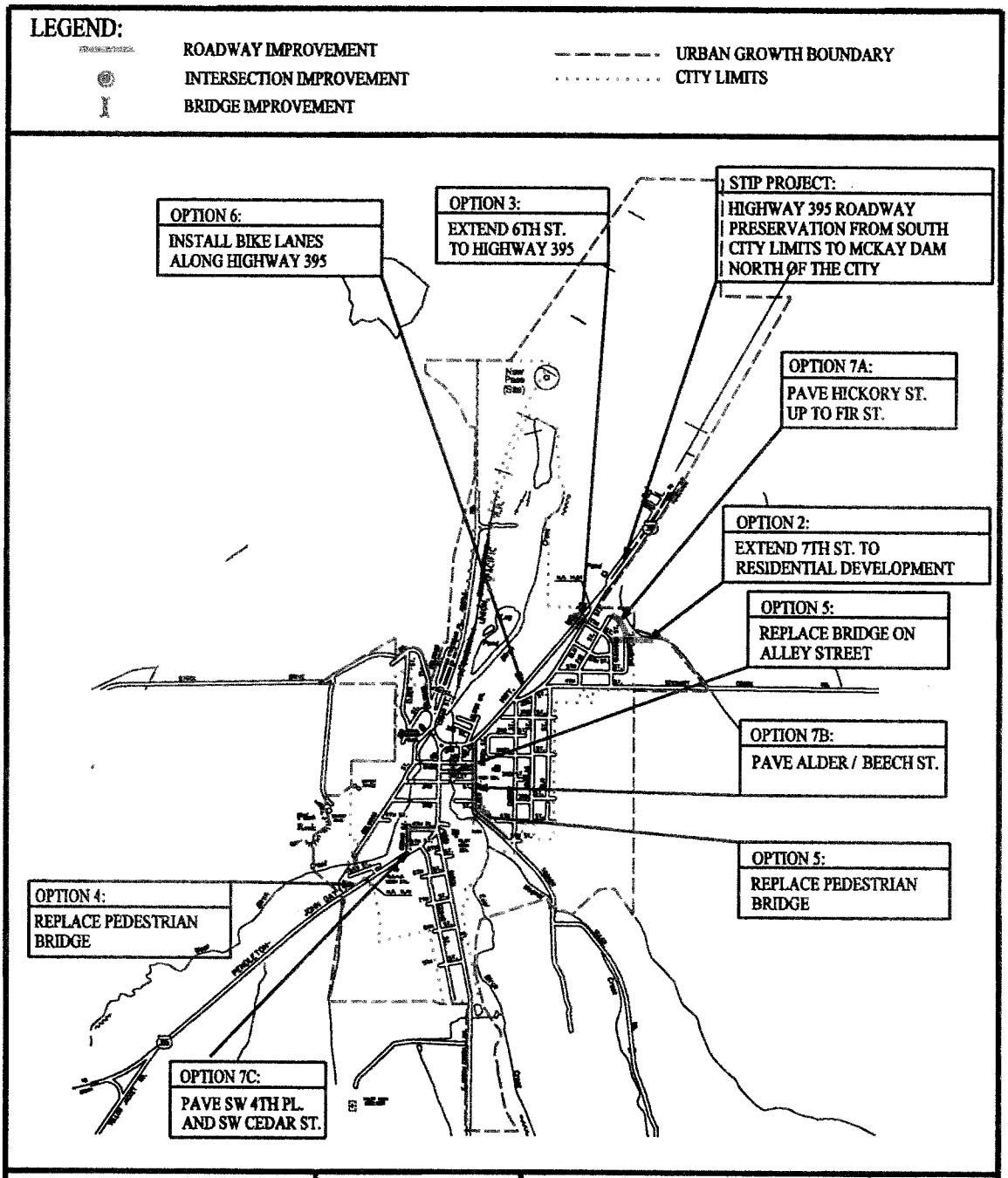
The existing skewed intersection at Elm Street and US 395 would be removed. The estimated cost for the new roadway extension is around $130,000. Funding for this project will be provided by the State to address the potential safety hazard at the existing skewed intersection.

This option is scheduled for constructionin 2002.

Option 2. Replace Pedestrian Bridge Over West Birch Creek Between Delwood Street and South 6th Street

This project includes the replacement of the pedestrian bridge over West Birch Creek located between Delwood Street and South 6th Street, over the next three to five years (2001-2003). The city of Pilot Rock has been monitoring the degradation of this bridge over the years and has recommended its replacement.

Replacement of the existing bridge will maintain this important pedestrian link between Delwood Street and South 6th Street. This bridge provides pedestrians with an alternative to walking downtown other than by way of US 395.



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NORTH
(NOT TO SCALE)

FIGURE 6-1

Potential Transportation System Improvements -Pilot Rock

City of Pilot Rock TSP

UMC00001/PIL06-1.DGN/BJD/07-26-99

The total cost for the bridge replacement is around $7,500. This was determined from the costs of other previous bridge replacements in the City.

This option is recommended within the next 10 to 20 years, or when replacement becomes critical.

Option 3. Replace Vehicle Bridge Over East Birch Creek On Alley Road

City of Pilot Rock officials believe the vehicle bridge over East Birch Creek on the alley road located between Main Street and South 2nd Street, will be in need of replacement in the next 10 to 20 years.

The total cost to remove and replace the existing bridge 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 $54 per square foot for construction of a bridge with a span between zero and 60 feet. Assuming the existing bridge is around 50 feet long by 20 feet wide, the estimated bridge removal cost is around $6,000. Assuming the new bridge will be around 50 feet long and 25 feet wide, the estimated bridge construction cost is around $67,500. An additional 5 feet was added to the bridge width to account for two lanes of traffic and a sidewalk along one side. The total cost, therefore, for the entire project is estimated at $73,500.

Because of limited city funds, the removal and replacement of this bridge may not be feasible. The City may apply for state or federal grants to secure the necessary funds, or the City may choose to construct a bridge similar to the existing steel structure.

This option is recommended over the next 10 to 20 years, or when ever the bridge becomes structurally deficient.

Option 4. Establish a Roadway Maintenance and Improvement Program

Many of the local streets in Pilot Rock are substandard gravel roads and are in need of paving. In response to this need, city officials have developed a six-year roadway maintenance and improvement plan to upgrade local city streets to paved roads. At this time, the plan includes a prioritized list of six projects. The following table describes the location of these projects along with each project's length and estimated total cost.

TABLE 6-1
ROADWAY MAINTENANCE AND IMPROVEMENT PROGRAM

Project No.	Description/Location	Project Length	Total Cost
4A.	Pave Hickory Street up to Fir Street.	400 feet	$11,300
45B.	Pave Alder Street between 5th Street and US 395	1,900 feet	$62,200
4C.	Pave SW 4th Place and SW Cedar Street	900 feet	$25,400
Total			**$98,900**

The cost estimates for each project identified above assumes a pavement width that is consistent with the street design standards recommended in Chapter 7. Since Hickory Street, SW 4th Place, and SW Cedar Street, are designated as local streets, a pavement width of 34 feet was selected in conformance with the local street design standard. Alder Street which is designated as a minor collector street, a pavement width

of 38 feet was selected. A pavement width of 46 feet was selected for Alder Street, between Main Street and US 395, corresponding to a major collector street standard.

The estimates above also assume a total unit cost of $0.83 per square foot of asphalt. The unit cost estimate was obtained from Humbert Asphalt Inc., an asphalt laying company based in Milton-Freewater. This cost also includes cutting and cleaning the edges of streets, patching pot holes, tacking, preleveling the entire street with an average of 1 inch of asphalt, and then overlaying the entire street with 2 inches of asphalt, for a total asphalt overlay of around 3 inches.

Funding for these roadway projects will be provided by the City as funds become available. City officials indicate the City has an annual budget of around $30,000 to $50,000 for street improvements.

Paving or repaving the city streets will improve the aesthetics of the local street system and community livability for the residents who reside on these streets. For these reasons, all street paving projects are recommended. However, it is also recommended that each of these projects include the addition of a pedestrian facility in correspondence with the recommended street design standards for all types of streets.

SUMMARY

Table 6-1 summarizes the recommendations of the transportation improvement options based on the evaluation process described in this chapter. Chapter 7 discusses how these improvement options fit into the modal plans for the Pilot Rock area.

TABLE 6-2
TRANSPORTATION IMPROVEMENT OPTIONS: RECOMMENDATION SUMMARY

Option	Recommendation
1. Extend North 6th Street to US 395	• Implement
2. Replace pedestrian bridge over West Birch Creek between Delwood Street and South 6th Street	• Implement
3. Replace vehicle bridge over East Birch Creek on alley road	• Implement
4. Establish a maintenance and improvement program	• Implement

CHAPTER 7: TRANSPORTATION SYSTEM PLAN

The purpose of this chapter is to provide detailed operational plans for each of the transportation systems within the community. The Pilot Rock Transportation System Plan covers all the transportation modes that exist and are interconnected throughout the urban area. Components of the TSP include street classification standards, access management recommendations, transportation demand management measures, modal plans, and a system plan implementation program.

STREET DESIGN STANDARDS

Street design standards ensure the design of a roadway supports its intended function. The function is determined by operational characteristics such as traffic volume, operating speed, safety, and capacity. Street standards institute design parameters necessary to provide a community with roadways that 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.

Existing Street Standards

Street designations for Pilot Rock are contained in the *Pilot Rock Technical Report*, while street definitions and standards are listed in the *City of Pilot Rock Subdivision Ordinance* (1986). The city of Pilot Rock Technical Report designates streets in the city as arterials, major collectors or minor collectors. All streets not classified are assumed to be local streets. The Technical Report is not adopted as part of the Comprehensive Plan, but acts as a supporting document. An inconsistency between the Technical Report and Subdivision Ordinance exists in that the Subdivision Ordinance definitions and standards do not distinguish between major and minor collectors and add an additional classification, alleys. Furthermore, standards for street types are broken into two groups – business/industrial streets and residential streets as shown in Tables 7-1 and 7-2.

The Subdivision Ordinance regulates the construction of new or undeveloped streets within the city and Urban Growth Boundary. It defines the different streets as follows:

Alley: A narrow street through a block primarily for vehicular service access to the back or side of properties otherwise abutting on another street.

