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**REPORT
TRANSPORTATION SYSTEM PLAN**



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CHAPTER 1: INTRODUCTION

The Grant County 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 TSP constitutes the transportation element of the Grant County's Comprehensive Plan and is intended to satisfy the requirements of the Oregon Transportation Planning Rule (TPR). Nothing in this Plan can be construed to be an obligation or commitment of funds on the part of the County, or an obligation or commitment to undertake the Potential Transportation Improvements described in Chapter 6.

PLANNING AREA

The TSP planning area includes all areas inside Grant County, public and private. A large foldout map displaying the Grant County planning area is located in Appendix A. The map also shows state highways as well as county and United States Forest Service (USFS) roads. Roadways included in the TSP may fall under multiple jurisdictions: one of nine incorporated cities, Grant County, the State of Oregon, and the federal government.

Grant County is supported by a combination of resource-based industries, agriculture, and a growing tourist trade. Roughly 62 percent of the county is designated as National Forest land.

Traffic in Grant County is handled mainly by two US highways: Highway 26 and Highway 395. These highways are used predominantly by through traffic traveling across the state. Local traffic volumes are higher in the urban areas of cities. Highway 26 is aligned in an east-west fashion through the center of the county, providing access to the larger cities of Prineville, Madras, and Bend (via Highway 97) to the west and the cities of Baker City (via Highway 7) and Ontario to the east. Highway 395 is oriented in a north-south fashion also through the center of the county, providing access to Pendleton to the north and Burns and Hines to the south. These two highways intersect each other, tying together the cities of Dayville, Mt. Vernon, John Day, Prairie City, Dale, Long Creek, Fox, Canyon City, and Seneca. On a local level, these highways serve as the principal corridors along which each of these cities is situated.

The Kimberly-Long Creek Highway (Highway 402) is a relatively short highway that begins and ends in Grant County. This highway connects the town of Kimberly with the cities of Monument, Hamilton, and Long Creek. It runs between Highways 19 and 395.

Portions of two other state highways are also present in Grant County. A section of Highway 19, roughly 19 miles in length, is located along the western border of the county line, which provides access to the town of Kimberly, Highway 207 to the northwest (Spray to Heppner), and Highway 26 to the south. Highway 7 is another highway which deviates from Highway 26 in the northeast direction towards Baker City in the eastern part of the county, providing the shortest connection to I-84.

In addition to the state highways, a network of county roads runs throughout the study area. County roads serve many purposes. They provide access to residences in rural areas around the incorporated cities. They also serve other smaller rural communities. County roads often connect to agricultural areas, recreational areas, and national forests.

Many of the county roads connect with the state highway system while others connect with city streets. Connections to the highways are generally located in the rural areas, although some direct connections are made within the city urban areas. The county roads in the John Day River valley are relatively short roads while longer and more extensive county roads serve other parts of the county.

Some county roads provide alternate routes to state highways, allowing shorter, and more direct travel between some communities. County Road #63 from Highway 395 west to Highway 380 provides a parallel route to both Highway 26 and 20.

Public usage roads and USFS roads also play a role in Grant County. They generally provide access to the Malheur, Umatilla, and Ochoco National Forests and other public lands.

PLANNING PROCESS

The Grant County TSP was prepared as part of an overall project in the county that involved preparing individual plans for Grant County as well as the 8 communities of Dayville, Long Creek, Monument, Mt. Vernon, Prairie City, Seneca, and John Day/Canyon City.¹ Each plan was developed through a series of technical analyses combined with systematic input and review by county officials, the Local Working Group, the TAC, ODOT, and the public. Key elements of the process include:

- Involving the Grant County community (Chapter 1)
- Defining goals and objectives (Chapter 2)
- Reviewing existing plans and transportation conditions (Chapters 3, 4 and Appendices A, B, C)
- Developing population, employment and travel forecasts (Chapter 5 and Appendices D, E)
- Developing and evaluating potential transportation system improvements (Chapter 6)
- Developing the TSP (Chapter 7)
- Developing a capital improvement program (Chapter 8)
- Developing Recommended Policies and Ordinances (Chapter 9)

To simplify references to the two regional highways (7 and 19) and one district highway (Kimberly-Long Creek Highway), a summary of the analysis for each highway is contained in Appendices F through H.

Community Involvement

Community involvement was an important part of developing the Grant County TSP. Interaction with the community was achieved with several different techniques including, local working groups, a transportation advisory committee, stakeholder interviews, and newspaper articles.

Because the overall project involved seven different jurisdictions, a local working group was formed for each community. The local working group functioned as a citizen advisory committee, providing local knowledge, guidance to the consultant team, and review of work products. Two meetings were held during the plan development process. The first meeting was held to discuss transportation issues and concerns to serve as the basis for identifying and evaluating improvement alternatives for the community. The second meeting was held to review the draft TSP.

In addition to the local working groups, a Transportation Advisory Committee (TAC) was formed for the overall project. The TAC consisted of citizens and representatives from each city, Grant County and the Oregon Department of Transportation (ODOT). The purpose of the TAC meetings was to disseminate general information about the planning process and to share information about the needs in each community and the county. Three TAC meetings were held during the planning process.

¹ Granite is an incorporated community, but is not eligible for an ODOT-related grant for preparing a TSP as it is not located on the state highway system.

Goals and Objectives

Using input from the County, the TAC, and the community, 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, applicable Grant County transportation and land use plans and policies were reviewed and an inventory of public facilities was conducted. The purpose of these efforts was to understand the history of transportation planning in the Grant County area, including the roadway system improvements planned and implemented in the past, and how the county is currently managing its ongoing development. Existing plans and policies are described in Appendix A of this report.

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

Future Transportation System Demands

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

Transportation System Potential Improvements

Once the travel forecasts were developed, it was possible to evaluate a series of potential transportation system improvements. The initial evaluation was the "No Build" option, which is the existing roadway system plus any currently committed roadway system improvements. Then, transportation demand management measures and potential transportation improvements were developed and analyzed as part of the transportation system analysis. 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, several transportation system improvements were selected. These recommended improvements are described in Chapter 6.

Transportation System Plan

The TSP addresses each mode of transportation and provides an overall implementation program. The roadway system plan was developed from the forecasting and potential improvements evaluation described above. The bicycle and pedestrian plans were developed based on current usage, land use patterns, and the requirements set forth by the TPR. The public transportation, air, waterborne, 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

Grant County will need to work with each of the 8 cities and ODOT to finance new transportation projects over the 20-year planning period. An overview of funding sources that might be available to the community is provided in Chapter 8. This synopsis includes current and potential revenue sources as well as debt financing options.

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 TPR.

RELATED DOCUMENTS

The Grant County TSP addresses the regional and rural transportation needs in the county. There are several other documents which address specific transportation elements or areas in Grant County.

Small City Transportation System Plans

Seven small city TSPs (John Day/Canyon City prepared a shared TSP) have been prepared for communities in Grant County. These documents include:

- Dayville TSP
- John Day/Canyon City TSP
- Long Creek TSP
- Monument TSP
- Mt. Vernon TSP
- Prairie City TSP
- Seneca TSP

The city TSPs address the needs of the community within each Urban Growth Boundary (UGB). They provide street standards, access management standards, and modal plans. In some cases, a project may be identified in a city TSP which then needs to be addressed in the Grant County TSP as well. These projects include:

- A multi-use path along the John Day River Greenbelt that would begin in the City of Mt. Vernon and extend eastward to connect with Clyde Holiday State Park. (Mt. Vernon TSP)
- An extension of West Bench Road (County Road #74) through from its present terminus at Screech Alley (County Road #47B) to Highway 26/395. (John Day/Canyon City TSP)
- An extension of Marysville Road (just east of Canyon City) northward to connect with Highway 26 (just east of John Day) which would provide alternate highway access for development on the east ridge of Canyon City. (John Day/Canyon City TSP)

Corridor Strategies

Two major highway corridors pass through Grant County: Highway 26 and Highway 395. ODOT has prepared corridor strategies for both highways. A final draft of the *U.S. Highway 395 Corridor Strategy - Pendleton to California* was prepared in the summer of 1997. An internal review draft of the *U.S. Highway 26 Corridor Strategy - Sisters to Ontario* has been prepared but not yet released to the public.

Strategy Objectives from the draft Highway 395 document which may pertain to Grant County include:

Objective A7 - Air to Surface Transportation Connectivity - specifically alternative access to John Day State Airport

Objective A8 - Bicycle/Pedestrian Facilities - specifically sidewalks on both sides of Highway 395 in Mt. Vernon and safe and convenient crossing in Mt. Vernon and John Day

Objective B2 - Transportation Disadvantaged Services - specifically responding to the needs of the transportation disadvantaged

Objective C1 - Highway Level of Service - specifically alternative routes to preserve level of service and safety

Objective C2 - Geometric and Capacity Improvements - specifically the need for new passing lanes and evaluation of the Starr Ridge bypass

Objective C4 - Roadway Conditions - specifically partnering with local jurisdictions to share maintenance responsibilities

Objective D2 - Excessive Speeding - specifically speed limit reductions and enforcement issues

Objective E1 - Scenic Resources - specifically scenic turnouts and byways

Objective F2 - Transportation Planning - specifically consistency between local plans and corridor plans

Strategy Objectives from the preliminary Highway 26 document which may pertain to Grant County include:

Objective RC1 - New passing lanes between Picture Gorge and Dayville, and Austin Junction and Unity

Objective HC1 - Capacity Improvements - specifically operational improvements at highway junction in John Day, truck route through John Day, and land use ordinances to preserve level of service on state highways

Objective S2 - Rock fall in Picture Gorge and pavement improvements

Objective S3 - Picture Gorge bypass

Objective SL2 - Land use zoning to protect airports

Objective EG1 - Telecommunications in the corridor

Other State Plans

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

- Oregon Transportation Plan
- Oregon Highway Plan
- Oregon Bicycle and Pedestrian Plan

CHAPTER 2: GOALS AND OBJECTIVES

The purpose of the TSP is to provide a guide for Grant County to meet its transportation goals and objectives. The following goals and objectives were developed from information supplied by the Transportation Advisory Committee, the Local Working Group, city staff, and public response. Throughout the planning process, each element of the plan was evaluated against these parameters.

An overall goal was developed, then more specific goals and objectives were formulated. The goals and objectives are listed below. These goals and objectives are addressed in the following plan chapters.

OVERALL TRANSPORTATION GOAL: Develop a transportation system that enhances the livability of Grant County and accommodates growth and development through careful planning and management of existing and future transportation facilities.

GOAL 1: Preserve the function, capacity, level of service, and safety of the state transportation systems.

Objectives:

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

GOAL 2: Improve and enhance safety and traffic circulation on the local roadway system.

Objectives:

- A. Improve and maintain existing roadways to preserve the capacity, level of service, and safety of the existing transportation system.
- B. Develop an efficient road network both within and outside of urban areas.
- C. Identify truck routes to reduce truck traffic in urban areas.
- D. Examine the need for speed reduction in specific areas.
- E. Identify local problem spots and recommend solutions.
- F. Ensure planning coordination between the county, the incorporated cities, the state, and the federal government.

GOAL 3: Identify roadway system needs to accommodate developing or undeveloped areas without undermining the rural nature of the local community.

Objectives:

- A. Adopt policies and standards that address street connectivity, spacing, and access management.
- B. Integrate new arterials and collectors into the existing grid system.
- C. Improve access into and out of Grant County for goods and services.
- D. Improve the access onto and off arterial roadways.

GOAL 4: Increase the use of alternative modes of transportation through improved access, safety, and service.

Objectives:

- A. Provide sidewalks and safe crossings on urban arterial and collector streets.
- B. Provide shoulders on rural collector and arterial streets.
- C. Provide appropriate bikeways where high use occurs or may occur.
- D. Promote alternative modes and carpool programs through community awareness and education.
- E. Plan for future transit service expansion by sustaining funding to local transit efforts and seeking consistent state support.
- F. Protect public use airports from land use encroachment.

CHAPTER 3: TRANSPORTATION SYSTEM INVENTORY

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

ROADWAY SYSTEM

Transportation in the United States is dominated by cars 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. As a result, the basis of transportation in all American cities is the roadway system, and most transportation dollars are devoted to building, maintaining or planning roads to carry automobiles and trucks.

This trend is clearly seen in the existing Grant County transportation system, which relies almost entirely on roadway facilities for cars and trucks. The roadway system will most likely continue to be the basis of the transportation system for at least the 20-year planning period; however, encouraging the use of cars and trucks must be balanced against other factors. The increasing cost of constructing new roadway facilities, livability factors, the ability to accommodate other modes of transportation, and negative impacts on adjacent land uses should also be considered.

Inventory

An inventory was performed of the existing Grant County roadway system. This inventory included a limited description of all highways and county roads in the county. A more detailed street inventory was performed in the urban areas of the cities in the Grant County. These inventories can be found in the separate TSP reports prepared for each city.

The inventory of all highways in the county addressed road characteristics such as posted speed limits, number of travel lanes, shoulder type, terrain conditions, general pavement conditions, and the average percentage of no-passing zones. Information on each highway was collected using video logs produced by ODOT. The inventory broke each highway into rural and urban sections. Rural highway sections are between all cities in the county with the urban sections inside each city. This was done because the highway features are different in each area.

The inventory of all county roads consisted of a street classification system and a description of road conditions. This was done using information collected from the Grant County Road Department.

Appendix C lists the complete inventory for both types of roadways. Refer to Appendix A for an oversized map showing all of the county roads and the numbering system.

State Highways

Discussion of the Grant County roadway system must include all state highways that traverse the planning area. Although the county has no direct control over these highways, adjacent development as well as traffic patterns are heavily influenced by these highways. Grant County is served by five highways: US Highway 26, US Highway 395, OR Highway 19, OR Highway 7, and the Kimberly-Long Creek Highway (Highway 402).

General Highway Layout

Two highways form the backbone of the roadway system in Grant County: Highway 26 and Highway 395. Highway 26 is the most heavily traveled highway and serves as the primary east-west route through the county. This highway is located in the John Day River valley and follows the river across most of the county. The terrain is relatively flat. However, at some locations the river meanders creating some moderate horizontal curves in the highway's alignment. East of Prairie City Highway 26 begins to gain elevation (Dixie Summit elevation 5,277 feet) as it heads toward the Wallowa-Whitman National Forest in Baker County.

Highway 395 is the second most heavily traveled highway and serves as the primary north-south route through the county. This highway passes through several mountainous regions of the Umatilla and Malheur National Forests and through the valleys and canyons created by the John Day River, Canyon Creek, and other tributaries near the cities of Mt. Vernon, John Day, and Canyon City. There are several mountain summits near Highway 395 which create some very steep grades along this highway. These include the Ritter Butte Summit, the Long Creek Mountain Summit, the Beach Creek Summit, and the Starr Ridge Summit. The sharp vertical and horizontal curves in some of these areas create potentially hazardous conditions, especially in the winter when conditions become icy.

Highway 19 splits off from Highway 26 to the north towards Kimberly following the John Day River through areas of the John Day Fossil Beds National Park.

Highway 7 splits off from Highway 26 towards Baker City over mountainous terrain.

The Kimberly-Long Creek Highway (402), between Long Creek and Monument, descends into the North Fork of the John Day River canyon with sharp curves and steep slopes along some sections of the highway. Continuing west from Monument to Kimberly, the highway is generally flat.

Oregon Highway Plan

The 1991 Oregon Highway Plan (OHP) classifies the state highway system into four levels of importance (LOI): Interstate, Statewide, Regional, and District. ODOT has established primary and secondary functions for each type of highway and objectives for managing the operations for each one. Highways 26 and 395 though Grant County are classified as highways of statewide importance. Highways 19 and 7 are classified as highways of regional importance with the Kimberly-Long Creek Highway classified as a highway of district importance.

According to the OHP, the primary function of a statewide highway, such as Highway 395 and 26, is to "provide connections and links to larger urban areas, ports, and major recreation areas that are not directly served by interstate highways." A secondary function is "to provide links and connections for intra-urban and intra-regional trips." The overall emphasis is to provide safe and efficient high-speed through travel in rural areas, and high- to moderate-speed operations in urban or urbanizing areas, with minimal interruptions in mainstream traffic flow. This means that design and system management factors such as controlling access and providing passing lanes are of primary importance along Highway 395 and 26.

The primary function of a Regional highway, such as Highways 7 and 19, according to the OHP, is "to provide connections and links to areas within regions of the state, between small urbanized areas and larger population centers, and to higher level facilities." A secondary function is to serve land uses within the vicinity of these highways. The overall emphasis for this type of highway is to provide safe and efficient high speed through travel in rural areas, and moderate to low speeds in urban or urbanizing areas with moderate interruptions in mainstream traffic flow.

According to the OHP, the primary function of a district highway, such as the Kimberly-Long Creek Highway (402), is to "serve local traffic and land access." The overall emphasis is to provide for safe and efficient moderate- to high-speed

through travel and moderate- to low-speed operations in urban and urbanizing areas, with moderate to high level of interruptions in mainstream traffic flow.

Recently, two Oregon highways in Grant County were included in the National Highway System (NHS). Highway 26 was included in the NHS because of its statewide importance. Highway 395 was added as a congressional high priority route in the NHS. This is a new national classification system to identify highways of significant importance.

Physical Description

In the rural areas of the county, all five highways are two-lane facilities, with average unpaved shoulder widths of around four feet, and posted speed limits of 55 mph. Lower speed limits are posted in areas where potentially hazardous conditions may exist due to steep grades, road curvature, and icy conditions. Inside the urban areas of incorporated cities and service centers, each highway typically remains a two-lane facility, but with lower speed limits. In some cities, sidewalks border the highway. Land along the rural sections of these highways are primarily zoned for agricultural, farming, and forestry uses with numerous county and forest service roads accessing the highways. In the urban centers of the eight incorporated cities, development is more dense with other land uses bordering the highways such as light industrial, commercial, public, and residential.

Pavement conditions along the five highways vary in both the rural and urban areas. Approximately 43 percent of the highway have pavement in *Good* or *Very Good* condition while 13 percent have pavement in *Fair* condition. Another 38 percent have pavement in *Poor* condition. Much of the *Poor* condition pavement lies along Highways 26, 402, 19, and 395. Both Highway 26 and 395 are designated as statewide highways and are part of the NHS. The remaining 6 percent were not rated in either 1994 or 1995. However, even some sections rated as very good pavement conditions, have long-load restrictions tied to narrow pavement and sharp curves (Highway 19 and 402).

**TABLE 3-1
STATE HIGHWAY PAVEMENT CONDITIONS**

| Highway | Milepost | Section Description | Pavement Condition |
|-------------|----------------------------------------------|----------------------------------------------------------------------|--------------------|
| 26 | 124.15-154.00 | Highway 19/26 Junction to Highway 395/26 Junction at Mt. Vernon | Poor |
| | 154.00-162.32 | Mt. Vernon to John Day | Fair |
| | 163.32-175.00 | John Day to Prairie City | Good |
| | 175.00-190.50 | Prairie City to Highway 7/26 Junction | Very Good |
| | 190.50-210.60 | Highway 7/26 Junction to Grant/Baker County Line | Poor |
| 395 | 63.96-66.61 | Umatilla/Grant County Line to Bully Creek | Poor |
| | 66.61-77.80 | Bully Creek to Middle Fork of John Day River | Good |
| | 77.80-90.26 | Middle Fork of John Day River to Highway 402 Junction | Fair |
| | 90.26-90.77 | Highway 402 Junction to Long Creek South City Limits | Very Good |
| | 90.77-97.18 | Long Creek South City Limits to Jack Vaughn Road | Good |
| | 98.30-114.90 | Jack Vaughn Road to Gibson Gulch | Unrated |
| | 115.32-120.51 | Gibson Gulch to Highway 26/395 Junction in Mt. Vernon | Fair |
| | 0-2.36 | Highway 26/395 Junction in John Day to Canyon City South City Limits | Good |
| | 2.35-15.60 | Canyon City South City Limits to Starr Ridge | Poor |
| | 15.60-32.30 | Starr Ridge to Cottonwood Creek | Good |
| 32.30-40.38 | Cottonwood Creek to Grant/Harney County Line | Very Good | |
| 7 | 0-2.10 | Highway 7/26 Junction to Austin | Fair |
| | 2.10-7.56 | Austin to Grant/Baker County Line | Good |
| 19 | 104.73-106.84 | Wheeler/Grant County Line to Park Boundary | Fair |
| | 106.84-108.02 | Park Boundary to Holmes Creek * | Very Good |
| | 108.14-110.13 | Holmes Creek to Bone Creek | Fair |
| | 110.14-119.60 | Bone Creek to John Day River | Poor |
| | 119.60-124.15 | John Day River to Highway 19/26 Junction | Fair |
| 402 | 0-13.93 | Highway 19/402 Junction to North Fork of John Day River ** | Good |
| | 13.93-34.88 | North Fork of John Day River to Highway 395/402 Junction | Poor |

Source: Oregon Department of Transportation - 1995 Pavement Conditions Statewide.

