City of Stanfield

Transportation System Plan

Final Report

June 2001

Prepared by:

David Evans and Associates, Inc. and

Umatilla County in coordination with

Oregon Department of Transportation

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TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

Follows Page

Page

CHAPTER 1: INTRODUCTION

The City of Stanfield 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 Stanfield's Transportation System Plan planning area covers the entire area within the Stanfield 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 Stanfield, Umatilla County, and the state of Oregon.

Stanfield is located in the northwestern portion of Umatilla County in the northeastern corner of Oregon. The City has a growing population of approximately 1,755 people. The City is laid out with a grid system in the middle of town centered around US 395 which serves locally as Main Street. The grid is broken up by Stage Gulch which runs east-west through the City. In fact, nearly all of the original town of Stanfield, is within the 100-year floodplain of Stage Gulch. Development spreads out from downtown along US 395 to the northwest and southeast. The city is constrained by the Umatilla River floodway to the southwest, and I-84 and the Echo UGB to the south. Commercial development is concentrated primarily along Main Street.

US 395 runs through the center of Stanfield connecting the City to nearby Hermiston and Washington State to the north and I-84 and California to the south. I-84 lies just south of the UGB connecting the City with major destinations to the west (Portland) and the east (Boise). The Oregon Department of Transportation (ODOT) has jurisdiction over these highways.

Four county roads exist within the UGB: Seymour Street (No. 1332), running east-west in the southwest corner of the UGB near Hinkle; Harding Avenue running east-west (No. 1182) in the northwest; South Edwards Road (No. 1201) running north-south on the eastern boundary of the UGB; and Hoosier Road (No. 1331) running northwest near the western city limits. South Edwards Road is often used as a bypass by trucks that wish to avoid going through the Stanfield and Hermiston urban areas. There are also many important county roads that extend east from Edwards Road just east of the UGB. The City has jurisdiction over the rest of the existing roadways. The Union Pacific Railroad right-of-way runs northwest to southeast along the western edge of the City. The major railway yard in the county, Hinkle Railyards, is located just northwest of the City. This railway is used for freight.

Agriculture, food processing, wood products, tourism, manufacturing, and recreation serve as the principal industries in Stanfield and other nearby communities . Employment in agriculture and wood products is subject to seasonal variations, which tend to parallel growing and construction seasons.

PLANNING PROCESS

The Stanfield 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 Stanfield 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 TSPs for the city of Stanfield, 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 the 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 and 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 Stanfield 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 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.

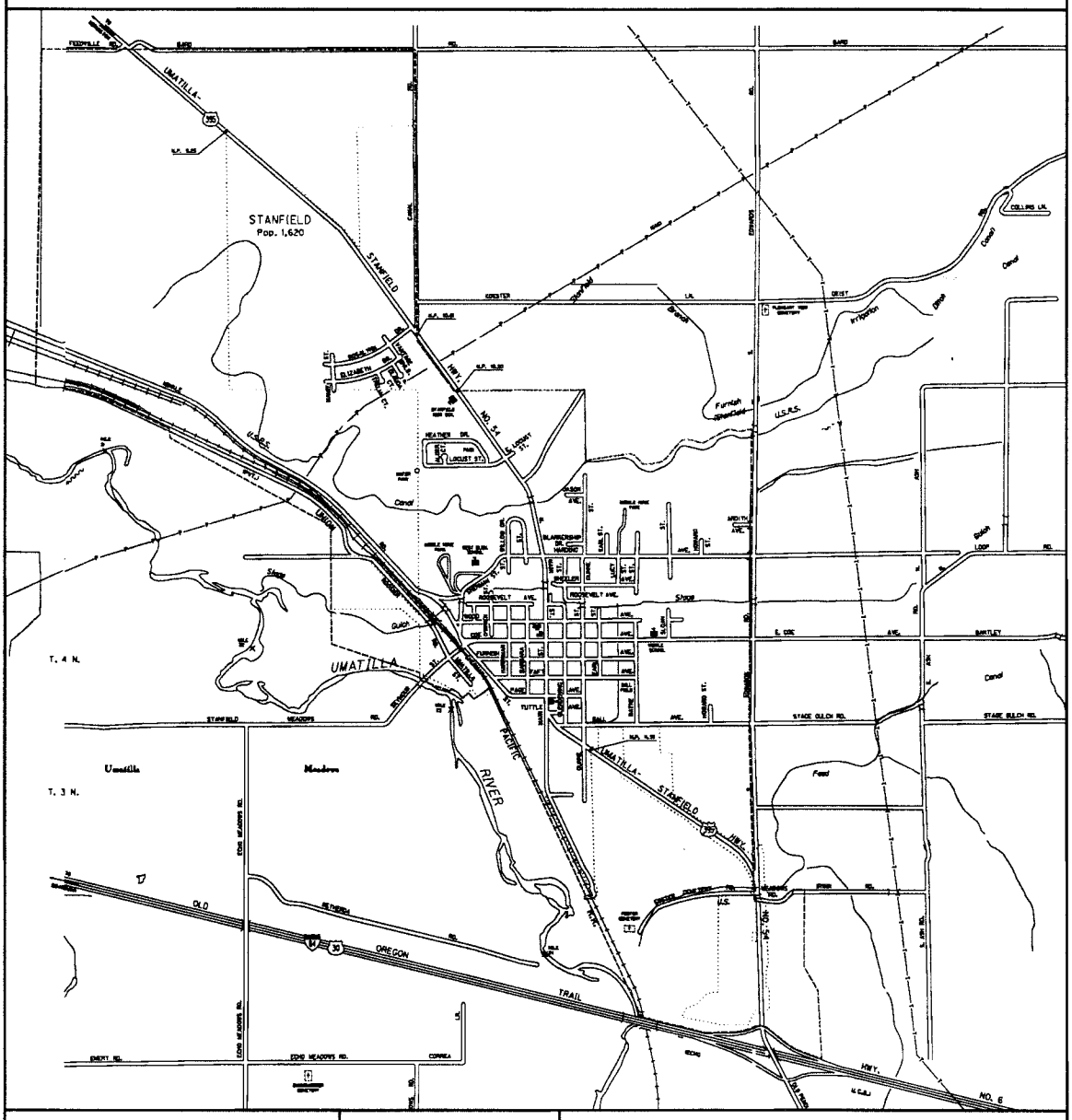
Review and Inventory of Existing Plans, Policies, and Public Facilities

To begin the planning process, all applicable Stanfield 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 -Stanfield

City of Stanfield TSP

UMCO0001/STAN1-1.DGN/TNT/07-03-98

efforts was to understand the history of transportation planning in the Stanfield 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 were 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 forecasting and the evaluation of potential improvements 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 Stanfield 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 is 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 Stanfield TSP addresses the regional and local 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 Stanfield.

Other Transportation System Plans Prepared Concurrently with the Stanfield TSP

In addition to the Stanfield 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 Pilot Rock TSP
- City of Ukiah TSP
- City of Weston TSP

In Process or Completed Plans

The following references were reviewed for relevance to the city of Stanfield TSP:

Stanfield Comprehensive Plan

The Stanfield Comprehensive Plan was adopted in 1983. The Plan was created through a joint effort of the Stanfield Comprehensive Plan Advisory Committee and the city's planning consultant. It contains 14 goals with associated policies to guide the future growth and development of the City. Four of these goals directly impact the transportation system: (1) floodplain management, (2) economic development, (3) public facilities and services, and (4) transportation. The actual goals and some of the more important policies established to accomplish the goals are outlined in Appendix A to this TSP.

Technical Report Update

The Technical Report was updated in 1984. It contains findings regarding the fourteen state goals. It also lists vacant buildable lands. Important findings in the Technical Report are summarized in Appendix A to this TSP.

Stanfield Zoning Ordinance

The Stanfield Zoning Ordinance was adopted in 1984. The Ordinance is broken in to 22 Articles. Article 12 highly impacts the transportation system. It contains requirements for streets, sidewalks, utilities, clear vision areas, irrigation ditches, access and driveways. The Article states that any improvements to streets

must be in accordance with subdivision standards listed in the City of Stanfield Subdivision Ordinance and Section 12.10.

Standards governing street access are listed in the Ordinance under Article 12.68. Access to arterials and collector streets is minimized. Access to US 395 is restricted to the areas north of Harding Avenue and south of Ball Avenue via dedicated public streets, except for the existing direct access to developed property north of Stanfield High School. Frontage roads are required for developments on parcels of contiguous ownership exceeding five acres in size which front on an arterial street. Direct access is allowed onto collector streets, but all new housing developments, shopping centers and the like must use grouped access, and new subdivisions shall be designed so that no lots front on a collector street.

The number and location of access points is regulated. Properties with less than 100 feet of frontage are limited to two access lanes per frontage which may be together or separate, and properties exceeding 100 feet of frontage are limited to two access lanes per each 100 feet of frontage. Double frontage properties may be restricted to access on the street of lower classification through site plan review. Joint access in the form of common driveways is encouraged.

Stanfield Subdivision Ordinance

The Stanfield Subdivision Ordinance was adopted in 1984. 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. A summary of ordinances that affect transportation elements is provided in Appendix A of this TSP.

Traffic Impact Analysis (Wal-Mart Distribution Center)

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

Stanfield Community Visioning and Buildable Land Inventory

The Stanfield Community Visioning and Buildable Lands Inventory project addresses the following issues and community needs:

- An influx, currently in progress, of numerous large industrial and institutional employers in western Umatilla County and northeastern Morrow County including: the Two Rivers Prison, a Wal-Mart distribution center north of Stanfield, the Hinkle Railyard expansion, and increased activity at the Umatilla Army Depot.

- Anticipated rapid population growth will generate demand for residential and commercial land development as workers and their families migrate to the area. This growth, together with major increases in freight movement associated with the new employment centers, will produce significant travel demand increases and pattern changes.

- The capacity of the existing town center to accommodate growth and redevelopment is severely constrained. The central business district and much of the residential area around it are within the 100-year floodplain boundary. In addition, Highway 395 through the center of town is expected to carry increasing freight movement between I-84 and the new Wal-Mart distribution center.

US 395 North Corridor Plan

The US 395 North Corridor Plan prepared by OTAK, Inc. and Kittelson and Associates, Inc. covers a section of US 395 extending from I-84 (including the city of Echo) to US 730 in the city of Umatilla. This plan addresses transportation system improvement projects and an access management plan for the entire US 395 North Corridor.

Corridor Strategies

Corridor studies 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 STIP. Generally, the Corridor Strategies translate the policies of the Oregon Transportation Plan (OTP) into specific actions; describe the functions of each transportation mode, consider tradeoffs, 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 which are intended to embody this overall strategy for the corridor, and to set direction and provide guidance for corridor-wide transportation plans and improvements.

The *Milton-Freewater Stateline Highway 11 Corridor Land Use and Transportation Plan* was a cooperative effort of Umatilla County, the city of Milton-Freewater, and the Oregon Department of Transportation. It was developed by planning consultants at David Evans and Associates, Inc., with input from these jurisdictions, the local residents, Walla Walla County, and the Washington Department of Transportation. The plan was adopted in 1997 and evaluated existing and projected conditions within the northern portion of the OR 11 corridor regarding basic layout and connectivity, conditions of transportation facilities, land use, and population and employment. It analyzed existing deficiencies and proposed strategies for addressing them. The primary deficiencies in the corridor were physical design of facilities, insufficient access control, and inadequate or nonexistent facilities for pedestrians and bicyclists. Recommended actions to improve these conditions included policy and ordinance amendments and transportation system improvements.

Airport Master Plans

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

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

Development Plans

The Umatilla County Development Ordinance was adopted in 1983, and last amended in November of 1991. The portions of the ordinance most relevant to the Transportation System Plan include sections on off-street parking requirements, driveways, and street standards. Amendments to the ordinance include street standards for county roads.

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: PRELIMINARY GOALS AND OBJECTIVES

The purpose of the TSP is to provide a guide for Stanfield 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 highways.

Objectives

A. Develop access management standards.

B. Develop alternative, parallel routes where practical.

C. Promote alternative modes of transportation.

D. Promote transportation demand management programs.

E. Promote transportation system management.

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

G. Limit access to and from US 395, north of Harding Avenue and south of Ball Avenue, and require the provision of streets parallel to the highway to serve those areas as development occurs.

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. Require street improvements and construction as part of development approval.

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 for city roads of high importance to the community.

F. Evaluate the need for traffic control devices.

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

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

Goal 3

Improve coordination among Stanfield 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. Cooperate with ODOT in the implementation of the Statewide Transportation Improvement Program (STIP).

C. Work with ODOT to minimize conflicts between through and local traffic on US 395.

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. Encourage the county and ODOT to improve the existing road systems to and within the City.

G. 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 encourage the provision of inter-city transit service.

B. Require sidewalks on all new or upgraded streets.

C. Create a bicycle and pedestrian master plan linking residential areas with schools, parks, and shopping, and employment. 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.

E. Utilize local improvement districts (LIDs) when possible to provide sidewalks and curbs for local neighborhoods.

Goal 5

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

Objectives

A. Encourage industry to locate in areas that are, or can be, served by the railroad.

B. Work with Union Pacific Railroad to develop an alternate road access into the Hinkle Railyard and other Railroad industrial lands within the UGB.

C. Encourage the reinstatement of passenger rail service to the Hermiston Amtrak Terminal.

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 Stanfield. 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 Stanfield 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 Stanfield, 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.

City Street Classification

The current Comprehensive Plan for the city of Stanfield does not provide functional classifications for the streets within the City. Typically, streets are classified as arterials, collectors or local streets. Based on conditions observed during the field reconnaissance (traffic volumes, street widths, etc.), DEA classified all streets within the City. The classification system includes city, county, and state roadways.

Arterials

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

In Stanfield, there is one street which functions as an arterial: Main Street (US 395, also called Umatilla-Stanfield Highway). This roadway serves as the focus for most of the commercial development in the City. US 395 is a state highway under ODOT jurisdiction.

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.

Five streets in Stanfield were identified as functioning as collectors: Seymour Street, Coe Avenue, Sherman Street, Harding Avenue and Edwards Road.

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 that abut them. Through traffic movements are discouraged on local streets.

The local streets in Stanfield are comprised of all streets not classified as either arterials or collectors. Local streets in Stanfield also form part of the grid system.

Street Layout

The majority of the Stanfield streets are positioned in a grid pattern. Block sizes vary but are typically 300 feet square. Main Street (US 395) is the primary north-south street. Coe Avenue is the primary east-west street. The grid system loses its rigidity on the fringes of the urban area.

State Highways

Discussion of the Stanfield street system must include the only state highway that traverses through the planning area; US 395. Although the city of Stanfield has no direct control over this state highway, adjacent development and local traffic patterns are heavily influenced by it.

The *1999 Oregon Highway Plan* (OHP)[1] 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 through Stanfield is designated in the 1999 OHP 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.

[1] 1991 *Oregon Highway Plan*, Appendix B, Table 1, Access Management Classification System.

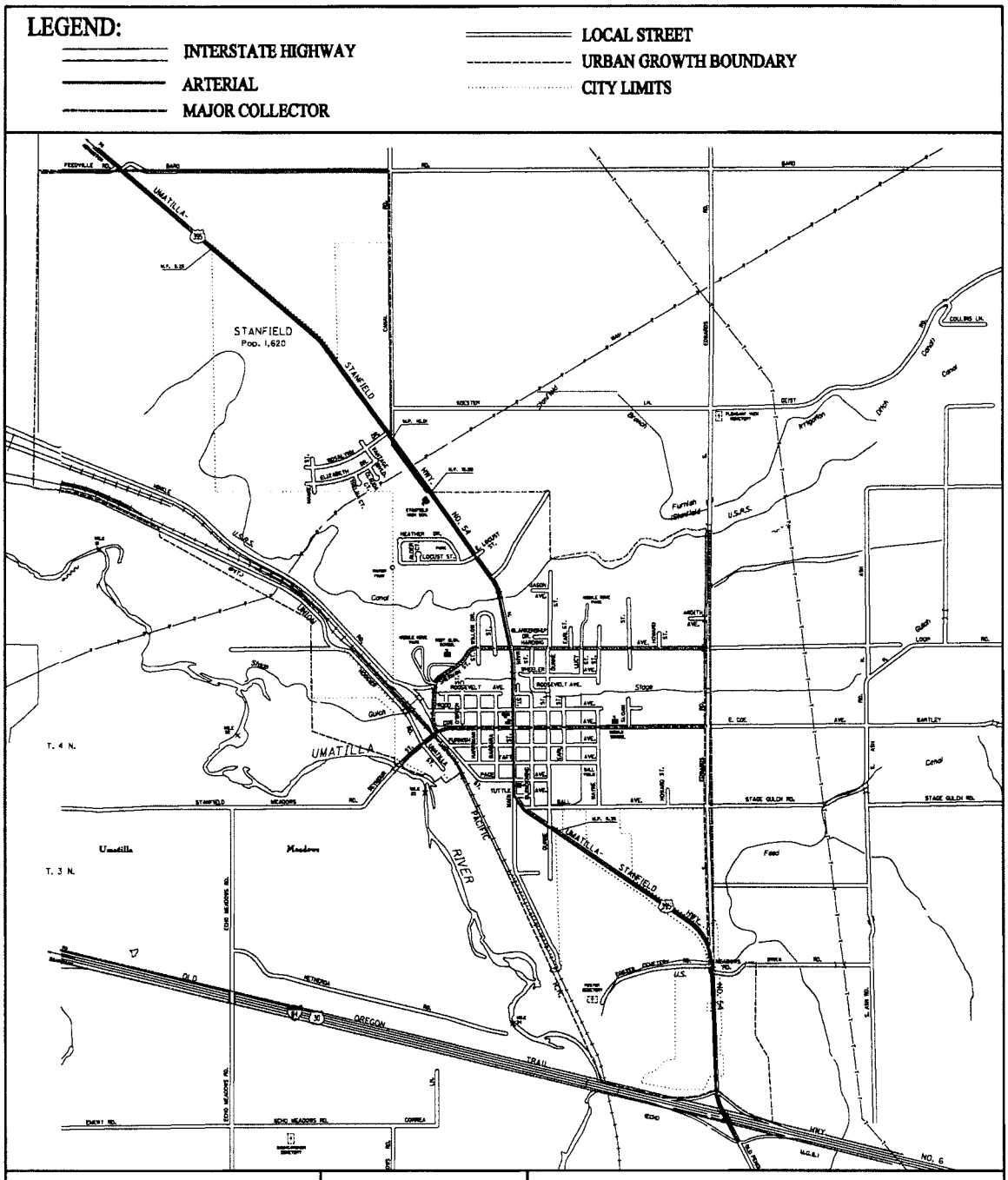

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FIGURE 3-1

Roadway Functional Classification -Stanfield

City of Stanfield TSP

UMC00001/STAN3-1.DGN/TNT/07-03-98

Within Stanfield, the Urban Growth Boundary extends to, but does not encompass, I-84 in the vicinity of the US 395 interchange. Discussion of the physical inventory and operating conditions on I-84 can be found in the Umatilla County TSP.

US 395

The stretch of US 395 between Umatilla and Stanfield is known as the *Umatilla-Stanfield Highway*. Beginning in Umatilla and extending through Hermiston and Stanfield, it ends at the Interstate-84 junction. This stretch of highway is primarily five lanes with a speed limit of 55 mph, except within the Hermiston and Stanfield city limits where traffic is subject to lower speeds varying between 25 and 40 mph. US 395 traverses Stanfield from north to south, comprising Main Street, and serves as the major route through the City with commercial and industrial development focused along its corridor.

In June 1995, the *Hermiston-Umatilla Highway 395 Corridor Land Use/Transportation Plan* was developed. This plan includes an overall corridor strategy and objectives for managing, operating, and improving the transportation corridor between Umatilla and Stanfield over the next 20 years. The Corridor Strategy was developed to identify projects for the Oregon STIP. Development of the US 395 North 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 Oregon 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 tradeoffs, 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 North 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 North Corridor Strategy is currently being followed-up by the US 395 North 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 Stanfield.

An inventory of the city's collectors, conducted by DEA in November 1997, indicated that four streets were in fair condition: Seymour, Sherman, Harding, and Edwards Streets. One collector, Coe Avenue, was 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.

According to the 1997 ODOT Pavement Condition Report, the section of US 395 that runs through Stanfield is in 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 Stanfield; two are city-owned and maintained, one is county owned and maintained, and the remaining two bridges along US 395 are under state jurisdiction. The ODOT bridge inventory information indicates that one of the two city-owned bridges is structurally deficient with a current sufficiency rating of 43.7. This bridge (ODOT Bridge No. 59C221) crosses the Stage Gulch Ditch and is located on N. Sherman Street. No bridge improvements are scheduled within Stanfield under ODOT's 2000-2003 STIP Update.

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 Stanfield 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.

Sidewalks in Stanfield are limited to Main Street and Coe Avenue. Sidewalks, as well as curb ramps and crosswalks, exist on both sides of Main Street between Tuttle Avenue and Harding Avenue. There is also a sidewalk on the eastside of Main Street between Tuttle Avenue and Ball Avenue. Between Harding Avenue and the bridge over the canal there is a 9½-foot sidewalk/bike route on the west side of Main Street. Between the bridge and Stanfield High School an 8-foot asphalt path exists. Sidewalk exists on both sides of Coe Avenue between Main Street and Herman Street; however, the corners lack curb ramps. East of Main Street, sidewalks on Coe Avenue are intermittent and in poor condition. There is also a 5-foot shoulder walkway on the eastside of three blocks of Sherman Street. The existing pedestrian system 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 Stanfield, 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.

The only sanctioned bikeway in Stanfield is the asphalt path and sidewalk on the west side of Main Street between Stanfield High School and Harding Avenue. Elsewhere 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 Main Street, safety for the bicyclists is an important issue. The existing bikeway system is shown in Figure 3-2.