Arterial: A street of considerable continuity that is primarily a traffic artery for travel between large areas.

Collector: A street supplementary to the arterial street system and a means of travel between this system and smaller areas, used to some extent for through traffic and to some extent for access to abutting properties.

Cul-de-sac: A short street having one end to traffic and being terminated by a vehicle turn-around.

Local Street: A street intended primarily for access to abutting properties.

Marginal Access Street: A local street parallel and adjacent to an arterial street providing access to abutting properties, but protected from through traffic.

The Ordinance also lists general requirements and design standards for streets. General requirements include the frontage requirements, grading, topography and arrangement of streets, road names, sign

requirements, and street light requirements. Design standards include widths for rights-of-way, pavement, grade, speed, and sidewalks as follows:

TABLE 7-1
ROAD DESIGN STANDARDS – BUSINESS/INDUSTRIAL

Road Classification	Minimum Right-of-way	Minimum Surface Width	Maximum Grade	Speed	Sidewalks
Arterial Street	100 ft	48 ft	5 %	45 mph	Both sides 5 ft
Collector Street	70 ft	44 ft	7 %	40 mph	One sides 4 ft
Local Street	60 ft	38 ft	8 %	30 mph	One side 4 ft
Alleys	24 ft	24 ft	nl	nl	nl

nl - no standard listed

TABLE 7-2
ROAD DESIGN STANDARDS – RESIDENTIAL

Road Classification	Minimum Right-of-way	Minimum Surface Width	Maximum Grade	Speed	Sidewalks
Arterial Street	80 ft	44 ft	8 %	40	Both sides 4 ft
Collector Street	60 ft	38 ft	10 %	35	Optional*
Local Street	50 ft	38 ft	12 %	25	Optional*
Alleys	20 ft	20 ft	nl	nl	nl

nl - no standard listed
* Sidewalks may be required by the City Council on these streets.

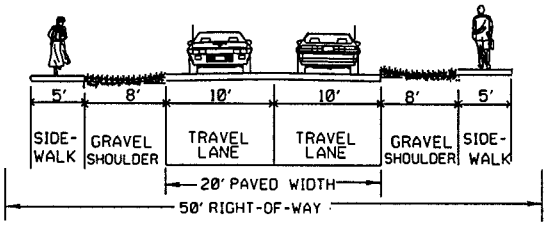
Subdivisions are required to provide frontage on and access to an existing street. Streets must be improved to city, county or state standards. Sidewalks may be required at the discretion of the City Council on local or collector residential streets.

Pedestrian accesses may be required by the City Council to facilitate pedestrian access from streets to schools, parks, playgrounds, or other nearby streets. These are perpetual unobstructed easements at least 20 feet in width. The City Council may also require installation of separate bicycle lanes within streets or on separate paths.

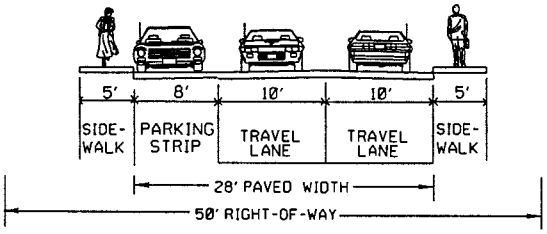
Recommended Street Standards

The development of the Pilot Rock Transportation System Plan provides the city with an opportunity to review and revise street design standards to resolve the discrepancies between the Subdivision Ordinance and the Technical Report. The recommended standards take into account the existing Subdivision Ordinance standards and revise them to fit more closely with the functional street classifications, and the goals and objectives of the Transportation System Plan. The recommended street standards for all types of functional classifications are shown graphically in Figure 7-1 through Figure 7-4, and are summarized in Table 7-3. These standards are consistent with the existing roadway functional classification shown in Figure 3-1. Further discussion of each type of street standard follows below.

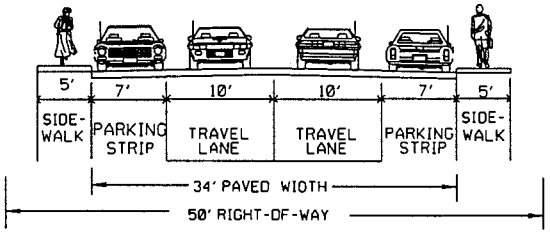
Since the Pilot Rock Transportation System Plan includes all land within the UGB, the recommended street standards should be applied to the areas within and outside the city limits that are within the UGB. Although some of the outlying areas may presently have a rural appearance, these lands will ultimately be part of the urban area. Retrofitting rural streets in these areas as well as all rural streets within the city limits



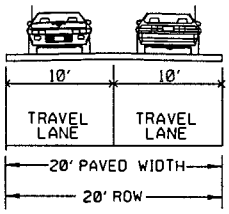
OPTION 1: TWO TRAVEL LANES, NO ON-STREET PARKING, GRAVEL SHOULDERS



OPTION 2: TWO TRAVEL LANES, ON-STREET PARKING ON ONE SIDE ONLY



OPTION 3: TWO TRAVEL LANES, ON-STREET PARKING ON BOTH SIDES



ALLEYS

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FIGURE 7-1

Street Standards
Local Residential and Alleys

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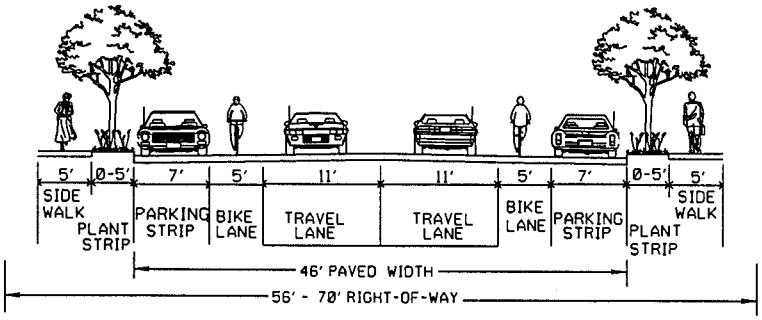
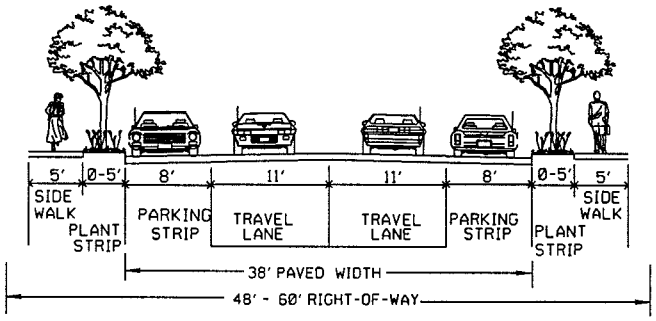


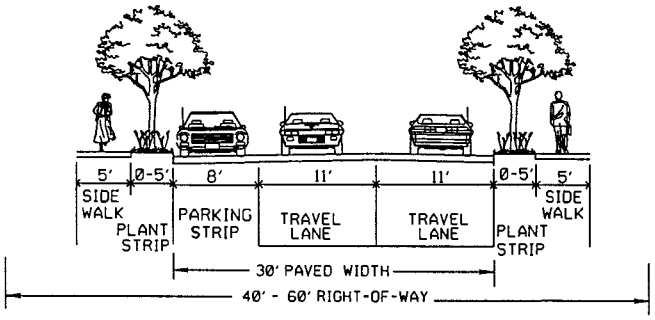
MAJOR COLLECTOR

TWO TRAVEL LANES WITH BIKE LANES AND ON-STREET PARKING ON BOTH SIDES



MINOR COLLECTOR

OPTION 1: TWO TRAVEL LANES WITH ON-STREET PARKING ON BOTH SIDES



MINOR COLLECTOR

OPTION 2: TWO TRAVEL LANES WITH ON-STREET PARKING ON ONE SIDE ONLY

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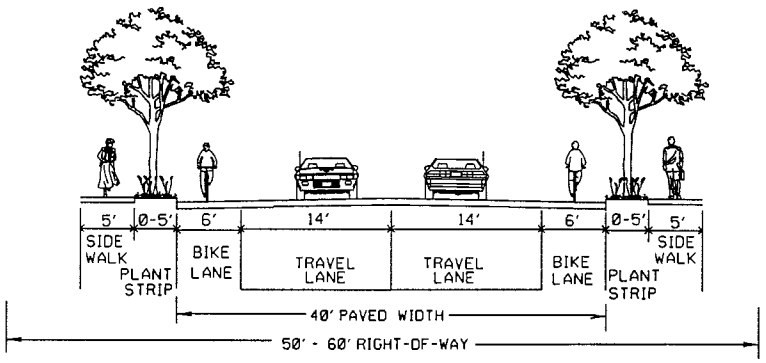
FIGURE 7-2

Street Standards Collector Streets



TWO TRAVEL LANES WITH BIKE LANES ON BOTH SIDES

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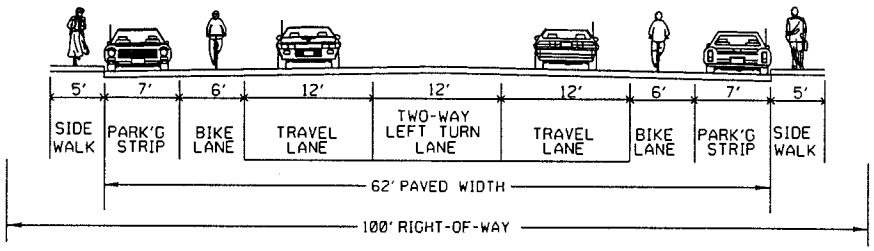
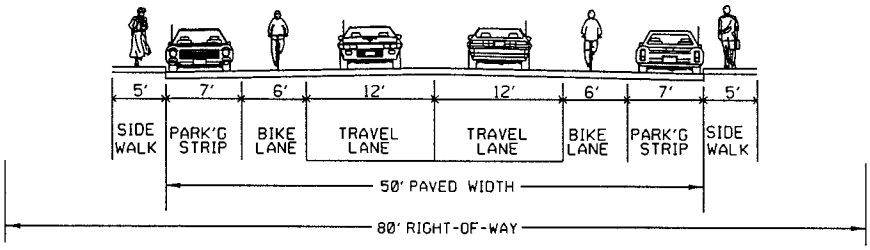
FIGURE 7-3

Street Standards Industrial / Commercial Streets (Collector or Local)

City of Pilot Rock TSP



OPTION 1: TWO TRAVEL LANES, CENTER TURN LANE, BICYCLE LANES, ON-STREET PARKING ON BOTH SIDES



OPTION 2: TWO TRAVEL LANES, BICYCLE LANES, ON-STREET PARKING ON BOTH SIDES

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FIGURE 7-4

Street Standards Arterial Streets

City of Pilot Rock TSP

to urban standards in the future is expensive and controversial; it is better to initially build them to an acceptable urban standard.