* Long-load restrictions and narrow pavements

** Narrow pavement

Bridges

The state has 116 bridges located on state highways in both rural and urban Grant County. Table 3.2 summarizes the bridge inventory data as of May, 1997. In addition to the total number of bridges on each state highway, three mutually exclusive ratings from the inventory data² are also summarized in the table:

Structurally deficient bridges have major physical problems which warrant replacement of the structure. Structural deficiency is determined based on the condition rating for the deck, superstructure, substructure, or culvert and retaining walls. It may also be based on the appraisal rating of the structural condition or waterway adequacy.

²The description of structural deficiency, functional obsolescence, and sufficiency ratings are based on the *Oregon Coding Guide for the Inventory and Appraisal of Oregon Bridges* by the Oregon Department of Transportation Bridge Section in May, 1994.

- *Functionally obsolete* bridges cannot adequately service the demand place upon them. For example, they may be too narrow or unable to accommodate heavy loads. This element is determined based on the appraisal rating for the deck geometry, underclearances, approach roadway alignment, structural condition, or waterway adequacy.
- *Bridges which have a sufficiency rating of 55 or less* may be nearing a structurally deficient condition. 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.

**TABLE 3-2
STATE HIGHWAY BRIDGE INVENTORY SUMMARY**

| Highway | Number of Bridges | | | |
|--------------|-------------------|------------------------|-----------------------|-------------------------|
| | Total | Structurally Deficient | Functionally Obsolete | Sufficiency Rating < 55 |
| 26 | 47 | 1 | 2 | 3 |
| 395 | 44 | 0 | 2 | 1 |
| 7 | 3 | 0 | 0 | 0 |
| 19 | 14 | 0 | 0 | 0 |
| 402 | 8 | 0 | 0 | 0 |
| Total | 116 | 1 | 4 | 4 |

Source: Oregon Department of Transportation.

Functionally obsolete bridges include:

- Highway 26 over the John Day River (milepost 155.75) east of Mt. Vernon
- Highway 26 over Canyon Creek (milepost 162.08) in John Day
- Highway 395 over the Middle Fork of the John Day River (milepost 77.38) north of Long Creek
- Highway 395 over a private road (milepost 4.3) south of Canyon City (Muller Mountain Road)

The bridges with sufficiency ratings below 55 include:

- Highway 26 over Indian Creek (milepost 170.49) west of Prairie City
- Highway 26 over the John Day River (milepost 170.62) west of Prairie City
- Highway 395 over a private road (milepost 4.81) south of Canyon City (Muller Mountain Road)

The inventory notes that the Dixie Creek bridge was reconstructed in 1994; therefore, the sufficiency rating may not have been updated yet.

County Roads

Grant County has 98 county roads under its jurisdiction covering more than 500 miles. These roadways are an integral part of the transportation system. In addition to providing alternate or more direct routes than the state highways, they also serve rural areas, connecting them with each other, state highways, and cities.

General Roadway Layout

A network of county roads runs throughout the study area, complementing the state highway system. County roads run throughout Grant County, and serve many purposes. They provide access to residences in rural areas in and around the incorporated cities. They also serve other smaller rural communities and service areas, such as Izee, Granite, Austin, Dale, Silvies, Galena, Hamilton, Fox, Austin and Greenhorn. County roads often connect to agricultural areas, recreational areas, and national forests.

Many of the county roads connect with the state highway system. Connections to the highways are generally located in the rural areas, although some direct connections are made within the city urban areas. Most of the county roads which connect into Highway 26 are relatively short roads, often serving the John Day River valley. They are limited on either side by the Malheur National Forest and other physical barriers. Longer and more extensive county roads connect with the other highways in the county. Some of the longest county roads include County Road #63, westward from Highway 395 to Izee and Oregon Highway 380 near Paulina to Prineville, County Road #20, westward from Highway 7 in Austin to Highway 395, and County Road #62 south from Prairie City to Drewsey.

Some county roads provide alternate routes to state highways. This is particularly true in the northern half of Grant County, allowing shorter, and more direct travel between some communities. In addition to County Road #20, which connects Highways 7 and 395, County Road #18 connects Highway 26 just west of Prairie City with Highway 395 in Long Creek, and County Roads #49 and #63, connect Highway 26 just east of Mt. Vernon with Highway 395 near Starr Ridge. These alternate routes are often shorter than the highway alternatives, but they are frequently unpaved roadways which may be difficult to travel because of snow, rain, and melting conditions (i.e., County Road #3 from Monument to Heppner).

The highest activity levels can generally be found on county roads near the largest cities: Canyon City, John Day, Mt. Vernon, and Prairie City. These roadways include County Road #49, located south of Highway 26 and east of Mt. Vernon, County Road #52, located south of Highway 26 and east of John Day, County Road #62, located south of Prairie City, County Road #74, located west of John Day, and County Road 51 west of Canyon City.

Physical Description

Grant County has more than 500 miles under its jurisdiction. Five general surface types are used on county roads, as summarized in Table 3-3

County roads are generally two lanes wide with a 20- to 24-foot travel surface and 2- to 4-foot gravel shoulders. Some of the county roads are primitive roads, which consist of a 14-foot travel surface with turnouts.

**TABLE 3-3
COUNTY ROAD SURFACE TYPES**

| Number of Miles | Surface Type |
|------------------------|-------------------------------------------------------------|
| 93.1 | matte (either hot or cold mix) |
| 131.9 | macadam (either a 3 or 4 layer aggregate chip with asphalt) |
| 220.6 | crushed aggregate |
| 28.0 | grid rolled or pit run |
| 34.0 | native surface |
| 507.6 | Total |

Source: Grant County Road Department

Bridges

Grant County has 34 bridges which are included in the state bridge inspection inventory. Currently, five county-owned bridges are identified as structurally deficient, including:

- CR #1 over the North Fork of the John Day River (milepost 0.1) south of Highway (402)
- CR #20A over the Middle Fork of the John Day River (milepost 0.16) north of Highway 7

One more is identified as functionally obsolete:

- CR #15 over the Middle Fork of the John Day River (milepost 10.1) south of Highway 395
-

The bridges with sufficiency ratings below 55 include:

- CR #15 over the North Fork of the John Day River (milepost 26.02) northwest of Highway 395
- CR #57 over the John Day River (milepost 0.3) south of Highway 26
- CR #70 over the John Day River (milepost 0.1) south of Highway 26

Street Classification

The roads in the unincorporated or rural areas of Grant County fall under three jurisdictions: state, county, and USFS. The state highways generally function as major or principal arterials through the county. The county roads are divided into four classification levels: arterial, major collector, minor collector, and local streets. The USFS roads are broken down into three classification categories (arterial, collector, and local). Because of the size of the Grant County maps, they have been included in the appendix of this document.

State Highways/Major Arterial Streets

State highways often function as major arterial streets, forming the primary roadway network within and through a region. They provide a continuous road system which distributes traffic between neighborhoods and districts. Generally, major arterial streets are high capacity roadways which carry high traffic volumes with minimal localized activity. In Grant County, the state highways/major arterial streets often serve statewide, regional and local traffic demands.

As mentioned previously, there are five state highways in Grant County, all of which fall under this classification. They are Highway 26, Highway 395, Highway 19, Highway 7, and the Kimberly-Long Creek Highway (Highway 402).

County Roads

The Grant County Road Department has developed an independent roadway classification system for all roads under county jurisdiction. Located in Appendix B is a map displaying all county roads along with a breakdown of the classifications of these roads. This information was obtained from the Grant County Road Department.

The Grant County Road Department classifies all roadways under county jurisdiction into four categories: arterial streets, major collectors, minor collectors, and local streets. The classification of these roadways is based on the intended function and observed traffic volumes. County roads on an arterial level are primarily long distance roads because they are designed to connect regions, smaller communities, and highways in the county together. A secondary function would be to provide access to roads of a lesser classification. Arterial roadways are usually paved and may experience traffic flows of up to 500 vehicles per day. The primary function of a major collector is to tie US Forest Service roads, minor collectors, and local

roads to nearby highways or arterial roadways. These roads also provide access to agricultural, forest, and recreational areas. Major collector roads are usually unpaved in the rural areas and partially to fully paved in the urban areas of the county with traffic volumes reaching up to 400 vehicles per day. County roads classified as minor collectors are shorter distance roads which branch off a highway, arterial, or major collector and provide access to agricultural, forest, and recreational areas, and possibly a few rural residential homes. Minor collectors are mostly unpaved with very little traffic. Local county roads are short distance roads which may serve as a driveway to one or a few homes. They are unpaved and carry very low traffic volumes as well.

US Forest Service Roads

There are many roads in Grant County under the jurisdiction of the USFS. Most of them are located in the Umatilla and Malheur National Forests. Many are made of gravel in the rural areas, but some, such as Logan Valley Road near Seneca, are paved. The primary function of these roads once was to provide access for multiple-use trucks to all the different parts of the forest lands; however, with changes in logging practices, this function has become more limited on many roadways. Recreational access is now a major purpose as well.

The Forest Service is not a public road agency; therefore, responsibilities and liabilities are not the same as those of the County and State. Road closures in some areas may be imminent with continuing reductions in federal budgets. Priority routes are determined by recreational and commercial uses.

Maintenance Levels

The Forest Service utilizes five different maintenance levels which are operational and objective in nature. These levels are identified as follows:

- **Maintenance Level 1** -- Assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period must exceed one year. Basic custodial maintenance is performed to keep damage to adjacent resources to an acceptable level and to perpetuate the road to facilitate future management activities. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. Appropriate traffic management strategies are "prohibit" and "eliminate".
- **Maintenance Level 2** -- Assigned to roads open for use by high clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specified uses. Log haul may occur at this level. Appropriate traffic management strategies are either to (1) discourage or prohibit passenger cars or (2) accept or discourage high clearance vehicles.
- **Maintenance Level 3** -- Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. Roads in this maintenance level are typically low speed, single lane with turnouts and spot surfacing. Some roads may be fully surfaced with either native or processed material. Appropriate traffic management strategies are either "encourage" or "accept". "Discourage" or "prohibit" strategies may be employed for certain classes of vehicles or users.
- **Maintenance Level 4** -- Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. However, some roads may be single lane. Some roads may be paved and/or dust abated. The most appropriate traffic management strategy is "encourage". However, the "prohibit" strategy may apply to specific classes of vehicles or users at certain times.

- Maintenance Level 5 -- Assigned to roads that provide a high degree of user comfort and convenience. These roads are normally double lane, paved facilities. Some may be aggregate surfaced and dust abated. The appropriate traffic management strategy is "encourage".

The distinction between Forest Service maintenance levels is not always sharply defined. Some parameters overlap two or more different maintenance levels. Maintenance levels are based on the best overall fit of the parameters for the road in question. In the situations where the parameters do not indicate a definite selection, the desired level of user comfort and convenience is used as the overriding criteria to determine the maintenance level. Forest Service road maintenance includes a variety of work activities. Activities may be either detailed and site specific, or broad and general.

PEDESTRIAN SYSTEM

With the exception of County Road #18 in Long Creek, there are no sidewalks present along the highways or county roads in the rural portions of Grant County. Because of the distances separating the urban cities in the county sidewalks are not necessary.

On the low volume county roadways, pedestrians and autos can both share the roadway without safety being a critical issue.

Inside the urban areas in Grant County, pedestrian access becomes a more important issue. This issue is addressed in separate TSP reports for each city.

BIKEWAY SYSTEM

Currently, the only sanctioned bikeways on roadway in rural Grant County are on County Roads #52 and 53 west of Canyon City/John Day. On the highways, bicyclists and traffic must share the same travel lane. The five highways in the county either have unpaved shoulders or paved shoulders that are too narrow for bicycles to travel safely separated from traffic. On low volume county and city streets, bicyclists and autos can both safely and easily use the roadway. On a higher volume roadways, such as Highway 395 and Highway 26, safety for the bicyclists should be an important issue.

In 1996, portions of Highways 26 and 7 were designated as part of the Oregon Trans-America Trail. In Grant County, the trail would run along Highway 26 from the Wheeler County Line to the Highway 7/26 junction, then follow Highway 7 on to the Baker County Line. Highway 26 and 19 have also been designated as part of the historical "Travel through Time" Scenic Byway.

PUBLIC TRANSPORTATION

Grant County has paratransit and long distance public transportation services provided by The People Mover company. They provide passenger services to senior citizens and the disabled and also serve the general public. Their equipment consists of one minivan, two 15-passenger vans, and one 26-passenger tour bus. All of these vehicles are equipped with facilities for the disabled.

The People Mover paratransit services include dial-a-ride services, van service to meal sites, and a Friday shopping run. The dial-a-ride service operates between 9:00 a.m. and 5:00 p.m. five days a week (Monday through Friday). The van service to meal sites operates on Monday and Wednesday. These services are available to the cities of Canyon City, John Day, Mt. Vernon, and Prairie City.

The only option available for out-of-county travel is also provided by the People Mover. The People Mover shuttle van operates three times a week (MWF) from Prairie City, providing service west to Bend. Stops include John Day, Mt. Vernon, Mitchell, Prineville, and Redmond. The shuttle travels westbound in the morning and returns eastbound in the afternoon. Connections with Greyhound Bus Lines in Prineville, Redmond, and Bend are possible for transfers to other destinations. The People Mover also stops at the Redmond Airport with advance notice.

Currently, The People Mover is able to fully meet the demand for their services.

Demographic Summary

Public transportation is primarily used by three segments of the population:

- elderly: persons age 60 and over
- disabled: persons age 16 to 64 with mobility limitations
- impoverished: persons age 64 or less residing in households having incomes below the poverty level

Table 3-4 summarizes the 1980 and 1990 census data regarding these three population segments. In Grant County, more than 30 percent of the residents fell into these three categories. Almost 20 percent were elderly. About one half a percent were disabled. More than 10 percent were impoverished. Historical trends indicate that these percentages are probably similar in the present year (1997).

**TABLE 3-4
ELDERLY, DISABLED, AND IMPOVERISHED POPULATION**

| Population Segment | 1980 | | 1990 | |
|--------------------|--------------|------------------|--------------|------------------|
| | Persons | Percent of Total | Persons | Percent of Total |
| Elderly | 1,443 | 17.6% | 1,552 | 19.8% |
| Disabled | 81 | 1.0% | 40 | 0.5% |
| Impoverished | 849 | 10.3% | 809 | 10.3% |
| Total | 2,373 | 28.9% | 2,401 | 30.6% |

RAIL SERVICE

Currently, there is no passenger or freight rail services provided in Grant County. The nearest rail line follows the Interstate 84 corridor from Portland to Boise, Idaho and points east. This line serves only freight traffic. AMTRAK passenger service along the line was terminated in May 1997. Historically, rail service was also available between Baker City and Prairie City via the Sumpter Valley Railroad and between Burns/Hines and Seneca via the Oregon and Northwestern Railroad. Neither of these lines has had any active service for many years.

AIR SERVICE

Currently, there is a municipal airport in Monument and a county-owned airport located in John Day, with a number of private airstrips around the county that may be used in an emergency (Long Creek, Widows Creek Ranch, Del Raymond Ranch, Silvies, and Inshauh Ranch).

The Grant County Regional Airport is located on a high bench southwest of John Day and northwest of Canyon City. Recreational flyers, businesses, and public agencies are the most frequent users. The Airport Master Plan

was adopted in 1978 and includes inventory of existing facilities and land use, aviation forecasts, a demand/capacity analysis, an airport plan and development program, a detailed land use plan, and a chapter on environmental issues. In addition to the master plan, the John Day/Canyon City TSP includes a new access road connecting West Bench Road (CR #74) to the existing airport access road. This improvement will provide an access route that avoids the steep and narrow Airport Road ascent of the ridge.

The City of Monument owns and maintains the Monument Airport. This is a public use airport which serves recreational flyers, businesses, and public agencies. It is located to the north of the city on a combination of city-owned land and land leased out to the city by the Bureau of Land Management (BLM). The Monument Airport has no master plan.

A private emergency airstrip is located in Seneca, on the west side of Highway 395, and there is a number of other private airstrips located on ranches around the county that may be used in an emergency.

Grant County has no commercial air service. The nearest commercial airports are in Redmond, west of the county, or Pendleton, north of the county. Public transportation to the Redmond Airport is available through The People Mover on Monday, Wednesday, or Friday with an advance call to request the stop.

PIPELINE SERVICE

Grant County has no pipeline services.

WATERBORNE SERVICE

Grant County has no waterborne transportation services.

OTHER MODES

Movement of livestock (particularly cattle trailing (herding), horse drawn vehicles, and equestrian movements occur on Grant County roads and the State Highway System. By policy, these types of livestock related movement are allowed on the State Highway System in areas of open range. Recreational related snowmobile route designations have been made by the U. S. Forest Service, but none have been identified on County Roads. "Livestock Driveways" in the national forests and private lands have also been designated in Grant County specifically for the purpose of herding of cattle and sheep.

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 roadway system operating conditions since the automobile is by far the dominant mode of transportation in Grant County. This involved analysis of existing traffic volumes, street capacity, and street safety. Census data were also examined to determine where local residents work and the mode of transportation used to get to work.

1995 TRAFFIC VOLUMES

The 1995 Average Daily Traffic (ADT) volumes for Grant County were collected. ADT volumes are defined as the average amount of two-way traffic recorded on a roadway over a 24-hour period. The 1995 ADT information was obtained from two sources; the Oregon Department of Transportation *Traffic Volume Tables*, published in May 1996, and traffic counts performed by the Grant County Road Department.

Average Daily Traffic

The ADT volumes for the five highways and numerous county roads in Grant County are shown in Figure 4-1. Traffic volumes are shown for the rural and urban portions of each highway. As seen in the figure, Highway 26 provides a direct east-west route across the county and is the most heavily used highway. Highway 395 provides a semi-direct north-south route through the county and is the second most used highway. Traffic volumes are the greatest between the cities of Mt. Vernon and John Day where Highway 26 and 395 overlap.

The volumes shown on Figure 4-1 are average volumes for the year. During the summer months, traffic volumes on all five highways are typically higher. Seasonal traffic volume information is available from the three permanent traffic recorders in Grant County, one located on Highway 395 near Long Creek, and the other two on Highway 26 near Dayville and Prairie City. These recorders indicate that traffic volumes during the summer months are around 35 percent higher than average volumes.

Truck Volumes

Information on truck traffic for the year 1995 is also available at the three permanent recorder stations. The daily truck volumes recorded at all three stations on Highway 26 and Highway 395 indicate that the percentage of trucks is relatively high. The data from the recorder on Highway 26, east of Dayville, indicated that truck traffic was about 14.4 percent of the total ADT. With an ADT volume of 1,031 vehicles recorded at the counter, this would equate to 148 trucks per day. The permanent traffic recorder north of Long Creek indicated that 13.4 percent of the ADT was truck traffic. With an ADT volume of 537 vehicles recorded at this counter, this would equate to 72 trucks per day. The recorder east of Prairie City indicated that 25.6 percent of the ADT was truck traffic. With an ADT volume of 1,194 vehicles recorded at this counter, this would equate to 305 trucks per day.

1995 Roadway Capacity

Transportation engineers have established various standards for measuring traffic capacity along roadways or at 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. Six standards have been established

ranging from Level A where traffic flow is relatively free-flowing, to Level F, where the roadway system is totally saturated with traffic and movement is very difficult.

Analysis of the roadway system capacity in Grant County focused on the rural sections of all highways in the county and some county roads. Capacity along these roadways was evaluated in two different ways: traffic operations along the roadway alone, and traffic operations at intersecting local streets or driveways. No urban sections of roadway were addressed as part of this analysis. The urban section analyses can be found in the separate TSP reports prepared for each city.

The LOS criteria for intersections without signals and rural highways are listed in Table 4-1. Level of service at intersections without signals is defined by the average total delay vehicles experience for individual approaches or for the intersection as a whole. Level of service on rural highways is applicable for rural county roads as well, and it is a function of travel speed, maneuverability, and density of vehicles.

Operations at Intersections

The traffic operation was determined at intersections or driveways along the rural highway and county road sections using the 1994 Highway Capacity Software for unsignalized intersections. This software is based on the 1994 *Highway Capacity Manual*, Special Report 209, published by the Transportation Research Board. Since all intersecting streets and driveways are controlled by STOP signs in these areas, the analysis was performed for an unsignalized intersection.

State Highways

The traffic operations were analyzed for a typical intersection located along Highway 26/395 between the cities of Mt. Vernon and John Day. This location is where traffic volumes are higher than any other rural highway section in the county. In 1995, the ADT volume reached 3,935 vehicles per day in this area. To determine the worst possible traffic operations at this intersection, the ADT volume was increased by 35 percent, to reflect peak summer month conditions. Traffic operations were then analyzed using a peak hour two-way traffic volume of roughly 10 percent of the daily traffic. Also, a 60/40 directional split was used to reflect the distribution of traffic on the highway during the peak hour. A conservative approach volume of 20 vehicles per hour was also used for the intersecting street or driveway.