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

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 Oregon 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.

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

Stanfield 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

Stanfield has no passenger 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.

Although Stanfield does not have any rail service within its UGB, it is adjacent to a major freight yard, the Hinkle Railyards, and within a few miles of Hermiston, which is well-served. Freight rail lines owned and operated by Union Pacific Railroad, a Class I line-haul freight railroad, run through downtown Hermiston parallel to US 395. The Spokane main line carries 10 trains per day through Hermiston, with most trains being 70 cars or less. The Port of Umatilla is served by the Umatilla branch and sends one train per day of ten cars or less through Hermiston.

The Hinkle Railyards west of Stanfield are a major maintenance and repair facility. At present, the Hinkle Railyards handle 794 rail cars a day. This includes fueling, switching, and assembly activities. With the recent merger of the Southern Pacific and Union Pacific Railroads, rail traffic is expected to increase by 43 percent at the Hinkle Railyards. In addition, the railyards were recently pre-certified to receive Enterprise Zone benefits in order to attract a maintenance facility. The facility is expected to add up to 200 new jobs to the Hinkle Railyards in the near future.

AIR SERVICE

The city of Stanfield is served by Hermiston Municipal Airport, which is approximately 5 miles north of Stanfield, and by Eastern Oregon Regional Airport in Pendleton, which is approximately 20 miles east of Stanfield.

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.

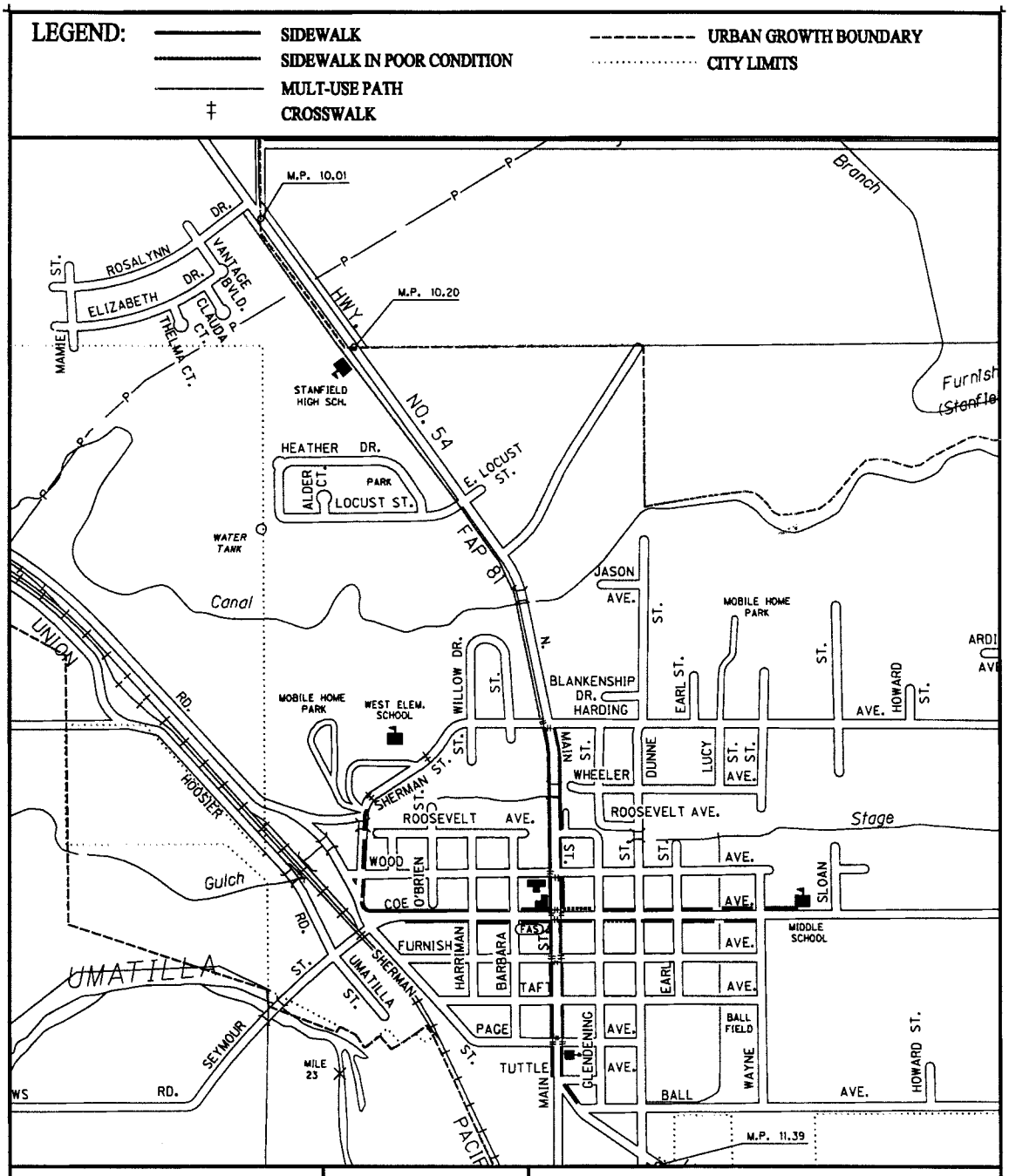

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FIGURE 3-2

Pedestrian and Bikeway System Inventory -Stanfield

City of Stanfield TSP

UMC00001/STAN3-2.DGN/TNT/07-07-98

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.

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. There is a natural gas line that runs from Morrow County to Walla Walla County through the northwest corner of the Stanfield Urban Growth Boundary. Cascade Natural Gas provides natural gas to consumers in Stanfield from this nearby pipeline.

WATER TRANSPORTATION

Stanfield 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 Stanfield. 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 Stanfield. In June 1998, ODOT conducted daily traffic counts along US 395 through Stanfield, which also included the PM peak-hour. DEA also conducted a turning movement count at the intersection of US 395 and Coe Avenue in November 1997, to analyze the operations of this signalized intersection.

Average Daily Traffic

The 1998 Average Daily Traffic (ADT) volumes on US 395 in Stanfield are shown in Figure 4-1. Traffic volumes are highest on US 395 in two areas; north of Harding Avenue, where the ADT volume exceeded 8,500 vehicles per day (vpd), and south of Edwards Road, where the ADT volume reached 8,600 vpd. Traffic volumes in the center of town range from 7,400 to 6,300 vpd.

The traffic volumes shown on Figure 4-1 were recorded by ODOT in June, which is the month when traffic volumes are typically the highest. ODOT data on area highways (US 730, I-82, I-84, and US 395 south of Pendleton) indicate that during the summer season, traffic volumes are about 20 to 30 percent higher than average daily volumes for the year. However, a comparison between the June 1998 counts performed by ODOT, and the 1996 average daily volumes indicates traffic has decreased over the last two years. This reduction led to the assumption that the June 1998 volumes represent average daily traffic for the year.

Hourly Traffic Patterns

DEA conducted turning movement counts at the intersection of US 395 and Coe Avenue during the afternoon and evening peak hours on a weekday in November 1997. This location was selected because it is the only signalized intersection in the City and was presumed to be the highest activity spot in the City. Evaluation of a roadway's capacity and level of service is usually based on an analysis of peak hour volumes.

At the signalized intersection of Main Street (US Hwy 395) and Coe Avenue, traffic volumes were highest between 4:30 and 5:30 p.m. (the PM peak-hour) when a total of 709 vehicles were counted entering the intersection. The heaviest movements by far were the north-south through movements along US Hwy 395. Left and right turning movements along the highway were very low (none higher than 16 vph), with the highest number in the southbound direction (two to three times higher than similar northbound movements). On the westbound approach of Coe Avenue, left-turn, right-turn, and through movement volumes were 4, 15 and 8 vph, respectively, during the PM peak-hour. On the eastbound approach of Coe Avenue, left-turn, right-turn, and through movement volumes were 20, 17 and 8 vph, respectively, during the PM peak-hour.

According to the Stanfield Technical Report, which contains the background information for the city's Comprehensive Plan, Edwards Road, a north-south collector on the east side of the City, serves as a major route for farm traffic between I-84 and the Diagonal Road area east of Hermiston. The report indicates that

Edwards Road has high volumes of heavy truck traffic using the road as a bypass around Hermiston. A representative of DEA observed conditions at the intersection of Edwards Road and US 395 and counted only one truck turning off of US 395 on to Edwards Road during a 15-minute period. It does not appear that Edwards Road functions as a bypass around Stanfield and Hermiston, because it does not reconnect with US 395, or any other state highway, north of Hermiston.

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)	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.
C-D (0.70-0.73)	
D (0.74-0.83)	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.
D-E (0.84-0.87)	
E (0.84-0.97)	Traffic flow would be unstable with congestion and intolerable delays to motorists. The average speed would be approximately 10 to 15 miles per hour.
E-F (0.98-0.99)	
F ($\geq$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* establishes mobility standards for the state highway system. US 395 is currently classified as a State Highway. However, because the highway has been included in the National Highway System, operating conditions should be at least as good as a regional highway. This includes a LOS C or better in urbanizing areas (v/c ratio of 0.60-0.69) where average speeds are between 20 and 25

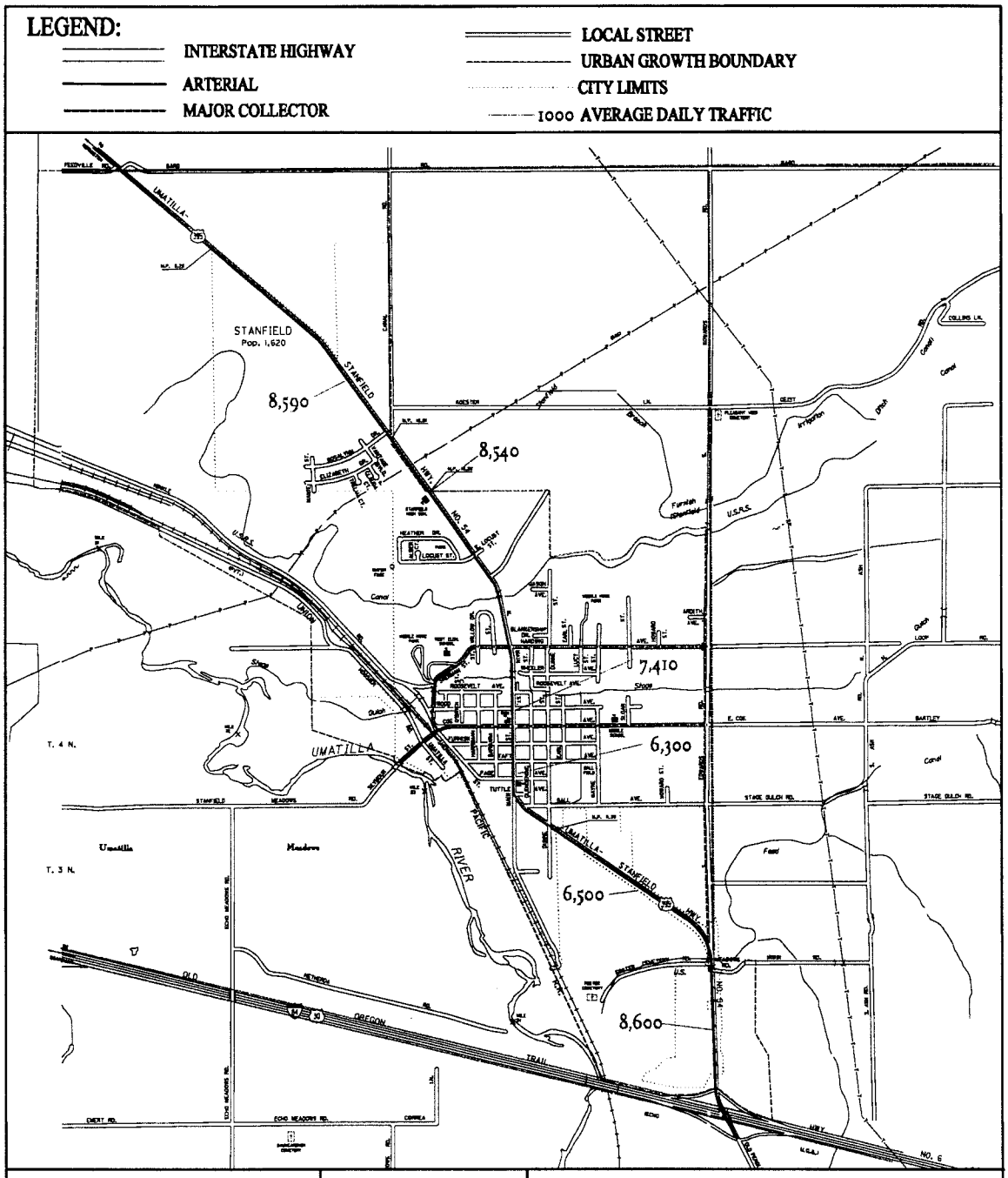

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FIGURE 4-1

1998 Average Daily Two-Way Traffic Volumes -Stanfield

City of Stanfield TSP

UMC00001/STAN4-1.DGN/TNT/07-07-98

mph, and a LOS D or better (v/c ratio 0.74-0.83) where average speeds are between 15 and 20 mph) in urban areas.

The traffic operations were determined at the intersection of Main Street and Coe Avenue using the 1994 Highway Capacity Software for signalized intersections. This software is based on the 1994 Highway Capacity Manual, Special Report 209, published by the Transportation Research Board. Signal timing was recorded for multiple cycles during field investigation by DEA. Average timing was used to determine LOS and volume to capacity (v/c) ratios at the intersection. Table 4-2 summarizes the results of the capacity analysis at this intersection.

TABLE 4-2
SUMMARY OF OPERATIONS AT MAIN ST. AND COE AVE.

Intersection/Movement		Level of Service*	V/C Ratio	Delay (sec/veh)
Main Street (US 395) & Coe Avenue				
Overall Intersection		A	NA	4.9
Eastbound	Left	A	0.07	13.1
	Through, Right	A	0.09	13.1
Westbound	Left	A	0.01	13.0
	Through, Right	A	0.09	13.1
Northbound	Left	A	0.01	1.6
	Through, Right	A	0.18	4.1
Southbound	Left	A	0.02	1.6
	Through, Right	A	0.20	4.1

* LOS is calculated based on delay for individual movements as well as the overall intersection.

In general, the intersection currently operates very well. The highway operates well above established standards at LOS A and v/c ratios of .20 or less. Coe Avenue has very low traffic volumes and operates very well at LOS A and v/c ratios of .09 or less.

TRANSPORTATION DEMAND MANAGEMENT MEASURES

In addition to inventorying the transportation facilities in Stanfield, 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 Stanfield, no formal TDM strategies exist in the City.

The 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). Approximately 25 percent of the total employees (those not working at home) depart for work between 7:00 and 8:00 a.m. Another 31 percent depart in either the hour before or the hour after the peak. Therefore, over half of all morning commute trips occur between 6:00 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.	28	4.6%
5:00 a.m. to 5:59 a.m.	51	8.4%
6:00 a.m. to 6:59 a.m.	134	22.1%
7:00 a.m. to 7:59 a.m.	151	24.9%
8:00 a.m. to 8:59 a.m.	52	8.6%
9:00 a.m. to 9:59 a.m.	16	2.6%
10:00 a.m. to 10:59 a.m.	11	1.8%
11:00 a.m. to 11:59 a.m.	9	1.5%
12:00 p.m. to 3:59 p.m.	86	14.2%
4:00 p.m. to 11:59 p.m.	69	11.3%
Total	**607**	**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 4:00 and 5:00 p.m., which corresponds with the peak hour of activity measured for traffic volumes.

Travel Mode Distribution

Although the automobile is the primary mode of travel for most residents in Stanfield, 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, 90.5 percent of all trips to work were in a private vehicle (auto, van, or truck). Trips in single-occupancy vehicles made-up 77 percent of these trips, and carpooling accounted for 23 percent.

Bicycle usage was relatively low (approximately 0.5 percent) in 1990. Since the census data do not include trips to school or other non-work activities, overall bicycle usage may be greater. Stanfield has a sanctioned bikeway (an asphalt path and sidewalk) on the west side of Main Street (US 395) between Stanfield High School and Harding Avenue. Elsewhere 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 Main Street, safety for the bicyclists is an important

issue. Dedicated bicycle lanes can encourage bicycle commuting, as can other facilities such as bicycle parking, showers, and locker facilities.

Pedestrian activity was also relatively low (2.5 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	570	90.5%
Drove Alone	*439*	*77.0%*
Carpooled	*131*	*23.0%*
Public Transportation	0	0%
Motorcycle	11	1.7%
Bicycle	3	0.5%
Walk	16	2.5%
Other	7	1.1%
Work at Home	23	3.7%
Total	**630**	**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 (Umatilla-Stanfield Highway) within the Stanfield city limits (MP 9.25 to MP 11.39). 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 Stanfield, as well as the Oregon statewide average for urban non-freeway primary state highways from January 1, 1994 to December 31, 1996 (three years). The accident rates for US 395 were substantially lower than the statewide average for similar highways, indicating that these segments do not have any significant safety problems.

TABLE 4-5
HISTORIC ACCIDENT RATES FOR STATE HIGHWAYS
(Accidents per Million Vehicle Miles Traveled)

Highway	1996	1995	1994
US 395 in Stanfield	0.77	0.25	0.34
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 Highways 395 in Stanfield 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 Stanfield.

TABLE 4-6
ACCIDENT SUMMARIES 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 9.25 to MP 11.39	0	10	2	10	1.56	0.45

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

During the three-year period, there were a total of ten accidents along the Stanfield stretch of US 395. Two of the accidents resulted in property damage only. There were no fatalities and ten injuries during the period. Six of the accidents occurred at intersections, and five occurred on wet or icy pavement. The accidents were scattered along the roadway segments, and overall there were no definitive patterns in the accident locations or types. The driver error cited in half of the accidents was failure to properly yield the right-of-way. 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, historic population growth, and projected population growth. Forecasts were only prepared for the state highway system in the county, since the volumes on these roadways are much higher than on any of the county roads.

LAND USE

Land use and population growth play an important part in projecting future traffic volumes. 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, Stanfield, 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]	1997[1] Estimate	2020[2] Projected
Umatilla County	44,923	58,855	59,249	65,500	86,650
Incorporated Cities					
Stanfield	**891**	**1,568**	**1,568**	**1,770**	**2,490**
Adams	219	240	223	265	310
Athena	872	965	997	1,120	1,360
Echo	479	624	499	585	660
Helix	152	155	150	190	230
Pilot Rock	1,612	1,630	1,478	1,585	1,650
Ukiah	NA	249	250	240	340
Weston	660	719	606	680	730

Sources:
1) Portland State University Center for Population Research and Census.
2) The projected population forecast shown for the county has been officially adopted, however there is no official breakdown in population for the incorporated cities. 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. The number of people residing in Stanfield nearly doubled between 1970 and 1980. This population growth may have been fueled by some significant housing developments and the location of several food processing plants in Stanfield during this time.

Estimated at 65,500 in 1997, the population of Umatilla County has grown relatively rapidly since the 1990 census, with an average annual growth rate of 1.44 percent. Most of the jurisdictions in Umatilla County have grown at a healthy rate, comparable to the annual growth rate of 1.44 percent for the county overall. Stanfield has grown at a slightly faster rate than the county as a whole, with an average population growth rate of 1.9 percent per year since 1990.

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.

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 subtracted out the impact of the Wal-Mart Distribution Center, in order to identify the population impacts resulting from the three "big four" employers otherwise not accounted for in the OEA forecast. These estimated impacts were then applied to the original population forecasts for Stanfield.

The population forecast for Stanfiled projects continued growth with an average annual growth rate of 1.49 percent, which is slower than the rate than it experienced from 1990 to 1997. This projected growth will increase its population to 2,490 people in the next 20 years, which is an increase of 720 people since 1997 (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 future year 2018 were determined for US 395 through the Stanfield area. Traffic projections are based on historic traffic growth trends along the highway, and existing and future land use projections. They also consider the traffic projections from other transportation studies for US 395 north of Stanfield.

Historic

Before projecting future traffic growth, it is important to examine past growth trends on the Stanfield roadway system. Historic data is only available for the state highway in Stanfield. US 395 carries 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. Traffic counts have been conducted at eight locations on US 395 (Umatilla-Stanfield Highway) in Stanfield.

Historical growth trends on US 395 in and around Stanfield 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 (Umatilla-Stanfield Hwy)		
Stanfield- 0.01 miles north of Coe Ave.	1.49%	34.4%
Stanfield- 0.01 miles north of Tuttle Ave.	2.05%	50.0%
Stanfield- south city limits	1.95%	47.3%

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 annual growth rate along US 395 in Stanfield has ranged from approximately 1.5 to 2.1 percent per year.

Traffic growth on US 395 in Stanfield averaged 1.32 percent per year over the last 20 years, for a total average growth rate of 30 percent. At the same time, the population of Stanfield was growing rapidly, at approximately 2.9 percent per year over the last 20 years, and at 1.9 percent per year since 1990. Typically, the rate of traffic growth exceeds that of population growth; however, that was not the case in Stanfield. This may be due to the fact that much of the traffic on US 395 is through traffic (with neither an origin nor a destination in the City), whose growth is not entirely related to the population and employment growth in Stanfield.

Other Sources of Information

Future traffic volume projections for US 395 in Stanfield must consider two other transportation studies; the *City of Hermiston Transportation System Plan* and the *Umatilla-Hermiston Highway 395 Corridor Land Use/Transportation Plan.* Both studies include traffic volume projections for US 395 in areas just north of Stanfield. The following table, Table 5-3, summarizes the traffic projections for US 395 in the areas closest to the city of Stanfield.