TABLE 7-3
RECOMMENDED STREET DESIGN STANDARDS

Classification	Pavement Width	Right-of-Way Width	Sidewalks	Bike-Lanes	Min. Posted Speed
Arterial – Option 1	62 ft.	80 ft.	5 ft. (both sides)	6 ft. (both sides)	25-45 mph
Arterial – Option 2	50 ft.	80 ft.	5 ft. (both sides)	6 ft. (both sides)	25-45 mph
Major Collector	46 ft.	70 ft.	5 ft. (both sides)	5 ft. (both sides)	25-35 mph
Minor Collector – Option 1	38 ft.	60 ft.	5 ft. (both sides)	none	25-35 mph
Minor Collector – Option 2	30 ft.	60 ft.	5ft. (both sides)	none	25-35 mph
Industrial/Commercial (Collector or Local)	40 ft.	70 ft.	5 ft. (both sides)	collector - 6 ft. local - none	25-35 mph
Residential (Local) – Option 1	20 ft.	50 ft.	5 ft. (both sides)	none	15-25 mph
Residential (Local) – Option 2	28 ft.	50 ft.	5 ft. (both sides)	none	15-25 mph
Residential (Local) – Option 3	34 ft.	50 ft.	5 ft. (both sides)	none	15-25 mph
Alley	20 ft.	20 ft.	none	none	15 mph

Sidewalks should be included on all urban streets as an important component of the pedestrian system. Ideally, sidewalks should be buffered from the street by a planting strip to eliminate obstructions in the walkway, provide a more pleasing design and a buffer from traffic. When sidewalks are located directly adjacent to the curb, they can include such impediments as mailboxes, street light standards, and sign poles, which reduce the effective width of the walk. To maintain a safe and convenient walkway for at least two adults, a 5 foot sidewalk should be used in residential areas.

Residential Streets (Local)

The design of a residential local street affects its traffic operation, safety, and livability. The residential street should be designed to enhance the livability of the neighborhood while accommodating less than 1,200 vehicles per day. Design speeds should be 15 to 25 mph. When traffic volumes exceed approximately 1,000 to 1,200 vehicles per day, the residents on that street will perceive the traffic as a noise and safety problem. To maintain neighborhoods, residential streets should be designed to encourage low speed travel and to discourage through traffic. Narrower streets discourage speeding and through traffic as well as improve neighborhood aesthetics. They also reduce right-of-way needs, construction costs, storm water run-off, and the need to clear vegetation.

Three recommended street standard options are provided for local streets, as shown in Figure 7-1. Each option provides a minimum of 20 feet of pavement and provides varying degrees of on-street parking. The city should choose one of these options for each residential street based on the existing right-of-way and neighborhood character.

Option 1

This first option for a local residential street is a 20 foot paved roadway surface within a 50 foot right-of-way. This standard will accommodate passage of one lane of moving traffic in each direction, with 8 foot wide gravel shoulders on both sides of the street for parking. Five-foot sidewalks should also be provided on each side of the roadway.

Option 2

This option provides a 28 foot paved roadway surface within a 50 foot right-of-way. This standard will accommodate passage of one lane of moving traffic in each direction, with curbside parking on one side. Five-foot sidewalks should be provided on each side of the roadway, adjacent to the curb.

Option 3

A third option for a residential street provides a 34 foot paved roadway within a 50-foot right-of-way. This standard will accommodate passage of one lane of moving traffic in each direction, with curbside parking present along both sides of the road. A five-foot wide sidewalk should be provided on each side of the roadway, adjacent to the curb.

Alleys

Alleys can be a useful way to diminish street width by providing rear access and parking to residential, commercial, and industrial areas. Including alleys in a residential subdivision allows homes to be placed closer to the street and eliminates the need for garages to be the dominant architectural feature. This pattern, once common, has been recently revived as a way to build better neighborhoods. In addition, alleys can be useful in commercial and industrial areas, allowing access for delivery trucks which is off the main streets. Alleys should be encouraged in the urban area of Pilot Rock. Alleys should be 20 feet wide, with a 20 foot right-of-way (see Figure 7-1).

Cul-de-Sac Streets

Cul-de-sac, or "dead-end" residential streets are intended to serve only the adjacent land in residential neighborhoods. These streets should be short (less than 400 feet long) and serve a maximum of 20 single-family houses. Because the streets are short and the traffic volumes relatively low, the street width can be narrower than a standard residential street, allowing for the passage of two lanes of traffic when no vehicles are parked at the curb and one lane of traffic when vehicles are parked at the curb.

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

Collector Streets

Collectors are intended to carry between 1,200 and 10,000 vehicles per day, including limited through traffic, at a design speed of 25 to 35 mph. A collector can serve residential, commercial, industrial, or mixed land uses. Collectors are primarily intended to serve local access needs of residential neighborhoods by

connecting local streets to arterials. Bike lanes are typically not needed in smaller cities like Pilot Rock due to slower traffic speeds and low traffic volumes.

Four recommended street standard options are provided for collectors, as shown in Figure 7-2. All four options provide one lane of moving traffic in each direction. The collectors can be striped to provide two travel lanes plus left-turn lanes at intersections or driveways by removing parking for short distances. One of the options is intended for industrial/business areas. This option would be appropriate for the Cedar Street/Circle Street route north of its intersection with US 395. The City should choose which option is most appropriate for each collector based on the existing right-of-way and neighborhood character.

Major Collector

This option provides a 46 foot paved roadway surface within a 70 foot right-of-way. This standard will accommodate passage of one lane of moving traffic in each direction, with curbside parking on both sides of the street. Five foot sidewalks should be provided on each side of the roadway along with an optional planting strip with a width up to 5 feet.

Minor Collector– Option 1

This option is similar to the major collector. It also provides a 38 foot paved roadway surface within a 60 foot right-of-way. This standard will accommodate passage of one lane of moving traffic in each direction, with curbside parking on both sides of the street. Four foot sidewalks should be provided on one side of the roadway along with an optional planting strip with a width up to 5 feet.

Minor Collector – Option 2

This option provides a 30 foot roadway surface within a 60 foot right-of-way. This standard will accommodate passage of one lane of moving traffic in each direction, with curbside parking on one side. Five foot sidewalks should be provided on each side of the roadway, adjacent to the curb along with an optional planting strip with a width up to 5 feet.

Industrial/Commercial Collector or Local Street

This option calls for a 70 foot right-of-way and a 40 foot paved width. The 40 foot curb face-to-curb face distance allows two 14 foot travel lanes and two 6 foot wide bicycle lanes. Five-foot sidewalks shall be provided on each side of the roadway and a 5-foot wide planting strip is optional. In areas where truck loading and unloading is necessary, the sidewalks can be widened to 8 feet and located adjacent to the curb (see Figure 7-3).

The industrial/commercial street in a residential area has the same design standards except that bicycle lanes are optional.

Arterial Streets

Arterial streets form the primary roadway network within and through a region. They provide a continuous roadway system that distributes traffic between different neighborhoods and districts. Generally, arterial streets are high capacity roadways that carry high traffic volumes with minimal localized activity. Design speeds should be between 25 and 45 mph (see Figure 7-4).

Option 1

This option consists of a 80 foot right-of-way and a 62 foot paved width. This standard allows for two 12 foot travel lanes, a 12 foot center turn lane, two 6 foot bike lanes, and curbside parking along both sides of the roadway at 7 feet wide. Sidewalks, at least 5 feet in width, should also be provided on each side of the roadway.

Option 2

This option is similar to Option 1, but without the center turn lane. This standard provides a 50 foot paved surface within an 80 foot right-of-way to allow for two 12 foot travel lanes, two 6 foot bike lanes, and curbside parking along both sides of the roadway at 7 feet wide. Sidewalks, at least 5 feet in width, should also be provided on each side of the roadway.

Bike Lanes

In cases where a bikeway is proposed within the street right-of-way, 5 to 6 feet of roadway pavement should be striped on each side and reserved for bike lanes. The striping should be done in conformance with the *State Bicycle and Pedestrian Plan* (1995). In cases where curb parking will exist with a bike lane, the bike lane will be located between the parking and travel lanes. In some situations, curb parking may have to be removed to permit a bike lane.

Bikeways should be added when a new street is built or improvements are made to existing streets.

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

Sidewalks

A complete pedestrian system should be implemented in the urban portion of Pilot Rock. Every urban street should have sidewalks on both sides of the roadway as shown on the cross sections in Figure 7-1 through Figure 7-4. Sidewalks on residential streets should be at least 4 feet wide. In addition, pedestrian and bicycle connections should be provided between any cul-de-sac or other dead-end streets.

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

Curb Parking Restrictions

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

Street Connectivity

Street connectivity is important because a well-connected street system provides more capacity and better traffic circulation than a disconnected one. Developing a grid system of relatively short blocks can minimize excessive volumes of motor vehicles along roads by providing a series of equally attractive or restrictive travel options. Street connectivity in Pilot Rock is constricted due to a number of natural features. Three creeks run through town (East and West Birch Creek, which become one creek just north of downtown, and Wegner Creek). Therefore, Pilot Rock contains a broken grid system with many discontinuing, or dead-end streets. There are many pedestrian bridges over the creeks, however. When feasible, vehicle bridges should be created to connect the grid system. New development should maintain square short blocks (under 400 feet in length) whenever possible. Short interconnected blocks benefit cars, pedestrians and bicyclists by shortening travel distances and making travel more convenient. The average block size within the City's grid system is around 300 feet square, which is an ideal block size. New development should have a maximum block perimeter of 1,200 feet. Good street connectivity is critical to Pilot Rock's continued livability.