Under these assumptions, the minor approaches to Highway 26/395 operate well, at LOS B. This indicates all other roads or driveways accessing rural portions of highways in the county are operating at LOS B or better.

**TABLE 4-1
LEVEL OF SERVICE DESCRIPTIONS**

| Level of Service | Unsignalized Intersections | Rural Highways |
|------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A | Average total delay less than or equal to 5 seconds per vehicle. | The highest quality of traffic service occurs when motorists are able to drive at their desired speed. LOS A, would result in average speeds approaching 60 mph on two-lane highways. The passing frequency required to maintain these speeds has not reached a demanding level. Passing demand is well below passing capacity, and almost no platoons of three or more vehicles are observed. Drivers would be delayed no more than 30 percent of the time by slow-moving vehicles. |
| B | Average total delay more than 5 and less than or equal to 10 seconds per vehicle. | LOS B characterizes the region of traffic flow wherein speeds of 55 mph or slightly higher are expected on level terrain. Passing demand needed to maintain desired speeds becomes significant and approximately equals the passing capacity at the lower boundary of LOS B. Drivers are delayed up to 45 percent of the time on the average. The number of platoons forming in the traffic stream begins to increase dramatically. |
| C | Average total delay more than 10 and less than or equal to 20 seconds per vehicle. | Further increases in flow characterize LOS C, resulting in noticeable increases in platoon formation, platoon size, and frequency of passing impediment. Average speed still exceeds 52 mph on level terrain, even though unrestricted passing demand exceeds passing capacity. At higher volume levels, chaining of platoons and significant reductions in passing capacity begin to occur. While traffic flow is stable, it is becoming susceptible to congestion due to turning traffic and slow-moving vehicles. Percent time delays are up to 60 percent. |
| D | Average total delay more than 20 and less than or equal to 30 seconds per vehicle. | Unstable traffic flow is approached as traffic flows enter LOS D. Passing becomes extremely difficult. Passing demand is very high, while passing capacity approaches zero. Mean platoon sizes of 5 to 10 vehicles are common, although speeds of 50 mph can still be maintained under ideal conditions. The fraction of no passing zones along the roadway section usually has little influence on passing. Turning vehicles and/or roadside distractions cause major shockwaves in the traffic stream. The percentage of time motorists are delayed approaches 75 percent. |
| E | Average total delay more than 30 and less than or equal to 45 seconds per vehicle. | LOS E is defined as traffic flow conditions on two-lane highways having a percent time delay of greater than 75 percent. Under ideal conditions, speeds will drop below 50 mph. Average travel speeds on highways with less than ideal conditions will be slower, as low as 25 mph on sustained upgrades. Passing virtually impossible under LOS E conditions, and platooning becomes intense when slower vehicles or other interruptions are encountered. |
| F | Average total delay more than 45 seconds per vehicle. | As with other highway types, LOS F represents heavily congested flow with traffic demand exceeding capacity. Volumes are lower than capacity, and speeds are below capacity speed. |

Source: Transportation Research Board, *Highway Capacity Manual*, Special Report 209, Third Edition, 1994, p. 10-12 for Unsignalized Intersections, p. 8-5 and 8-6 for Rural Highways.

County Roads

A typical intersection was also evaluated along the highest volume sections of two county roads. Both County Road #62, which lies south of Prairie City, and County Road #74, which lies west of John Day, have sections with 1995 ADT volumes of 575 vehicles per day. The traffic operations were analyzed for a typical intersection located along these county roads. The ADT volume was increased by 35 percent to approximate peak summer month conditions based on the data for the state highways. No data for seasonality is available on the county roads. Traffic operations were then analyzed using a peak hour two-way traffic volume of roughly 10 percent of the daily traffic and a 60/40 directional split. An approach volume of 20 vehicles per hour was also used for the intersecting street or driveway.

Under these assumptions, the minor street approach to either County Road #62 or #74 operates well, with a LOS A. Since these are assumed to be the highest volume county sections, all other roads or driveways accessing any county road are operating at a LOS of A.

Rural Roadway Operations

The traffic operations or LOS of mainstream traffic along the rural highway and county road sections were also determined using the 1994 Highway Capacity Software. Analysis of a rural two-lane highway takes into account the magnitude, type, and directional distribution of traffic as well as roadway features such as the percentage of no-passing zones, general terrain, and lane and shoulder widths.

State Highways

Highway traffic volumes used in the analysis were for the peak hour of both an average day and a summer day. Peak hour volumes were determined from the ADT volumes using a peak hour factor of 10 percent. A 60/40 directional split in traffic was used to reflect traffic conditions for the peak hour. The percentage of heavy vehicles using the highway was determined using information from the three permanent recorders in the county. All roadside features used in the analysis were determined from the ODOT video logs taken of all the highways in the county.

The analysis of current (1995) conditions is summarized in Table 4-2. Comparing the rural highway LOS with the operating standards in the OHP³ indicates that both Highway 26 and Highway 395 have some segments which currently operate below desirable levels. The OHP establishes a standard of LOS B for rural sections of statewide highways. All segments except the section of Highway 26 between Mt. Vernon and John Day attain this LOS B operation. During the summer, four segments on Highways 26 or 395 operate LOS C or D, which is below desirable levels.

County Roads

Four sections of county road were analyzed as rural two-lane highways. These sections reflect the highest traffic volumes measured in Grant County in 1995. Both average and summer day peak hour conditions were analyzed using the same peak hour assumptions outlined for the state highways. Conservative assumptions of 100 percent no-passing zones and no usable shoulders were used for the analysis.

The results of the analysis are summarized in Table 4-3. The most heavily traveled county road sections currently operate at LOS B or better.

³Table 1 - Operating Level of Service Standards for the State Highway System, 1991 Oregon Highway Plan.

TABLE 4-2
1995 OPERATIONS ANALYSIS
RURAL HIGHWAY SECTIONS

| Highway Section | 1995 | |
|------------------------------|---------|--------|
| | Average | Summer |
| <i>Highway 19</i> | | |
| Kimberly to Highway 26 | A | A |
| <i>Highway 26</i> | | |
| W. County Line to Highway 19 | A | A |
| Highway 19 to Dayville | B | B |
| Dayville to Mt. Vernon | B | B |
| Mt. Vernon to John Day | C | D |
| John Day to Prairie City | B | B |
| Prairie City to Highway 7 | B | C |
| Highway 7 to E. County Line | A | A |
| <i>Highway 395</i> | | |
| N. County Line to Long Creek | B | C |
| Long Creek to Mt. Vernon | B | B |
| Canyon City to Seneca | B | C |
| Seneca to S. County Line | A | A |
| <i>Highway 402</i> | | |
| Kimberly to Monument | A | A |
| Monument to Long Creek | A | A |
| <i>Highway 7</i> | | |
| Highway 26 to E. County Line | B | C |

TABLE 4-3
1995 OPERATIONS ANALYSIS
COUNTY ROAD SECTIONS

| County Road | 1995 | |
|-----------------|---------|--------|
| | Average | Summer |
| County Road #49 | A | B |
| County Road #52 | B | B |
| County Road #62 | B | B |
| County Road #74 | B | B |
| County Road #20 | B | B |
| County Road #63 | B | B |
| County Road #3 | B | B |
| County Road #18 | B | B |

SAFETY ANALYSIS

As part of the existing conditions evaluation, a safety analysis was performed along the rural sections of all five highways in Grant County. Accident data for the three-year period between 1993 and 1995 was collected using information from the ODOT Accident Summary Database. Table 4-4 displays a summary of the accidents which occurred during this period along the rural highway sections.

TABLE 4-4
ACCIDENT SUMMARY FOR RURAL HIGHWAY SECTIONS (1993-1995)

| Highway Section | Segment Length (miles) | Number of Accidents | Accident Rate (acc/mvm) | Number of Injuries | Number of Fatalities | Statewide Accident Rate (1991-1995) |
|------------------------------------|------------------------|---------------------|-------------------------|--------------------|----------------------|-------------------------------------|
| <i>Highway 19</i> | | | | | | |
| Kimberly to Highway 26 | 19.5 | 4 | 0.43 | 2 | 0 | 0.81-0.89 |
| <i>Highway 26</i> | | | | | | |
| W. County Line to Highway 19 | 1.5 | 1 | 0.68 | 0 | 0 | 0.81-0.89 |
| Highway 19 to Dayville | 6.18 | 3 | 0.42 | 4 | 0 | 0.81-0.89 |
| Dayville to Mt. Vernon | 21.97 | 22 | 0.71 | 20 | 1 | 0.81-0.89 |
| Mt. Vernon to John Day | 7.2 | 20 | 0.67 | 18 | 1 | 0.81-0.89 |
| John Day to Prairie City | 8.32 | 23 | 1.01 | 14 | 0 | 0.81-0.89 |
| Prairie City to Highway 7 | 15.06 | 9 | 0.51 | 4 | 0 | 0.81-0.89 |
| Highway 7 to E. County Line | 8.93 | 6 | 1.46 | 7 | 1 | 0.81-0.89 |
| <i>Highway 395</i> | | | | | | |
| N. County Line to Long Creek | 25.78 | 10 | 0.57 | 7 | 0 | 0.81-0.89 |
| Long Creek to Mt. Vernon | 28.94 | 11 | 0.46 | 3 | 0 | 0.81-0.89 |
| Canyon City to Seneca | 22.21 | 15 | 0.57 | 12 | 1 | 0.81-0.89 |
| Seneca to S. County Line | 14.85 | 12 | 1.32 | 8 | 0 | 0.81-0.89 |
| <i>Kimberly-Long Creek Highway</i> | | | | | | |
| Kimberly to Monument | NA | 0 | 0 | 0 | 0 | 1.10-1.21 |
| Monument to Long Creek | 20.38 | 5 | 0.56 | 6 | 1 | 1.10-1.21 |
| <i>Highway 7</i> | | | | | | |
| Highway 26 to E. County Line | 7.56 | 4 | 0.89 | 12 | 0 | 0.81-0.89 |

Note: The number of injuries refers to the number of people injured in all of the accidents. Some accidents may have more than one person injured.

One way to assess highway safety is by comparing accidents rates to statewide averages. Accident rates are in terms of accidents per million vehicle miles traveled (acc/mvm). Accident rates are determined by several factors which include: the number of accidents, annual traffic volumes, length of highway section, and the time period of analysis. The average statewide accident rates for rural, primary system, non-freeway facilities ranged from 0.81 to 0.89 from 1991 to 1995. All of the highways, except the Kimberly-Long Creek highway fall into this category. The latter highway is classified as a rural, secondary system, non-freeway facility with an average statewide accident rate ranging between 1.10 and 1.21 from 1991 to 1995. Comparison of actual accident rates with statewide rates indicates that three highway sections have accident rates that exceed the statewide average. Two of these highway sections are in areas where the 1995 ADT volume was 565 vehicles or less. These sections were along Highway 26 from Highway 7 to the East County Line and Highway 395 from Seneca to the South County Line. Because traffic volumes are low in these areas, a few accidents can increase the accident rate significantly. The third highway section with an above average accident rate was along Highway 26 between John Day and Prairie City. This section experienced more accidents than any other highway section in the county: 23 accidents over 10.68 miles. This area also had one of the highest non-urban ADT volume in the county (1,965 vehicles per day).

The three highway sections between Dayville and Prairie City along Highway 26 and Highway 395 had the largest number of accidents over the three-year period. Between Dayville and Mt. Vernon, 20 accidents took place. Between Mt. Vernon and John Day, 20 accidents also occurred. Between John Day and Prairie City 23 accidents happened. These three sections also had the highest number of injuries than any other highway section.

Accident data on County and USFS roads were not evaluated because traffic volumes are generally very low. In meetings with the County, no locations were identified as having high accident rates.

JOURNEY-TO-WORK INFORMATION

Place of Work

According to the 1990 US Census, Grant County had a total of 3,233 residents who work. Of these residents, 988 lived and worked in an incorporated city while 926 lived in an incorporated city but worked elsewhere, either in another city or the county. Another 1,319 workers do not live in any of the cities in Grant County. No information was available about where they work.

Statistical data is also available for commuter travel times. More than 70 percent of the Grant County workers had commute times of around 20 minutes or less. Another 15 percent had commute times between 20 and 35 minutes. Six percent had commute times between 35 and 90 minutes. Almost 8 percent work at home.

Travel Mode Distribution

Although the automobile is the primary mode of travel for most residents in Grant County, some other modes are used as well. Modal split data is not available for all types of trips; however, the 1990 Census data do include statistics for journey-to-work trips as shown in Table 4-5

Most Grant County residents travel to work via a private vehicle. In 1990, 81.1 percent of all trips to work were made by auto, van, or truck. Trips in single-occupancy vehicles made up 65.2 percent of all trips, and the percentage of workers in a carpool was relatively high accounting for 15.9 percent of all trips.

Bicycle activity was relatively low (0.9 percent of trips to work) and is estimated to occur mostly inside the incorporated cities of the county. Since the census data do not include trips to school or other non-work activities, overall bicycle usage is probably higher.

Pedestrian activity was relatively high (9.0 percent of trips to work). Almost all pedestrian activity is estimated to be inside the incorporated cities of the county.

Census data show that around 7.6 percent of the working population worked at home.

Although the census data reflect the predominant use of the automobile, the growing population and employment opportunities, relatively short travel distances within the cities in the county, and clear weather conditions during the warmer seasons are favorable for other modes of transportation. The statewide emphasis on providing pedestrian and bicycle facilities along roadways encourages the use of these modes.

TABLE 4-5
JOURNEY-TO-WORK TRIPS

| Trip Type | 1990 Census | |
|-----------------------|--------------------|----------------|
| | Trips | Percent |
| Private Vehicle | 2622 | 81.1 |
| <i>Drove Alone</i> | <i>(2107)</i> | <i>(65.2)</i> |
| <i>Carpooled</i> | <i>(515)</i> | <i>(15.9)</i> |
| Public Transportation | 0 | 0.0 |
| Motorcycle | 3 | 0.1 |
| Bicycle | 30 | 0.9 |
| Walk | 290 | 9.0 |
| Other | 43 | 1.3 |
| Work at Home | 245 | 7.6 |
| Total | 3233 | 100.0 |

Source: 1990 US Bureau of Census.

CHAPTER 5: TRAVEL FORECASTS

The traffic forecast prepared for Grant County projects traffic volumes for the year 2017 based on historical growth on the state highway system, historical population growth, and projected population growth. The forecast was prepared for all state highways in the county as well as numerous county roads.

More detailed traffic forecasts were performed in the urban sections of the 8 cities included in the Grant County TSP. They are located in separate reports for those cities.

LAND USE

Land use, with respect to population growth, plays an important part in projecting future traffic volumes. Historical and projected population growth for the county and individual cities may dictate the amount of future traffic growth on the state highway system and county roads. Both historical and projected population for Grant County are summarized in Table 5-1.

**TABLE 5-1
GRANT COUNTY POPULATION TRENDS**

| Year | Population | Percent Change |
|----------------|------------|----------------|
| 1960 | 7,726 | |
| 1970 | 6,996 | -9.4 |
| 1980 | 8,210 | +17.3 |
| 1990 | 7,853 | -4.3 |
| 1995 Estimate | 7,950 | +1.2 |
| 2017 Projected | 9,088 | +14.3 |

The technical memorandum titled, *Population and Employment Analysis* summarizes the methodology and data sources used to determine both historical and projected population for the county. The analysis also includes population statistics pertaining to other individual cities in the county.

Historical

Grant County's population has risen and fallen over the past 35 years. Overall, the population has increased from 7,726 in 1960 to 7,950 in 1995 resulting in a 2.9 percent increase or an annual increase of 0.08 percent per year.

Projected

The population of Grant County is expected to increase from 7,950 to 9,088 people by the year 2017. This is an overall increase of 14.3 percent and an annual increase of 0.61 percent per year.

Potential Development Impact Analysis

To supplement the demographic forecast and determine more specifically where growth is expected to occur in Grant County, a review of ODOT's Potential Development Impact Analysis (PDIA) was also performed. The

PDIA identifies areas of potential growth based on land use. Potential growth areas or “polygons” are identified around the county based on zoning. A detailed summary of the PDIA is contained in Appendix E.

Grant County contains 12 PDIA polygons. The polygons were determined by county zones using a lot size of 10 acres or less. These included three zones: Rural Service Center (RSC-1), Rural Residential (RR-5), and Rural Residential (RR-10). Table 5-2 summarizes the PDIA projections for each polygon.

**TABLE 5-2
POTENTIAL DEVELOPMENT IMPACT ANALYSIS SUMMARY**

| Polygon | Zoning | Acreage | | | Units | | |
|-----------------------------------------|--------|---------------|------------|---------------|------------|------------|------------|
| | | Net Area | Built | Vacant | Existing | Potential | Maximum |
| Dale Rural Service Center | RSC-1 | 25.4 | 2.1 | 23.3 | 2 | 23 | 25 |
| Kimberly Rural Service Center | RSC-1 | 24.1 | 1.0 | 23.1 | 1 | 23 | 24 |
| Fox Rural Service Center | RSC-1 | 7.5 | 4.1 | 3.4 | 13 | 7 | 20 |
| Austin Junction Rural Service Center | RSC-1 | NA | NA | 0 | 1 | 0 | 1 |
| Monument Rural Residential | RR-5 | 32.1 | 25.7 | 6.4 | 4 | 1 | 5 |
| Laycock Creek Rural Residential | RR-5 | 622.8 | 35.0 | 587.8 | 7 | 117 | 124 |
| West Bench Rural Residential | RR-5 | 981.2 | 165.7 | 815.5 | 29 | 163 | 192 |
| Canyon Creek Corridor Rural Residential | RR-5 | 815.2 | 281.8 | 533.4 | 56 | 106 | 162 |
| Dog Creek/Marysville Rural Residential | RR-5 | 743.3 | 175.9 | 567.4 | 30 | 113 | 143 |
| Laycock Creek Rural Residential | RR-10 | 365.6 | 134.1 | 231.5 | 21 | 23 | 44 |
| North John Day Rural Residential | RR-10 | 48.9 | 4.3 | 44.6 | 3 | 6 | 9 |
| Jeff Davis Creek Rural Residential | RR-10 | 443.4 | 107.5 | 335.9 | 12 | 14 | 26 |
| Total Rural Service Center | | 57 | 7.2 | 49.8 | 17 | 53 | 70 |
| Total Rural Residential | | 4052.5 | 930 | 3122.5 | 162 | 543 | 705 |

Rural service centers account for less than 10 percent of the potential growth in Grant County. The areas with the greatest potential rural service center growth are Dale and Kimberly. These two polygons account for more than 85 percent of the potential growth of this type.

There are four polygons, all zoned Rural Residential RR-5, which have a high potential for growth in Grant County:

- *Laycock Creek Rural Residential* is located just south of Highway 26 on Pleasant Hill Road, between Mt. Vernon and John Day. Seven units exist in the polygon and there is a potential for an additional 117 units.
- *West Bench Rural Residential* is a large area south and west of John Day and Canyon City. Access to the area is available from Highway 26 via West Bench Road (County Road #74D) and Golf Course Road. There are 29 existing units with potential for an additional 163 units.
- *Canyon Creek Rural Residential* is a seven-mile corridor which runs along both sides of Highway 395 beginning just south of Canyon City. Fifty-six units exist in the polygon with potential for an additional 106 units.
- *Dog Creek/Marysville Rural Residential* is located south of Highway 26 and east of John Day. This is a large parcel currently in farm use. There are 30 existing units with potential for an additional 113 units.

These four polygons account for more than 90 percent of the potential rural residential growth in Grant County.

HISTORICAL TRAFFIC VOLUMES

Before projecting future traffic growth, it is important to examine past growth trends on the roadway system in Grant County.

State Highways

Historical traffic volumes along all the state highways in the county were established using the ADT volume information presented in the ODOT Traffic Volume Tables for the years 1975 through 1995. The ADT volumes were obtained at all rural and urban sections of each highway within the county. Averaging the ADT volumes in each area together for each year and using a linear regression analysis, an average annual growth rate was determined for each highway section. Table 5-3 summarizes these growth rates along with the total growth in traffic for this period.

County Roads

No long-term information on historical traffic volumes for the county roads is available. Primarily current (1995) traffic volumes have been recorded for a majority of the county roads. Without historical data, growth trends cannot be observed.

FORECASTING METHODOLOGY

Traffic forecasts were prepared for both the state highways and the county roads. The forecasting methodologies were based on the available existing and historical traffic data and population growth trends.

State Highways

The traffic forecast for the state highway system in Grant County was performed using a Level 1 - Trending Forecast⁴ analysis. This type of forecast projects future traffic volumes based on one or more of the following growth rates: the historical growth on the state highway system, the historical population growth, and the projected population growth.

⁴ ODOT *Transportation System Planning Guidelines*, August 1995, pg. 29.

