CITY OF RICHLAND
TRANSPORTATION SYSTEM PLAN

JUNE 2001

Prepared for:
Richland, Oregon and
Oregon Department of Transportation

Prepared by:
H. Lee & Associates and
David Evans and Associates, Inc.

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The City of Richland, Oregon

And

The Oregon Department of Transportation

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Acknowledgment

This project was funded by a grant from the Transportation and Growth Management Program (TGM), a joint program of the Oregon Department of Transportation and the Department of Land Conservation and Development. TGM grants rely on federal Intermodal Surface Transportation Efficiency Act and Oregon Lottery Funds.

Disclaimer

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

CITY OF RICHLAND

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CHAPTER 1: INTRODUCTION

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

LAND USE AND TRANSPORTATION CONNECTION

The City of Richland Transportation System Plan (TSP) needs to meet the requirements of Statewide Planning Goal 12 and its implementing division, the Transportation Planning Rule (OAR Chapter 660, Division 12). Goal 12 affects all levels of government, and requires that transportation plans be coordinated among all jurisdictions. For the City of Richland this would principally include coordination with the Oregon Department of Transportation (ODOT). For example, the City of Richland plan must be coordinated with statewide transportation plans. The elements of the plans for these jurisdictions which pertain to the City of Richland are delineated in this chapter.

Goal 12

In the mid-1970s, Oregon adopted 19 Statewide Planning Goals to be implemented in comprehensive plans. The aim of Goal 12, Transportation is "to provide and encourage a safe, convenient, and economic transportation system."

Each community, region, and metropolitan area updated the transportation element of their comprehensive plans according to the following guidelines set forth in Goal 12.

> "A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian; (2) be based upon an inventory of local, regional and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes: (4) avoid principal reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans."

The comprehensive plan for the City of Richland includes land use policies corresponding to the TPR.

The Transportation Planning Rule

The Transportation Planning Rule (TPR) was developed by the Department of Land Conservation and Development (DLCD) and ODOT. It was adopted in April 1991, and has been revised many times since then. The TPR implements Goal 12.

Overview

The Transportation Planning Rule requires that cities, counties, Metropolitan Planning Organizations (MPOs), and state agencies prepare and adopt TSPs. A TSP is "a plan for one or more transportation facilities that are planned, developed, operated, and maintained in a coordinated manner to supply continuity of movement between modes, and within and between geographic and jurisdictional areas."

The ultimate aim of the rule is to encourage a multi-modal transportation network throughout the state that will reduce our reliance on the automobile and ensure that local, state, and regional transportation systems "support a pattern of travel and land use in urban areas which will avoid the air pollution, traffic and livability problems faced by other areas of the country."

The following plan elements are required in order to satisfy the TPR.

1. A street system plan for a network of arterial and collector roadways.
2. Bicycle and pedestrian plans.
3. A public transportation plan.
4. Air, rail, water, and pipeline plans.
5. Policies and land use regulations for implementing the TSP.
6. A transportation financing program.

Oregon Transportation Plan

The Oregon Transportation Plan (OTP) was completed and adopted by the Oregon Transportation Commission in September 1992. Several alternative approaches to developing the transportation plan were evaluated as part of the OTP planning process. The preferred plan presented in the OTP followed the Livability Approach, which "depends heavily on the concept of minimum levels of service within each transportation mode to assure appropriate transportation alternatives to all areas of the state."

PLANNING AREA

The Richland Transportation System Plan planning area includes the City of Richland and the area within the city's Urban Growth Boundary (UGB). The planning area is shown on Figure 1-1. Roadways included in the Transportation System Plan fall under the jurisdictions of the City of Richland, Baker County, and the State of Oregon.

Richland was named after by W. R. Usher, for the character of the soil, and was incorporated in 1917. Richland's current population in 2001 is 175.

Richland is in the Eagle Valley, an agricultural area characterized by fertile soils and a warm climate. It is at an elevation of 2,213 feet. Bald eagles frequent the area in early spring, and Richland is also home to the National Jews Harp Festival. The Copperfield Highway runs through Richland, which is approximately 12 square blocks in size. The Trans-America Bike Trail passes through Richland.

The Comprehensive Plan land use map of the Richland Transportation System Plan planning area is shown on Figure 1-2.

PLANNING PROCESS

The Richland Transportation System Plan was prepared as part of an overall effort in Baker County to prepare TSPs for Baker County and six municipalities: the Cities of Richland, Halfway, Huntington, Haines, Sumpter, and Unity. Each plan was developed through a series of technical analyses combined with systematic input and review by the City, the combined management team, Transportation Advisory Committee (TAC), ODOT, and the public. The TAC consisted of staff, elected and appointed officials, residents, and business people from Baker County, and the its incorporated cities. Key elements of the process include:

- Involving the Richland community (Chapter 1)
- Defining goals and objectives (Chapter 2)
- Reviewing existing plans and transportation conditions (Chapters 3 and 4; Appendices A and B)
- Developing population, employment, and travel forecasts (Chapter 5)
- Developing and evaluating potential transportation system improvements (Chapter 6)
- Developing the Transportation System Plan (Chapter 7)
- Developing a Financing Plan (Chapter 8)
- Developing recommended policies and ordinances (Chapter 9)

Community Involvement

Community involvement is an integral component in the development of a TSP for the City of Richland. Since each of the communities needed to address similar transportation and land use issues, a public involvement program involving all the jurisdictions was used. Several different techniques were used to involve each local jurisdiction, ODOT, and the general public.

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

The second part of the community involvement effort consisted of community meetings within Baker County. The first public meeting was held in November 1998. The general public was invited to learn about the TSP planning process and provide input on transportation issues and concerns. A second public meeting was held in May 1999. The public was notified of the public meetings through public announcements in the local newspapers and on the local radio station.

Goals and Objectives

Based on input from the City, the management team/TAC, and the community, goals and objectives were defined for the Transportation System Plan. These goals and objectives were used to make decisions about various potential improvement projects. They are described in Chapter 2.

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

To begin the planning process, all applicable City of Richland 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 Richland area, including the street system improvements planned and implemented in the past, and how the city is currently managing its ongoing development. Existing plans and policies are described in Appendix A of this report.

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

Future Transportation System Demands

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

Transportation System Potential Improvements

Once the travel forecasts were developed, it was possible to evaluate a series of potential transportation system improvements. 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 TAC, and they attempt to address the concerns specified in the goals and objectives (Chapter 2). After evaluating the results of the potential improvements analysis, a series of transportation system improvements were selected. These recommended improvements are described in Chapter 6.

Transportation System Plan

The Transportation System Plan addresses each mode of transportation and provides an overall implementation program. The street system plan was developed from the forecasting and potential improvements evaluation described above. The bicycle and pedestrian plans were developed based on current usage, land use patterns, and the requirements set forth by the Transportation Planning Rule. The public

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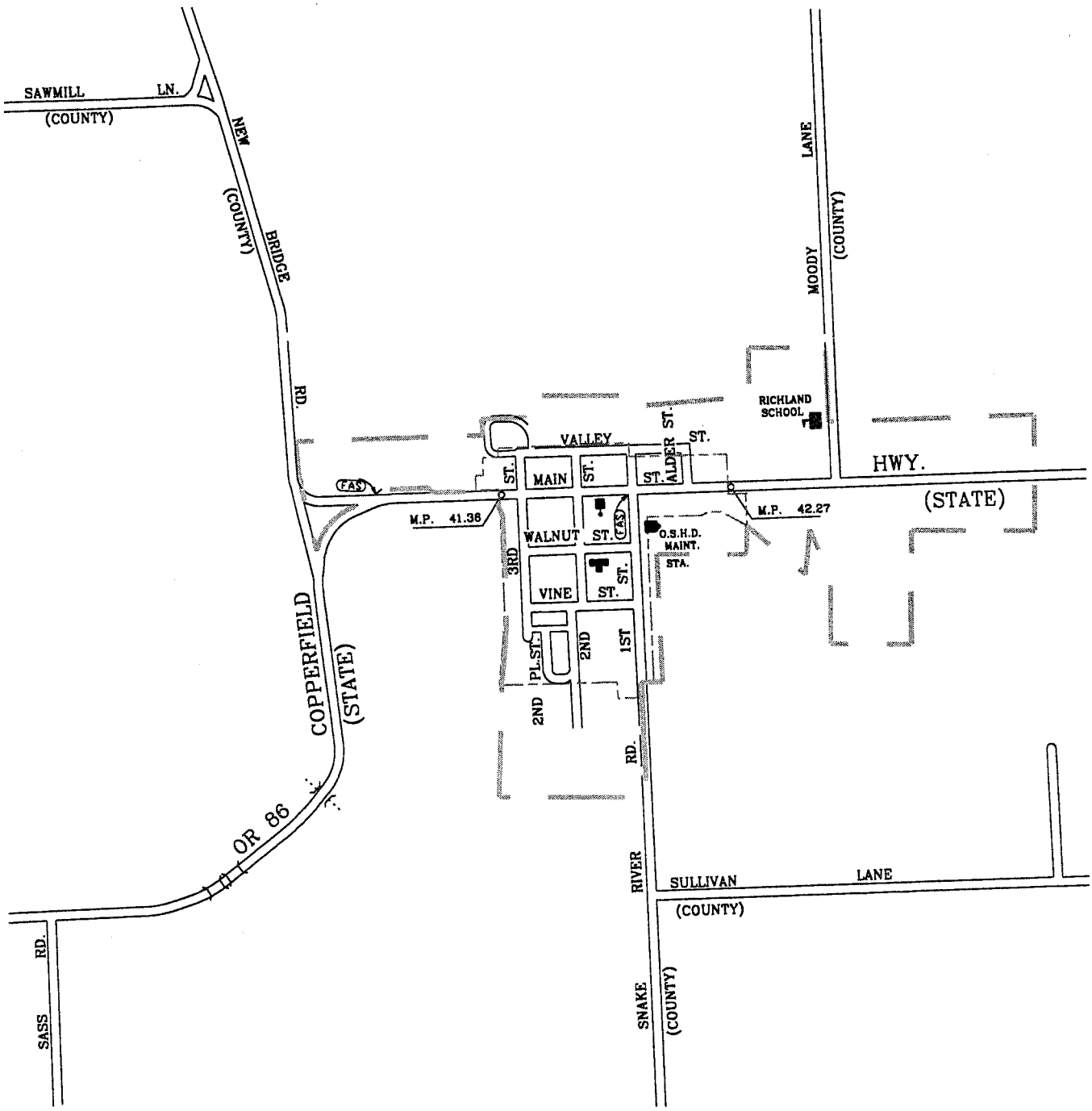


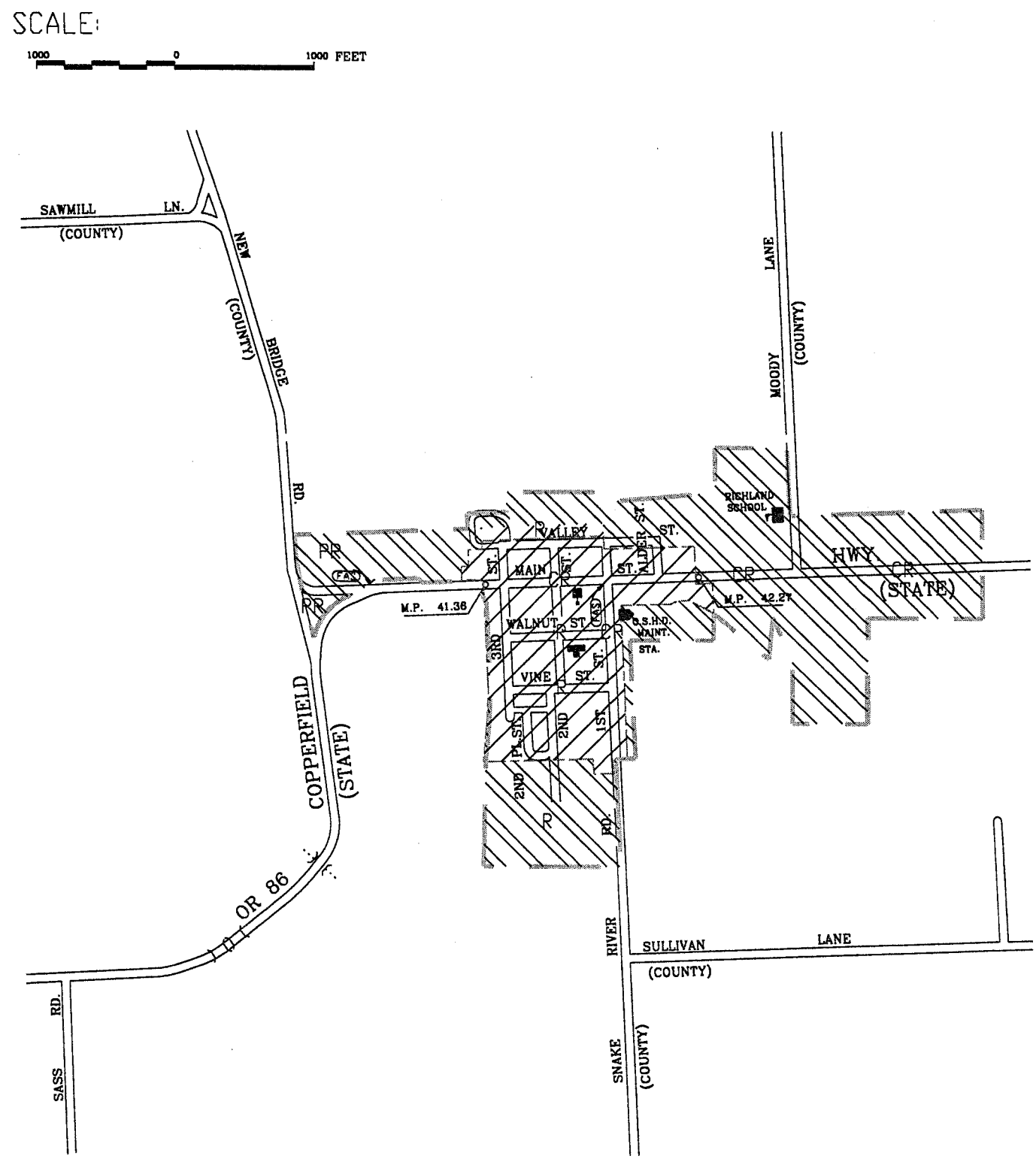
NORTH

LEGEND:

URBAN GROWTH BOUNDARY

CITY LIMITS

FIGURE 1-1
Richland Planning Area



NORTH

LEGEND:

— — —	URBAN GROWTH BOUNDARY
— — — — —	CITY LIMITS
CR	COMMERCIAL RESIDENTIAL (STATE HWY/MAIN ST AND 1ST ST)
R	RESIDENTIAL
PR	PUBLIC RESERVE

FIGURE 1-2
CITY OF RICHLAND LAND USE PLAN

transportation, air, water, rail, and pipeline plans were developed based on discussions with the owners and operators of those facilities. Chapter 7 details the plan elements for each mode.