TABLE 5-3
US 395 FORECAST TRAFFIC VOLUMES

City of Hermiston TSP	1995 ADT (vehicles/day)	2016 ADT (vehicles/day)	Total Growth 1995-2016
North of Feedville Road	10,100	17,330*	71.6%
Umatilla-Hermiston Highway 395 Corridor Land Use/Transportation Plan	**1994 ADT (vehicles/day)**	**2015 ADT (vehicles/day)**	**Total Growth 1994-2015**
South of Feedville Road	6,500	14,000	84.6%

* The 2016 ADT volume was determined by applying a peak hour percentage factor of 9.7% to the future PM peak-hour volumes projected for that section of highway in the City of Hermiston TSP. This factor was determined from the same study using actual 1995 PM peak-hour counts and ADT volume information.

As shown in the table, the 20-year traffic projections along US 395, just north of the city of Stanfield are around 72% higher than in 1995, taken from the city of Hermiston TSP, and around 85% higher than in 1995, taken from the Corridor Plan. These projections translate into an average annual growth rate of 2.74% and 3.11%, respectively, which are much higher growth projections than the historical traffic growth rate witnessed on US 395.

Future Traffic Volumes

The forecast traffic volumes and total growth for Stanfield from 1998 to 2018 are shown in Table 5-4. The forecast assumes a total growth rate of 60 percent over the next 20 years along US 395, for an annual growth rate of 2.38 percent.

This growth rate was determined using several factors; the historic traffic growth trends along US 395 in Stanfield, the population growth projections for Stanfield, and the traffic projections along US 395, north of Stanfield, obtained from the two studies mentioned above. It was assumed in the forecast that traffic growth along US 395 in Stanfield will fall between the 20-year historic traffic growth rate of 30.0% along the highway in Stanfield, the total population growth rate of 42.9% for Stanfield, and the projected traffic growth rates of 71.6% and 84.6% for the highway, north of Stanfield, stated in the two studies mentioned above. The selected growth rate of 60.0% falls evenly between these lower and higher thresholds.

TABLE 5-4
FORECAST TRAFFIC VOLUMES AND TOTAL GROWTH ON US 395

Location	1998 ADT (vehicles/day)*	2018 ADT (vehicles/day)	Total Growth 1998-2018
North of Canal Rd.	8,590	13,740	60.0%
North of Harding Ave.	8,540	13,660	60.0%
North of Coe Ave.	7,410	11,860	60.0%
North of Ball Ave.	6,300	10,080	60.0%
Northwest of Edwards Rd.	6,500	10,400	60.0%
South of Edwards Rd.	8,600	13,760	60.0%

* ODOT June 1998 Traffic Counts

HIGHWAY SYSTEM CAPACITY

For the year 2018, signalized intersection analyses were performed using the overall growth (60.0 percent) expected on US 395, at the same intersection in Stanfield for which the existing conditions were analyzed. The analyses indicated that all three intersections are expected to meet ODOT level of service standards over the 20-year forecast period. The results of the signalized intersection analyses are shown in Table 5-5. The traffic operation was determined at the intersection of Main Street and Coe Avenue using the 1994 Highway Capacity Software for signalized intersections. This software is based on the 1994 *Highway Capacity Manual*, Special Report 209, published by the Transportation Research Board.

TABLE 5-5
SUMMARY OF FUTURE OPERATIONS
AT MAIN ST. (US 395) AND COE AVE.

Intersection/Movement		1998 LOS (v/c ratio)	2018 LOS (v/c ratio)
Overall Intersection		A(< 0.48)	A(< 0.48)
Eastbound	Left	B (0.49-0.59)	B(0.49-0.59)
	Through, Right	B(0.49-0.59)	B(0.49-0.59)
Westbound	Left	B(0.49-0.59)	B(0.49-0.59)
	Through, Right	B(0.49-0.59)	B(0.49-0.59)
Northbound	Left	A(< 0.48)	A(< 0.48)
	Through, Right	A(< 0.48)	A(< 0.48)
Southbound	Left	A(< 0.48)	A(< 0.48)
	Through, Right	A(< 0.48)	A(< 0.48)

* LOS is calculated based on delay for individual movements as well as the overall intersection.

Analysis Results

Traffic movement volumes at the intersection of Main Street (US 395) and Coe Avenue are forecast to increase by 60 percent over the 20-year forecast period. However, all traffic movements at the intersection are expected to maintain 1996 level of service operations at LOS B (a v/c ratio of 0.49-0.59) or better 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 Stanfield Transportation System Plan (TSP). These potential improvements were developed with the help of the Technical Advisory Committee (TAC); county, city, and state officials and the public. Each of the transportation system improvement 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 the potential transportation system improvements considered. Improvement Options 2 through 8 are illustrated in Figure 6-1 and options 9 through 12 are illustrated in Figure 6-2.

1. Revise the zoning code to allow and encourage mixed-use development and redevelopment.
2. Upgrade Dunne Street to residential collector street standards between US 395 and Harding Avenue.
3. Construct an at-grade asphalt path along the south side of Sherman Street/Harding Avenue between West Elementary School and US 395.
4. Construct a multi-use path on the north side of Stage Gulch Ditch between West Elementary School and Wayne Street.
5. Extend the multi-use path along US 395 to the city of Hermiston.
6. Construct a new access to US 395 from Mamie Street and realign Canal Road.
7. Extend Vantage Boulevard to Stanfield High School.
8. Construct a network of new city streets in north Stanfield as development occurs.
9. Construct a new access and traffic signal on US 395, north of I-84 interchange.
10. Install a traffic signal at Dunne Street and US 395.
11. Construct a new access to US 395 and realign Edwards Road.
12. Construct a network of new city streets and upgrade existing streets in south Stanfield as development occurs.
13. Construct a multi-use paths along US 395 to the I-84 interchange.
14. Implement transportation demand management strategies.

The proposed transportation system improvements evaluated for the Stanfield 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 Stanfield 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 cities of Hermiston and Stanfield. The first project is a preservation improvement that involves repaving US 395 from 4th Street in Hermiston to I-84, along the southern boundary of Stanfield. The total cost of the project is estimated at $2,722,000 and is scheduled for construction in the year 2002. The second STIP project is to install a raised median along US 395, from Elm Avenue in Hermiston to Harding Avenue in Stanfield. This project is scheduled for construction by the year 2002 with an estimated cost of $1,246,000. Both STIP projects are also shown in Figures 6-1 and 6-2.

IMPROVEMENT OPTIONS EVALUATION

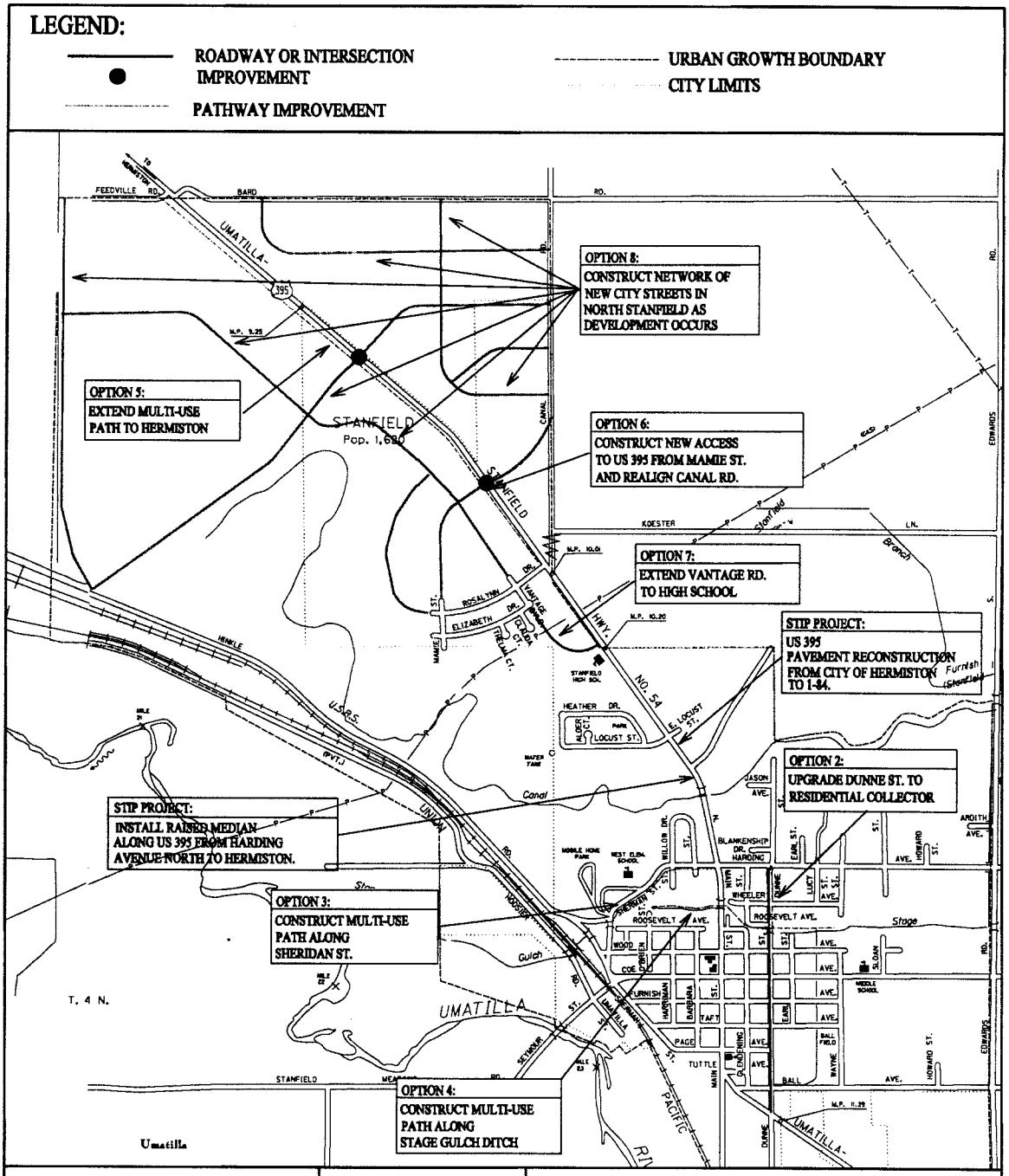
Through the transportation analysis and input provided from the public involvement program, multiple improvement projects were identified. These options included constructing new and reconstructing existing roadways, and providing new and improved pedestrian and bicycle facilities.

Option 1. Revise Zoning Code to Allow and Encourage Mixed-Use Development and Redevelopment

One of the goals of the Oregon TPR is to reduce the reliance on the automobile. One way city jurisdictions can do this is through amendments in zoning and development codes to permit mixed-use developments and increases in density in certain areas. Mixed-use refers to development that contains more than one type of land-use, for example, residential and commercial. Specific amendments would allow small-scale commercial uses within residential zones or residential uses within commercial zones. Such code amendments can encourage residents to walk and bicycle throughout the community by providing shorter travel distances between land uses.

These code revisions are more effective in medium to large sized cities with populations of 25,000 or more. In cities such as Stanfield, they may not be appropriate. Because of Stanfield's size, the decision of what mode of transportation to use when making a trip inside the City is not influenced by distance. The longest distance between city limit boundaries in Stanfield is around three miles, a distance short enough to walk, ride a bike, or drive. Distances between different land uses, such as residential and commercial, are even shorter. The city of Stanfield can also be considered somewhat of a bedroom community where many of the city's workers commute to other larger cities such as Umatilla, Hermiston, and Pendleton. Because many of these workers travel outside the City in private vehicles, encouraging mixed-use developments or increased densities will not affect their choice of travel mode.

Higher density and mixed-use zoning may affect development in Stanfield. Population is projected to increase by 42 percent (735 additional residents) in the next 20 years. The change in zoning could result in the provision of lower cost housing to serve the town's growing population.



DAVID EVANS AND ASSOCIATES, INC
2828 S.W. CORBETT AVENUE
PORTLAND, OR. 97201-4830 (503) 223-6663

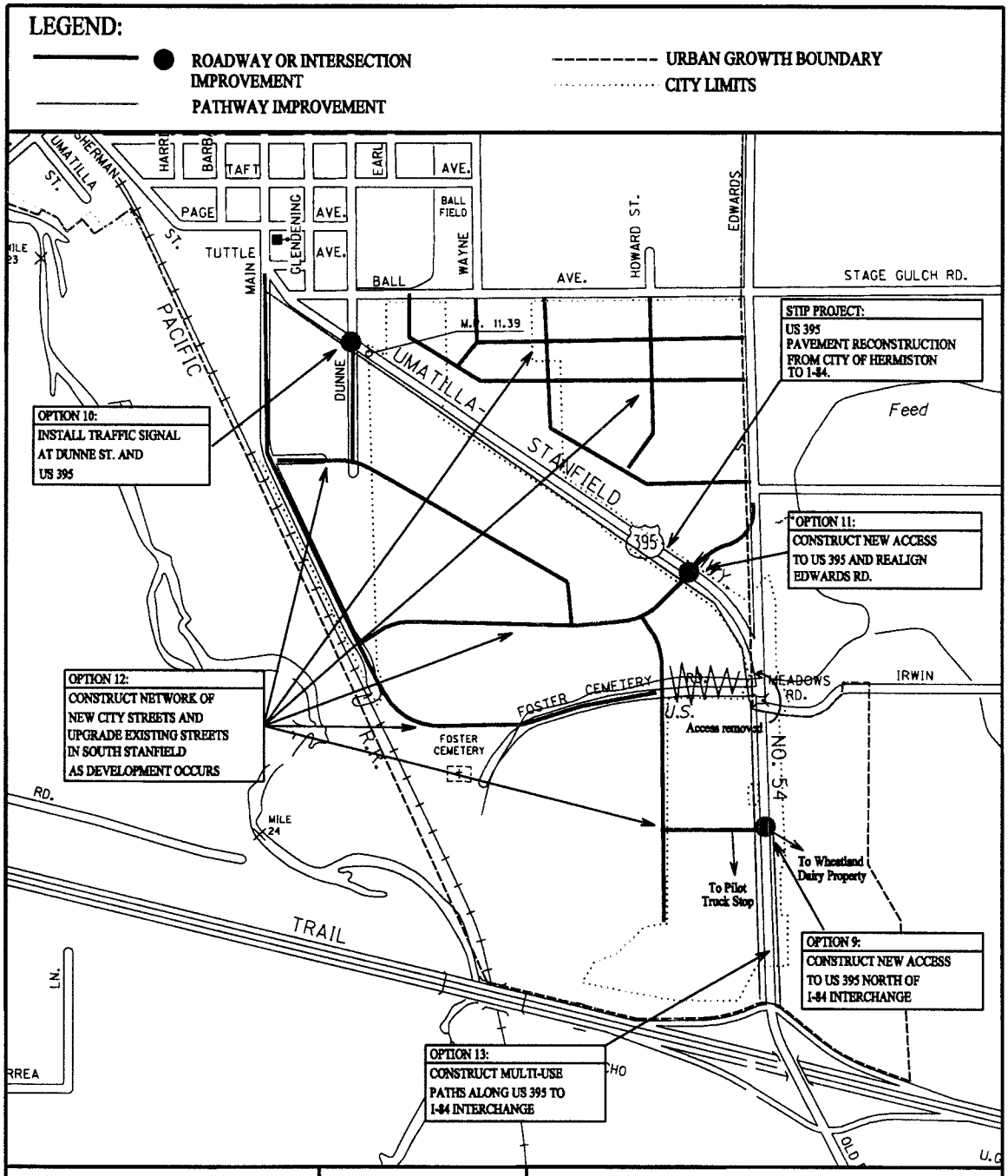
NORTH
(Not to Scale)

FIGURE 6-1

Potential Transportation System Improvements -North and Central Stanfield

City of Stanfield TSP

UMCO0001/STAN6-1.DGN/JXD/1-19-99



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NORTH
(Not to Scale)

FIGURE 6-2

Potential Transportation System Improvements -South Stanfield

City of Stanfield TSP

UMCO0001/STAN6-2.DGN/JXD/1-19-99

Cost

No direct costs are associated with making the zoning code amendments.

Recommendation

Revisions to zoning and development codes to allow for increased density is recommended.

Option 2. Upgrade Dunne Street to Residential Collector Street Standards Between US 395 and Harding Avenue

This project addresses the need to establish Dunne Street as a residential collector street. It will allow local traffic within the city of Stanfield to flow freely in a north-south direction with direct access to and across US 395. The residential areas east of US 395, between Ball Avenue and Harding Avenue, have established unrestricted traffic flow along most of the east-west streets with stop control on the intersecting north-south streets. This results in no convenient north-south routes for crossing town quickly, except for US 395. Local streets such as Glendening Street, Dunne Street, Earl Street, and Wayne Street have stop signs posted on many, if not all, approaches to intersecting east-west streets. The delay created from the stop control present along these roads causes most of the local traffic to proceed west to US 395 before heading in a north or south direction. Although Edwards Road to the east does provide unrestricted flow in the north-south direction, it is inconvenient due to its location on the rural fringes of the east Urban Growth Boundary.

Dunne Street was selected by city officials as the most likely location to establish an unrestricted north-south collector street. This road was selected over other parallel local roads for several reasons. The current alignment of Dunne Street extends further north than any other parallel local road and would provide access to more neighborhoods. Dunne Street can also provide a direct connection with US 395, by upgrading the unimproved gravel road that exists between Ball Avenue and the highway. Another reason for establishing a new connection to US 395 along Dunne Street is to mitigate the potentially dangerous situation that exists at the nearby intersection of Ball Avenue and US 395. The left-turn from Ball Avenue and the right-turn from the highway are very difficult maneuvers to make because of the orientation of this intersection. With improved access to the highway at Dunne Street, these turns can be restricted and safely improved.

The need for a free-flowing north-south collector along Dunne Street is magnified by anticipated development in South Stanfield area. Within the next 20 years, the city of Stanfield plans to incorporate much of the area bounded by US 395, Dunne Street, and I-84 into the city limits for future industrial, service, and commercial development. Assuming this area is built out over the next 20 years and taking into account the access limitations along US 395, Dunne Street would provide a key parallel route to US 395 and a direct connection between future developments in South Stanfield and the residential areas to the north. It would thereby reduce local trips that would otherwise be made along US 395.

Several roadway improvements will be necessary along Dunne Street to upgrade this facility to residential collector street standards. Currently, Dunne Street is unimproved between US 395 and Ball Avenue. Between Ball Avenue and Harding Avenue it is a paved two-lane road around 30-feet wide with open areas of grass or gravel on-street parking. Plans to upgrade Dunne Street to a residential collector should be in accordance with the recommended street design standards identified in Chapter 7. This would include widening the roadway to 46-feet with two lanes of traffic, on-street parking on both sides of the road, bike lanes and sidewalks. Also, Dunne Street would be established as a free flowing facility with stop control on the approaches of all intersecting east-west streets, except for the possibility of Coe Avenue, which is currently a designated collector street. To maintain safe travel speeds along Dunne Street, a posted speed limit of 25 mph should be enforced.

The addition of bike lanes and sidewalks along Dunne Street provide facilities which separate bicyclists and pedestrians from auto traffic, thus, improving their safety. These facilities will also encourage residents to use alternative methods of travel other than the automobile. Less reliance upon the automobile, and more people walking or riding in the City, results in less noise pollution and less pollution from cars.

Cost

This improvement is estimated to be a relatively moderate to high cost roadway improvement. The estimated cost for upgrading Dunne Street to residential collector street standards is approximately $350 per linear foot. Assuming the project limits extend from US 395 to Harding Avenue (3,000 feet), the total cost will be $1,050,000. No acquisition of additional right-of-way is necessary. Funding for this project should be provided mainly by the City with potential support from ODOT, since this upgrade and further expansion of Dunne Street to the south will help reduce local trips along US 395.

Recommendation

This option will improve traffic flow and circulation in the City through the upgrade of an existing roadway. The upgrade will also provide useful bike and pedestrian facilities. The option will establish a major connection between Dunne Street and US 395 for traffic related to future developments south of the highway (Option 12). This option is recommended and should be implemented within the next five to ten years.

Option 3. Construct an At-Grade Asphalt Path along The South Side of Sherman Street/Harding Avenue between the Elementary School and US 395

This project addresses the need to enhance pedestrian and bicycle access for students traveling to and from the West Elementary School located along Sherman Street. Currently, there is a striped pathway along the east side of Sherman Street, beginning at the Elementary School and ending at Coe Avenue. This facility provides a good connection for students living in the southeast section of the City who walk or bicycle to school. However, pedestrian and bicycle access needs to be improved between the school and other areas of the City.

The city of Stanfield wants to construct a pathway along the remaining section of Sherman Street and along the south side of Harding Avenue. This will provide a continuous connection to the existing multi-use pathway that begins at Harding Avenue and continues north along US 395 to the high school and residential neighborhoods. Since this new pathway will be located on one side of the road, it will need to be designed to allow pedestrians and bicyclists to travel in both directions. A standard width for a multi-use path designed for two-way pedestrian and bicycle travel is 10 feet, as stated in the *1995 Oregon Bicycle and Pedestrian Plan* (OBPP).

The proposed path will begin on the south side of Sherman Street at the end of the existing path, near the south crosswalk. It will proceed about 360 feet to the northeast as an isolated pathway set back about 5- to 10 feet from the road. The path will then rejoin Sherman Road at the north crosswalk and proceed for another 800 feet to Harding Avenue, alongside of and at-grade with the roadway. The final 540-foot segment of path will parallel Harding Avenue to US 395.

The existing street inventory for Stanfield indicates Sherman Street is 26-feet wide and Harding Avenue is 21-feet wide. In order to provide a pathway immediately adjacent to these two roads, assuming minimal

roadway improvements, both roads will have to be restriped for two 10-foot lanes and any paved on-street parking will need to be eliminated. Grass or gravel parking off either roadway's shoulder is acceptable on the north side but not the south side, unless the roadway is widened and the grass or gravel parking separates the pathway from moving traffic. To establish a 10-foot path on the 800-foot section of Sherman Street and 540-foot section of Harding Avenue, each road will need to be widened by 4-feet and 9-feet, respectively.