ACCESS MANAGEMENT

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

One objective of the Pilot Rock TSP is to develop an access management policy that maintains and enhances the integrity (capacity, safety, and level-of-service) of the city's streets. Too many access points along a street can contribute to a deterioration of its safety, and on some streets, 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) 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 streets 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 side 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 streets for access purposes, parking and loading at the local and minor collector level. Table 7-4 describes recommended general access management guidelines by roadway functional classification.

TABLE 7-4
RECOMMENDED ACCESS MANAGEMENT STANDARDS

	Intersections			
	Public Road		Private Drive[2]	
Functional Classification	**Type[1]**	**Spacing**	**Type**	**Spacing**
ARTERIAL STREETS				
US 395 (Pendleton-John Day Highway)[3]	See Access Management Spacing Standards, Appendix C of the 1999 Oregon Highway Plan			
OTHER ARTERIAL STREETS WITHIN UGB				
COLLECTOR STREETS[4]				
Major: Alder Dr., Birch St., Main St., and Birch Crk Rd. (Co. Road # 1375)	at-grade	250 ft.	L/R Turns	100 ft.
Industrial/Commercial: Cedar St./Circle Rd. (north of US 395), Alder St., Cherry St., and Elm St.				
Minor: 2nd St., 4th St./Stewart Crk. Rd., Delwood St., Delwood Pl.,				
RESIDENTIAL STREETS	at-grade	250 ft.	L/R Turns	Access to Each Lot
ALLEYS (URBAN)	at-grade	100 ft.	L/R Turns	Access to Each Lot

Notes:

(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 section on Special Transportation Area below.
(4) Some sections of these roads are designated as minor collectors or residential streets, where the corresponding access management standard is applicable.

Application

The access management standards above apply mainly to new development accesses. They are not intended to eliminate existing intersections or driveways. It is important to note, however, that existing developments and legal accesses on the transportation network will not be affected by the recommended access management techniques until a land use action is proposed, a safety or capacity deficiency is identified that

requires specific mitigation, a specific access management strategy/plan is developed, existing properties along the highway are redeveloped, or a major construction project is initiated on the street.

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 system that provides reasonable access while maintaining the safety and efficiency of traffic movement.

State Highways

Access management is important to promoting safe and efficient travel for both local and long distance users along US 395 in Pilot Rock. The *1999 Oregon Highway Plan* (OHP) specifies an access management spacing standards and policies for state facilities.

Although Pilot Rock may designate state highways as arterial roadways within their transportation system, access management for these facilities follows the Access Management Spacing Standards of the *1999 Oregon Highway Plan*. These spacing standards are based on highway classification, type of area and speed, which are shown in the appendix to this document. Access to State Highways is permitted under Oregon Administrative Rules Division 51. This section of the TSP describes the state highway access management objectives and specific highway segments where special access spacing standards apply.

US 395 in Pilot Rock is a categorized in the 1999 Oregon Highway Plan as a Statewide Highway. The primary function of these highways is to provide connections to larger urban areas, ports, and major recreation areas of the state not served by freeways. The management objective to statewide urban highways is to provide high to moderate speed operations with limited interruptions in traffic flow. There are no special highway segments identified in the 1999 Oregon Highway Plan that apply to US 395 in Pilot Rock at this time.

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 street 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.

MODAL PLANS

The Pilot Rock modal plans have been formulated using information collected and analyzed through a physical inventory, forecasts, goals and objectives, and input from area residents. The plans consider transportation system needs for Pilot Rock during the next 20 years assuming the growth projections discussed in Chapter 5. All transportation system needs identified in this section have been assigned a project number in consecutive order, beginning with the projects identified in the street system plan. The timing of these projects will be guided by the changes in land use patterns, growth of the population in future years, and available funds. Specific projects and improvement schedules may need to be adjusted depending on when and where growth occurs within Pilot Rock.

Street System Plan

The street system plan recommends any changes necessary to the current street classification system and outlines a series of improvements that are recommended for construction within the city of Pilot Rock during the next 20 years. These options have been discussed in Chapter 6 (Improvement Options Analysis). Projects that make up the proposed street system plan are summarized in Table 7-5.

Street System Functional Classification

Street system functional classifications relate the design of a roadway to its function. The function is determined by operational characteristics such as travel demand, street capacity, and the operating speed of the roadway. The city of Pilot Rock Technical Report currently classifies all streets within the Urban Growth Boundary as arterial, major collector, minor collector, commercial/industrial roads, or local streets. The Subdivision Ordinance includes an additional category (alleys) and specifies different development standards depending on whether the street is considered residential or industrial/commercial. A review of the existing street system inventory, the recommended street design standards, and all new projects recommended in the street system plan, indicates the Technical Report's functional classifications are appropriate. The recommended street classifications are described as follows:

- Pendleton-John Day Highway (US 395) – classified as an arterial roadway, as it is a highway of statewide level of importance, it carries the highest traffic volumes through the City, and it is a primary route to other cities in the county and state.
- Alder Drive (US 395 to Main Street) – classified as a major collector street, as its function is to connect local neighborhoods to the downtown area and with US 395.
- Birch Creek Road, Co. Road #1375 (from US 395 south) – classified as a major collector street, as its function is to connect local neighborhoods with US 395 and provides a primary route out of town.
- Main Street (US 395 to Alder Street) – classified as a major collector street, as its function is to connect local neighborhoods to the downtown area and to US 395.
- Cedar Street and Circle Road (north of 3rd Street) – classified as an industrial/commercial street, as the function of this roadway is to provide access to the industrial areas north of downtown and connect these areas with US 395.

- 2nd Street (Delwood Street to US 395) – classified as a minor collector street, as its function is to connect local neighborhoods with the downtown area.
- 4th Street/Stewart Creek Road (intersection with US 395 to east city limit) – classified as major collector streets, as they function is to connect local neighborhoods to US 395 and provide a primary connection to areas east of town.
- Alder Street (Main Street to Cherry Street) – classified as a major collector, as its function is to connect local neighborhoods to the downtown area.
- Cherry Street (Alder Street to US 395) – classified as a major collector street, as its function is to connect local neighborhoods with the downtown area.
- Delwood Place (city limits to 2nd Street) – classified as a minor collector street, as it connects local neighborhoods to the downtown area.
- Elm Street (4th Street to US 395) – classified as a minor collector street, as it connects local neighborhoods with US 395.
- All other roads – classified as local streets.

Street Improvement Projects

Table 7-5 presents all street and bridge improvement projects within the urban area that compose the street system plan. Prioritization of these projects is at the discretion of the City and/or county depending upon jurisdiction over the project.

It should be noted that 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.

TABLE 7-5
RECOMMENDED STREET SYSTEM PROJECTS

Project Number	Location/Description	Cost
1.	Extend North 6th St. to US 395.	$130,000
4A.	Pave Hickory Street up to Fir Street	$11,300
4B.	Pave Alder Street between 5th Street and US 395	$62,200
4C.	Pave SW 4th Place and SW Cedar Street	$25,400
3.	Replace vehicle bridge over East Birch Creek on alley roadway.	$73,500
Total		**$302,400**

Pedestrian System Plan

A complete interconnected pedestrian system should be implemented in the City when feasible. A sidewalk inventory revealed that Pilot Rock's urban core has a fairly developed sidewalk system. Sidewalks exist

through the downtown area on both sides of US 395, Main Street, 2nd Street, and 3rd Street. Unfortunately, many of these sidewalks are in poor condition and curb cuts for wheelchairs are lacking. Crosswalks exist at three intersections and pedestrian bridges traverse the City's creeks in six locations. Every paved street should have sidewalks on both sides of the roadway, except in extenuating circumstances, meeting the requirements set forth in the recommended street standards. Pedestrian access on walkways should be provided continuously between businesses, parks, and adjacent neighborhoods. (Ordinances specifying these requirements are included in Chapter 9.)

Because of the small size of Pilot Rock and the limited public resources available for transportation system improvements, sidewalk construction on a large scale may not be feasible. However, the City should require sidewalks to be constructed as part of any major roadway improvements, or as adjacent land is developed.

The primary goal of establishing a pedestrian system is to improve pedestrian safety; however, an effective sidewalk system has several qualitative benefits as well. Providing adequate pedestrian facilities increases the livability of a city. When pedestrians can walk on a sidewalk, separated from vehicular street traffic, it makes the walking experience more enjoyable and may encourage walking, rather than driving, for short trips. Sidewalks enliven a downtown and encourage leisurely strolling and window shopping in commercial areas. This "Main Street" effect improves business for downtown merchants and provides opportunities for friendly interaction among residents. It may also have an appeal to tourists as an inviting place to stop and walk around.

The cost to construct a concrete sidewalk facility is around $25 per linear foot. This assumes a sidewalk width of 5 feet with curbing. The cost estimate also assumes the sidewalks are composed of 4 inches of concrete and 6 inches of aggregate. As an alternative, asphalt walkways could be provided instead of a concrete sidewalk at a lower initial cost. Construction costs for this type of facility are typically about 40 percent of the costs for concrete sidewalks; however, maintenance, such as sealing and resurfacing the asphalt, must occur more frequently.

All new sidewalk construction in the City should include curb cuts for wheelchairs at every street corner to comply with the Americans with Disabilities Act (ADA). The addition of crosswalks should also be considered at all major intersections. As street improvements are made to the existing street system, projects involving the construction of new sidewalks may require on-street parking to be implemented in place of parking on grass or gravel shoulders.

In Chapter 6, four pedestrian-related projects were identified. These projects include: providing safety measures at the intersection of US 395 and Main Street, constructing sidewalks along US 395, replacing a pedestrian bridge over West Birch Creek between Delwood Street and South 6th Street, and replacing a pedestrian bridge over East Birch Creek between the city park and Alder Street. These projects are summarized below in Table 7-6.

TABLE 7-6
RECOMMENDED PEDESTRIAN SYSTEM PROJECTS

Project Number	Location/Description	Cost
2.	Replace pedestrian bridge over West Birch Creek between Delwood Street and South 6th Street.	$7,500
Total		**$7,500**

Bicycle System Plan

On the collector and local streets in Pilot Rock, bicyclists share normal vehicle lanes with motorists. Due to low travel speeds and traffic volumes observed in the City shared usage of the roadway between bicyclists and automobiles is appropriate. However, on highways such as US 395, where travel speeds and traffic volumes are much higher, the need to separate bicyclists from highway traffic becomes an issue. US 395 functions as an arterial through Pilot Rock. The *Oregon Bicycle and Pedestrian Plan* recommends that for a facility such as this, a shoulder bikeway should be present. Existing shoulder widths along the highway in the vicinity of Pilot Rock range between 4 feet to over 6 feet. Street standards recommended in this Plan call for 6 foot wide bike lanes on arterial streets.