Funding Options

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

Recommended Policies and Ordinances

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

RELATED DOCUMENTS

The City of Richland TSP addresses the transportation needs in the city. There are several other documents which address specific transportation elements in the Richland area.

Other Transportation System Plans

The Baker County TSP and TSPs for the other incorporated cities within the county are being prepared simultaneously with the Richland TSP.

The county TSP addresses the needs of the community outside each city's Urban Growth Boundary (UGB). It provides roadway standards, access management standards, and modal plans. In some cases, an improvement option may be identified in a city TSP which then needs to be addressed in the Baker County TSP as well.

County Inventories and Plans

Three inventories and plans have been prepared for Baker County. These documents are:

- Baker County Special Transportation Plan, 1994
- Baker County Transportation Needs Assessment by ODOT
- Baker County Bicycle and Pedestrian Master Plan, 1996

State Plans

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

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

CHAPTER 2: GOALS AND OBJECTIVES

The purpose of the TSP is to provide a guide for the City of Richland to meet its transportation goals and objectives. The following goals and objectives were developed from information contained in the City's Comprehensive Plan, model goals suggested by DEA, and public concerns as expressed during public meetings. An overall goal was drawn from the plans, along with more specific goals and objectives. Throughout the planning process, each element of the plan was evaluated against these parameters.

OVERALL TRANSPORTATION GOAL

Develop a transportation system that enhances the livability of the City of Richland, 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 that will meet the requirements of the TPR and also consider the needs of the affected communities.

B. Develop alternative, parallel routes.

C. Promote alternative modes of transportation.

D. Promote transportation demand management programs (i.e., rideshare and park-and-ride).

E. Promote transportation system management (i.e., signal synchronization, median barriers, etc.).

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 and preserve the level of service on local street systems.

Objectives

A. Develop an efficient road network that would maintain a level of service D or better.

B. Improve and maintain existing roadways.

C. Ensure planning coordination between the local jurisdictions, the county and the state.

D. Identify truck routes to reduce truck traffic in urban areas.

E. Examine the need for speed reduction in specific areas.

F. Identify local problem spots and recommend solutions.

Goal 3

Identify the 20-year roadway system needs to accommodate developing or undeveloped areas without undermining the rural nature of the city.

Objectives

A. Continue to develop the road system as the principal mode of transportation both for access to the city and within the city.

B. Adopt policies and standards that address street connectivity, spacing, and access management.

C. Improve access into and out of the city for goods and services.

D. Improve the access on to and off of arterial roadways to encourage growth.

Goal 4

Increase the use of alternative modes of transportation (walking, bicycling, rideshare/carpooling, and transit) through improved access, safety, and service.

Objectives

A. Provide shoulders on rural collector and arterial roads.

B. Develop a city bicycle plan.

C. Promote alternative modes and rideshare/carpool programs through community awareness and education, including working with the public transit provider (currently Community Connection) to improve transit services and access to transit services as community needs are identified.

D. Encourage development to occur near existing community centers where services are presently available so as to reduce the dependence on automotive transportation.

E. Plan for future transit service by seeking state support.

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

G. Periodically assess pedestrian and bicycle modes of transportation within the city and develop programs to meet demonstrated needs.

Goal 5

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

Objectives

A. Maintain Oregon Highway 86 as the major access route to the City.

B. Encourage Mass transit connections to the Baker City as economic practicality dictates.

C. Work with ODOT and notify and solicit comments from them before approving any proposals that might have an adverse impact on the use of the Trans-America Bike Trail which passes through Richland.

D. Participate with the county and encourage the programs which provide transportation for the disadvantaged citizens and the senior citizens.

E. Protect the use of the highway maintenance station that is located within the City by providing the proper zoning.

F. Protect local airport facilities from incompatible encroachment that may affect their future use.

G. Develop subdivision standards to require new road construction to meet such standards as to minimize future city expenditures for maintenance thereof.

H. Provide for an east-west street on the south boundary of the City prior to the development of connection points to the present street system.

I. Provide off-highway access to schools in new development of lands north of the highway.

J. Support provision of basic mobility services for the elderly and people with special transportation needs.

CHAPTER 3: TRANSPORTATION SYSTEM INVENTORY

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

STREET SYSTEM

The most common understanding of transportation is of roadways carrying cars and trucks. Most transportation dollars are devoted to building, maintaining, or planning roads to carry automobiles and trucks. The mobility provided by the personal automobile has resulted in a great reliance on this form of transportation. Likewise, the ability of trucks to carry freight to nearly any destination has greatly increased their use.

Encouraging the use of cars and trucks must be balanced against costs, livability factors, the ability to accommodate other modes of transportation, and negative impacts on adjacent land uses; however, the basis of transportation in nearly all American cities is the roadway system. This trend is clearly seen in the existing City of Richland transportation system, which consists almost entirely of roadway facilities for cars and trucks. Because of the rural nature of the area, the street system will most likely continue to be the basis of the transportation system for at least the 20-year planning period; therefore, the emphasis of this plan is on improving the existing street system for all users.

The existing street system inventory was conducted for all highways, arterial roadways, and collector roadways within the City of Richland, as well as those in Baker County that are included in the TSP 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; and
- general pavement conditions.

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

Street Classification

Typically, streets are classified as either arterials, collectors, or local streets. The classification system includes city, county, and state roadways.

Arterials

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

The only roadway in Richland currently functioning as an arterial is Main Street. Main Street is a state highway: OR 86, also known as Baker-Copperfield Highway. This roadway serves as the focus for much of the commercial development in the city.

Collectors

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

There is one collector in the City of Richland: 1st Street, a county road. Outside the city limits, 1st Street becomes Snake River Road which extends 38 miles along the Snake River to the City of Richland. The section of the road in Richland is paved; however, most of the road between Richland and Richland is unpaved.

Local Streets

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

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

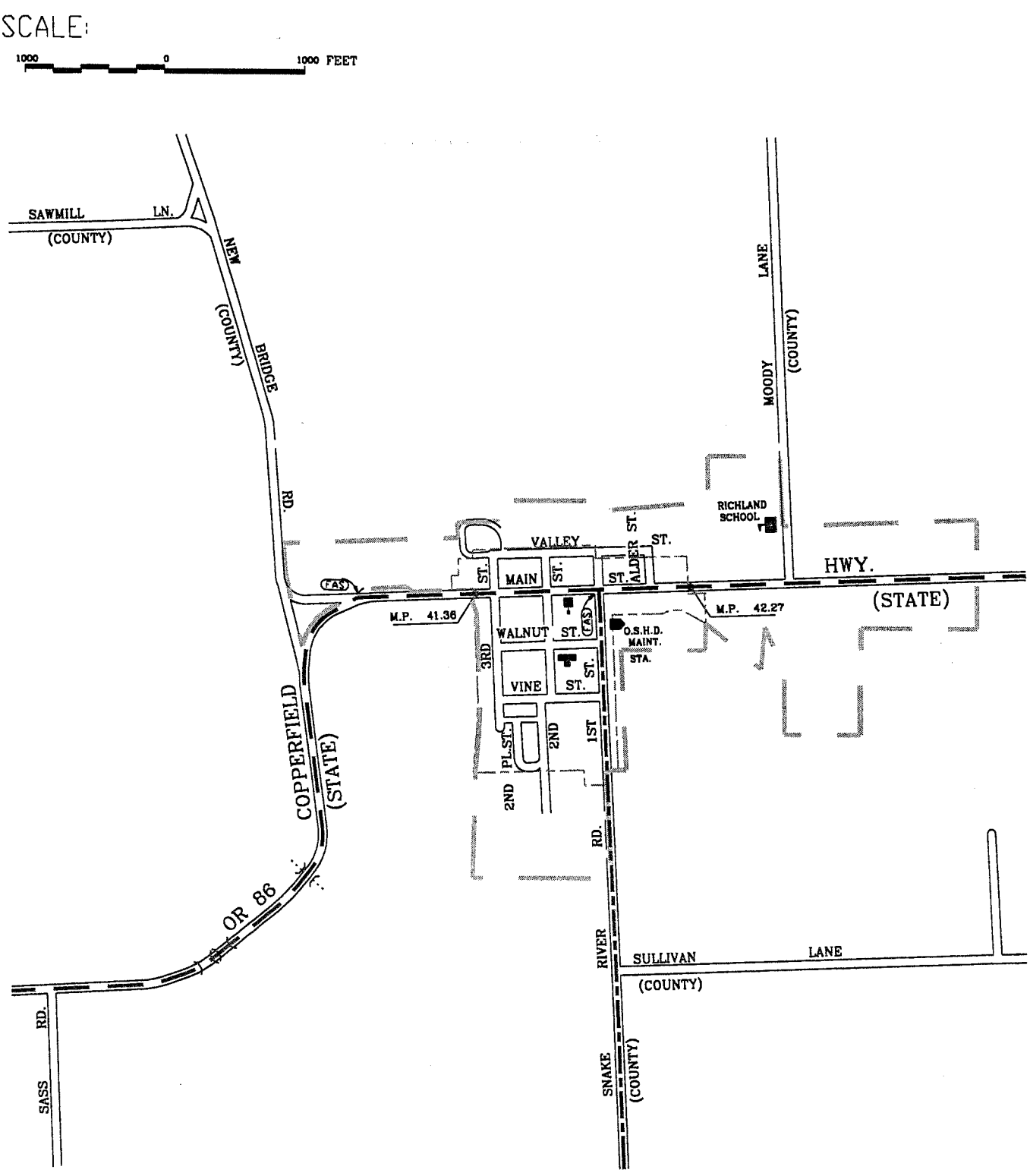
Street Layout

Most of the streets in the City of Richland are positioned in a grid pattern. Main Street is the primary east-west street, 1st Street is the primary north-south street.. Block sizes vary but are typically 300 feet square or less.

State Highways

Discussion of the Richland street system must include the state highways that traverses the city. Although The City of Richland has no direct control over state highways, adjacent development and local traffic patterns are heavily influenced by the highways. Richland is served by one state highway: OR Highway 86, also known as Baker-Copperfield Highway.

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



NORTH

LEGEND:

- URBAN GROWTH BOUNDARY
- CITY LIMITS
- ARTERIAL STREET
- COLLECTOR STREET

FIGURE 3-1
Street Classification and Jurisdiction

OR Highway 86 is a District Highway. According to the OHP, District Highways are facilities of county-wide significance and function largely as county and city arterials or collectors. They provide connections and links between small urbanized areas, rural centers and urban hubs, and also serve local access and traffic. The management objective is to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas reflecting the surrounding environment and moderate to low-speed operation in urban and urbanizing areas for traffic flow and for pedestrian and bicycle movements. Inside urban areas, local access is given more priority.

To simplify references to the state highway, a summary of the analysis for Highway 86 is contained in Appendix C.

OR Highway 86 (Baker-Copperfield Highway)

Highway 86 extends east-west through the central portion of Baker County. Terrain along the highway generally varies between expansive pastures, rolling hills, and steep mountains. It is a District Highway and is also designated a scenic byway. The highway serves Hell's Canyon National Recreation Area, and the Oregon Trail Interpretive Center is located on the highway near Baker City. In conjunction with Forest Service Loop Road #39, this highway forms a popular tourist route to the City of Joseph. The highway operates primarily as a two-lane roadway throughout rural sections of Baker County expanding to five lanes within Baker City. The posted speed in rural areas is 55 mph decreasing to 25 mph through urban areas. The route is comprised of numerous curves and moderate grade changes resulting in localized rural speed reductions ranging from 35 to 45 mph. There is one passing lane for eastbound traffic located at MP 29. The highway is primarily striped for no passing, however there are intermittent shoulder vehicle pullouts in both directions. There are roadway shoulders on both sides of the highway that range from two to ten feet wide that are comprised of partial paving and gravel.

General Pavement Conditions

State Highways

ODOT's Pavement Unit surveys the State Highway System on an annual basis. Observed severity levels of certain distress types are used to determine a pavement condition rating score. These scores are used to stratify pavement segments into five condition categories: (1) Very Good, (2) Good, (3) Fair, (4) Poor, and (5) Very Poor. A brief definition of the pavement condition categories used by ODOT for both asphalt and Portland cement concrete pavements is provided below.

- **Very Good** – Asphalt pavements in this category are stable, display no cracking, patching or deformation, and provide excellent riding qualities. Nothing would improve the roadway at this time.

  Concrete pavements in this category provide good ride quality, display original surface texture, and show no signs of faulting (vertical displacement of one slab in relation to another). Jointed reinforced pavements display no mid-slab cracks and continuously reinforced pavements may have tight transverse cracks with no evidence of spalling (or chipping away).

- **Good** – Asphalt pavements in this category are stable and may display minor cracking (generally hairline and hard to detect), minor patching, and possibly some minor deformation. These pavements appear dry or light colored, provide good ride quality and display rutting less than ½- inch deep.

  Concrete pavements in this category provide good ride quality. Original surface texture is worn in wheel tracks exposing coarse aggregate. Jointed reinforced pavements may display tight mid-slab transverse cracks and continuously reinforced pavements may show evidence of minor spalling. Pavements may have an occasional longitudinal crack but no faulting is evident.

- **Fair** – Asphalt pavements in this category are generally stable displaying minor areas of structural weakness. Cracking is easier to detect, patching is more evident (although not excessive), and deformation is more pronounced and easily noticed. Ride quality is good to acceptable.

  Concrete pavements in this category provide good ride quality. Jointed reinforced pavements may display some spalling at cracks and joint edges with longitudinal cracks appearing at less than 20% of the joints. A few areas may require a minor level of repair. Continuously reinforced pavements may show evidence of spalling with longitudinal cracks appearing in the wheel paths on less than 20% of the rated section. Shoulder joints may show evidence of deterioration and loss of slab support and faulting may be evident.

- **Poor** – Asphalt pavements in this category are marked by areas of instability, structural deficiency, large crack patterns (alligatoring), heavy and numerous patches, and visible deformation. Ride quality ranges from acceptable to poor.

  Concrete pavements in this category may continue to provide acceptable ride quality. Both jointed and continually reinforced pavements display cracking patterns with longitudinal cracks connecting joints and transverse cracks occurring more frequently. Occasional punchout (or pothole) repair is evident. Some joints and cracks show loss of base support.

  Very Poor – Asphalt pavements in this category are in extremely deteriorated condition marked by numerous areas of instability and structural deficiency. Ride quality is unacceptable. Concrete pavements in this category display a rate of deterioration that is rapidly accelerating.

According to the 1999ODOT Pavement Condition Report, the section of Highway 86 through Richland is in fair condition.