This option would provide a good connection to the multi-use path along US 395 between Harding Avenue and Rosalynn Drive. The City should consider that this option may attract more pedestrians and bicyclists to the potentially unsafe US 395 crossing at Harding Avenue. There is a crosswalk and yellow hazard flash at this location to warn cars and trucks on the highway of the crossing. However, the combination of the steep grade and icy conditions during the winter months can make this crossing dangerous. One possible solution that will provide an alternative to crossing the highway at this location, and may be more attractive to bicyclists and pedestrians, is to construct the multi-use path proposed in Option 4.

Cost

At an estimated cost of $0.40 per linear foot for striping along a roadway and $2 per square foot to construct a pathway consisting of two inches of asphalt and four inches of base aggregate, this project would cost approximately $23,900 to build.

Recommendation

This option is recommended and should be constructed over the next five years. To address the safety problem at the US 395 crossing, the City should initiate a program that educates the children of the community on safety issues when crossing the highway.

Option 4. Construct a Multi-Use Path on the North Side of Stage Gulch Ditch

Residents, school district officials, and city of Stanfield officials have identified a need for a multi-use path along the north side of Stage Gulch Ditch. This option is for a multi-use path beginning at the existing pathway near Sherman Street and the elementary school and terminating near Wayne Street in the east, for a total path length of approximately 2,500 feet.

The proposed path would provide an important connection for bicyclists and pedestrians, linking the east and west sides of Stanfield together. It would provide access to many destinations such as the elementary school, the city park and baseball fields, the middle school, and residential neighborhoods which are adjacent to the proposed alignment of the path. This pathway would encourage residents to walk or ride a bike to work or school, or for purposes of recreation and exercise.

One of the major benefits of this project would be the continuous separation of bicycle and pedestrian traffic from motorized traffic, with few street or driveway crossings. This allows bicyclists and pedestrians to move freely about along the path without conflict. The pathway would also provide a scenic route, offering an environment that is pleasing to cyclists and pedestrians. The location of this path would also add a strategic crossing point at US 395. Currently, there are crosswalks on US 395 north and south of this area at Harding Avenue and Wood Avenue. The current spacing between these two crosswalks is approximately 1,000 feet. Such a large distance between crossing points forces pedestrians who use crosswalks to travel out-of-direction. Rather than doing this, some pedestrians may cross US 395 without using a designated crosswalk, which can be dangerous, especially during peak travel times. Construction of the proposed path

would provide another crossing point half-way between the two crosswalks, resulting in crossing points at 500-foot intervals.

One concern about the design of this pathway is the US 395 crossing. Multi-use paths can cross intersecting streets at-grade with proper striping, above-grade using a bridge structure, and below-grade using a under-crossing, or tunnel structure. Because of the large amount of traffic along US 395, an at-grade crossing is unlikely. The amount of pedestrian and bicycle activity along the path would not warrant an activated signal crossing that would stop traffic on the highway, and an uncontrolled crossing would be too dangerous. An above-grade structure would not be a feasible alternative, since minimum clearance requirements over a roadway for pathways, would necessitate approach ramps around 400-feet in length on each side of the road. Since the Stage Gulch Ditch falls below the grade of US 395, the approach ramps to an over-crossing would be much longer. The third alternative, therefore, is to establish an under-crossing. This may be the most feasible alternative since the Stage Gulch Ditch already crosses under the highway and could be redesigned to include a path next to the ditch. Minimum clearances stated in the *1995 Oregon Bicycle and Pedestrian Plan* for a multi-use path under-crossing include a height clearance of 10-feet and a paved trail width of 14-feet. Assuming the existing ditch will be redesigned to carry water flow next to the pathway, a total under-crossing width of 25 to 30-feet may be necessary.

The alignment of the proposed path lies within the 100-year flood plain created by Stage Gulch Ditch. It is possible that when flooding occurs in the City, this path may become submerged and susceptible to water damage. Approval from the US Army Corps of Engineers is necessary to establish a pathway within the floodplain.

Further study will be necessary to determine if any special improvements are needed where the path and ditch will cross under US 395. ODOT officials have stated that from a hydraulic standpoint it is possible to provide a pathway under the highway and next to the ditch but it would require design by a professional engineer. Due to reduced visibility and potential security problems, the design of the under-crossing should include proper lighting. It is also recommended that a handrail be installed between the pathway and ditch to prevent injury. A ramped sidewalk is also recommended to connect the path with the sidewalk along US 395.

Cost

The estimated cost to construct an 8-foot wide path over a 2,500-foot length is approximately $91,100, assuming the pathway is built without flood protection. This cost consists of approximately $5,200 for project engineering, $60,000 for right-of-way acquisition and $25,900 for construction. This estimate does not include costs associated with any permitting or special environmental or engineering improvements necessary for the ditch crossing under US 395. Funding for the pathway itself should be provided by the City with ODOT providing some financial support for necessary improvements to the ditch under-crossing.

Recommendation

Because this option would improve safety and provide a facility that promotes the use of alternative modes of travel, it is recommended. Timing for this project should be within the next five years.

Option 5. Extend the Multi-Use Path along US 395 to Hermiston

This project would consist of extending the multi-use pathway for a distance of 3.95 miles along the west side of US 395 from Rosalynn Drive to 4th Street in Hermiston. Construction of this pathway would create an important link between Stanfield and Hermiston, encouraging more people to walk or ride a bike between the cities. This facility would also improve the safety of bicyclists and pedestrians who would otherwise travel along the shoulders of US 395. This facility would also be complemented by the future development of a greenbelt along both sides of US 395 as proposed in the Stanfield Community Visioning and Buildable Lands Inventory Project.

The current width of the existing multi-use path ending at Rosalynn Drive is 10-feet. Therefore, this project will be constructed to the same width. This is also the desired width for a multi-use path as stated in the *1995 Oregon Bicycle and Pedestrian Plan.*

Cost

The total cost for constructing this pathway is estimated to be $1,112,600. This assumes a project engineering cost of $185,430 and a construction cost of $927,170. It is assumed the city of Stanfield will be responsible for financing the portion of the path that lies within the city's UBG (6,120 feet) with the city of Hermiston responsible for the remaining section (14,740 feet). This equates to a total cost of approximately $326,400 for Stanfield.

Alternative funding for multi-use pathway projects is possible through state or federal government grants.

Recommendation

This option is recommended and should be constructed within the next five to ten years. It is also supported in the US 395 North Corridor Study, currently being prepared by OTAK, Inc. and Kittelson and Associates, Inc.

Option 6. Construct New Access to US 395 from Mamie Street and Realign Canal Road

This option addresses the need to create a new street access along US 395 located about 1,275 feet north of Rosalynn Drive. It would include allowing full access to the highway from the extension of Mamie Street on the south side and realigning Canal Road to intersect the highway on the north side.

The first phase of a residential development known as the "Panoramic Ridge" is currently under construction at the north end of Stanfield, just west of US 395 and north of Rosalynn Drive. When completed, this subdivision will total approximately 250 single-family units. Several new roads are planned for construction as part of this development. They include extending Vantage Boulevard to the northwest as a frontage road paralleling US 395, extending Rosalynn Drive to reconnect back into Vantage Boulevard, and extending Mamie Street north to Vantage Boulevard. The site plan for this development also identifies a new access to US 395 from the extension of Mamie Street. It is this potential access that is the principal focus of this option.

In addition to the Panoramic Ridge development, planning is under way to allow future development to occur in the surrounding area both on the northwest and northeast sides of US 395. Although no specific projects are planned at this time, conceptual land use alternatives and circulation strategies for this area of

the City are being devised in a study titled *The Stanfield Community Visioning and Buildable Lands Inventory*. This study is being conducted by Shapiro and Associates, Inc.

From discussions with city and state officials, and the private developer of the Panoramic Ridge development, and a review of the Community Visioning and Buildable Lands Inventory, several transportation improvement options have been identified to mitigate potential traffic impacts along US 395 related to existing and future developments in this area. These include:

- Construct the proposed Mamie Street access along US 395, north of Rosalynn Drive.
- Install a traffic signal at the proposed Mamie Street access or the Rosalynn Drive intersection.
- Restrict access to or impose a right-in/right-out restriction at the Rosalynn Drive intersection.
- Install right-turn deceleration lanes on US 395 approaches to the Mamie Street access or Rosalynn Drive.
- Realign Canal Road to intersect US 395 directly across from either Mamie Street or Rosalynn Drive.

Each of these improvements is evaluated in the sections below, along with a recommendation.

Construct proposed Mamie Street access along US 395, north of Rosalynn Drive

Currently, the proposed location for the new Mamie Street access to US 395 is about 1,275 feet north of Rosalynn Drive. This location was determined through discussions between city and state officials and is close to the minimum street spacing width of 1,320 feet for US 395 stated in the *1991 Oregon Highway Plan*. However, attaining the right-of-access at this location will require some effort. When US 395 was widened to five lanes, ODOT bought and secured the access rights along the highway. ODOT then created a "reservation of access" allowing new access points to be established at specific locations along the highway, with restrictions to new access points in all other areas. In the vicinity of the Panoramic Ridge development, there is no reservation of access along US 395. The private developer or the City must obtain a permit from ODOT to establish the proposed new access to the highway. For a more detailed description on establishing new access along US 395, refer to the "Access Control" section in Chapter 7 – Access Management.

As part of this option, the proposed Mamie Street access road should be designed according to city collector street standards, and provide a connection between Vantage Boulevard and US 395. The estimated unit cost to construct a 44-foot paved roadway with curbs and sidewalks is around $350 per linear foot. At a length of around 300 feet, this road would cost about $105,000 to build. This estimate does not include the costs associated with the permitting process or purchasing the access rights to the highway.

Install traffic signal at proposed Mamie Street access

If the proposed access to US 395 is granted by ODOT and constructed, analysis of future traffic conditions indicates that a traffic signal installation will be necessary in the future, depending on the level of development that will occur.

Analysis of existing traffic volumes along US 395 and traffic related to the Panoramic Ridge development indicates that if the new access road to US 395 is constructed using stop control on the minor approach, PM peak-hour traffic operations are expected to be at LOS C. Future-year analysis indicates that PM peak-hour traffic operations will deteriorate over the next 20 years, to a LOS D, which is still acceptable. However, both analyses did not consider the development of a commercially zoned parcel located just south of the proposed highway access, nor did they take into account other developments that may occur in time, as identified in the Community Visioning and Buildable Lands Inventory. Analysis indicates that full development of the commercially zoned parcel alone will reduce operations to a LOS F on the minor approach of the proposed highway access. Therefore, as development occurs on this parcel, a traffic signal

should be installed. Of course, the potential for a traffic signal at this location will also be dependent upon the more detailed traffic study being conducted for the Panoramic Ridge development in conjunction with a traffic signal warrant analysis.

A concern raised by ODOT is the affect of a traffic signal on traffic flow along US 395, in terms of signal progression and driver safety on the highway. Since the nearest existing traffic signal is located more than 7,000 feet away at Coe Avenue, coordinated traffic signal progression is not possible. If a traffic signal is installed here, it will likely function as an isolated intersection in the short-term period. Over the long-term period, coordination with other potential traffic signals is possible. Improvement Options 7 and 8 identify new or existing highway intersections that may require signalization in the future, depending on the future rate of development in north Stanfield. Option 7 would establish the existing Stanfield High School driveway, approximately 2,300 feet to the southeast, as a major intersection, and Option 8 identifies a new highway intersection approximately 2,100 feet to the northwest with the Feedville Road intersection located another 2,100 feet further. Further investigation will be necessary to determine if any safety hazards would exist with a traffic signal installation.

The current cost to install a traffic signal is around $150,000, with an annual operation and maintenance cost of approximately $2,000 a year.

Install traffic signal at Rosalynn Drive intersection

If ODOT prevents the construction of a new access road, north of Rosalynn Drive, analysis indicates a traffic signal will be necessary at the Rosalynn Drive intersection with US 395.

Without a new access road, north of Rosalynn Drive, all traffic related to the Panoramic Ridge subdivision and future development of the commercial strip adjacent to US 395 will be forced to share the only available access to the highway, at Rosalynn Drive. Analysis of existing and future traffic volumes at this intersection (roughly double the minor street traffic estimated for the new access road above), indicates traffic operations will be sufficient at the present time (LOS C), but will deteriorate over the next 20 years (LOS E to F). These conditions do not assume development of the commercially-zoned parcel, where, upon development, traffic operations would likely be poor (LOS F).

At this time a traffic signal installation should be considered. Of course, the potential for a traffic signal at this location will also be dependent upon the more detailed traffic study being conducted for the Panoramic Ridge development. The cost to install a traffic signal at this location is estimated to be around $150,000, with an annual operation and maintenance cost of approximately $2,000 a year.

Restrict access to or impose right-in/right-out restriction at Rosalynn Drive intersection

Provisions for allowing a traffic signal to be installed at the Mamie Street access should include maintaining the Rosalynn Drive access, but establishing a right-turn in and right-turn out only restriction. This will force all left-turning traffic accessing and egressing US 395 to use the new Mamie Street intersection, where a traffic signal would provide favorable access. Another option would be to eliminate the Rosalynn Drive access completely, forcing all traffic to the new Mamie Street intersection. This option is less desirable, since it will force drivers destined for US 395 south to make longer trips. Also, creating a right-in/right-out access should not affect traffic operations or safety along the highway.

Install right-turn deceleration lanes on US 395 approaches to the Mamie Street access or Rosalynn Drive

Safe and efficient traffic flow along US 395 would be maintained through the construction of right-turn deceleration and acceleration lanes along the highway at either the new Mamie Street access, if permitted, or the Rosalynn Drive intersection. This will allow local traffic to exit and enter the highway without affecting mainstream traffic. Deceleration and acceleration lanes should be inexpensive to construct in this area since US 395 has adequate right-of-way width (currently at 150 feet), the highway is relatively flat, and there are

open drainage ditches along both sides of the road. The estimated cost for adding deceleration and acceleration lanes on both sides of the highway at Mamie Street is around $50,000, with an estimated cost of $25,000 for establishing deceleration and acceleration lanes in the southbound direction at the Rosalynn Drive intersection.

Realign Canal Road to intersect US 395 directly across from either Mamie Street or Rosalynn Drive.
The installation of a traffic signal at either the new Mamie Street access or Rosalynn Drive will provide an opportunity to realign Canal Road so that it intersects with US 395 directly across from either street. Under current traffic conditions, the accessibility to the highway from Canal Road is sufficient. However, with traffic volumes projected to increase significantly along the highway (60 percent over the next 20 years), and the residential infill expected to occur north of the highway, the quality of access to the highway will deteriorate. By relocating Canal Road to intersect a new traffic signal, favorable traffic operations will be guaranteed. The estimated cost for relocating this road directly across from the proposed Mamie Street access is $240,000. This estimate assumes an 800-foot section of new road will be constructed with the existing highway access removed. The estimated cost for relocating Canal Road directly across from Rosalynn Drive is $30,000. This assumes realignment of a 100-foot section of the two-lane roadway.

Relocating Canal Road across from Mamie Street is preferred to locating it across from Rosalynn Drive as it avoids the need to adjust the UGB line and provides economically viable parcels of land on all four corners of the new intersection on US 395. Conversely, the relocation of Canal Road to intersect US 395 directly across from Rosalynn Drive would require an adjustment to the UGB (an expensive and lengthy process) and would also create a less attractive intersection configuration for economic development along the highway.

Although relocating Canal Road across from Mamie Street would be more costly, in terms of roadway construction, the City may defer the costs of construction to private developers of this area.

Recommendation

Two recommendations are provided dependent upon ODOT's decision to grant an additional access to US 395. ODOT's decision will be based upon whether or not a new access will be safe and consistent with *Oregon Highway Plan* standards for this state facility.

The first recommendation, if the Mamie Street access is permitted, is to extend a 300-foot section of new road (Mamie Street) between Vantage Boulevard and the highway, realign Canal Road to connect into the highway directly across from Mamie Street, and install a traffic signal when signal warrants are met. Right-turn deceleration and acceleration lanes should also be constructed on both highway approaches. In addition to the new Mamie Street access, a right-in/right-out only access restriction should be imposed at Rosalynn Drive. Assuming all these improvements are made, the total cost for this option is approximately $545,000.

If the Mamie Street access is not permitted, then a traffic signal installation is recommended at the intersection of US 395 and Rosalynn Drive. The installation should occur either when signal warrants are met, or when traffic operations become inadequate (LOS E or F). At the time of installation, Canal Road should be relocated to the east of this intersection to share in the benefits of improved access to the highway through traffic signal control. Also, a deceleration and acceleration lane should be constructed for the southbound direction on US 395. The estimated cost for this alternative is approximately $205,000.

Funding for all new roadways proposed within the Panoramic Ridge area should be provided by the private developer. Funding for any intersection improvements necessary along US 395 at Rosalynn Drive or at the

new access road, including the Canal Road realignment, should be a joint effort between the private developer, the city of Stanfield, Umatilla County, and ODOT.

Option 7. Extend Vantage Boulevard to Stanfield High School

This option is also presented as a circulation strategy in the *Draft Stanfield Community Visioning and Buildable Lands Inventory*. It includes an extension of Vantage Boulevard from its terminus at Elizabeth Drive to the US 395 driveway access at Stanfield High School. This option was devised to reduce local traffic along US 395 by providing an alternative travel route to the high school from the residential areas planned to the north and west of US 395 via Vantage Boulevard and the new highway crossing at Mamie Street (Option 6). It was also devised to provide access for traffic traveling north on US 395 to the neighborhoods adjacent to Rosalynn Drive, should left-turns at this road's access to US 395 be restricted as part of Option 6.

The extension of Vantage Boulevard to US 395 via the existing high school driveway access is part of the traffic circulation strategy to establish four semi-equidistant fully-directional intersections along US 395 between the north UGB line at Feedville Road and the high school driveway (refer to Options 6 and 8 for details). The planned spacing between these intersections complies with the minimum access spacing requirements identified in the *1991 Oregon Highway Plan,* and should provide efficient traffic progression, should these intersections become signalized in the future.

Cost

Assuming Vantage Boulevard is extended approximately 1,100 feet south to the high school driveway connection at US 395, the total cost for this project is estimated to be approximately $385,000. This includes a roadway designed to collector street standards at an approximate cost of $350 per linear foot.

Recommendation

This option is recommended. Once constructed, traffic volumes and pedestrian activity at the US 395 high school access should be monitored regularly through a signal warrant analysis to determine if and when a traffic signal becomes necessary.

Option 8. Construct Network of New City Streets in North Stanfield as Development Occurs

The *Draft Stanfield Community Visioning and Buildable Lands Inventory* report identifies a circulation plan consisting of a network of new city streets as development occurs in northern Stanfield. Option 8 addresses this network of new streets, in terms of street connectivity, quality of access, safety, and traffic operations. The streets and intersections related to improvements identified in Options 6 and 7 above are not addressed here, as they are projects recommended for construction in the short term. The new streets identified as part of this option are expected to occur over the long term.

In the Stanfield draft report, several streets have been identified north of US 395 and bounded by the city's UGB to serve residentially zoned areas. These roads are oriented in a grid-like pattern and create common T-shaped and four-way intersections. This sort of connectivity will provide efficient traffic flow, reduce trip lengths, encourage bicycle and pedestrian use, and create safe driving conditions at commonly shaped intersections. The report also indicates the northern residential area will access US 395 at three locations;

Feedville Road (existing), Canal Road (realigned), and a new street access equidistant between Feedville Road and Canal Road (approximately 2,150 feet). The equidistant spacing of these roads meet the minimum access spacing requirement of ¼ mile, or 1,320 feet, as identified in the *1991 Oregon Highway Plan.* By providing equidistant spacing between these three roads, local traffic from neighborhoods north of US 395 will access the highway uniformly. The approximate 2,150-foot spacing can also create efficient traffic progression along the highway, when and if traffic signal installations become necessary at these intersections in the future.

On the southwest side of US 395, land is zoned primarily for industrial, service, and commercial uses, with a residential subdivision already under construction in the Panoramic Ridge area. Three new roadway facilities have been identified in the *Draft Stanfield Community Visioning and Buildable Lands Inventory* report that will serve this entire area. The first two roads include an extension of Vantage Boulevard to the northwest as a frontage road parallel to US 395, and a new roadway connecting Hinkle Road and Feedville Road along the west UGB line. These two facilities will serve as alternative routes parallel to US 395 in an effort to reduce localized traffic demand along the highway. The third new road will connect Hinkle Road and Vantage Boulevard to US 395. Major connections to US 395 from this area include the same three access points as mentioned above for access along the northeast side of the highway. Aligning these accesses across from each other will provide direct connections between the residential area to the northeast and the industrial, service, and commercial areas to the southwest. This will encourage more local traffic to make trips across US 395 instead of along the highway.

Cost

Assuming the average cost to construct a new roadway (collector or local) is around $275 per linear foot and the total length of new roadway construction is around 25,200 feet, the total cost to develop the network of new roads in North Stanfield is estimated at $6,930,000. This estimate does not include the costs associated with acquiring right-of-way, special engineering design, bridge crossings, or traffic signals. The cost associated with incorporating the rural areas into the city limits is not included. Funding for all new roadways in this area should be provided by the City and private developers of the area.

Recommendation

The network of streets identified in this option, reflects the new roadways identified in the circulation plan of the *Draft Stanfield Community Visioning and Buildable Lands Inventory* report. These roadway improvements are recommended. Because the timing of residential and business developments in this area of Stanfield is uncertain, it is recommended that the proposed streets be constructed as development occurs. Also, since this option consists of establishing new access points to US 395, the processes described in the "Access Control Rights" section located in Chapter 7 – Access Management apply.

