



REPORT
TRANSPORTATION SYSTEM PLAN
CITY OF PRAIRIE CITY

June 1997

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The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

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CHAPTER 1: INTRODUCTION

The Prairie City 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 city's Comprehensive Plan and satisfies the requirements of the Oregon Transportation Planning Rule (TPR).

PLANNING AREA

The Prairie City TSP planning area includes the entire area inside the city's urban growth boundary (UGB). The planning area is shown on Figure 1-1. Roadways included in the TSP fall under several jurisdictions: Prairie City, Grant County, and the State of Oregon.

Prairie City is located in the central-eastern portion of Grant County, 13 miles east of the City of John Day. Prairie City's population in 1996 reached 1,180 residents, which is about 14.5 percent of the county's population.

Highway 26 travels from west to east through the downtown area along Front Street. Three county roads access the city from outside the urban growth boundary; Dixie Creek Road to the north, Prairie City-South Side of River Road to the southeast, and Strawberry Road to the south. These are generally maintenance roads outside the UGB and serve as collector roads for residential traffic inside the UGB.

A strong street grid pattern of local streets has been maintained in Prairie City as it has developed over the years. A majority of the grid pattern is laid out in a typical north-south and east-west orientation, with Main Street and Highway 26 creating a slightly skewed grid pattern in some locations.

A land use zoning map of the Prairie City TSP planning area is shown on Figure 1-2. This map was taken from the Prairie City Comprehensive Plan.

The land use zoning plan focuses commercial zones along Highway 26 (Front Street) with the areas north and south of the highway zoned for residential uses. The only exception to this plan is a parcel zoned as manufacturing on the west side of the city, south of Highway 26.

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PLANNING PROCESS

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

- Involving the Prairie City community (Chapter 1)
- Defining goals and objectives (Chapter 2)
- Reviewing existing plans and transportation conditions (Chapters 3 and 4 and Appendix A)
- Developing population, employment and travel forecasts (Chapter 5)
- 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)

Community Involvement

Community involvement was an important part of developing the Prairie City TSP. Interaction with the community was achieved with several different techniques including, a local working group, 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.

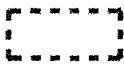

Goals and Objectives

Using input from the city, the TAC, and the community, a set of goals and objectives were defined for the Prairie City 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 Prairie City and 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 Prairie City area, including the street system improvements planned and implemented in the past, and how the city is currently managing its ongoing development. The city is currently in the process of updating its comprehensive plan and ordinances.

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 A summarizes the inventory of all streets in the Prairie City planning area.

 CITY LIMITS
 URBAN GROWTH BOUNDARY

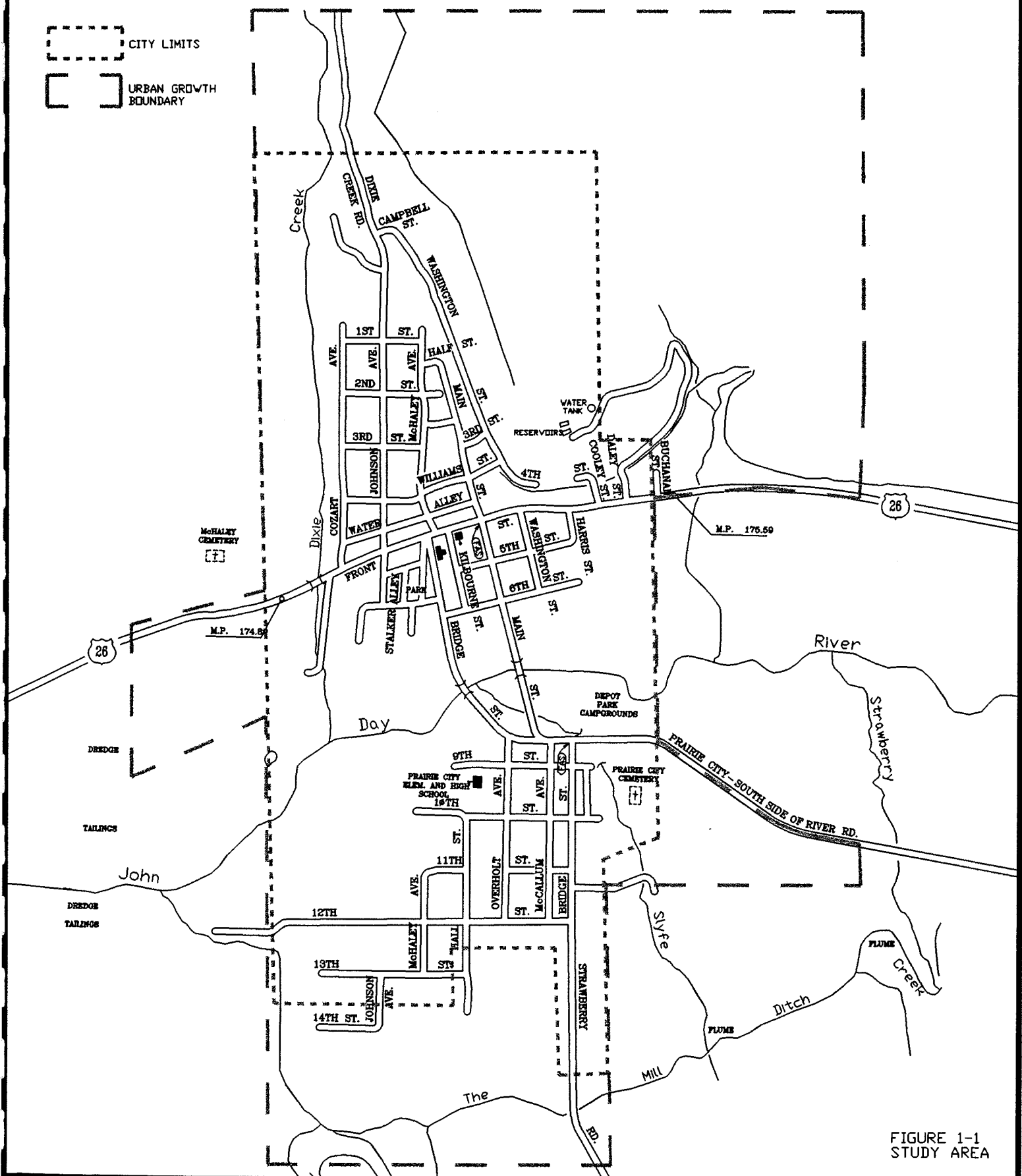
















FIGURE 1-1
STUDY AREA

- | | | | |
|--|---|---|-----------------|
|  | MAINLINE STATE HIGHWAY |  | PUBLIC BUILDING |
|  | STREET OPEN FOR TRAVEL |  | COURT HOUSE |
|  | INTERSTATE ROUTE |  | CITY HALL |
|  | U.S. ROUTE |  | ARMORY |
|  | STATE ROUTE |  | POST OFFICE |
|  | TERMINATION OF FA SYSTEM |  | SCHOOL |
|  | ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED |  | LIBRARY |

0 575 1150 FEET

PRAIRIE CITY



LEGEND

- C-1=CENTRAL COMMERCIAL
- C-2=GENERAL COMMERCIAL
- M-1=GENERAL INDUSTRIAL
- R-1=LIMITED RESIDENTIAL
- R-2=GENERAL RESIDENTIAL
- EXC=EXCEPTION AREA

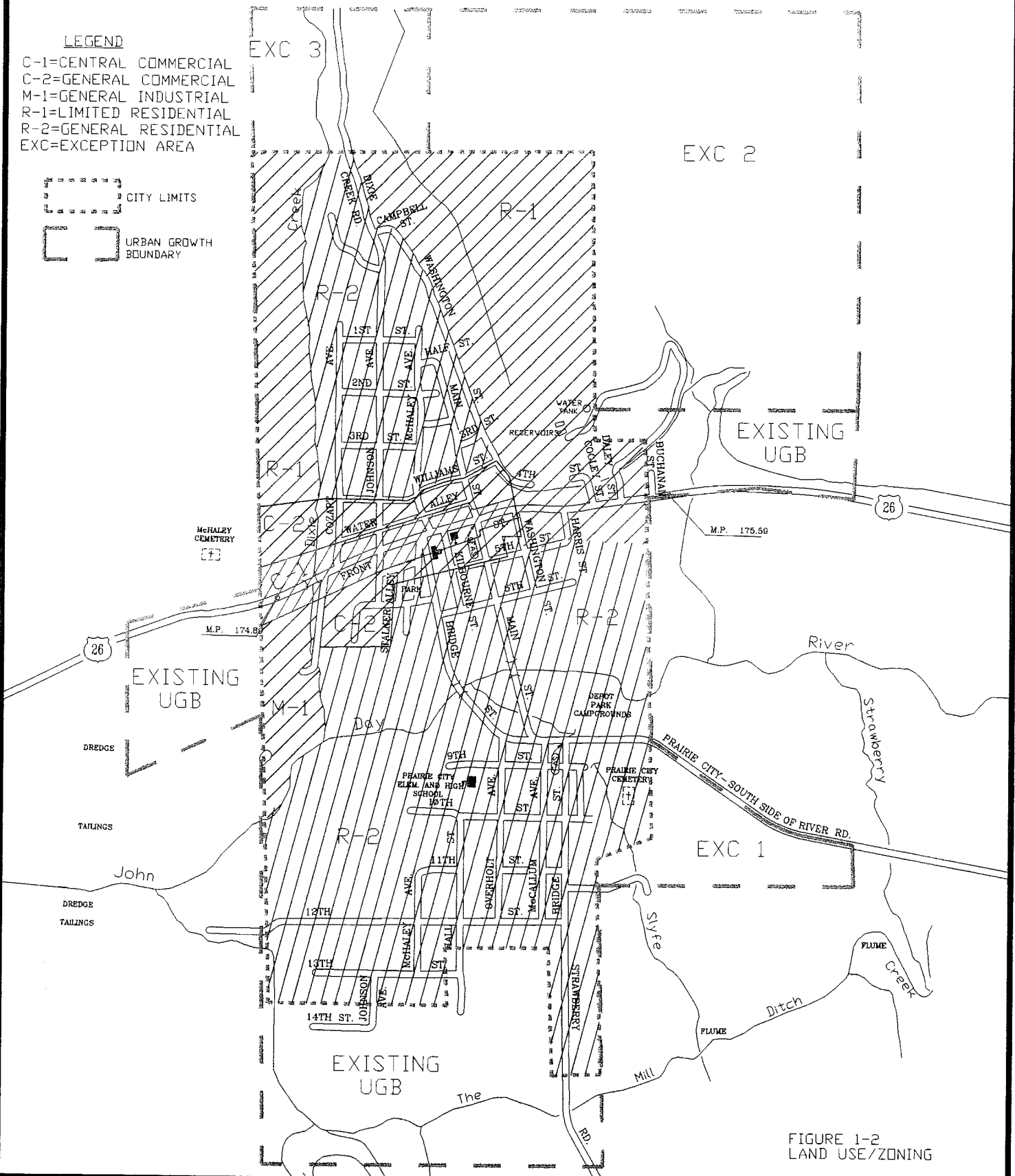
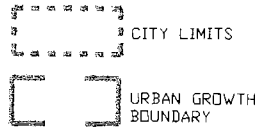
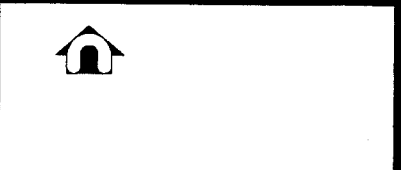


FIGURE 1-2
LAND USE/ZONING

- == MAINLINE STATE HIGHWAY
- == STREET OPEN FOR TRAVEL
- == INTERSTATE ROUTES
- == U.S. ROUTE
- == STATE ROUTE
- == TERMINATION OF FA SYSTEM
- == ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED
- PUBLIC BUILDING
- COURT HOUSE
- CITY HALL
- ARMORY
- POST OFFICE
- SCHOOL
- LIBRARY

PRAIRIE CITY

0 500 1000 FEET



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 street system plus any currently committed street 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 street 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

The City of Prairie City will need to work with Grant County 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.

CHAPTER 2: GOALS AND OBJECTIVES

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

Objectives:

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

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

Objectives:

- A. Maintain and enhance the street grid system for Prairie City.
- B. Improve and maintain existing roadways to preserve the capacity, level of service, and safety of the existing transportation system.
- C. Examine the need for speed reduction in specific areas.
- D. Identify local problem spots and recommend solutions.
- E. Ensure planning coordination between the Prairie City, Grant County, the state, and the US Forest Service.

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 Prairie City for goods and services.
- D. Improve access onto and off arterial roadways to encourage growth.

GOAL 4: Increase the use of alternative modes of transportation (walking, bicycling, and transit) 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. Provide a safe and efficient system of multi-use paths through the urban area.
- E. Promote alternative modes and carpool programs through community awareness and education.
- F. Plan for future transit service expansion by sustaining funding to local transit efforts and seeking consistent state support.

CHAPTER 3: TRANSPORTATION SYSTEM INVENTORY

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

STREET 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 Prairie City transportation system, which consists almost entirely of roadway facilities for cars and trucks. The street 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.

Street Layout

The City of Prairie City has a well established grid system. Existing street blocks in most parts of the city are arranged in a grid-type pattern which allow for shorter trips between two locations. This sort of layout also provides a better opportunity for people to walk or ride a bicycle to any destination in the city.

The city has also planned for the future extension of the grid system in the southern section of the city. The dead end streets of 9th Street through 14th Street are planned to extend west to the UGB/city limits, with the development of other north-south roadways.

Inventory

The existing street system inventory was conducted for all collector and arterial roadways within Prairie City including state highways and county roads that lie within the planning area. Inventory elements include:

- street classification and jurisdiction
- street width and right-of-way
- number of travel lanes
- presence of on-street parking, sidewalks, or bikeways
- speed limits
- presence of curb and gutter
- general pavement conditions

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

State Highways

Discussion of the Prairie City street system must include all state highways that traverse the planning area. Prairie City is served by only one state highway: Highway 26. Although Prairie City has no direct control over this highway, adjacent development as well as traffic patterns are heavily influenced by it. Highway 26 serves as the major east-west route through town with industrial, commercial, and residential development focused along the corridor inside the urban growth boundary (UGB). It is a two-lane facility with speed limits ranging from 55 mph west of the UGB line, to 25 and 30 mph within the city, and 55 mph east of the city limits.

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.

Highway 26 through Prairie City is classified as a highway of statewide importance. According to the OHP, the primary function of a state highway is to “provide connections and links to larger urban areas, ports, and major recreation areas that are not directly served by interstate highways.” 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. This means that design factors such as controlling access and providing passing lanes are of primary importance along Highway 26.

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, which does not pass through Prairie City, was added as a congressional high priority route in the NHS. This is a new national classification system to identify highways of significance.

Street Classification








The City of Prairie City has no street classification system identified in its comprehensive plan. Therefore, a classification system was created at five levels: state highway/arterial streets, county arterial streets, county major collectors, city collector streets, and local city streets. These categories were created based on street functionality and jurisdiction.

State Highways/Arterial Streets

State highways often function as arterial streets, forming the primary roadway network within and through a region. They provide a continuous road system that distributes traffic between neighborhoods and districts. Generally, arterial streets are high capacity roadways that carry high traffic volumes with minimal localized activity. In smaller communities, such as Prairie City, the state highways/arterial streets often serve both regional and local traffic demands.

Highway 26 is classified as a state arterial street. It was recently reconstructed through Prairie City. As mentioned previously, this highway serves as the major route through the city and provides access to adjacent industrial, commercial, and residential developments. Industrial development includes the Cogen Saw Mill

LEGEND

-  STATE HIGHWAY/ARTERIAL STREET
-  COUNTY MAJOR COLLECTOR
-  COUNTY ARTERIAL STREET
-  CITY COLLECTOR STREET
-  CITY LOCAL STREET
-  CITY LIMITS
-  URBAN GROWTH BOUNDARY

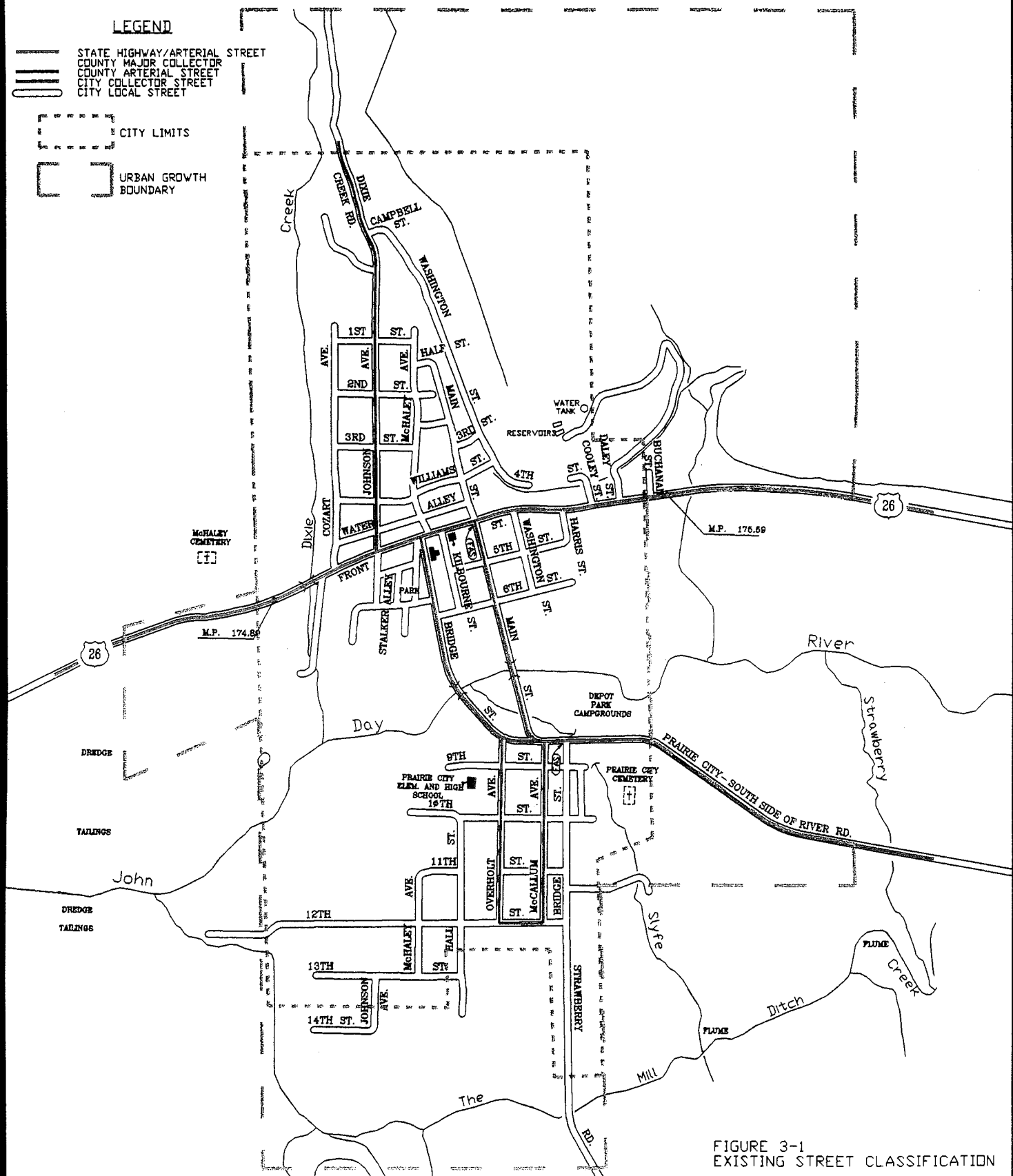













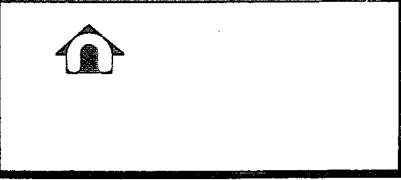


FIGURE 3-1
EXISTING STREET CLASSIFICATION

-  MAINLINE STATE HIGHWAY
 -  STREET OPEN FOR TRAVEL
 -  INTERSTATE ROUTE
 -  U.S. ROUTE
 -  STATE ROUTE
 -  TERMINATION OF FA SYSTEM
 -  PUBLIC BUILDING
 -  COURT HOUSE
 -  CITY HALL
 -  ARMORY
 -  POST OFFICE
 -  SCHOOL
 -  LIBRARY
- ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED

**GRANT COUNTY
PRAIRIE CITY**

0 575 1150 FEET



south of Highway 26 near the west city limits. Most of the commercial development bordering the highway begins at Cozart Avenue and ends east of Main Street. The street width along this section of roadway reaches 68 feet with on-street parking present on both sides of the road. Part of the on-street parking includes diagonal parking from Johnson Avenue to Main Street on the north side of the highway and from Kilbourne Street to Main Street on the south side. Mostly residential development exists east of Main Street, particularly along the north side of the highway up to Buchanan Street.

County Roads

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 a minor collector 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 short logging road or a driveway to one or a few homes. They are unpaved and carry very low traffic volumes as well.

Within the Prairie City planning area, there are three county roads: Prairie City-South Side of River Road (RD #62), Strawberry Road (RD #60), and Dixie Creek Road (RD #58). Outside the city limits these roads are under the jurisdiction of the county. Prairie City-South Side of River Road is classified as a county arterial street, with Strawberry Road and Dixie Creek Road classified as county major collectors. All three roads are gravel based. Inside the city limits these roads become city collector streets and are paved.

City Collector Streets

The City of Prairie City has several roadways classified as city collector streets: Johnson Avenue, Bridge Street, Main Street, Overholt Avenue, and a section of 12th Street. These roadways serve to connect local streets with higher class roadways such as Highway 26. Both Johnson Avenue and Bridge Street also serve to provide a link between Highway 26 and the three county roads outside the city.

Local City Streets

Local city streets are designed to carry the very low traffic volumes associated with the local uses which abut them. The City of Prairie City has an extensive, well defined, local street system as displayed in Figure 3-1.

PEDESTRIAN SYSTEM

The most basic transportation option is walking. Walking is the most popular form of exercise in the United States and can be performed by people of all ages and all income levels. However, it is not often considered as a

means of travel. This is mainly because pedestrian facilities are generally an afterthought and not planned as an essential component of the transportation system.

An average trip length for a pedestrian is around 1/2 mile. The relatively small size of Prairie City indicates that walking could be employed regularly to reach a variety of destinations in the area.

Currently, there are sidewalks located on both sides of Highway 26 (Front Street), beginning at Cozart Avenue on up to Main Street. From this location to Buchanan Street, sidewalks are present only on the north side. Sidewalks are also located along sections of Bridge Street and Main Street. On Bridge Street, sidewalks are present along the east side from Highway 26 to 6th Street, on both sides from 6th Street to Short Street, and on the west side from Short Street to the John Day River bridge. Sidewalks are present along both sides of Main Street from Highway 26 to the John Day River, and on the east side from the river to Bridge Street (see Figure 3-2).