The Oregon Department of Transportation has established "Fair of Better" (FOB) roadway condition targets in its draft 2000-2003 State Transportation Improvement Plan (STIP). These targets are designed to be achievable goals for the state, regions, and districts. This also recognizes that there are different expected levels for different Level of Importance highways, and reduces the expectation for 100% FOB. FOB standards for different areas are the following:

- Interstate: 90%
- Statewide: 85%

- Regional: 75%
- District: 65%

Other Roadways

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

An inventory of pavement conditions on all other roadways (other than the state highways) was conducted in August 1998 by DEA. Most streets in the city were found to be approximately 24 to 28 feet wide with good pavement conditions. Only Vine Street, between 1st Street and 2nd Street was noted as being in poor condition.

Bridges

The Oregon Department of Transportation maintains an up to date inventory and appraisal of Oregon bridges. Part of this inventory involves the evaluation of three mutually exclusive elements of bridges. One element identifies which bridges are structurally deficient. This is determined based on the condition rating for the deck, superstructure, substructure, or culvert and retaining walls. It may also be based on the appraisal rating of the structural condition or waterway adequacy. Another element identifies which bridges are functionally obsolete. This element is determined based on the appraisal rating for the deck geometry, underclearances, approach roadway alignment, structural condition, or waterway adequacy. The third element summarizes the sufficiency ratings for all bridges. The sufficiency rating is a complex formula which takes into account four separate factors to obtain a numeric value rating the ability of a bridge to service demand. The scale ranges from 0 to 100 with higher ratings indicating optimal conditions and lower ratings indicating insufficiency. Bridges with ratings under 55 may be nearing a structurally deficient condition.

There are no bridges in the City of Richland listed on the state inventory as being structurally deficient, functionally obsolete, or having a sufficiency rating below 55.

Identified Needs

The street system is laid out in a grid pattern and the city has excellent street connectivity. To maintain this grid pattern of streets, the City of Richland needs to condition developers to constructing roadways to complement the existing grid system. There are two potential areas of residential development that should be subject to the development of grid streets. The first area is just south of 2nd Place between the city limits and the urban growth boundary. The second area is north of Valley Street.

One additional street system need was identified during the inventory process: repaving Vine Street between 1st Street and 2nd Street.

PEDESTRIAN SYSTEM

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

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

The City of Richland has sidewalks along both sides of Main Street (the state highway) from the west city limits to Alder Street, and nearly to Moody Lane on the north side of the street. Painted crosswalks exist on Main Street at 2nd Street and Moody Lane (serving Richland School). One block of 2nd Street also has sidewalks, between Vine Street and Walnut Street. The west side of 1st street also has broken, discontinuous sidewalks between the south city limits and Walnut Street. The pedestrian system inventory is shown in Figure 3-2.

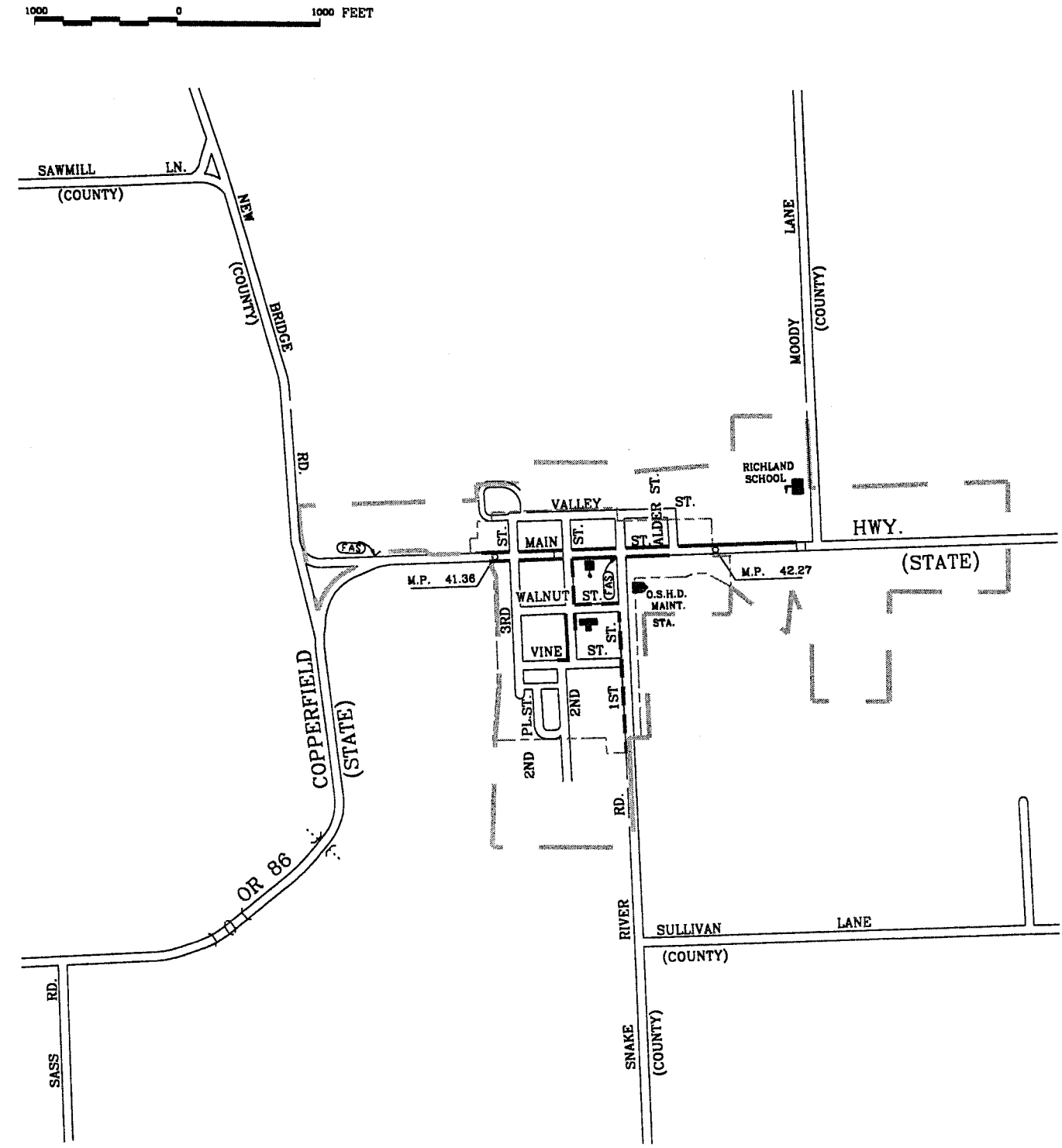
BIKEWAY SYSTEM

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

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

There are no established bicycle facilities in the City of Richland.

On low volume roadways, such as many of the local streets, bicyclists and automobiles can safely use the roadway together. On higher volume roadways, particularly the arterial streets, safety for the bicyclists is an important issue.



NORTH

LEGEND:

- URBAN GROWTH BOUNDARY
- CITY LIMITS
- SIDEWALK
- POOR OR DISCONTINUOUS SIDEWALK
- || PAINTED CROSSWALK

FIGURE 3-2
Pedestrian System Inventory

PUBLIC TRANSPORTATION

Public transportation in Baker County consists of taxicabs, intercity bus lines, and limited reservation-required para-transit. The County has no fixed route transit services.

Baker County is served by Greyhound Route 500 between Portland and Salt Lake City three times daily in each direction. Southbound arrives at 4:25 AM, 7:20 PM, and 9:45 PM, and departs 5:05 AM, 7:50 PM, and 10:50 PM. Northbound arrives at 8:00 AM, 6:30 PM, and 10:20 PM, and departs 8:35 AM, 6:30 PM, and 10:50 PM. The Greyhound station is located in Baker City on Campbell Street.

Community Connection, the Baker County para-transit service, provides "dial-a-ride" services, mainly in Baker City and the surrounding area. Delivery of the service is fragile due to being provided by a private, non-profit senior service program. The service has five vehicles:

- 1 six-passenger mini-van , ADA accessible, replaced in 1999; scheduled for replacement in 2009;
- 2 twelve-passenger modified vans, one ADA accessible, scheduled for replacement in 2001 and 2003;
- 1 fifteen-passenger modified van, ADA accessible, scheduled for replacement in 2013;
- 1 twenty-one passenger modified van, not accessible, scheduled for replacement in 2011.

Currently, Community Connection is able to utilize the accessible vehicles when called to transport a person in a wheelchair; however, it is Community Connection's goal to have all vehicles ADA accessible by the year 2003. The buses are housed in a five-bay bus barn located on the Baker County Fairgrounds. The barn was built through a joint effort between Community Connection and Baker County through a grant from ODOT, with the stipulation that the barn would be used by Community Connection as long as it provided special and public transportation.

Community Connection provides dial-a-ride service to senior, disabled, and the general public primarily within the City of Baker. General public is required to reserve service four hours in advance. In addition to the dial-a-ride service from 9:00 a.m. to 4:00 p.m., they provide regular scheduled pick-ups and drop-offs at area schools and grocery stores.

Community Connection provides intercity service weekly between Haines and Baker City, twice weekly between the Cities of Halfway and Richland, and twice monthly between Halfway/Richland and Baker City. The Cities of Sumpter and Richland are served "on call". In 1998, Community Connection began a fixed route service in Sumpter during their holiday weekend Flea Market events. These events bring in excess of 3,000 people to the small city, causing traffic and pedestrian congestion. The service was started in an effort to relieve this problem, and encourage visitors to park in appropriate areas and ride the bus into the flea market.

Community Connection receives funding from Federal Sections 5311 and 5310 funds, and state Special Transportation Funds. These dollars are received through Baker County. Community Connection also applies through Baker County for vehicle replacement funds to the Public Transit Division Community Transportation Program.

Seniors, disabled passengers, and children younger than 6th grade are charged $0.75; all other users are charged $1.50.

Baker County has no fixed-route transit service. The rural nature of the county, with low population densities and relatively long distances between destinations, makes the provision of regular scheduled transit difficult. However, the demographics of most Eastern Oregon counties suggests a lower income level and larger aging population than the rest of the state. These two factors may be sufficient to support a increase in para-transit services over time. Community Connection should continue to monitor need and apply for grants or other funding as necessary.

Identified Needs

Currently there is a twice-monthly service to and from Baker City. Up until 1996, there was a weekly route from Richland to Baker City. Although this was primarily to serve the elderly and disabled population, it was also open to the general public. The need to support Community Connection, as the public transportation provider, was identified should they identify a need to increase the service to meet the community's needs. This can be scheduled at a time to link with Amtrak passenger service should it be restored.

RAIL SERVICE

The City of Richland has no rail service. Until May, 1997, AMTRAK service was available in Baker City; however, this line now serves only freight.

The Amtrak Pioneer Train originally provided limited passenger services to Baker County. The reason service was discontinued was low ridership and high costs.

The Union Pacific Northwest Mainline traverses Baker County in a north/south direction. Union Pacific is one of the largest railroads in North America, operating in the western two-thirds of the U.S. The entire system serves 23 states, linking every major West Coast and Gulf Coast port. The mix of shipped commodities includes chemicals, coal, food and food products, forest and grain products, metals and minerals, and automobiles.

The Union Pacific Northwest Mainline follows the historic route of the Oregon Trail, moving west from the Blue Mountains along the Columbia River Gorge to Portland. A major classification yard in Hinkle, near Hermiston, and major switching yard in Portland are important operational elements in Oregon. The Union Pacific Northwest Mainline moves approximately 30-40 million tons of commodities per year.

Throughout Baker County, the railroad generally runs parallel to Highway 30 and Interstate I-84. Because this line is a mainline (Class IV line), it is in excellent operating condition with very few deficiencies and need for major improvements. An average of 30 or more trains a day pass through Baker County on the mainline.

Many communities in Baker County grew up along the railroad, but are no longer significant suppliers or receivers of rail commodities. Most train traffic passing through Baker County is long-haul (750 miles or more) traffic originating from Portland or Seattle on its way east to major cities such as Chicago. Consequently, rail traffic in Baker County is not originating from, or affected by, the industries operating within Baker County. Very few short lines (Class III line) are operated in Baker County.

Conflicts between trains and automobiles were not identified as major issues during public involvement process. This is supported by a small number of accidents reported to the ODOT Rail Division from 1984-1994. According to ODOT rail planners, very few accidents have occurred between 1994 and 1999. Most crossings are grade-separated crossings or have gates and lights. Train traffic is traveling at up to 79 mph at crossings. According to the ODOT Rail Division's Railroad-Highway Crossing Log, only two accidents involving trains have occurred from 1984-1994 within the County. Most crossings are concentrated in the cities of Haines and Baker City, but there are numerous crossings on the County's rural roads.

AIR SERVICE

The City of Richland does not have its own air service. However, there are airport facilities nearby. Baker City Municipal Airport is located outside Baker City, approximately 40 miles west of Richland. Eastern Oregon Regional Airport is located in Pendleton, approximately 135 miles northwest of Richland.

Baker City Municipal Airport is located at an elevation of 3,369 feet above mean Sea Level. The airport is around 4½ miles from downtown Baker City. There are three runways at the airport, described as follows:

- Runways 12-30: asphalt, 5,086 ft. long x 100 ft. wide
- Runways 16-34: asphalt, 4,360 ft. long x 74 ft. wide
- Runways 08-26: asphalt, 3,999 ft. long x 140 ft. wide

The Baker City Municipal Airport provides both VOR-A and VOR/DME instrument approaches, a VASI lighting system on runway 12, and a medium intensity runway lighting system on runways 12-30. There are approximately 20 private, 2 corporate, and 2 city-owned (Baker City) aircraft hangars at the airport. The airport served approximately 10,700 annual operations in 1997. Approximately 35 aircraft are based at the airport.

Baker Aircraft, the Baker City Municipal Airport's fixed base operator offers oil, repairs, jet fuel, charter, and air ambulance, 24 hour fueling , and 4 aircraft. Rental cars are available for surface transportation.

Baker City Municipal Airport is owned and operated by Baker City, and the airport is an essential part of the economy of Baker County. Recommendations for its improvement fall within the scope of this TSP. It is necessary to include the airport when considering future land use proposals for the surrounding land. Chapter 9 includes recommendations for protective zoning around the airport.

The Baker City Municipal Airport currently has no scheduled commercial service. The Eastern Oregon Regional Airport at Pendleton, located 95 miles from Baker City, is the closest commercial airport to serve Baker County. Eastern Oregon Regional Airport at Pendleton is a tower controlled airport with 11,265 annual enplanements. Passenger service includes 5 scheduled flights per day by Horizon Airlines, with flights to Portland and Seattle. The airfield is also home to 67 locally owned fixed-wing aircraft, 22 rotor craft, and 5 other aircraft.

PIPELINE SERVICE

Pipelines provide an efficient method for transporting liquids and gases. The use of pipelines can reduce the number of trucks and rail cars needed to carry gasoline, natural gas, and oil.

Cascade Natural Gas Corporation provides natural gas to the Baker County area. The source of the gas is the southwestern United States, and the Canada pipeline. The distribution line extends from southeast to northwest.

Chevron Pipeline Company owns a line that runs parallel to the Cascade Natural Gas line. This pipeline originates in Salt Lake City, Utah, and continues to Spokane, Washington, with a connection in Pasco, Washington. The line carries a variety of finished petroleum products, including gasoline, jet fuel, and diesel fuel. The pipeline has no local access in Baker County.