City staff should select and support a functional street classification and corresponding street design standard for all new roads identified in this option.

Option 9. Construct New Street Access and Traffic Signal on US 395, North of I-84 Interchange

This option was identified as a need by city and state officials and includes a new street access and traffic signal on US 395, north of the I-84 interchange. The exact location of the proposed access has not been finalized at this time but an approximate distance of 1,100 feet from the westbound on/off ramp of the I-84 interchange has been mutually agreed upon by city and state officials to ensure a safe and adequate spacing.

In order to receive formal approval from ODOT to gain access to the highway, the City or other interested party will have to go through a permitting process.

In the vicinity of the proposed access, US 395 is a four-lane highway with a posted speed limit of 55 mph. In June 1998, ODOT conducted a traffic count along US 395 between I-84 and Edwards Road. A daily traffic volume of 8,600 vehicles was observed with a PM peak-hour traffic volume of 585 vehicles, which is around 7 percent of the daily traffic. By the year 2018, traffic volumes along this section of highway are projected to increase by 60 percent reaching 13,760 daily vehicles and a PM peak-hour volume of around 940 vehicles. Considering the amount of highway traffic that is expected in the future, and the level of development planned along the highway corridor, a traffic signal will be necessary at this location for minor street traffic to access and egress the highway properly.

This option was devised to mitigate any adverse traffic impacts which may arise from future development along the US 395 corridor, specifically, between Dunne Street and the I-84 Interchange. Several major developments are already being considered in this area. One such development includes a proposed truck stop located on the existing Wheatland Dairy property, across from the existing Pilot Truck Stop on the east side of the highway. Full access to this development could be provided at the proposed intersection via a driveway from the east with the potential for a separate right-in/right-out-only access located closer to I-84. Other developments being considered at this time include a hotel/motel, restaurant, truck wash facility, and truck repair facility, all to be located north and west of the existing Pilot Truck Stop on the west side of US 395. Access to US 395 from these developments could also be provided by the proposed intersection via a new street access from the west. The proposed street access would also provide an important link to US 395 and I-84 from the future network of streets proposed in Option 12 below.

City and state officials feel that the proposed highway access and traffic signal could help mitigate existing traffic problems observed at the Pilot Truck Stop. Currently, there are two driveways accessing the truck stop near the I-84 interchange, allowing left and right turns into and out of the site. The driveway closest to I-84 is reserved for passenger cars and small trucks, with a second driveway further north reserved for larger semi- or tractor/trailer trucks. Officials have indicated that both driveways are too close to the I-84 interchange, and that left-turn movements, both into and out of these driveways are affecting traffic operations along the highway and interchange ramp terminals, during peak travel periods. During poor weather conditions, truck traffic attempting to access the truck stop has backed up traffic all the way onto the I-84 off-ramps. The inefficient operation of the driveway can result in a dangerous situation on the interstate.

City and state officials believe these traffic problems could be mitigated if access to the Pilot Truck Stop was restricted to right-in/right-out movements only at the two driveways through signing or median control, and if a short frontage road were constructed linking the truck stop to the proposed signalized intersection. This would allow left-turning vehicles originating from I-84 to access the truck stop more easily during peak periods by utilizing the protected left-turn phasing of the traffic signal. Vehicles destined for I-84 from the truck stop can then utilize the right-out-only driveways.

Other improvements at the proposed new intersection include a left-turn storage bay and right-turn deceleration lanes on the highway approaches. These measures would effectively separate vehicles exiting the highway from through-traffic.

Although ODOT has no control over the existing driveways to the Pilot Truck Stop, the agency is considering the placement of a non-traversable median along the highway that would prevent left-turns into and out of all driveways. This median would extend from the I-84 interchange to the proposed intersection. Such a measure would not be implemented unless the Pilot Truck Stop was guaranteed access to the proposed intersection for left-turning vehicles entering and exiting the site.

This option also includes the removal of the Foster Cemetery Road access to US 395, just north of the proposed intersection. This is required to ensure minimal access spacing standards along US 395 are met.

Cost

The cost for installing a traffic signal and right-turn deceleration lanes along the highway at the proposed intersection is estimated to be $250,000. Funding the traffic signal should be a joint effort between ODOT, the city of Stanfield, and private developers in the area. Additional costs for driveways to streets that will access this intersection were not estimated. Costs associated with closing the Foster Cemetery Road access are minimal.

Recommendation

This option is recommended as future development occurs in the area and when signal warrants are satisfied. It is expected that a traffic signal will be necessary when and if a second truck stop is constructed across from the Pilot Truck Stop. As part of this project, the City should consider extending a frontage road along the west side of US 395 linking the Pilot Truck Stop to the proposed intersection. Since this option consists of a new access to US 395, the processes described in the "Access Control Rights" section of Chapter 7 – Access Management apply.

Option 10. Install Traffic Signal at Dunne Street and US 395

This option includes the installation of a traffic signal at Dunne Street and US 395, following the establishment of a new access to Dunne Street, north of the highway, and upgrading Dunne Street to residential collector street standards (Option 2). With improved access north along Dunne Street and with further development expected south of US 395, a traffic signal will become necessary at this intersection, in order to maintain safe driving conditions and sufficient traffic operations.

In the vicinity of the proposed traffic signal, US 395 is four lanes wide with paved shoulders in excess of 6-feet, and a posted speed limit of 30 mph. In June 1998, ODOT conducted a traffic count along US 395 between Ball Avenue and Edwards Road. A daily traffic volume of 6,500 vehicles was observed with a PM peak-hour traffic volume of 590 vehicles, which is around 9 percent of the daily traffic. By the year 2018, traffic volumes along this section of highway are projected to increase by 60 percent, reaching 10,400 daily vehicles and a PM peak-hour volume of approximately 945 vehicles.

Considering the amount of highway traffic that is expected in the future, and the establishment of Dunne Street as a collector road, a traffic signal will be necessary at this location for minor street traffic to access and egress the highway properly. A traffic signal at this location would also provide good access to US 395 for traffic generated from future developments planned in southern Stanfield.

Safe and efficient traffic flow along US 395 could be maintained through the construction of right turn deceleration and acceleration lanes along the highway. This would allow local traffic to exit and enter the highway without affecting mainstream traffic. Deceleration and acceleration lanes should be inexpensive to construct in this area since no additional right-of-way must be acquired (currently 140 to 150 feet), the highway is relatively flat, and there are open drainage ditches along both sides of the road.

Cost

The cost for installing a traffic signal and right-turn deceleration and acceleration lanes along the highway at the proposed intersection is estimated to be $250,000. Funding for the traffic signal should be provided by ODOT, the city of Stanfield, and private developers in the area. Additional costs for driveways or streets that will access this intersection were not estimated.

Recommendation

This option is recommended within the next five to ten years, following the upgrade of Dunne Street to a residential collector (Option 2).

Option 11. Construct New Access to US 395 and Realign Edwards Road

This option includes a new intersection along US 395 located northwest of the present Edwards Road intersection. The exact location of this new intersection has not been determined but would be located along the straight section of US 395 northwest of the horizontal curve.

The intersection would have a street accessing the highway from the southwest side and a realignment of Edwards Road to the northeast side. The existing Edwards Road access to US 395 would either be eliminated or restricted to one-way travel for vehicles exiting the highway in the northbound direction.

One reason to construct a new intersection at this location is to create a connection between the residential land uses planned north of US 395 with the commercial and industrial land uses planned south of the highway. This connection would allow local traffic to cross US 395 without having to use the highway, thus reducing local traffic demand along the highway. A second reason is to improve driver safety by realigning Edwards Road to intersect US 395 at a 90 degree angle. This would maximize the sight distance along the highway, allowing vehicles, particularly trucks, to access the highway more easily. The highly skewed intersection that exists today is potentially dangerous due to sight distance restrictions for southbound movements. It is possible, however, to restrict the existing Edwards Road access to one-way northbound movements only, but further investigation is necessary to determine if this will be compatible with the land uses planned in this area.

Initial traffic control at the proposed new intersection should include stop-control on the minor street approaches in order to maintain free flow conditions along US 395. However, if minor street traffic volumes increase from future developments in the area, and signal warrants are satisfied, a traffic signal may become necessary. Efficient, free-flow conditions along the highway will also be maintained through the construction of right-turn deceleration and acceleration lanes along the highway. This would allow local traffic to exit and enter the highway without affecting mainstream traffic. Deceleration and acceleration lanes should be inexpensive to construct in this area since no additional right-of-way must be acquired, the highway is relatively flat, and there are open drainage ditches along both sides of the road.

Cost

The cost to construct the proposed intersection is estimated to be $226,000. This includes $176,000 to realign a 640-foot section of Edwards Road at $275 per linear foot, and $50,000 to add right-turn deceleration and acceleration lanes along the highway. The cost associated with developing the new road accessing the highway from the southwest has been included in Option 12, below.

Recommendation

This option is recommended as a long-term project, to be constructed within the next 10 to 20 years. The timing for construction of this new access and the Edwards Road realignment will ultimately be determined by the amount of development that occurs in south Stanfield over the planning period. It is expected that construction of the proposed traffic signals along US 395 at the intersections of Dunne Street (Option 10) and the new street access north of I-84 (Option 9), will take place before this option is implemented. Since this option consists of a new access to US 395, the processes described in the "Access Control Rights" section of Chapter 7 – Access Management apply.

Option 12. Construct Network of New City Streets and Upgrade Existing Streets in South Stanfield as Development Occurs

Over the next 20 years, the city of Stanfield plans to incorporate into the city limits and encourage development in the area bounded by US 395, I-84, the Union Pacific Railroad, and Dunne Street. The area is currently zoned for residential and farming uses. Once incorporated, it will include mixed-density residential zoning along the northern boundary of US 395, and heavy industrial, service, and commercial zoning in the remaining area. In addition to expanding the city limits, the city of Stanfield also plans to establish a network of streets in this area, as this development occurs.

The proposed network of new streets would consist of a local collector road parallel to US 395. It would extend from the Dunne Street terminus to the proposed street accessing US 395, north of I-84 (refer to Option 9), and continue south past this intersection, ending in a turn-around. At its midpoint, this frontage road would intersect with a new east-west street in a manner that creates two staggered T-shaped intersections. This orientation is designed to discourage any through-traffic that may stray from US 395. The new east-west road would begin at Main Street and intersect US 395 directly across from a realigned Edwards Road (Option 11). Other new roads include extending Main Street east to Foster Cemetery Road and adding a short street connection between Main Street and Dunne Street. Upgrades to existing street sections in accordance with adopted street design standards may also be necessary along sections of Main Street, Dunne Street, and Foster Cemetery Road, depending on where development occurs.

The streets proposed under this option would provide the necessary street connectivity around the future land uses planned for the southern portion of Stanfield, and provide efficient access to US 395 at the three major connections proposed along the highway. The proposed traffic signal at US 395 and Dunne Street (Option 10) would provide convenient access from this area to the central, western, and northern portions of Stanfield as well as destinations north of Stanfield. The proposed intersection and traffic signal along US 395, north of the I-84 interchange (Option 9), would provide good access for traffic destined to or originating from I-84 to the south. The realignment of the US 395/Edwards Road access and the new street access proposed at the same location would provide connectivity between the residential land uses planned for the central and eastern areas of Stanfield, and the business-related land uses planned for southern Stanfield.

Cost

Assuming the average cost to construct a new roadway or upgrade an existing roadway to adopted street standards (collector or local) is around $275 per linear foot and the total length of new roadway construction is around 21,700 feet, the total cost to develop the network of roads in South Stanfield is estimated at $5,968,000. This estimate does not include the costs associated with acquiring right-of-way, special

engineering design, bridge crossings, or traffic signals. In addition, the cost associated with incorporating the rural areas into the city limits is not included.

Funding for all new roadways in this area should be provided by the city of Stanfield and private developers of the area.

Recommendation

The network of streets identified in this option reflects the new roadways identified in the circulation plan of the *Draft Stanfield Community Visioning and Buildable Lands Inventory* report. These roadway improvements are recommended. Because the timing of residential and business developments in this area of Stanfield is uncertain, it is recommended that the proposed streets be constructed as development occurs.

City staff should select and support a functional street classification and corresponding street design standard for all roadway improvements identified in this option.

Option 13. Construct a Multi-Use Path Along US 395 to the I-84 Interchange

This project consists of providing 10-foot wide multi-use paths along the west and east sides of US 395 in southern Stanfield. The path along the west side of the highway will begin at the westbound on/off ramps of the I-84 interchange and extend north to Ball Avenue. In a discussion with a city official, it was determined that extending the proposed path on the east side of the highway, north of the proposed terminus, will not be needed over the next 20 years. The pathway along the east side of the highway begins at the same location but terminates at a proposed signalized intersection (Option 9), approximately ¼ mile north of the interchange. The construction of this intersection would include crosswalks with proper signage to direct bicyclists and pedestrians to the pathway on the west side of the highway. North of this location, the pathway on the west side will adequately accommodate two-way bike/pedestrian travel.

The proposed paths will provide useful bicycle and pedestrian connections between the current and planned commercial land uses along US 395 in southern Stanfield, and the downtown area. This project is also one of two key projects promoting a continuous bike/pedestrian connection to the city of Echo to the south. The other related project, identified in the city of Echo and Umatilla County TSP's, consists of widening Thielsen Road to include 6-foot wide paved shoulders, from Stanfield south into downtown Echo. Although the 6-foot shoulders are to be designated as bike routes, they will accommodate pedestrians as well. The Thielsen Road project also includes the addition of 6-foot wide raised sidewalks and new guardrails over the US 395/I-84 overpass.

Cost

The total cost for this project is estimated at $255,000 for the 7,500 feet length. This includes 3-inches of asphalt and 6-inches of aggregate and excavation/embankment costs. Assuming these paths will be located within the highway's current right-of-way and will be maintained by ODOT, the City does not need to acquire additional right-of-way in this area. It was assumed that the City would provide or locate funding for this improvement. Alternative funding for multi-use pathway projects, such as this, is available through state or federal grants.

Recommendation

This project is recommended for construction over the next 5 to 10 years. It is also supported by the US 395 North Corridor Plan, currently being prepared by OTAK Inc. and Kittelson and Associates, Inc.

Option 14. Implement Transportation Demand Management Strategies

Transportation demand management (TDM) strategies change the demand on the transportation system by providing facilities for modes of transportation other than single-occupant passenger vehicles, implementing carpooling programs, altering work shift schedules, and applying other transportation measures within the community. The TPR recommends that cities should evaluate TDM measures as part of their TSPs.

TDM strategies are most effective in large urban areas; however, some strategies can still be useful in small cities such as Stanfield. For example, staggering work shift schedules at local businesses may not be appropriate in Stanfield, since there are no large employers in the area. However, provisions for alternative modes of transportation, such as sidewalks and bike lanes, and implementing a county-wide carpooling program, can be beneficial for residents of the City.

Stanfield can implement TDM strategies by requiring all future street improvement projects to include the addition of some sort of pedestrian facility, such as new sidewalks or walkways, which will effectively separate pedestrians from motorized traffic. All new street improvement projects should consider bicycle lanes as well.

Implementing a local carpool program that only serves Stanfield would not be effective due to the City's geographical size and people living and working in different parts of the county. However, a county-wide carpool program is feasible. Residents who live in Stanfield and residents who live in other cities and rural areas should be encouraged to carpool with a coworker or someone who works in the same area.

Cost

Costs associated with implementing TDM strategies were not determined.

Recommendation

Although the primary goal of these measures is to reduce the number of vehicle trips made within the City, especially during peak periods, street capacity for automobiles and trucks is generally not an issue in Stanfield. At the same time, providing adequate facilities for pedestrians and bicyclists increases the livability of a city, and improves traffic and pedestrian safety. With more emphasis on walking or biking in the City, conditions such as air quality and noise levels would be improved as well. Therefore, this option is recommended.

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 Stanfield area.

TABLE 6-1
TRANSPORTATION IMPROVEMENT OPTIONS: RECOMMENDATION SUMMARY

Option	Recommendation
1. Revise zoning code to allow and encourage mixed-use development and redevelopment.	• Implement
2. Upgrade Dunne Street to residential collector street standards between US 395 and Harding Avenue.	• Implement
3. Construct an at-grade asphalt path along the south side of Sherman Street/Harding Avenue between the elementary school and US 395.	• Implement
4. Construct a multi-use path on the north side of Stage Gulch Ditch between West Elementary School and Wayne Street.	• Implement
5. Extend the multi-use path along US 395 to the city of Hermiston.	• Implement
6. Construct new access to US 395 from Mamie Street and realign Canal Road	• Desirable to implement; ODOT has jurisdiction
7. Extend Vantage Boulevard to Stanfield High School.	• Implement
8. Construct network of new city streets in North Stanfield as development occurs.	• Implement as development occurs
9. Construct a new access to US 395, north of I-84 interchange.	• Desirable to implement; ODOT has jurisdiction
10. Install traffic signal at Dunne Street and US 395.	• Desirable to implement; ODOT has jurisdiction
11. Construct new access to US 395 and realign Edwards Road.	• Desirable to implement; ODOT has jurisdiction
12. Construct network of new city streets and upgrade existing streets in South Stanfield as development occurs.	• Implement as development occurs
13. Construct multi-use paths along US 395 to I-84 interchange.	• Desirable to implement; ODOT has jurisdiction
14. Implement transportation demand management strategies.	• 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 Stanfield Transportation System Plan (TSP) 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

Existing roadway development standards for the city of Stanfield include requirements for minimum right-of-way and minimum pavement widths for arterials, collectors, local streets, and alleys. Street width requirements vary by area: residential or business-industrial. Table 7-1 presents the existing street standards.

TABLE 7-1
EXISTING STREET DESIGN STANDARDS

	Minimum Right-of-Way Width (in feet)	Minimum Pavement Width (in feet)
Residential		
Arterial	80	44
Collector	60	38
Local Street	50	28
Alleys	20	20
Business-Industrial		
Arterial	100	48
Collector	70	44
Local Street	60	40
Alleys	24	24

Current standards for cul-de-sac streets include a minimum turnaround diameter of 70 feet in a residential area and 90 feet in a business-industrial area. Minimum street widths and right-of-way widths are not specified.

Current pedestrian standards require sidewalks, at least 4-feet in width, to be constructed along both sides of all roadways (arterial, collector, and local streets), and in all areas (residential and business\industrial).

There are no designated bikeway requirements.

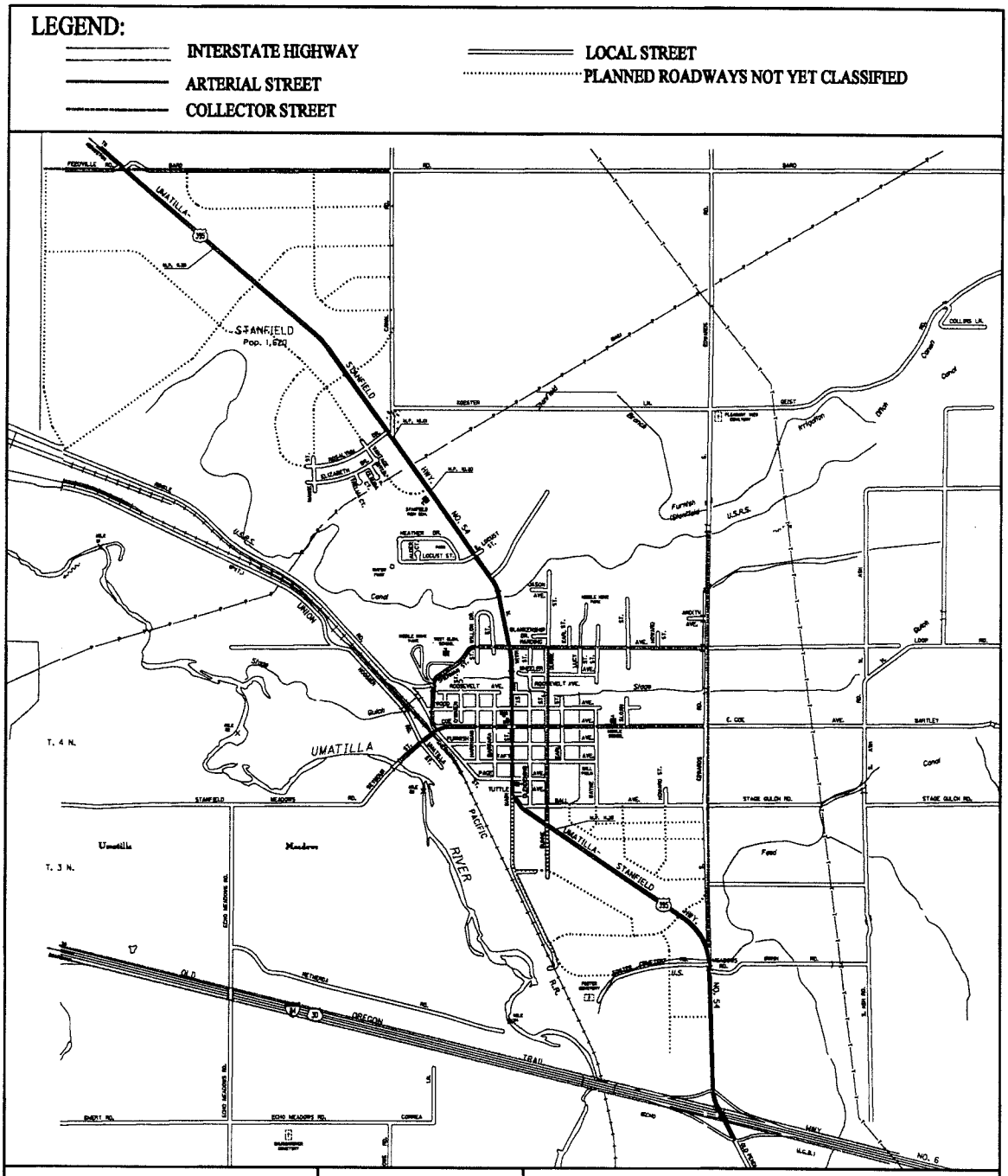
The City has no official street classification linking the street design standards in Table 7-1 to existing roadways.