Bicycle parking is lacking in Pilot Rock. Bike racks should be installed in front of downtown businesses and all public facilities (schools, post office, library, city hall, and parks). Typical rack designs cost about $50 per bike plus installation. Bike rack installation can be implemented as finances and/or grant funding is available.

Transportation Demand Management Plan

Through transportation demand management (TDM), 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 carpooling and vanpooling, alternative work schedules, bicycle and pedestrian facilities, and programs focused on high density employment areas.

In Pilot Rock, because traffic volumes are low, capacity of the local street system is not an issue. Therefore, implementing TDM strategies may not be practical in most cases

Because intercity commuting is a factor in Umatilla County, residents who live in Pilot Rock and work in other cities should be encouraged to carpool with a fellow coworker or someone who works in the same area. Implementing a local carpool program in Pilot Rock alone is not practical because of the City's small size; however, a county-wide carpool program is feasible. The city of Pilot Rock should support state and county carpooling and vanpooling programs, which could further boost carpooling ridership.

No costs have been estimated for the TDM plan. Grants may be available to set up programs; other aspects of transportation demand management can be encouraged through ordinances and policy.

Public Transportation Plan

As described in Chapter 3, the only intercity bus service in Umatilla County is provided by Greyhound bus lines which provides service along I-84, US 395, and OR 11 within Umatilla County. Greyhound has terminals located in Hermiston and Pendleton that 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.

Because of the small size of Pilot Rock, ridership demand is not high enough for Greyhound bus lines to feasibly provide service to the City. Pilot Rock does have a dial-a-ride type service available for the

transportation disadvantaged provided by the Pilot Rock Lions Club. This service provides door-to-door service initiated by a user's request for transportation.

Pilot Rock has no local fixed-route transit service at this time. The small size and low traffic volumes on city streets indicate that mass transit is not necessary or economically feasible at this time. The Transportation Planning Rule exempts cities with a population of less than 25,000 from developing a transit system plan or a transit feasibility study as part of their Transportation System Plans.

Rail Service Plan

Pilot Rock has no passenger rail service, but does have freight rail service. Until recently, AMTRAK service was available in Hermiston and Pendleton along the rail line that follows the I-84 corridor from Portland to Boise, Idaho and points east. 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. This line serves only freight traffic now.

The Union Pacific Railroad right-of-way runs northeast to southwest into Pilot Rock's UGB and city limits stopping just north of the downtown area. While these lines are not active, it may be possible for rail service to be resumed at some future time. It is recommended that the City support the reactivation of these lines if market forces make such activity feasible in the future.

Air Service Plan

Pilot Rock does not have its own air service within the City. However, there are many airport facilities nearby. Eastern Oregon Regional Airport is located in Pendleton, approximately 20 miles north of Pilot Rock, and provides commercial air service. Hermiston Municipal Airport is located in Hermiston, approximately 45 miles northwest of Pilot Rock, and provides chartered flights. Other small nearby airports in the county include: Barrett Field northwest of Athena, the Pea Growers' Field south of Athena, and Curtis Airfield northwest of Pendleton. These airports are small, private, uncontrolled airstrips mainly used for crop dusting operations. Good access to these facilities (especially the Eastern Oregon Regional Airport) should be maintained.

Pipeline Service

There is one natural gas line serving Pilot Rock.

Water Transportation

Pilot Rock has no water transportation services.

TRANSPORTATION SYSTEM PLAN IMPLEMENTATION PROGRAM

Implementation of the Pilot Rock Transportation System Plan will require adoption of the amended City Comprehensive Plan and zoning and land division ordinances and preparation of a 20-year Capital Improvement Plan. These actions will enable Pilot Rock to address both existing and emerging transportation issues throughout the urban area in a timely and cost effective manner.

One part of the implementation program is the formulation of a 20-year Capital Improvement Plan (CIP). The purpose of the CIP is to detail what transportation system improvements will be needed as Pilot Rock grows and provide a process to fund and schedule the identified transportation system improvements. It is expected that the Transportation System Plan Capital Improvement Plan can be integrated into the existing city and county CIP and the ODOT STIP. This integration is important since the Transportation System Plan proposes that city, county, and state governmental agencies fund all or some of the transportation improvement projects.

Model policy and ordinance language that conforms with 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 and adoption by the Board of County Commissioners.

20-Year Capital Improvement Program

Table 7-7 summarizes the CIP and provides cost information. The cost estimates for all the projects listed on the CIP were prepared on the basis of 1998 dollars. These costs include design, construction, and some contingency costs. They are preliminary estimates and generally do not include right-of-way acquisition, water or sewer facilities, or adding or relocating public utilities. The following schedule is not a prioritized list and scheduled implementation of these projects is at the discretion of the City and/or county, depending upon jurisdiction.

Pilot Rock has identified a total of 6 projects in its CIP with a cost of $309,900.

TABLE 7-7
CAPITAL IMPROVEMENT PROGRAM (1998 DOLLARS)

		Costs ($ X 1,000)				
Project	**Location /Description**	**City**	**County**	**State**	**Private**	**Total**
1.	Extend North 6th St. to US 395.			$130.0		$130.0
4A..	Pave Hickory Street up to Fir Street	$11.3				$11.3
4B.	Pave Alder Street between 5th Street and US 395	$62.2				$62.2
4C.	Pave SW 4th Place and SW Cedar Street	$25.4				$25.4
3.	Replace vehicle bridge over East Birch Creek on alley roadway.	$73.5				$73.5
2.	Replace pedestrian bridge over West Birch Creek between Delwood Street and South 6th Street.	$7.5				$7.5
Total		**$179.9**		**$130.0**		**309.9**

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. Pilot Rock's TSP identifies 14 specific projects totaling over $679,000 over the next 20 years. This section of the TSP provides an overview of Pilot Rock's revenue outlook and a review of some funding and financing options that may be available to the city of Pilot Rock to fund the improvements.

Pressures from increasing growth throughout much of Oregon have created an environment of estimated improvements that remain unfunded. Pilot Rock will need to work with Umatilla County and ODOT to finance the potential 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 community. This TSP assumes Pilot Rock will grow at a rate comparable to past growth, consistent with the county-wide growth forecast. If population growth exceeds this rate the improvements may need to be accelerated. Slower than expected growth will relax the improvement schedule.

HISTORICAL STREET IMPROVEMENT FUNDING SOURCES

In Oregon, state, county, and city jurisdictions work together to coordinate transportation improvements. 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 3 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, 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 health 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.

Historical Revenues and Expenditures in the City of Pilot Rock

Revenues and expenditures for the city of Pilot Rock's street fund are shown in Table 8-5 and Table 8-6. Sources of revenues available for street operations and maintenance include the state highway fund, interest from the working capital balance, and grants for specific projects.

TABLE 8-5
CITY OF PILOT ROCK STREET FUND REVENUES

	1994-1995	1995-1996	1996-1997	1997-1998
Cash on Hand	$30,549	$57,638	$17,900	$24,000
Interest	$1,605	$1,737	$1,000	$1,000
Misc. Revenue	$73	$1,478		$1,000
State Hwy Fund	$69,428	$71,156	$73,800	$73,000
Jobs Plus Program				$1,500
NW Cedar Grant	$12,500	$12,500		
	$83,606	$86,871	$74,800	$76,500

Source: The City of Pilot Rock

As shown in Table 8-5, funds from the state highway fund provide a large proportion (over 90 percent excluding grant funds) of the revenues available to the city of Pilot Rock's street fund. The city of Pilot Rock has benefited from several recent grants from the Small Cities Allocation (SCA) Grant Program. The 1996-97 and 1997-98 proposed budgets anticipate the benefit of a $25,000 SCA grant.

TABLE 8-6
CITY OF PILOT ROCK STREET FUND EXPENDITURES

	1994-1995	1995-1996	1996-1997	1997-1998
Personal Services	$17,727	$19,096	$23,970	$25,400
Materials and Services	$38,062	$96,834	$54,684	$50,700
Capital Outlay	$728	$10,659	$11,046	$14,500
	$56,517	$126,589	$89,700	$90,600

Source: City of Pilot Rock

Most of the street fund expenditures are for maintenance, with spending disaggregated to the following categories: personal services, materials and equipment, capital outlay and transfers. The largest categories have historically been personal services and materials and equipment. The capital outlay expenditures have been limited to the amounts available from grant funds. The street fund has also transferred $2,000 annually for the last two years. In order to ensure conservative estimates, this analysis does assume grant funding will necessarily be available in future years, as shown in the 1996-97 and 1997-98. Instead, this analysis assumes that the amount available for transfers is equivalent to the amount available for new capital expenditures.

Transportation Revenue Outlook in the City of Pilot Rock

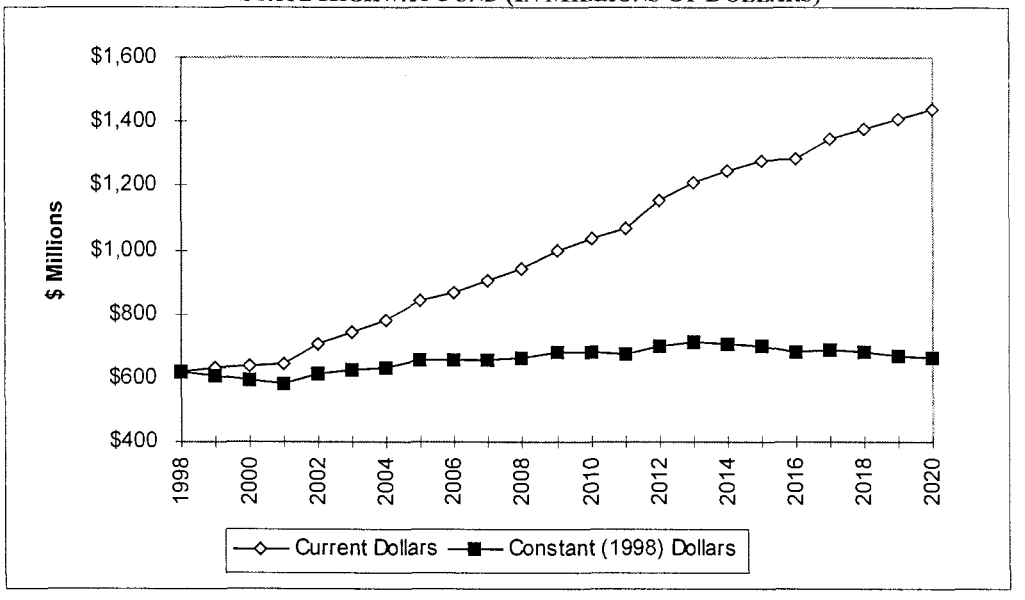
ODOT's policy section recommends certain assumptions in the preparation of transportation plans. In its *Financial Assumptions* document prepared in May 1998, ODOT projected the revenue of the state highway fund through year 2020. The estimates are based on not only the political climate, but also the 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 Organizations (MPO) 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 one cent per gallon per year (beginning in year 2002), with an additional one 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.
- 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 (as assumed by ODOT).