WATER TRANSPORTATION

The City of Richland has no water transportation services. Recreational boating on the Snake River and Brownlee Reservoir is an important component of Richland's tourist industry.

CHAPTER 4: CURRENT TRANSPORTATION CONDITIONS

As part of the planning process, the current operating conditions for Richland's 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 Richland. 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.

TRAFFIC VOLUMES

The 1997 Average Daily Traffic (ADT) volumes for the state highways within Richland were collected by ODOT and summarized in the *1997 ODOT Traffic Volume Tables*. ADT volumes are defined as the average amount of two-way traffic recorded on a roadway over a 24-hour period.

Average Daily Traffic

Local Streets

Richland has not collected or maintained traffic count information along local streets in recent years. With a population of approximately 175 people in 2001, it is expected that the majority of local streets typically experience ADT volumes below 50 vehicles per day (vpd). The highest traveled local streets would not typically be expected to experience ADT volumes higher than 100 vpd.

County Roads

Typical average daily traffic (ADT) volumes on most county roads in Baker County range from 100 to 400 vehicles per day (vpd). Traffic volumes on local roads are typically very low, generally less than 50 vpd.

State Highways

The 1997 ADT volumes on the state highways in Richland are shown on Figure 4-1. These volumes are average volumes for the year. Summertime is the season when volumes are highest. ODOT data from the permanent traffic recorder station along OR Highway 86 (Baker-Copperfield Highway) just west of Richland indicate summer volumes exceed ADT volumes by nearly 40 percent.

The 1997 average daily and estimated peak summer time traffic volumes in Richland are 1,600 vpd and 2,240 vpd, respectively.

Roadway Capacity

Roadway capacity in Richland is primarily dictated by unsignalized intersection operations. Transportation engineers have established various standards for measuring traffic capacity of intersections. Each standard is associated with a particular level of service (LOS). The LOS concept requires consideration of factors that include travel speed, 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.

Table 4-1 presents the level of service criteria for unsignalized intersections. Unsignalized intersection LOS is based on a concept of reserve capacity and was analyzed using the UNSIG10 software application developed by ODOT. Reserve capacity represents the difference between the number of stop-controlled vehicles that can be served within acceptable gaps in the main street traffic stream (potential capacity) and the actual demand for these maneuvers.

TABLE 4-1
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Unsignalized Intersections
	Reserve Capacity (passenger cars/hour)
A	≥400
B	300-399
C	200-299
D	100-199
E	0-99
F	Demand exceeds capacity

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

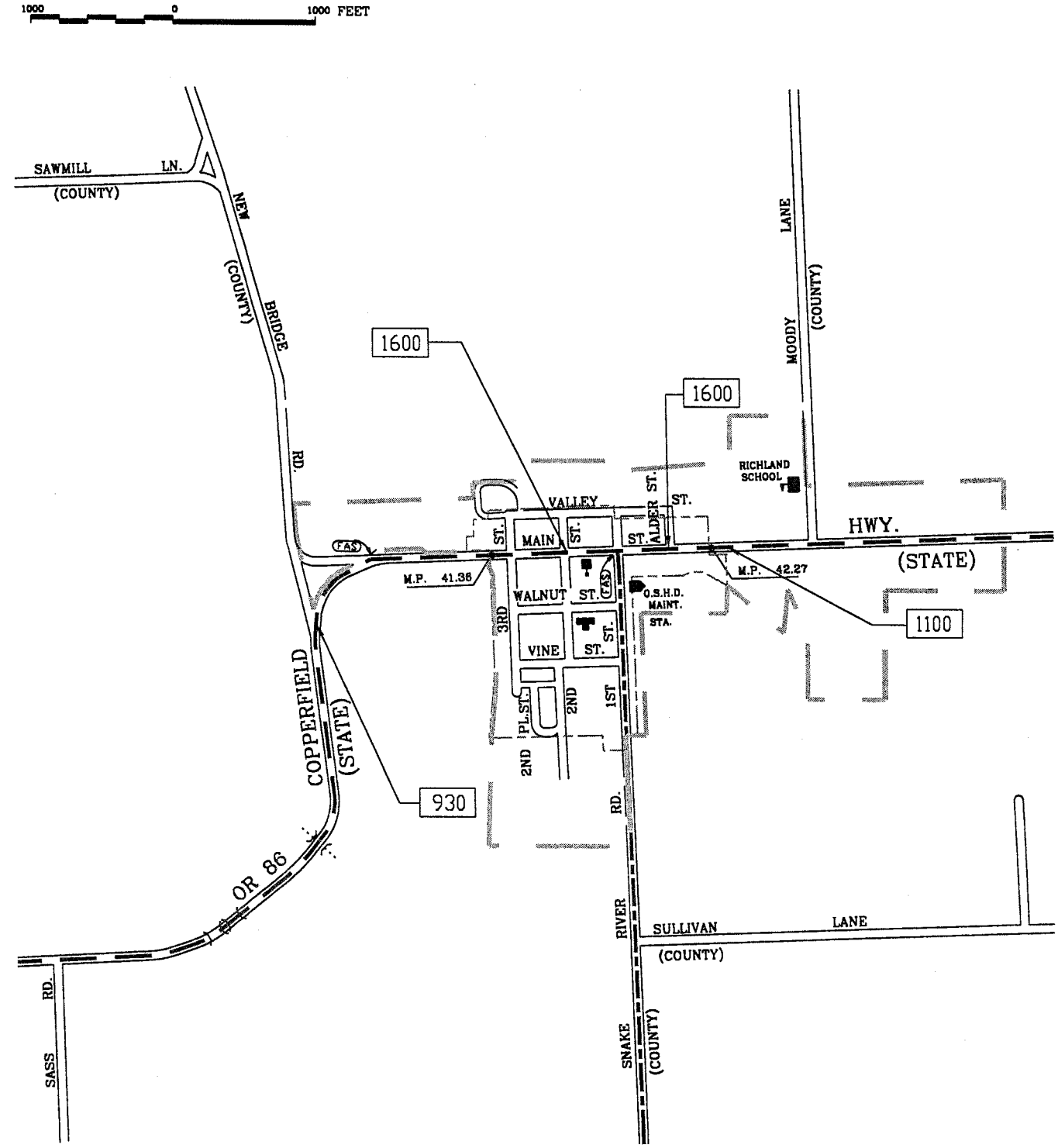
Unsignalized Intersections

Analysis of the street system capacity in Richland is primarily focused on intersection operations along the state highway through town, where traffic volumes are the greatest. The Baker-Copperfield Highway (OR Highway 86) follows Main Street through Richland. Currently, all intersections along Main Street in Richland are unsignalized and STOP-controlled on the minor approaches, with continuous flow on the highway. The LOS was determined at one of the busiest intersections on Main Street to determine the worst case traffic operations in the city.

The intersection of Main Street (OR 86) and North Snake River Road was chosen as the busiest intersection in the city. Although specific peak hour turning movement counts were not available at the intersection, representative traffic volumes were assumed from average daily traffic (ADT) volumes along the highway.

As stated previously, the 1997 ADT along Main Street was reported at 1,600 vpd. To evaluate the expected worst case traffic operations at this intersection, the ADT along Main Street was increased by 40 percent to reflect an ADT during peak summer conditions reaching 2,240 vpd. Traffic operations were then analyzed using a peak hour traffic volume of roughly 10 percent of the average and summer ADT volumes, 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 the northbound approach on North Snake River Road, therefore an approach volume of 50 vph was assumed.

Under these conservative assumptions, the intersection of Main Street and North Snake River Road operates at LOS A for all movements at the intersection under average and summer peak hour traffic volumes. This



NORTH

LEGEND:

- URBAN GROWTH BOUNDARY
- CITY LIMITS
- ARTERIAL STREET
- COLLECTOR STREET
- 123 1997 ADT VOLUMES

FIGURE 4-1
1997 Average Daily Traffic Volumes

indicates that all other lower-volume roads or driveways within Richland are operating at LOS A as well, representing no capacity issues.

TRANSPORTATION DEMAND MANAGEMENT MEASURES

Transportation Demand Management (TDM) measures consist of efforts taken to reduce the demand on an area's transportation system. TDM measures include such things as alternative work schedules, carpooling, and telecommuting.

Alternative Work Schedules

One way to maximize the use of the existing transportation system is to spread peak traffic demand over several hours instead of a single hour. Statistics from the 1990 US Census show the spread of departure to work times in Richland over a 24-hour period (see Table 4-2). Thirty-one percent of the total employees depart for work between 7:00 and 8:00 a.m. Another 20 percent depart in either the hour before or the hour after the peak.

TABLE 4-2
RICHLAND CITY DEPARTURE TO WORK DISTRIBUTION

	1990 Census	
Departure Time	Trips	Percent
12:00 a.m. to 4:59 a.m.	2	4.8
5:00 a.m. to 5:59 a.m.	5	11.9
6:00 a.m. to 6:59 a.m.	4	9.5
7:00 a.m. to 7:59 a.m.	13	31.0
8:00 a.m. to 8:59 a.m.	4	9.5
9:00 a.m. to 9:59 a.m.	0	0.0
10:00 a.m. to 10:59 a.m.	0	0.0
11:00 a.m. to 11:59 a.m.	0	0.0
12:00 p.m. to 3:59 p.m.	6	14.3
4:00 p.m. to 11:59 p.m.	4	9.5
Work at home	4	9.5
Total (out of home)	**42**	100.0

Source: US Bureau of Census, 1990 Census.

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

Travel Mode Distribution

Although the automobile is the primary mode of travel for most residents in Richland, other modes are used as well. Modal split data are not available for all types of trips; however, the 1990 Census data does include statistics for journey to work trips as shown in Table 4-3 and travel time to work as shown in Table 4-4. The census data reflects the predominance of automobile use.

TABLE 4-3
RICHLAND JOURNEY TO WORK TRIPS

	1990 Census	
Trip Type	**Trips**	**Percent**
Private Vehicle	28	66.7
Drove Alone	*25*	*59.5*
Carpooled	*3*	*7.1*
Public Transportation	0	0.0
Motorcycle	0	0.0
Bicycle	0	0.0
Walk	10	23.8
Other	0	0.0
Work at Home	4	9.5
Total (outside home)	**42**	**100.0**

Source: US Bureau of Census, 1990 Census.

TABLE 4-4
RICHLAND TRAVEL TIME TO WORK DISTRIBUTION

	1990 Census	
Departure Time	Trips	Percent
Less than 5 minutes	10	23.8
5 to 9 minutes	15	35.7
10 to 14 minutes	2	4.8
15 to 19 minutes	2	4.8
20 to 29 minutes	7	16.7
30 to 39 minutes	0	0.0
40 to 59 minutes	2	4.8
60 to 89 minutes	0	0.0
more than 90 minutes	0	0.0
Work at home	4	9.5
Total (outside home)	**42**	100.0

Source: US Bureau of Census, 1990 Census.

Most Richland residents travel to work by private vehicle. In 1990, nearly 67 percent of all trips to work were in an auto, van, or truck. Trips in single-occupancy vehicles accounted for approximately 60 percent of all trips and carpooling accounted for 7 percent.

Use of the automobile for commuting is not surprising for people with home-to-work travel times exceeding five minutes, since a five minute automobile trip could cover a number of miles while a five minute walking trip will likely cover about one-quarter to one-half mile. In Richland, 24 percent of work trips took less than five minutes as of 1990, and 24 percent were made by walking. Although this seems like a very high pedestrian mode split, it represents only 10 walking trips.

A commonly used threshold for acceptable walking distances is one-quarter mile. At a reasonable walking pace of 240 feet per minute, an average person can walk one-quarter mile in 5.5 minutes. With nearly 36 percent of residents reportedly living within a 5 to 9 minute commute to work in 1990, the opportunity for increased walking appears to exist in Richland. However, for walking to occur safely and efficiently, there needs to be acceptable infrastructure (e.g., sidewalks, roadway shoulders) in place to support it. Although Richland's pedestrian infrastructure is fragmented, the city is one of a few areas of the county where much pedestrian use is expected.

The complete lack of reported bicycle usage as a commute mode was lower than many other primarily rural Oregon counties in 1990. Since the census data do not include trips to school or other non-work activities,

overall bicycle usage may be higher. There are no roadways in Richland with dedicated bicycle lanes on them, however, portions of the state highway do have adequate shoulders to accommodate bicycle use. The low roadway volumes and speeds experienced in Richland support shared use of the street system by bicyclists and automobiles. In addition to bicycle travelways, bicycle parking, showers, and locker facilities can help to encourage bicycle commuting.

Pedestrian activity was relatively high (23.8 percent of trips to work) in 1990. Again, census data do not include trips to school or other non-work activities which, if included, would likely show an increased trend in walking trips. The percentage of pedestrian use may be somewhat misleading since only 42 total commute trips were reported in 1990.

SAFETY ANALYSIS

DEA reviewed accident data within Richland to identify those locations with potential accident patterns and associated safety concerns. The two sources of accident data reviewed included:

- Accident-specific summaries generated by ODOT's Transportation Development Branch for the three-year period from January 1, 1994 to December 31, 1996, and
- Accident summaries generated from the ODOT Accident Summary Database for locations along State Highways in Richland.

ODOT's Accident Summary Database calculates two useful factors for comparison with statewide statistics based on accident information over the three-year period studied. The first factor is a computed average three-year accident rate, which compares the number of accidents with the average daily traffic (ADT) volume and the length of the roadway segment analyzed. The second factor is the Safety Priority Index System (SPIS) value. This factor evaluates accident frequency, severity and traffic volumes to create an index for prioritizing state highway locations with potential safety concerns.

The Safety Priority Index System (SPIS) value identifies high accident and/or severe accident locations to prioritize where safety money can be spent. The SPIS value is based on three factors: accident frequency, accident rate, and accident severity. The SPIS value weights accidents involving fatalities and severe injuries most heavily. It is therefore possible for a location with one fatal accident to have a higher SPIS value than a location with multiple minor accidents. The SPIS value is also sensitive to traffic levels, recognizing that the opportunity for accidents generally increases as traffic volumes increase. A location with a high SPIS value does not necessarily indicate that a roadway safety problem exists, but it may indicate that further examination of the accident history at this location is warranted.

Historic Accident Summary

Table 4-5 summarizes the three-year historic accident rates along OR 86 (Baker-Copperfield Highway) in Richland and along nearby rural highway sections, as well as the Oregon statewide average for all rural and urban non-freeway segments of similar highways from January 1, 1994 to December 31, 1996.

Table 4-6 contains detailed accident information along OR 86 in Richland and along rural highway sections abutting Richland during this three-year period. The table shows the number of fatalities and injuries, property damage only accidents, the total number of accidents, and the overall accident frequencies and rates for the highway sections reported.