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

BIKEWAY SYSTEM

Like pedestrians, bicyclists are often overlooked when considering transportation facilities. Bicycles take up little space on the road or parked, do not contribute to air or noise pollution, and offer relatively higher speeds than walking. Because of the small size of Prairie City, a cyclist can travel to any destination in town within a matter of minutes.

In a typical city, a short trip that would be taken by bicycle is around two miles. Judging from the size of Prairie City, average bicycle trip lengths would be much shorter.

Prairie City currently has two sanctioned bikeways (see Figure 3-3). On Main Street, a bike lane has been striped on the west side from Front Street (Highway 26) to Bridge Street. A second bike lane has been striped on the west side of Johnson Avenue from Front Street to Campbell Street. At this point, the bike lane crosses to the east side of Johnson Avenue and continues northward to the city limits.




On low volume roadways, such as many of the local streets, bicyclists and autos can safely and easily share the roadway. On a higher volume roadway, such as Highway 26, safety for the bicyclists should be an important issue.

PUBLIC TRANSPORTATION

The City of Prairie City has no local (city-only) public transportation services; however, paratransit and long distance services are provided by The People Mover based in John Day. 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.

LEGEND

-  EXISTING SIDEWALK
-  CITY LIMITS
-  URBAN GROWTH BOUNDARY

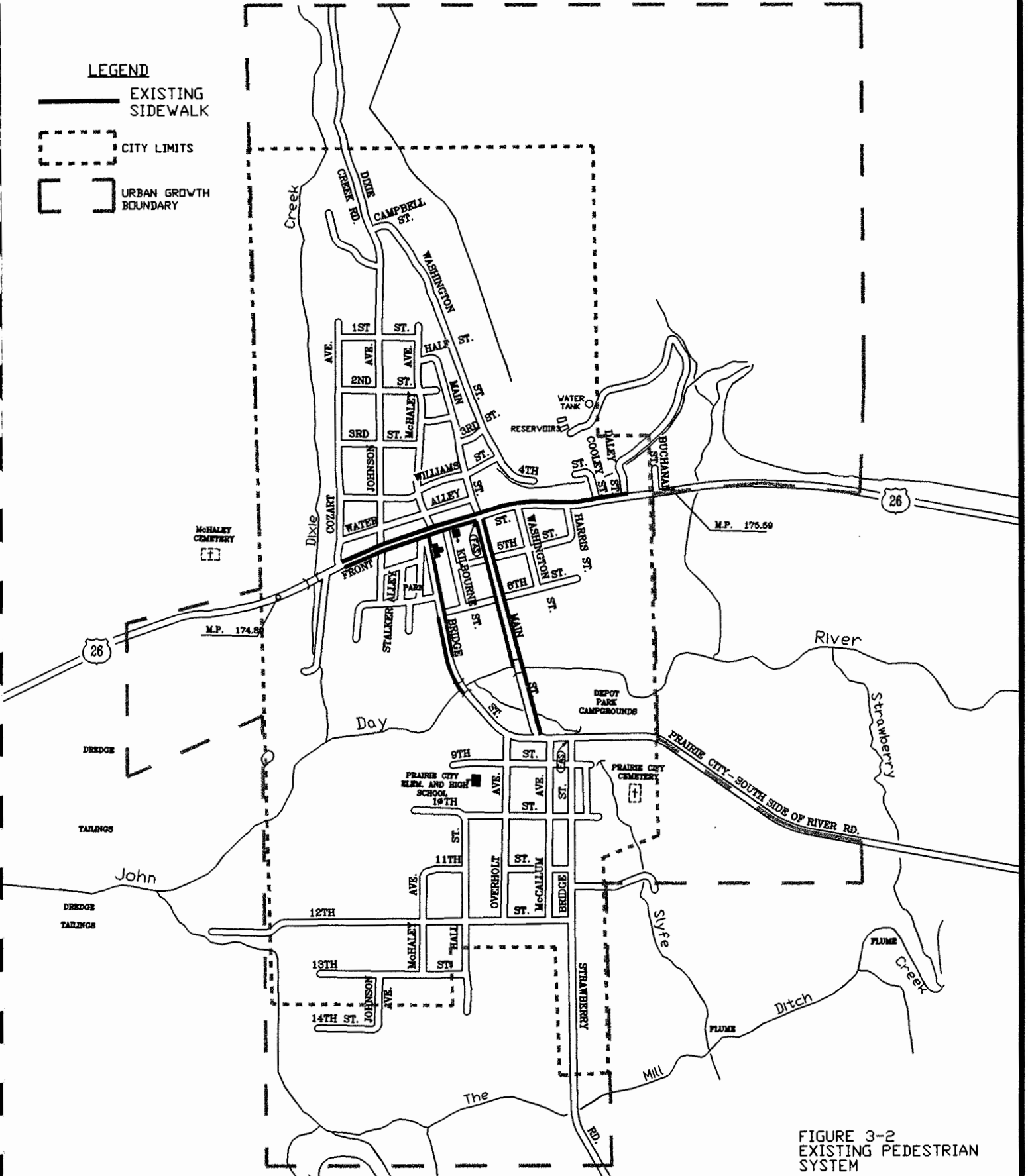















FIGURE 3-2
EXISTING PEDESTRIAN
SYSTEM


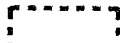

- | | | | |
|--|--------------------------|---|-----------------|
|  | MAINLINE STATE HIGHWAY |  | PUBLIC BUILDING |
|  | STREET OPEN FOR TRAVEL |  | COURT HOUSE |
|  | INTERSTATE ROUTE |  | CITY HALL |
|  | U.S. ROUTE |  | ARMORY |
|  | STATE ROUTE |  | POST OFFICE |
|  | TERMINATION OF FA SYSTEM |  | SCHOOL |
| | |  | LIBRARY |
- ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED

0 575 1150 FEET

PRAIRIE CITY



LEGEND

-  EXISTING BIKEWAY
-  CITY LIMITS
-  URBAN GROWTH BOUNDARY

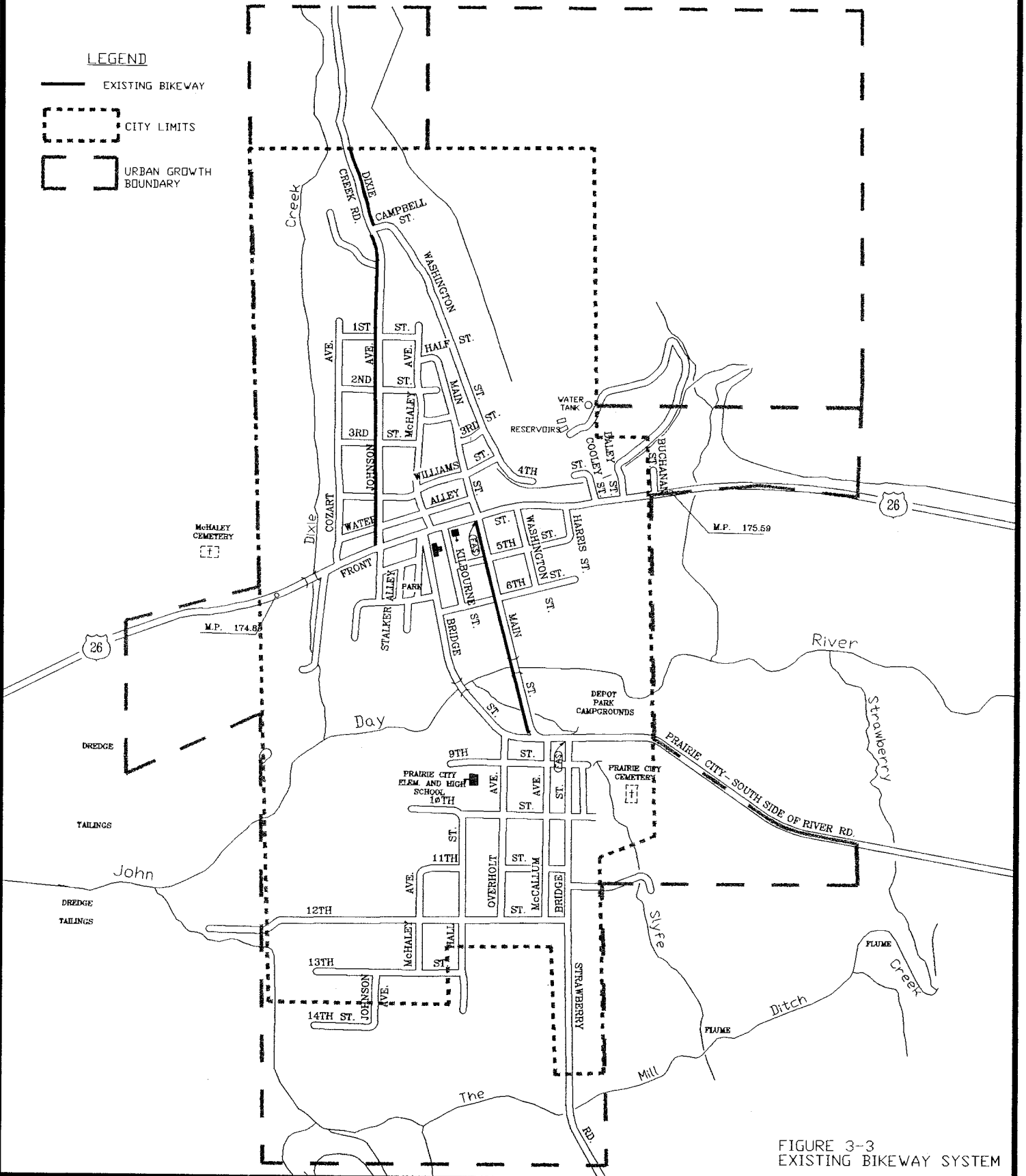















FIGURE 3-3
EXISTING BIKEWAY SYSTEM

GRANT COUNTY
PRAIRIE CITY



0 500 1000 FEET

- | | | | |
|---|--------------------------|---|-----------------|
|  | MAINLINE STATE HIGHWAY |  | PUBLIC BUILDING |
|  | STREET OPEN FOR TRAVEL |  | COURT HOUSE |
|  | INTERSTATE ROUTE |  | CITY HALL |
|  | U.S. ROUTE |  | ARMORY |
|  | STATE ROUTE |  | POST OFFICE |
|  | TERMINATION OF PA SYSTEM |  | SCHOOL |
| ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED | |  | LIBRARY |

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.

The small size and low traffic volumes on city streets indicate that mass transit is not currently necessary. A citywide public transportation program would not be economically feasible at this time. The TPR exempts cities with a population less than 25,000 from including mass transit facilities in their development regulations.

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 of 1997. Historically, rail service was also available between Baker City and Prairie City via the Sumpter Valley Railroad. This line has not had any active service for many years. The railroad depot is now a park.

AIR SERVICE

Currently, there is no private or commercial air service provided in Prairie City. The nearest private service is located at the state airport in John Day. This airport is used by recreational flyers, businesses, and public agencies. The nearest commercial airport is in Redmond, about 160 miles to the west via Highway 26, or Pendleton, about 140 miles to the north via Highways 26 and 395.

PIPELINE SERVICE

The City of Prairie City has no pipeline services.

WATERBORNE SERVICE

The City of Prairie City has no waterborne transportation services.

CHAPTER 4: CURRENT TRANSPORTATION CONDITIONS

As part of the planning process, the current operating conditions for the transportation system were evaluated. This evaluation focused primarily on street system operating conditions since the automobile is by far the dominant mode of transportation in Prairie City. This involved analysis of existing traffic volumes, street capacity, and street safety. Census data was 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 Prairie City 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 on Highway 26 (Front Street) and three county roads are shown in Figure 4-1. Traffic volumes are greatest on the highway and lowest on the county or local city streets serving the residential areas. An extensive traffic count program involving the local city streets was not necessary due to the size of the city.

The volumes shown on Figure 4-1 are average volumes for the year. During the summer months, traffic volumes on Highway 26 are typically higher. Information from a permanent traffic recorder station, located about 0.2 miles east of Prairie City, indicates that June is the peak summer month. In 1995, traffic volumes during this month were about 42 percent higher than average volumes.

Truck Volumes

Truck traffic information was also collected on Highway 26 near Prairie City. The permanent traffic recorder east of Prairie City indicated that in 1995, 25.6 percent of the ADT was truck traffic. With an ADT volume of 1,194 vehicles recorded at the counter, this would equate to 305 trucks per day. These daily truck volumes may be low but the percentage of trucks using the highway is very high compared to other roadways. Within the city itself, truck volumes as a percentage of total traffic may be slightly lower because local traffic activity increases the overall traffic volume.

1995 Street Capacity

Transportation engineers have established various standards for measuring traffic capacity of roadways or intersections. Each standard is associated with a particular level of service (LOS). The LOS concept requires consideration of factors that include travel speed, delay, frequency of interruptions in traffic flow, relative freedom for traffic maneuvers, driving comfort and convenience, and operating cost. Six standards have been established ranging from Level A where traffic flow is relatively free-flowing, to Level F, where the street system is totally saturated with traffic and movement is very difficult.

Analysis of the street system capacity in Prairie City focused on the intersections along Highway 26 through town, where traffic volumes are the greatest. Currently, all intersections along the highway are unsignalized and STOP-controlled on the minor approaches, with continuous flow on the highway. The LOS was determined at the busiest intersection on the highway to determine the worst possible traffic operations.

The LOS criteria for an unsignalized intersection is listed in Table 4-1. Level of service is defined by the average total delay vehicles experience for individual approaches or for the intersection as a whole.

**TABLE 4-1
LEVEL OF SERVICE CRITERIA
FOR UNSIGNALIZED INTERSECTIONS**

Level of Service	Average Total Delay (seconds/vehicle)
A	≤ 5.0
B	> 5.0 and ≤ 10.0
C	> 10.0 and ≤ 20.0
D	> 20.0 and ≤ 30.0
E	> 30.0 and ≤ 45.0
F	> 45.0

Source: Transportation Research Board, *Highway Capacity Manual*,
Special Report 209, Third Edition, 1994, p. 10-12.

The intersection of Main Street at Highway 26 was determined to be the busiest intersection in the city. Daily traffic volumes along Highway 26 were the greatest at this intersection, with an ADT volume of 2,400 vehicles to the west and 1,600 vehicles to the east. To determine the worst possible traffic operations at this intersection, the ADT was increased by 42 percent to reflect an ADT for the peak summer month. Traffic operations were then analyzed using peak hour traffic volumes of roughly 10 percent of the daily traffic, which is typical for most cities. Also, a 60/40 directional split was used to reflect the distribution of traffic on the highway during the peak hour. No traffic data were available on either approach on Main Street. Therefore, a conservative approach volume was used (70 vehicles during the peak hour).

Under these assumptions, the approaches on Main Street operate well with a LOS B on the south approach and a LOS A on the north approach. This indicates all other local roads accessing Highway 26 in the city are also operating at a LOS of B or better.

SAFETY ANALYSIS

As part of the existing conditions evaluation, a safety analysis was performed along Highway 26 within Prairie City. Accident data for a three-year period between 1993 and 1995 were collected using information from the ODOT Accident Summary Database. According to the database, four accidents have occurred along the highway, all of which involved property damage only without any injuries. The first accident occurred at the intersection of Johnson Avenue. This was a turning type accident. The next two accidents involved vehicles trying to park along Front Street. One accident occurred just west of McHaley Avenue during the night. The other accident occurred just west of Main Street and took place during icy conditions. The fourth accident occurred at the intersection of Main Street and was a rear-end type accident. Conditions were wet when this accident occurred. Overall, none of these accidents seem to be related except for the two accidents involving parking maneuvers.

LEGEND
2300=ADT VOLUME

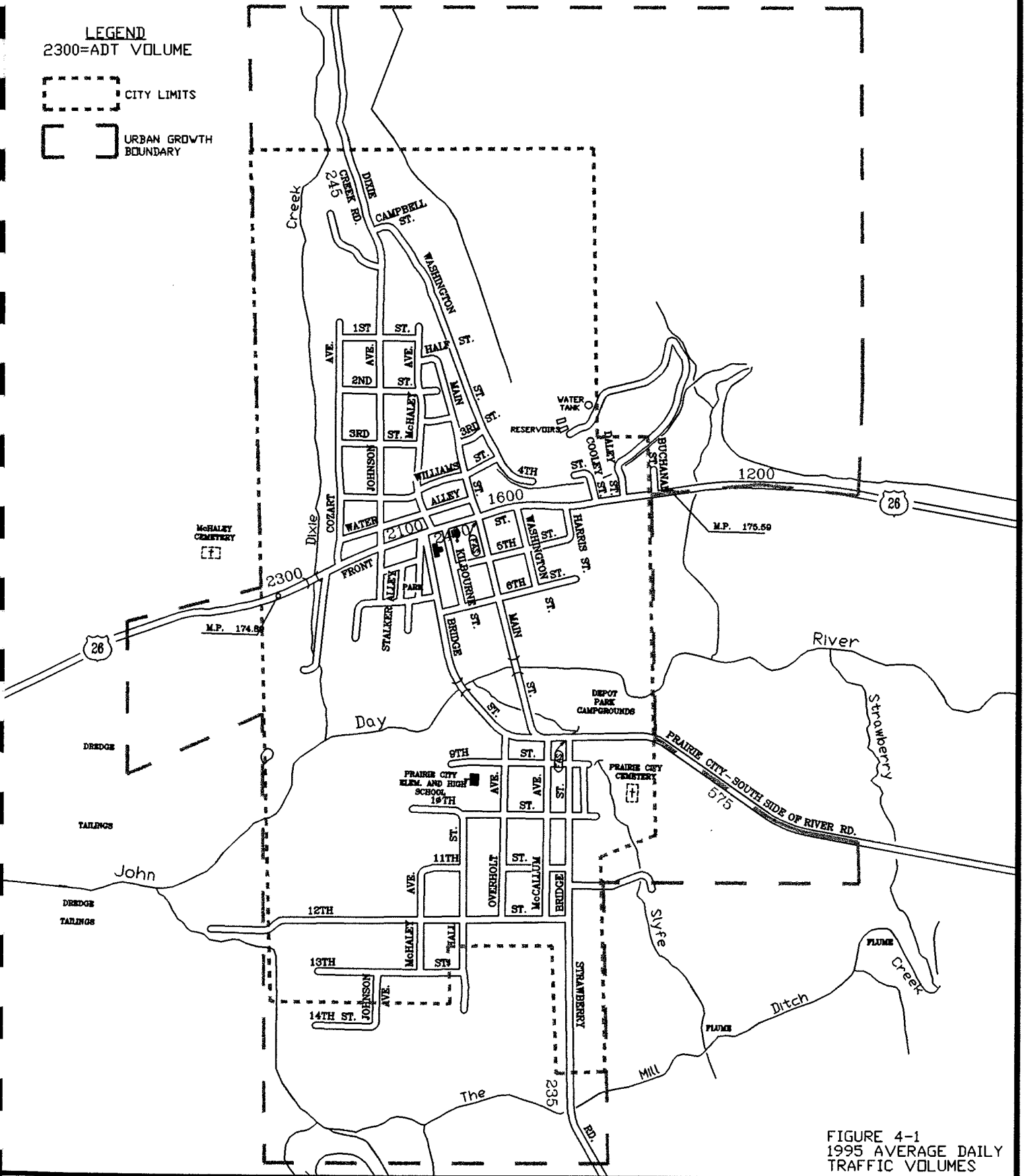
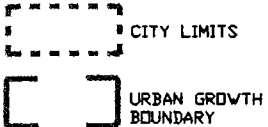


FIGURE 4-1
1995 AVERAGE DAILY
TRAFFIC VOLUMES

- ≡ MAINLINE STATE HIGHWAY
- ≡ STREET OPEN FOR TRAVEL
- ⊖ INTERSTATE ROUTE
- ⊖ U.S. ROUTE
- ⊖ STATE ROUTE
- ⊖ TERMINATION OF FA SYSTEM
- ⊖ ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED
- PUBLIC BUILDING
- COURTY HOUSE
- CITY HALL
- ARMORY
- POST OFFICE
- SCHOOL
- LIBRARY

0 575 1150 FEET

PRAIRIE CITY



A total of four accidents in three years may seem high to the residents of Prairie City. However, the computed accident rate for this section of Highway 26 was less than the statewide average. The accident rate was determined to be 2.45 accidents per million vehicle miles traveled. The statewide average for a highway such as Highway 26, which is designated as an urban primary system non-freeway inside the city limits, was 3.55 in 1993, 3.45 in 1994, and 3.98 in 1995.

JOURNEY-TO-WORK INFORMATION

Place of Work

According to the 1990 US Census, Prairie City had a total of 455 residents who work. Of these residents, 227 worked inside the city and 228 commuted elsewhere. A majority of the residents who worked inside the city had commute times of around 10 minutes or less. Most of those who worked elsewhere had commute times between 10 to 35 minutes, indicating that the nearby cities of John Day, Canyon City, and possibly Mt. Vernon are the destinations of these commuters.

Travel Mode Distribution

Although the automobile is the primary mode of travel for most residents in the Prairie City area, 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 4-2.

Most Prairie City residents travel to work via a private vehicle. In 1990, 85.5 percent of all trips to work were made by auto, van, or truck. Trips in single-occupancy vehicles made up 68.1 percent of all trips, and carpooling accounted for 17.4 percent.

Bicycle usage totaled 1.1 percent of all trips made to work in 1990. 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 (8.8 percent of trips to work). Because of the small size of the Prairie City community, walking trips are easy and most destinations can be reached fairly quickly. Again, census data do not include trips to school or other non-work activities.

Census data show that around 3.7 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 city, level terrain, 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 with roadways encourages the use of these modes.

TABLE 4-2
JOURNEY-TO-WORK TRIPS

Trip Type	1990 Census	
	Trips	Percent
Private Vehicle	389	85.5
<i>Drove Alone</i>	<i>(310)</i>	<i>(68.1)</i>
<i>Carpooled</i>	<i>(79)</i>	<i>(17.4)</i>
Public Transportation	0	0
Motorcycle	0	0
Bicycle	5	1.1
Walk	40	8.8
Other	4	0.9
Work at Home	17	3.7
Total	455	100.0

Source: 1990 US Bureau of Census.

CHAPTER 5: TRAVEL FORECASTS

The traffic forecast prepared for Prairie City, 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 focuses mainly on Highway 26 in the planning area, since the volumes on this roadway are much higher than on any other road in the city. Future traffic was also projected for the three other county roads in the planning area; Dixie Creek Road, Prairie City-South Side of River Road, and Strawberry Road.

LAND USE

Land use, with respect to population growth, plays an important part in projecting future traffic volumes. In some instances the historical population growth of a city may be related to the historical traffic growth trend on roads in the city. If a relationship is found between the two, future traffic growth on roadways may be guided by population projection estimates. Both historical and projected population for Prairie City are summarized in Table 5-1.