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 (IN MILLIONS OF DOLLARS)



Source: ODOT Financial Assumptions.

As the state highway fund is expected to remain a significant source of funding for Pilot Rock, the City is highly susceptible to changes in the state highway fund. As discussed earlier, funds from the state highway fund provide a large proportion (over 90 percent excluding grant funds) of the revenues available to the City of Pilot Rock's street fund.

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

- ODOT state highway fund assumptions as outlined above.
- The state highway fund will continue to account for the majority of the City's street fund.

- Interest and other local sources continue to provide stable revenue streams.

- The proportion of revenues available for capital expenditures for street improvements will remain a stable, but small, proportion of the state tax resources.

Applying these assumptions to the estimated level of the state highway fund resources, as recommended by ODOT, resources available to the Pilot Rock for all operations, maintenance, and capital outlay purposes are estimated at approximately $67,000 to $82,000 annually (in current 1998 dollars), as shown in Table 8-7.

TABLE 8-7
ESTIMATED RESOURCES AVAILABLE TO CITY OF PILOT ROCK FROM STATE HIGHWAY FUND, 1998 DOLLARS

Year	Total Estimated Resources from State Highway Fund	Estimated Funds Available for Capital Outlay
1999	$70,500	$2,300
2000	$68,900	$2,300
2001	$67,300	$2,200
2002	$71,300	$2,300
2003	$72,200	$2,400
2004	$73,200	$2,400
2005	$76,400	$2,500
2006	$75,800	$2,500
2007	$76,200	$2,500
2008	$76,500	$2,500
2009	$78,700	$2,600
2010	$78,600	$2,600
2011	$78,300	$2,600
2012	$81,400	$2,700
2013	$82,700	$2,700
2014	$82,000	$2,700
2015	$81,300	$2,700
2016	$79,000	$2,600
2017	$79,700	$2,600
2018	$78,700	$2,600
2019	$77,800	$2,500
2020	$76,800	$2,500

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 Pilot Rock (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 the City of Pilot Rock will have between $2,200 and 2,700 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 Pilot Rock; 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 has 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 6 percent per annum. Serial levies are limited by the amounts and times 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 3 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 roads, 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. Like other Oregon cities, the city of Pilot Rock uses its state gas tax allocation to fund street construction and maintenance.

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. The city of Pilot Rock 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 Pilot Rock 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 is 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 that may be appropriate for the city of Pilot Rock 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 that 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 distributes these funds. In FY00, the cities of Pendleton and Milton-Freewater received these funds to support transportation programs for the general public. The city of Pilot Rock 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 operating 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 Pilot Rock, 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.
- Improvement to the quality of the community.

The maximum amount of any grant under the program is $500,000. Local governments that 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 1998 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 federal planning requirements for a staged, multi-year, statewide, intermodal program of transportation projects. Specific transportation projects are prioritized based on federal 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 Pilot Rock'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. The city of Pilot Rock, Umatilla County, 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 Pilot Rock'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 the city of Pilot Rock. 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. GO debts typically are used to make public improvement projects that will benefit the entire community.

State statutes require that the GO indebtedness of a city not exceed 3 percent of the real market value of all taxable property in the city. Since GO 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 (LTGO) bonds are similar to GO 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, LTGO bonds do not require voter approval. However, since the LTGO bonds are not secured by the full taxing power of the issuer, the limited tax bond represents a higher borrowing cost than GO 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 LTGO bonds 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 that were required to compress their tax rates.

FUNDING REQUIREMENTS

Pilot Rock'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. The TSP identifies 6 projects, totaling an estimated $309,900. One of the

projects, that affects traffic operations around US 395, has identified state funding for the recommended project. The balance of the projects are within the City's jurisdiction and will require the City to take the financial lead.

Estimated costs by project are shown in Table 8-8.

TABLE 8-8
RECOMMENDED PROJECTS AND FINANCIAL RESPONSIBILITY

		Costs ($ X 1,000)				
Project	**Location /Description**	**City**	**County**	**State**	**Private**	**Total**
1.	Extend North 6th St. to US 395.			$130.0		$130.0
4A	Pave Hickory Street up to Fir Street	$11.3				$11.3
4B.	Pave Alder Street between 5th Street and US 395	$62.2				$62.2
4C.	Pave SW 4th Place and SW Cedar Street	$25.4				$25.4
3.	Replace vehicle bridge over East Birch Creek on alley roadway.	$73.5				$73.5
2.	Replace pedestrian bridge over West Birch Creek between Delwood	$7.5				$7.5
Total		**$179.9**		**$130.0**	**$**	**$309.9**

Notes:
(1) To be determined at a later time.

The city of Pilot Rock is expected to be able to fund projects of up to approximately $52,800 over the 20-year planning horizon. Based on current revenue sources for the city of Pilot Rock and the improvements identified in this Transportation System Plan, the City would face a funding deficit of $127,100, as shown in Table 8-9.

TABLE 8-9
ESTIMATED CAPITAL FUNDING BALANCE

	Amount
Capital Available from Existing Revenue Sources	$52,800
Capital Needed to Fund Projects Identified as City-Funded Projects	$179,900
Surplus (Deficit)	($127,100)

Given the existing cost estimates, the resources available as estimated in Table 6, and financial partners currently identified, Pilot Rock is expected to experience a funding deficit of over $127,100 over the 20-year planning period. Some of the projects may be eligible for alternative funding sources. For example, one project serves to enhance the pedestrian connectivity of the City, making it potentially eligible for bike and pedestrian funding, as described earlier in this chapter., a pedestrian bridge over East Birch. Securing grant funding for this project, estimated to total $7,500 would allow the city of Pilot Rock to implement these projects within the 20-year planning horizon. Additional analysis would be required to evaluate the feasibility of this funding option.

This Transportation System Plan identifies 6 projects recommended over the next 20 years. Based on existing revenue sources and the estimated costs to implement the improvements, the city of Pilot Rock is expected to experience a budget shortfall of over $127,100 over the 20-year planning horizon. The City will need to work with Umatilla County and ODOT to explore alternative funding sources, including SDCs, 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). The Transportation Planning Rule requires counties and cities to complete a Transportation System Plan (TSP) that includes policies and ordinances to implement that plan. The city of Pilot Rock Comprehensive Plan, Zoning Ordinance, and Subdivision Ordinance was revised in 1986. The Transportation discussion in the Comprehensive Plan has not been significantly updated since the implementation of the Transportation Planning Rule. The City's ordinances also need updating 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 Transportation System Plan 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 bicycle parking, and to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel.
- Establish street 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

Policies should clarify the approval process for different types of projects. The following policies are recommended to be adopted in the Pilot Rock Comprehensive Plan:

- The Transportation System Plan is an element of the city of Pilot Rock Comprehensive Plan. It identifies the general location of transportation improvements. Changes in the specific alignment of proposed public road and highway projects that 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.

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.

A. However, a city 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 small jurisdictions review these transportation projects within the Urban Growth Boundary as regulated land use actions, using conditional use process.

PROTECTING EXISTING AND FUTURE OPERATION OF FACILITIES

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.

Other future transportation facilities that the city of Pilot Rock may wish to protect include the space and building orientation necessary to support future transit, and right-of-ways or other easements for accessways, paths, and trails.

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. Comprehensive Plan Policies will be established by the City of Pilot Rock and incorporated into the Comprehensive Plan to protect existing and future operation of transportation facilities.

Recommended Access Control Ordinances

Appropriate provisions to provide access management should be included in a revised Section 3.94 of the City of Pilot Rock Zoning Ordinance.

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. .

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. The city of Pilot Rock may want to amend its site plan review process so that it requires applicants 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 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 street 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.*

If the city of Pilot Rock decides to implement a Site Plan review process, conditions such as the following may be included in the ordinance, to be applied in the event that a proposed project is demonstrated to have potentially adverse effects on the transportation system. These are additional to the conditions imposed by the recommended Access Management Ordinance included previously.

- *Dedication of land for streets, transit facilities, sidewalks, bikeways, paths, or accessways shall be required where the existing transportation system will be impacted by or is inadequate to handle the additional burden caused by the proposed use.*

- *Improvements such as paving, curbing, installation or contribution to traffic signals, construction of sidewalks, bikeways, accessways, paths, or streets 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. This ordinance or policy should be amended to provide for notice to ODOT regarding any land use action on or adjacent to US 395. This provision should be included in Article 12: Administrative Provisions of the Pilot Rock Zoning Ordinance. Similarly, all actions by the City potentially affecting a county road should provide notice to Umatilla County.

Information that should be conveyed to reviewers includes:

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

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 zoning ordinance, development proposals can be addressed through site plan review, discussed above. Zone changes and plan amendments can be partially addressed by the following language:

- *The applicant must show that the proposed change conforms with the Comprehensive Plan.*

The following statements should be added to the local ordinance and policy language governing zone changes and plan amendments:

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 use 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 streets. 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 street and placing parking behind the building, make a commercial district more accessible to non-motorized transportation and to existing or future transit.

A. 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 language, additions and recommendations. The recommendations should be placed within the appropriate section of the Pilot Rock zoning ordinance (Section 1.5) or subdivision ordinance (Section 1.13).