TABLE 4-5
HISTORIC ACCIDENT RATES ALONG STATE HIGHWAYS IN RICHLAND
(Accidents per million vehicle-miles traveled)

PRIMARY HIGHWAYS	1996	1995	1994
OR Highway 86 *(Baker-Copperfield Highway)*			
Baker City (MP 2.15) to Richland City Limits (MP 41.36)	0.76	0.54	0.61
City of Richland (MP 41.36 to MP 42.27)	7.94	7.36	n/a
Richland City Limits (MP 42.27) to Idaho State Line (MP 70.80)	0.84	0.51	0.64
Statewide Average for all Urban/Rural Non-Freeway Sections	**3.63/0.79**	**3.98/0.74**	**3.45/0.81**

Source: 1996 Oregon Department of Transportation Accident Rate Table.

TABLE 4-6
ACCIDENT SUMMARIES FOR HIGHWAYS IN RICHLAND
(January 1, 1994 to December 31, 1996)

Location	Fatalities	Injuries	Property Damage Only	Total Accidents	Accident frequency (acc/mi/yr)	Accident Rate (acc/mvm)
OR Highway 86 *(Baker-Copperfield Highway)*						
Baker City to Richland	0	26	10	27	0.23	0.61
City of Richland	0	3	0	2	0.73	0.63
Richland to Idaho border	0	6	10	15	0.18	0.64

ODOT Accident Summary Database (SPIS) 1994-1996.

Table 4-5 indicates that the 1995 and 1996 accident rates within Richland were roughly double the statewide average for all rural non-freeway sections of secondary state highways. This may be misleading without understanding how accident rates are computed.

The accident rate computed by ODOT is based on the ratio of a variety of data. The numerator is calculated by multiplying the number of accidents during the year by 1,000,000. The denominator is calculated by multiplying the roadway section length, the roadway ADT, and the number of days in the year. The ratio of these quantities is the accident rate.

The equation is clearly susceptible to producing high accident rates along short roadway sections with low ADT volumes, as is the case in Richland. Due to roadway realignment through the years, the actual highway length within the Richland city limits is approximately 0.3 miles. This short roadway length coupled with an ADT of 1,228 vpd in 1996 resulted in a high accident rate. The underlying assumption is that low volume roadways are less prone to experiencing accidents. However, one accident along a low volume roadway does not necessarily indicate that a safety concern exists.

The results from Table 4-5 do not suggest that the urban section of Highway 86 through Richland poses a safety concern.

OR Highway 86 *(Baker-Copperfield Highway)*

There were two reported accidents along the urban section of OR 86 (Baker-Copperfield Highway) in Richland during the three-year period analyzed. The first accident occurred in 1995 between 1st and 2nd Streets and involved a rear-end collision during daylight hours. The cited driver was "following too closely". The two-car accident resulted in one minor injury and property damage only to the other vehicle. The second accident occurred in 1996 during hours of darkness and rainy conditions and involved a rear-end collision. The cited driver error was "driving too fast". This error does not necessarily imply speeding, but failure to adjust speed to prevailing roadway conditions.

CHAPTER 5: TRAVEL FORECASTS

The traffic volume forecasts for Baker County and its municipalities are based on historic growth of the state highway system, historic population growth, and projected population growth.

LAND USE

Land use and population growth play an important part in projecting future traffic volumes. Historic trends and their relationship to historic traffic demand are the basis of those projections. The population and employment forecasts summarized below 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.

Population projections in Baker County are based on historic growth rates and forecasts produced by the State of Oregon Office of Economic Analysis. Factors that will affect the future growth rate of Baker County include employment opportunities, available land area for development, and community efforts to manage growth.

Both historic and projected population for Baker County and select incorporated cities are summarized in Table 5-1. A more detailed description of existing and future land use projections is contained in the Population and Employment Analysis located in Appendix D.

TABLE 5-1
BAKER COUNTY POPULATION TRENDS

	1960[1]	1970[1]	1980[1]	1990[1]	1997[1] Estimate	2020[2] Projected
Baker County*	17,295	14,919	16,134	15,317	16,500	19,893
Incorporated Cities						
Richland	228	133	181	161	185	230
Baker City	9,986	9,354	9,471	9,140	9,960	11,960
Haines	331	212	341	405	455	670
Halfway	505	317	380	311	360	410
Richland	689	507	539	522	575	670
Sumpter	96	120	133	119	175	220
Unity**	N/A	N/A	115	87	110	118

Sources:
1) Portland State University Center for Population Research and US Census Bureau.
2) State of Oregon Office of Economic Analysis.

*- *County population includes the population of all the county's incorporated cities.*
**- *Unity was incorporated in 1972.*

Historic Growth

The population of Baker County and many of the county's incorporated cities actually declined during the 1960s and 1980s, reflecting the general slowdown in the state's economy during these periods. Estimated at 16,500 in 1997, the population of Baker County has grown an average of 0.37% annually since 1970 and over 1% annually since the 1990 Census.

The City of Richland grew at a rate of 1.23% annually between 1970 and 1997. Although this is three times the rate of growth for the county in the same period, Richland is still below its 1960 population and the difference in growth rate has not been a significant factor.

Projected Growth

Baker County is expected to experience population gains for the next 20 years, increasing from 16,500 in 1997 to a projected population of 19,893 by the year 2020. This represents a 0.8% annual increase each year. Like much of rural Oregon, the economy of Baker County remains largely seasonal, with nearly one-quarter of all employment agriculture-based. Therefore, population increases are difficult to predict, and are not likely to be as stable as the forecasts appear to imply.

The State Office of Economic Analysis prepared long-term population projections by county. Based on these projections, preliminary population forecasts for the City of Richland were developed in five-year increments. The projected population for the City of Richland in the year 2020 is 230. This represents a 0.95% average annual increase each year.

TRAFFIC VOLUMES

Traffic volume projections are based on historic growth trends for highway volumes and land use and on the future land use projections.

Historic

Before projecting future traffic growth, it is important to examine past growth trends on the Richland roadway system. Historic data are only available for the state highway system in Richland; however, this roadway carries far more traffic than any other roads in the city. The Oregon Department of Transportation (ODOT) collects traffic count information on the state highways (rural and urban sections) every year at the same locations. These counts have been conducted along the OR Highway 86 (Baker-Copperfield Highway).

A historic growth trend along OR Highway 86 (Baker-Copperfield Highway) within Richland was established using the average annual daily traffic (AADT) volume information presented in the ODOT Traffic Volume Tables for the years 1977 through 1997. The AADT volumes were obtained for each of these years at one location, west of 2nd Street. Using a linear regression analysis of the AADT volumes between 1977 and 1997,

an average annual growth rate was determined for this location. Table 5-2 provides a summary of the historic average growth rates.

TABLE 5-2
HISTORIC TRAFFIC GROWTH RATES ON STATE HIGHWAYS

Location	Average Annual Growth Rate (1977-1997)	Total Growth (1977-1997)
OR Highway 86 (Baker-Copperfield Highway)		
West of 2nd Street	0.65%	13.8%

Source: ODOT 1977-1997 Transportation Volume Tables; information compiled by DEA.

During the last 20 years, traffic growth averaged 0.65 percent per year, resulting in a total growth rate of 13.8 percent.

Future Traffic Volumes

Future traffic growth over the next 20 years along OR Highway 86 (Baker-Copperfield Highway) was assumed to be consistent with the 20-year historical growth trend described above. This assumption was made based on the small population size of Richland and the majority of highway traffic consisting of through trips. Using the historical traffic growth trend, this would result in overall growth of 12% percent by the year 2018 in Richland. The forecast future traffic volumes and total growth from 1997 to 2018 are shown in Table 5-3.

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

Location	1997 ADT Volume (vehicles/day)	2018 ADT Volume (vehicles/day)	Total Growth
OR Highway 86 (Baker-Copperfield Highway)			
West of 2nd Street	1,600	1,790	12.0%

Future ADT volumes were also determined for peak summer conditions by increasing the average 2018 ADT by an additional 40 percent along OR Highway 86 (Baker-Copperfield Highway). This increase is consistent with the existing conditions analysis for peak summer conditions.

HIGHWAY SYSTEM CAPACITY

For the year 2018, an unsignalized intersection analysis was performed using the overall growth expected on OR Highway 86 (Baker-Copperfield Highway), at the same intersection in Richland for which the existing conditions were analyzed. This analysis included the same assumptions used in the existing conditions analysis for estimating average and summer peak hour traffic volumes.

The results of the unsignalized intersection analyses are shown in Table 5-4. Traffic operations were determined at the intersection using the UNSIG10 software application developed by ODOT for unsignalized intersections.

TABLE 5-4
SUMMARY OF FUTURE OPERATIONS

Intersection Location	Direction	Movement	2018 LOS (Average)	2018 LOS (Peak Summer)
OR Highway 86 (Baker-Copperfield Highway)at North Snake River Road	Eastbound	Left	A	A
	Westbound	Left	A	A
	Northbound	Left, Thru, Right	A	A
	Southbound	Left, Thru, Right	A	A

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

Analysis Results

Traffic movement volumes at the intersection of OR Highway 86 (Baker-Copperfield Highway) and North Snake River Road are forecast to increase by nearly 12 percent over the 20-year forecast period. The analysis indicates that the intersection is expected to remain operating at an acceptable level of service (LOS A) over the forecast period for both the average and summer peak hour conditions.

CHAPTER 6: TRANSPORTATION IMPROVEMENT OPTIONS EVALUATION

As required by the Oregon Transportation Planning Rule, transportation improvements were formulated and evaluated for the Richland TSP. This chapter addresses transportation improvements for all areas within Richland UGB. The potential improvements evaluated in this chapter were developed to address the concerns identified in the goals and objectives (Chapter 2), and as a result of the inventory (Chapter 3), evaluation of the operating conditions (Chapter 4) and traffic forecasts (Chapter 5), and meetings with the TAC and the public.

The following list includes all of the potential transportation system improvements considered for the City of Richland. The transportation system improvements recommended for the Richland TSP include both state highway and local road projects. The location of each suggested improvement is illustrated in Figure 6-1.

EVALUATION CRITERIA

The evaluation of the recommended transportation improvements was based on a quantitative review of traffic operations, including speed, delay, collision records, and congestion; and a qualitative review of effects on perceived safety and livability. In addition, costs (estimated in 1999 dollars) were factored into the evaluation of each potential transportation improvement. Costs were estimated for construction by using a typical unit cost (such as per linear foot), and do not include purchase of right-of-way, design, or other contingencies. No consideration of potential environmental impacts was included in the evaluation of the improvements, and it is possible that the identification of environmental issues could result in increased costs, project modification, or cancellation.

No quantified capacity or safety issues were identified for Richland during this study. However, safety, maintenance, and livability related conditions were identified that will require attention over the next 20 years. These were the main factors used to determine and evaluate the transportation improvements discussed below.

The recommendation of whether to include a suggested improvement in the 20-year was based on the potential effectiveness of the suggested improvement relative to its cost or feasibility. If a project was recommended for inclusion in the 20-year plan, it was assigned a priority based on the urgency of the improvement. Priorities are assigned as follows: High = 0-5 years; Medium = 5-10 years; Low = 10-20 years.

The evaluation of each suggested improvement addresses the following five categories: (1) overview, (2) impacts, (3) cost, (4) recommendation, and (5) priority.

EVALUATION OF POTENTIAL TRANSPORTATION IMPROVEMENTS

Improvement Option 1. Pave Vine St Between 1st St and 2nd St

Overview: Vine St. is one of four east-west streets in Richland. The roadway section is around 350 feet long and is not paved. There are no pedestrian facilities on the street.

Impact: Paving the street and adding pedestrian facilities would improve travel conditions and connectivity in the city.

Cost: Paving the street would cost around $35,000 (using a unit cost of $100 per liner foot for street construction). Adding walkways would cost around $7,000 (using a unit cost of $10 per linear foot for walkways).

Recommendation: This project is recommended.

Priority: This is a high priority improvement (construction in the next 0 to 5 years).

Improvement Option 2. Extend City Grid System North and South

Overview: The City of Richland has identified two areas for future residential growth. The first area is just south of 2nd Place (south of the City Limits and inside the Urban Growth Boundary). The second area is north of Valley Street, some of which lies outside the current Urban Growth Boundary. The City will require developers to construct the new streets which serve these properties. The City will also require that the streets be laid out as an extension of the existing grid system.

The planned street system expansion in the south will consist of an extension of 2nd Street, a parallel street in the 3rd Street alignment, and two new streets perpendicular to 2nd Street which connect to 1st Street. This development consists of approximately 2,400 linear feet of new roadway.

The planned street system expansion in the north will consist of two new streets parallel to Valley Street which are connected to the existing grid system by an extension of 3rd Street, 1st Street and a new street which connects to Main Street (Highway 86). This development consists of approximately 3,600 linear feet of new roadway.

Impact: The street expansion to the south would have no negative impacts on the city's transportation system, as the streets will serve just a few new homes and will have very low traffic volumes. In addition, the streets will be laid out in a grid pattern consistent with the existing street system. Because the street will be constructed by private developers when their need arises, there will be no financial burden placed on the City.

Cost: Assuming 6,000 liner feet of new roadway is constructed, this project would cost an estimated $720,000. It was assumed that the streets would be constructed to local street standards which include walkways. The unit cost of construction for a local street was estimated at $100 per linear foot. The unit cost of construction for a walkway was estimated at $10 per linear foot. The cost of this project will be paid by developers

Recommendation: This project is recommended.

Priority: This is a low priority improvement. The new streets will be constructed when access to the adjacent property is needed.