**TABLE 5-1
PRAIRIE CITY POPULATION TRENDS**

Year	Population	% Change
1960	801	
1970	867	+ 8.2
1980	1,106	+27.5
1990	1,117	+ 1.0
1995 Estimate	1,170	+4.7
2017 Projected	1,456	+24.4

Source: Portland State University's Center for Population Research and Census and the State of Oregon Office of Economic Analysis

The technical memorandum titled *Population and Employment Analysis* summarizes the methodology and data sources used to determine the historical and projected population for the city (see Appendix B). The analysis also includes population statistics pertaining to other nearby cities, as well as population and employment statistics for Grant County as a whole.

Historical

Prairie City's population has increased steadily over the past 35 years, with a significant increase between 1970 and 1980 of 27.5 percent. Overall, the city's population has increased from 801 to 1,170 persons over the 35 year period resulting in a total increase of 46.1 percent or an annual increase of 1.09 percent per year.

Projected

The population of Prairie City is expected to increase from 1,170 to 1,456 persons by the year 2017. This is an overall increase of 24.4 percent and an annual increase of 1.00 percent per year.

HISTORICAL TRAFFIC VOLUMES

Before projecting future traffic growth, it is important to examine past growth trends on the roadway system in Prairie City. Historical data is only available for Highway 26 through Prairie City; however, this roadway carries far more traffic than any other street in the urban area.

Historical traffic volumes along Highway 26 (Front Street) 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 several locations along the highway within the planning area. Averaging the ADT volumes at each location together for each year and using a linear regression analysis, an average annual growth rate was determined for the highway.

From 1975 to 1995, the annual traffic growth rate was 1.75 percent per year on Highway 26 with an overall growth of 41.6 percent. This was higher than the annual population growth in Prairie City itself for the same time period (determined to be +0.86 percent per year). This relationship reflects the current trend toward an increase in per capita vehicle miles traveled, and that shows through traffic has been growing at a higher rate than traffic related to Prairie City's population.

FORECASTING METHODOLOGY

The traffic forecast for Prairie City was performed using a Level 1 - Trending Forecast¹ analysis. This type of forecast projects future traffic volumes based on one or more of the following growth rates; the historical growth on the state highway system, the historical population growth, and the projected population growth.

The forecasting methodology used in this forecast assumed that traffic demand on Highway 26 will grow at a rate equivalent to the historical traffic growth trend. 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 city.

Comparisons show that the historical traffic growth rate on Highway 26 is higher than either the historical or projected population growth rates for the city. Traffic on Highway 26 has increased consistently over the last 20 years at a rate of 1.75 percent per year. The population of Prairie City has increased at a rate of 0.86 percent per year during this same period and the projected population growth rate is only 1.00 percent per year. Therefore, the Trending Forecast methodology is appropriate.

FUTURE TRAFFIC VOLUMES

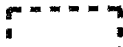

Future year ADT volumes on Highway 26 were determined by applying the historical traffic growth trend to existing 1995 counts. Projected traffic volumes for the year 2017 are illustrated in Figure 5-1.

Over the next 20 years, traffic volumes are expected to grow by about 32 percent on Highway 26, which is a moderate increase in traffic for this time frame. ADT volumes are estimated to reach a maximum of 3,040 vehicles on Highway 26 near the west city limits.

¹ ODOT *Transportation System Planning Guidelines*, August 1995, pg. 29.

LEGEND

3040=ADT VOLUME

-  CITY LIMITS
-  URBAN GROWTH BOUNDARY

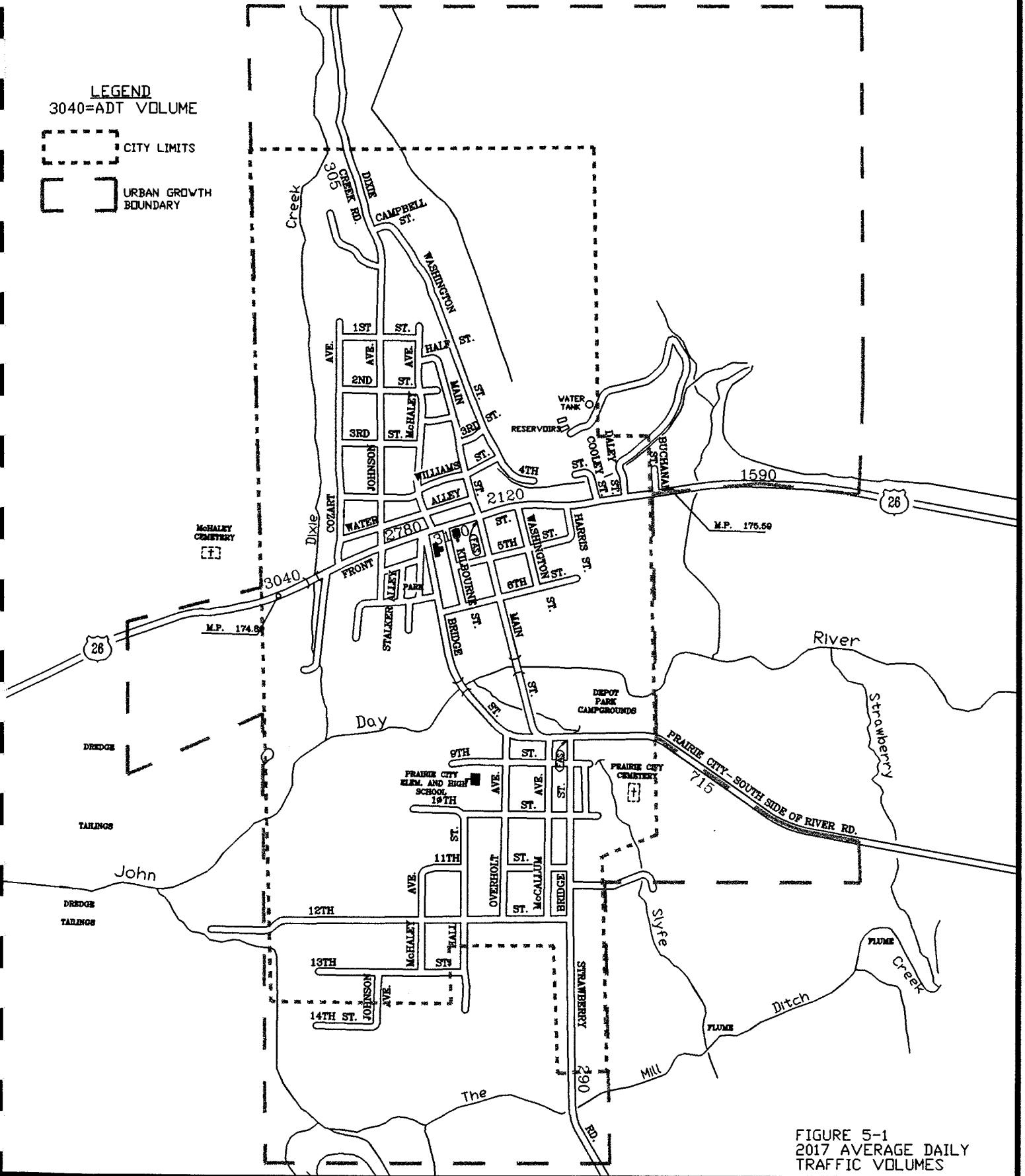















FIGURE 5-1
2017 AVERAGE DAILY
TRAFFIC VOLUMES

-  MAINLINE STATE HIGHWAY
 -  STREET OPEN FOR TRAVEL
 -  INTERSTATE ROUTE
 -  U.S. ROUTE
 -  STATE ROUTE
 -  TERMINATION OF PA SYSTEM
 -  PUBLIC BUILDING
 -  COURT HOUSE
 -  CITY HALL
 -  ARMORY
 -  POST OFFICE
 -  SCHOOL
 -  LIBRARY
- ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED

0 575 1150 FEET

PRAIRIE CITY



Traffic volumes on the three county roads, Dixie Creek Road, Prairie City-South Side of River Road, and Strawberry Road, are projected to increase by around 24 percent, which is consistent with the future population growth rate of the city. ADT volumes are estimated to be around 305 vehicles on Dixie Creek Road, 715 vehicles on the Prairie City-South Side of River Road, and 290 vehicles on Strawberry Road.

HIGHWAY SYSTEM CAPACITY

With overall ADT volumes remaining fairly low in the future, travel conditions are projected to remain favorable throughout the city. This is supported by the estimated future traffic operations at the busiest intersection in the city, Highway 26 and Main Street, where the LOS is expected to remain at a satisfactory level.

Analysis Results

To evaluate the future traffic operations at the intersection, the peak hour volumes used in the existing operations analysis for the peak summer month were factored up to year 2017 levels. This was done by increasing the existing traffic volumes by 32 percent on Highway 26. Traffic volumes on the Main Street approaches were increased by 24 percent which is consistent with the projected population growth.

Under these assumptions, traffic operations at this intersection during the peak summer month will remain unchanged in the year 2017 with LOS B on the south approach of Main Street and LOS A on the north approach.

CHAPTER 6: IMPROVEMENT OPTIONS ANALYSIS

Potential transportation improvements for Prairie City 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.

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. Improvement Alternatives 4 and 5 are illustrated Figure 6-1.

1. Revise zoning code to allow and encourage mixed-use development and redevelopment.
2. Implement transportation demand management strategies.
3. Implement speed control measures along Highway 26.
4. Upgrade substandard roads.
5. Sight distance improvement at the intersection of South Main Street and Highway 26.
6. Install catch basins on Front Street

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 city indicate there will be no deficiencies in the capacity of the street 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 are a critical concern for the city. 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

Alternative 1. Revise Zoning and Development Codes

Overview: One of the goals of the Oregon TPR is to reduce the reliance on the automobile. One way a city jurisdiction can do this is through amendments in zoning and development codes to permit mixed use developments and increases in density in certain areas. Specific amendments include allowing neighborhood commercial uses within residential zones and allowing residential uses within commercial zones. Such code amendments can encourage residents to walk and bicycle throughout the community by providing shorter travel distances between land uses.

Impacts: These code revisions are more effective in medium to large sized cities with populations of 25,000 and over, but in cities such as Prairie City, they may not be appropriate. Because of Prairie City's size, the decision of what mode of transportation to use when making a trip inside the city is not influenced by distance. The longest distances between the north and south city limit boundaries and the east and west boundaries in Prairie City are around 1.5 and 0.7 miles, which are distances short enough to walk, ride a bike, or drive. Distances between different land uses, such as residential and commercial, is even shorter. Almost 9 percent of the population already walks to work, which is higher than the statewide average.

Increasing density may have some effect on development in Prairie City. Population is projected to increase almost 25 percent (285 additional residents) in the next 20 years.

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

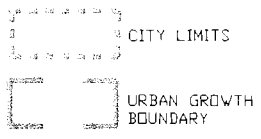
Recommendation: Revisions to zoning and development codes to allow for increased density is recommended.

Alternative 2. Implement Transportation Demand Management (TDM) Strategies

Overview: The TPR also recommends that cities 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 applying other transportation measures within the community, such as staggering work schedules at local businesses. TDM strategies may be more effective in larger, more urban, cities but some strategies can still be useful in smaller cities such as Prairie City. Provisions for alternative modes of transportation, such as sidewalks and bike lanes, and implementing a county-wide carpooling program can be beneficial for residents in the city. Other TDM measures such as staggering work shift schedules at local businesses may not be appropriate since there are no large businesses in the urban area.

Prairie City currently has a sidewalk system that helps to promote the principles of TDM measures. There are sidewalks along much of Front Street (Highway 26) supporting pedestrian traffic in the downtown commercial core. Residents in the southern portion of the city have access to the sidewalks along Main Street and Bridge Street, south of Highway 26.

To further enhance the city's pedestrian system, all future street improvement projects, whether they involve constructing a new roadway or upgrading an existing roadway, should include the addition of some sort of pedestrian facility. This would include the addition of new sidewalks or walkways. All new street improvement projects should also consider bicycle lanes as well.



ALTERNATIVE 5:
SIGHT DISTANCE IMPROVEMENT
AT THE INTERSECTION OF
MAIN STREET AND HWY 26
(P. 6-7)

ALTERNATIVE 6:
INSTALL CATCH
BASINS ON FRONT
STREET (P. 6-8)

ALTERNATIVE 4:
UPGRADE SUBSTANDARD
ROADS (P. 6-6)

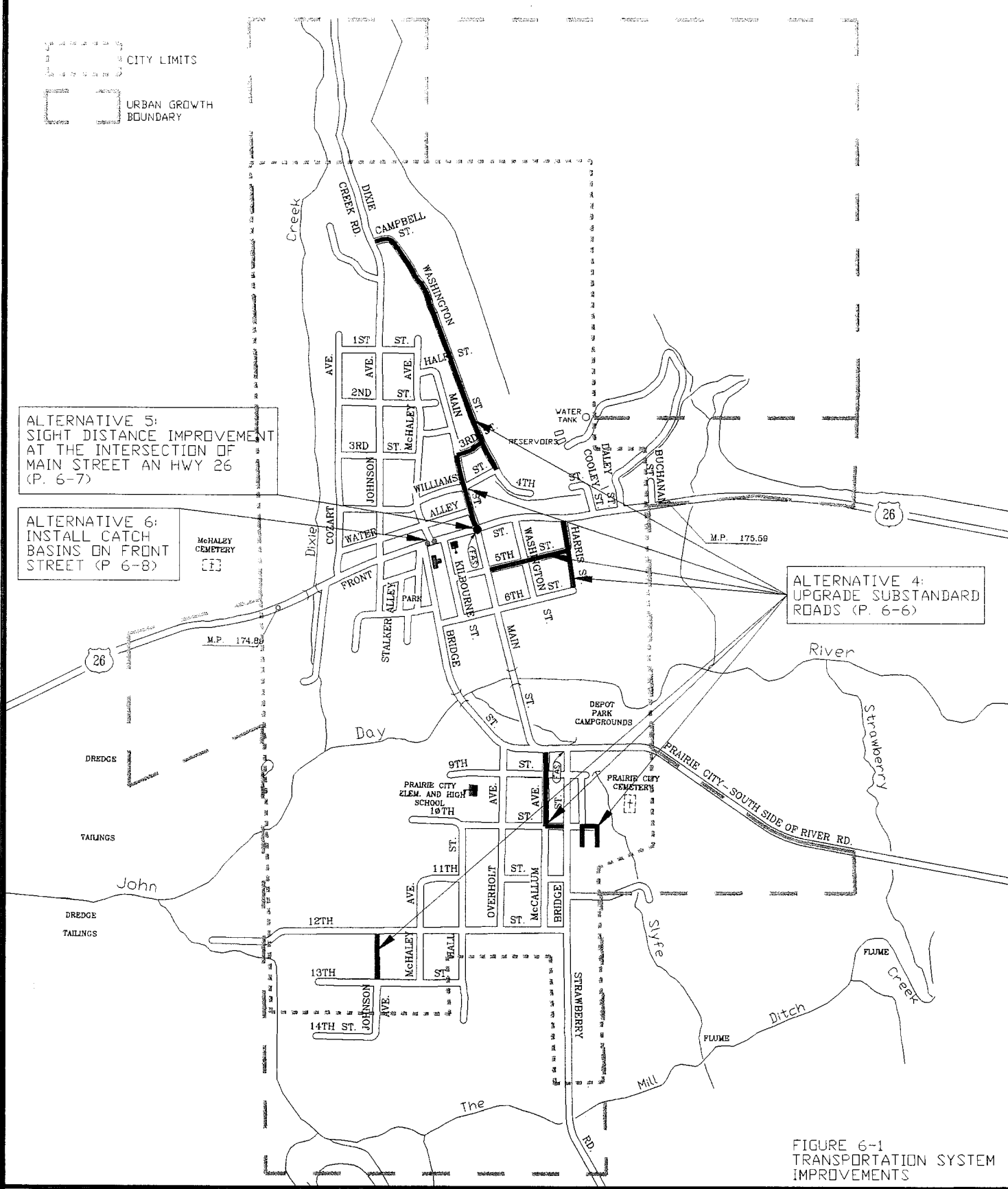


FIGURE 6-1
TRANSPORTATION SYSTEM
IMPROVEMENTS

- == MAINLINE STATE HIGHWAY
- == STREET OPEN FOR TRAVEL
- INTERSTATE ROUTE
- U.S. ROUTE
- STATE ROUTE
- TERMINATION OF FA SYSTEM
- ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED
- PUBLIC BUILDING
- COURT HOUSE
- CITY HALL
- ARMORY
- POST OFFICE
- SCHOOL
- LIBRARY

0 500 1000 FEET

PRAIRIE CITY



Implementing a local carpool program in Prairie City alone is not necessary because of Prairie City's geographical size. However, a county-wide carpool program is possible. Because intercity commuting is a factor in Grant County, residents who live in Prairie City and work in other cities 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 a city, and improves traffic and pedestrian safety. With more emphasis on walking or biking in the city, conditions such as air quality and noise levels would be improved as well.

As street improvements are made to the existing street system, projects involving the construction of new sidewalks may require on-street street parking to be implemented in place of parking on grass or gravel shoulders. In situations where the right-of-way is limited, adding sidewalks may prevent on-street parking as well.

Cost: The estimated cost to install a new sidewalk on one side of an existing street is around \$30 per linear foot. This includes a 6-foot wide walkway composed of 4 inches of concrete and 2 inches of aggregate. Curbing would cost an additional \$5 per linear foot.

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.

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 a 8 inch painted stripe.

These costs for are for standalone improvements; the costs can be reduced when they are included as needed in roadway improvement projects throughout Prairie City 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 Prairie City area. Therefore, the TDM strategies summarized above are recommended.

Alternative 3. Implement Speed Control Measures Along Highway 26

The residents of Prairie City are concerned about traffic exceeding the posted speed limit along Highway 26 through the city. Residents would like to see a system developed that would encourage traffic to slow down to a more appropriate speed.

In response to the public's concern over this issue, DEA compiled a variety of speed control measures used on the roadways of many cities in the state. These measures were reviewed at one of the TAC meetings. After the review, TAC members representing each jurisdiction selected speed control measures that they felt were most appropriate for their jurisdiction. The speed control measures selected for Prairie City are summarized below. A technical memorandum explaining the different types of speed control measures available can be found in Appendix C.

Option A. Speed Detector Trailer

Overview: A speed detector is an instrument that uses a radar to detect the speeds of vehicles traveling on a roadway. The purpose of the speed detector is not to enforce the posted speed limit but to make drivers more aware of their speed and surroundings. A large display on the instrument indicates to the targeted driver what speed his/her vehicle is traveling. The display can be located near a speed limit sign indicating the legal speed limit. This machine is portable, as it is usually mounted on a trailer, and can be placed in any location.

Safety: Utilization of a speed detector may or may not effectively discourage speeding. Initially, driver response to the speed detector may be effective, but after some time, drivers may become accustomed to the machine and disregard it. There have also been situations where the effect of the detector is counteractive. Some drivers do not take the detector seriously and have been known to speed up to see how high a speed they can register on the display.

Impacts: The detector has no effect on reducing the noise levels of traffic passing by since it will not reduce traffic volumes and has only a minor effect on speed. The detector is battery operated and does not produce any noise.

A detector unit should be placed far enough to one side of the street shoulder so as not to create a hazardous situation.

Cost: The cost to purchase a speed detector and trailer is around \$10,000 to \$11,000 and requires yearly maintenance and repair. Also, the speed detector unit is susceptible to vandalism.

Option B. Driver Education and Public Service Signage

Overview: This option is designed to inform the residents of Prairie City and other residents in the county about the concern for speeding along the highway through town. To inform drivers, residents in the community can be informed through newspaper articles, mailings, cable access channels, and public signage. Pedestrians can be warned about the hazards of crossing the highway by installing public service signs at all crosswalks.

Safety: This option is geared towards improving driver and pedestrian safety.

Impacts: No impacts are associated with this option.

Cost: No costs were estimated for this option.

Option C. Tree Planting at Northwest Entrance to City

Overview: This project would include planting trees at the northwest city limits of Prairie City along Highway 26. The purpose of planting trees at the entrance to the city is to install a vertical element along the roadway which gives the driver the perception that he/she is entering an urban area. Vertical elements also give the roadway the appearance of being narrow without physically changing the street or lane width. This type of perception control encourages drivers to slow down before they enter the urban section of a city. This topic is discussed further in the speed control measures summary in Appendix C.

Safety: The goal of this project is to slow traffic down to a reasonable level once inside the city limits. Slowing traffic will increase the driver's awareness and improve the safety for those who are biking and walking in town.

If trees are planted along the highway, they need to be in a safe location. Consideration has to be given to vehicles driving off the road.

Impacts: The vertical element of newly planted trees may not be seen for several years. Over time, as the trees grow, the vertical element will become more effective.

Cost: There are several types of trees available which should produce the desired effect of adding a vertical element to the city entrance. These trees are suitable for the climate in Prairie City.

- Lombardy Poplar - This tree is characterized by fast growth with a narrow and tall form. Plant these trees 15 feet on center and avoid using near underground utilities. The estimated cost is \$40 for each 8-foot bald and burlapped tree.
- Red Maple ("Armstrong" or "Columnare") - This tree is characterized by fast growth. The "Columnare" variety develops red fall color. Spacing should be 15 feet on center for "Armstrong" and 20 feet on center for "Columnare". The estimated cost is \$166 for each 2 inch Caliper tree.
- Ponderosa Pine - A moderate growth rate characterizes this tree. Lower limbs should be trimmed to keep foliage out of line of sight. Plant these trees 15 to 20 feet on center. The estimated cost is \$90 for each 6-foot bald and burlapped tree.
- Western White Pine - This tree is characterized by fast growth up to 20 feet followed by slower growth. Lower limbs should be trimmed to keep foliage out of line of sight. Plant these trees 15 to 20 feet on center. The estimated cost is \$80 for each 6-foot bald and burlapped tree.

Option D. Cross-Hatching of Crosswalks

Overview: This project would add cross-hatching to the crosswalks located on Front Street (Highway 26) rather than just providing two parallel stripes. Crosswalks indicate to drivers that they are in an area of high pedestrian activity and that they are expected to yield to pedestrians. Adding cross-hatching to the sidewalks makes them more visible to motor vehicle drivers, which encourages them to slow down. This topic is discussed further in the speed control measures summary in Appendix C.

Prairie City has five crosswalks on Front Street all approximately 68 feet in length.

Safety: The goal of this project is to slow traffic down to a reasonable level once inside the city limits. Slowing traffic will increase the driver's awareness and improve the safety for those who are biking and walking in town.

Impacts: Crosswalks can give pedestrians a false sense of security, especially at unsignalized intersections. Although this improvement would not add any new crosswalks to the system, it would increase the visibility of the existing crosswalks.

Generally cross-hatching is only used at school crossings to make them more visible. The City of Prairie City may want to identify a few specific locations where hatching would be needed rather than assuming

that all crosswalks along Front Street would be restriped. Priorities should be given to higher pedestrian volume locations.

Cost: The estimated cost of striping a standard two-line crosswalk is about \$3 per linear foot. Cross-hatching has a cost of about \$15 per linear foot. Combining the two to create a "ladder" pattern would result in a cost of about \$18 per linear foot.