TABLE 5-3
HISTORICAL GROWTH RATES (1975-1995)

| Highway Section | Average Annual Growth Rate | Total Growth |
|------------------------------|-------------------------------|-----------------|
| <i>Highway 19</i> | | |
| Kimberly to Highway 26 | 1.72% | 40.7% |
| <i>Highway 26</i> | | |
| W. County Line to Highway 19 | 1.32% | 30.0% |
| Highway 19 to Dayville | 1.32% | 30.0% |
| Dayville to Mt. Vernon | 1.55% | 36.1% |
| Mt. Vernon to John Day | 1.46% | 33.7% |
| John Day to Prairie City | 2.93% | 78.2% |
| Prairie City to Highway 7 | 0.33% | 6.9% |
| Highway 7 to E. County Line | 0.33% | 6.9% |
| <i>Highway 395</i> | | |
| N. County Line to Long Creek | 1.17% | 26.1% |
| Long Creek to Mt. Vernon | 1.76% | 41.8% |
| Canyon City to Seneca | 1.01% | 22.2% |
| Seneca to S. County Line | 1.55% | 35.9% |
| <i>Highway 402</i> | | |
| Kimberly to Monument | 1.72% | 40.8% |
| Monument to Long Creek | 1.39% | 31.9% |
| <i>Highway 7</i> | | |
| Highway 26 to E. County Line | 0.34% | 7.1% |

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

Comparisons show that historical traffic growth rates on most of the rural and urban sections of the five state highways in the county are higher than the historical and projected population growth rates for the county. In only three areas the historical traffic growth rate was lower than the projected population growth rate. Two areas are located along the rural highway sections of Highway 26 and Highway 7, east of Prairie City, where the 20-year traffic growth rates were 6.9 and 7.1 percent. The third area is along the urban section of Highway 26 in Dayville, where the traffic growth rate was 11.2 percent. All other rural and urban highway sections in the county had traffic growth rates ranging between 22.2 and 78.2 percent. This range of rates is higher than both the historical population growth rate of 4.5 percent and the projected population growth of 14.6 percent.

It was assumed in this forecast that future traffic growth along the three highway sections with the lower traffic growth rates would also be consistent with the historical traffic growth trend. County Road #62 east of Prairie City is in a rural location and is not as heavily used as Highway 26 or Highway 395. It is anticipated that these two sections will not be influenced by additional population growth in the county. Future traffic growth on the urban highway section of Highway 26 in Dayville has been determined in the City of Dayville's traffic forecast. This forecast determined that the historical traffic growth trend for Highway 26 in the city was higher than the future population projections, although slightly lower than the overall county projections.

County Roads

No long-term historical data on traffic volumes is available for the county roads; therefore, no trendlines could be developed. To project future traffic volumes, traffic growth on county roads was assumed to be consistent with the projected population growth of 14.3 percent.

FUTURE TRAFFIC VOLUMES

Projected traffic volumes for the year 2017 are illustrated in Figure 5-1.

State Highways

Future year ADT volumes on the state highways in the county were determined by applying historical traffic growth trends to existing 1995 counts. Highways 26 and 395 will have fairly low traffic volumes around the perimeter of the county. These volumes increase as the highways converge on the central cities of Mt. Vernon, John Day, and Canyon City. Future ADT volumes are expected to reach a maximum of 5,020 vehicles along Highway 26/395 between the cities of Mt. Vernon and John Day. This will be the most heavily traveled section of highway other than the urban highway sections around the John Day and Canyon City areas. Future ADT volumes on Highway 19, Kimberly-Long Creek Highway, and Highway 7 will remain low although there are building opportunities and recreational attractions in the area which could generate some growth.

County Roads

Future traffic volumes on the county roads were determined by applying the projected population growth rate to existing 1995 counts. Generally, traffic volumes on the county roads will remain relatively low. The highest volume roadway in 1995 was County Road #74. This roadway can also expect to see some growth in the future since the area to the south and west was identified as an area with substantial developable land zoned rural residential (see PDIA summary in Appendix E). Using the average population growth rate for the county, County Road #74 is projected to increase to an average of about 650 vehicles per day.

FUTURE ROADWAY CAPACITY

Future traffic operations were determined for a typical intersection without signals located along the most heavily traveled rural highway and county road sections in the county. The traffic operations of mainstream traffic along all rural highway sections and some of the county road sections in the county were also determined for the year 2017.

Operations at Intersections

For both state highways and county roads, intersection operations were examined for a typical intersection along the highest volume segment of roadway.

State Highways

Future traffic operations were analyzed for a typical intersection located along Highway 26/395 between the cities of Mt. Vernon and John Day. This location is where traffic volumes are projected to be the greatest along the rural sections of all highways in the county. The ADT volumes for the year 2017 are projected to reach 5,020 vehicles

per day in this area. To determine the worst possible traffic operations at this intersection, the ADT volume was increased by 35 percent, to reflect peak summer month conditions. Other assumptions which were used in the existing operations analysis include a peak hour percentage of 10 percent, a 60/40 directional split in traffic on the highway, and 20 vehicles per hour on the minor street approach.

Under these assumptions, the minor approach to Highway 26/395 is projected to operate at LOS B. This indicates all other roads or driveways accessing any rural portion of any highway in the county are also expected to operate at LOS B or better.

County Roads

A typical intersection was also evaluated along the highest volume section of County Road #74. This roadway has a section with projected 2017 ADT volumes of 655 vehicles per day. The ADT volume was increased by 35 percent to approximate peak summer month conditions based on the data for the state highways since no data for seasonality is available on the county roads. Traffic operations were then analyzed using a peak hour two-way traffic volume of roughly 10 percent of the daily traffic and a 60/40 directional split. An approach volume of 20 vehicles per hour was also used for the intersecting street or driveway.

Under these assumptions, any minor street approach to County Road #74 is projected to operate at LOS A. Since these are the highest volume county sections, all other roads or driveways accessing any county road are also expected to operate at LOS of A.

Rural Operations

For both state highways and county roads, rural two-way highway operations were also examined for future conditions.

State Highways

Highway traffic volumes used in the analysis were for the peak hour of both an average day and a summer day. Peak hour volumes were determined from the projected 2017 ADT volumes using a peak hour factor of 10 percent. A 60/40 directional split in traffic was used to reflect traffic conditions for the peak hour. Information on the percentage of heavy vehicles and roadside features were taken from the existing operations analyses.

The analysis of future (2017) conditions is summarized in Table 5-4 Comparing the rural highway LOS with the operating standards in the OHP⁵ indicates that some sections of Highways 26, 395, and 7 are projected to operate below desirable levels. The OHP establishes a standard of LOS B for rural sections of statewide highways. Four segments are projected to operate at LOS C year round. During the summer, six segments are projected to operate at LOS C, and one segment, between Mt. Vernon and John Day, is projected to operate at LOS D.

⁵Table 1 - Operating Level of Service Standards for the State Highway System, 1991 Oregon Highway Plan.

**TABLE 5-4
2017 OPERATIONS ANALYSIS - RURAL HIGHWAY SECTIONS**

| Highway Section | 1995 | | 2017 | |
|------------------------------|---------|--------|---------|--------|
| | Average | Summer | Average | Summer |
| <i>Highway 19</i> | | | | |
| Kimberly to Highway 26 | A | A | A | B |
| <i>Highway 26</i> | | | | |
| W. County Line to Highway 19 | A | A | B | B |
| Highway 19 to Dayville | B | B | B | C |
| Dayville to Mt. Vernon | B | B | B | B |
| Mt. Vernon to John Day | C | D | C | D |
| John Day to Prairie City | B | B | B | C |
| Prairie City to Highway 7 | B | C | B | C |
| Highway 7 to E. County Line | A | A | A | A |
| <i>Highway 395</i> | | | | |
| N. County Line to Long Creek | B | C | C | C |
| Long Creek to Mt. Vernon | B | B | B | B |
| Canyon City to Seneca | B | C | C | C |
| Seneca to S. County Line | A | A | A | A |
| <i>Highway 402</i> | | | | |
| Kimberly to Monument | A | A | A | B |
| Monument to Long Creek | A | A | A | A |
| <i>Highway 7</i> | | | | |
| Highway 26 to E. County Line | B | C | C | C |

County Roads

Four sections of county road were analyzed as rural two-lane highways. These sections reflect the highest traffic volumes measured in Grant County. Both projected 2017 average and summer day peak hour conditions were analyzed using the same peak hour assumptions outlined for the state highways. Conservative assumptions of 100 percent no-passing zones and no usable shoulders were used for the analysis.

The results of the analysis are summarized in Table 4-3. The most heavily traveled county road sections are projected to operate at LOS B or better.

**TABLE 5-5
2017 OPERATIONS ANALYSIS - COUNTY ROAD SECTIONS**

| Highway Section | 1995 | | 2017 | |
|---------------------------------|---------|--------|---------|--------|
| | Average | Summer | Average | Summer |
| County Road 49 (Lay Creek) | A | B | A/B | B |
| County Road 52 (Dog Creek) | B | B | B | B |
| County Road 62 (Summit Prairie) | B | B | B | B |
| County Road 74 (West Bench) | B | B | B | B |

CHAPTER 6: IMPROVEMENT OPTIONS ANALYSIS

Potential transportation improvements for Grant County were developed and evaluated as part of the transportation system analysis. These potential improvements were developed with the help of the TAC, and attempt to address the concerns specified in the goals and objectives (Chapter 2). Based on an analysis of these projects, a list of improvements to be incorporated into the TSP is recommended. However, it should be noted that not all of the transportation needs on the County and State systems have identified funding. Therefore, identified transportation needs are not committed projects, but are potential projects subject to County approval on an individual and separate basis. Nothing in this plan can be construed to be an obligation or commitment of funds on the part of the County, or an obligation or commitment to undertake the potential transportation improvements described in this chapter.

Each of the transportation system improvement options was developed to address specific deficiencies and safety and access concerns. The following list includes all of the potential transportation system improvements considered.

1. Implement transportation demand management strategies.
2. Construct the Starr Ridge Bypass.
3. Improve sight distance at the intersection of County Road #82 and Highway 26/395.
4. Improve the access to Clyde Holiday State Park.
5. Improve the highway operations of Highway 26/395 between Mt. Vernon and John Day.
6. Widen Highway 26/395 in the John Day area from MP 160.41 to MP 161.51.
7. Extend West Bench Road (County Road #74) to Highway 26 in the John Day area and to Highway 395 in the Canyon City area.
8. If feasible, connect Marysville Road to Highway 26 in the John Day and Canyon City areas.
9. Provide a multi-use path along the John Day River Greenbelt in the Mt. Vernon area.
10. Upgrade structurally deficient and functionally obsolete bridges
11. Highway 26 bypass of Picture Gorge, possibly along County Road #40 (ODOT is conducting analysis of the proposal to determine feasibility and cost data).
12. Highway 26 improvement from Austin Junction to the Baker County Line.

As discussed in the remaining sections of this chapter, not all of these considered improvements were recommended. Recommendations were based on the evaluation of each project using the criteria described below.

EVALUATION CRITERIA

The evaluation of the potential transportation improvements was based on a qualitative review of safety, environmental, socioeconomic, and land use impacts, as well as estimated cost. The effect of each potential

project on traffic patterns was not evaluated since existing and future traffic projections for the county indicate there will be no deficiencies in the capacity of the roadway system over the next 20 years.

Safety was the first qualitative factor to be evaluated. Although driver safety is considered in these projects, pedestrian and bicycle safety should be a critical concern for the county. Environmental factors were also evaluated, such as air quality, noise, and water quality. Evaluation of socioeconomic and land use impacts considered right-of-way requirements, impacts to adjacent lands, and community livability. The final factor in the evaluation of each potential transportation improvement was cost. Costs were estimated in 1997 dollars based on preliminary alignments for each potential transportation system improvement.

EVALUATION OF POTENTIAL TRANSPORTATION IMPROVEMENTS

PROJECT 1. IMPLEMENT TRANSPORTATION DEMAND MANAGEMENT (TDM) STRATEGIES

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

There are two types of TDM measures that would be useful in Grant County. One is the development of facilities for alternative modes of transportation. This would include paved shoulders and paths, sidewalks, and bike lanes which would handle pedestrians and bicyclists. Another TDM measure would be to implement a county-wide carpooling program, with appropriate designated parking areas at congregation points.

All future street improvement projects in the rural areas of Grant County, whether they involve constructing a new roadway or upgrading an existing roadway, should include the addition of 2-to 6-foot paved shoulders, depending on the amount of traffic on the roadway. This would allow pedestrians and bicyclists to travel separately from the traffic on the road. All future street improvement projects in the urban areas of the cities of Grant County should include a pedestrian facility, such as a walkway or sidewalk, and should also consider bicycle lanes as well.

Implementation of a county-wide carpool program is possible. Because intercity commuting is a factor in Grant County, residents who live in one city and work in another should be encouraged to carpool with a fellow coworker or someone who works in the same area.

Impacts: Providing adequate facilities for pedestrians and bicyclists increases the livability of rural and urban areas of the county, and improves driver, pedestrian, and bicycle safety. With more emphasis on walking or biking in the county, conditions such as air quality and noise levels would be improved as well.

Cost: The costs for several types of facilities which promote walking and biking in the county are summarized below.

- *Paved Shoulders* - Shoulders constructed along both sides of a road that are 4 feet in width would cost around \$25 per linear foot of road. This would include 4 inches of asphalt and 9-inches of aggregate.
- *Multi-Use Paths* - A multi-use path 10 feet in width would cost around \$16 per linear foot. This includes 2 inches of asphalt and 4 inches of aggregate.

- *Concrete Sidewalks* - The estimated cost to install new sidewalks on one side of an existing street is around \$25 per linear foot. This includes a 5-foot wide walkway composed of 4 inches of concrete and 2 inches of aggregate.
- *Asphalt Sidewalks* - The cost to construct an asphalt sidewalk is about \$10 per linear foot. This estimate assumes that the asphalt pad is 6 feet wide and composed of 2 inches of asphalt and 4 inches of aggregate. Asphalt sidewalks require more maintenance than concrete sidewalks. Maintenance would include sealing every five years at about \$0.50 per linear foot and resurfacing every 10 years at about \$2.50 per linear foot.
- *Bike Lanes* - The cost to install bike lanes on both sides of an existing road is around \$45 per linear foot. This cost includes widening the roadway by 5 feet on both sides, installing curbs, using a fill composed of 4 inches of asphalt and 9 inches of aggregate, and placement of an 8 inch painted stripe.

These costs are for standalone improvements; the costs can be reduced when they are included as needed in roadway improvement projects throughout the Grant County area.

Costs associated with a county-wide carpool program were not determined as part of this plan.

Recommendation: Implementing TDM strategies would provide needed facilities for pedestrians and bicyclists, increase the safety of the roadway system, and enhance the quality of life in Grant County area. Therefore, the TDM strategies summarized above are recommended.

Project 2. Construct the Starr Ridge Bypass

Overview: This project would include the construction of a highway bypass between Highway 26/395, just east of the City of Mt. Vernon, and the area of Starr Ridge on Highway 395, about 15 miles south of John Day. The most probable route for the bypass would be along the existing alignments of County Road #49 and #63. This project has been identified as a reconnaissance project in the State Transportation Improvement Program (STIP).

The purpose of the Starr Ridge Bypass would be to create a more direct route for through traffic on Highway 395. Instead of traveling in an east-west direction on Highway 26 for seven to eight miles between Mt. Vernon and John Day, traffic would only have to travel a few miles east of Mt. Vernon to continue in a north-south direction on Highway 395. The bypass would avoid the Cities of John Day and Canyon City, which are two of the larger communities in Grant County. It would also avoid the potential road hazards, such as the steep vertical climb and horizontal curves in Highway 395 between Canyon City and the Strawberry Mountain Range.

Safety: Driver safety would be improved as a result of the bypass. Currently, sections of Highway 395 south of Canyon City are hazardous because of sharp turns and icy conditions during winter months. Some improvements are being planned for the potential road hazards along Highway 395, between Canyon City and the Strawberry Mountains, but not all hazards can be eliminated.

Traffic Analysis: A traffic volume analysis was performed to estimate the amount of traffic that would be diverted onto the Starr Ridge Bypass. Two sources of information were used to estimate this; the average daily traffic (ADT) volumes recorded in the 1995 ODOT Traffic Volume Tables and two turning movement counts performed at the downtown intersections in Mt. Vernon and John Day where Highway 26 and 395 converge and diverge.

Several assumptions were made for the analysis:

- It was assumed in the analysis that only through traffic from areas north (on Highway 395) or west (on Highway 26) of Mt. Vernon to areas south of Starr Ridge (on Highway 395) could be diverted onto the bypass. (This would hold true for the reverse trips as well.)
- Based on the turning movement data, an estimated 25 percent of the traffic on Highway 395 south of Canyon City is related to traffic from Highway 395 north of Mt. Vernon, an estimated 52 percent is related to traffic from Highway 26 west of Mt. Vernon, and an estimated 23 percent is related to Highway 26, east of John Day.
- A maximum diversion of 77 percent of the traffic on Highway 395 in the Starr Ridge area could be diverted if all the vehicles to and from areas north and west of Mt. Vernon were diverted to the bypass. This rate assumes that all of the traffic on Highway 395 at this location is traffic currently traveling throughout Mt. Vernon, John Day, and Canyon City to destinations further south.
- A more realistic assumption for a diversion rate would be about 50 percent of the traffic on Highway 395 in the Starr Ridge area. This rate assumes that some of the traffic on this section of Highway 395 is locally generated in the cities Mt. Vernon, John Day, and Canyon City or the surrounding forest areas. It also assumes that some of the through traffic would opt to use the services in John Day or Canyon City, and would therefore continue to use the current highway route.

With a 1995 ADT of 900 to 1,000 vehicles per day on Highway 395 in the Starr Ridge area, a maximum diversion could be 700 to 750 vehicles per day along the bypass. The second assumption of a 50 percent diversion rate would result in 450 to 500 vehicles per day diverted onto the bypass. Projections for the year 2017 indicate a maximum diversion of 850 to 900 vehicles per day or a 50 percent diversion of 550 to 600 vehicles per day.

Impacts: The diversion of vehicles onto the Starr Ridge Bypass will adversely affect the economic conditions of businesses in the John Day and Canyon City areas. These businesses rely partly on tourists, truckers, and local residents who are passing through the area.

Locating the bypass along the two existing county roads would require the State to acquire a considerable amount of right-of-way from the County.

Cost: A bypass constructed along County Roads #49 and #63 would require an upgrade from rural county standards to highway standards. Estimating the cost to perform an upgrade at \$250 per linear foot, with a project length of around 15 miles, this bypass would cost around \$20 million to construct. This cost does not include the costs associated with acquiring the right-of-way from the County.

Recommendations: This project is not recommended for several reasons. First, the cost alone to construct this bypass would be exceptional. Traffic projections also show that the bypass will be underutilized. Lastly, the bypass will have adverse effects on the commerce in John Day and Canyon City.

Project 3. Improve Sight Distance at the Intersection of County Road #82 and Highway 26/395

Overview: County Road #82 accesses Highway 26/395 west of the John Day city limits and inside the urban growth boundary. This county road is accessed daily by a large number of lumber trucks, city and county maintenance trucks, and sanding trucks. This road is also used by several residents whose homes are located along this road. Highway 26/395 in this area is a two-lane roadway, with a relatively straight alignment west of County Road #82 and a winding section of highway just east of the county road.

The safety of operations at this intersection is a concern because of the large number of slow-moving trucks which use County Road #82. These trucks accelerate very slowly onto the highway because of the slightly upwar approach of the county road and short turning radii of the northwest and northeast corners of the intersection. While sight distance along the highway may be adequate for a typical vehicle, such as a passenger car or small truck, it is questionable whether or not it is adequate for a slower-moving vehicle.

One solution to mitigate the sight distance inadequacy for large trucks in this area would be to provide an additional access to the highway west of County Road #82. Locating an access further to the west along the straight section of Highway 26/395 would provide more sight distance for larger vehicles accessing and egressing the highway. This new access would also tie into County Road #82.

Safety: This project would greatly improve driver safety for vehicles, particularly trucks, accessing and egressing the highway.

Impacts: The most probable location for a new access along Highway 26/395 would be opposite County Road #85. This would require a new roadway to the north through a hayfield and then east along the John Day River where it would tie in with County Road #82 near the County Shop. This alignment would require the County to purchase right-of-way.

In addition to providing a safer access option for existing development on County Road #82, the new roadway could serve potential future development on the north side on the highway.

Consideration should be given to potential flooding along the John Day River and how this would affect the new access road. Large rocks in the area indicate the ground is stable but there are some areas of standing water, possibly related to flooding or shallow ground water.

Cost: The cost for a new roadway built to county standards is estimated to be around \$300 per linear foot. This cost estimate includes a contingency factor of 40% which takes into account the costs associated with further study, engineering design, and other unforeseeable factors. With a length of 2,100 feet of new roadway required to access Highway 26/395 opposite County Road #85 and tie into the northern end of County Road #82, this project is estimated to cost around \$630,000.

Recommendations: Because this project would provide better access and improve driver safety, it is recommended.