Improvement Option 3. Revise Zoning and Development Codes

Overview: One of the goals of the Oregon Transportation Planning Rule is to reduce reliance on the single-occupant automobile in order to lessen the need for widening and building new roads, as well as to decrease air and noise pollution. One way that cities can do this is through modifications to their zoning

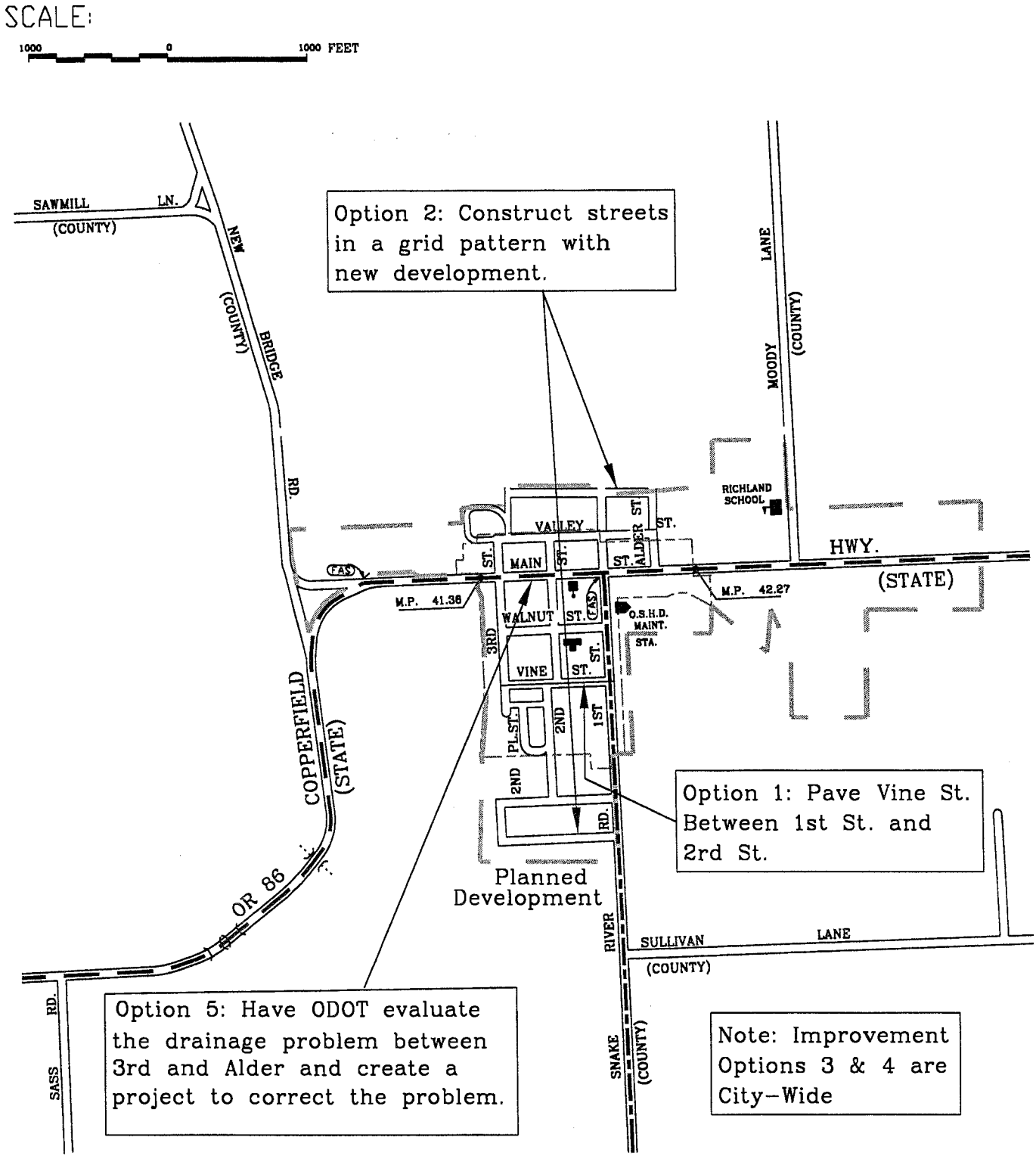


FIGURE 6-1
Proposed Transportation
Improvment Options

and development codes to allow mixed use developments and increases in density in certain areas. Such code modifications can encourage a city to develop in such a way that walking and bicycling are more feasible between land uses.

However, such code revisions have proven to be the most effective in larger cities and cities that are rapidly growing. In cities as small as Richland, these code modifications would not be effective. Because of Richland's small size, trips inside the city are not influenced by distance. The small size of the city also results in an overall land use pattern that is similar to a mixed commercial and residential development. In addition, the city is not expected to grow rapidly.

Impacts: Because of the city's small size and growth rate, zoning code modifications would not have an impact.

Cost: The cost of producing revised zoning and development ordinances is limited to staff and consultant time. The costs are estimated to be around $3,000 for a city the size of Richland.

Recommendation: This improvement is not recommended.

Improvement Option 4. Implement Rideshare Program

Overview: Community Connections, the Baker County transit provider, indicates that the most common alternative to the single-occupant vehicle in the county is carpooling. Community Connections plans to conduct a needs survey to determine if a rideshare program would be effective. A rideshare program typically provides a telephone number, database, and staff person to help connect those who would like to carpool.

Impacts: Carpooling could provide a benefit for those who commute regularly between population centers, particularly for disadvantaged residents. A rideshare program could enable people to connect and set up carpools.

Cost: Carpooling can take advantage of excess parking in retail areas or parking unused during the week, such as at churches. Costs are typically limited to a full-time or part-time rideshare program administrator to update the database, provide public education and advertising, and coordinate park and ride lots. For comparison purposes, a rideshare program located in Central Oregon has an annual operating budget of approximately $50,000. ODOT participates in this program by providing approximately 60% of the funding. Because the population base in Baker County area is smaller, it is estimated that a similar rideshare program could be operated for around $15,000 a year with a part-time staff member. Based on proportional population, Richland's contribution would be around $150 a year.

Recommendation: It is recommended that the county and cities participate together in studying and establishing a rideshare program through Community Connections.

Priority: High.

Improvement Option 5. Evaluate Drainage Problem on OR 86 and Develop an ODOT Project to Solve the Problem

Overview: There are drainage problems along OR 86 between 3rd Street and Alder Street on both sides of the roadway. Water does not drain properly away from the highway and it pools adjacent to the roadway. On-street parking is allowed along the highway and when it rains, the puddles that form along the highway are problematic for those parked along the highway.

Impacts: Correcting the drainage problems along OR 86 has multiple benefits including removing an inconvenience to motorists parked along the highway and protecting the base of the highway from water damage by draining the water away from the roadway rather than allowing it to collect and pool along the roadway.

Cost: ODOT engineers should conduct a field reconnaissance to evaluate the drainage problem and develop a project to correct the problem. At this time, it is unknown what the cost to correct the drainage problems are until ODOT engineers have evaluated the problem.

Recommendation: It is recommended that the city coordinate with ODOT to evaluate and program a drainage improvement project.

Priority: High.

SUMMARY

Table 6-1 summarizes the recommendations for the transportation system based on the evaluation process described in this chapter. Chapter 7 discusses how these improvement improvements fit into the modal plans for Richland.

TABLE 6-1

SUMMARY OF TRANSPORTATION IMPROVEMENT OPTIONS FOR RICHLAND

Improvement	Cost	Recommendation	Priority*	Responsibility
1. Pave Vine Street between 1st Street and 2nd Street	$42,000	Implement	High	City
2. Extend city grid system north and south	$720,000	Implement	Low	Developer
3. Revise zoning and development code	$3,000	Do not implement	--	
4. Participate in County Rideshare Program	$150/year	Implement	High	City/County/State
5 Evaluate and develop drainage improvements along OR 86	unknown	Implement	High	State

*High = 0-5 years, Medium = 5.10 years; Low = 10-20 years

CHAPTER 7: STREET STANDARDS, ACCESS MANAGEMENT, AND MODAL PLANS

The purpose of this chapter is to provide a detailed transportation system plan that will achieve the goals and objectives set forth by the Richland community. This chapter addresses recommended road classification standards and access management measures. Under *Modal Plans,* this chapter addresses improvements or approaches to meet the needs of all transportation modes appropriate for Richland.

STREET STANDARDS

Existing Street Standards

Street classification standards relate the design of a roadway to its function. The function is determined by operational characteristics such as traffic volume, desired speed, safety, and capacity. Street standards are necessary to provide a community with roadways that are relatively safe, attractive, and easy to maintain. The proposed standards are based on experience, research, and state and local policies.

The City of Richland has jurisdiction for the design and construction of streets within the city. Baker County is responsible for the roads located outside the city limits and within the Richland UGB. Although, the County Road Department would like to turn over jurisdiction of county roads inside city UGBs to the cities. ODOT has jurisdiction for the design and construction of state highways within Richland and Baker County. Richland does not have any current codified street standards.

Recommended Street Standards

The development of the Richland TSP provides the City with an opportunity to create street design standards to fit the goals and objectives of the TSP. The following street standards are recommended for all areas within the Richland UGB.

In urban areas, streets typically include curbs and sidewalks. However, the inclusion of curbs requires some type of storm drainage system. A compromise for more rural communities lacking dry wells or a storm drainage system is to design roads so that runoff is captured in drainage swales. This is particularly appropriate in Central and Eastern Oregon, where soils are typically well-drained. Swales are broad, low points adjacent to the roadway. If pedestrian facilities are needed, these can be provided as a separated, paved walkway.

An option to the drainage swale is a landscaped strip. This is a more aesthetically pleasing design for residential streets. Residential streets not only provide direct auto access to houses, but also provide a visual setting, an entryway for each home, and a meeting place for residents, and a play area for children.

Landscaped strips can accommodate trees. Without trees, a street can appear barren. Trees provide shade, block wind, improve the landscape, and enhance the status of the street and adjacent property values. Trees also function as a traffic calming measure by giving the street the appearance of narrowness and getting drivers to slow down. This effect is best achieved when the trees consist of mature shade trees which provide a canopy over the road, somewhat limiting peripheral vision. Consideration should be given to adjacent street trees if the City of Richland is interested in becoming a Tree City USA. If this design option is pursued, appropriate species must be selected so that roots do not disturb sidewalks and

fallen leaves and/or fruit do not create slippery conditions. In addition, trees should be planted such that they do not conflict with utility lines, outdoor advertising, traffic signs, and sight distance.

Proposed street design standards listed in Table 7-1, illustrated in Figure 7-1 and summarized in the following pages.

TABLE 7-1

RECOMMENDED STREET STANDARDS FOR THE CITY OF RICHLAND

Classification	Pavement Width	Right-of-Way	Posted Speed
Local (10-ft travel lanes and separated paved walkways, no on-pavement parking)	20 ft.	60 ft.	15-25 mph
Collector (11-ft travel lanes, 4-ft. shoulders and separated paved walkways, no on-pavement parking)	30 ft.	60 ft.	25-35 mph
Arterial[1] (includes 12-ft. travel lanes, 6-ft shoulders and separated paved walkways)	36 ft.	60 ft.	25-45 mph
Arterial[2] (includes 12-ft. travel lanes, 6-ft shoulders, curbs, and sidewalks)	36 ft.	60 ft.	25-45 mph
Alleys (8-ft. gravel travel lanes)	16 ft	16 ft	10 mph

[1]Standard for the rural area inside the City's UGB (west of 3rd Street and east of Alder Street)

[2]Standard for the urbanized area inside the City's UGB (3rd Street to Alder Street)

Local Streets

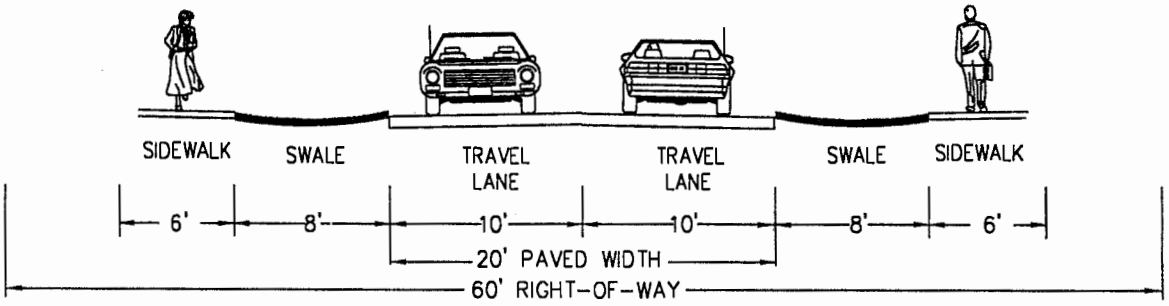
Local streets have property access as their main priority and through traffic movement is not encouraged. The design of a local residential street affects its operation, as well as the safety and livability of the area that road serves. Local streets should be designed to carry very small volumes of traffic at relatively slow speeds (15 to 25 mph). Most streets in the City of Richland are local streets.

The City of Richland has a small but well connected grid system of local streets near the downtown area. A well-connected grid system of relatively short blocks minimizes excessive volumes of motor vehicles by providing a series of equal travel options. A grid street pattern also benefits pedestrians and bicyclists. This type of street development should be the pattern that is maintained as the vacant lands within Richland's urban growth boundary are developed.

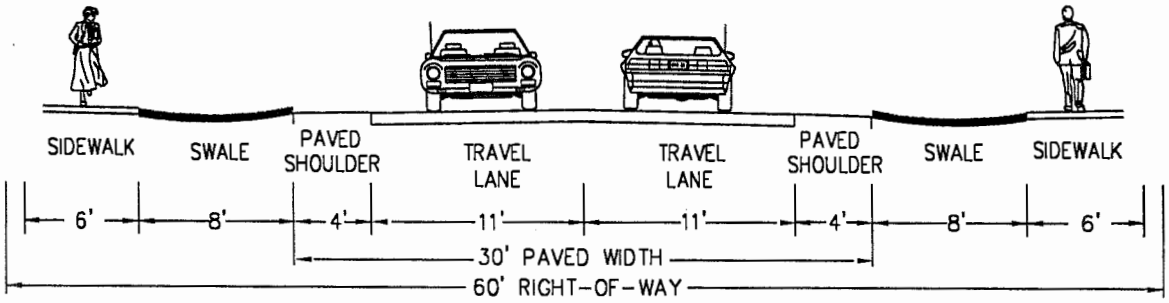
Since the City of Richland does not have a storm drainage system, the recommended standard for a local street is 20 feet of pavement within a 60-foot right-of-way. On-street parking is provided on an unpaved shoulder/drainage swale. If desired, six-foot walkways can be located 6 feet from the pavement edge.

The primary reason for providing sidewalks, or paved walkways separated from the roadway, is to improve pedestrian safety; however, a separate pedestrian system has several qualitative benefits as well. Providing adequate pedestrian facilities increases the livability of a city. When pedestrians can walk on a sidewalk, separated from vehicular street traffic, it makes the walking experience more enjoyable and may encourage walking, rather than driving, for short trips. New sidewalks should be constructed with curb cuts for wheelchairs at every crosswalk to comply with the Americans with Disabilities Act (ADA).