Prairie City has five crosswalks across Front Street. Currently, each crosswalk costs about \$200 to stripe with a total of \$1,000 for all of them. Striping crosswalks with the "ladder" cross-hatch pattern is estimated to cost about \$1,200 per crosswalk for a total of \$6,000. Because of wear and tear, the crosswalks would need to be restriped on a yearly basis.

Recommendations

Since the purpose of each speed control measure, described above, is to discourage speeding along the highway through town and improve bicycle and pedestrian safety, all of the speed control measures are recommended. It should be noted that because the Highway 26 is under the jurisdiction of the state, Prairie City will need to work with and get approval from ODOT to implement any of these measures.

In some cases, particularly with the cross-hatching of crosswalks, a demonstration project may be undertaken before a long-term commitment to change. For example, the crosswalks may be cross-hatched for one year. Travel speeds may be observed by state and local police to determine if the measure is effective before committing to an annual maintenance expense which is six times as high as the current expense.

Alternative 4. Upgrade Substandard Roads

Overview: Prairie City has developed a 5-year plan to repave or pave the travel lanes of several roads in the city (see Figure 6-1). A total of seven projects have been identified based on the assessment of city maintenance officials. Some of these projects involve roads which are already paved and are showing signs of distress, i.e., cracking, splitting, and shoulder breakdown. Other projects include unimproved roads which have been identified for paving.

1. *SW 10th Street, Railroad Avenue, and South Fisk Avenue* - Repave SW 10th Street from Railroad Avenue to South Fisk Avenue and provide two 10-foot travel lanes. Pave Railroad Avenue from SW 10th Street to approximately 200 feet south and provide two 10-foot travel lanes. Pave South Fisk Avenue from SW 10th Street to approximately 200 feet south and provide two 10-foot travel lanes.
2. *North Washington Street and NE 3rd Street* - Repave North Washington Street from NE Williams Street to North Johnson Avenue and provide two 10-foot travel lanes and a 4-foot bicycle lane. Repave NE 3rd Street from North Main Street to North Washington Street and provide two 11-foot travel lanes and 4-foot bicycle lanes on each side.
3. *McCallum Avenue and SW 10th Street* - Repave McCallum Avenue from Bridge Street to SW 10th Street and provide two 11-foot travel lanes and 4-foot bicycle lanes on each side. Repave SW 10th Street from McCallum Avenue to Bridge Street and provide two 11-foot travel lanes and 4-foot bicycle lanes on each side.

4. *Johnson Avenue* - Pave Johnson Avenue from SW 12th Street to SW 13th Street and provide two 11-foot travel lanes and 4-foot bicycle lanes on each side.
5. *SE 5th Street and South Harris Avenue* - Repave SE 5th Street from South Main Street to South Harris Street and provide two 11-foot travel lanes and 4-foot bicycle lanes on each side. Pave South Harris Street from SE 5th Street to Highway 26 and provide two 11-foot travel lanes.
6. *North Main Street* - Repave and widen North Main Street from Highway 26 to NE 3rd Street and provide two 11-foot travel lanes, 6 to 8 feet of parking on one side, 4- to 5-foot bicycle lanes on each side, curbs on both sides, and a concrete sidewalk on one side.
7. *South Harris Avenue* - Pave South Harris Avenue from SE 5th Street to SE 6th Street and provide 16 feet of asphalt surface.

Safety: Driver safety will be improved through these roadway improvements.

Impacts: Upgrading these streets will improve the community livability for the residents who reside on these streets.

Cost: Prairie City's 5-year plan has an evaluation of the total cost of each of the seven identified street improvement projects. Table 6-2 summarizes the seven projects and their total cost. These projects have not been prioritized. Appendix D contains a full description of the project limits for each street improvement and includes a summary of all costs.

**TABLE 6-1
SUMMARY OF FIVE YEAR PLAN COSTS**

Proposed Project	Estimated Cost
1. SW 10th Street, Railroad Avenue, and South Fisk Avenue	\$54,700
2. North Washington Street and NE 3rd Street	\$228,650
3. McCallum Avenue and SW 10th Street	\$24,250
4. Johnson Avenue	\$57,100
5. SE 5th Street and South Harris Avenue	\$49,800
6. North Main Street	\$188,000
7. South Harris Avenue	\$18,700
Total	\$621,200

Recommendations: The street improvement projects identified in the city's 5-year plan are recommended. The priority of these projects should be decided upon by city officials.

Although some of these street improvement projects include provisions for sidewalks, the others should be revised if feasible to sidewalks in order to conform with the recommended street standards and the goal of the State TPR.

Alternative 5. Improve Sight Distance at the Intersection of South Main Street and Highway 26

Overview: This project focuses on improving the sight distance on the South Main Street approach to Highway 26 (see Figure 6-1). This approach is stop-controlled with continuous traffic flow on the highway.

City officials are worried that the approach sight distance to the east is insufficient due to obstructing signs along the highway. They are also worried about the sight distance to the west, which is limited by the diagonal on-street parking that is present.

The traffic control on the South Main Street approach is unique. Rather than having vehicles stop just short of the highway travel lane, a stop sign on a utility pole stops vehicles close to 20 feet away from the highway. The stop line on this approach is in the same location, created by the striping for a crosswalk traversing diagonally across the approach. The crosswalk begins at the street corner of the commercial area to the west and heads across South Main Street and away from the highway where it lines up with the sidewalk along the city park to the east. A vehicle at rest in this location may find the sight distance inadequate to the east because of a street sign and speed limit sign posted along the highway. Also, there are several large trees in the park which extend outward towards the highway. But as a vehicle moves forward after stopping, the distance to the east becomes sufficient. The sight distance to the west, however, is still limited by the diagonal parking, which extends almost all the way to the street corner.

Moving the stop bar closer to the highway is not possible, due to the location of the crosswalk. The only other option would be to have vehicles make two stops at this intersection. The first stop would be at the crosswalk and the second at the highway. This allows the driver to have sufficient sight distance to the east. The sight distance to the west could be improved by eliminating 2 to 3 diagonal parking spaces.

Safety: Removing 2 to 3 diagonal parking spaces should create enough sight distance to the west to allow drivers to enter the intersection safely.

Impacts: This project will probably be opposed by the owners of the business on the southwest corner of this intersection. As a result of this project, about half of the on-street parking in front of this business would be eliminated.

Recommendation: Since this project will improve the sight distance, and therefore, the safety of drivers on the South Main Street approach, it is recommended.

Alternative 6. Install Catch Basins on Front Street

Overview: This project would install two catch basins on Front Street at the southeast corner of its intersection with Bridge Street and the northwest corner of its intersection with McHaley Avenue (see Figure 6-1). Existing spacing between catch basins in this area is about 500 feet. During winter months, when rain and snow run-off are high, flooding on Front Street occurs between the existing catch basins.

The existing drain line already runs under Front Street; therefore, these improvements would be limited to installing just the catch basins and would not require tearing up any portion of Front Street.

Safety: Eliminating the flooding on Front Street during winter months will improve driver safety, especially when standing water is frozen, causing icy patches.

Impacts: Impacts from this project would be minimal since the catch basin improvements would only affect the immediate installation location.

Cost: The estimated cost for installing the two catch basins is \$2,000.

Recommendation: Since this project will improve driver safety during winter months, it is recommended.

SUMMARY

Table 6-2 summarizes the recommendations of the street system modal plan based on the evaluation process described in this chapter. Chapter 7 describes how these improvement options fit into the modal plans for Prairie City area.

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

Option	Recommendation
1. Revise Zoning and Development Codes	• Implement
2. Implement TDM Strategies	• Implement
3. Speed Control Measures	
Speed Detector Trailer	• Implement
Driver Education and Public Service Signage	• Implement
Tree Planting at Northwest Entrance to City	• Implement
Cross-Hatching of Crosswalks	• Implement
4. Upgrade Substandard Roads	• Implement
5. Improve Sight Distance at the Intersection of South Main Street and Highway 26	• Implement
6. Install Catch Basins on Front Street	• 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 City of Prairie City TSP covers all the transportation modes that exist and are interconnected throughout the urban area. Components of the street system plan include street classification standards, access management recommendations, transportation demand management measures, modal plans, and a system plan implementation program.

STREET DESIGN STANDARDS

Street design standards 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. Street standards are necessary to provide a community with roadways which are relatively safe, aesthetic, and easy to administer when new roadways are planned or constructed. A good, well-connected grid system of relatively short blocks can minimize excessive volumes of motor vehicles by providing a series of equally attractive or restrictive travel options. This street pattern is also beneficial to pedestrians and bicyclists.

The development of the City of Prairie City TSP provides the city 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 and Figure 7-2, summarized in Table 7-1 and described in detail on the following pages. Since the City of Prairie City TSP includes land within the UGB, urban road standards should be applied in these outlying areas as well. Although portions of the city, especially outside the City Boundary, may presently have a rural appearance, these lands will ultimately be part of the urban area. Retrofitting rural streets to urban standards in the future is expensive and controversial; it is better to initially build them to an acceptable urban standard.

**TABLE 7-1
RECOMMENDED STREET STANDARDS FOR THE CITY OF PRAIRIE CITY**

Classification	Pavement Width	Right-of-Way Width	Min. Posted Speed
Local Residential - Option 1	32-36 feet	60 feet	15-25 mph
Local Residential - Option 2	28 feet	50 feet	15-25 mph
Local Residential - Option 3	24 feet	50 feet	15-25 mph
Alley	16-20 feet	20 feet	15 mph
Collector	36 feet	60 feet	25-35 mph
Arterial - Option 1	36 feet	60 feet	25-45 mph
Arterial - Option 2	52 feet	80 feet	25-45 mph

Local Residential Streets

The design of a residential street affects its traffic operation, safety, and livability. The residential street should be designed to enhance the livability of the neighborhood as well as to accommodate less than 1,200 vehicles per day. Design speeds should be 15-25 mph. When traffic volumes exceed approximately 1,000 to 1,200 vehicles per day, the residents on that street will begin to notice the traffic as a noise and safety

problem. To maintain neighborhoods, local residential streets should be designed to encourage low speed travel and to discourage through traffic.

Cul-de-sac, or "dead-end" residential streets are intended to serve only the adjacent land in residential neighborhoods. These streets should be short, serving a maximum of 20 single family houses. Because cul-de-sac streets limit street and neighborhood connectivity, they should only be used where topographical or other environmental constraints prevent street connections. Where cul-de-sacs must be used, pedestrian and bicycle connections to adjacent cul-de-sacs or through streets should be included.

Three local residential street options have been identified varying in width and ability to accommodate parking. Narrower streets should be encouraged for several reasons. They improve neighborhood aesthetics and discourage speeding and through traffic. They also reduce right-of-way needs, construction costs, storm water run-off, and the need to clear vegetation.

Option 1

The first option for a local residential street is a 32- to 36-foot roadway surface within a 60-foot right-of-way, as shown in Figure 7-1. The cross section will accommodate passage of two lanes of moving traffic, one in each direction, with curb parking on each side. Five-foot sidewalks should be provided on each side of the roadway. An optional planting strip has been included with a width up to 5 feet.

Option 2

Another option for a narrower roadway section should be a 28-foot roadway surface within a 50-foot right-of-way, as shown in Figure 7-1. The 28-foot cross section will accommodate passage of two lanes of moving traffic, one in each direction, with curb parking on one side. Narrower streets improve neighborhood aesthetics and discourage speeding and through traffic. They also reduce right-of-way needs, construction costs, storm water run-off, and the need to clear vegetation.

Five-foot sidewalks should be provided on each side of the roadway. An optional planting strip has been included with a width up to 5 feet.

Option 3

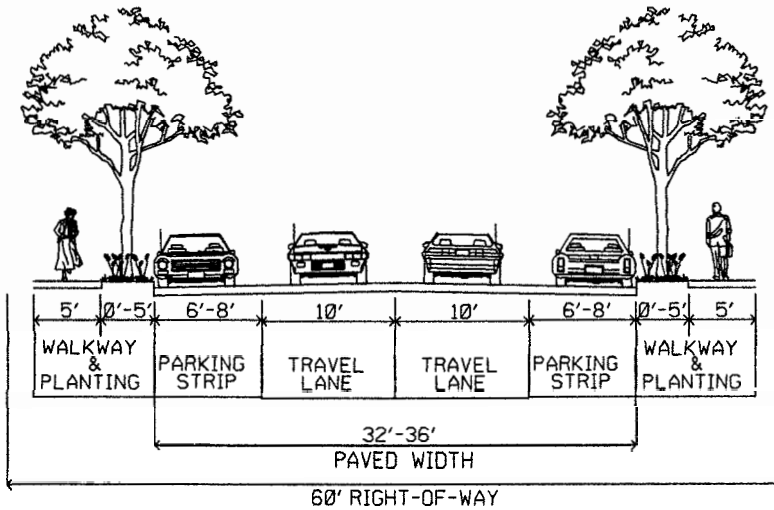
A third option for local residential streets provides a 24-foot roadway surface within a 50-foot right-of-way, as shown in shown in Figure 7-1. The 24-foot cross section will accommodate passage of two lanes of moving traffic, one in each direction, with no on-street parking. Five-foot wide sidewalks should be provided on each side of the roadway, located adjacent to the curb.

Alleys

Alleys can be a useful way to diminish street width by providing rear access and parking to residential areas. Including alleys in a subdivision design allows homes to be placed closer to the street and eliminates the need for garages to be the dominant architectural feature. This pattern, once common, has been recently revived as a way to build better neighborhoods. In addition, alleys can be useful in commercial and industrial areas,

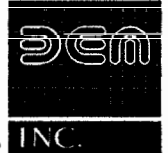


OPTION 1:



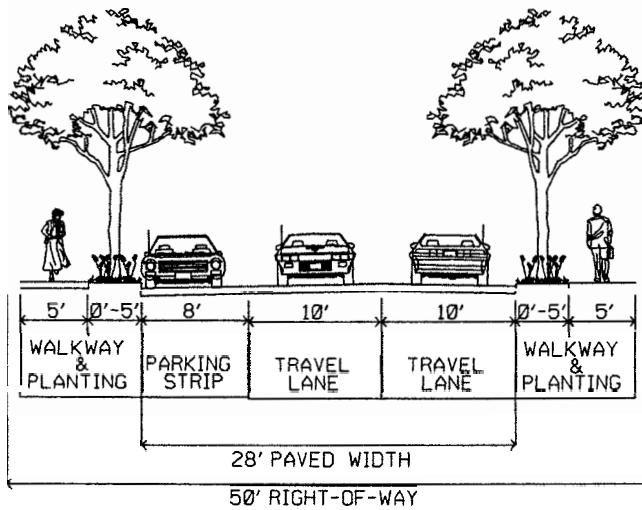
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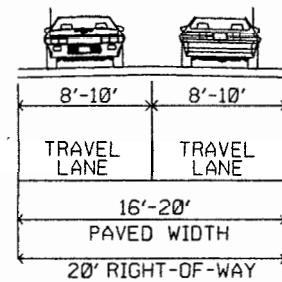


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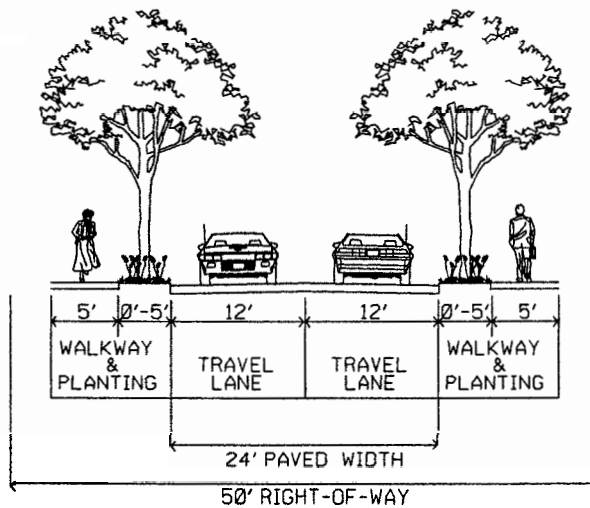
OPTION 2:



ALLEY



OPTION 3:



**FIGURE 7-1
STREET STANDARDS
-LOCAL RESIDENTIAL
STREETS**

COLLECTOR

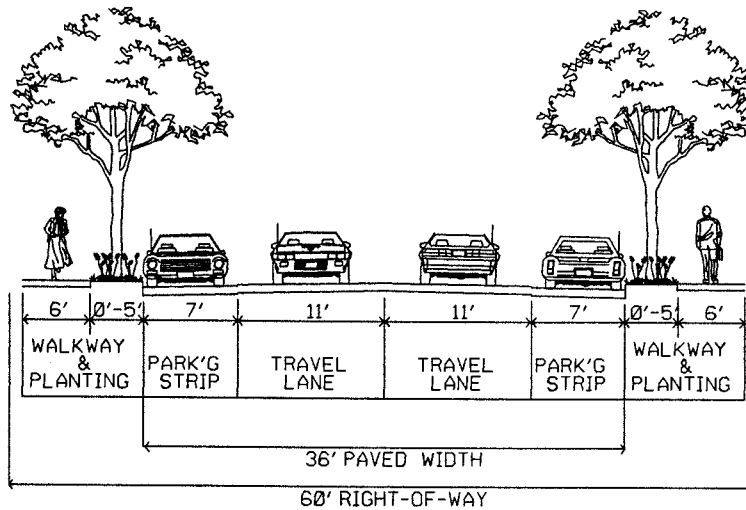


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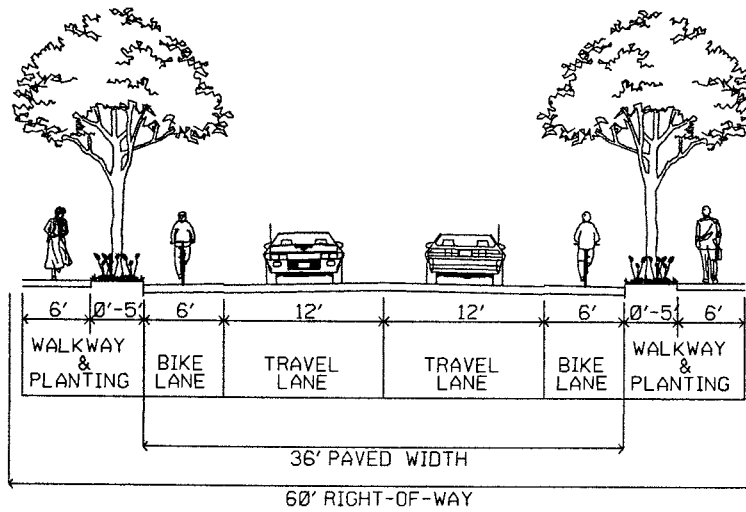


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ARTERIAL- OPTION 1:



ARTERIAL- OPTION 2:

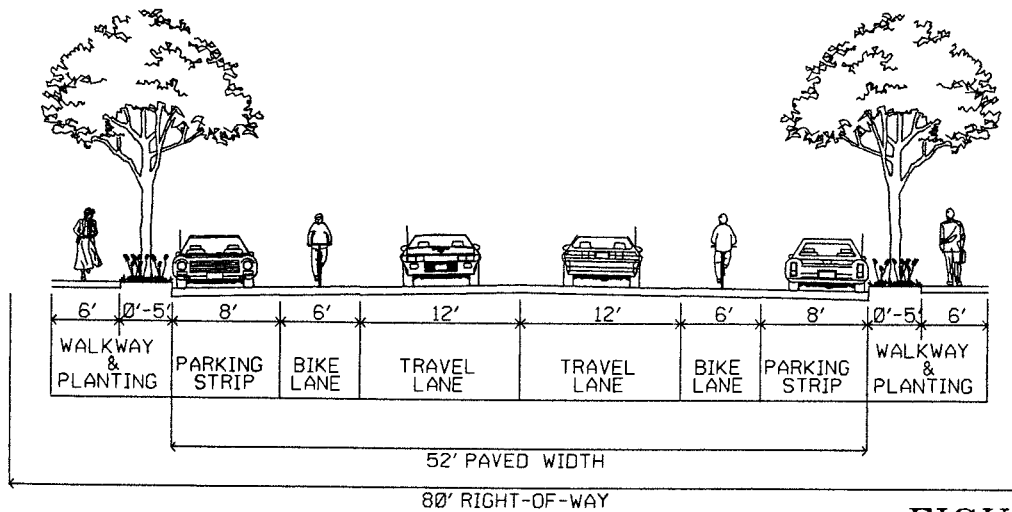


FIGURE 7-2
STREET STANDARDS
-COLLECTOR AND
ARTERIAL STREETS

allowing access by delivery trucks off the main streets. Alleys should be encouraged in the urban area of City of Prairie City. Alleys should be 16-20 feet wide, with a 20-foot right-of-way, as shown in Figure 7-1.

Collector Streets

Collector streets are primarily intended to serve abutting lands and local access needs of neighborhoods. They are intended to carry between 1,200 and 10,000 vehicles per day, with a design speed of 25 to 35 mph. Collector streets may serve either residential, commercial, industrial, or mixed land uses.

Figure 7-2 shows a cross section with a 60-foot right-of-way and a 36-foot paved width. The 36-foot cross-section allows two 11-foot travel lanes and parking on both sides of the street. The roadway can also be striped to provide two travel lanes plus left-turn lanes at intersections or driveways by removing parking for short distances.

Six-foot sidewalks should be provided on each side of the roadway. An optional planting strip has been included with a width up to 5 feet. In commercial or business areas, the sidewalks may be 8 feet wide or extend to the property line, and may be located adjacent to the curb to facilitate loading and unloading at the curb.

Arterial Streets

Arterial streets form the primary roadway network within and through a region. They provide a continuous roadway system that distributes traffic between different neighborhoods and districts. Generally, arterial streets are higher capacity roadways that carry high traffic volumes with minimal localized activity. Design speeds should be between 25 and 45 mph. Residential property should not face or be provided with access onto arterial streets.

Two arterial street options have been identified varying in width and ability to accommodate bike lanes.

Option 1

Figure 7-2 shows a cross section with a 60-foot right-of-way and a 36-foot paved width. The 36-foot cross-section allows two 12-foot travel lanes with two 6-foot bike lanes. Six-foot sidewalks should be provided on each side of the roadway. An optional planting strip has been included with a width up to 5 feet. In commercial or business areas, the sidewalks may be 8 feet wide or extend to the property line, and may be located adjacent to the curb to facilitate loading and unloading at the curb.

Option 2

Another option for arterial streets maintains on-street parking, as shown in Figure 7-2. The section provides a 52-foot paved surface within an 80-foot right-of-way to allow for two 12-foot travel lanes, two 6-foot bike lanes, and two 8-foot parking lanes. The bike lanes should be striped between the parking lane and the travel lane.

Six-foot sidewalks should be provided on each side of the roadway. An optional planting strip has been included with a width up to 5 feet. In commercial or business areas, the sidewalks may be 8 feet wide or

extend to the property line, and may be located adjacent to the curb to facilitate loading and unloading at the curb.