If the city of Pilot Rock decides to implement a Site Plan review process, it should include a requirement to show the design and location of bicycle parking and bicycle and pedestrian circulation elements such as accessways and walkways.

APPENDIX A

Pilot Rock Plans

PILOT ROCK PLANS

Pilot Rock Comprehensive Plan

The Pilot Rock Comprehensive Plan was adopted in 1978, and amended in 1986. The plan provides goals and policies for guiding the future growth and development of the city. Two of the city's 13 goals strongly impact the development of the Transportation System Plan-- Goal K: Transportation and Goal J: Public Facilities and Services.

Goal K: Transportation

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

Policies

1. To repave city streets and provide curbs and sidewalks as resources are available.

2. To encourage development and use of alternate means of transportation to the private automobile.

3. To work with ODOT to minimize conflicts between through and local traffic on US Highway 395, to reduce traffic hazards and expedite the flow of traffic by limiting access to and from the highway with the Urban Growth Area, and planning for adequate access to property adjacent to the highway.

4. To development of good transportation linkages (vehicular, pedestrian, bicycle, etc.) between residential areas and major activity centers.

5. To encourage the continuing availability of rail transportation linkages to mainline services. (Note: There is no active rail service to Pilot Rock at this time.)

6. To work with Umatilla County to develop joint policies concerning local roads and streets within the Urban Growth Boundary.

7. To adopt the recommendation in the Oregon Department of Transportation Six-Year Highway Improvement Plan that occurs within the Urban Growth Boundary.

Goal J: Public Facilities and Services

To plan and develop a timely, orderly, and efficient arrangement of public facilities and services to serve as a framework for urban development.

Applicable Policies

7. To develop, maintain, update, and expand police and fire services, streets and sidewalks, water and sewer systems, and storm drains as necessary to provide adequate facilities and services to the community.

Pilot Rock Technical Report

The Pilot Rock Technical Report offers background information for the city regarding the natural environment, the socioeconomic environment (including population indicators) and establishment of the Urban Growth Boundary (UGB). The report contains road classifications for roadways through the city. The classifications are listed in the Appendix: Table X: 1997 Major Street Inventory. This report was last revised in 1986. Therefore, much of the data is now outdated.

Key finding regarding transportation facilities include the following:

- Approximately 80 percent of Pilot Rock's existing streets are paved. These streets are mainly paved to 20 feet and a few major collector streets are paved to 24 foot widths.

- There are few existing curbs or sidewalks in Pilot Rock. The ones which do exist consist mainly of short lengths of the downtown section Highway 395.

- The major road access provided to Pilot Rock is through US Highway 395. Two county roads also access the areas: County Road # 1375 and # 1386.

- The roadways allow easy access to highway transportation facilities which link the city with regional production, distribution, and marketing centers.

  The development of Pilot Rock is constricted by natural hazards. Pilot Rock is situated at the confluence of three creeks. East and West Birch Creek come together just north of the downtown area and form Birch Creek. Also, Wegner Creek flows into East Birch Creek near the southern city limits. The floodplains and natural habitats associated with the creeks has limited development. The city has zoned much of the area for permanent open space.

- The basalt rock formation on the west side of town has steep slopes which constrain development.

Pilot Rock Subdivision Ordinance

The City of Pilot Rock Subdivision Ordinance was adopted in 1986. It regulates all subdivisions and partitions of lands, within the city limits. (Umatilla County is responsible for regulating subdivision and partitions outside of the city limits but within the urban growth boundary. However, the city reviews and comments on all plans, plats, or maps for those areas.) It also regulates the construction of new or undeveloped streets within the city and urban growth boundary.

The ordinance explains the Pilot Rock street classifications. The different streets are defined as:

Alley: A narrow street through a block primarily for vehicular service access to the back or side of properties otherwise abutting on another street.

Arterial: A street of considerable continuity which is primarily a traffic artery for travel between large areas.

Collector: A street supplementary to the arterial street system and a means of travel between this system and smaller areas, used to some extent for through traffic and to some extent for access to abutting properties.

Cul-de-sac: A short street having one end to traffic and being terminated by a vehicle turn-around.

Local Street: A street intended primarily for access to abutting properties.

Marginal Access Street: A local street parallel and adjacent to an arterial street providing access to abutting properties, but protected from through traffic.

The Ordinance lists general requirements and design standards for streets. General requirements include the frontage requirements, grading, topography and arrangement of streets, road names, sign requirements, and street light requirements. Design standards include widths for rights-of-way, pavement, grade, speed, and sidewalks as follows:

ROAD DESIGN STANDARDS - BUSINESS/INDUSTRIAL

Road Classification	Minimum Right-of-way	Minimum Surface Width	Maximum Grade	Speed	Sidewalks
Arterial Street	100 ft	48 ft	5 %	45 mph	Both sides 6 ft
Collector Street	70 ft	44 ft	7 %	40 mph	Both sides 6 ft
Local Street	60 ft	38 ft	8 %	30 mph	Both sides 6 ft
Alleys	24 ft	24 ft	nl	nl	nl

nl - no standard listed

ROAD DESIGN STANDARDS - RESIDENTIAL

Road Classification	Minimum Right-of-way	Minimum Surface Width	Maximum Grade	Speed	Sidewalks
Arterial Street	80 ft	44 ft	8 %	40	Both sides 4 ft
Collector Street	60 ft	38 ft	10 %	35	Optional*
Local Street	50 ft	38 ft	12 %	25	Optional*
Alleys	20 ft	20 ft	nl	nl	nl

nl - no standard listed

* Sidewalks may be required by the City Council on these streets.

Subdivisions are required to provide frontage on and access from an existing street. Streets shall be improved to City, County or State standards. Sidewalks may be required at the discretion of the City Council on local or collector residential streets.

Pedestrian accesses may be required by the City Council to facilitate pedestrian access from streets to schools, parks, playgrounds, or other nearby streets. These are perpetual unobstructed easements at least 20 feet in width. The City Council may also require installation of separate bicycle lanes within streets or on separate paths.

Pilot Rock Zoning Ordinance

The Pilot Rock Zoning Ordinance was adopted in 1986.

The purported purpose of Zoning Ordinance is as follows:

> promoting the public health, safety, and welfare; to encourage the most appropriate use of property within the city; to stabilize and protect the value of property; to provide adequate light and air; to prevent overcrowding; to lessen traffic congestion; to facilitate adequate and economical provision for public improvements, all to implement the Comprehensive Plan of the City of Pilot Rock; to provide a method of administration and to provide penalties for violation of the provision herein.

The Ordinance contains 12 sections. The only section that applies directly to the transportation is the section on off-street parking and loading.

APPENDIX B

Major Streets Inventory

1997 MAJOR STREETS INVENTORY

Pilot Rock Transportation System Plan

Roadway Segment Location	Jurisdiction	Level of Importance	Speed Limit (mph)	Street Width (feet)	No. of Travel Lanes	Passing Lanes (direction)	Shoulders Width (feet)	Shoulders Side	Shoulders Paving	On-Street Parking	Curbs	Sidewalks	Bikeway	1997 Pavement Condition*
Arterials														
US 395 (Pendleton-John Day Hwy)														
NE UGB limits to NE City Limits (MP 14.64)	State	Statewide	55	32	2	No	4-6	NA	NA	No	No	No	No	Fair
MP 14.64 to NE 4th Street	State	Statewide	30-40	32	2	No	4-6	NA	NA	No	No	No	No	Fair
NE 4th Street to Main Street to SW Birch St.	State	Statewide	25	48 -56	4	No	4-6	NA	NA	No	No	No	No	Fair
Main Street to 4th Place to SW Birch St.	State	Statewide	25	32	2	No	4-6	NA	NA	No	East side	Both Sides	No	Fair
4th Place to SW UGB Limits to SW Birch Pl.	State	Statewide	30	32	2	No	4-6	NA	NA	No	No	No	No	Fair
Major Collectors														
Alder Street														
NW 2nd Street to Main Street	City	NA	25	18	2	No	No	NA	NA	No	No	No	No	Poor
N Alder Place														
NW 2nd Street and Main Street	City	NA	25	46	2	No	No	NA	NA	Yes	Yes	Both sides (1/2 block)	No	Fair
County Road No. 1375 to SW Birch St/E Birch Creek Rd														
US 395 junction to South UGB Limits	County	NA	25	24	2	No	No	NA	NA	No	No	No	No	Fair
Cedar Street/Mill Street														
2nd Street to Masonite Corporation Driveway	City	NA	25	30	2	No	No	NA	NA	No	No	No	Yes	Good (overay in 1996)
Circle Road														
Masonite Corp. Driveway to NW UGB Limits	County	NA	25	28	2	No	No	NA	NA	No	No	No	No	Fair
Main Street														
Alder Street to SW Birch Street	City	NA	25	70	2	No	No	NA	NA	diagonal	Yes	Both Sides	No	Fair
5th Street														
Alder Street to Cherry Street	City	NA	25	18	2	No	No	NA	NA	No	No	No	No	Poor
Cherry Street to SE UGB City Limits	City	NA	25	22	2	No	No	NA	NA	No	No	No	No	Fair
County Road No. 1150 to 4th Street/Stewart Creek Road														
Elm Street to E UGB Limits	County	NA	25	24	2	No	No	NA	NA	No	No	No	No	Fair
Alder Street														
Main Street to 5th Street	City	NA	25	18	2	No	No	NA	NA	No	No	West Side	No	Poor
Minor Collectors														
SW 2nd Street														
SW Birch Street to Delwood Street	City	NA	25	22	2	No	No	NA	NA	No	No	Both Sides (poor)	No	Fair

1997 MAJOR STREETS INVENTORY

Pilot Rock Transportation System Plan

Roadway Segment Location	Jurisdiction	Level of Importance	Speed Limit (mph)	Street Width (feet)	No. of Travel Lanes	Passing Lanes (direction)	Shoulders Width (feet)	Shoulders Side	Shoulders Paving	On-Street Parking	Curbs	Sidewalks	Bikeway	1997 Pavement Condition*
Cherry Street														
NE 4th Street to SE 5th Street	City	NA	25	24	2	No	No	NA	NA	No	No	No	No	Poor
Delwood Street														
SE 2nd to south end of street	City	NA	25	18	2	No	No	NA	NA	No	No	No	No	Fair
Elm Street														
NE 4th Street to US 395	City	NA	25	22	2	No	No	NA	NA	No	No	No	No	Fair

* Pavement condition information for arterials is from the 1997 ODOT Pavement Condition Report. Condition information for collectors is based on field survey conducted by DEA in November 1997.