Recommended Street Standards

The development of the Stanfield TSP provides the City with an opportunity to review and revise street design standards. As mentioned, the subdivision ordinance contains street standards. However, none of the City's adopted plans actually assign functional classifications to the roadways. 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 future roadway classification system for Stanfield is shown in Figure 7-1 and reflects the changes and additions to the existing roadway classification as described later in the street system plan. The recommended street standards for all types of functional classifications are shown graphically in Figure 7-2 through Figure 7-5, and are summarized in Table 7-2. Further discussion of each type of street standard follows below.

Once the city of Stanfield adopts this plan, the street standards recommended in this section will become the Comprehensive Plan, adopted street design standards. These standards should be enforced for all new city street improvements and major upgrades to existing roads.

Since the Stanfield TSP includes all land within the Urban Growth Boundary (UGB), the recommended street standards should be applied to the areas within the city limits and all outlying areas that are within the UGB. Although these 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, to urban standards in the future is expensive and controversial; it is more efficient to build them to an acceptable urban standard.



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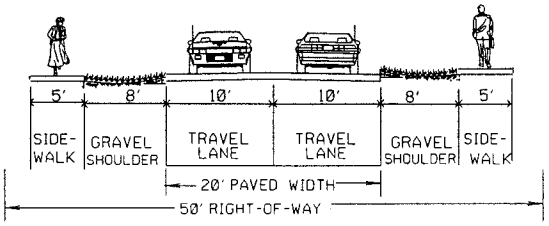
NORTH
(Not to Scale)

FIGURE 7-1

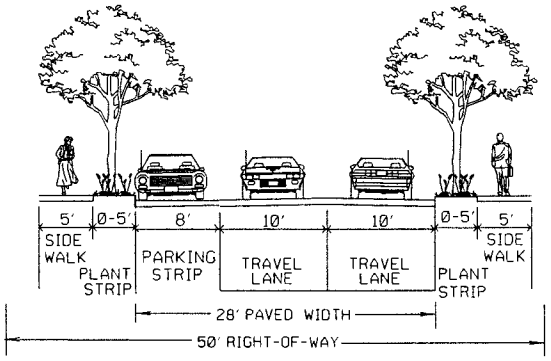
Future Roadway Functional Classification -Stanfield

City of Stanfield TSP

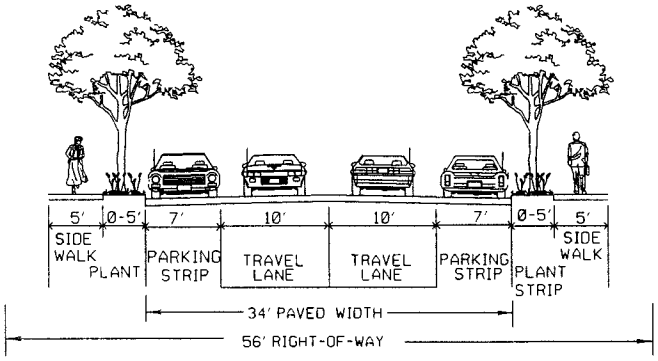
UMC00001/STAN7-1.DGN/bjd/09-20-98



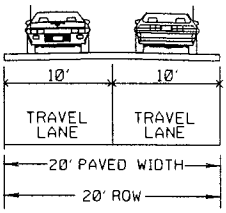
OPTION 1: TWO TRAVEL LANES, NO ON-STREET PARKING, GRAVEL SHOULDERS



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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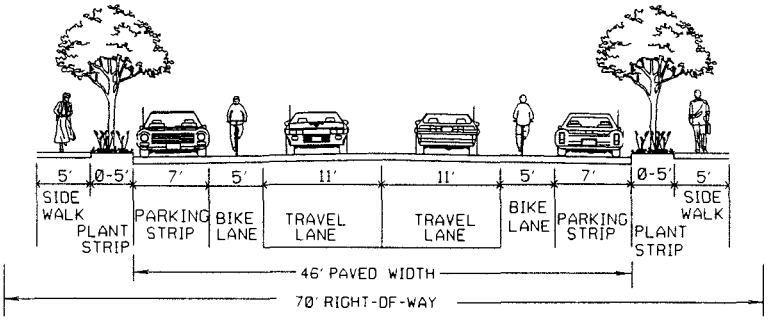
FIGURE 7-2

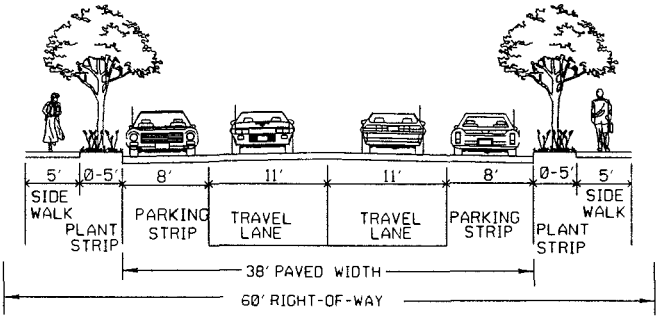
Street Standards
Local Residential and Alleys

City of Stanfield TSP

UMCO0001/stanfield/stan7-2-5.DGN/JXD/1-19-99



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



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

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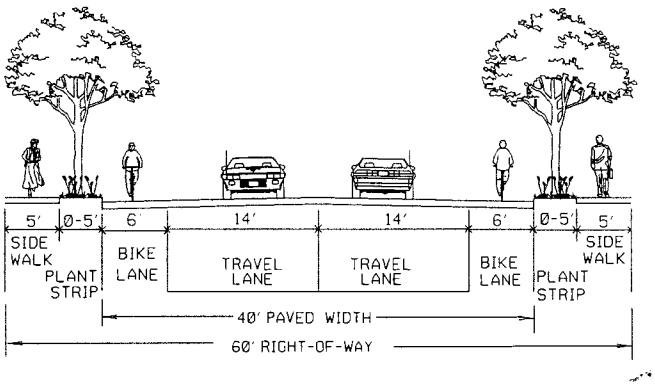
FIGURE 7-3

Street Standards
Residential Collector Streets

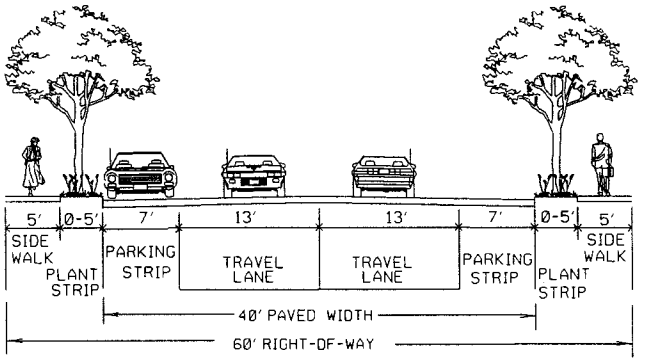
City of Stanfield TSP

Industrial/Commercial Collector Street



TWO TRAVEL LANES WITH BIKE LANES ON BOTH SIDES

Industrial/Commercial Local Street



TWO TRAVEL LANES WITH ON-STREET PARKING ON BOTH SIDES

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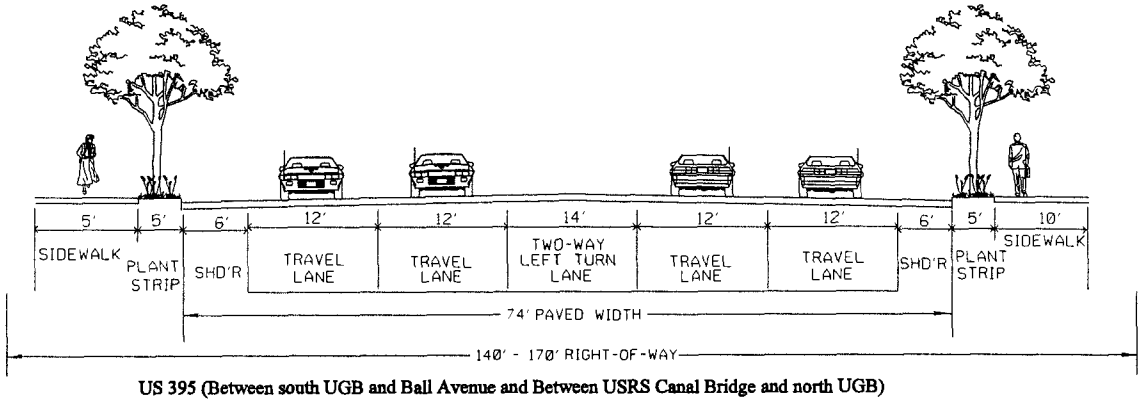
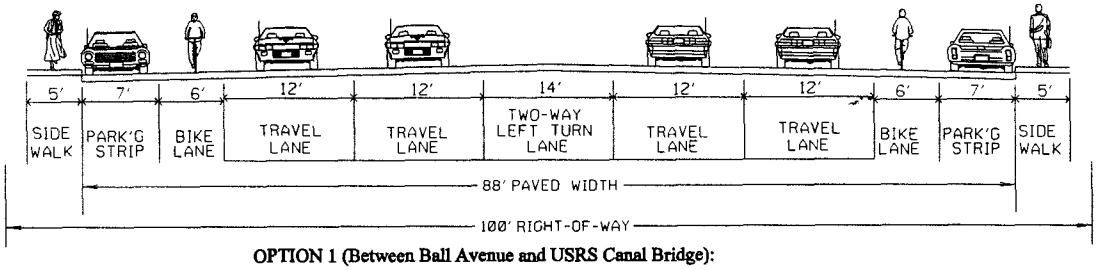
FIGURE 7-4

Street Standards Industrial / Commercial Streets (Collector or Local)

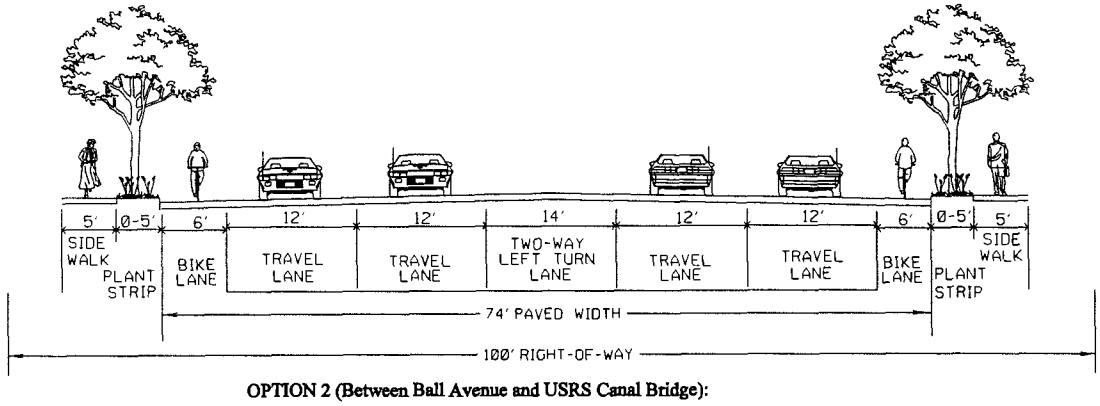
City of Stanfield TSP



US 395 (Between south UGB and Ball Avenue and Between USRS Canal Bridge and north UGB)
FOUR TRAVEL LANES, CENTER TURN LANE, SHOULDERS,
PLANTING STRIP AND BICYCLE/PEDESTRIAN PATHS ON BOTH SIDES



OPTION 1 (Between Ball Avenue and USRS Canal Bridge):
FOUR TRAVEL LANES, CENTER TURN LANE, BICYCLE LANES,
ON-STREET PARKING ON BOTH SIDES



OPTION 2 (Between Ball Avenue and USRS Canal Bridge):
FOUR TRAVEL LANES, CENTER TURN LANE AND
BICYCLE LANES WITHOUT ON-STREET PARKING.

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FIGURE 7-5

Street Standards
Arterial Roads
US 395, Options 1-2

City of Stanfield TSP

TABLE 7-2
RECOMMENDED STREET DESIGN STANDARDS

Classification	Pavement Width	Right-of-Way Width	Sidewalks	Bike-Lanes	Min. Posted Speed
Local Residential					
Option 1	20 ft.	50 ft.	5 ft. (both sides)	none	15-25 mph
Option 2	28 ft.	50 ft.	5 ft. (both sides)	none	15-25 mph
Option 3	34 ft.	56 ft.	5 ft. (both sides)	none	15-25 mph
Alley	20 ft.	20 ft.	none	none	15 mph
Residential Collector					
Option 1	46 ft.	70 ft.	5 ft. (both sides)	5 ft. (both sides)	25-35 mph
Option 2	38 ft.	60 ft.	5 ft. (both sides)	none	25-35 mph
Industrial/Commercial Collector or Local Streets	40 ft.	60 ft.	5 ft. (both sides)	collector - 6 ft. local – none	25-35 mph
Arterial –					
US 395[1]	74 ft.	140-170 ft.	none	10 ft. bike/ped path	45-55 mph
US 395 Option 1[2]	88 ft.	100 ft.	5 ft. (both sides)	6 ft. (both sides)	25-45 mph
US 395 Option 2[2]	74 ft.	100 ft.	5 ft. (both sides)	none	25-45 mph

(1) Between south UGB and Ball Avenue and between USRS Canal Bridge and north UGB
(2) Between Ball Avenue and USRS Canal Bridge.

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 provide a buffer from traffic. When sidewalks are located directly adjacent to the curb, they can include such impediments as mailboxes, street lights, 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.

Local Residential Streets

The design of a local residential 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 7-2. 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 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 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, with an optional planting strip up to 5-feet in width located between the sidewalk and curb.

Option 3

A third option for a local residential street provides a 34-foot paved roadway within a 56-foot right-of-way. This standard will accommodate one lane of moving traffic in each direction, with curbside parking present along both sides of the road. Five-foot wide sidewalks should be provided on the roadway, with an optional planting strip up to 5-feet in width located between sidewalk and 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 off the main streets. Alleys should be encouraged in the urban area of Stanfield. Alleys should be 20-feet wide, with a 20-foot right-of-way (see Figure 7-2).

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.

Residential 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. Residential collectors are primarily intended to serve local access needs of residential neighborhoods by connecting local streets to arterials.

Two recommended street standard options are provided for residential collectors, as shown in Figure 7-3. Both 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. The City should choose which option is most appropriate for a designated collector street based on the existing right-of-way and neighborhood character.

Option 1

This option provides a 46-foot paved roadway surface within a 70-foot right-of-way. This standard will accommodate one lane of moving traffic in each direction, with 5-foot wide bicycle lanes and 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 up to 5-feet wide.

Option 2

This option provides a 38-foot paved roadway surface within a 60-foot right-of-way. This standard will accommodate 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 up to 5-feet wide.

Industrial/Commercial Collector or Local Streets

This option should be applied in areas where industrial and/or commercial developments are most prevalent. This standard calls for a 60-foot right-of-way and a 40-foot paved width. This width is designed to accommodate large trucks that make large radius turns. Along a collector street, the 40-foot curb-face-to-curb-face distance allows two 14-foot travel lanes and two 6-foot wide bicycle lanes. On-street parking is not permitted. Five-foot sidewalks shall be provided on each side of the roadway and a 5-foot wide planting strip is optional. Along a local street, the 40-foot and curb-face-to-curb-face distance allows for two travel lanes and on-street parking permitted at the discretion of the City. The optional planting strip should not be provided in areas where on-street parking will be permitted. In areas where truck loading and unloading is necessary, sidewalks can be widened to 8-feet and located adjacent to the curb (see Figure 7-4).

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 55 mph.

In Stanfield, US 395 is the only roadway with an actual arterial designation. The following two options for arterial streets take into account the limited right-of-way that exists along US 395 (see Figure 7-5). The current right-of-way widths range from 150 to 170 feet north of the downtown area, 100 feet in the downtown area, and 140 to 150 feet south of the downtown area.

Between the South UGB and Ball Avenue and Between the USRS Canal Bridge and the North UBG

This option consists of a 74-foot paved width consisting of four 12-foot travel lanes, a 14-foot continuous left-turn lane, and 6-foot shoulders on each side of the road. Also included are 5-foot

planting strips to provide a buffer between the highway and 10-foot wide bicycle/pedestrian paths to be located along each side of the road.

Because of the extensive amount of right-of-way in these two areas, it is possible to locate the bike/pedestrian paths further away from the highway and/or add additional landscaping.

Between Ball Avenue and the USRS Canal Bridge

Option 1

This option consists of an 88-foot paved surface within a 100-foot right-of-way. This standard allows for four 12-foot travel lanes, a 14-foot center left-turn lane, two 6-foot bike lanes, and curbside parking along both sides of the roadway at a 7-foot width. Sidewalks, at least 5-feet in width, should also be provided on each side of the roadway. Because of the limited amount of right-of-way, no planting strips can be provided.

This option allows for the center left-turn lane to be replaced by a non-traversable median, with left-turn storage bays permitted at major street intersections.

Option 2

This option provides a 74-foot paved surface within a 100-foot right-of-way to allow for four 12-foot travel lanes, a 14-foot center turn lane, and 6-foot bicycle lanes on each side of the road. Sidewalks, at least 5-feet in width, should also be provided on each side of the roadway, with an optional planting strip up to 5-feet in width located between the sidewalk and curb. Ten-foot wide sidewalks are also allowed with tree wells (5-feet by 5-feet) placed at specific spacings along the road.

This option allows for the center left-turn lane to be replaced by a non-traversable median, with left-turn storage bays permitted at major street intersections.

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 of the street 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 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 Stanfield. Every urban street should have sidewalks on both sides of the roadway as shown on the cross section diagrams in Figures 7-2 through 7-5. Sidewalks on residential streets should be at least 5-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 adequate 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. Short block sizes also benefit 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. To ensure that this pattern of development continues into the future, a maximum block perimeter of 1,200 feet is recommended. This feature is critical to Stanfield'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 leads to not only increased vehicle delay and deterioration in the level of service on the arterial, but also a reduction in safety. Research has shown a direct correlation between the number of access points and collision rates. Experience throughout the United States has also shown that a well-developed access plan for a street system can minimize local cost 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 Stanfield 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 Stanfield 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 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 to including parking and loading at the local and minor collector level. Table 7-3 describes recommended general access management guidelines by roadway functional classification.

TABLE 7-3
RECOMMENDED ACCESS MANAGEMENT STANDARDS

	Intersections[2]			
	Public Road		Private Drive	
Functional Classification	**Type[1]**	**Spacing**	**Type**	**Spacing**
Arterial				
US 395 (Umatilla-Stanfield Highway)[3]	See Access Management Spacing Standards, Appendix C of the 1999 Oregon Highway Plan			
Other Arterial Streets Within UGB	at-grade	250 ft.	L/R Turns	100 ft.
All Collectors[4]				
Coe Avenue, Edwards Road, Harding Avenue, Seymour Street, Dunne Street, and Sherman Street	at-grade	250 ft.	L/R Turns	100 ft.
Local Residential Street	at-grade	250 ft.	L/R Turns	Access to Each Lot
Alley (Urban)	at-grade	100 ft.	L/R Turns	Access to Each Lot

Notes:
(1) For most roadways, at-grade crossings are appropriate.
(2) Allowed moves and spacing requirements may be more restrictive than those shown to optimize capacity and safety. Also, see section below on Access Control Rights along state highways.
(3) See section on Special Transportation Area below.
(4) Some sections of these roads are designated as residential streets, where the residential access management standard applies.

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 either 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 Stanfield. The *1999 Oregon Highway Plan* (OHP) specifies an access management spacing standards and policies for state facilities. Although the City of Stanfield may designate state highways as arterial roadways within their transportation system, access management for these facilities should follows the Access Management Spacing Standards on 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. 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 Stanfield is categorized in the 1999 Oregon Highway Plan as a State 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.

To assist in implementing state access management standards and policies, the 1999 Oregon Highway Plan also recognizes that state highways serve as main streets of many communities, such as downtown Stanfield. Shorter block lengths and a well-developed grid system are important to a downtown area, along with convenient and safe pedestrian facilities. In general, downtown commercial arterial streets typically have blocks 200 to 400 feet long, driveway access sometimes as close as 100-foot intervals and occasionally, crosswalks, along with on street parking. The need to maintain these typical downtown characteristics must be carefully considered along with the need to maintain the safe and efficient movement of through traffic. The Oregon Highway Plan recognizes the main street function through the designation of Special Transportation Areas (STAs).

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.

Special Transportation Areas

A Special Transportation Area (STA) is a designation that may be applied to a state highway, when a downtown, business district or community center straddles the state highway within a community's urban growth boundary. STAs can include central business districts but they do not apply to whole cities or strip developmentareas along individual highway corridors.

The primary objective of an STA is to provide access to community activities, businesses and residences, and to accommodate pedestrian, and bicycle movements along and across the highway in a compact central business district. A STA designation will allow reduced mobility standards, accommodate existing public street spacing and compact development patterns, and enhance opportunities to provide improvements for pedestrians and bicyclists in the downtown area. Inclusion in a STA allows for redevelopment with exception to the proposed access management standards.

Access management in STAs corresponds to the existing city block for public road connections and discourages private driveways. However, where driveways are allowed and land use patterns permit, the minimum spacing for driveways is 175 feet or mid-block if the current city block spacing is less than 350 feet. In addition, the need for local access outweighs the consideration of maintaining highway mobility within a STA. In Stanfield, the area along US 395 between Wood Avenue (milepoint 10.97) Furnish Avenue (milepoint 11.09) exemplifies the design features of a historic downtown. Within this two-block segment, buildings are spaced close together, parking is on street and the speed limit is 30 m.ph. The compact development pattern qualifies this area for a STA highway segment designation.