LOCAL ROAD



COLLECTOR ROAD



ARTERIAL ROAD – RURAL AREAS INSIDE THE CITY'S UGB

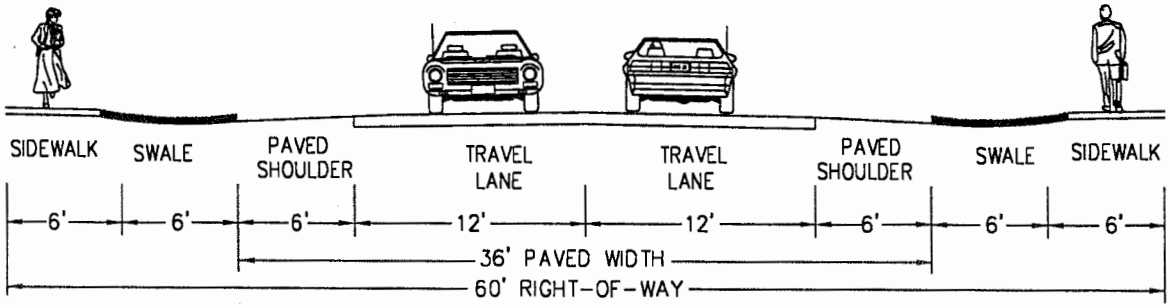
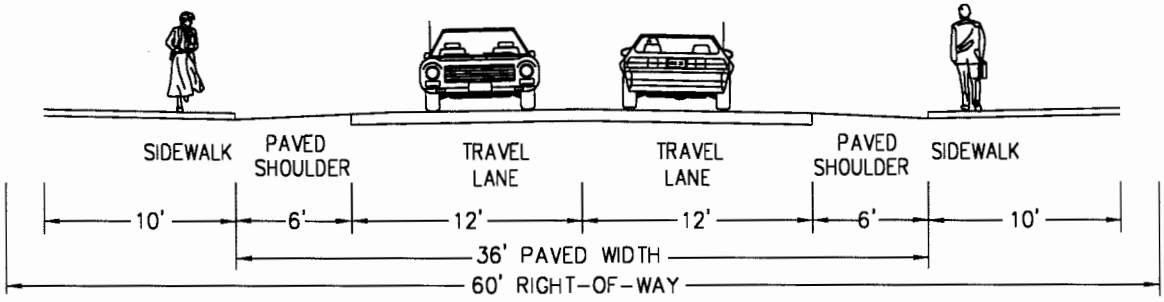


FIGURE 7-1a
RECOMMENDED CITY OF RICHLAND
STREET STANDARDS

ARTERIAL ROAD – URBAN AREAS INSIDE THE CITY'S UGB



ALLEY

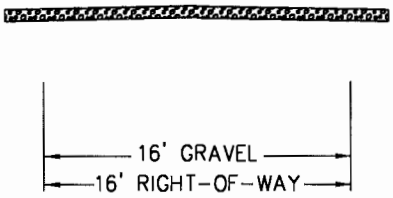


FIGURE 7-1b
RECOMMENDED CITY OF RICHLAND
STREET STANDARDS

Collector Streets

Collector streets connect residential neighborhoods with the arterial system. Property access is generally a higher priority for collectors than arterials and through traffic is served as a lower priority. They are intended to carry local traffic, including limited through traffic, at design speeds of 25 to 35 mph. The only collector street in the City of Richland is 1st Street.

Figure 7-1 shows the recommended cross sections for collector streets. The standard consists of two 11-foot wide travel lanes and 4-foot wide shoulders. It is assumed that on-street parking will occur off of the paved area of the street.

Arterial Streets

Arterial streets connect cities and other major traffic generators; they serve both through traffic and trips of moderate length and access is usually controlled. Arterials are higher volume roadways from the combination of local and through traffic. Depending on adjacent land uses, speeds range between 25 and 45 mph.

At the present time, the only arterial in Richland is the state highway. The 20-year forecast does not predict any need for new arterials within Richland. Two standards were developed for the arterial. Both consist of two 12-foot travel lanes and 6-foot paved shoulders. In the urbanized area of the City's UGB (3rd Street to Alder Street) the standard includes adjacent curbs and sidewalks. Outside the urbanized area (west of 3rd Street and east of Alder Street) the standard does not include curbs, and sidewalks are set back from the street by a drainage swale.

In downtown, or urban areas, the minimum width for sidewalks is 10 feet. The additional width is required to accommodate higher pedestrian volumes and allow people to walk two or more abreast. Wider sidewalks are also needed in urban areas to accommodate street furniture such as benches, café tables, street lighting, and trees. When designed properly, sidewalks enliven a downtown and encourage leisurely strolling and window shopping in commercial areas. This "Main Street" effect improves business for downtown merchants and provides opportunities for friendly interaction among residents. It may also have an appeal to tourists as an inviting place to stop and walk around.

Multi-use Paths and Public Accessways

Multi-use paths and public accessways are typically used by pedestrians, cyclists, skaters, and joggers. These facilities should be constructed to meet the standards set forth in the Oregon Bicycle and Pedestrian Plan (ODOT, 1995). Paths may be paved or unpaved (constructed with packed gravel or asphalt grindings), if they are smooth and firm enough to meet ADA requirements. The standard width for a multi-use path is 10 feet. Where a path is parallel and adjacent to a roadway, there should be a 5-foot or greater width separating the path from the edge of the roadway.

ACCESS MANAGEMENT

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

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

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

Access Management Techniques

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

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

Recommended Access Management Standards for City Streets

Access management standards can vary from total access control on freeways to the use of local and minor collector streets for access purposes, parking and loading. Table 7-2 shows recommended access management guidelines on city streets by functional classification. The only arterial in the City of Richland is the State Highway; its access management standards are described in the following section.

TABLE 7-2
RECOMMENDED ACCESS MANAGEMENT STANDARDS FOR CITY STREETS

Classification	Public Street	Private Driveway
Arterial	See State Highway Standards	See State Highway Standards
Collector	500 feet	200 feet
Local	200 feet	Access to Each Lot

It should be noted that existing developments and accesses on the transportation network will not be affected by the recommended access management techniques until either a land use action is proposed, a safety or capacity deficiency is identified that requires specific mitigation, a specific access management strategy/plan is developed, redevelopment of existing properties along the roadway, or a major construction project is begun on the street.

Application

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

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

Recommended Access Standards for State Highways

Access management is important to promoting safe and efficient travel for both local and long distance users along State Highways. The 1999 *Oregon Highway Plan (OHP)* specifies an access management classification system for state facilities. Future developments on state highways (zone changes, comprehensive plan amendments, redevelopment, and/or new development) will be required to meet the 1999 OHP State Classification System and Access Management policies and standards . Although the City of Richland may designate state highways as arterial roadways within its transportation system, the access management categories for these facilities should follow the guidelines of the Oregon Highway Plan.

OR Highway 86 is the only state highway in the City of Richland. It is classified as a District Highway in the Oregon Highway Plan. District Highways are facilities of county-wide significance and function largely as county and city arterials or collectors. They provide connections and links between small urbanized areas, rural centers and urban hubs, and also serve local access and traffic. The management objective is to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas reflecting the surrounding environment and moderate to low-speed operation in urban and urbanizing areas for traffic flow and for pedestrian and bicycle movements. Inside urban areas, local access is given more priority.

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

Special Transportation Area

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

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

Access management in STAs corresponds to the existing city block for public road connections and discourages private driveways. However, where driveways are allowed and land use patterns permit, the minimum spacing for driveways is 175 feet or mid-block if the current city block spacing is less than 350 feet. In addition, the need for local street connections may outweigh the consideration of maintaining highway mobility within a STA.

In Richland, the area along OR 86 between 3rd Street and Alder Street exemplifies the design features of a historic downtown. Within this three-block segment, buildings are spaced close together, parking is on street, and the posted speed limit is 25 m.p.h. The compact development pattern qualifies this area for a STA highway segment designation.

Upon adoption of the TSP by the Richland City Council and a finding of compliance with the Oregon Highway Plan, the City of Richland and ODOT Region 5 may jointly designate this segment of OR 86 as an STA through a Memorandum of Understanding (MOU). The MOU will incorporate by reference the TSP and the following STA Management Plan provisions.

Special Transportation Area Management Plan

The Richland STA is located on the portion of OR 86 between the intersections of 3rd Street (milepost 42.01) and Alder Street (milepost 42.22), which is located completely within the urban growth boundary and city limits of the City of Richland.

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

The designation of a STA in Richland is intended to accommodate the existing public street spacing and compact development pattern. Specific access management conditions for the Richland STA on OR 86 include:

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

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

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

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

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

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

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

Today, traffic on the state highway operates at LOS A or better, which correlates to a maximum volume to capacity (v/c) ratio of well below the 0.85 standard set by the 1999 Oregon Highway Plan. Increase in traffic volumes over the 20 year projection period will not impact the level-of-service (LOS) or meet the maximum volume to capacity ratio of 0.85 for OR 86 within the city's urban growth boundary.

To maintain highway mobility through a STA in Richland, land use development decisions (within the urban growth boundary) shall not cause traffic flow to exceed a volume to capacity ratio of 0.85. The posted speed limit in the STA is currently and will remain at 25 miles per hour as allowed by state statute in a business district. Curb (parallel or perpendicular) parking is permitted in the STA, provided minimum sight distance requirements are met for all public road connections and private driveways. Parking in this area is adequate at this time. No signals or traffic control devices currently exist in this area. No changes are contemplated.

The designation of a STA in Richland further identifies the need to accommodate pedestrian, and bicycle movements along and across the highway in the compact central business district. The recommended urban arterial standard within the STA consists of a 60-foot right-of-way with a paved width of 36 feet that includes two 12-foot travel lanes, 6-foot shoulders, curbs, and 10-foot sidewalks. To accommodate bicycle movements along the highway, 6-foot shoulders have been included. There are no other bicycle and pedestrian improvements identified in this area.

Another essential component to accommodate pedestrians in a STA is street crossings.

There are no specific crosswalk enhancements or safety improvements recommended within the STA at this time. Future improvements and modifications to the highway within the STA and within the curb line, or if no regular established curb, to the r/w utilized for highway purposes will be made in accordance with the Oregon Highway Design Manual and with ODOT approval.

Existing maintenance and operational strategies along OR 86 will be employed within the STA, consistent with Oregon Revised Statute 373.020, as follows:

> ODOT shall be responsible for the ongoing maintenance of: a) the roadway surface between curbs, or if no regular established curb, to that portion of right-of-way utilized for highway purposes b) painting centerline stripe, c) designated school crosswalk delineation, directional and regulatory signs except those signs described as the City's responsibility and d) plowing snow one blade-width of centerline stripe provided there are no conflicts with utilities.
>
> City shall be responsible for the on going maintenance of: a) storm sewer system, b) sidewalks, c) landscaping, d) luminaries, e) U-turn signs, parking signs, and street name signs, f) painting parking-stripes and other pavement delineation not described as ODOT's responsibility, and g) snow removal from parking strip.

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

Application Outside the STA Boundary

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

A conditional access permit may be issued by ODOT and the County for a single connection to a property that cannot be accessed in a manner that is consistent with the spacing standards (shown in Table 7-3). These conditions typically apply to properties that either have no reasonable access or cannot obtain reasonable alternative access to the public road system. The permit should carry a condition that the access may be closed at such time that reasonable access becomes available to a local public street. In addition, approval of a conditional permit might require ODOT-approved turning movement design standards to ensure safety and managed access. Under special circumstances, ODOT may be required to purchase property in order to prevent safety conflicts.

TABLE 7-3
1999 OREGON HIGHWAY PLAN ACCESS MANAGEMENT CLASSIFICATION SYSTEM

District Highways		
Posted Speed	Rural Spacing Standards	Urban Spacing Standards
≥ 55 mph	700 feet	700 feet
50 mph	550 feet	550 feet
40 & 45 mph	500 feet	500 feet
30 & 35 mph	400 feet	400 feet
≤ 25 mph	400 feet	400 feet

Access Control Rights

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

Once the state has acquired access rights to a property, road approach permits can only be issued at locations on the property where the right of access has been reserved. A reservation of access gives the property owner the right to apply for a permit of access to the state highway only at specific locations and they must be clearly identified in the deed where the property owner sold the right-of-way to the state. If the owner wants to gain additional access rights to the highway, they must apply for a grant of access.

There may be local street connections shown in this TSP that will require modifying the existing access rights or gaining additional access rights to the state highway system. Review of this TSP by ODOT does not imply tacit approval to modify or grant additional access rights. This must be accomplished by applying to ODOT from such modification or grant.

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

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

MODAL PLANS

A number of transportation improvements were suggested for the City of Richland during the inventory, forecasting, and public involvement phases of this TSP. Each of these improvements was analyzed, recommended or not recommended, and assigned a priority in Chapter 6. The following modal plans reflect the findings of Chapter 6. Refer to Figure 6-1 for locations of the improvement projects.

The modal plans consider the transportation system needs for the City of Richland over the next 20 years, assuming the growth projections discussed in Chapter 5. The timing for individual improvements will be guided by changes in land use patterns and population growth. This TSP should be reviewed every several years to adjust specific projects and implementation schedules to these changes.

Street System Plan

The street system plan outlines a series of improvement options that are recommended for construction within Richland during the next 20 years. The street system improvements in the City of Richland consist of paving one blocks of Vine Street and expansions of the city's street grid system as new development occurs. These improvements were discussed in Chapter 6 (Improvement Options Evaluation). The improvements are estimated to cost approximately $42,000 and $720,000, respectively, with the city responsible for the cost of paving Vine Street and the cost of the other improvements paid by developers. ODOT District Needs List

ODOT has identified one needed modernization project in the City of Richland. This project includes rebase, lane widening, paving, sidewalks, curbs, storm sewers, and utilities on Highway 86 in Richland (mileposts 41.36-42.50). The estimated cost of construction is $1.2 million. This project is not included in the list of funded projects in the STIP. This project is not a high priority project because the existing pavement is rated in fair condition (as opposed to poor condition) and because it is unlikely that the project can be funded in the next 5 years. It is included in the street system plan as a medium priority project (to be constructed in the next 5 to 10 years).

One additional need has been identified by the City of Richland. A drainage problem on OR 86 between 3rd Street and Alder Street exists on both sides of the roadway. ODOT should perform a field reconnaissance to determine the magnitude of the drainage problem along the highway and develop a project to improve the poor drainage condition. The cost of the project is unknown until the initial field investigation work is completed by ODOT.

Pedestrian System Plan

The pedestrian system should provide direct and safe access to all areas of the city and to every land use. Properly configured, the system encourages walking and enables neighbors to know each other and to enjoy their community. The recommended system for Richland, which lacks a storm drainage system, consists of separated paved walkways.

Every paved street within the urban area of Richland should have walkways on both sides of the roadway meeting the requirements set forth in the street standards. Pedestrian facilities should be provided between all buildings and abutting streets and adjacent neighborhoods (Ordinances specifying these requirements are included in Chapter 9).

The need for new stand-alone pedestrian facilities was not identified during the development of the TSP; however walkways should be added as new streets are constructed and existing streets reconstructed.

Bicycle System Plan

The bicycle system plan aims to provide direct and safe access to all areas of the city. Properly configured, the system encourages bicycling and enables people of average skill to reach most destinations comfortably. Local streets in Richland accommodate cyclist because traffic volumes and speeds are low.

Every arterial street should include bikeways, typically bike lanes in urban areas and shoulders in more rural areas. All bikeways should meet the requirements set forth in the street standards and in the Oregon Bicycle and Pedestrian Plan. For example, bike lanes should be one-way, marked in the same direction as the adjacent travel lane.

Four-foot wide shoulders are adequate on rural collectors. Six-foot shoulders should be included on arterials.

Functional bikeways depend on regular maintenance. Sweeping, surface repair, calibration of signal sensors, restriping, and control of vegetation are essential to useful, attractive and enduring facilities. Regular maintenance is often the easiest and most cost-effective means of enhancing the bikeway system. Construction projects should consider a long-term commitment to maintenance for bikeways.