Bike Lanes

In cases where a bikeway is proposed within the street right-of-way, 12 feet of roadway pavement (between curbs) should be provided for a 6-foot bikeway (arterial streets) on each side of the street, as shown in Figure 7-2. The striping should be done in conformance with the State Bicycle and Pedestrian Plan (1995). In cases where curb parking will exist with a bike lane, the bike lane will be located between the parking and travel lanes. In some situations, curb parking may have to be removed to permit a bike lane.

The bikeways on new streets or streets to be improved as part of the street system plan should be added when the improvements are made. The implementation program identifies an approximate schedule for these improvements.

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

Sidewalks

A complete pedestrian system should be implemented in the urban portion of the City of Prairie City planning area. Every urban street should have sidewalks on both sides of the roadway, when possible, as shown on the cross sections in Figure 7-1 and Figure 7-2. Sidewalks on residential streets should have a 5-foot wide paved width with a 5-foot wide planting strip separating it from the street. Collector streets should have 6-foot wide sidewalks with optional planting strips. Arterial streets should have at least 6-foot sidewalks with optional planting strips. In commercial areas, sidewalks may be 8 feet wide or extend to the property line. They may also be located adjacent to the curb to facilitate loading and unloading.

Cul-de-sacs should be discouraged; however, where they must be used, a pedestrian and bicycle accessway connecting to adjacent cul-de-sacs or through streets should be included.

In some cases, constraints, such as topography, may make it unfeasible to construct sidewalks on both sides of a local residential street. Under rare circumstances, sidewalks may be provided on only one side of the street; however, this practice should be discouraged.

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

Curb Parking Restrictions

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

Street Connectivity

Street connectivity is important because a well-connected street system provides more capacity than a disconnected one, provides alternate routes for local traffic, and is more pedestrian and bicycle friendly. Ensuring that the existing grid is extended as development occurs is important to Prairie City's continued livability. Cul-de-sacs and "dead-end" streets should be discouraged. To this end, public through streets should have a maximum spacing of 500 feet. The only exceptions to this spacing standard should result from natural or man-made barriers.

ACCESS MANAGEMENT

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

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

Research has shown a direct correlation between the number of access points and collision rates. In addition, the wider arterial streets that can ultimately result from poor access management can diminish the livability of a community. Therefore, it is essential that all levels of government maintain the efficiency of existing arterial streets through better access management.

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
- Installing median barriers to control conflicts associated with left turn movements
- Installing side barriers to the property along the arterial to restrict access width to a minimum

Recommended Access Management Standards

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

**TABLE 7-2
RECOMMENDED ACCESS MANAGEMENT STANDARDS**

Functional Classification	Public Road		Private Drive ⁽²⁾	
	Type ⁽¹⁾	Spacing	Type	Spacing
Arterial				
Highway 26: General	at-grade	¼ mile	L/R Turns	500 feet
STA (Dixie Creek to Buchanan St.)	at-grade	300 feet	L/R Turns	150 feet
Other Arterials within UGB	at-grade	300 feet	L/R Turns	150 feet
Collector	at-grade	300 feet	L/R Turns	150 feet
Local Street	at-grade	300 feet	L/R Turns	Access to Each Lot
Alley	at-grade	150 feet	L/R Turns	Access to Each Lot

STA = Special Transportation Area

⁽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.

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. In some cases, where there is a recognized problem, such as an unusual number of collisions, these techniques and standards can be applied to retrofit existing roadways.

State Highways

Access management is important to promoting safe and efficient travel for both local and long distance users along state highways. Although the City of Prairie City may designate Highway 26 as an arterial street within their transportation system, the access management category for this facility should generally follow the guidelines of the OHP.

General

On Highways 26, within Prairie City's UGB, OHP Category 4², "Limited Control" 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. Traffic signals are permitted at a minimum of one-half mile spacing. These requirements are similar to the general access management guidelines specified for Highways 26 and 395 under arterial roadways in Table 7-2.

² Table 1 - Access Management Classification System, Appendix B, 1991 Oregon Highway Plan.

Special Transportation Area

While the OHP access management guidelines can be applied to some portions of the highways, the layout of the existing roadway system does not always meet these guidelines. On average, the spacing of the existing downtown grid street system along Highway 26 in Prairie City is closer to 300 feet from Dixie Creek to Buchanan Street. The OHP Category 4 cannot be met on this section of highway where centralized commercial development and high pedestrian activity define downtown Prairie City.

To address this issue, a Special Transportation Area (STA) is recommended from Dixie Creek to Buchanan Street. To accommodate existing public roadway spacing and allow reasonable access spacing for driveways, less restrictive access standards should be used for this downtown section. Within the STA, access standards should allow intersection spacing at a minimum of 300 feet and driveway spacing at a minimum of 125 feet (see Table 7-2).

MODAL PLANS

The City of Prairie City 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 City of Prairie City 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 City of Prairie City.

Street System Plan

The street system plan, shown in Figure 7-3, for the City of Prairie City does not include the construction of any new street projects.

Street Improvements

The following improvements to the street system are included in the street system plan:

- *SW 10th Street, Railroad Avenue, and South Fisk Avenue* - Repave SW 10th Street from Railroad Avenue to South Fisk Avenue and provide two 10-foot travel lanes. Pave Railroad Avenue from SW 10th Street to approximately 200 feet south and provide two 10-foot travel lanes. Pave South Fisk Avenue from SW 10th Street to approximately 200 feet south and provide two 10-foot travel lanes. (Estimated cost = \$54,700.)
- *North Washington Street and NE 3rd Street* - Repave North Washington Street from NE Williams Street to North Johnson Avenue and provide two 10-foot travel lanes and a 4-foot bicycle lane. Repave NE 3rd Street from North Main Street to North Washington Street and provide two 11-foot travel lanes and 4-foot bicycle lanes on each side. (Estimated cost = \$228,650)
- *McCallum Avenue and SW 10th Street* - Repave McCallum Avenue from Bridge Street to SW 10th Street and provide two 11-foot travel lanes and 4-foot bicycle lanes on each side. Repave SW 10th

Street from McCallum Avenue to Bridge Street and provide two 11-foot travel lanes and 4-foot bicycle lanes on each side. (Estimated cost = \$24,250.)

- *Johnson Avenue* - Pave Johnson Avenue from SW 12th Street to SW 13th Street and provide two 11-foot travel lanes and 4-foot bicycle lanes on each side. (Estimated cost = \$57,100.)
- *SE 5th Street and South Harris Avenue* - Repave SE 5th Street from South Main Street to South Harris Street and provide two 11-foot travel lanes and 4-foot bicycle lanes on each side. Pave South Harris Street from SE 5th Street to Highway 26 and provide two 11-foot travel lanes. (Estimated cost = \$49,800.)
- *North Main Street* - Repave and widen North Main Street from Highway 26 to NE 3rd Street and provide two 11-foot travel lanes, 6 to 8 feet of parking on one side, 4- to 5-foot bicycle lanes on each side, curbs on both sides, and a concrete sidewalk on one side. (Estimated cost = \$188,000.)
- *South Harris Avenue* - Pave South Harris Avenue from SE 5th Street to SE 6th Street and provide 16 feet of asphalt surface. (Estimated cost = \$18,700.)
- *Front Street* - Install catch basins on Front Street at the southeast corner of Bridge Street and the northwest corner of McHaley Avenue. (Estimated cost = \$2,000.)

The implementation program, described later in this chapter, provides a prioritized list of these improvements.

Speed Control Measures

The City of Prairie City has identified some transportation system management measures which it would like to implement to help control speeds along Highway 26 through town. These measures include:

- *Speed Detector Trailer* - Make drivers more aware of their speed and surroundings by using a speed detector to display actual vehicle speed as a driver passes through town. (Estimated cost = \$10,000 - \$11,000 for speed detector purchase plus annual operating expenses.)
- *Driver Education and Public Service Signage Program* - Inform drivers about the hazards of speeding and inform pedestrians about safety along state highways. (Estimated would be a function of the specific program created.)
- *Trees Planted at Entrance to City* - Plant trees along Highway 26 at the west city limits of Prairie City. These vertical elements create the perception that the road narrows which encourages drivers to slow as they enter the urban area. (Estimated cost < \$10,000.)
- *Cross-Hatching of Crosswalks* - Add cross-hatching to the crosswalks on Front Street to improve driver awareness of pedestrians and encourage slower travel speeds. (Estimated cost = \$6,000 per year for all intersections.)

The small size of Prairie City would make it difficult to raise funding to pay for these measures. However, if the costs are shared with several other cities, Grant County, and even the State, it may be possible for Prairie City to implement a speed control program. Discussions with other jurisdictions should be a high priority for city officials to determine what kind of county-wide enforcement program may be possible and

LEGEND

- STATE HIGHWAY/ARTERIAL STREET
- COUNTY MAJOR COLLECTOR
- COUNTY ARTERIAL STREET
- CITY COLLECTOR STREET
- CITY LOCAL STREET
- NEW STREET

CITY LIMITS

URBAN GROWTH BOUNDARY

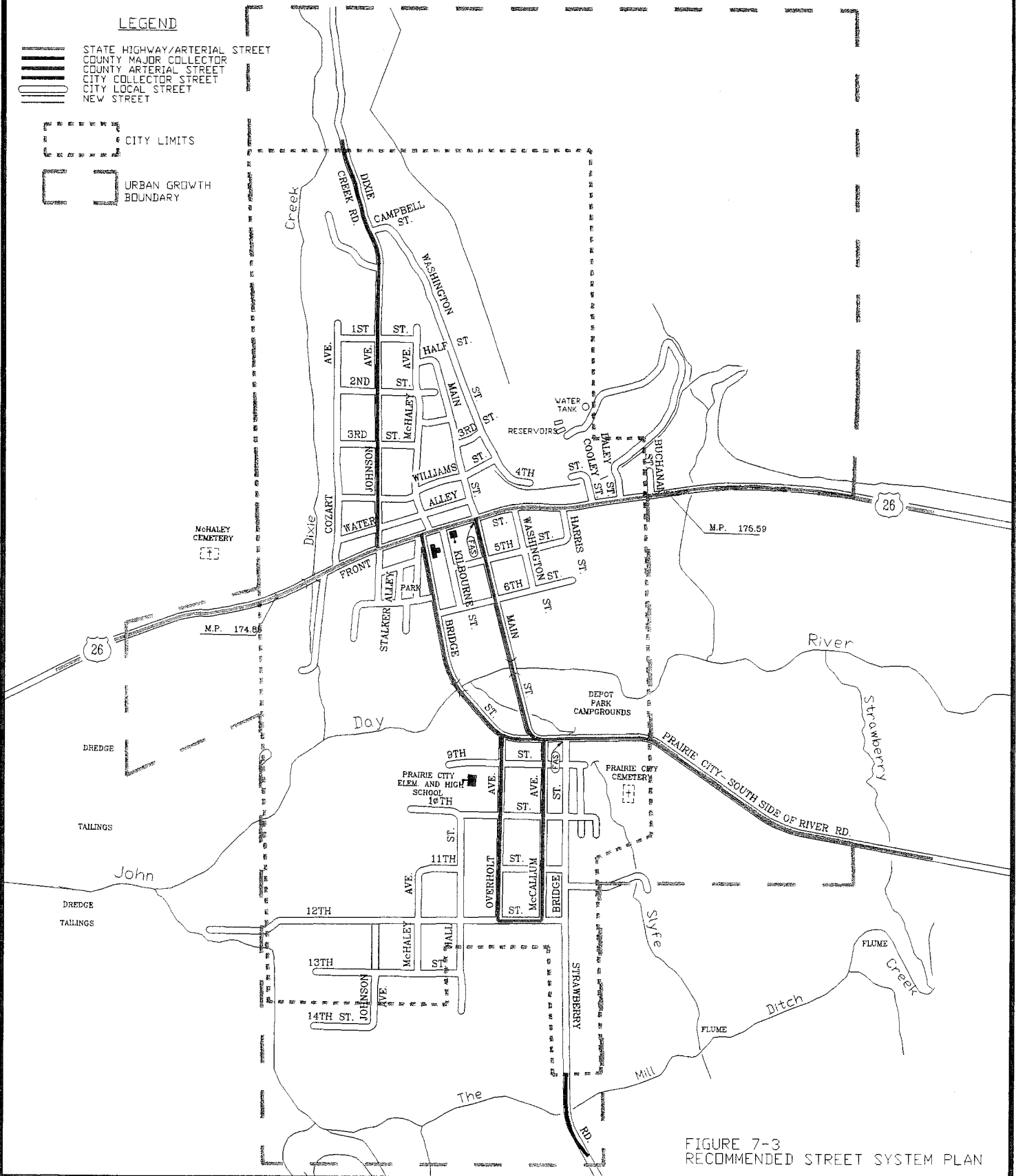


FIGURE 7-3
RECOMMENDED STREET SYSTEM PLAN

- MAINLINE STATE HIGHWAY
- STREET OPEN FOR TRAVEL
- INTERSTATE ROUTE
- U.S. ROUTE
- STATE ROUTE
- TERMINATION OF FA SYSTEM
- PUBLIC BUILDING
- COURT HOUSE
- CITY HALL
- ARMORY
- POST OFFICE
- SCHOOL
- LIBRARY
- ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED

0 500 1000 FEET

PRAIRIE CITY



how the City of Prairie City could participate in and contribute to it. The total estimated cost of these speed control measures cannot be easily calculated because exact programs are unknown at this time and some of the costs are annual costs.

Parking Modifications

The City of Prairie City has one other system management improvement which is recommended based on the improvement options analysis presented in Chapter 6:

- *Parking Modifications* - Remove 2 to 3 diagonal parking spaces on Highway 26 immediately west of South Main Street to improve sight distance to the west to allow drivers to enter the intersection safely.

The total estimated cost for this improvement is expected to be negligible.

Pedestrian System Plan

A complete pedestrian system should be implemented in the City of Prairie City . As funding permits, every paved street and new street should have sidewalks on both sides of the roadway to meet the requirements set forth in the street standards. Pedestrian access on walkways should be provided between all buildings including shopping centers and abutting streets and adjacent neighborhoods. (Ordinances specifying these requirements are included in Chapter 9.)

One pedestrian project has been identified for Prairie City as shown in Figure 7-4. This project is part of the street system improvements described earlier in this chapter. Estimated cost is included in the street improvement section and is not broken down by specific element such as roadway, sidewalk, or bikeway.

- *North Main Street* - Construct a concrete sidewalk on one side of North Main Street from Highway 26 to NE 3rd Street as part of the street upgrade project.

The city should also consider adding sidewalks improvements to the other recommended street upgrades listed for the street system plan.

Over time, sidewalks shall also be added to streets that currently lack them and are not programmed for improvements. Missing sidewalk segments should be added whenever an opportunity presents itself (such as infill development, special grants, etc.).

Because of the relatively low traffic volumes on most roadways in Prairie City, asphalt pathways could be provided instead of a concrete sidewalk. In general, asphalt pathways are a lower cost alternative to concrete sidewalks. Construction costs for asphalt pathways are about 40 percent of the costs for concrete sidewalks; however, maintenance, such as sealing and resurfacing the asphalt, must occur more frequently.

Bicycle System Plan

Five bikeway projects have been identified for Prairie City as shown in Figure 7-5. These projects are part of the street system improvements described earlier in this chapter. Estimated cost is included in the street improvement section and is not broken down by specific element such as roadway, sidewalk, or bikeway.

- *North Washington Street and NE 3rd Street* - Provide a 4-foot bike lane on one side of North Washington Street from NE Williams Street to North Johnson Avenue. Provide 4-foot bike lanes on each side of NE 3rd Street from North Main Street to North Washington Street.
- *McCallum Avenue and SW 10th Street* - Provide 4-foot bike lanes on each side of McCallum Avenue from Bridge Street to SW 10th Street. Provide 4-foot bike lanes on each side of SW 10th Street from McCallum Avenue to Bridge Street.
- *Johnson Avenue* - Provide 4-foot bike lanes on each side of Johnson Avenue from SW 12th Street to SW 13th Street.
- *SE 5th Street and South Harris Avenue* - Provide 4-foot bike lanes on each side of SE 5th Street from South Main Street to South Harris Street.
- *North Main Street* - Provide 4- to 5-foot bike lanes on each side of North Main Street from Highway 26 to NE 3rd Street.

Shared roadways, where bicyclists share normal vehicle lanes with motorists, are generally acceptable if speeds and traffic volumes are relatively low. On the collector and local streets in Prairie City, shared roadways are not an issue; however, on arterial roadways bike lanes are recommended.

Highway 26 functions as an arterial street through Prairie City, which means that it should have bike lanes on both sides of the street as specified in the street standards listed earlier in this chapter and as required by the TPR. Based on the trendline projections described in Chapter 5, Highway 26 is project to carry volumes approaching 3,400 vehicles per day in 20 years.





Accident statistics on Highway 26 do not indicate that there are frequent conflicts between bicyclists and motorized vehicles. This is due in part to relatively low bicycle usage in the area. Prairie City currently has diagonal parking striped though the downtown area where the roadway section is 68 feet wide. The travel lanes are currently about 18 feet wide which provides an adequate lane for both a bicyclist and vehicle to travel. Striping bike lanes with the diagonal parking may actually be more confusing than the present situation. Further east from downtown, shoulders are provided on both sides of the highway which are wide enough to accommodate bicyclists. Although no specific bikeway improvements are recommended for Highway 26, ODOT should track both traffic volumes and accident rates on this facility to identify any problems in the future.

Bicycle parking is generally lacking in City of Prairie City. Bike racks should be installed in front of downtown businesses and all public facilities (schools, post office, library, city hall, and parks). Typical rack designs cost about \$50 per bike plus installation. Bicycle parking requirements are further addressed in Chapter 9 (Policies and Ordinances).

Transportation Demand Management Plan

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

LEGEND

-  EXISTING SIDEWALK
-  FUTURE SIDEWALK
-  CITY LIMITS
-  URBAN GROWTH BOUNDARY

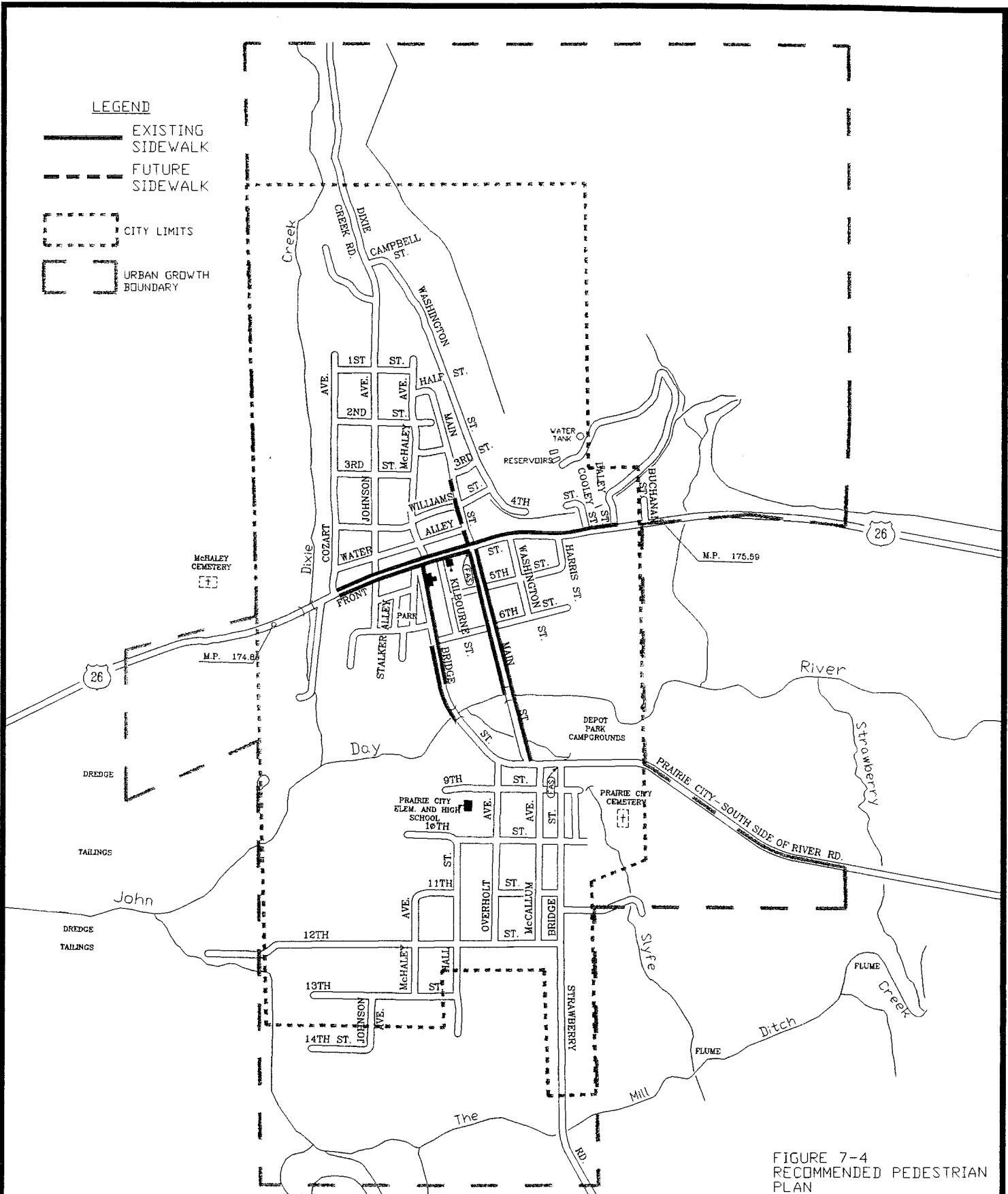















FIGURE 7-4
RECOMMENDED PEDESTRIAN
PLAN






-  MAINLINE STATE HIGHWAY
 -  STREET OPEN FOR TRAVEL
 -  INTERSTATE ROUTE
 -  U.S. ROUTE
 -  STATE ROUTE
 -  TERMINATION OF FA SYSTEM
 -  PUBLIC BUILDING
 -  COURT HOUSE
 -  CITY HALL
 -  ARMORY
 -  POST OFFICE
 -  SCHOOL
 -  LIBRARY
- ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED

0 500 1000 FEET

PRAIRIE CITY



LEGEND

-  EXISTING BIKEWAY
-  FUTURE BIKEWAY
-  NEW STREET
-  CITY LIMITS
-  URBAN GROWTH BOUNDARY

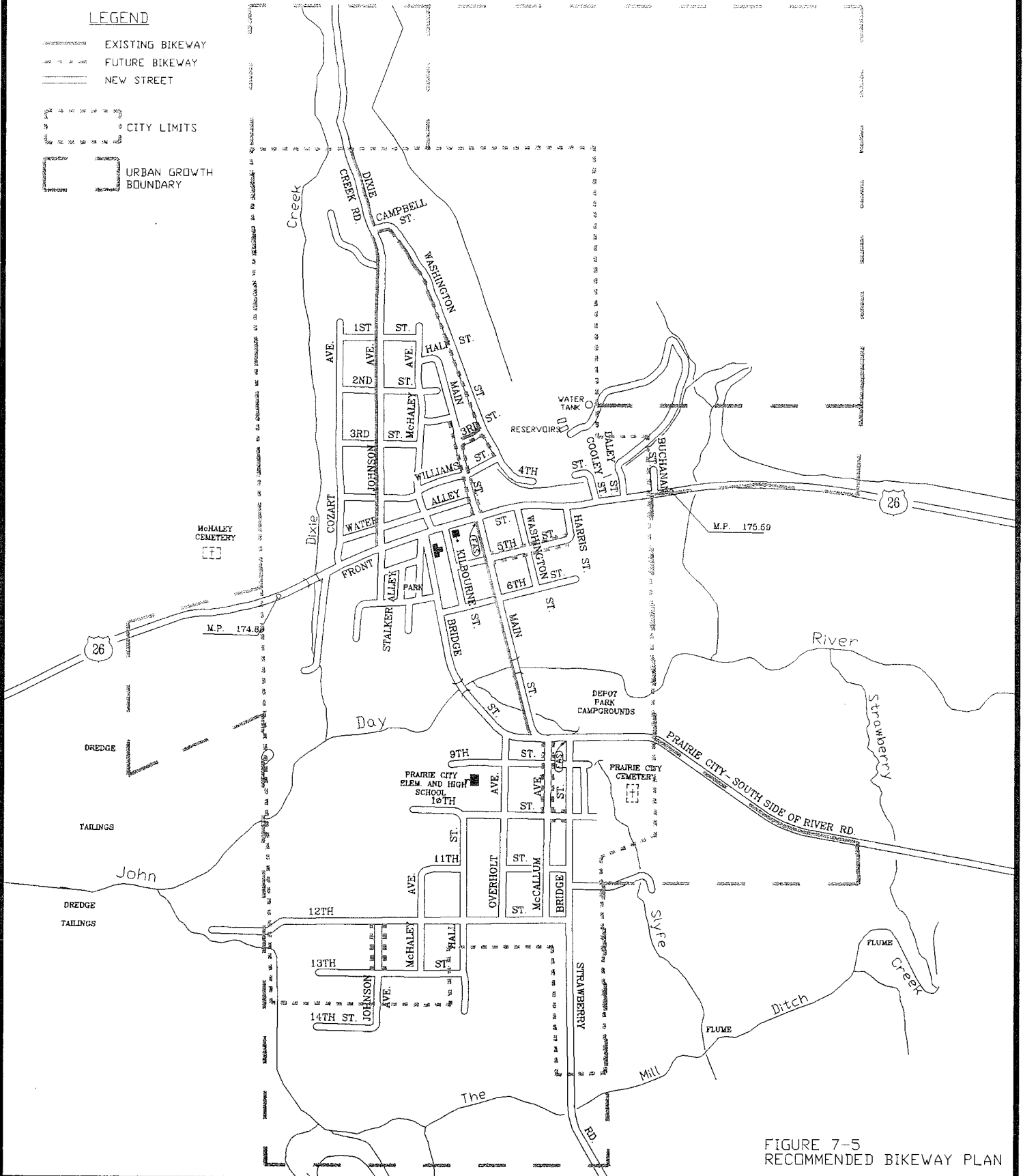
















FIGURE 7-5
RECOMMENDED BIKEWAY PLAN

-  MAINLINE STATE HIGHWAY
-  STREET OPEN FOR TRAVEL
-  INTERSTATE ROUTE
-  U.S. ROUTE
-  STATE ROUTE
-  TERMINATION OF PA SYSTEM
-  ALL STATE HIGHWAYS AND FEDERAL AID ROADS SHOWN IN RED
-  PUBLIC BUILDING
-  COURT HOUSE
-  CITY HALL
-  ARMORY
-  POST OFFICE
-  SCHOOL
-  LIBRARY

0 500 1000 FEET

GRANT COUNTY
PRAIRIE CITY



In Prairie City , where traffic volumes are low and the population and employment is small, implementing TDM strategies is not practical in most cases. However, the sidewalks improvements recommended earlier in this chapter are also considered TDM strategies. By providing these facilities, the City of Prairie City is encouraging people to travel by other modes than the automobile.

Because intercity commuting is factor in Grant County, residents who live in Prairie City and work in other cities should be encouraged to carpool with a fellow coworker or someone who works in the same area. Implementing a local carpool program in Prairie City alone is not practical because of the city's small size; however, a county-wide carpool program is possible. Based on journey-to-work statistics from the 1990 Census, almost 15 percent of all work trips are currently made by carpool. The City of Prairie City should support state and county carpooling and vanpooling programs which could further boost carpooling ridership.

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

Public Transportation Plan

The City of Prairie City has no local (city-only) public transportation services. However, there is 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 expansion 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

The City of Prairie City has no passenger or freight rail services.

Air Service Plan

The City of Prairie City has no air transportation services.

Pipeline Service Plan

The City of Prairie City has no pipeline transportation services.

Waterborne Service Plan

The City of Prairie City has no waterborne transportation services.

TRANSPORTATION SYSTEM PLAN IMPLEMENTATION PROGRAM

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

One part of the implementation program is the formulation of a 20-year capital improvement program (CIP). The purpose of the CIP is to detail what transportation system improvements will be needed as Prairie City grows and provide a process to fund and schedule the identified transportation system improvements. Ultimately the transportation CIP should be integrated into the existing city CIP, Grant County CIP, and the ODOT Statewide Transportation Improvement Program (STIP). 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 TPR are contained in Chapter 9 of this report. The proposed ordinance amendments will require approval by the City Council and those that affect the unincorporated urban area will also require approval by the Board of County Commissioners.

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 city. 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 7-3. The cost of each project is 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. Some of the CIP elements have costs that cannot be easily calculated because exact programs are unknown at this time and some of the costs are annual costs. The total for each phase and overall show the known costs only.

Prairie City has identified a total of nine projects in its CIP with a total known cost of \$621,200. There no Phase 2 projects at this time; therefore, the table shows only Phase 1 projects. The actual implementation of some of the speed control measures will be determined by the programs outlined through cooperative efforts with other cities, Grant County, and ODOT.

TABLE 7-3
PRIORITIZED CAPITAL IMPROVEMENT PROGRAM (1997) DOLLARS

Project Description	Estimated Cost			
	Local	County	State	Total
<i>Phase 1: 1998 To 2002</i>				
Implement Speed Control Measures along Highway 26 *	Unknown	Unknown	Unknown	Unknown
Repave SW 10th Street from Railroad Avenue to South Fisk Avenue and provide two 10-foot travel lanes; Pave both Railroad Avenue and South Fisk Avenue from SW 10th Street to approximately 200 feet south and provide two 10-foot travel lanes	\$54,700	\$0	\$0	\$54,700
Repave North Washington Street from NE Williams Street to North Johnson Avenue and provide two 10-foot travel lanes and a 4-foot bike lane; Repave NE 3rd Street from North Main Street to North Washington Street and provide two 11-foot travel lanes and a 4-foot bike lane	\$228,650	\$0	\$0	\$228,650
Repave McCallum Avenue from Bridge Street to SW 10th Street and provide two 11-foot travel lanes and 4-foot bike lanes; Repave SW 10th Street from McCallum Avenue to Bridge Street and provide two 10-foot travel lanes and 4-foot bike lanes	\$24,250	\$0	\$0	\$24,250
Pave Johnson Avenue from SW 12th Street to SW 13th Street and provide two 11-foot travel lanes and 4-foot bike lanes	\$57,100	\$0	\$0	\$57,100
Repave SE 5th Street from South Main Street to South Harris Street and provide two 11-foot travel lanes and 4-foot bike lanes; Pave South Harris Street from SE 5th Street to Highway 26 and provide two 11-foot travel lanes	\$49,800	\$0	\$0	\$49,800
Repave North Main Street from Highway 26 to NE 3rd Street and provide two 11-foot travel lanes, 6 to 8 feet of parking on one side, 4- to 5-foot bike lanes, curbs, and a concrete sidewalk on one side	\$188,000	\$0	\$0	\$188,000
Pave South Harris Avenue from SE 5th Street to SE 6th Street and provide 16 feet of paved surface	\$18,700	\$0	\$0	\$18,700
Remove 2 to 3 diagonal parking spaces on Highway 26 immediately west of South Main Street	\$0	\$0	\$0	\$0
Install two catch basins on Front Street	\$0	\$0	\$2,000	\$2,000
Total	\$621,200	\$0	\$2,000	\$623,200

* The costs for implementing speed control measures along Highway 26 cannot be easily calculated because exact programs are unknown at this time and some of the costs are annual costs

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. The City of Prairie City's TSP identifies nine improvement projects over the next 20 years with a known cost of \$623,200. This section of the TSP provides an overview of the City of Prairie City's revenue outlook and a review of some funding and financing options that may be available to the City of Prairie City.

Pressures from increasing growth throughout much of Oregon have created an environment of estimated improvements that remain unfunded. The City of Prairie City will need to work with Grant County 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 community. If population growth exceeds the anticipated rate, the improvements may need to be accelerated. Slower than expected growth will relax the improvement schedule.

HISTORICAL STREET IMPROVEMENT FUNDING SOURCES

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

Table 8-1 shows the distribution of road revenues for the different levels of government within the state by jurisdiction level. Although these numbers were collected and tallied in 1991, ODOT estimates that these figures accurately 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 Road Trust	58%	38%	41%	48%
Local	0%	22%	55%	17%
Federal Road	34%	40%	4%	30%
Other	9%	0%	0%	4%

Source: ODOT 1993 Oregon Road Finance Study.

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

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

Transportation 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 the City of Prairie City during the next 20 years. Although the City has historically received revenue from this fund for transportation maintenance and improvements, Prairie City should be cautious of relying heavily on this source, since funds are expected to decline after 2005.

REVENUE SOURCES

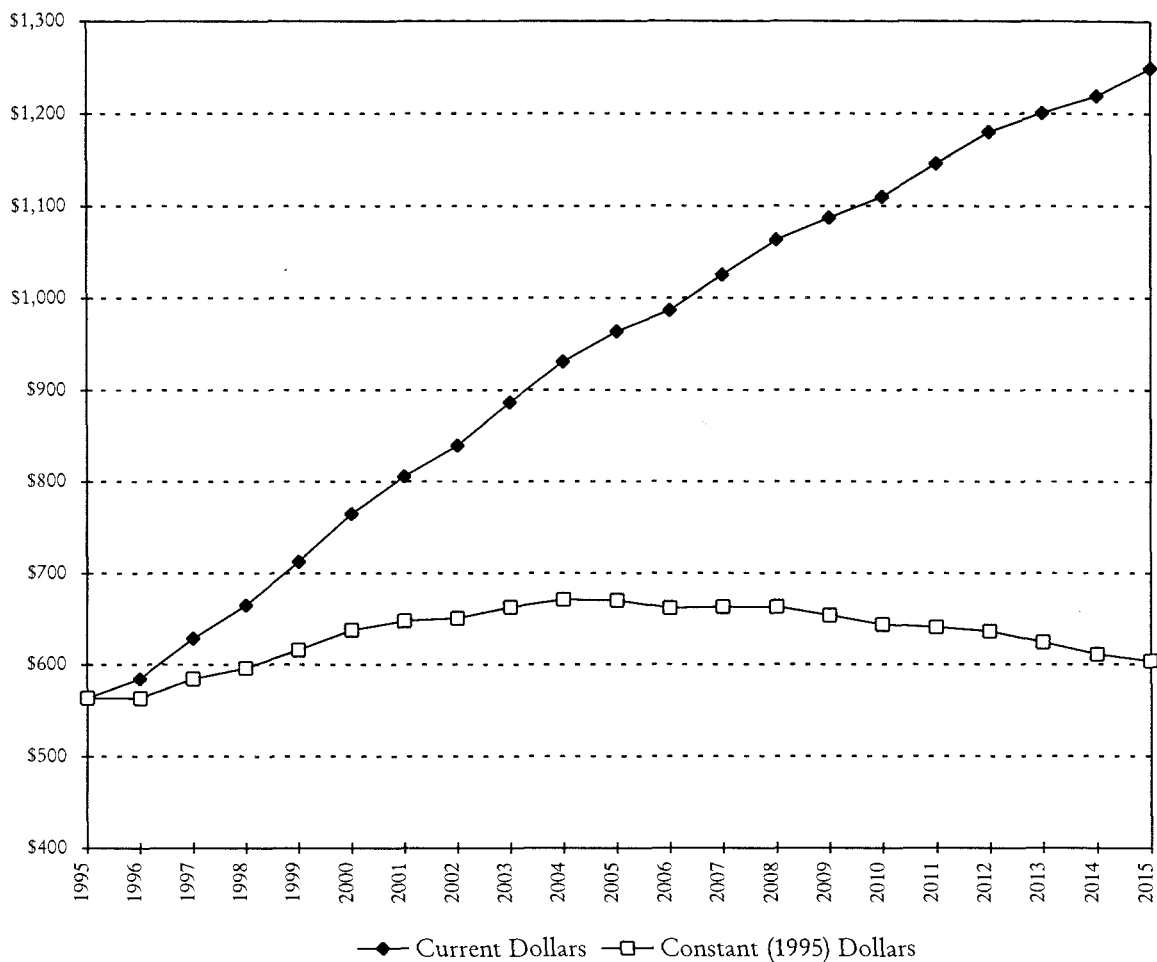
In order to finance the recommended transportation system improvements in Prairie City, it will be important to consider a range of funding sources. Recent property tax limitations have created the need for local governments to seek revenue sources other than the traditional property tax. The use of 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 the City of Prairie City; 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) which 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.



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



Source: ODOT Financial Assumptions

FIGURE 8-1
STATE HIGHWAY FUND

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.

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.

The Governor's Office and state legislature are in the process of preparing the new budget for the next biennium. Based on the preliminary budget released by the Governor's Office, cities and counties will not receive additional funding from the state to reduce the impacts of Measure 50. Instead, the new budget will focus on retaining and increasing support for basic school education programs. Again, the preliminary budget will likely be modified during the current legislative session.

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.

The City of Prairie City could implement SDCs for their transportation system. The fee is collected when new building permits are issued. The cities 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 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 the City of Prairie City 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 cities, the City of Prairie City uses its State Gas Tax allocation to fund street construction and maintenance.

Local Gas Taxes

The Oregon Constitution permits counties and incorporated cities to levy additional local gas taxes with the stipulation that the moneys generated from the taxes will be dedicated to 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. Based on the experiences of other local jurisdictions, the City of Prairie City may have difficulty gaining public support for a local gas tax, even on a countywide basis.

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 cities to construct localized projects such as streets, sidewalks, or bikeways. The statutes allow formation of a district by either the city government or property owners. Cities that use LIDs are required to have a local LID ordinance that provides a process for district formation and payback provisions. Through the LID process, the 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, cities 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 the City of Prairie City.

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.

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; and
- 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 Oregon Economic Development Department 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 the Cities of Baker City, Bend, Cornelius, Forest Grove, Madras, Portland, Redmond, Reedsport, Toledo, Wilsonville, Woodburn, and Douglas County.

Special Small City Allotment Program

This program is restricted to cities with populations under 5,000 residents. Unlike the OEDD Immediate Opportunity Grant program and the Oregon Special Public Works Fund, no locally funded match is required for participation. Grant amounts are limited to \$25,000 and must be earmarked for surface projects (drainage, curbs, sidewalks, etc.). However, the program does allow jurisdictions to use the grants to leverage local funds on non-surface projects if the grant is used specifically to repair the affected area.

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 the City of Prairie City'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 The City of Prairie City for the next 20 years. The City of Prairie City, Grant County, and ODOT will need to communicate on an annual basis to review the status of the STIP and the prioritization of individual projects within the project area. Ongoing communication will be important for the city, county, and ODOT to coordinate the construction of both local and state transportation projects.

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

An ODOT funding technique that will likely have future application to the City of Prairie City'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, some examples include the sources discussed above: property taxes, SDCs, fuel taxes, vehicle registration fees, LIDs, and various grant programs. In contrast, financing refers to the collecting of funds through debt obligations.

There are several of debt financing options available to the City of Prairie City. 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 city. Since general obligation bonds would be issued subsequent to voter approval, they would not be restricted to the limitations set forth in Ballot Measures 5 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 city's full faith and credit to assessment bonds. As a result, the bonds become general obligations of the city but are paid with assessments. Historically, these bonds provided a city with the ability to pledge its full faith and credit in order to obtain a lower borrowing cost without requiring voter approval. However, since Bancroft bonds are not voter approved, taxes levied to pay debt service on them are subject to the limitations of Ballot Measures 5 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 cities and counties to complete a TSP that includes policies and ordinances to implement that plan. Although Prairie City had not completed its TSP until now, a TSP Work Program was completed for the City in 1995. The Prairie City Comprehensive Plan was updated in April 1997, and its ordinances were updated in 1995; therefore, these planning documents are generally in compliance with the TPR and will need only 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 Transportation System Plan.*
- *Clearly identify which transportation facilities, services, and improvements are allowed outright, and which will be conditionally permitted or permitted through other procedures.*
- *Adopt land use or subdivision ordinance measures, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions, 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 Transportation System Plan.*
- *Adopt land use or subdivision regulations for urban areas and rural communities to provide safe and convenient pedestrian and bicycle circulation and bicycle parking, and to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel.*
- *Establish street standards that minimize pavement width and total right-of-way.*

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

APPROVAL PROCESSES FOR TRANSPORTATION FACILITIES

Section 660-12-045(1) of the 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 the Prairie City Comprehensive Plan:

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

Recommended Ordinances for Approval Process

Projects that are specifically identified in the TSP and for which the jurisdiction has made all the required land use and goal compliance findings are permitted outright, subject only to the standards established by the Plan. Prairie City has addressed transportation projects in general in its Comprehensive Plan and in Article 5 of its Ordinance.

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.

Other future transportation facilities that Prairie City may wish to protect include the space and building orientation necessary to support future transit, and right-of-ways or other easements for accessways, paths, and trails. Policies are suggested below that will demonstrate the desire of the community to protect these transportation facilities.

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

- *Prairie City shall protect the function of existing and planned roadways as identified in the Transportation System Plan.*
- *Prairie City shall include a consideration of a proposal's impact on existing or planned transportation facilities in all land use decisions.*
- *Prairie City shall protect the function of existing or planned roadways or roadway corridors through the application of appropriate land use regulations.*
- *Prairie City shall consider the potential to establish or maintain accessways, paths, or trails prior to the vacation of any public easement or right-of-way.*
- *Prairie City shall preserve right-of-way for planned transportation facilities through exactions, voluntary dedication, or setbacks.*

Recommended Access Control Ordinances

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

Section _____ ACCESS MANAGEMENT

A. General

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

B. 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 City 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.*

C. 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 City 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 City 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 City, 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 City 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.*

D. Access Connection and Driveway Design

1. *Driveways shall meet the following standards:*
 - a) *If the driveway is a one way in or one way out drive, then the driveway shall be a minimum width of 10 feet and a maximum width of 12 feet and shall have appropriate signage designating the driveway as a one way connection.*
 - b) *For two-way access, each lane shall have a minimum width of 10 feet and a maximum width of 12 feet.*
2. *Driveway approaches must be designed and located to provide an exiting vehicle with an unobstructed view. Construction of driveways along acceleration or deceleration lanes and tapers shall be avoided due to the potential for vehicular weaving conflicts.*
3. *The length of driveways shall be designed in accordance with the anticipated storage length for entering and exiting vehicles to prevent vehicles from backing into the flow of traffic on the public street or causing unsafe conflicts with on-site circulation.*

E. 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 composed of more than one building site shall be reviewed as single properties in relation to the access standards of this ordinance. The number of access points permitted shall be the minimum number necessary to provide reasonable access to these properties, not the maximum available for that frontage. All necessary easements, agreements, and stipulations shall be met. This shall also apply to phased development plans. The owner and all lessees within the affected area are responsible for compliance with the requirements of this ordinance and both shall be cited for any violation.*
2. *All access must be internalized using the shared circulation system of the principal development or retail center. Driveways shall be designed to avoid queuing across surrounding parking and driving aisles.*

F. 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.*

G. Reverse Frontage

1. *Lots that front on more than one street shall be required to locate motor vehicle accesses on the street 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 the City of Prairie City and recorded with the deed. A*

berm or buffer yard may be required at the rear of through lots to buffer residences from traffic on the arterial. The berm or buffer yard shall not be located with the public right-of-way.

H. 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 street, 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.*

I. 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 man-made feature.*

J. 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 a secondary street is possible, then access should not be allowed onto the state highway. If access off a secondary street becomes available, then conversion to that access is encouraged, along with closing the state highway access.*

K. Connectivity

- 1. The street system of proposed subdivisions shall be designed to connect with existing, proposed, and planned streets 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, street stubs shall be provided to provide access to abutting properties or to logically extend the street system into the surrounding area. All street stubs shall be provided with a temporary turn-around unless specifically exempted by the Public Works Director, and the restoration and extension of the street shall be the responsibility of any future developer of the abutting land.*

3. *Minor collector and local residential access streets shall connect with surrounding streets 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 streets. Appropriate design and traffic control such as four-way stops and traffic calming measures are the preferred means of discouraging through traffic.*

L. 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 street with a lower functional classification than the primary roadway.*
3. *No variance shall be granted where such hardship is self-created.*

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

- *Prairie City 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.*
- *Prairie City shall provide notice to ODOT of land use applications and development permits for properties that have frontage or access onto Highways 26.*
- *Prairie City 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 to in order to minimize impacts on transportation facilities.

The Site Plan review process is a useful tool for a small jurisdiction. Prairie City 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 impose an undue burden on the public transportation system. For developments that are likely to generate more than 400 average daily motor vehicle trips (ADTs), the applicant shall provide adequate information, such as a traffic impact study or traffic counts, to demonstrate the level of impact to the surrounding street system. The developer shall be required to mitigate impacts attributable to the project.*
- *The determination of impact or effect and the scope of the impact study should be coordinated with the provider of the affected transportation facility.*

If Prairie City 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 effect on the transportation system. These are additional to the conditions imposed by the recommended Access Management Ordinance included previously.

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

Recommended Regulations to Provide Notice to Public Agencies

Review of land use actions is typically initiated by a Notice. This process is usually defined by a Procedures Ordinance or Noticing Policy. This Ordinance or Policy should be amended to provide for timely notice to ODOT regarding any land use action on or adjacent to Highway 26. Similarly, all actions by the City potentially affecting a county road should provide notice to Grant County.

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 review 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 what 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.

In general, the Prairie City Ordinances adequately address bicycle circulation and parking. However, there is no mention of bicycle or pedestrian transportation in the Prairie City Comprehensive Plan. The following policies are recommended.