Upon adoption of the TSP by the Stanfield City Council and a finding of compliance with the Oregon Highway Plan, the City of Stanfield and ODOT Region 5 may jointly designate this segment of US 395 as a STA through a Memorandum of Understanding (MOU). The MOU will incorporate by reference the TSP and the following STA Management Plan provisions.

Special Transportation Area Management Plan

The Stanfield STA is located on the portion of Umatilla Stanfield Highway (US 395) routed on Main Street between the intersections of Wood Avenue (milepoint 10.98) and Furnish Avenue (milepoint 11.09), which is located completely within the urban growth boundary and city limits of the City of Stanfield.

The primary objective of the Stanfield STA is to provide access to community activities, businesses and residences, and to accommodate pedestrian, and bicycle movements along and across the highway in the city's central business district.

The designation of a STA in Stanfield is intended to accommodate the existing public street spacing and compact development pattern. Specific access management conditions for the Stanfield STA on US 395 include:

a) Minimum spacing for public road connections at the current city block spacing of 300 feet.

b) Public road connections are preferred over private driveways. Private driveways are discouraged in an STA.

c) Where land use patterns permit, ODOT will work with the City and property owners to identify appropriate access to adjacent property owners within the STA.

d) Where a right to access exists, access will be allowed to property at less than the designated spacing standard only if the property does not have reasonable alternative. If possible, other options should be considered, such as joint access.

e) Where a right to access exists, the number of driveways to a single property shall be limited to one. ODOT will work with the City and property owners if additional driveways are necessary to accommodate and service the traffic to the property, and will not interfere with driver expectancy and the safety of through traffic on the highway.

f) Driveways shall be located where they do not create undue interference or hazard to the free movement of normal highway or pedestrian traffic. Locations in areas of restricted sight distance or at points that interfere with the placement and proper functioning of traffic control signs, lighting or other devices that affect traffic operation will not be permitted.

g) If a property is landlocked (no reasonable alternative exists) because a driveway cannot be safely constructed and operated and all other alternatives have been explored and rejected, ODOT might be required to purchase the property. However, if a hardship is self-inflicted, such as by partitioning or subdividing a property, ODOT has no responsibility for purchasing the property.

Today, traffic on the state highway operates at LOS A and v/c ratios of 0.20 or less. Increase in traffic volumes over the 20 year projection period will decrease to a level-of-service (LOS) B which correlates to a volume volume to capacity ratio of 0.59 within the city's urban growth boundary.

To maintain highway mobility through a STA in Stanfield, land use development decisions (within the urban growth boundary) shall not cause traffic flow to exceed a volume to capacity ratio of 0.80. The posted speed limit in the STA is currently and will remain at 30 miles per hour as allowed by state statute in a business district. Parallel curb parking is permitted in the STA, provided minimum sight distance requirements are met for all public road connections and private driveways. Parking in this area is adequate at this time. Signals currently exist at Coe Avenue. No changes are contemplated.

The designation of a STA in Stanfield further identifies the need to accommodate pedestrian, and bicycle movements along and across the highway in the compact central business district. The urban arterial standard within the STA consists of a 100-foot right-of-way with a paved width of 80 feet that includes two 11-foot travel lanes, two 12-foot travel lanes with a 14-foot center turn-lane and a 10-foot parking strip on each side of the road. The standard includes a 10-foot sidewalk on each side of the road. There are no bicycle and pedestrian improvements recommended in this area at this time, however the recommended arterial street standard includes 6-foot bike lanes.

Another essential component to accommodate pedestrians in a STA is street crossings. There are no specific crosswalk enhancements or safety improvements recommended in the STA at this time. However, the *Stanfield Community Visioning and Buildable Lands Inventory Project Report dated May 10, 1999* identifies Coe Avenue as Stanfield's "Main Street" given the amount of traffic anticipated on US 395. According to the report, a street perpendicular to the highway will be better able to create and sustain a comfortable pedestrian environment. The report also identifies improvements to the intersection of US 395 and Coe Avenue to emphasize the intersection with a landscaped median, marked pedestrian crossing and curb extensions to shorten the crossing distance and widen sidewalks. These improvements are not recommended at this time.

Future improvements and modifications to the highway within the STA and within the curb line, or if no regular established curb, to the right-of-way utilized for highway purposes, will be made in accordance with the Oregon Highway Design Manual and with ODOT approval.

Existing maintenance and operational strategies along US 395 will be employed within the STA, consistent with Oregon Revised Statute 373.020, as follows:

ODOT shall be responsible for the ongoing maintenance of: a) the roadway surface between curbs, or if no regular established curb, to that portion of right-of-way utilized for highway purposes b) painting centerline stripe, c) designated school crosswalk delineation, directional and regulatory signs except those signs described as the City's responsibility and d) plowing snow one blade-width of centerline stripe provided there are no conflicts with utilities.

City shall be responsible for the on going maintenance of: a) storm sewer system, b) sidewalks, c) landscaping, d) luminaries, e) U-turn signs, parking signs, and street name signs, f) painting parking-stripes and other pavement delineation not described as ODOT's responsibility, and g) snow removal from parking strip.

Future improvements and modifications to the highway within the STA will include maintenance and operational strategies with ODOT and City approval.

Minimum Access Spacing Standards Applicable to Freeway Interchanges

The access spacing standards for interchanges with two-lane crossroads, such as the interchange of US 395 with I-84, are listed below in Table 7-3 and shown graphically in Figure 7-6. It should be noted that the interchange access management standards displayed in the table supercede the general access management standards unless the latter standards are greater.

TABLE 7-3
MINIMUM SPACING STANDARDS APPLICABLE TO FREEWAY INTERCHANGES WITH TWO-LANE CROSSROADS

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

Notes:

1) These distances may be superceded by the Access Management Spacing Standards, providing the distances are greater than the distances listed in the above table.

2) No four-legged intersections may be placed between ramp terminals and the first major intersection.

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

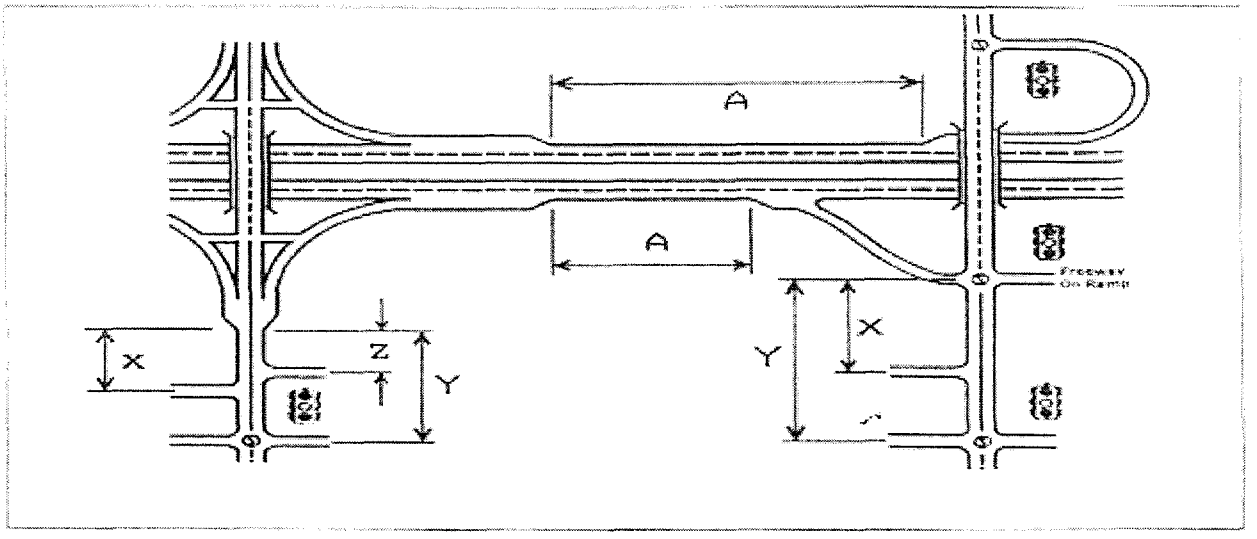
X = Distance to the first approach on the right side of the two-lane crossroad; right in/ right out only

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

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

Figure 7-6

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



These standards are consistent with 1999 Oregon Highway Plan, Access Management Standards for Interchanges, and the US 395 Corridor Plan recommendation for a Interchange Mangement Area identified in the vicinity of the I-84/US 395 North interchange, approximately 1,320 feet north and south of the interchange. The purpose of this area is to preserve the function of the interchange to provide safe and efficient operations between connecting roadways and to minimize the need for major improvements of existing interchanges.

MODAL PLANS

The Stanfield 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 Stanfield 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 in Stanfield.

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 Stanfield during the next 20 years. Most of these options have been discussed in Chapter 6 (Improvement Options Analysis). Projects that make up the proposed street system plan are summarized in Table 7-4.

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 Stanfield currently classifies all streets within the Urban Growth Boundary as either arterial, collector, or local streets. The future street classification for Stanfield is shown in Figure 7-1. Modifications to the existing street classification map have been made to account for future roadway projects. All streets included in the future street classification are described as follows:

- I-84 (Along south UGB) – classified as an interstate highway, and is the primary route to other cities in the county and state.
- US 395 (North UGB to south UGB) – classified as a highway of Statewide LOI, it carries the highest traffic volumes through the City, and it is the primary route to other cities in the county and state.
- Harding Avenue (Sherman Street to Edwards Road) – classified as a collector street, as its function is to connect local neighborhoods with US 395.
- Coe Avenue\Seymour Street (West UGB to Edwards Road) – classified as a collector street, as its function is to connect local neighborhoods with US 395.
- Sherman Street (Coe Avenue to Harding Avenue) – classified as a collector street, as its function is to connect local neighborhoods with Coe Avenue and Harding Avenue, which access US 395.
- Dunne Street (Main Street to Harding Avenue) – classified as a collector street, as its function will be to connect local neighborhoods with US 395.
- Future streets planned in north and south Stanfield – classification to be determined by the City as development occurs.
- All other roads – classified as local streets.

Street Improvement Projects

Table 7-4 presents the street improvement projects within the urban area that compose the street system plan. Prioritization of these projects is at the discretion of the city, county, and/or state depending upon project jurisdiction.

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 7-4
RECOMMENDED STREET SYSTEM PROJECTS

Project Number	Location/Description	Cost
2.	Upgrade Dunne Street to residential collector street standards between US 395 and Harding Avenue.	$1,050,000
9.	Construct new access to US 395, north of I-84 interchange.	$250,000
10.	Install traffic signal at Dunne Street and US 395.	$250,000
6.	Construct new access to US 395 from Mamie Street and realign Canal Road.(1)	$545,000
7.	Extend Vantage Blvd. to Stanfield High School.	$385,000
11.	Construct new access to US 395 and realign Edwards Road.	$226,000
12.	Construct network of new city streets and upgrade existing streets in South Stanfield as development occurs.	$5,968,000
8.	Construct network of new city streets in North Stanfield as development occurs.	$6,930,000
15.	Repave and pave Hinkle Road from downtown Stanfield to the Hinkle Railyard.(2)	$2,618,400
Total		**$18,222,400**

Note: (1) If ODOT does not grant an additional access point along US 395 at Mamie Street, then the second alternative (see Improvement Option 6- Chapter 6) is recommended at a cost of $205,000.

(2) This project was identified and recommended in the US 395 North Corridor Plan

Pedestrian System Plan

A complete, interconnected pedestrian system should be implemented in the City when feasible. A sidewalk inventory revealed that sidewalks are present mainly in the downtown core of the City along US 395 and Coe Avenue. There are other local streets in the City such as Barbara and Glendening that used to have adequate sidewalk facilities. However, flooding in the 1960s destroyed or covered up many of these sidewalks. A significant effort would be needed to recover these sidewalks, at a cost exceeding that of constructing new sidewalks. Most of the remaining local streets lack a pedestrian walkway. Every paved street should have sidewalks on both sides of the roadway, to meet the recommended street standards, except in extenuating circumstances. Continuous pedestrian access on walkways should be provided between businesses, parks, and adjacent neighborhoods. (Ordinances specifying these requirements are included in Chapter 9.)

Because of the small size of Stanfield 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 approximately $25 per linear foot. This assumes a sidewalk width of 5-feet with curbing. The cost estimate also assumes the sidewalks are composed of four inches of concrete and six 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 improvements are made to the existing street system, projects involving the construction of new sidewalks may require implementation of on-street parking in place of parking on grass or gravel shoulders.

In Chapter 6, a total of four options were recommended relating to pedestrian and bicycle facility improvements. These options have been included in the pedestrian plan. Table 7-5 presents these projects.

TABLE 7-5
RECOMMENDED PEDESTRIAN PROJECTS

Project Number	Location/Description	Cost
4.	Construct a multi-use path on the north side of Stage Gulch Ditch between West Elementary School and Wayne Street.	$91,100
5.	Extend the multi-use path along US 395 to the city of Hermiston.	$1,112,600
3.	Construct a multi-use path along the south side of Sherman Street/ Harding Avenue between West Elementary School and US 395.	$23,900
13.	Construct multi-use paths along US 395 to I-84 interchange.	$255,000
Total		**$1,458,700**

Bicycle System Plan

On the collector and local streets in Stanfield, 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, bike lanes are recommended for all new roadways classified as collector streets, where potentially higher traffic volumes will exist.

Current traffic conditions along the more urban portion of US 395, between Ball Avenue and Harding Avenue, warrant the addition of striped bike lanes. The posted speed limit along the highway within the city limits ranges between 30 and 45 mph and traffic volumes are approximately 8,100 to 11,800

vehicles per day (vpd). The *1995 Oregon Bicycle and Pedestrian Plan* recommends 6-foot bike lanes on urban arterials. However, the urban portion of US 395 is striped for five lanes of travel and the existing width of the highway will not allow for 6-foot bike lanes unless one of the travel lanes or on-street parking is eliminated, or unless the highway is widened further. The practicality of widening the highway is uncertain. Therefore, shared roadway usage between bicyclists and auto traffic should remain in place between Ball Avenue and Harding Avenue.

As for bike provisions on the remaining sections of US 395 within the city's UGB, there is a multi-use path recommended in the Pedestrian Plan along the west side of the highway between Rosalynn Drive and 4th Street in Hermiston. Multi-use paths are also recommended along both sides of US 395 in southern Stanfield.

In the street system and pedestrian system plans above, several projects include the addition of some sort of bicycle facility. For example, Project 1 includes updating Dunne Street to collector street standards, which include bike lanes. No other bicycle-specific projects are recommended in the bicycle plan.

Bicycle parking is lacking in Stanfield. 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 approximately $50 per bike, plus installation. An annual budget of approximately $1,500 to $2,000 should be established so that Stanfield can begin to place racks where needs are identified and to respond to requests for racks at specific locations. Bicycle parking requirements are further addressed in Chapter 9 (Policies and Ordinances).

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 Stanfield, 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. However, the sidewalk and bicycle improvements recommended earlier in this chapter are also considered TDM strategies. By providing these facilities, the city of Stanfield is encouraging people to travel by modes other than the automobile.

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

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

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

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, which connect these cities to each other and major population centers outside of the county. The Hermiston terminal has two departures heading southeast (with stops in Pendleton, La Grande, Boise, and Salt Lake City); three buses running west to Portland; and two buses heading north on US 395 to Pasco and Spokane daily. The Pendleton terminal has three departures southeast (with stops in La Grande, Boise and Salt Lake City); three departures west to Portland; and two departures north to Seattle via Walla Walla, Pasco, and Spokane daily.

Because of the small size of Stanfield, ridership demand is not high enough for Greyhound bus lines to feasibly provide service to the City.

Pendleton, Hermiston, Pilot Rock, and the Umatilla Indian Reservation have 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 his/her origin to specific locations on an immediate or advance reservation basis. These services are provided by the Pendleton Senior Center in Pendleton, the Confederated Tribes of the Umatilla Indian Reservation on the Umatilla Indian Reservation, the Hermiston Senior Center in Hermiston, and the Pilot Rock Lions Club in Pilot Rock. A similar kind of service could be appropriate for Stanfield.

Stanfield 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 TSPs.

Rail Service Plan

Although a major rail line passes between Stanfield and Hermiston, no direct passenger or freight rail service is provided. The City is interested, however, in establishing a rail passenger stop in Stanfield. Until recently, Amtrak service was available in Hermiston and Pendleton along the rail line which 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 nearest freight rail service to Stanfield is provided by the Union Pacific Railroad (UPRR) in Hermiston and is a Class I line-haul freight railroad. Freight rail service in Hermiston is currently expanding as a result of the merger between Southern Pacific Railroad and the UPRR. It is expected that freight rail activity at the Hinkle Railyard will increase by over 40 percent in the near future. In addition to the rail merger, the Hinkle Railyard was recently certified to receive Enterprise Zone benefits. A locomotive repair service is expected to begin operating at the railyard in the near future,

adding close to 200 new jobs in the community. Although rail activity is expected to increase through Stanfield in the future, no necessary changes to the existing rail line are anticipated. The City has expressed an interest in a grade-separated crossing at the Seymour Street intersection but traffic demand will not warrant such an improvement.

Other freight lines exist in other areas of the county. There is a switch line out of Pendleton which hauls freight from Pilot Rock two to three days per week, and a line between Milton-Freewater and Weston on the Blue Mountain Railroad consisting of one freight train per day (maximum) or some local switching.

Air Service Plan

Stanfield does not have its own air service within the City; however, there are other airport facilities nearby. Hermiston Municipal Airport is located in Hermiston, approximately 5 miles north of Stanfield, and provides chartered flights. Eastern Oregon Regional Airport is located in Pendleton, approximately 20 miles east of Stanfield, and provides commercial air service. 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.

Pipeline Service

There is a natural gas line which runs from Morrow County to Walla Walla County through the northeast corner of the Stanfield UGB. Cascade Natural Gas provides natural gas to consumers in Stanfield from this nearby pipeline. There are no plans at this time to expand or relocate this pipeline.

Water Transportation

Stanfield has no water transportation services.

TRANSPORTATION SYSTEM PLAN IMPLEMENTATION PROGRAM

Implementation of the Stanfield TSP will require changes to both the city Comprehensive Plan and the zoning code and preparation of a 20-year Capital Improvement Plan (CIP). These actions will enable Stanfield 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 CIP. The purpose of the CIP is to detail what transportation system improvements will be needed as Stanfield 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 TSP 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 Stanfield City Council and those that affect the unincorporated urban area will also require approval by the Umatilla Board of County Commissioners.

20-Year Capital Improvement Program

Table 7-6 summarizes the CIP and provides cost information. The cost estimates for all the projects listed in 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 over the project.

Stanfield has identified a total of 13 projects in its CIP with a cost of $19,705,000.

TABLE 7-6
CAPITAL IMPROVEMENT PROGRAM (1998 Dollars)

Project No.	Location/Description	Costs ($ x 1,000) City	County	State	Private	Total
4.	Construct a multi-use path on the north side of Stage Gulch Ditch between the West Elementary School and Wayne Street.	$91.1				$91.1
3.	Construct a multi-use path along the south side of Sherman Street/ Harding Avenue between West Elementary School and US 395.	$23.9				$23.9
2.	Upgrade Dunne Street to residential collector street standards between US 395 and Harding Avenue.	$1,050.0				$1,050.0
9.	Construct new access to US 395, north of I-84 interchange.	$100.0		$50.0	$100.0	$250.0
10.	Install traffic signal at Dunne Street and US 395.	$100.0		$150.0		$250.0
13.	Construct multi-use paths along US 395 to I-84 interchange.	$255.0				$255.0
6.	Construct new access to US 395 from Mamie Street and realign Canal Road.	$290.0		$100.0	$155.0	$545.0[(1)]
7.	Extend Vantage Blvd. to Stanfield High School.	$385.0				$385.0
5.	Extend the multi-use path along US 395 to the city of Hermiston.	$326.4			$786.2	$1,112.6
11.	Construct new access to US 395 and realign Edwards Road.	$176.0		$50.0		$226.0
12.	Construct network of new city streets and upgrade existing streets in South Stanfield as development occurs.	$5,968.0				$5,968.0
8.	Construct network of new city streets in North Stanfield as development occurs.	$6,930.0				$6,930.0
15.	Repave and pave Hinkle Road from downtown Stanfield to the Hinkle Railyard.[(2)]	$222.2			$2,396.2	$2,618.4
Total		**$15,917.6**	**$0.0**	**$350.0**	**$3,437.4**	**$19,705.0**

Notes: (1) If ODOT does not grant an additional access point along US 395 at Mamie Street, then the second alternative (see Improvement Option 6- Chapter 6) is recommended at a cost of $205,000.

(2) This project was identified and recommended in the US 395 North Corridor Plan.

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. Stanfield's TSP identifies $19.7 million in 13 specific projects over the next 20 years. This section of the TSP provides an overview of Stanfield's revenue outlook and a review of some funding and financing options that may be available to the city of Stanfield to fund the improvements.

Pressures from increasing growth throughout much of Oregon have created an environment of estimated improvements that remain unfunded. Stanfield 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 Stanfield 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. 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			
Revenue Source	**State**	**County**	**City**	**All 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, Mt. 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
Total Resources	**$45,990**	**$49,197**	**$50,000**	**$52,000**
Expenditures				
Materials & Services	$15,396		$150,000	$100,000
Capital Outlay				
Total Expenditures	**$15,396**	**$-**	**$150,000**	**$100,000**

Source: Umatilla County.