It should be noted that the current access to County Road #82 along the highway would not be vacated and would remain in operation. This means that vehicles will continue to have the opportunity to use this access point. As well as recommending this improvement, it is also recommended that ODOT consider realigning a section of Highway 26/395 east of County Road #82. This would require reducing a portion of a vertical curve and trimming off an embankment on the south side of the highway.

Project 4. Improve the Access to Clyde Holiday State Park

Overview: Clyde Holiday State Park is located on the south side of Highway 26/395, just one mile east of Mt. Vernon. This park has two access points separated by a distance of 630 feet. In this area, Highway 26/395 is a two-lane facility with a mild horizontal curve in the roadway between the two access points. On the south side of the highway there is a small paved shoulder and an open ditch with large deciduous trees and shrubbery which provide a landscape barrier between the park and the highway.

Some concern has been raised about the safety in accessing Clyde Holiday State Park from Highway 26/395 because of high speeds, slow moving vehicles, and some sight distance limitations imposed by the horizontal curve. A left-turn lane for westbound traffic along the highway would provide a safe refuge for left-turning vehicles and

reduce the likelihood of some accidents. This project includes the addition of a left-turn refuge at the eastern access point along the highway.

Safety: Constructing a left-turn lane at the eastern access point will separate left-turning vehicles from the through traffic along the highway. Although no accidents were recorded in the state database from 1993 through 1995, a safety issue does still exist. Sight distance is somewhat limited at this location by the horizontal curve. Westbound vehicles approaching the park from the east may not see a vehicle slowing to turn into the park until it is too late to stop. Installing a left-turn lane would reduce the chances of a rear end collision place.

Impacts: Although this is one of the most highly traveled sections of highway in Grant County, the current and projected amounts of traffic in this area do not warrant a left-turn lane. The traffic operations for the left-turn movement from the highway are at LOS A and are projected to remain at the same LOS over the next 20 years.

Cost: The estimated cost to widen Highway 26/395 to include a left-turn refuge at the east access point is around \$150,000.

Recommendation: Although the analysis period evaluated as part of the safety analysis (see Chapter 4) indicates that no accidents occurred in this area, the potential for accidents, especially rear end collisions, does exist. Because of the high travel speeds, 55 mph in the area, any accident which does occur may be severe. Therefore, this project is recommended.

In conjunction with the addition of the left-turn lane, the shrubbery and trees between the park and highway along the horizontal curve should be pruned to optimize sight distance at both access points to the park.

Project 5. Improve the Highway Operations of Highway 26/395 Between Mt. Vernon and John Day

Overview: The existing rural, two-lane highway operations along the section of Highway 26/395 between Mt. Vernon and John Day indicate that the highway is currently operating at average LOS C over the year and LOS D during summer months. The future analysis indicates that conditions would probably worsen slightly but operations would remain at an average LOS C during the year and LOS D during the summer. The OHP⁶ establishes a standard of LOS B for rural sections of statewide highways; therefore, this section of Highway 26/395 operates below desirable levels.

To improve operations on this highway section, passing lanes would need to be added to the highway. One passing section would be adequate for the seven mile section between the two cities. The exact location would need to be determined by the State.

Safety: The addition of passing lanes would improve the safety of this section of Highway 26/395. Without the passing lane, some drivers may become impatient when traveling behind slow-moving vehicles and try to pass them on sections where passing may be unsafe.

Impacts: The addition of passing lanes would require widening Highway 26/395 by approximately 12 feet over a distance of about one mile. Some minor impacts to adjacent properties could occur with the roadway widening. Bridges may need widening if the passing lane should extend across a bridge.

Traffic volumes on this section of roadway are especially high because Highways 26 and 395 overlap along this section. Except for this overlap section, operations on the highways are generally operating at LOS B throughout the year and LOS C or better during summer months.

⁶Table 1- Operating Level of Service Standards for the State Highway System, 1991 Oregon Highway Plan.

The travel time between Mt. Vernon and John Day is typically less than 8 minutes on the 7-mile section of highway. For a slow-moving vehicle, traveling at 45 mph, the travel time would be just over 9 minutes. Adding a passing lane would save only a nominal amount of time before a driver would need to slow down to enter one of the cities.

Cost: Installing passing lanes would have an estimated cost of \$500,000 to \$1.0 million depending on location, length, river crossings, and other factors.

Recommendation: The addition of passing lanes would have a nominal benefit to a few drivers at a relatively high cost. While conditions do not meet desirable levels as specified in the Oregon Highway Plan, delays to drivers are still fairly low. Therefore, no passing lanes are recommended.

Project 6. Widen Highway 26/395 in the John Day Area From MP 160.41 to MP 161.51

Overview: County officials have proposed to extend the three lane section of Highway 26/395, which includes a continuous left-turn lane, from the end of the existing three lane section at the west city limits to the western end of Screech Alley.

This would require widening about a one mile section of highway from two to three lanes. The current street width in this area is 32 feet. Widening this road to include three 14-foot travel lanes and two 5-foot paved shoulders would require a street width of 52 feet.

Safety: This project would improve the safety for vehicles making left turns along the highway by providing a continuous left-turn lane. This will reduce the chances of a rear end collision on the highway between left-turning traffic and through traffic.

Impacts: Providing a three lane section in this area will improve the quality of access to the variety of commercial, industrial, and residential developments along this road. Such a facility will be attractive to developers and will encourage more development in this area, thus, helping to improve the health of the economy in the John Day area.

No additional right-of-way is required for this project. Increasing the highway width to 52 feet would still be well inside the 80 foot minimum right-of-way.

With the project located along a state highway and inside the UGB of John Day, this would require the cooperation of state, county, and city officials.

Cost: The estimated cost to widen the highway to a three lane section is around \$580,000. This assumes a project length of 1.10 miles at \$100 per linear foot of roadway. This cost estimate includes a contingency factor of 40 percent which takes into account the costs associated with further study, engineering design, and other unforeseeable factors.

Recommendation: Because this project will improve the safety and quality of access to the developments along this section of highway, and encourages growth, it is recommended.

Project 7. Extend West Bench Road (County Road #74) to Highway 26/395 in the John Day Area

Overview: County officials have expressed an interest in extending West Bench Road (County Road #74) northward to intersect with Highway 26/395. The extension would provide a more direct access to the highway. As part of the project, the western portion of Screech Alley would become a cul-de-sac while the eastern half of Screech Alley would be maintained.

This extension will require the existing "T" intersection of West Bench Road with Screech Alley to be moved slightly to the east and aligned with an open pasture to the north. If West Bench Road is extended directly across from the existing intersection, it would go through two landscaped yards. The open pasture to the north is low and would require fill. There is also a relatively large canal in this pasture which would require a small bridge or culvert crossing.

The location of this project is inside the John Day urban growth boundary and outside the city limits. The County will have jurisdiction over this new road.

Safety: This roadway extension will create a common "T" intersection with Highway 26/395 allowing for the removal of the unsafe skewed intersection between the western end of Screech Alley and the highway.

Impacts: The county has been working with the private owner on the details of right-of-way acquisition to construct this extension. The owner has agreed to relinquish the right-of-way needed but also wants to subdivide the remaining land in his possession. The county has told the owner that they will not allow this to happen.

Realigning the existing intersection of West Bench Road and Screech Alley to the east will eliminate part of an open drainage ditch and a sizable portion of landscaping in the yard of a residence on the southeast corner. The right-of-way for this realignment would have to be acquired as well.

Another option was considered where the new extension would be located further east so that it accessed the highway directly across from another road heading north to the lumber mill. However, this was not feasible because of a pond which would have to be crossed, and it would require a roundabout route to connect to West Bench Road.

Cost: The estimated cost for a new roadway is around \$300 per linear foot. With the length of the roadway extension at around 400 feet, this would cost \$120,000 to build. Assuming that a 40-foot culvert crossing is also required over the canal, this would cost an additional \$4,000. The cost to rebuild the existing "T" intersection for the new alignment further east is around \$90,000. The total cost for this project is estimated at \$214,000. This cost includes a contingency factor of 40% which takes into account the costs associated with further study, engineering design, and other unforeseeable factors. Right-of-way costs were not estimated for this project.

Recommendation: For reasons of improved safety in the access to Highway 26/395 and the available land to construct this extension, this project is recommended.

This project has also been recommended in the John Day/Canyon City Transportation Plan.

Project 8. Connect Marysville Road to Highway 26.

Overview: This project will create a new roadway connecting Marysville Road, in the eastern part of Canyon City, to Highway 26, in John Day. The roadway will generally parallel Highway 395 and will serve as an alternative route between the eastern portions of Canyon City and John Day. Initially, this project was identified in the John Day/Canyon City Transportation Plan and has since been modified to follow a different alignment. It begins just east of the intersection of Marysville Road and City East Road and continues about 8,200 feet north passing over juniper and sage brush country, and crossing over two large draws and ridges. The most probable location for the connection with Highway 26 would be near the Mormon Church. This location was chosen based on the topographical features of the mountainside here.

Safety: Marysville Road connects with Main Street in Canyon City. Main Street is a steep, narrow road connecting the ridge above Canyon Creek with the city and Highway 395 which lie in the narrow Canyon Creek valley. Most of the developable land in the city is located on this ridge. A subdivision is already planned in this area in the next few years.

Main Street is not adequate to carry a very large volume of traffic because of its steep descent into the Canyon Creek valley and its very narrow width and right-of-way. During the winter, icy conditions make it particularly hazardous because the roadway descends down the western slope of the valley and does not receive much direct sunlight until later in the day.

Impacts: This project will traverse several steep sections of terrain and will require clearing a vast amount of foliage such as sagebrush and juniper trees.

This project would run outside both UGBs for the Cities of John Day and Canyon City. A goal exception would be probably be needed for this improvement.

Cost: The estimated cost for a new roadway constructed on this type of terrain is around \$325 per linear foot. Estimating the length of this project to be around 8,200 feet, this roadway would cost around \$2,665,000 to build. This estimate assumes a 40% contingency factor which includes costs associated with further study, engineering design, and other unforeseeable factors.

Recommendation: Marysville Road connects into Main Street which is steep, narrow, and very hazardous during icy winter conditions. Main Street would be very difficult to improve because of existing development and slope of the canyon. However, the proposed route also involves a steep grade requiring the establishment of the feasibility of the project. If feasible, the connection from Marysville Road to Highway 26 is recommended. Cooperation and coordination between Grant County and the Cities of John Day and Canyon City will be very important for making this project move forward.

Project 9. Provide a Multi-Use Path Along the John Day River Greenbelt in the Mt. Vernon Area

Overview: The citizens of Mt. Vernon, in their Transportation System Plan, have expressed an interest in providing a multi-use facility along the John Day Greenbelt, extending from within Mt. Vernon's city limits heading east towards the logging yards. Residents are also interested in developing an alternative route for pedestrians and bicyclists, other than Highway 26/395, between the city and Clyde Holiday State Park located about 1 mile to the east. It could also serve other recreational users, such as horseback riders.

These concerns were combined to evaluate the development of a multi-use path, extending from Mt. Vernon to Clyde Holiday State Park. This path would travel along the north side of the John Day River, south of the logging yards, and would be approximately 7,000 feet in length.

Safety: A multi-use path would provide a safer conditions for pedestrians and bicyclists traveling between Mt. Vernon and the state park.

Impacts: The bulk of the alignment, approximately 5,500 feet of pathway, falls inside Mt. Vernon's UGB. The remaining 1,500 feet of pathway is outside Mt. Vernon's UGB. Therefore, this project would have to be a joint venture involving City and County officials. They would have to work together to secure the necessary right-of-way along the John Day River to develop this project.

Cost: The cost to clear, prepare, and construct a 10-foot wide asphalt path is around \$16 per linear foot. This assumes the pathway is composed of 2-inches of asphalt and 4-inches of aggregate. (These costs do not include special engineering problems, such as steep grades, retaining walls, and drainage, or land acquisition.) Asphalt pathways also require some maintenance. Sealing, at approximately \$0.70 per linear foot, would need to be done about every 5 years, and resurfacing, at approximately \$5 per linear foot, would need to be done about every 10 years.

With an estimated project length of around 7,000 feet, a new asphalt path would cost around \$157,000 to complete. This estimate includes construction costs as well as maintenance costs for sealing twice and resurfacing once. If costs are shared between Grant County and the City of Mt. Vernon based on length within the city UGB, the City would be responsible for \$123,000 and the County would be responsible for \$34,000.

Recommendation: The City of Mt. Vernon is very interested in working with Grant County to pursue this project because of its benefits to the community and the region. There may be some opposition by the property owners along the alignment of the proposed multi-use path; however, it is recommended for inclusion in the plan. Efforts to implement this project will need to be coordinated between Grant County, Mt. Vernon, and the state since the connection with Clyde Holiday State Park would lie in their jurisdiction.

Project 10. Upgrade Structurally Deficient and Functionally Obsolete Bridges

Overview: Both the state and the county have bridges which have deficiencies⁷ that need to be addressed as soon as possible. These bridges have been identified as structurally deficient (one state bridge and five county bridges) or functionally obsolete (four state bridges and two county bridges). In addition to the immediate need, several (four state bridges and four county bridges) have sufficiency ratings below 55, indicating that they may reach a deficient level in the near future.

Bridges which fall into any of these three categories will need to be repaired or replaced some time in the next 20 years.

Safety: Structurally deficient bridges have been identified as unsafe through inventories of the various structural elements. They need to be replaced or repaired in order to safely serve the traffic demands of the area. Bridges with this rating may have the greatest need for upgrades.

Functionally obsolete bridges cannot adequately service the demand placed on them because of some design deficiency such as being too narrow for today's standards. They need to be upgraded as well, which could involve improving or replacing the existing facility. If these bridges serve a high traffic demand, they may be a high priority for upgrades.

Bridges with sufficiency ratings below 55 are not currently deficient but may become so in the future. They have been flagged as facilities which may need repair some time in the next 20 years.

Project 11. Construct a Highway 26 Picture Gorge Bypass

Overview: The need for a bypass around Picture Gorge has been recognized for many years. It was also identified as part of the draft Highway 26 Corridor Strategy public involvement process. The project would involve a new alignment for Highway 26 south of the Picture Gorge area, possibly along the current route of Grant County Road #40. The bypass proposal would provide a more direct route between points on Highway 26 immediately east and west of Picture Gorge.

Safety: Driver safety would be improved as the result of the bypass. Narrow width, numerous sharp curves, poor sight distance, environmentally sensitive areas, and rockfall hazards characterize the existing road through Picture Gorge and adjacent Rock Creek.

⁷The description of structural deficiency, functional obsolescence, and sufficiency ratings are based on the *Oregon Coding Guide for the Inventory and Appraisal of Oregon Bridges* by the Oregon Department of Transportation Bridge Section in May, 1994.

The feasibility and costs analysis for the proposed project is currently being done by ODOT as part of the Highway 26 Corridor Planning process.

Project 12. Improve Highway 26 from Austin Junction to Baker County Line

Overview: Improvements to this section of Highway 26 were also identified as part of the draft Highway 26 Corridor Strategy public involvement process. The project involves the reconstruction and widening of the existing horizontal and vertical alignment to moderate curves and improve sight distance.

Safety: The existing curves, fills, and cuts would be moderated and widened to improve driver safety. The narrow roadway, limited sight distance, and shaded cuts are a safety issue, especially under winter driving conditions in this mountain pass area.

Cost: The proposed project is identified in the current 2000-2003 Statewide Transportation Improvement Program at a cost of \$4.5 million. The project has been coordinated with the US Forest Service and the environmental documentation has been completed. Construction is planned for the year 2002.

**TABLE 6-1
CONSTRUCTION COSTS FOR UPGRADING SUBSTANDARD BRIDGES**

| Bridge Location | Upgrade Classification | Improvement | Estimated Cost | |
|---------------------------------------------------------------------------------------|-------------------------|-------------|---------------------|---------------------|
| | | | 1994 \$ | 1997 \$ |
| State Highways | | | | |
| Highway 26 over Battle Creek (MP 128.28) | Structurally Deficient | Replace | \$292,000 | \$336,000 |
| Highway 26 over the John Day River (MP 155.75) | Functionally Obsolete | Repair | \$1,160,000 | \$1,334,000 |
| Highway 26 over Canyon Creek (MP 162.08) | Functionally Obsolete | Repair | \$340,000 | \$391,000 |
| Highway 26 over Indian Creek (MP 170.49) | Sufficiency Rating < 55 | Replace | \$638,000 | \$734,000 |
| Highway 26 over the John Day River (MP 170.62) | Sufficiency Rating < 55 | Replace | \$1,263,000 | \$1,452,000 |
| Highway 26 over Dixie Creek (MP 174.96) | Sufficiency Rating < 55 | Replace | \$811,000 | \$933,000 |
| Highway 395 over the Middle Fork of the John Day River north of Mt. Vernon (MP 77.38) | Functionally Obsolete | Repair | \$454,000 | \$522,000 |
| Highway 395 approach road south of Canyon City (MP 4.3) | Functionally Obsolete | Repair | \$2,001,000 | \$2,301,000 |
| Highway 395 approach road south of Canyon City (MP 4.81) | Sufficiency Rating < 55 | Replace | \$143,000 | \$164,000 |
| County Roads | | | | |
| CR #1 over the North Fork of the John Day River (MP 0.1) | Structurally Deficient | Replace | \$3,240,000 | \$3,726,000 |
| CR #15 over the Middle Fork of the John Day River (MP 10.1) | Functionally Obsolete | Repair | \$999,000 | \$1,149,000 |
| CR #15 over the North Fork of the John Day River (MP 26.02) | Sufficiency Rating < 55 | Replace | \$1,775,000 | \$2,041,000 |
| CR #20A over the Middle Fork of the John Day River (MP 0.16) | Structurally Deficient | Replace | \$346,000 | \$398,000 |
| CR #20 over the Middle Fork of the John Day River (MP 16.0) | Structurally Deficient | Replace | \$1,089,000 | \$1,252,000 |
| CR #29 over the North Fork of the John Day River (MP 0.05) | Functionally Obsolete | Repair | \$945,000 | \$1,087,000 |
| CR #41 over the John Day River (MP 0.2) | Structurally Deficient | Replace | \$988,000 | \$1,136,000 |
| CR #45 over the John Day River (MP 2.9) | Structurally Deficient | Replace | \$389,000 | \$447,000 |
| CR #57 over the John Day River (MP 0.3) | Sufficiency Rating < 55 | Replace | \$800,000 | \$920,000 |
| CR #62 over the John Day River (MP 0.2) | Sufficiency Rating < 55 | Replace | \$443,000 | \$509,000 |
| CR #70 over the John Day River (MP 0.1) | Sufficiency Rating < 55 | Replace | \$779,000 | \$896,000 |
| Total for State Highways | | | \$7,102,000 | \$8,167,000 |
| Total for County Roads | | | \$11,793,000 | \$13,561,000 |

Impacts: If the bridges are not repaired or replaced, limitations on usage may affect users of the facilities. This could include long routes to divert traffic off bridges which cannot safely service demand. Limitations on bridge use could affect the economy of some of the resource-based industries in the area.

Cost: The estimated cost for the bridge upgrades is based on formulas used by ODOT Bridge Section and are originally based on typical 1994 construction costs. These estimates have then been increased by 15 percent to reflect present day (1997) dollars. Table 6-1 summarizes the cost estimates for upgrading the bridges. The improvements have been grouped by state highway or county road and show bridges by roadway number and milepost. The reason for the upgrade is shown in the classification.

Recommendation: All of these bridges are recommended for improvement over the next 20 years. Priority for bridge improvements will be a function of several factors including severity of deficiency, demand for the facility, and availability of funding.

SUMMARY

Table 6-2 summarizes the recommendations of the roadway system modal plan based on the evaluation process described in this chapter. Chapter 7 discusses how these improvement options fit into the modal plans for Grant County area.

**TABLE 6-2
TRANSPORTATION IMPROVEMENT OPTIONS:
RECOMMENDATION SUMMARY**

| Option | Recommendation |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 1. Implement transportation demand management strategies. | • Implement |
| 2. Construct the Starr Ridge Bypass. | • Do not implement |
| 3. Improve sight distance at the intersection of County Road #82 and Highway 26/395. | • Implement |
| 4. Improve the access to Clyde Holiday State Park. | • Implement |
| 5. Improve the highway operations of Highway 26/395 between Mt. Vernon and John Day. | • Do not implement |
| 6. Widen Highway 26/395 in the John Day area from MP 160.41 to MP 161.51. | • Implement |
| 7. Extend West Bench Road to Highway 26/395 in the John Day area. | • Implement |
| 8. If feasible, connect Marysville Road to Highway 26 in the John Day and Canyon City. | • Implement |
| 9. Provide a multi-use path along the John Day River Greenbelt in the Mt. Vernon area. | • Implement |
| 10. Upgrade structurally deficient and functionally obsolete bridges | • Implement |
| 11. Reconstruct, widen, and moderate curves on Highway 26 from Austin Junction to the Baker County Line (MP 190.8 to MP 197.2). | • 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 Grant County TSP covers all the transportation modes that exist and are interconnected throughout the urban area. Components of the roadway system plan include street classification standards, access management recommendations, transportation demand management measures, modal plans, and a system plan implementation program.