Recommended Policies for Pedestrian and Bicycle Circulation

- *To comply with the objectives of the Transportation System Plan and the Transportation Planning Rule, Prairie City should amend its Comprehensive Plans with policies such as the following to protect, support, and encourage bicycle and pedestrian travel.*
- *It is the policy of Prairie City to plan and develop a network of streets, accessways, and other improvements, including bikeways, walkways, and safe street crossings to promote safe and convenient bicycle and pedestrian circulation within the community.*
- *Prairie City shall require streets and accessways where appropriate to provide direct and convenient access to major activity centers, including downtown, schools, shopping areas, and community centers.*
- *In areas of new development Prairie City shall investigate the existing and future opportunities for bicycle and pedestrian accessways. Many existing accessways such as user trails established by school children distinguish areas of need and should be incorporated into the transportation system.*
- *Bikeways shall be included on new arterials and major collectors within the Urban Growth Boundary, as identified in the TSP. Walkways shall be included on new streets within the city, as identified in the TSP.*
- *Retrofitting existing streets with walkways and bikeways shall proceed on a prioritized schedule, as identified in the TSP.*
- *Design and construction of walkways and bikeways shall follow the guidelines established by the Oregon Bicycle and Pedestrian Plan.*

- *Bicycle parking facilities shall be provided at all new residential multifamily developments of four units or more, commercial, industrial, recreational, and institutional facilities.*

Recommended Ordinances for Street Network

A well-connected street network is important for the circulation of local traffic, bicycles, and pedestrians. The Prairie City 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 streets may be used as part of a development plan; however, through streets are encouraged except where topographical, environmental, or existing adjacent land use constraints make connecting streets infeasible. Where cul-de-sacs are planned, accessways shall be provided connecting the ends of cul-de-sacs to each other, to other streets, or to neighborhood activity centers.*
2. *Accessways for pedestrians and bicyclists shall be 10 feet wide and located within a 20-foot wide right-of-way or easement. If the streets within the subdivision are lighted, the accessways shall also be lighted. Stairs or switchback paths may be used where grades are steep.*
3. *Accessways for pedestrians and bicyclists shall be provided at mid-block where the block is longer than 600 feet.*
4. *The Hearings Body 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.*

APPENDIX A:

Table A-1

1996 Major Streets Inventory

Prairie City Transportation System Plan

TABLE A-1
1996 MAJOR STREETS INVENTORY
Prairie City Transportation System Plan

Street Segment	Jurisdiction	Classification	Speed Limit (mph)	Street Width (feet)	# of Travel Lanes	Curbs	On-Street Parking	Sidewalks	Bikeway	Pavement Condition
12th Street										
Bridge Street to McCallum Street	City	Collector	25	15-16	2	No	No	No	Shared	Fair
McCallum Street to Overholt Avenue	City	Collector	25	15-16	2	No	No	No	Shared	Fair
Bridge Street										
Front Street (Highway 26) to 5th Street	City	Collector	25	40	2	Yes	Yes	Yes-East	Shared	Good
5th Street to 6th Street	City	Collector	25	40	2	Yes	Yes	Yes-East	Shared	Good
6th Street to Short Street	City	Collector	25	40	2	Yes	Yes	Yes	Shared	Good
Short Street to John Day River	City	Collector	25	30-40	2	Intermittent	Yes	Yes-West	Shared	Fair
John Day River to Overholt Avenue	City	Collector	25	30-33	2	No	Yes	No	Shared	Fair
Overholt Avenue to Main Street	City	Collector	25	30-33	2	No	Yes	No	Shared	Fair
Main Street to McCallum Avenue	City	Collector	25	30-33	2	No	Yes	No	Shared	Fair
McCallum Avenue to Logan Valley Road	City	Collector	25	30-33	2	No	Yes	No	Shared	Fair
Logan Valley Road to 9th Street	City	Collector	25	20	2	No	No	No	Shared	Fair
9th Street to 10th Street	City	Collector	25	20	2	No	No	No	Shared	Fair
10th Street to 11th Street	City	Collector	25	20	2	No	No	No	Shared	Fair
11th Street to 12th Street	City	Collector	25	20	2	No	No	No	Shared	Fair
Front Street (Highway 26)										
West of Prairie City Limits	State	Arterial	25	30	2	No	No	No	Shared	Good
WCL to Cozart Avenue	State	Arterial	25	30	2	No	No	No	Shared	Good
Cozart Avenue to Johnson Avenue	State	Arterial	25	30-68	2	Yes	Yes	Yes	Shared	Good
Johnson Avenue to Bridge Street	State	Arterial	25	68	2	Yes	Yes	Yes	Shared	Good
Bridge Street to McHaley Avenue	State	Arterial	25	68	2	Yes	Yes	Yes	Shared	Good
McHaley Avenue to Kilbourne Street	State	Arterial	25	68	2	Yes	Yes	Yes	Shared	Good
Kilbourne Street to Main Street	State	Arterial	25	68	2	Yes	Yes	Yes	Shared	Good
Main Street to Washignton Street	State	Arterial	30	42	2	Yes-North	Yes-North	Yes-North	Shared	Good
Washington Street to Daily Avenue	State	Arterial	30	42	2	Yes-North	Yes-North	Yes-North	Shared	Good
Daily Avenue to Buchanan Avenue	State	Arterial	30	42	2	Yes-North	Yes-North	Yes-North	Shared	Good
Buchanan Avenue to ECL	State	Arterial	30	30-42	2	No	No	No	Shared	Good
East of Prairie City Limits	State	Arterial	55	30	2	No	No	No	Shared	Good

TABLE A-1
1996 MAJOR STREETS INVENTORY
Prairie City Transportation System Plan

Street Segment	Jurisdiction	Classification	Speed Limit (mph)	Street Width (feet)	# of Travel Lanes	Curbs	On-Street Parking	Sidewalks	Bikeway	Pavement Condition
Johnson Ave										
North of Campbell Street	City	Collector	25	32	2	No	Yes	No	Yes-East	Good
Campbell Street to 1st Street	City	Collector	25	32	2	No	Yes	No	Yes-West	Good
1st Street to 2nd Street	City	Collector	25	32	2	No	Yes	No	Yes-West	Good
2nd Street to 3rd Street	City	Collector	25	32	2	No	Yes	No	Yes-West	Good
3rd Street to 4th Street	City	Collector	25	32	2	No	Yes	No	Yes-West	Good
4th Street to Front Street (Highway 26)	City	Collector	25	32	2	No	Yes	No	Yes-West	Good
Front Street (Highway 26) to 5th Street	City	Collector	25	25-30	2	No	Yes	No	Shared	Fair
5th Street to 6th Street	City	Collector	25	25-30	2	No	Yes	No	Shared	Fair
Prairie City- South Side of River Road										
Bridge Street to City Limits	City	Collector	25	22-24	2	No	No	No	Shared	Good
City Limits to East	County	Arterial	25	22-24	2	No	No	No	Shared	Gravel/Dirt
Main Street										
North End to 3rd Street	City	Local	25	20	2	No	Yes	No	Shared	Poor
3rd Street to Williams Street	City	Local	25	20	2	No	Yes	No	Shared	Poor
Williams Street to Front Street (Highway 26)	City	Local	25	20	2	No	Yes	No	Shared	Poor
Front Street (Highway 26) to 5th Street	City	Collector	25	40	2	Yes	Yes	Yes	Yes-West	Good
5h Street to 6th Street	City	Collector	25	40	2	Yes	Yes	Yes	Yes-West	Good
6th Street to John Day River	City	Collector	25	40	2	Yes	Yes	Yes	Yes-West	Good
John Day River to Bridge Street	City	Collector	25	40	2	Yes	Yes	Yes-East	Yes-West	Good
Overholt Avenue										
Bridge Street to 9th Street	City	Collector	25	30	2	Yes	Yes	No	Shared	Fair
9th Street to 10th Street	City	Collector	25	30	2	Yes	Yes	No	Shared	Fair
10th Street to 11th Street	City	Collector	25	30	2	Yes	Yes	No	Shared	Fair
11th Street to 12th Street	City	Collector	25	30	2	Yes	Yes	No	Shared	Fair

APPENDIX B:

Technical Memorandum

Grant County Population and Employment Analysis

TECHNICAL MEMORANDUM

GRANT COUNTY POPULATION AND EMPLOYMENT ANALYSIS

METHODOLOGY AND DATA SOURCES

Population estimates and projections were developed from historical data as reported by the Census Bureau. Portland State University's Center for Population Research and Census (PSU CPRC) developed annual population estimates for cities and counties for the purpose of allocating certain state tax revenues to cities and counties. The State of Oregon Office of Economic Analysis (OEA) provided long-term (through year 2040) state population forecasts, disaggregated by county, for state planning purposes. OEA also developed county-level employment forecasts based on covered employment payrolls as reported by the Oregon Employment Department.

The Office of Economic Analysis used business-cycle trends (as reflected by the Employment Department's employment forecasts) as the primary driver of population and employment for the short term. For the long term, the forecasts shift to a population-driven model, which emphasizes demographics of the resident population, including age and gender of the population, with assumptions regarding life expectancy, fertility rate, and immigration. DEA used a methodology based on OEA's county-distribution methodology in developing population and employment forecasts for each of the cities in Grant County.¹ DEA calculated a weighted average growth rate for each jurisdiction (weighting recent growth more heavily than past growth) and combined this average growth rate with the projected county-wide growth rate. This methodology assumes convergence of growth rates because of the physical constraints of any area to sustain growth rates beyond the state or county average for long periods of time. These constraints include availability of land and housing, congestion, and other infrastructure limitations. The forecasts were then modified to reflect more recent official estimates and local knowledge.

These population and employment forecasts were developed to determine future transportation needs. The amount of growth, and where it occurs, will affect traffic and transportation facilities in the study area. This report is not intended to provide a complete economic forecast or housing analysis, and it should not be used for any purpose other than that for which it is designed.

HISTORICAL GROWTH

Interestingly, population levels in most of Eastern Oregon are close to, or actually lower than, those experienced earlier in the century. Counties included in this phenomenon include Baker, Harney, Union, Wallowa, and Grant Counties. The population of Grant County actually declined in the 1960s and 1980s, reflecting the general slowdown in the state's economy during these time periods. As a result of this population activity, the population of Grant County increased by less than two percent between the 1960

¹ Seneca was not an incorporated city until after the 1970 census. Since its incorporation, its population has declined from an estimated 405 in 1971 to a count of 191 in the 1990 census, increasing again to 230, the official 1996 estimate. Because of the short and varied history of population growth, DEA applied an average annual growth rate of 0.5 percent to Seneca.

and 1990 Censuses (from 7,726 in 1960 to 7,853 in 1990). The following table shows the population trend for selected communities in Grant County.

GRANT COUNTY HISTORICAL POPULATION TREND

	1960	1970	1980	1990	1960-1990 Change	
					Number	CAARG*
Grant County	7,726	6,996	8,210	7,853	127	0.05%
Dayville	234	197	199	144	(90)	-1.61%
Long Creek	295	196	252	249	(46)	-0.56%
Monument	214	161	192	162	(52)	-0.92%
Mount Vernon	502	423	569	549	47	0.30%
Prairie City	801	867	1,106	1,117	316	1.11%
Seneca**	n.a.	n.a.	285	191	n.a.	n.a.

* Compound Average Annual Rate of Growth

** Seneca was not an incorporated city until after the 1970 Census.

Source: U.S. Bureau of the Census.

Despite this minimal growth in population since 1970, other demographic changes have occurred that may impact the community's employment and travel patterns. For example, there have been national trends of both decreasing household size and increasing numbers of workers per household.

Household size in Grant County has gone from an average of 2.98 persons per household in 1970 to an average of 2.51 persons in 1990. Changes in life expectancy and lifestyle choices (i.e. electing to delay marriage and childbearing) have resulted in relatively high proportions of "empty-nester," "singles," and "couples-without-children" households.

The number of jobs per household has also been increasing. With 6,996 reported persons in 1970 and total employment estimated at 2,750, the population/employment ratio in 1970 was 2.54 persons per job. In 1995, there were 3,760 jobs for the estimated population of 7,950, for a population/employment ratio of 2.11 persons per job. The increasing numbers of jobs in relation to population is due to a number of factors including a low savings rate, increased life expectancy, and higher education levels. These factors have combined to increase the labor participation rate, particularly by women and older adults.

CURRENT POPULATION AND EMPLOYMENT LEVEL

Estimated at 7,950 in 1995, the population of Grant County has remained relatively stable since the 1990 Census, with an average annual growth rate of 0.25 percent. The following table shows the estimated change in population for Grant County and the various jurisdictions from 1990 to 1995. Although Dayville, Mount Vernon, and Seneca have managed to grow at annual rates of over three percent since 1990, these rates are calculated on relatively small population bases, reflecting the population increases of 41 people (in Dayville), 96 (Mount Vernon), and 39 (Seneca).

GRANT COUNTY POPULATION LEVEL

	1990	1995	1990-1995 Change	
			Number	CAARG*
Grant County	7,853	7,950	97	0.25%
Dayville	144	185	41	5.14%
Long Creek	249	235	(14)	-1.15%
Monument	162	170	8	0.97%
Mount Vernon	549	645	96	3.28%
Prairie City	1,117	1,170	53	0.93%
Seneca	191	230	39	3.79%

* Compound Average Annual Rate of Growth

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

Employment levels have declined slightly since 1990. This decline is, in part, attributable to an increase in the unemployment rate throughout Oregon. Average unemployment rates for Grant County hit a low for the decade at 8.8 percent in 1989 and 1990. Since then, unemployment has climbed, reaching an average 12.2 percent in 1993 and 10.3 percent for 1995.

GRANT COUNTY EMPLOYMENT

	1990	1995	1990-1995 Change	
			Number	CAARG*
Grant County Employment	3,850	3,760	(90)	-0.47%
Unemployment Rate	8.8%	10.3%	n.a.	n.a.

* Compound Average Annual Rate of Growth

Note: These figures are reported as place-of-work series, rather than place-of-residence. In other words, these estimated total jobs in Grant County may be held by residents of other counties. The impact of this difference is considered minimal for Grant County as the 1990 Census reports that over 95 percent of workers who live in Grant County also work in the County.

Source: Oregon Employment Department.

The county unemployment rates contrast with the economic performance of the state as a whole. The state's unemployment rate has been at approximately 5 percent for several years, and has just begun creeping upward. As of November 1996, the statewide unemployment rate was 5.5 percent--still a historically low rate, but the state's highest level in over two years.

POPULATION AND EMPLOYMENT FORECASTS

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

stable as the forecasts appear to imply. The population forecast for Grant County and the jurisdictions of Dayville, Long Creek, Monument, Mount Vernon, and Seneca are shown in five-year increments in the following table. Population forecasts for Prairie City were drawn from Prairie City's Comprehensive Plan.

GRANT COUNTY POPULATION FORECAST

	1995	2000	2005	2010	2015	2017
Grant County	7,950	8,292	8,517	8,742	8,989	9,088
Dayville	185	187	188	190	193	194
Long Creek	235	240	244	248	253	255
Monument	180	185	186	190	193	195
Mount Vernon	645	688	729	771	809	825
Seneca	230	236	242	248	254	257

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

The population of Grant County is expected to increase by over 14 percent between 1995 and year 2017, from the 1995 estimate of 7,950 to an estimated 9,088 in year 2017. The only jurisdictions expected to grow faster are Mount Vernon (with a forecast increase of nearly 28 percent between 1995 and year 2017, from 645 in 1995 to an estimated 825 in year 2017), and Prairie City.

The Office of Economic Analysis also developed forecasts of Non-Agricultural Employment by county. Oregon Employment data suggests that nearly one-quarter (an estimated 25 percent in 1995) of all employment in Grant County is agriculture-based. This agriculture-based proportion, although higher than the state average, is typical for counties in Eastern Oregon. Although the economy has been moving toward a greater degree of diversification, this proportion has remained relatively stable over the last 25 years: Agricultural employment accounted for 26 percent of total estimated employment in 1970, only one percent greater than the 1995 estimate of 25 percent. Based on the 1995 proportion, the following table shows non-agricultural and estimated total employment for Grant County.

GRANT COUNTY EMPLOYMENT FORECAST

	1995	2000	2005	2010	2015	2017
Non-Agricultural Employment	2,830	3,051	3,161	3,231	3,255	3,265
Estimated Total Employment	3,760	4,016	4,161	4,253	4,284	4,297

Source: Non-Agricultural employment forecasts developed by the State of Oregon Office of Economic Analysis; 1995 estimates developed by the Oregon Employment Department; and Estimated total employment forecasts developed by David Evans and Associates, Inc.

Employment is expected to grow by over 14 percent from 1995 to year 2017, keeping the population/employment ratio relatively stable (increasing slightly from 2.11 persons per job to 2.12 persons per job).

APPENDIX C:

Technical Memorandum

Speed Control Measures

TECHNICAL MEMORANDUM

SPEED CONTROL MEASURES

Numerous studies have been carried out to determine the influence of particular roadway features on traffic speed. Some of the most significant characteristics of roadway features are curvature, grades, length of grade, number of lanes, surface condition, sight distance, lateral clearance, number of intersections, and built-up areas near the roadways. Some of the main reasons drivers give for speeding include being in a hurry, to avoid a potential danger, to keep up with other traffic, and to maintain a speed with which the driver feels comfortable.

This technical memorandum describes a variety of speed control measures to address public concern over high-speed traffic through the downtown areas of many of the cities in Grant County. Speed control measures consist of physical controls, passive controls, and psycho-perception controls. Specific speed control techniques for each of these three categories are summarized in the following pages and listed in Table 1 located at the end of this memorandum.

Physical Controls

Physical speed controls are those measures which are physically constructed to restrict or affect vehicle operation or performance. Speed control techniques that can be designed or built into transportation systems include the use of road markings, texturing, medians, street narrowing, and other physical features. They often result in other "traffic calming" benefits such as reduced traffic volumes and noise levels in congested areas. High construction costs somewhat limit extensive use of these types of speed control measures.

Speed Bumps

Speed bumps are short bumps in a roadway used in parking lots, on private roads, and around universities. Their effectiveness at reducing speed is somewhat inconsistent, as drivers tend to slow down to reduce vehicle rocking while traveling over the bumps but will then increase their speeds between the bumps to make up for lost time. They increase the likelihood of vehicle damage and loss of control even when driving over them at low speeds. Speed bumps can be effective in lowering traffic volumes; however, they cause an increase in noise. They also cause problems for snowplows. Speed bumps have moderately high construction costs and little to no maintenance costs once constructed.

Road Humps

Road humps are typically 12 feet long and three to four inches high and can be safely crossed at speeds of 30 mph. Extensive testing has indicated that road humps are effective in reducing speeds on residential streets; that in the 85th percentile, speeds closely match the 25 mph speed limit used on most residential streets. Road humps are less likely than speed bumps to cause loss of control or vehicle damage caused by vehicles bottoming-out. Tests also showed a reduction in injury accidents and no statistically significant change in accidents on surrounding streets that could have been used as alternate routes. Speed bumps tend to reduce traffic volumes by discouraging through traffic on local neighborhood streets. Noise levels go down by slowing down traffic. Speed humps have moderately high construction costs and little to no maintenance costs once constructed.

Rumble Strips

Like road humps, rumble strips have been found to be effective in reducing average travel speeds and are less likely than speed bumps to cause loss of control or vehicle damage. Rumble strips typically consist of rows of raised metallic saucer-like elements affixed to the roadway which cause a mild rumbling under the vehicle and a significant amount of noise when driven over. The effect is to make motorists more aware of their speed and their surroundings with the intent of causing drivers to slow down. This in turn improves safety. Rumble strips have moderate construction costs and low maintenance costs once installed.

A significant disadvantage to this control measure is that it is difficult to construct a rumble surface that would not generate too much noise for adjacent residents. Raised metallic rumble strips also cause maintenance problems for snowplows and can be a hazard if dislodged.

Rumble strips can also be constructed by scoring the roadway pavement, which may be more desirable as they would create less noise. They would not result in a raised profile which would interfere with snowplows and there would be nothing that could become dislodged.

Median Barrier

The primary function of medians is to restrict conflicting turning movements by not allowing left turns from a travel lane into a driveway. Wide medians can also allow for turning pockets at intersections, provide pedestrian refuge, and reduce pavement width. Medians can be as narrow as two to four feet wide within a limited right-of-way.

Medians often slow traffic by giving the appearance of a parkway setting and narrow lanes. They improve safety and may increase the capacity of high-volume streets by limiting conflicting mid-block movements and channelizing traffic at complex intersections. They may improve safety at certain locations by making side street driveways right turn in and out only. Medians also increase pedestrian safety and ability to cross wider streets by providing mid-street pedestrian refuge. Construction costs for medians are high; however, they have low maintenance costs once constructed.

Traffic Circle

Traffic circles are primarily used to reduce delay at intersections and improve safety. Traffic circles have advantages over traffic signals because they improve intersection operations, tend to have lower accident rates, less severe accidents, and cost less. Entry into traffic circles is continuous and controlled by yield signs. In many situations the capacity is similar to other intersection traffic control.

Traffic circles may reduce delays at intersections and can improve local street access as well as decrease speed depending on design. Traffic circles reduce the number of conflict points and the number and severity of crashes at some locations. Safety may be an issue in areas where drivers are not used to and are unclear about how to use them. Other disadvantages are that they may reduce the opportunity for pedestrians to cross roads and they can be intimidating to bicyclists. Traffic circles also have high construction costs.

Chokers and Road Narrowing

Lateral clearance on a roadway has been proven to have an effect on travel speeds, albeit a minor effect. The narrower a road is, the more slowly drivers tend to travel.

Where on-street parking exists, constructing sidewalks with curb extensions, or bulbs at intersections such that the sidewalk is extended to the end of the parking lane is an effective way to narrow a road. Narrower streets mean shorter crosswalk lengths, thus improving pedestrian safety by reducing the amount of time pedestrians are in the street. Narrow streets also shorten the pedestrian phase at signalized intersections, thus allowing a redistribution of green time to the traffic movements which need it most. They can also slow traffic in these areas.

Road narrowing usually does not result in reduced traffic volumes nor in reduced noise. This measure may cause problems for cyclists if the curb extension conflicts with a bike lane.

This improvement option can be made at a moderate to high construction cost. The cost of a single curb extension is about \$2,000. For all four corners of an intersection, the total cost would be about \$8,000. Once constructed, there is little to no maintenance required for this option.

Passive Controls

Passive speed control measures do not physically alter vehicle operation or speed. They typically consist of regulatory signs or signals and rely on driver compliance to be effective. This inherently makes them less effective at controlling speeds than physical controls. Their relatively low construction costs, however, may make them more practical to implement on a large-scale basis.

Stop Signs

Experience in the United States over the years indicates that stop signs installed on local streets have little effect on speed except in the immediate vicinity of the signs. Tests found that motorists start to slow down 200 feet before the intersection and return to near normal speed about 100 feet past the stop point. Studies also showed that speeds between intersections are not significantly changed but tend to increase slightly after the installation of stop signs. In addition, some tests found that stop signs installed to control speed were disobeyed on a wide scale. When not forced to stop by a priority vehicle, few drivers came to a complete stop and many did not stop at all. The Manual on Uniform Traffic Control Devices requires that stop signs not be used for speed control.