APPENDIX C

Umatilla County Population Discussion

Umatilla County Population Discussion

Methodology and Data Sources

Population estimates and projections were developed from historical data, official annual estimates, official long-range forecasts, and an impact analysis of four major employers entering or expanding in western Umatilla County. Historical data are compiled as reported by the Census Bureau. Portland State University's Center for Population Research and Census developed annual population estimates for cities and counties for the purpose of allocating certain state tax revenues to cities and counties. The State of Oregon Office of Economic Analysis (OEA) provided long-term (through year 2040) state population forecasts, disaggregated by county, for state planning purposes.

The Office of Economic Analysis used business-cycle trends (as reflected by the Employment Department's employment forecasts) as the primary driver of population and employment for the short term. For the long term, the forecasts shift to a population-driven model, which emphasizes demographics of the resident population, including age and gender of the population, with assumptions regarding life expectancy, fertility rate, and immigration. DEA used a methodology based on OEA's county-distribution methodology in developing population and employment forecasts for each of the cities in Umatilla County. DEA calculated a weighted average growth rate for each jurisdiction (weighting recent growth more heavily than past growth) and combined this average growth rate with the projected county-wide growth rate. This methodology assumes convergence of growth rates because of the physical constraints of any area to sustain growth rates beyond the state or county average for long periods of time. These constraints include availability of land and housing, congestion, and other infrastructure limitations.

These preliminary forecasts were used as a basis for discussion with individuals who have local knowledge and expertise. The projections were then revised based on local input and analysis. One element that had a significant impact on the population analysis was the HUES (Hermiston, Umatilla, Echo, and Stanfield) Growth Impact Study, conducted by the Benkendorf Associates Corporation, Hobson Johnson & Associates, and Martin Davis Consulting, which quantifies the impact of the construction and operation of four major employers.

As required by state policy, this forecast is consistent with the State of Oregon Office of Economic Analysis forecast at the end of the 20-year planning period. Because of the impact of the four large employers, however, the growth of Umatilla County will occur faster in the beginning of the planning horizon, slowing to compensate near the end of the planning period.

These population and employment forecasts were developed to 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 was designed.

CURRENT POPULATION AND EMPLOYMENT LEVEL

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 over one-and-one-half percent. The following table shows the estimated change in population for Umatilla County and the jurisdictions of Adams, Athena, Echo, Helix, Pilot Rock, Stanfield, Ukiah, and Weston for 1990 and 1996.

Umatilla County Population Level
1990 and 1996

			1990-1997 Change	
	1990	1997	Number	CAARG*
Umatilla County	59,249	65,500	6,251	1.4%
Adams	223	265	42	2.5%
Athena	997	1,120	123	1.7%
Echo	499	585	86	2.3%
Helix	150	190	40	3.4%
Pilot Rock	1,478	1,585	107	1.0%
Stanfield	1,568	1,770	202	1.7%
Ukiah	250	240	-10	-0.6%
Weston	606	680	74	1.6%

* *Compound Average Annual Rate of Growth*

Source: Portland State University Center for Population Research and Census.

Most of the jurisdictions in Umatilla County have grown at a healthy rate, comparable to the annual growth rate of 1.4 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.

Populations with Specific Transportation Needs

Certain populations have been identified as having more intensive transportation needs than the general population. These populations include people under the legal driving age, those under the poverty level, and those with mobility limitations.

As stated above, Portland State University's Center for Population and Census estimates the Umatilla County's population as 65,500 in 1997. The Center further estimates that 18,623 of these people, or about 28 percent of the population, is under the age of 18 and that 5,505 are under age 5. Because the purpose of this analysis is to determine the number of people with specific transportation needs, DEA used PSU's age disaggregation to estimate that 16,617 people are under 16, the legal driving age in Umatilla County.

According to the 1990 Census, 16.5 percent of the 57,046 persons living in Umatilla County (for whom poverty status is determined) were below poverty level. Poverty statistics are based on a threshold of nutritionally-adequate food plans by the Department of Agriculture for the specific size of the family unit in question. The distribution of the population below poverty level shows that a larger proportion of younger persons than older populations are affected by this indicator, as shown in the following table.

Poverty Status
Umatilla County--1990 Census

	Below Poverty Level				
	Male	Female	Total Below Poverty Level	Total* Population	Percent of Total Population Below Poverty
11 and under	1,408	1,175	2,583	10,929	23.6%
12 to 17	481	517	998	5,223	19.1%
18 and over	2,300	3,538	5,838	40,894	14.3%
Total	4,189	5,230	9,419	57,046	16.5%

** For whom poverty status is determined.*

Source: U.S. Census Bureau.

The Census Bureau reports that 3.3 percent of the population 16 and older had a mobility limitation in 1990. Persons were identified as having a mobility limitation if they had a health condition (physical and/or mental) that lasted for six or more months and which made it difficult to go outside the home alone. A temporary health problem, such as a broken bone that was expected to heal normally, was not considered a health condition.

Using the proportion of the population with mobility limitations and below the poverty level[1] in 1990, DEA estimated the number of people with specific transportation needs in 1996. The following table shows that an estimated 34.8 percent of the population may have specific transportation needs. (There is likely to be some overlap between the 3.3 percent of the population with mobility limitations and the 14.5 percent below the poverty level; therefore, the sum of the figures may overstate the proportion of the population with specific transportation needs.)

Estimated Population with Specific Transportation Needs
1996, Umatilla County

	Percent of Total Population	Estimated Number
Persons between the ages of 5 and 15	17.0%	11,115
Persons 16 and older under Poverty Level	14.5%	9,480
Persons 16 and older with Mobility Limitation	3.3%	2,130
Total Specific Transportation Needs Population	34.8%	22,725

[1] DEA used the Census Bureau's age disaggregation to estimate that 10.7 percent of the population over the age of 16 was under the poverty level in 1990.

Source: U.S. Census Bureau.

Planning for the overall transportation system will need to consider the special needs of these populations.

HISTORICAL 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 following table shows the population trend for Adams, Athena, Echo, Helix, Pilot Rock, Stanfield, Ukiah, and Weston, and Umatilla County as a whole.

Umatilla County Historical Population Trend

							1970-1990 Change	
	1970	1980	1985	1990	1995	1997	Number	CAARG*
Umatilla County	44,923	58,855	60,000	59,249	65,200	65,500	14,326	1.4%
Adams	219	240	245	223	260	265	4	0.1%
Athena	872	965	955	997	1,080	1,120	125	0.7%
Echo	479	624	605	499	530	585	20	0.2%
Helix	152	155	155	150	170	190	(2)	(0.1%)
Pilot Rock	1,612	1,630	1,630	1,478	1,560	1,585	(134)	(0.4%)
Stanfield	891	1,568	1,660	1,568	1,700	1,770	677	2.9%
Ukiah	N.A.	249	230	250	270	240	N/A	N/A
Weston	660	719	730	606	655	680	(54)	(0.4%)

** Compound Average Annual Rate of Growth*
Ukiah was incorporated in July 1972.
Source: Portland State University Center for Population Research and Census.

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.

POPULATION AND EMPLOYMENT FORECASTS

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.

The State Office of Economic Analysis prepared long-term population projections by county. Based on these projections and the methodology described above, preliminary population forecasts for the jurisdictions of Adams, Athena, Echo, Helix, Pilot Rock, Stanfield, Ukiah, and Weston were developed in five-year increments.

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.

HUES Population Impacts by Community
HUES Study "Scenario One" Less Wal-Mart Distribution Center

	Base Population	Population Impact		
	1996	2000	2005	2007
Hermiston	11,050	1,681	2,354	1,412
Umatilla	3,310	503	705	423
Echo*	530	81	113	68
Stanfield	1,755	267	374	224
HUES communities subtotal		2,531	3,545	2,128
Pendleton		223	313	188
Rural Umatilla County		223	313	188
Total Population Impact		2,978	4,171	2,503

* *The HUES study estimates Echo's base population using utility hook-up data and a 2.5 average household size. However, this methodology yields a base-year estimate inconsistent with the "official" state estimate. As required by state policy, the Transportation System Plan uses the official state estimate as the base population. As appropriate, the TSP uses utility hook-up data as the base number of households.*

Source: HUES Growth Impact Study and David Evans and Associates, Inc.

These estimated impacts were then applied to the original population forecast for Echo and Stanfield by the mathematical model. The resulting population forecast is shown in five-year increments in the table below.

Umatilla County Population Forecast

	1995	2000	2005	2010	2015	2017	1995-2000 CAARG	1995-2017 CAARG
Umatilla County	65,200	72,800	77,000	78,300	79,500	80,073	2.2%	0.9%
Adams	260	270	280	290	300	310	0.7%	0.8%
Athena	1,080	1,160	1,210	1,270	1,330	1,360	1.4%	1.1%
Echo	530	610	640	650	660	660	2.9%	1.0%
Helix	170	190	210	220	230	230	2.7%	1.4%
Pilot Rock	1,560	1,580	1,600	1,610	1,640	1,650	0.3%	0.3%
Stanfield	1,700	2,020	2,130	2,290	2,430	2,490	3.5%	1.8%
Ukiah	270	290	310	320	340	340	1.6%	1.1%
Weston	655	690	700	710	720	730	1.0%	0.5%

Source: 1995 estimates developed by Portland State University Center for Population Research and Census; long-term County forecasts developed by State of Oregon Office of Economic Analysis; and Jurisdiction forecasts and intermediate County forecasts developed by David Evans and Associates, Inc.

Overall, Umatilla County is expected to experience healthy rates of population growth, averaging nearly one percent annually over the planning horizon. As shown in the table, the western portion of Umatilla County is expected to grow faster than the rest of Umatilla County, fueled by the four major employers. Of all jurisdictions included in this analysis, Stanfield is expected to grow the fastest, at an annual average of 3.5 percent at the beginning of the planning horizon, slowing somewhat, but still achieving a very rapid average annual rate of 1.8 percent for the 20-year planning period.