ROADWAY DESIGN STANDARDS

Roadway design standards relate the design of a roadway to its function. The function is determined by operational characteristics such as traffic volume, operating speed, safety, and capacity. Road standards are necessary to provide communities in the county with roadways which are relatively safe, aesthetic, and easy to administer when new roadways are planned or constructed.

The development of the Grant County TSP provides the County with an opportunity to review and revise street design standards to more closely fit with the functional street classification, and the goals and objectives of the TSP. The recommended street standards are shown graphically in Figure 7-1, summarized in Table 7-1 and described in detail on the following pages.

**TABLE 7-1
RECOMMENDED ROAD STANDARDS FOR GRANT COUNTY**

| Classification | Travel Lanes | | Shoulder | | Total Width | Right-of-Way Width | Minimum Design Speed |
|---------------------|-------------------|---------|-------------------|----------|-------------|--------------------|----------------------|
| | Surface | Width | Surface | Width | | | |
| Limited Residential | Gravel | 20 feet | Gravel | 2 feet | 24 feet | 60 feet | 25 mph |
| Residential | Oil Mat | 24 feet | Gravel | 2 feet | 28 feet | 60 feet | 25 mph |
| Local | Oil Mat - Asphalt | 24 feet | Oil Mat - Asphalt | 2-4 feet | 28-32 feet | 60 feet | 35 mph |
| Minor Collector | Oil Mat-Asphalt | 24 feet | Oil Mat-Asphalt | 2-6 feet | 28-36 feet | 60 feet | 50 mph |
| Major Collector | Asphalt | 24 feet | Asphalt | 2-8 feet | 28-40 feet | 60 feet | 55 mph |
| Arterial | Asphalt | 24 feet | Asphalt | 4-8 feet | 32-40 feet | 60 feet | 55 mph |

Local/Residential Roadways

Recommended road standards for Grant County (including local roads) are provided in Table 7-1. These standards vary by width, shoulder, and surface type. The width of the shoulder is determined by anticipated traffic volumes, as shown in the table in Figure 7-1. It is expected that on rural local roadways, parking will be off the roadway.

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

Limited Residential Roadways

The standard for a limited residential roadway is a 24-foot roadway within a 60-foot right-of-way, as shown on Figure 7-1. The gravel surface includes two travel lanes totaling 20 feet and 2-foot shoulders. Volumes on this type of roadway are expected to be very low, with only a few homes served by the facility, similar to a cul-de-sac. The recommended minimum design speed is 25 miles per hour.

Residential Roadways

Residential roadways are designed to carry slightly higher volumes of traffic. The roadway is 28 feet wide within a 60-foot right-of-way (see Figure 7-1). The travel lanes total 24 feet in width and should be constructed with an oil mat surface. Shoulders are 2 feet wide and constructed of gravel. The recommended minimum design speed is 25 miles per hour.

Local Roadways

Local roadways are designed to serve a variety of adjacent land uses. The standard provides a 28- to 32-foot roadway surface within a 60-foot right-of-way. The entire surface would be oil mat or asphalt concrete. Shoulder width on the roadway would vary from 2 to 4 feet, depending on traffic volume. The necessary shoulder width can be determined from the table in Figure 0-1. The recommended minimum design speed is 35 miles per hour.

Collector Roadways

Collector roadways are primarily intended to serve adjacent lands and local access needs of neighborhoods. Depending on traffic volumes, collector roadways can be classified as minor or major. It is expected that on rural collector roadways, parking will be off-pavement.

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

Minor Collector Roadways

Figure 7-1 shows a cross section with a 60-foot right-of-way and a 28 to 36-foot paved surface consisting of oil mat or asphalt concrete. This width allows two twelve-foot travel lanes and 2- to 6-foot shoulders. The width of the roadway is determined by the width of the shoulder. The width of the shoulder is determined by anticipated traffic volumes, as shown in the table in Figure 7-1. The recommended minimum design speed is 50 miles per hour. Terrain and other natural or manmade features of the area will affect actual design speed.

Major Collector Roadways

Major collector roadways are expected to carry higher traffic volumes at slightly higher speeds than minor collector roads. The roadway cross-section in Figure 7-1 shows a 28- to 40-foot paved width within a 60-foot right-of-way. Shoulder width on the roadway would vary from 2 to 8 feet, depending on traffic volume. The necessary shoulder width can be determined from the table in Figure 7-1. The recommended minimum design speed is 55 miles per hour. Terrain and other natural or manmade features of the area will affect actual design speed.

Arterial Roadways

Arterial roadways form the primary roadway network within and through a region. They provide a continuous roadway system which distributes traffic between different neighborhoods and districts. Generally, arterial roadways are high capacity roadways which carry high traffic volumes with minimal localized activity.

Figure 7-1 shows a cross section with a 60-foot right-of-way and a 32 to 40-foot paved width. This width allows two 12-foot travel lanes and 4- to 8-foot shoulders. The width of the roadway is determined by the width of the shoulder. The width of the shoulder is determined by anticipated traffic volumes, as shown in the table in Figure 7-1. No on-roadway parking should be allowed on arterial roadways. Terrain and other natural or manmade features of the area will affect actual design speed.

For the most part, rural arterial roadways will not include sidewalks. Pedestrians are generally accommodated on the shoulder of the road, as are bicyclists. However, in areas with high pedestrian or bicycle use, a pathway should be considered, preferably located on both sides of the roadway, separated from the roadway by at least five feet of greenbelt or drainage ditch. The recommended minimum design speed is 55 miles per hour.

Bike Lanes

For the most part, rural roadways do not require separate bikeway facilities. Bicyclist shall be accommodated on the shared roadway or on a shoulder, depending on traffic volumes. In areas with high bicycle use, a pathway should be considered, preferably located on both sides of the roadway, separated from the roadway by at least five feet of greenbelt or drainage ditch.

Sidewalks

Rural roadways generally do not require separate pedestrian facilities. Pedestrians shall be accommodated on the shoulder of the roadway. In areas with high pedestrian activity, a pathway should be considered, preferably located on both sides of the roadway, separated from the roadway by at least five feet of greenbelt or drainage ditch.

ACCESS MANAGEMENT

ACCESS MANAGEMENT

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

The Transportation Planning Rule (TPR) defines access management as measures regulating access to streets, roads and highways from public roads and private driveways and requires that new connections to arterials and state highways be consistent with designated access management categories. As the County 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 TSP is to develop an access management policy that maintains and enhances the integrity (capacity, safety, and level-of-service) of the county's roads and highways. Too many access points along a road can contribute to a deterioration of its safety, and on some roads, can interfere with efficient traffic flow.

Access Management Techniques

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

- Restricting 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.
- Based on ODOT design and safe operational priorities, offsetting driveways to produce T-intersections to minimize the number of conflict points between traffic using the driveways and through traffic.
- Installing median barriers to control conflicts associated with left-turn movements.
- Installing side barriers to the property along the arterial to restrict access width to a minimum.
- Develop and adopt local ordinances that require inter-parcel circulation.
- Develop long-term signal system plan for state roadways consistent with ODOT priorities for optimum signal progression performance.

Recommended Access Management Standards

Access management is hierarchical, ranging from complete access control on freeways to increasing use of streets for access purposes, parking and loading at the local and minor collector level. Table 7-2 describes recommended general access management guidelines by roadway functional classification.

**TABLE 7-2
STATE HIGHWAY ACCESS MANAGEMENT STANDARDS**

| Highway | Category | Urban/ Rural | Intersection | | | |
|----------|----------|-----------------|---------------------|----------|------------------------------|------------|
| | | | Public Road | | Private Drive ⁽²⁾ | |
| | | | Type ⁽¹⁾ | Spacing | Type | Spacing |
| 26 & 395 | 4 | Urban | at-grade/intch | ¼ mile | L/R Turns | 500 feet |
| | | Rural | at-grade/intch | 1 mile | L/R Turns | 1,200 feet |
| 7 & 19 | 5 | Urban | at-grade | ¼ mile | L/R Turns | 300 feet |
| | | Rural | at-grade | ½ mile | L/R Turns | 500 feet |
| 402 | 6 | Urban | at-grade | 500 feet | L/R Turns | 150 feet |
| | | Rural | at-grade | ¼ mile | L/R Turns | 300 feet |

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. Any access to a state highway requires a permit from the ODOT District Office. Access will generally not be granted where there is a reasonable alternative access.

It should be noted 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, redevelopment of existing properties along the highway, or a major construction project is begun on the street.

Application

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

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

State Highways

Access management is important to promoting safe and efficient travel for both local and long distance users along State Highways. The 1991 *Oregon Highway Plan (OHP)* specifies an access management classification system for state facilities. The 1999 Highway Plan (OHP) updates the access management standards and establishes guidelines and criteria to be applied when making access management assignments (also see Highway 395 Corridor Plan). Future developments on state highways (zone changes, comprehensive plan amendments, redevelopment, and/or new development) will be required to meet the 1991 OHP Level of Importance (LOI) and Access Management policies and standards until the 1999 Highway Plan is adopted. Although the County may designate state highways as arterial roadways within their transportation systems, the access management categories for these facilities should generally follow the guidelines of the Oregon Highway Plan. This section of the Transportation System Plan describes the state highway access categories and specific roadway segments where special access areas may apply.

Future developments on state highways (zone changes, comprehensive plan amendments, redevelopment, and/or new development) will be required to meet the 1991 Oregon Highway Plan Level of Importance (LOI) and Access Management policies and standards. Within urban or urbanizing areas, a new development will need to maintain an 500-foot (*Category 4 highways*) or 150-foot (*Category 6 highways and other arterials*) spacing (centerline-to-centerline)

between either existing private or public access points on both sides of the roadway and to either side of the proposed access point. Additional property frontage along the state highway does not guarantee that additional approach roads will be allowed. Proposed land use actions that do not comply with the designated access spacing policy will be required to apply for an access variance from Grant County and/or ODOT. In addition, according to the 1991 OHP, the impact in traffic generation from proposed land uses must allow a Level Of Service (LOS) "C" to be maintained for *Category 4* segments within the development's influence area along the highway and a LOS "D" for *Category 6* segments. The influence area is defined as the area in which the average daily traffic is increased by 10 percent or more by a single development, or 500 feet in each direction from the property-line of the development (whichever is greater). Suggested construction standards for access on all roadways within Grant County are listed in Table 7-2.

The existing *legal* driveway connections, traffic intersection spacing and other accesses to the state highway system are not required to meet the spacing standards of the assigned category immediately upon adoption of this access management plan. However, existing permitted connections not conforming to the design goals and objectives of the roadway classification will be upgraded as circumstances permit and during redevelopment. At any time, an approach road may need to be modified due to a safety problem or a capacity issue that exists or becomes apparent. By statute, ODOT is required to ensure the all safety and capacity issues are addressed.

A conditional access permit may be issued by ODOT and Grant County for a single connection to a property that cannot be accessed in a manner that is consistent with the spacing standards (shown in table 7-2). These conditions typically apply to properties that either have no reasonable access or cannot obtain reasonable alternative access to the public road system. The permit should carry a condition that the access may be closed at such time that reasonable access becomes available to a local public street. In addition, approval of a conditional permit might require ODOT-approved turning movement design standards to ensure safety and managed access. Under special circumstances, ODOT may be required to purchase property in order to prevent safety conflicts.

General

Highways 26 & 395, in Grant County, are state highways of statewide level of importance. Within the UGB, Oregon Highway Plan Category 4, "Limited Control"⁸ applies. This classification permits at-grade intersections or interchanges at a minimum spacing of one-quarter mile. Private driveways should have a minimum spacing of 500 feet from each other and from intersections. In Rural areas this classification permits at-grade intersections or interchanges at a minimum spacing of 1 mile. Private driveways should have minimum spacing of 1,200 feet from each other and from intersections.

Highways 7 & 19, in Grant County, are state highways of regional level of importance. Within the UGB, Oregon Highway Plan Category 5, "Partial Control"⁹ applies. This classification permits at-grade intersections at a minimum spacing of ¼ mile, private driveway spacing at a minimum of 300 feet. In Rural areas this classification permits at-grade intersections or interchanges at a minimum spacing of ½ mile. Private driveways should have minimum spacing of 500 feet from each other and from intersections.

Highway 402, in Grant County, is a state highway of district level of importance. Within the UGB, Oregon Highway Plan Category 6, "Partial Control"¹⁰ applies. This classification permits at-grade intersections at a minimum spacing of 500 feet, private driveway spacing at a minimum of 150 feet. In Rural areas this classification permits at-grade intersections or interchanges at a minimum spacing of 300 feet from each other and from intersections.

⁸ 1991 *Oregon Highway Plan*, Appendix B, Table 1, Access Management Classification System

⁹ 1991 *Oregon Highway Plan*, Appendix B, Table 1, Access Management Classification System

¹⁰ 1991 *Oregon Highway Plan*, Appendix B, Table 1, Access Management Classification System

MODAL PLANS

Grant County modal plans have been formulated using information collected and analyzed through a physical inventory, forecasts, goals and objectives, and input from local community representatives. The plans consider transportation system needs for Grant County during the next 20 years assuming the growth projections discussed in Chapter 5. The timing for individual improvements will be guided by the changes in land use patterns and growth of the population in future years. Specific projects and improvement schedules may need to be adjusted depending on when and where growth occurs within Grant County .

Roadway System Plan

The improvements to the roadway system are summarized in Table 7-4. The implementation program, described later in this chapter, provides a prioritized list of these improvements.

**TABLE 7-4
RECOMMENDED ROADWAY SYSTEM PROJECTS**

| Bridge Location | Estimated Cost |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| State Highway Roadway Projects | |
| Improve access to Clyde Holiday State Park by providing a left-turn lane at the eastern entrance. | \$150,000 |
| Widen Highway 26/395 in the John Day area from milepost 160.41 to milepost 161.51 to provide a continuous left-turn lane. (Estimated cost =) | \$580,000 |
| Construct a Highway 26 bypass around Picture Gorge (ODOT to conduct needs/feasibility analysis& determine cost data). | |
| Reconstruct, widen and moderate curves on Highway 26 from Austin Junctions to the Baker County Line (mile post 190.8 to milepost 197.2). | \$4,500,000 |
| State Highway Bridge Projects | |
| Highway 26 over Battle Creek (MP 128.28) | \$336,000 |
| Highway 26 over the John Day River (MP 155.75) | \$1,334,000 |
| Highway 26 over Canyon Creek (MP 162.08) | \$391,000 |
| Highway 26 over Indian Creek (MP 170.49) | \$734,000 |
| Highway 26 over the John Day River (MP 170.62) | \$1,452,000 |
| Highway 26 over Dixie Creek (MP 174.96) | \$933,000 |
| Highway 395 over the Middle Fork of the John Day River north of Mt. Vernon (MP 77.38) | \$522,000 |
| Highway 395 approach road south of Canyon City (MP 4.3) | \$2,301,000 |
| Highway 395 approach road south of Canyon City (MP 4.81) | \$164,000 |
| County Roadway Projects | |
| Construct a new connection to County Road #82 which runs along the John Day River and then turns southward to connect with Highway 26/395 opposite County Road #85. | \$630,000 |
| Extend West Bench Road (County Road #74) to connect with Highway 26/395 in John Day. Close off the western Screech Alley access to the highway in a cul-de-sac. | \$214,000 |
| Construct a new road from Marysville Road (county Road #52) northward, parallel to Highway 395, to create a connection with Highway 26 in John Day. | \$2,665,000 |
| County Road Bridge Projects | |
| CR #1 over the North Fork of the John Day River (MP 0.1) | \$3,726,000 |
| CR #15 over the Middle Fork of the John Day River (MP 10.1) | \$1,149,000 |
| CR #15 over the North Fork of the John Day River (MP 26.02) | \$2,041,000 |
| CR #20A over the Middle Fork of the John Day River (MP 0.16) | \$398,000 |
| CR #20 over the Middle Fork of the John Day River (MP 16.0) | \$1,252,000 |
| CR #29 over the North Fork of the John Day River (MP 0.05) | \$1,087,000 |
| CR #45 over the John Day River (MP 2.9) | \$447,000 |
| CR #57 over the John Day River (MP 0.3) | \$920,000 |
| CR #70 over the John Day River (MP 0.1) | \$896,000 |
| Total for State Highways | \$12,667,000 |
| Total for County Roads | \$11,916,000 |

Pedestrian System Plan

In rural areas, it is typical to accommodate pedestrians on roadway shoulders. Many of the shoulders on both county roads and state highways in Grant County cannot safely accommodate pedestrians. Therefore, as Grant County's roads and the state highways are paved, repaved, or reconstructed, shoulders should be widened to meet the standards shown in Figure 7-1. New roads should be constructed with adequate shoulders. In addition to accommodating pedestrians and bicyclists, shoulders also protect the roadway edge from raveling and increase safety for motorists. Costs for shoulder additions are approximately \$2 per square foot.

Only one pedestrian project has been identified as part of the transportation plan:

- *Multi-Use Path* - Construct a 10-foot wide recreational path along the John Day River from Mt. Vernon to Clyde Holiday State Park. (Total Estimated Cost = \$157,000 with the City of Mt. Vernon responsible for about \$34,000 and Grant County responsible for about \$123,000 based on proportionate length within each jurisdiction.)

The City of Mt. Vernon is very interested in working with Grant County to pursue this project because of its benefits to the community and the region although the feasibility of such a path may be limited by the need for right-of-way and the concern for access across private land. Efforts to implement this project will need to be coordinated between Grant County, Mt. Vernon, and the state since the connection with Clyde Holiday State Park would lie in their jurisdiction.

Bicycle System Plan

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

State Highways

Generally shoulder widths on state highways are not currently wide enough to meet the recommendations in the *Oregon Bicycle and Pedestrian Plan*. Most paved shoulders on state highways are 2 to 4 feet wide next to the sloping gravel roadway bed. Recommended shoulder widths, based on volume, can be determined from the table in Figure 7-1. The results are summarized in Table 7-5.

County Roads

Most of the roadways in Grant County have 1 to 2 foot shoulders, usually gravel, not paved. Traffic volumes on county roads are generally low enough that bicyclists can share the roadway with motorized vehicles although a minimum 2-foot wide shoulder is recommended for all roadways except arterials, as shown in Figure 7-1. Arterial roadways have a minimum 4-foot wide shoulder. All shoulders need to be paved for local, minor collector, major collector, and arterial roadways.

Based on existing and future traffic volumes, the following county roads need 4-foot wide shoulders on some portion of the roadway:

- County Road #49 south of Highway 26 and east of Mt. Vernon
- County Road #52 east of Canyon City
- County Road #54 south of Highway 26 between John Day and Prairie City
- County Road #62 south of Prairie City
- County Road #74 west of John Day
- County Road #3 north of Monument
- County Road #80 Airport (industrial)
- County Road #20 Middle Fork John Day River

On the remaining county roads and lower volume sections of the above roads, a 2-foot wide shoulder should be adequate.

**TABLE 7-5
RECOMMENDED SHOULDER WIDTHS ON
STATE HIGHWAYS**

| Highway Section | Shoulder Width |
|------------------------------|---------------------------|
| <i>Highway 19</i> | |
| Kimberly to Highway 26 | 4-6 feet |
| <i>Highway 26</i> | |
| W. County Line to Highway 19 | 8 feet |
| Highway 19 to Dayville | 8 feet |
| Dayville to Mt. Vernon | 8 feet |
| Mt. Vernon to John Day | 8 feet |
| John Day to Prairie City | 8 feet |
| Prairie City to Highway 7 | 8 feet |
| Highway 7 to E. County Line | 4 feet |
| <i>Highway 395</i> | |
| N. County Line to Long Creek | 6 feet |
| Long Creek to Mt. Vernon | 6 feet |
| Canyon City to Seneca | 8 feet |
| Seneca to S. County Line | 6 feet |
| <i>Highway 402y</i> | |
| Kimberly to Monument | 4-6 feet |
| Monument to Long Creek | 4-6 feet |
| <i>Highway 7</i> | |
| Highway 26 to E. County Line | 6 feet |

Adding Shoulders

No specific shoulder widening projects are recommended as part of this plan. As Grant County's roads and the state highways are paved, repaved, resurfaced, or reconstructed, shoulders should be widened to meet the standards shown in Figure 7-1. All new roads should be constructed with adequate shoulders.

Multi-use paths are popular in rural areas, especially when they provide a viable alternative to a busy highway. No paved separated paths are found in Grant County. A separated path along the John Day River greenbelt from Mt. Vernon to Clyde Holiday State Park has been identified as part of the pedestrian system plan.