Speed Limit Signs

Speed limit laws often specify general limits for residential streets, business districts, school zones, or rural areas. The laws usually recognize that safe speed varies from road to road and permit highway agencies to raise or lower speed limits on the basis of an engineering or traffic survey. The basic intent of speed zoning is to identify a safe and reasonable limit for a given road section or zone. The most widely accepted method of setting speed limits is the 85th percentile speed. This is the speed that 85 percent of traffic is moving at or below and reflects the safe speed for the given roadway conditions as determined by a large majority of drivers. The 85th percentile speed is in the speed range where the accident involvement rate is lowest.

Numerous studies have been carried out on the effects of speed limits. Studies on urban and rural roads indicate that speed limits have little or no effect on traffic speed and that drivers respond to changing roadway conditions more so than posted speed limits. A survey of drivers indicated that over three-fourths of the motorists indicated they drive at a speed that traffic and road condition will permit regardless of the posted speed limit. Although the motorists tended to think of speeding as one of the primary causes of accidents, they did not feel that going ten mph over the legal limit was very wrong. One speed study indicated that when the speed limit was raised to match the 85th percentile speed, there was essentially no change in speed. Where the speed limit was lowered, the spread in speeds increased and compliance dropped from 89 percent to 24 percent.

In summary, changing the posted speed limit can be done at a low construction cost with little to no maintenance problems or cost; however, lowering posted speed limits rarely results in actual reductions in speed. Speed zones need to be constantly enforced to be effective. Lowering the posted speed limit rarely results in improved safety because any safety benefits realized by slower speeds is negated by an increase in speed variance. Speed limits can also give pedestrians a false sense of security by expecting drivers to obey signs. Changes to the posted speed limit are not likely to result in any changes in traffic volumes or noise either.

Traffic Activated Signs

Radar can be used to activate variable message signs when vehicles are traveling faster than the speed limit. These signs display the speed indication and the message SLOW DOWN or TOO FAST with flashing beacons to drivers exceeding the posted speed limit. Speed limit signs without beacons produced no significant reductions in speed. Some tests indicated that there was an increase in the speed variance with the speed violation sign. This is an unfavorable effect since it has been shown to increase the likelihood of accidents. Other tests indicated that speeds became more uniform. It is unlikely that a traffic activated sign would have any effect on traffic volumes or noise. These signs have moderately high construction costs and low maintenance costs.

Psycho-Perception Controls

Psycho-perception controls are those speed control measures that rely on drivers' attitudes, perceptions, and reactions to their surroundings. These include knowledge about speed enforcement, perceived safe traveling speed, and reaction to changes in the surrounding environment. They rely less on physically slowing vehicles or driver compliance with the law and more on the human psyche. Nonetheless, their benefits can be quantified and they make an important contribution to speed control.

Enforcement

In the presence of police enforcement, motorists tend to slow down. The magnitude of the speed decrease depends on the relative level of the speed limit and the perceived severity of the threat and enforcement. A marked police vehicle parked with lights flashing and simulating an arrest produces the largest reduction in speed. Stationary enforcement is more effective than moving enforcement in controlling speed. In most cases, the decrease in speed is less than three mph but reductions up to ten mph have been observed. As would be expected, the greater the number of enforcement measures present in a given area or the greater the frequency of presence, the greater the impact on the speed of traffic in that area.

The distance that the speed suppression effect extends from the enforcement measure depends on the frequency or strategy of patrol, the patrol method, the traffic situation, and other factors. In most cases, this distance is less than three miles either side of the measure, but there have been reports of an effect up to four miles upstream and ten miles downstream of the enforcement.

Enforcement also appears to have a carryover effect. That is, the speed suppression effect remains for some period of time after the enforcement unit is removed. The duration of this effect and the factors which can alter it are not well defined, but are associated with driver communication and frequency of exposure.

Speed enforcement not only reduces speed but also has the tendency to reduce accident severity as well. Studies have shown that the variance of speed distribution is reduced by enforcement. The effect of enforcement on speed variance is of interest since it is related to accident involvement. Other studies have shown that the effect of enforcement is to shift the entire speed distribution in the direction of lower speeds without actually altering speed distribution.

Economic and manpower constraints usually prohibit widespread or long-term employment of speed enforcement measures.

Transverse Markings

Transverse markings consist of a series of pavement markings placed across the road. Pavement marking materials consist of paint, thermoplastic, or pre-cut adhesive backed lines. The spacing between the markings gradually decreases as the area of speed control is approached. The marking pattern is intended to give the illusion of high speed and cause drivers to slow down. Tests have shown transverse markings to be successful in producing speed reductions, especially for speeders, and to reduce speed-related accidents, as well as all accidents. The technique may not affect those who are familiar with the area.

Transverse markings do not result in a decrease in traffic volumes nor a decrease in noise. They can create a hazard to pedestrians and bicyclists because some markings are slicker than the normal pavement when wet. Providing painted markings can be accomplished at a low construction cost and do not require much maintenance beyond routine painting.

Crosswalks

Providing marked crosswalks is primarily to improve pedestrian safety. Sometimes crosswalks are effective in causing drivers to slow down when approaching intersections with marked crosswalks. Raised or textured crosswalks are more effective than painted crosswalks at producing this effect, as they act as speed humps; however, they could result in an increase in noise and are not recommended for streets with high traffic volumes. They could also create a safety hazard for bicyclists.

Marked crosswalks indicate to drivers that they are approaching an area of high pedestrian volumes and that they are expected to yield the right-of-way to pedestrians. Crosswalks make crossing streets more pleasant because they delineate and reinforce pedestrian crossing. Area businesses may consider this option a plus.

A danger associated with this improvement option is that marked crosswalks could give pedestrians a false sense of security, especially at unsignalized intersections.

Providing painted crosswalks can be accomplished at a low construction cost (approximately \$3 per linear foot) and do not require much maintenance beyond routine painting. Raised or textured crosswalks have higher construction costs and little to no maintenance costs.

Odd Speed Limit Signs

Differentiated speed limits and advisory speed limits can be considered “odd” speed limits. Differentiated speed limits can consist of different speed limits for day and night or different speed limits for cars and trucks. Advisory speed limits are often used to aid drivers in selecting safe speeds for hazardous locations such as curves, roadwork sites, intersections, and road sections with lower design speeds.

When different speed limits are used for day and night, the night speed limits are generally set at five to ten mph lower than day speed limits. There are no reports available on the effectiveness of these limits, although speeds are generally lower and accident risk has been found to be greater at night.

Different speed limits for cars and trucks have also been used. One study of differentiated speed limits indicated that the actual difference in car and truck speeds was less than the posted ten mph differential except on steep upgrades where trucks could not maintain speed. At most sites studied the actual difference between car and truck speeds was less than six mph.

Studies have indicated that drivers exceeded advisory speeds of 15 to 35 miles per hour but did not exceed 45 and 50 mph speed advisories. Advisory and regulatory 35 mph speed limit signs were shown to have little if any effect on speed compared to the standard curve sign. In general, drivers were not influenced by raising or lowering advisory speeds, but they were influenced by the sharpness of the curve. Additionally, drivers using a highway repeatedly, quickly learn the speed that curvature and road conditions will allow and advisory speeds can be expected to have little effect on them.

As with typical speed limit signs, odd speed limit signs can be installed at a low construction cost with little to no maintenance problems or cost; however, they rarely result in actual reductions in speed. These signs also have a tendency to be ignored, and are more subject to vandalism.

Vertical Elements Along Roadway

This option consists of adding a vertical architectural element to the sides of a two-lane highway within an urban area to give the appearance of narrowness. This technique, sometimes called “Gateway Treatment,” also gives drivers a sense of “place,” i.e., the feeling that they have entered an urban area with lower speed limits, on-street parking, conflicting pedestrian and bicycle movements, and increased highway access.

This treatment may improve pedestrian safety because it causes drivers to be more alert; however, it could also distract motorists’ attention.

The most common and most aesthetically pleasing way of accomplishing this is with the use of trees in a landscaped strip along the highway’s edge. Trees provide shade and improve the landscape. The subliminal effect of getting drivers to slow down when driving a stretch of highway treated in this way is best achieved when the trees consist of mature shade trees which provide a canopy over the road somewhat limiting peripheral vision; however, it takes many years for newly-planted trees to reach the maturity level needed to provide the desired effect. The disadvantages of using trees are that trees may conflict with utility lines and outdoor advertising, they may obscure traffic signs and limit sight distance, and trees with heavy leaves or

fruit can create slippery conditions. Issues of maintenance including irrigation and drainage must be determined. Appropriate species must be selected so that roots do not disturb sidewalks.

Other vertical elements which could be used in place of trees are period street lamps, signs or even moving building lines closer to the highway edge to provide the illusion of a more narrow right-of-way. Care should be taken so as not to block drivers' sight distance.

This option is a popular improvement because of its aesthetic value, and because it does not compromise safety nor create negative noise impacts. This improvement option is estimated to have moderate to high construction costs; however, there is little to no maintenance required after construction.

Narrowing Lane Widths

Narrowing lane widths may slow traffic through the perceived higher risk of collision in narrower lanes. One study indicated no reduction in roadway capacity when changed from 12-foot-wide to 11-foot-wide lanes. This study noted a decrease in accidents; however, the reduction could not clearly be attributed to the lane modification. Another study of arterials and collectors suggests that for speeds of 30 mph, a 20-foot width is sufficient for a two-lane, two-way road.

Narrowing lane widths marginally shortens crossing distance and may increase pedestrian safety. This technique also has the effect of widening pedestrian space.

Significant narrowing is not feasible where through traffic volumes are close to road capacity. Lanes narrower than 11 feet on through, high volume streets may have higher accident rates. In addition, this technique may limit some truck movements depending on how narrow the streets are. There may also be a decrease in bicycle safety depending on how narrow the lanes are. Motorists may not wait, but attempt to move around a bicyclist even in narrow lanes. The presence of bike lanes might help although motorists might drive in bike lanes.

Narrowing lanes with the use of pavement markings can be accomplished at a low construction cost and little to no maintenance cost.

Bicycle Lanes

Bicycles should be accommodated on virtually all roadways. For most local streets, the traffic volume and speeds are low enough that bicycles and autos can safely share the same roadway. On collector streets and arterials, both the volume and speed of the automobile traffic is high enough that a designated space is needed for bicyclists. In urban areas where there are curbs, a six-foot bike lane is recommended for bicycles, and special care taken to secure safe bicycle passage through intersections. In rural areas without curbs and sidewalks, the typical recommended facility is a shoulder bikeway, where a six-foot standard paved shoulder is provided for bicycles. According to the [Oregon Bicycle and Pedestrian Plan](#), the guideline for rural arterials with a design hour volume of less than 200 vpd is for a paved shoulder which is four feet wide.

Bicycle lanes also improve bicyclist safety and encourage more bicycle trips by improving the cycling experience by taking bike trips out of the general flow traffic lanes. Depending on the existing pavement width, bike lanes can be provided at a low construction cost simply by restriping an existing road (approximately \$0.40 per linear foot). If a roadway has to be widened to provide a bike lane or a paved shoulder, it can be done at a relatively high construction cost (approximately \$45 per linear foot for a facility

five feet wide on both sides of the road, built to highway standards, with curbs and striping). After construction, little to no maintenance is required except for routine painting of pavement markings.

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APPENDIX D:

Prairie City

Elements of the Five Year Plan

S.W. 10TH STREET, RAILROAD AVENUE AND SOUTH FISK AVENUE

Estimated Cost

FISK AVE

S.W. 10th Street - Railroad Avenue to South ~~Stee Alley~~
 Railroad Avenue - S.W. 10th Street to Approx. 200 ft. South
 South Fisk Avenue - S.W. 10th Street to Approx. 200 ft. South

S.W. 10th Street existing 10 foot asphalt surface. Is showing signs of distress, (long cracks and edge cracking).

Railroad Avenue and South Fisk Avenue is native with no improvements.

Recommendation - S.W. 10th Street grind up existing asphalt surface. Reconstruct asphaltic surface to two ten foot travel lanes with one foot asphalt shoulders and ten inches of crushed aggregate base. In addition if R-O-W allows, construct pull-in parking on left and right for 100 feet near cemetery.

Railroad Avenue and South Fisk Avenue construct two, ten foot asphalt travel lanes with one foot crushed aggregate shoulders, and six inches of crushed aggregate base.

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Mobilization	Lump	1	\$ 3,433.06	\$ 3,433.06
	Sum			
Traffic Control	Lump	1	\$ 2,746.44	\$ 2,746.44
	Sum			
Excavation	Cu.Yd.	392	\$ 10.00	\$ 3,920.00
Drainage	Lump	1	\$ 1,000.00	\$ 1,000.00
	Sum			
Crushed Aggregate	Sq.Yd.	1344	\$ 7.40	\$ 9,945.60
Base 3/4-0"				
10-in. depth				
Crushed Aggregate	Sq.Yd.	1075	\$ 4.43	\$ 4,762.25
Base 3/4-0"				
6-in. depth				

S.W. 10th Street, Railroad Avenue and South Fisk Avenue cont.

Asphaltic Concrete Sq.Yd.	1687	\$	8.83	\$14,052.71
Pavement Class "C"				
3-in. depth				
Pavement Striping Lin.	1300	\$	0.50	\$ 650.00
Ft.				

Total Construction Costs	\$ 40,510.06
10% Contingencies	\$ 4,051.01
25% Administration, Engineering and Legal	\$ 10,127.52
	<hr/>
TOTAL ESTIMATED COST	\$ 54,688.58

**TOTAL ESTIMATED COST
NORTH WASHINGTON STREET AND N.E. 3RD STREET**

Estimated Cost

North Washington - N.E. Williams to North Johnson
N.E. 3rd Street - North Main to North Washington

North Washington Street - Is an asphalt surface varying from 18 to 22 feet. The existing pavement has a high degree of long cracks, with shoulder cracking and alligator cracking. There has been some patching recently but it is also showing signs of distress.

Recommendation - Grind up existing pavement. Construct three inch depth of asphaltic surface with two ten foot travel lanes and a four foot bicycle lane, with one foot asphalt shoulders and eight inches of crushed aggregate base.

N.E. 3rd Street - Existing asphalt surfacing width is 32 feet. The existing surface is showing some distress.

Recommendation - Grind up existing surface. Add eight-inches of crush base. Redesign grades to lesson the grade change from North Washington to N.E. 3rd Street. Construct three-inch depth asphaltic surface with two eleven foot lanes with one foot crushed aggregate shoulder and four foot bicycle lane right and left. Crushed aggregate base eight inch depth.

Washington Street and N.E. 3rd

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Mobilization	Lump Sum	1	\$14,353.37	\$14,353.37
Traffic Control	Lump Sum	1	\$11,482.70	\$11,482.70
Drainage (Ditch & Culverts)	Lump Sum	1	\$ 2,000.00	\$ 2,000.00
Excavation	Cu.Yd.	1426	\$ 10.00	\$14,260.00
Crushed Aggregate Base 3/4-0" 8-in. depth	Sq.Yd.	8556	\$ 5.93	\$50,737.08
Asphaltic Concrete Pavement Class "C" 3-in. depth	Sq.Yd.	8505	\$ 8.33	\$70,846.65

Washington Street & N.E. 3rd Street cont.

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Adjusting Manholes	Each	3	\$ 300.00	\$ 900.00
Adjusting Valves	Each	1	\$ 200.00	\$ 200.00
Adjusting Fire Hydrants	Each	2	\$ 300.00	\$ 600.00
Pavement Striping	Lin. Ft.	7980	\$ 0.50	\$ 3,990.00
Total Construction Costs				\$169,369.80
10% Contingencies				\$ 16,936.98
25% Administration, Engineering and Legal				\$ 42,342.45
TOTAL ESTIMATED COST				\$228,649.23

McCALLUM AVENUE AND S.W. 10TH STREET

**Estimated Cost
Bridge Street to Bridge Street**

Existing asphalt surface is 30 feet. Some signs of distress showing (long cracks and shoulder cracks).

Recommendation - Overlay with two inch asphaltic surface. Correct some shoulder problems and stripe for two eleven foot lanes, four foot bicycle lanes right and left, with one foot crushed aggregate shoulders, and repair existing flares.

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Mobilization	Lump Sum	1	\$ 1,522.04	\$ 1,522.04
Traffic Control	Lump Sum	1	\$ 1,217.63	\$ 1,217.63
Excavation	Cu.Yd.	52	\$ 10.00	\$ 520.00
Crushed Aggregate Base 3/4-0" 6-in. depth	Sq.Yd.	156	\$ 4.43	\$ 691.08
Asphaltic Concrete Pavement Class "C" 2-in. depth	Sq.Yd.	2374	\$ 5.56	\$13,049.32
Pavement Striping	Lin. Ft.	1920	\$ 0.50	\$ 960.00
				<hr/>
Total Construction Costs				\$ 17,960.07
10% Contingencies				\$ 1,796.01
25% Administration, Engineering and Legal				\$ 4,490.02
				<hr/>
TOTAL ESTIMATED COST				\$ 24,246.10

JOHNSON AVENUE

Estimated Cost

S.W. 12th Street to S.W. 13th Street

Johnson Avenue is unimproved. At the present time the usage is for pasture.

Recommendation - Construct two, eleven foot asphalt lanes with one foot crushed rock shoulder, plus a four foot asphalt bicycle lane right and left, with ten inches crushed aggregate base.

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Mobilization	Lump Sum	1	\$ 3,331.99	\$ 3,331.99
Traffic Control	Lump Sum	1	\$ 2,665.59	\$ 2,665.59
Excavation	Cu.Yd.	560	\$ 10.00	\$ 5,600.00
Drainage	Lump Sum	1	\$ 1,500.00	\$ 1,500.00
Crushed Aggregate Base 3/4-0" 10-in. depth	Sq.Yd.	1682	\$ 7.40	\$12,446.80
Asphaltic Concrete Pavement Class "C" 3-in. depth	Sq.Yd.	1576	\$ 8.33	\$13,128.08
Pavement Striping	Lin. Ft.	1290	\$ 0.50	\$ 645.00
				<hr/>
Total Construction Costs				\$ 39,317.46
10% Contingencies				\$ 3,931.75
25% Administration, Engineering and Legal				\$ 9,829.37
				<hr/>
TOTAL ESTIMATED COST				\$ 53,078.57

S.E. 5TH STREET AND SOUTH HARRIS AVENUE
 Estimated Cost
 South Main Street to Highway 26

S.E. 5th - Existing asphalt with a width of 18 feet. There is a high degree of long cracking with much of the surface developing into alligator cracking. Most of the paved shoulders have been broken off.

South Harris Avenue - Existing 8 feet Gravel Surface.

Recommendation - S.E. 5th: grind existing asphalt surface. Construct new three inch asphalt surface with two eleven foot travel lanes and with one foot crushed aggregate shoulder, and four foot bicycle lanes right and left. Also construct eight foot parking near Blue Mt. Nursing Home. Crushed aggregate base six inch depth.

South Harris Avenue - Construct new two inch asphalt surface with two ten foot travel lanes with one foot crushed aggregate shoulders. Crushed aggregate base six inch depth.

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Mobilization	Lump Sum	1	\$ 3,126.16	\$ 3,126.16
Traffic Control	Lump Sum	1	\$ 2,500.93	\$ 2,500.93
Excavation	Cu.Yd.	380	\$ 10.00	\$ 3,800.00
Crushed Aggregate Base 3/4-0" 6-in. depth	Sq.Yd.	2280	\$ 4.43	\$10,100.40
Asphaltic Concrete Pavement Class "C" 3-in. depth	Sq.Yd.	1565	\$ 8.33	\$13,036.45
Asphaltic Concrete Pavement Class "C" 2-in. depth	Sq.Yd.	562	\$ 5.56	\$ 3,124.72

S.E. 5th Street and S. Harris Avenue cont.

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Adjusting Manholes	Each	2	\$ 300.00	\$ 600.00
Pavement Striping	Lin. Ft.	1200	\$ 0.50	\$ 600.00
				<hr/>
Total Construction Costs				\$ 36,888.66
10% Contingencies				\$ 3,688.87
25% Administration, Engineering and Legal				\$ 9,222.17
				<hr/>
TOTAL ESTIMATED COST				\$ 49,799.69

NORTH MAIN STREET
Estimated Cost

Highway 26 to N.E. 3rd Street

Existing Surface - Asphalt ranging in width from 16 feet to 20 feet, there is a high degree of long cracking with areas that have developed into sections of alligator cracking. In the past some of these areas have been patched, the new patching is showing signs of distress. With all the cracking and patching this street does not present an acceptable ride.

Recommendation - Grind existing asphalt surface and reconstruct: two eleven foot travel lanes with six-eight foot parking area on the right; four-five foot wide bicycle lanes right and left; and curbs right and left with a concrete sidewalk left. The crushed aggregate base would consist of ten inches with a four inch asphalt paved surface.

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Mobilization	Lump Sum	1	\$11,803.19	\$11,803.19
Traffic Control	Lump Sum	1	\$ 9,442.56	\$ 9,442.56
Excavation	Cu.Yd.	756	\$ 10.00	\$ 7,560.00
Crushed Aggregate Base 3/4-0" 10-in. depth	Sq.Yd.	4534	\$ 7.40	\$33,551.60
Asphaltic Concrete Pavement Class "C" 4-in. depth	Sq.Yd.	3764	\$ 11.11	\$41,818.04
Adjusting Manholes	Each	3	\$ 300.00	\$ 900.00
Adjusting Valves	Each	4	\$ 200.00	\$ 800.00
Concrete Sidewalk	Sq.Yd.	389	\$ 20.70	\$ 8,052.30
Concrete Curb and Gutter	Lin. Ft.	1400	\$ 9.00	\$12,600.00
Storm Drain 8-in. pipe	Lin. Ft.	650	\$ 17.00	\$11,050.00

North Main Street Cont.

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Catch Basin	Each	1	\$ 650.00	\$ 650.00
Pavement Striping	Lin. Ft.	2100	\$ 0.50	\$ 1,050.00
				<hr/>
Total Construction Costs				\$139,277.69
10% Contingencies				\$ 13,927.77
25% Administration, Engineering and Legal				\$ 34,819.42
				<hr/>
TOTAL ESTIMATED COST				\$188,024.88

SOUTH HARRIS AVENUE
Estimated Cost
S.E. 5th Street to S.E. 6th Street

South Harris Avenue is unimproved. At the present time the usage is for pasture.

Recommendation - Without acquiring additional right-of-way construct sixteen foot asphalt surface with one foot crushed aggregate shoulders.

<u>Item</u>	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Mobilization	Lump Sum	1	\$ 1,173.13	\$ 1,173.13
Traffic Control	Lump Sum	1	\$ 938.50	\$ 938.50
Excavation	Cu.Yd.	235	\$ 10.00	\$ 2,350.00
Crushed Aggregate Base 3/4-0" 8-in. depth	Sq.Yd.	704	\$ 5.93	\$ 4,175.00
Asphaltic Concrete Pavement Class "C" 3-in. depth	Sq.Yd.	625	\$ 8.33	\$ 5,206.25
Total Construction Costs				\$ 13,842.88
10% Contingencies				\$ 1,384.29
25% Administration, Engineering and Legal				\$ 3,460.72
TOTAL ESTIMATED COST				\$ 18,687.89