Historical Revenues and Expenditures in the City of Stanfield

Revenues and expenditures for the city of Stanfield'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 STANFIELD STREET FUND REVENUES

	1994-1995	1995-1996	1996-1997	1997-1998
Cash on Hand	*$161,757*	*$199,917*	*$190,000*	*$41,000*
Interest	$3,123	$5,328	$1,500	$1,500
State Hwy Fund	$73,077	$75,989	$72,000	$76,000
Small City Grant			$25,000	
Misc. Revenue	$1,166		$10	
	$77,366	$81,317	$98,510	$77,500

Source: The City of Stanfield

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 Stanfield's street fund. The 1997 proposed budget anticipated the benefit of a $25,000 Small City Grant.

TABLE 8-6
CITY OF STANFIELD STREET FUND EXPENDITURES

	1994-1995	1995-1996	1996-1997	1997-1998
Personal Services	$12,855	$20,690	$26,211	$33,519
Materials and Services	$22,427	$32,398	$38,710	$41,883
Equipment	$3,924	$1,911	$7,000	$12,500
Bicycle Path			$7,420	$8,200
Bridge Replacement		$21,940	$50,000	
Street Improvements		$40,822	$150,000	$17,408
	$39,206	$117,761	$279,341	$113,510

Source: City of Stanfield

Over one-half of the street fund expenditures are used for maintenance, with spending disaggregated to the following categories: personal services, materials and equipment, bridge replacement, street improvements, and bicycle path. The largest categories have historically been personal services and materials and equipment, with larger amounts budgeted for street improvements, bridge replacement, and bicycle paths in the 1996-1997 fiscal year. The sum of these capital improvement categories totaled over half of the expenditures in the 1995-1996 fiscal year and are estimated to total nearly three-quarters of all expenditures in the 1996-1997 fiscal year.

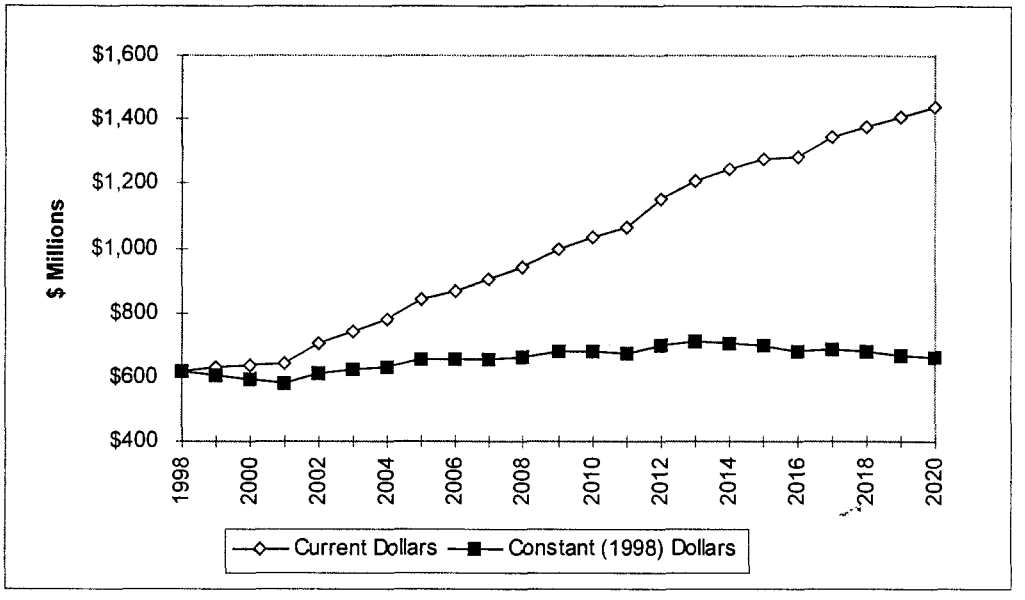
Transportation Revenue Outlook in the City of Stanfield

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; and
- 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, increase to a rate somewhat faster than inflation through year 2015, and continue 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 Stanfield, 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 Stanfield'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; and
- 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 Stanfield for all operations, maintenance, and capital outlay purposes are estimated at approximately $70,000 to $85,000 annually (in current 1998 dollars), as shown in Table 8-7.

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

Year	Total Estimated Resources State from Highway Fund	Estimated Funds Available for Capital Outlay
1999	$72,800	$25,900
2000	$71,200	$25,300
2001	$69,500	$24,700
2002	$73,700	$26,200
2003	$74,700	$26,600
2004	$75,700	$26,900
2005	$79,000	$28,100
2006	$78,300	$27,800
2007	$78,800	$28,000
2008	$79,100	$28,100
2009	$81,400	$29,000
2010	$81,300	$28,900
2011	$81,000	$28,800
2012	$84,100	$29,900
2013	$85,500	$30,400
2014	$84,800	$30,200
2015	$84,100	$29,900
2016	$81,700	$29,100
2017	$82,400	$29,300
2018	$81,400	$29,000
2019	$80,400	$28,600
2020	$79,300	$28,200

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 Stanfield (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 Stanfield will have between $25,000 and $30,000 available annually for capital improvements.

REVENUE SOURCES

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

Property Taxes

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

Property taxes can be levied through: 1) tax base levies, 2) serial levies, and 3) bond levies. The most common method uses tax base levies which do not expire and are allowed to increase by six percent per annum. Serial levies are limited by 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 three percent, with exceptions. Local governments' lost revenue may be replaced only with state income tax, unless voters approve replacement fees or charges. Tax levy approvals in certain elections require 50 percent voter participation.

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

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

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

System Development Charges

System Development Charges (SDCs) are becoming increasingly popular in funding public works infrastructure needed for new local development. Generally, the objective of systems development charges is

to allocate portions of the costs associated with capital improvements upon the developments that increase demand on transportation, sewer or other infrastructure systems.

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

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

State Highway Fund

Gas tax revenues received from the state of Oregon are used by all counties and cities to fund road and road construction and maintenance. In Oregon, the state collects gas taxes, vehicle registration fees, overweight/overheight fines and weight/mile taxes and returns a portion of the revenues to cities and counties through an allocation formula. Like other Oregon cities, the city of Stanfield 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 Stanfield 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 Stanfield and gas purchased in neighboring communities may encourage drivers to seek less expensive fuel elsewhere. Any action will need to be supported by careful analysis to minimize the unintended consequences of such an action.

Vehicle Registration Fees

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

Local Improvement Districts

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

GRANTS AND LOANS

There are a variety of grant and loan programs available, most with specific requirements relating to economic development or specific transportation issues, rather than for the general construction of new streets. Many programs require a match from the local jurisdiction as a condition of approval. Because grant and loan programs are subject to change and statewide competition, they should not be considered a secure long-term funding source. Most of the programs available for transportation projects are funded and administered through ODOT and/or the Oregon Economic Development Department (OEDD). Some programs that may be appropriate for the city of Stanfield 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 begins 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, and 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 Stanfield 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 Stanfield, 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 2000 budget year, ODOT will then identify projects for a four-year funding cycle. In developing this funding program, ODOT must verify that the identified projects comply with the Oregon Transportation Plan (OTP), ODOT Modal Plans, Corridor Plans, local Comprehensive Plans, and TEA-21 planning requirements. The STIP must fulfill 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 Stanfield'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 Stanfield, 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 Stanfield'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 Stanfield. 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 a 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

Stanfield'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 13 projects, totaling an estimated $19.7 million. Eight of the

projects required the City to take the financial lead. An additional five projects will require the City's collaboration with other public and private entities. A final project has been identified as eligible for 100 percent county funding.

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

TABLE 8-8
RECOMMENDED PROJECTS AND FINANCIAL RESPONSIBILITY

Project No.	Location/Description	Costs ($ x 1,000) City	County	State	Private	Total
4.	Construct a multi-use path on the north side of Stage Gulch Ditch between the West Elementary School and Wayne Street.	$91.1				$91.1
3.	Construct a multi-use path along the south side of Sherman Street/ Harding Avenue between West Elementary School and US 395.	$23.9				$23.9
2.	Upgrade Dunne Street to residential collector street standards between US 395 and Harding Avenue.	$1,050.0				$1,050.0
9.	Construct new access to US 395, north of I-84 interchange.	$100.0		$50.0	$100.0	$250.0
10.	Install traffic signal at Dunne Street and US 395.	$100.0		$150.0		$250.0
13.	Construct multi-use paths along US 395 to I-84 interchange.	$255.0				$255.0
6.	Construct new access to US 395 from Mamie Street and realign Canal Road.	$290.0		$100.0	$155.0	$545.0[(1)]
7.	Extend Vantage Blvd. to Stanfield High School.	$385.0				$385.0
5.	Extend the multi-use path along US 395 to the city of Hermiston.	$326.4			$786.2	$1,112.6
11.	Construct new access to US 395 and realign Edwards Road.	$176.0		$50.0		$226.0
12.	Construct network of new city streets and upgrade existing streets in South Stanfield as development occurs.	$5,968.0				$5,968.0
8.	Construct network of new city streets in North Stanfield as development occurs.	$6,930.0				$6,930.0
15.	Repave and pave Hinkle Road from downtown Stanfield to the Hinkle Railyard.[(2)]	$222.2			$2,396.2	$2,618.4
Total		**$15,917.6**	**$0.0**	**$350.0**	**$3,437.4**	**$19,705.0**

Over three-quarters of the total estimated costs of the recommended improvements are attributable to the upgrade of Dunne Street to collector street standards and to the construction of new city streets in the northern and southern sectors of the City, as development occurs in these areas. As such, the portion of the cost of upgrading Dunne Street and the street and intersection improvements related to future development in north and south Stanfield, would be eligible for SDC funding. As discussed earlier in this chapter, a key legislative link for SDCs is to tie the fees to the development charged. By establishing a portion of these costs to be borne by the developments causing the need for the improvements, the city of Stanfield will be essentially having development pay a portion of its own way.

Based on current revenue sources for the city of Stanfield and the improvements identified in this Transportation System Plan, the City would face a funding deficit of over $15,272,000, as shown in Table 8-9.

TABLE 8-9
ESTIMATED CAPITAL FUNDING BALANCE

	Amount
Capital Available from Existing Revenue Sources	$ 645,300
Capital Needed to Fund Projects Identified as City-Funded Projects	$15,917,600
Surplus (Deficit)	($ 15,272,300)

The city of Stanfield is expected to be able to fund projects of up to approximately $645,000 over the 20-year planning horizon. Given the existing cost estimates, the resources available as estimated in Table 8-6, and financial partners currently identified, Stanfield is expected to experience a funding deficit over the 20-year planning period. Some of the projects may be eligible for alternative funding sources. For example, the upgrade of Dunne Street and the street and intersection improvements in south Stanfield may be eligible for SDC funding, as the need for the improvements is driven by development in the area. In addition, the multi-use paths may be eligible for bike and pedestrian grant funding, as they serve to enhance the pedestrian network. 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.

APPENDIX A

Stanfield Plans

STANFIELD COMPREHENSIVE PLAN

The Stanfield Comprehensive Plan was adopted in 1983. The Plan was created through a joint effort of the Stanfield Comprehensive Plan Advisory Committee and the City's Planning Consultant.

The Plan contains 14 goals with associated policies to guide the future growth and development of the City. Four of these goals directly impact the transportation system.

Goal G: Floodplain Management

Applicable Policies

2(a) Plan for the replacement of the Dunne, Sherman and Umatilla St. Bridges.

2(b) Negotiate with the UPRR to obtain a wider opening for Stage Gulch and several culvert drains through the mainline embankment.

2(c) Require that all bridge replacements must be designed to accommodate 100-year flood flows.

2(g) Negotiate with County to remove Old Hinkle Road bridge abutments and to build a new Sherman St. bridge to accommodate Hinkle Road traffic.

Goal J: Economic Development

Applicable Policies

a. Cooperate with the Union Pacific Railroad, City of Hermiston, Umatilla County, Port of Umatilla and Department of Economic Development to develop an overall development scheme for the Hinkle-Feedville area.

d. Central Business District: ensure that new developments are designed for pedestrian orientation and with convenient pedestrian linkage to the rest of the downtown area.

Goal K: Public Facilities and Services

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

Applicable Policies

c. Public Facilities Funding and Development

- Require project developers to make necessary road, water, sewer, and other improvements within a project sites as a condition of project approval.

- Require a project developer to pay for, on a fair-share basis, the cost of improving and extending water and sewer mains and streets to the project site.

Goal L: Transportation

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

Applicable Policies

1. To encourage industry to locate in areas which are or can be served by the railroad.

2. To support the development of the I-82 Highway between the Columbia River at McNary and the I-84 Highway.

3. To work with Umatilla County to develop joint policies concerning local roads and streets within the urban growth boundary.

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

5. To work with the Oregon Department of Transportation to minimize conflicts between through and local traffic on US Highway 395 to reduce traffic hazards and expedite the flow of traffic.

6. To limit access to and from US Highway 395 north of Harding Avenue and south of Ball Avenue and require the provision of streets parallel to the highway to serve those areas as development occurs.

7. To support improvement of US Highway 395 to four traffic lanes between the Stanfield interchange and Hermiston

8. To develop a Master Street Plan.

9. To require street improvements and construction as part of project approval in the same manner as water and sewage extensions and improvements.

10. To develop and implement a bikeway and pedestrian path master plan, linking all residential areas of the city and UGB with schools, parks, shopping and employment areas.

11. To require sidewalks on all new or upgraded streets.

12. To require all new parcels to have frontage on and access to a dedicated public street, except in the farm-residential area, where easements or flag lots may be allowed, and in the case of cluster or innovative housing projects.

13. To work with the Union Pacific Railroad to develop an alternative road access into the Hinkle Railyard and Railroad industrial land within the UGB. Such access will be necessary to accommodate development in these areas and may either be privately-controlled or public, at the discretion of the railroad.

Technical Report Update

The Technical Report was updated in 1984. It contains findings regarding the fourteen state goals. It also lists vacant buildable lands.

Important findings in the Technical Report include:

- Stanfield is just north of the crossroads of the I-84 freeway and US 395. US 395 major north-south route through the eastern parts of California, Oregon, and Washington. The highway runs through the middle of downtown (as Main Street) providing direct links to Hermiston, 6 miles away, and Pendleton, 22 miles away.

- A bypass alternative to 395 has been considered since the 1970's. The Comprehensive Plan shows both the Highway and the potential bypass on the Plan Map.

- I-82 is located seven miles west of the town starting at I-84 the freeway heads north crossing the Columbia River and connecting to Tri-Cities, Yakima, and Seattle as a major regional northwest-southeast link. Most traffic on 395, however, comes from the east and will not continue past Stanfield to connect with I-82.

- Edwards Road, runs along the eastern urban growth boundary and serves a major north-south route for farm traffic between the freeway and the Diagonal Road area east of Hermiston. Edwards has high volumes of heavy truck traffic using the road as bypass around Hermiston.

- Other important roads connecting Stanfield with the surrounding agricultural districts include: Umatilla Meadows Road, Stage Gulch Road, Canal Road, and Stanfield-Echo Road (connecting south to Echo).

- Railroad and agriculture are key industries for Stanfield with Hinkle-Feedville nearby.

- The Port of Umatilla 10 miles north of Stanfield.

- Airport facilities are nearby in Hermiston and Pendleton.

- Nearly all of the original town of Stanfield is within the 100-year floodplain of Stage Gulch. The resulting flooding problems has placed restriction on development in north-central area of Stanfield.

A buildable lands inventory showed that there were 72 vacant residential lots, and 19 vacant commercial sites within the City. It also showed a total of 830 buildable acres outside of the 100-year floodplain and another 131 buildable acres within the floodplain.

Stanfield Zoning Ordinance

The Stanfield Zoning Ordinance was adopted in 1984. The Ordinance is broken in to 22 Articles. Article 12 highly impacts the transportation system. It contains requirements on streets, sidewalks, utilities, clear vision areas, irrigation ditches, access and driveways.

The Article states that any improvements to streets must be in accordance with subdivision standards listed in the City of Stanfield Subdivsion Ordinance and Section 12.10.

Standards governing street access are listed in the Ordinance under Article 12.68. Access to arterials and collector streets is minimized. Access to Highway 395 is restricted to the areas north of Harding Avenue and south of Ball Avenue via dedicated public streets, except for the existing direct access to developed property north of Stanfield High School. Frontage roads are required for developments on parcels of contiguous ownership exceeding five acres in size which font on an arterial street. Also, direct access is not generally allowed onto an arterial street where access is allowed. Direct access is allowed onto collector streets, but all new housing developments, shopping centers and the like must use grouped access, and new subdivisions shall be designed so that no lots front on a collector street.

The number and location of access points is regulated. Properties with less than 100 feet of frontage are limited to two access lanes per frontage which may be together or separate and properties exceeding 100 feet of frontage are limited to two access lanes per each 100 feet of frontage. Double frontage properties may be restricted to access on the street of lower classification through site plan review. Joint access in the form of common driveways is encouraged.

Stanfield Subdivision Ordinance

The City of Stanfield Subdivision Ordinance was adopted in 1984. 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.

Subdivisions are required to provide frontage on and access from an existing street. Street 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.

TRAFFIC IMPACT ANALYSIS REPORT DC 37 COOK SITE (WAL-MART DISTRIBUTION CENTER)

The Traffic Impact Analysis for the Wal-Mart Distribution Center was prepared by John Chambers, PD, at Bovay Northwest, Inc. in October 1994, and revised in August 1995. The project includes a distribution center with approximately 1.2 million square feet of floor area and paved parking ,receiving and shipping areas. Traffic generated is estimated at about 700 trucks per day and about 300 passenger vehicles per day.

The center is located on 220 acres in rural Umatilla County, approximately 1 1/2 miles north of Stanfield, and 2 miles south of Hermiston. The purpose of the study was to assess the traffic impact of the proposed development on the nearby street system and to recommend any required mitigative measures. Primary roadways impacted by the development include: Feedville Road, US 395, US 730, I-82, and I-84.

Conclusions and recommendations developed in the study are as follows:

- The following improvements and upgrades should be made to the existing roads and intersections: truck access intersection improvements to US 395 and Feedville Road, and upgrade improvements to Feedville Road including widening the roadway and adding paved shoulders.
- No improvements are required to the I-84/US-395 interchange.
- No improvements are required to US-395 through Stanfield for volume capacity and/or structural performance.
- The total construction costs for the improvements is estimated to be $550,500. Partial funding for the improvements is from the Oregon Department of Economic Development and ODOT.
- Acceptable levels of service at the study intersections are expected for each phase of the proposed development, and no mitigations are recommended.
- Since one of the three traffic signal warrants studied was only marginally satisfied and operation of the intersection is expected to be acceptable, no traffic signals are recommended. After build-out of the proposed development, the study intersections should be evaluated for operational performance and safety. If unforeseen growth occurs in the area or if trip generation is higher than expected, mitigation may be warranted.
- Accident analysis shows that the intersections are operating safely, and no safety mitigations are proposed.
- Traffic projections to US 395, including project-generated truck and passenger vehicle traffic, was estimated to the year 2014. The projected volumes generated were well below lane capacity. For northbound lanes, traffic was projected to be up to 1,120 vehicles per hour (vph) with a lane capacity of 2,000 vph. Average daily traffic projections for the southbound lanes was up to 1,070 vph with a lane capacity of 2,000 vph.

APPENDIX B

1997 Major Street Inventories

1997 MAJOR STREETS INVENTORY

Stanfield 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 Highway 395 (Main Street)														
(Umatilla-Stanfield Hwy)														
Edwards Rd. junction to Ball Avenue	State	District	30	70	4	No	7	Both	Paved	No	No	No	No	Good
Ball Avenue to Tuttle Avenue	State	District	30	63	5	No	No	NA	NA	No	Both sides	East side	No	Good
Tuttle Avenue to Taft Avenue	State	District	30	63	5	No	No	NA	NA	No	Both sides	Both Sides	No	Good
Taft Avenue to Wood Avenue	State	District	30	78	5	No	No	NA	NA	Both sides	Both sides	Both Sides	No	Good
Wood Avenue to Harding Avenue	State	District	30	58	5	No	No	NA	NA	No	Both sides	Both Sides	No	Good
Harding Avenue to US Feed Canal Bridge	State	District	30	75	5	No	No	NA	NA	No	West side	West side	West side[1]	Good
US Feed Canal Bridge to E. Locust Street	State	District	30	75	5	No	No	NA	NA	No	West side	West side	West side[2]	Good
E. Locust Street to Stanfield High School	State	District	45	75	5	No	> 6	Both	Paved	No	West side	West side	West side[2]	Good
Collectors														
County Road No. 1332 (Seymour Street)														
West UGB limits to Sherman Street	County	NA	25	22	2	No	No	NA	NA	No	No	No	No	Fair
Coe Avenue														
Sherman Street to Main Street	City	NA	25	60	2	No	No	NA	NA	No	Yes	Both Sides	No	Poor
Main Street to E UGB Limits	City	NA	25	60	2	No	No	NA	NA	No	Some	Partial/ Both Sides	No	Poor
Harding Avenue														
Willow Drive to Main Street	City	NA	25	22	2	No	No	NA	NA	No	No	No	No	Fair
Main Street to E UGB Limits	City	NA	25	21	2	No	No	NA	NA	No	No	No	No	Fair
Sherman Street														
Coe Road to Hinkle Road	City	NA	25	26	2	No	5	East	Yes	No	No	shoulder walkway	No	Fair
Hinkle Road to Willow Drive	City	NA	25	26	2	No	No	NA	NA	No	No	No	No	Fair
Edwards Road														
South city limit to north city limit	County	NA	45	24	2	No	No	NA	NA	No	No	No	No	Fair

Notes:

1. Bikeway consists of a 9.5-foot sidewalk signed bike route on the west side of the highway.
2. Bikeway consists of an 8-foot asphalt multi-use path on the west side of the highway.

* 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.