Transportation Demand Management Plan

Through transportation demand management (TDM), peak travel demands can be reduced or spread to more efficiently use the transportation system, rather than building new or wider roadways. Techniques which 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 Grant County, where traffic volumes are low and the population and employment is small, implementing TDM strategies is not practical in most cases. However, because intercity commuting is a factor in Grant County,

residents who live in one city and work in another city should be encouraged to carpool with a coworker or someone who works in the same area. Based on journey-to-work statistics from the 1990 Census, almost 16 percent of all work trips are currently made by carpool. Grant County should consider starting a ride-share program and look for available funding opportunities (i.e. grants).

Public Transportation Plan

Grant County has paratransit and long distance services provided by The People Mover company based in John Day. They provide passenger services to senior citizens and the disabled and also serve the general public.

No specific expansions of any of these services is currently planned; however, with county-wide population growth projected about 15 percent over the next 20 years, additional demand for these services can be expected. Furthermore, increased usage of these services should be encouraged. The resulting increase in demand may require some expansion in the future.

No costs have been estimated for expanding existing public transportation services. Some potential funding sources include grants to conduct feasibility studies and State and Federal funding to purchase equipment.

Rail Service Plan

Grant County has no passenger or freight rail services.

Air Service Plan

Currently, there is a municipal airport in Monument and a county-owned airport located in John Day. There are a number of private airstrips located in the county which may be used in emergencies.

The City of Monument would like to expand the facilities to include lighting for the airport's runway and a new helipad. The expansion would require some additional land rights from the BLM. An Airport Master Plan should be prepared by the city to further study of the airport needs and potential for expansion. The Monument Airport is not designated in the National Plan of Integrated Airports System (NPIAS), and therefore is not eligible for federal funding for either the Airport Master Plan or the proposed airport improvements..

The John Day State Airport is located on a high bench west of John Day and northwest of Canyon City. Recreational flyers, businesses, and public agencies are the most frequent users. . The Airport Master Plan, was adopted in 1978, including an inventory of existing facilities and land use, aviation forecasts, a demand/capacity analysis, an airport plan and development program, a detailed land use plan, and a chapter on environmental issues. In addition to the master plan, the John Day/Canyon City TSP includes a new access road connecting West Bench Road (CR #74) to the existing airport access road. This improvement will provide an access route that avoids the present steep and narrow Airport Road..

Grant County has no commercial air service. The nearest commercial airports are in Redmond, west of the county, or Pendleton, north of the county. Public transportation to the Redmond Airport is available through The People Mover on Monday, Wednesday, or Friday with an advance call to request the stop.

Pipeline Service Plan

Grant County has no pipeline transportation services.

Waterborne Service Plan

Grant County has no waterborne transportation services.

Other Modal Plans

Grant County has several additional modes that are important to the economy of the area. These include the movement of livestock herds along roads and highways (e.g., cattle drives), horse drawn vehicles, equestrian movements, and snowmobiles. By policy, livestock, horse-drawn vehicles and equestrian movements are allowed on highways in areas of open range. Specific equestrian and snowmobile routes can be designated and included in the TSP as a modal plan at the discretion of the county.

TRANSPORTATION SYSTEM PLAN IMPLEMENTATION PROGRAM

Implementation of Grant County TSP will require changes to the county comprehensive plan and zoning code and preparation of a 20-year capital improvement plan. These actions will enable Grant County to address existing and emerging transportation issues throughout the urban area in a timely and cost effective manner.

One part of the implementation program is formulation of a 20-year capital improvement program (CIP). The purpose of the CIP is to detail what transportation system improvements will be needed as Grant County grows and provide a process to fund and schedule the identified transportation system improvements. Ultimately the transportation CIP should be integrated into the existing Grant County CIP, the ODOT Statewide Transportation Improvement Program (STIP), and the CIP's of various cities in Grant County involved in related projects. This integration is important since the TSP proposes that all three governmental agencies will participate in funding the transportation improvement projects.

Model policy and ordinance language that conforms with the requirements of the TSP are contained in Chapter 9 of this report. The proposed ordinance amendments will require approval by the Board of County Commissioners.

20-Year Capital Improvement Program

The CIP is shown with the following priorities:

- Phase 1, 1998 to 2002 (next five years)
- Phase 2, After 2002 (six to twenty years)

These priorities are based on current need, the relationship between transportation service needs, and the expected growth of the county. The following schedule indicates priorities and may be modified to reflect the availability of finances or the actual growth in population and employment.

The CIP is summarized in Table 7-6. The cost of each project as listed in the CIP is shown in present day (1997) dollars by jurisdiction as well as total approximate opening year dollars. These costs include design, construction, and some contingency costs. They are preliminary estimates and do not include right-of-way acquisition, water or sewer facilities, or detailed intersection design.

Note that the inclusion of a project in the TSP **does not** constitute a commitment by the county or ODOT that they will participate in the funding of the project. ODOT's participation will be determined via the biennial updates of the multi-year State Transportation Improvement Program (STIP) process, and the construction of any project is contingent upon the availability of future revenues.

**TABLE 7-6
PRIORITIZED CAPITAL IMPROVEMENT PROGRAM (1997) DOLLARS ***

| Project Description | Estimated Cost | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------|---------------------|---------------------|
| | County | Local | State | Total |
| <i>Phase 1: 1998 To 2002</i> | | | | |
| Reconstruct, widen and moderate curves on Highway 26 from Austin Junction to Baker County Line (milepost 190.8 to milepost 197.2). | \$0 | \$0 | \$4,500,000 | \$4,500,000 |
| Extend West Bench Road (CR #74) to connect with Highway 26/395 in John Day and close off the western Screech Alley Access to the highway in a cul-de-sac | \$214,000 | \$0 | \$0 | \$214,000 |
| Upgrade Highway 26 bridge over Battle Creek (MP 128.28) | \$0 | \$0 | \$336,000 | \$336,000 |
| <i>Phase 2: After 2002</i> | | | | |
| Improve access to Clyde Holiday State Park by providing a left-turn lane at the eastern entrance | \$0 | \$0 | \$150,000 | \$150,000 |
| Widen Highway 26/395 in the John Day area from milepost 160.41 to milepost 161.51 to provide a continuous left-turn lane | \$0 | \$0 | \$580,000 | \$580,000 |
| Construct a new connection to CR #82 which runs along the John Day River and then turns southward to connect with Highway 26/395 opposite CR #85 | \$630,000 | \$0 | \$0 | \$630,000 |
| If feasible, construct Marysville Road northward from Marysville Road (County Road #52), parallel to Highway 395, to create a connection with Highway 26 in John Day | \$2,665,000 | \$0 | \$0 | \$2,665,000 |
| Create a multi-use pathway along the John Day River from Mt. Vernon to Clyde Holiday State Park | \$34,000 | \$123,000 | \$0 | \$157,000 |
| Upgrade Highway 26 bridge over the John Day River (MP 155.75) | \$0 | \$0 | \$1,334,000 | \$1,334,000 |
| Upgrade Highway 26 bridge over Canyon Creek (MP 162.08) | \$0 | \$0 | \$391,000 | \$391,000 |
| Upgrade Highway 26 bridge over Indian Creek (MP 170.49) | \$0 | \$0 | \$734,000 | \$734,000 |
| Upgrade Highway 26 bridge over the John Day River (MP 170.62) | \$0 | \$0 | \$1,452,000 | \$1,452,000 |
| Upgrade Highway 395 bridge over the Middle Fork of the John Day River north of Mt. Vernon (MP 77.38) | \$0 | \$0 | \$522,000 | \$522,000 |
| Upgrade Highway 395 approach road bridge south of Canyon City (MP 4.3) | \$0 | \$0 | \$2,301,000 | \$2,301,000 |
| Upgrade Highway 395 approach road bridge south of Canyon City (MP 4.81) | \$0 | \$0 | \$164,000 | \$164,000 |
| Upgrade CR #1 bridge over the North Fork of the John Day River (MP 0.1) | \$3,726,000 | \$0 | \$0 | \$3,726,000 |
| Upgrade CR #15 bridge over the Middle Fork of the John Day River (MP 10.1) | \$1,149,000 | \$0 | \$0 | \$1,149,000 |
| Upgrade CR #15 bridge over the North Fork of the John Day River (MP 26.02) | \$2,041,000 | \$0 | \$0 | \$2,041,000 |
| Upgrade CR #20A bridge over the Middle Fork of the John Day River (MP 0.16) | \$398,000 | \$0 | \$0 | \$398,000 |
| Upgrade CR #20 bridge over the Middle Fork of the John Day River (MP 16.0) | \$1,252,000 | \$0 | \$0 | \$1,252,000 |
| Upgrade CR #29 bridge over the North Fork of the John Day River (MP 0.05) | \$1,087,000 | \$0 | \$0 | \$1,087,000 |
| Upgrade CR #45 bridge over the John Day River (MP 2.9) | \$447,000 | \$0 | \$0 | \$447,000 |
| Upgrade CR #57 bridge over the John Day River (MP 0.3) | \$920,000 | \$0 | \$0 | \$920,000 |
| Upgrade CR #70 bridge over the John Day River (MP 0.1) | \$896,000 | \$0 | \$0 | \$896,000 |
| Subtotal Phase 1 | \$214,000 | \$0 | \$4,836,000 | \$5,050,000 |
| Subtotal Phase 2 | \$15,334,000 | \$34,000 | \$7,628,000 | \$23,929,000 |
| Total | \$15,548,000 | \$34,000 | \$12,464,000 | \$28,979,000 |

* The listing of a project with indicated Grant County and ODOT participation does not represent a commitment by the county or ODOT to construct or fund the project.

Grant County has identified a total of 25 projects in its CIP with a total cost of nearly \$29 million. Two Phase 1 projects have been identified with a cost of about \$5,050,000. Twenty-two Phase 2 projects have been identified with a cost of nearly \$24 million. Eighteen of the projects in the CIP are related to state or county bridges which have been identified as structurally deficient, functionally obsolete, or nearing one of these conditions. Improvements to these facilities are highly dependent on federal funding.

In addition to the specific project recommended in the TSP, the 20-year Capital Improvement Program (CIP) will also be developed as a separate document to the TSP. Typically, the CIP is contained within the TSP, but to allow more flexibility the County Court has decided to develop and adopt the CIP under a separate resolution so that projects may be reassessed, updated, and prioritized on an "as needed" basis.

CHAPTER 8: FUNDING OPTIONS AND FINANCIAL PLAN

The TPR requires TSPs to evaluate the funding environment for recommended improvements. This evaluation must include a listing of all recommended improvements, estimated costs to implement those improvements, and a review of potential financing mechanisms to fund proposed transportation improvement projects. Grant County's TSP identifies 26 improvement projects over the next 20 years with an estimated cost of more than \$26 million. This section of the TSP provides an overview of the Grant County's revenue outlook and a review of some funding and financing options that may be available.

Pressures from increasing growth throughout much of Oregon have created an environment of estimated improvements that remain unfunded. Grant County will need to work with the cities and ODOT to finance new transportation projects over the 20-year planning horizon. The actual timing of these projects will be determined by the rate of population and employment growth actually experienced by the area. If population growth exceeds the anticipated rate, the improvements may need to be accelerated. Slower than expected growth will relax the improvement schedule. Availability of funding will also play an important role in the implementation program.

HISTORICAL STREET IMPROVEMENT FUNDING SOURCES

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

Table 8-1 shows the distribution of road revenues for the different levels of government within the state by jurisdiction level. Although these numbers were collected and tallied in 1993, ODOT estimates that these figures accurately present the current revenue structure for transportation-related needs.

**TABLE 8-1
SOURCES OF ROAD REVENUES BY JURISDICTION LEVEL**

| Revenue Source | Jurisdiction Level | | | Statewide |
|--------------------|--------------------|--------|------|-----------|
| | State | County | City | Total |
| State Highway Fund | 57% | 38% | 41% | 49% |
| Local | 0% | 22% | 55% | 17% |
| Federal Road | 34% | 40% | 4% | 30% |
| Other | 9% | 0% | 0% | 4% |

Source: ODOT 1993 Oregon Road Finance Study.

Statewide, nearly half (48 percent in Fiscal Year 1991) of all road-related revenues are attributable to the State Highway Fund, whose sources of revenue include fuel taxes, weight per mile taxes on trucks, and vehicle registration fees. As shown in the table, the State Highway Fund 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.

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 Revenue Outlook

ODOT's policy section recommends certain assumptions in the preparation of transportation plans. In its *Financial Assumptions* document prepared in March 1995, ODOT projected the revenue of the State Highway Fund through year 2018. The estimates are based on the following assumptions:

- Fuel tax (and weight per mile fee) increases of 1 cent per gallon per year, with an additional 1 cent per gallon every fourth year;
- TPR goals are met; and
- Inflation occurs at an average annual rate of 3.7 percent (as forecast by DRI)

Figure 8-1 shows the forecast in both current-dollar and inflation-deflated constant (1995) dollars. As highlighted by the constant-dollar data, the highway fund is expected to grow faster than inflation early in the planning horizon, with growth slowing to a rate somewhat less than inflation around year 2004, continuing a slight decline through the remainder of the planning horizon.

The State Highway Fund is expected to remain a significant source of funding for Grant County during the next 20 years. Although the county has historically received revenue from this fund for transportation maintenance and improvements, Grant County should be cautious of relying heavily on this source, since funds are expected to decline after 2005.

REVENUE SOURCES

In order to finance the recommended transportation system improvements in Grant County, it will be important to consider a range of funding sources. Recent property tax limitations have created the need for local governments to seek revenue sources other than the traditional property tax. The use of alternative revenue funding has been a trend throughout Oregon as the full implementation of Measure 5 has significantly reduced property tax revenues. This trend is expected to continue with the recent passage of Measure 47 and its revised version, Measure 50. The alternative revenue sources described in this section may not all be appropriate in Grant County; however, this overview is being provided to illustrate the range of options currently available to finance transportation improvements during the next 20 years.

Property Taxes

Property taxes have historically been the primary revenue source for local governments. This dependence 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) and have a predictable value and appreciation to base taxes upon. This is opposed to income or sales taxes which can fluctuate with economic trends or unforeseen events.

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

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

Measure 47, an initiative petition, was passed by Oregon voters in November 1996. It is a constitutional amendment that reduces and limits property taxes and limits local revenues and replacement fees. The measure limits 1997-98 property taxes to the lesser of the 1995-96 tax minus 10 percent, or the 1994-95 tax. It limits future annual property tax increase 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 and it now replaces Measure 47.

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 increasing 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 increasing 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.

Even though the Grant County Road Department is not currently directly affected, the implementation of Measure 50 will require that cities and counties protect and prioritize funding for public safety and public education. Another major requirement of Measure 50 is that cities and counties must obtain voter approval to raise fees for services, if the increased fee revenue is a substitute for property tax support.

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.

Grant County could implement SDCs for their transportation system. The fee is collected when new building permits are issued. The County would calculate the fee 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 the number of trips generated or on employee ratios for the type of business or industrial uses. The SDC fees will help construct and maintain the transportation network throughout the TSP study area. The implementation of SDCs in Grant County is not considered a practical funding option since the rate of new development has been slow, and is not expected to grow significantly in the future.

State Gas Taxes

Gas tax revenues received from the State of Oregon are used by all counties and cities to fund street and road construction and maintenance. In Oregon, the state collects gas taxes, vehicle registration fees, overweight/overheight fines, and weight per mile taxes and returns a portion of the revenues to cities and counties through an allocation formula. The revenue share to cities is divided among all incorporated cities based on population. The theory is that these taxes are somewhat tied to the benefits people receive, since those who drive more would pay more. Like other Oregon counties, Grant County uses its State Gas Tax allocation to fund road and 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 street-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.

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 allow Grant 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. Like fuel taxes, this fee would be somewhat tied to the benefits of the transportation system, because it would be paid by automobile owners in the county. In order for a local vehicle registration fee program to be viable in Grant County, all the incorporated cities and the county would need to formulate an agreement that would detail how the fees would be spent on future street 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 counties 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. Counties 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 costs 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, counties have most often funded local improvement districts through the sale of special assessment bonds.

Grants and Loans

The majority of the grant and loan programs available today are geared towards economic development and not specifically for construction of new streets. Typically, grant programs target areas that lack basic public works infrastructure needed to support new or expanded industrial businesses. Because of the popularity of some grant programs such as the Oregon Special Public Works Fund, the emphasis has shifted to more of a loan program. Many programs require a match from the local jurisdiction as a condition of approval. Because grant programs are subject to change, they should not be considered a secure long-term funding source for Grant County.

These programs include the Immediate Opportunity Grant, the Oregon Special Public Works Fund program, and the Special Small City Allotment program which are described below. Some special programs for public transportation and non-auto modes are also described briefly.

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 \$5,000,000 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 of primary employment
- Ability to provide local funds to match grant (lesser matches may also be considered)

The maximum amount of any grant under the program is \$500,000. Local governments which have received grants under the program include Washington County, Multnomah County, Douglas County, 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 the 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 that supports commercial and industrial development that results 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 as 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. The maximum loan amount per project is \$11,000,000 and the term of the loan cannot exceed the useful life of the project or 25 years, whichever is less. Interest rates for loans funded with the State of Oregon Revenue Bonds are based on the rate the state may borrow through the OEDD Bond Bank. The department may also make

loans directly from the SPWF and the term and rate on direct loans can be structured to meet project needs. The maximum grant per project is \$500,000, but may not exceed 85 percent of the total project cost.

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

Public Transportation Funds

There are several different grants and loans which are available to fund public transportation, including:

- Special Transportation Fund (STF)
- Section 5311
- Community Transportation Program
- Special Transportation District

The public transportation grant and loan programs may be applicable to funding The People Mover system in Grant County. However, funding opportunities may be limited since the system serves a small rural population that is spread out in small communities in the county. These grant and loan programs require a local funding match from the participating local government agencies.

Bicycle and Pedestrian Program Funds

The state Bicycle and Pedestrian Program has grants available for bicycle and pedestrian system improvements. These improvements must benefit the overall transportation system by providing good, alternative transportation options to the automobile. Funds are not available for bicycle and pedestrian facilities which serve a purely recreational use. The bicycle and pedestrian grant program requires a local match to fund the identified improvements.

ODOT Funding Options

The State of Oregon provides funding for all highway-related transportation projects through the Statewide Transportation Improvement Program (STIP) administered by ODOT. The STIP outlines the schedule for ODOT projects throughout the state. The STIP, which identifies transportation for a three-year funding cycle, is updated on an annual basis. Starting with the 1998 budget year, ODOT will then identify projects for a four-year funding cycle. In developing this funding program, ODOT must verify that the identified projects comply with the Oregon Transportation Plan (OTP), ODOT Modal Plans, Corridor Plans, local comprehensive plans, and ISTEA Planning Requirements. The STIP must fulfill ISTEA planning requirements for a staged, multi-year, statewide, intermodal program of transportation projects. Specific transportation projects are prioritized based on a review of the ISTEA planning requirements and the different state plans. ODOT consults with local jurisdictions before highway-related projects are added to the STIP.

The highway-related projects identified in Grant County's TSP will be considered for future inclusion on the STIP. The timing of including specific projects will be determined by ODOT based on an analysis of all the project needs within Region 5. The TSP will provide ODOT with a prioritized project list for Grant County for the next 20 years. Grant County, the local jurisdictions, 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 county, cities, 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 Grant County's TSP is the use of state and federal transportation dollars for off-system improvements. Until the passage and implementation of ISTEA, state and federal funds were limited to transportation improvements within highway corridors. ODOT now has the authority and ability to fund transportation projects that are located outside the boundaries of the highway corridors. The criteria for determining what off-system improvements can be funded have 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.

The transportation funding program ISTEA expires at the end of this fiscal year. Congress is considering several bills which would reauthorize the program in various forms. In general, funding levels are expected to remain stable or slightly higher.

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. 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 several debt financing options available to Grant County. The use of debt to finance capital improvements must be balanced with the ability to make future debt service payments and to deal with the impact on its overall debt capacity and underlying credit rating. Again, debt financing should be viewed not as a source of funding, but as a time shifting of funds. The use of debt to finance these transportation system improvements is appropriate since the benefits from the transportation improvements will extend over 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 bonds (GOs) 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. The property tax levy is distributed equally throughout the taxing jurisdiction according to assessed value of property. General obligation debts are typically used to make public improvement projects that will benefit the entire community.

State statutes require that the general obligation indebtedness of a city not exceed three percent of the real market value of all taxable property in the county. Since general obligation bonds would be issued subsequent to voter approval, they would not be restricted to the limitations set forth in Ballot Measures 5 and 50 (revised Measure 47).

Although new bonds must be specifically voter approved, Measure 50 provisions are not applicable to outstanding bonds, unissued voter-approved bonds, or refunding bonds.

Limited Tax Bonds

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

Bancroft Bonds

Under Oregon statute, municipalities are allowed to issue Bancroft bonds that pledge the county's full faith and credit to assessment bonds. As a result, the bonds become general obligations of the county but are paid with assessments. Historically, these bonds provided a county 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 and 50 (revised Measure 47). As a result, since 1991, Bancroft bonds have not been used by municipalities who were required to compress their tax rates.

CHAPTER 9: RECOMMENDED POLICIES AND ORDINANCES

In 1991, the Oregon TPR was adopted to implement State Planning Goal 12 – Transportation (amended in May and September 1995). The TPR requires counties and cities to complete a TSP that includes policies and ordinances to implement that plan. Although Grant County has not completed its TSP until now, a TSP Work Program was completed for the County in 1995. A draft Grant County Comprehensive Plan update was completed in January 1996, and the Grant County Land Development Code was adopted by the County Court in June 1997; herefore, these planning documents are generally in compliance with the TPR and will need minor additions to be in compliance with this TSP.

ELEMENTS REQUIRED BY THE TRANSPORTATION PLANNING RULE

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

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

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

APPROVAL PROCESSES FOR TRANSPORTATION FACILITIES

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

Recommended Policies for Approval Process

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

- *The Transportation System Plan is an element of Grant County Comprehensive Plan. It identifies the general location of transportation improvements. Changes in the specific alignment of proposed public road and highway projects that shall be permitted without plan amendment if the new alignment falls within a transportation corridor identified in the Transportation System Plan.*
- *Operation, maintenance, repair, and preservation of existing transportation facilities shall be allowed without land use review, except where specifically regulated.*
- *For improvements designated in the Transportation System Plan (including dedication of right-of-way, authorization for construction and the construction of facilities and improvements), the classification of roadway and approved roadway standards shall be allowed without land use review.*
- *For State projects that require an Environmental Impact Study (EIS) or Environmental Assessment (EA), the final EIS or EA shall serve as the documentation for local land use review, if local review is required.*

Recommended Ordinances for Approval Process

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

However, a jurisdiction may not allow outright an improvement that is included in the TSP but for which no site-specific decisions have been made. Therefore, it is recommended that Grant County review these transportation projects as regulated land use actions, using the conditional use process. This following process is recommended for inclusion in the supplementary provisions section or as a new section within the development code.

___ Standards for Transportation Improvements

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

- A. *Normal operation, maintenance, repair, and preservation activities of existing transportation facilities.*
- B. *Installation of culverts, pathways, medians, fencing, guardrails, lighting, and similar types of improvements within the existing right-of-way.*
- C. *Projects specifically identified in the Transportation System Plan as not requiring further land use regulation.*
- D. *Landscaping as part of a transportation facility.*

- E. *Emergency measures necessary for the safety and protection of property*
- F. *Acquisition of right-of-way for public roads, highways, and other transportation improvements designated in the Transportation System Plan except for those that are located in exclusive farm use or forest zones.*
- G. *Construction of a road or street as part of an approved subdivision or land partition approved consistent with the applicable land division ordinance.*

_____. Conditional Uses Permitted

- A. *Construction, reconstruction, or widening of highways, roads, bridges or other transportation projects that are: (1) not improvements designated in the Transportation System Plan or (2) not designed and constructed as part of a subdivision or planned development subject to site plan and/or conditional use review, shall comply with the Transportation System Plan and applicable standards, and shall address the following criteria. For State projects that require an Environmental Impact Statement (EIS) or EA (Environmental Assessment), the draft EIS or EA shall be reviewed and used as the basis for findings to comply with the following criteria:*
 - 1. *The project is designed to be compatible with existing land use and social patterns, including noise generation, safety, and zoning.*
 - 1. *The project is designed to minimize avoidable environmental impacts to identified wetlands, wildlife habitat, air and water quality, cultural resources, and scenic qualities.*
 - 1. *The project preserves or improves the safety and function of the facility through access management, traffic calming, or other design features.*
 - 1. *The project includes provision for bicycle and pedestrian circulation as consistent with the comprehensive plan and other requirements of this ordinance.*
- B. *Construction of rest areas, weigh stations, temporary storage, and processing sites.*
- C. *If review under this Section indicates that the use or activity is inconsistent with the Transportation System Plan, the procedure for a plan amendment shall be undertaken prior to or in conjunction with the conditional permit review.*

_____. Time Limitation on Transportation-Related Conditional Use Permits

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

PROTECTING EXISTING AND FUTURE OPERATION OF FACILITIES

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

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

Recommended Policies for Protection of Transportation Facilities

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

Recommended Access Control Ordinances

The following ordinances are recommended to support the access management standards.

Section _____ ACCESS MANAGEMENT

A. General

- II. *The intent of this ordinance is to manage access to land development to preserve the transportation system in terms of safety, capacity, and function. This ordinance shall apply to all arterials and collectors within Grant County and to all properties that abut these roadways. This ordinance is adopted to implement the access management policies of Grant County as set forth in the Transportation System Plan.*

A. Corner Clearance

1. *Corner clearance for connections shall meet or exceed the minimum connection spacing requirements for that roadway.*
2. *New connections shall not be permitted within the functional area of an intersection or interchange as defined by the connection spacing standards of this ordinance, unless no other reasonable access to the property is available.*
3. *Where no other alternatives exist, the County may allow construction of an access connection along the property line farthest from the intersection. In such cases, directional connections (i.e. right in/out, right in only, or right out only) may be required.*

B. Joint and Cross Access

1. *Adjacent commercial or office properties classified as major traffic generators (i.e. shopping plazas, office parks), shall provide a cross access drive and pedestrian access to allow circulation between sites.*
2. *A system of joint use driveways and cross access easements shall be established wherever feasible and shall incorporate the following:*

- a) *A continuous service drive or cross access corridor extending the entire length of each block served to provide for driveway separation consistent with the access management classification system and standards.*
 - b) *A design speed of 10 mph and a maximum width of 20 feet to accommodate two-way travel aisles designated to accommodate automobiles, service vehicles, and loading vehicles;*
 - c) *Stub-outs and other design features to make it visually obvious that the abutting properties may be tied in to provide cross-access via a service drive;*
 - d) *A unified access and circulation system plan for coordinated or shared parking areas is encouraged.*
3. *Shared parking areas shall be permitted a reduction in required parking spaces if peak demands do not occur at the same time periods.*
 4. *Pursuant to this section, property owners shall:*
 - a) *Record an easement with the deed allowing cross access to and from other properties served by the joint use driveways and cross access or service drive;*
 - b) *Record an agreement with the deed that remaining access rights along the roadway will be dedicated to the County and pre-existing driveways will be closed and eliminated after construction of the joint-use driveway;*
 - c) *Record a joint maintenance agreement with the deed defining maintenance responsibilities of property owners.*
 5. *The County may reduce required separation distance of access points where they prove impractical, provided all of the following requirements are met:*
 - a) *Joint access driveways and cross access easements are provided in accordance with this section.*
 - b) *The site plan incorporates a unified access and circulation system in accordance with this section.*
 - c) *The property owner enters into a written agreement with the County, recorded with the deed, that pre-existing connections on the site will be closed and eliminated after construction of each side of the joint use driveway.*
 6. *The County may modify or waive the requirements of this section where the characteristics or layout of abutting properties would make a development of a unified or shared access and circulation system impractical.*

C. Access Connection and Driveway Design

1. *Driveways shall meet the following standards:*
 - a) *If the driveway is a one way in or one way out drive, the driveway shall be a minimum width of 10 feet and a maximum width of 12 feet and shall have appropriate signage designating the driveway as a one way connection.*
 - b) *For two-way access, each lane shall have a minimum width of 10 feet and a maximum width of 12 feet.*
2. *Driveway approaches must be designed and located to provide an exiting vehicle with an unobstructed view. Construction of driveways along acceleration or deceleration lanes and tapers shall be avoided due to the potential for vehicular weaving conflicts.*

3. *The length of driveways shall be designed in accordance with the anticipated storage length for entering and exiting vehicles to prevent vehicles from backing into the flow of traffic on the public road or causing unsafe conflicts with on-site circulation.*

D. Requirements for Phased Development Plans

1. *In the interest of promoting unified access and circulation systems, development sites under the same ownership or consolidated for the purposes of development and comprised of more than one building site shall be reviewed as single properties in relation to the access standards of this ordinance. The number of access points permitted shall be the minimum number necessary to provide reasonable access to these properties, . All necessary easements, agreements, and stipulations shall be met. This shall also apply to phased development plans. The owner and all lessees within the affected area are responsible for compliance with the requirements of this ordinance and both shall be cited for any violation.*
2. *All access must be internalized using the shared circulation system of the principal development or retail center. Driveways shall be designed to avoid queuing across surrounding parking and driving aisles.*

E. Nonconforming Access Features

1. *Legal access connections in place as of (date of adoption) that do not conform with the standards herein are considered nonconforming features and shall be brought into compliance with applicable standards under the following conditions:*
 - a) *When new access connection permits are requested;*
 - b) *Change in use or enlargements or improvements that will increase trip generation.*

F. Reverse Frontage

1. *Lots that front on more than one road shall be required to locate motor vehicle accesses on the road with the lower functional classification.*
2. *When a residential subdivision is proposed that would abut an arterial, it shall be designed to provide through lots along the arterial with access from a frontage road or interior local road. Access rights of these lots to the arterial shall be dedicated to Grant County and recorded with the deed. A berm or buffer yard may be required at the rear of through lots to buffer residences from traffic on the arterial. The berm or buffer yard shall not be located within the public right-of-way.*

G. Flag Lot Standards

1. *Flag lots shall not be permitted when the result would be to increase the number of properties requiring direct and individual access connections to the State Highway System or other arterials.*
2. *Flag lots may be permitted for residential development when necessary to achieve planning objectives, such as reducing direct access to roadways, providing internal platted lots with access to a residential road, or preserving natural or historic resources, under the following conditions:*
 - a) *Flag lot driveways shall be separated by at least twice the minimum frontage requirement of that zoning district.*
 - b) *The flag driveway shall have a minimum width of 10 feet and maximum width of 20 feet.*

- c) *In no instance shall flag lots constitute more than 10 percent of the total number of building sites in a recorded or unrecorded plat, or three lots or more, whichever is greater.*
- d) *The lot area occupied by the flag driveway shall not be counted as part of the required minimum lot area of that zoning district.*
- e) *No more than one flag lot shall be permitted per private right-of-way or access easement.*

H. *Lot Width-to-Depth Ratios*

- 1. *To provide for proper site design and prevent the creation of irregularly shaped parcels, the depth of any lot or parcel shall not exceed 3 times its width (or 4 times its width in rural areas) unless there is a topographical or environmental constraint or an existing structural feature.*

I. *Shared Access*

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

A. *Connectivity*

- 1. *The road system of proposed subdivisions shall be designed to connect with existing, proposed, and planned roads outside of the subdivision as provided in this Section.*
- 2. *Wherever a proposed development abuts unplatted land or a future development phase of the same development, road stubs shall be provided to provide access to abutting properties or to logically extend the road system into the surrounding area. All road stubs shall be provided with a turn-around unless specifically exempted by the County Road Master, and the restoration and extension of the road shall be the responsibility of any future developer of the abutting land.*
- 3. *Minor collector and local residential access roads shall connect with surrounding roads to permit the convenient movement of traffic between residential neighborhoods or facilitate emergency access and evacuation. Connections shall be designed to avoid or minimize through traffic on local roads. Appropriate design and traffic control such as four-way stops and traffic calming measures are the preferred means of discouraging through traffic.*

K. *Variances to Access Management Standards*

- 1. *The granting of the variance shall meet the purpose and intent of these regulations and shall not be considered until every feasible option for meeting access standards is explored.*
- 2. *Applicants for a variance from these standards must provide proof of unique or special conditions that make strict application of the provisions impractical. Applicants shall include proof that:*
 - a) *Indirect or restricted access cannot be obtained;*
 - b) *No engineering or construction solutions can be applied to mitigate the condition; and*
 - c) *No alternative access is available from a road with a lower functional classification than the primary roadway.*

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

Recommended Ordinances to Protect Public Use Airports

The Oregon Airport Land Use Compatibility Guidelines (November 1994), which have been distributed to all County and City planning departments, provide examples for ordinance development. An Airport Overlay Zone has been adopted by Grant County to prevent establishment of airspace obstructions in the vicinity of the Grant County Regional Airport through height restrictions and other land use controls. In order to carry out the provisions of the overlay zoning ordinance, certain areas are defined in the current adopted Airport Layout Plan that are deemed essential to protect the use of the airport and the health, safety and welfare of the general public.

PROCESS FOR COORDINATED REVIEW OF LAND USE DECISIONS

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

Recommended Policies for Coordinated Review

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

Recommended Process for Applying Conditions to Development Proposals

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

The Site Plan review process is a useful tool for a small jurisdiction. Grant County may wish to implement a Site Plan review process that includes a requirement to provide data on the potential traffic impacts of a project through a traffic impact study or, at the minimum, an estimation of the number of trips expected to be generated. Recommended language to be included under Site Plan Criteria is as follows:

- *The proposed use shall not impose an undue burden on the public transportation system. For developments that are likely to generate more than 400 average daily motor vehicle trips (ADTs), the applicant shall provide adequate information, such as*

a traffic impact study or traffic counts, to demonstrate the level of impact to the surrounding road system. The developer shall be required to mitigate impacts attributable to the project.

- *The determination of impact or effect and the scope of the impact study should be coordinated with the provider of the affected transportation facility.*

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

- *Dedication of land for roads, transit facilities, sidewalks, bikeways, paths, or accessways shall be required where the existing transportation system will be impacted by or is inadequate to handle the additional burden caused by the proposed use.*
- *Improvements such as paving, curbing, installation or contribution to traffic signals, construction of sidewalks, bikeways, accessways, paths, or roads that serve the proposed use where the existing transportation system may be burdened by the proposed use.*

Recommended Regulations to Provide Notice to Public Agencies

Review of land use actions is typically initiated by a Notice. This process is usually defined by a Procedures Ordinance or Noticing Policy. This Ordinance or Policy should be amended to provide for timely notice to ODOT regarding any land use action on or adjacent to a State facility. Similarly, all actions by the County potentially affecting a city street should provide notice to that jurisdiction.

Information that should be conveyed to reviewers includes:

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

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

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

- *A detailed description of any requested variance.*

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

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

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

Within the zoning ordinance, development proposals can be addressed through Site Plan Review, discussed above. Zone changes and plan amendments can be partially addressed by the following language:

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

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

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

- 1. Changes the functional classification of an existing or planned transportation facility;*
- 2. Changes standards implementing a functional classification system;*
- 3. Allows types or levels of land use that would result in levels of travel or access that are inconsistent with the functional classification of a transportation facility; or*
- 4. Would reduce the level of service of the facility below the minimum acceptable level identified in the Transportation System Plan.*

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

- 1. Limiting allowed land uses to be consistent with the planned function of the transportation facility;*
- 2. Amending the Transportation System Plan to ensure that existing, improved, or new transportation facilities are adequate to support the proposed land uses consistent with the requirement of the Transportation Planning Rule; or,*
- 3. Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes.*

SAFE AND CONVENIENT PEDESTRIAN AND BICYCLE CIRCULATION

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

The TPR specifies that, at a minimum, sidewalks and bikeways be provided along arterials and collectors in urban areas. Separate bicycle and pedestrian facilities should be provided where these would safely minimize trip distances by providing a "short cut." Small cities should enhance existing ordinances by including the following recommended language, additions and recommendations. The recommendations should be placed within the appropriate section of the zoning or subdivision ordinance:

Definitions:

- A. *Accessway.* A walkway that provides pedestrian and bicycle passage either between roads or from a road to a building or other destination such as a school, park, or transit stop. Accessways generally include a walkway and additional land on either side of the walkway, often in the form of an easement or right-of-way, to provide clearance and separation between the walkway and adjacent uses. Accessways through parking lots are generally physically separated from adjacent vehicle parking or parallel vehicle traffic by curbs or similar devices and include landscaping, trees, and lighting. Where accessways cross driveways, they are generally raised, paved, or marked in a manner that provides convenient access for pedestrians.
- B. *Bicycle.* A vehicle designed to operate on the ground on wheels, propelled solely by human power, upon which any person or persons may ride, and with two tandem wheels at least 14 inches in diameter. An adult tricycle is considered a bicycle.
- C. *Bicycle Facilities.* A general term denoting improvements and provisions made to accommodate or encourage bicycling, including parking facilities and all bikeways.
- D. *Bikeway.* Any road, path, or way that is in some manner specifically open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are shared with other transportation modes. The five types of bikeways are:
 - 1. *Multi-use Path.* A paved 10- to 12-foot wide way that is physically separated from motorized vehicular traffic; typically shared with pedestrians, skaters, and other non-motorized users.
 - 2. *Bike Lane.* A 4- to 6-foot wide portion of the roadway that has been designated by permanent striping and pavement markings for the exclusive use of bicycles.
 - 3. *Shoulder Bikeway.* The paved shoulder of a roadway that is 4 feet or wider; typically shared with pedestrians in rural areas.
 - 4. *Shared Roadway.* A travel lane that is shared by bicyclists and motor vehicles.
 - 5. *Multi-use Trail.* An unpaved path that accommodates all-terrain bicycles; typically shared with pedestrians.
- E. *Pedestrian Facilities.* A general term denoting improvements and provisions made to accommodate or encourage walking, including sidewalks, accessways, crosswalks, ramps, paths, and trails.
- F. *Neighborhood Activity Center.* An attractor or destination for residents of surrounding residential areas. Includes, but is not limited to existing or planned schools, parks, shopping areas, transit stops, employment areas.
- G. *Reasonably direct.* A route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.
- H. *Safe and convenient.* Bicycle and pedestrian routes that: :
 - 1. Are reasonably free from hazards, and
 - 2. Provide a reasonably direct route of travel between destinations, considering that the optimum travel distance is one-half mile for pedestrians and three miles for bicyclists.

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

Required elements for a site plan should include the design and location of bicycle parking and bicycle and pedestrian circulation elements such as accessways, walkways, and transit facilities. The appropriate design elements will be determined by the Planning Director or Planning Commission. The following language should be added to the land-use regulations:

- A. *Bicycle Parking. The development shall include the number and type of bicycle parking facilities required in the Off-Road Parking and Loading section of this Title. The location and design of bicycle parking facilities shall be indicated on the site plan.*
- B. *Pedestrian Access and Circulation.*
 1. *Where appropriate, internal pedestrian circulation shall be provided in new commercial, office, and multi-family residential developments through the clustering of buildings, construction of hard surface walkways, landscaping, accessways, or similar techniques.*
- C. *Commercial Development Standards.*
 1. *New commercial buildings, particularly retail shopping and offices, shall be oriented to the road, near or at the setback line. A main entrance shall be oriented to the road. For lots with more than two front yards, the building(s) shall be oriented to the two busiest roads.*
 2. *Off-road motor vehicle parking for new commercial developments shall be located at the side or behind the building(s).*
- D. *All site plans (industrial and commercial) shall clearly show how the site's internal pedestrian and bicycle facilities connect with external existing or planned facilities or systems.*

The County Subdivision Ordinances should reflect the intent of the TPR by adding the following provision to development requirements.

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

The County should consider revising its Design Standards to include a section such as the following:

- A. *Pedestrian and Bicycle Circulation.*
 1. *On-site facilities shall be provided that accommodate safe and convenient pedestrian and bicycle access within new subdivisions, multi-family developments, planned development, shopping centers, and commercial districts, and connecting to adjacent residential areas and neighborhood activity centers within one-half mile of the development. Residential developments shall include roads with sidewalks and accessways. Pedestrian circulation through parking lots shall be provided in the form of accessways.*
 2. *Bikeways shall be required along arterials and collectors with ADTs greater than 3,000. Sidewalks shall be required along arterial, collector, and local roads within urban growth boundaries.*

The County's Subdivision Ordinance should incorporate the following language into the existing requirements for cul-de-sac design.

- A. *Cul-de-Sacs and Accessways.*

1. *Cul-de-sacs or permanent dead-end roads may be used as part of a development plan; however, through roads are encouraged except where topographical, environmental, access or existing adjacent land use constraints, or safety issues make connecting roads infeasible. Where cul-de-sacs are planned, accessways shall be provided connecting the ends of cul-de-sacs to each other, to other roads, or to neighborhood activity centers.*
2. *Where appropriate, accessways for pedestrians and bicyclists shall be 10 feet wide and located within a 20-foot wide right-of-way or easement. If the roads within the subdivision are lighted, the accessways shall also be lighted. Stairs or switchback paths may be used where grades are steep.*
3. *Where appropriate, accessways for pedestrians and bicyclists shall be provided at mid-block where the block is longer than 600 feet.*
4. *The Planning Director or Planning Commission may determine, based upon evidence in the record, that an accessway is impracticable. Such evidence may include but is not limited to:*
 - a) *Physical or topographic conditions make an accessway connection impractical. Such conditions include but are not limited to extremely steep slopes, wetlands, or other bodies of water where a connection cannot reasonably be provided.*
 - b) *Buildings or other existing development on adjacent lands physically preclude a connection now or in the future, considering potential for redevelopment.*
 - c) *Where accessways would violate provisions of leases, easements, covenants, restrictions, or other agreements existing as of May 1, 1995 that preclude a required accessway connection.*