Bikeways should be added as new streets are constructed and existing streets reconstructed. Bikeways and other bicycle facilities may also be constructed as stand-alone projects where the need exists.

Transportation Demand Management Plan

As discussed in Chapter 6, TDM is a technique applied to peak travel times to help reduce the use of the transportation network system. A variety of methods are utilized in combination to yield a more efficient transportation system that does not rely upon building new or wider roads to accommodate traffic growth. The most appropriate TDM measure for the City of Richland would be to institute a rideshare program, especially for travel between Richland and Baker City.

The City should also encourage Employee Vanpools and investigate opportunities for park-n-ride and rideshare options. Partnering opportunities should be pursued with other agencies and organizations to determine potential locations for park-n-ride facilities. Possible locations for park-n-ride facilities include church parking lots, which tend to be underutilized on weekdays, and public resources such as certain ODOT rights-of-way.

Public Transportation Plan

Public transportation in Richland consists primarily of a demand response system for local trips. This includes taxicab service and a senior citizen and special needs transport service. Public transportation for regional and long distance trips is provided by commercial bus service. Transit should be improved as discussed in Chapter 6.

Rail Service Plan

The City of Richland has no rail service.

Air Service Plan

The City of Richland does not have an airport. However, there are airport facilities nearby. Currently, air service to Richland is provided at an adequate level by the Baker City Airport and Boise Airport.

Pipeline Service

Currently, there is no local access to the pipelines that traverse Baker County and there are no future connections planned to the City of Richland.

Water Transportation

Richland has no water transportation services.

TRANSPORTATION SYSTEM PLAN IMPLEMENTATION PROGRAM

Implementation of the Richland Transportation System Plan will require both changes to the Comprehensive Plan and zoning code and preparation of a 20-year Capital Improvement Plan. These actions will enable Richland to address both existing and emerging transportation issues throughout the city in a timely and cost-effective manner. This implementation program is geared towards providing Richland with the tools to amend the comprehensive plan and zoning ordinance to conform with the Oregon Transportation Planning Rule and to fund and schedule transportation system improvements.

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

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

20-Year Capital Improvement Program

The CIP is shown with the following priorities:

- High Priority (next 0 to 5 years)
- Medium Priority (5 to 10 years)
- Low Priority (10 to 20 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 7-4.

The cost of each project as listed in the CIP is shown in 1999 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.

The City of Richland has identified four capital projects in its CIP with an estimated cost of $1,962,000. One of these projects does not have a cost associated yet since the field investigation to define a drainage improvement has not been conducted by ODOT yet.

In addition, one other improvement to the transportation system was identified: participation in a County rideshare program. Richland's share of the cost for these services was estimated at $150 per year.

TABLE 7-4
PRIORITIZED CAPITAL IMPROVEMENT PROGRAM

Project Description[1]	Priority[2]	Cost ($)	Responsibility
1. Pave Vine St. Between 1st St. & 3rd St.	High	$42,000	City
2. Modernization of Highway 86	Low	$1,200,000	State
3. Extend City Grid System North and South	Low	$720,000	Developers
4. Evaluate and develop drainage improvements along OR 86	High	unknown	State
TOTAL		$1,962,000	

(1) See Chapter 6 for a detailed description.
(2) High = 0-5 years; Medium = 5-10 years; Low = 10-20 years

It should be noted that the identified needs do not have identified funding and, therefore, are not committed and are subject to the city's and ODOT's abilities to meet these needs financially.

CHAPTER 8: FUNDING OPTIONS AND FINANCIAL PLAN

The Transportation Planning Rule requires Transportation System Plans to include an evaluation of the funding environment for recommended improvements. Thiqs evaluation must include a listing of all recommended transportation improvement projects, estimated costs to implement those improvements, and a review of potential funding mechanisms. Richland's TSP identifies two specific capital improvement projects and a rideshare program recommended over the next 20 years. This section of this TSP provides an overview of some funding and financing options that may be available to the City of Richland and Baker County to fund these improvements.

Pressures from increasing growth throughout much of Oregon have created an environment of planned improvements that remain unfunded. Richland will need to work with Baker County and ODOT to finance the proposed new transportation projects over the 20-year planning horizon. The actual timing of these projects will be determined by the rate of population and employment growth actually experienced by the community. This TSP assumes Richland will grow at an average annual rate of 1.0 percent over the next 20 years. If population growth exceeds this rate, the improvements may need to be accelerated. Slower than expected growth will relax the improvement schedule.

HISTORICAL STREET IMPROVEMENT FUNDING SOURCES

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

TABLE 8-1
SOURCES OF ROAD REVENUES BY JURISDICTION

	Jurisdiction Level			Statewide
Revenue Source	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-mile taxes on trucks, and vehicle registration fees. As shown in the table, the State Road Trust is a considerable source of revenue for all levels of government. Federal sources (generally the Federal Highway Trust account and Federal Forest Revenues) comprise another 30 percent of all road-related revenue. The remaining sources of road-related revenues are generated locally, including property taxes, LIDs, bonds, traffic impact fees, road user taxes, general fund transfers, receipts from other local governments, and other sources.

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

Transportation Funding in Baker County

Historically, sources of road revenues for Baker County have included federal forest receipts, state highway fund revenues, federal grants, earnings from the investment of the working fund balance, and other sources. Transportation revenues and expenditures for Baker County are shown in Table 8-2 and Table 8-3.

TABLE 8-2: BAKER COUNTY TRANSPORTATION-RELATED REVENUES

	1995-1996 Actual	1996-1997 Actual	1997-1998 Budget	1998-1999 Budget
Beginning Fund Balance	$951,321	$690,207	$650,314	$777,526
Federal Forest Receipts	$591,201	$388,472	$350,000	$350,000
State Land Sales	$4,021	$13,189	$2,000	$4,000
S.T.P Funds	$96,871	$116,935	$102,006	$145,000
State Highway Allocation	$928,030	$892,412	$750,000	$800,000
Small County Allocation			$190,982	
Earned Interest	$42,054	$36,165	$30,500	$40,000
Miscellaneous	$70,943	$95,560	$10,000	$5,000
Dept Sales	$9,347	$15,883	$5,000	$5,000
Contracts		$286,597		$5,000
Work Comp Reimbursement		$7,009		
Insurance Reimbursement		$37,403		$100
Transfers	$10,750	$12,250	$10,000	$10,000
	$1,753,217	$1,901,875	$1,450,488	$1,364,100

Source: Baker County.

As shown in Table 8-2, revenues have been fairly stable, ranging from an estimated low of $1,364,100 for the 1998-99 budget year to over $1,900,000 in 1996-97. Nearly $900,000 of the annual revenue comes from the State Highway Fund. Funds from the federal Forest Receipts have also been significant, but have declined from $590,000 in 1995-96 to an estimated $350,000. Baker County receives its forest distributions from the Whitman, Malheur, and Umatilla Forests. The County expects forest funds to continue declining, reaching $215,000 by the 2000-2001 budget year. In the 1997-98 budget year, the county was slated to receive $190,000

from the County Allotment Fund, which distributes monies to counties with the lowest resource-per-equivalent road-mile ratios. (See the description of the County Allotment Program below.)

TABLE 8-3: BAKER COUNTY TRANSPORTATION-RELATED EXPENDITURES

	1995-1996 Actual	1996-1997 Actual	1997-1998 Budget	1998-1999 Budget
Personal Services	$1,052,680	$1,037,308	$1,063,963	$1,004,000
Materials and Services	$792,202	$507,696	$592,700	$711,200
Capital Outlay	$140,266	$77,054	$272,133	$246,526
Transfers	$9,183	$62,500	$73,250	$73,250
Contingency			$98,756	$106,650
Other Expenditures	$20,000			
	$2,014,331	$1,684,558	$2,100,802	$2,141,626

Source: Baker County.

As shown in Table 8-3, Baker County has spent between $77,000 and $140,000 annually in capital improvements. The bulk of expenditures in the road fund are for personal services and materials and services relating to maintenance.

In addition to the Road Fund, the county accounts for transportation-related revenues in other specific funds with dedicated uses. One example is the county's Footpath/Bicycle Fund. This fund, previously maintained by the Road Department, is now managed by Traffic Safety. This fund has a healthy Working Capital balance estimated at $148,400. With the exception of some resources set aside for project coordination ($4,000) and materials and services ($17,000), this fund is reserved exclusively to bicycle and footpath construction.

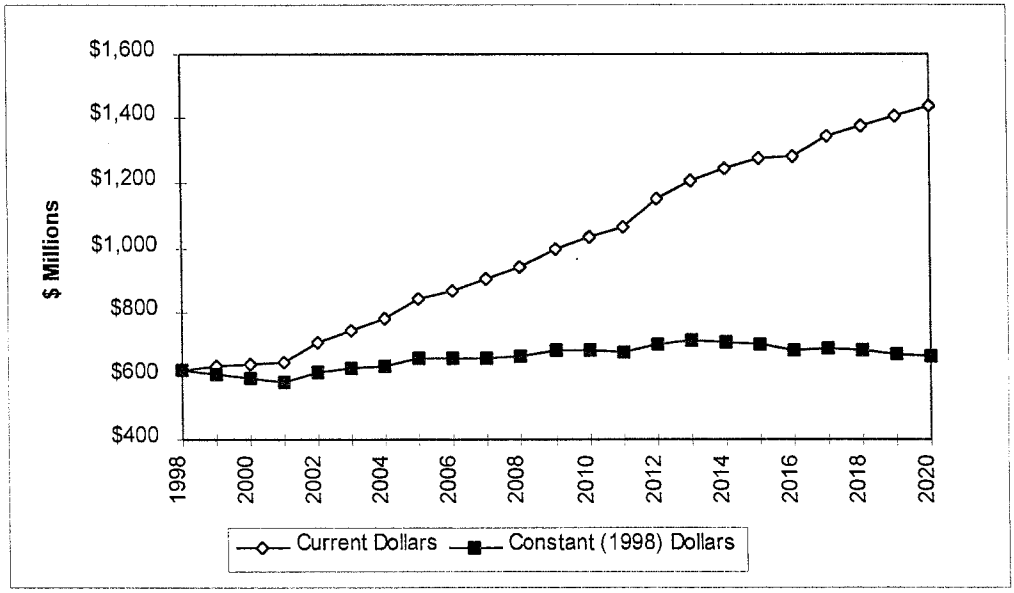
Transportation Revenue Outlook in the City of Richland and Baker County

ODOT's policy section recommends certain assumptions in the preparation of transportation plans. In its Financial Assumptions document prepared in May 1998, ODOT projected the revenue of the State Highway Fund through year 2020. The estimates are based on not only the political climate, but also the economic structure and conditions, population and demographics, and patterns of land use. The latter is particularly important for state-imposed fees because of the goals in place under Oregon's TPR requiring a ten-percent reduction in per-capita vehicle miles of travel (VMT) in MPO planning areas by year 2015, and a 20-percent reduction by year 2025. This requirement will affect the 20-year revenue forecast from the fuel tax. ODOT recommends the following assumptions:

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

Figure 8-1 shows the forecast in both current-dollar and inflation-deflated constant (1998) dollars. As highlighted by the constant-dollar data, the highway fund is expected to more slowly than inflation early in the planning horizon until fuel-tax and vehicle-registration fee increases occur in year 2002, then increase somewhat faster than inflation through year 2015, then (again) more slowly than inflation.

FIGURE 8-1: STATE HIGHWAY FUND (IN MILLIONS OF DOLLARS)



Source: ODOT Financial Assumptions.

As the State Highway Fund is, and is expected to remain, a significant source of funding for Richland, the City is highly susceptible to changes in the State Highway Fund. The amount actually received from the State Highway Fund will depend on a number of factors, including the actual revenue generated by state gasoline taxes, vehicle registration fees, and other sources. It will also depend on the population growth in Richland because the distribution of state highway funds is based on an allocation formula which includes population.

REVENUE SOURCES

In order to finance the recommended transportation system improvements requiring expenditure of capital resources, it may be necessary to consider a range of funding sources. Although the property tax has traditionally served as the primary revenue source for local governments, property tax revenue goes into general fund operations, and is typically not available for street improvements or maintenance. Despite this limitation, the use of alternative revenue funding has been a trend throughout Oregon as the full implementation of Measures 5 and 47. The alternative revenue sources described in this section may not all be

appropriate in Richland. However, this overview is provided to illustrate the range of options currently available to finance transportation improvements during the next 20 years.

Property Taxes

Property taxes have historically been the primary revenue source for local governments. However, property tax revenue goes into general fund operations, and is not typically available for street improvements or maintenance. The dependence of local governments on this revenue source is partly due 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 contrasts with income or sales taxes which can fluctuate with economic trends or unforeseen events.

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

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

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

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

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

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

System Development Charges

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

Local governments have the legal authority to charge property owners and/or developers fees for improving local public works infrastructure to meet the projected demand resulting from their developments. Charges are most often targeted toward improving community water, sewer, or transportation systems. In order to collect SDCs, cities and counties must have specific infrastructure plans in place that comply with state guidelines.

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

A key legislative requirement for charging SDCs is the link between the need for the improvements and the developments being charged. As the need for the recommended capital improvements in Richland does not result from new development or capacity constraints, SDCs could not be used to fund them.

State Highway Fund

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/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. Like other Oregon cities, the City of Richland 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 money 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. The City of Richland may consider raising its local gas tax as a way to generate additional street improvement funds. However, with relatively few jurisdictions exercising this tax, an increase in the cost differential between gas

purchased in Richland and gas purchased in neighboring communities may encourage drivers to seek less expensive fuel elsewhere. Any action will need to be supported by careful analysis to minimize the unintended consequences of such an action.

Vehicle Registration Fees

The Oregon Vehicle Registration Fee is allocated to the state, counties and cities for road funding. Oregon counties are granted authority to impose a vehicle registration fee covering the entire county. The Oregon Revised Statutes would allow Baker County to impose a biannual registration fee for all passenger cars licensed within the county. Although both counties and special districts have this legal authority, vehicle registration fees have not been imposed by local jurisdictions. In order for a local vehicle registration fee program to be viable in Baker County, all the incorporated cities and the county would need to formulate an agreement which would detail how the fees would be spent on future 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 cost of local improvements are generally spread out among a group of property owners within a specified area. The cost can be allocated based on property frontage or other methods such as trip generation. The types of allocation methods are only limited by the Local Improvement Ordinance. The cost of LID participation is considered an assessment against the property which is a lien equivalent to a tax lien. Individual property owners typically have the option of paying the assessment in cash or applying for assessment financing through the city. Since the passage of Ballot Measure 5, cities have most often funded local improvement districts through the sale of special assessment bonds.

Grants and Loans

There are a variety of grant and loan programs available, most with specific requirements related to economic development or specific transportation issues, rather than for the general construction of new streets. Many programs require a match from the local jurisdiction as a condition of approval. Because grant and loan programs are subject to change as well as statewide competition, they should not be considered a secure long-term funding source for Richland. Most of the programs available for transportation projects are funded and administered through ODOT and/or the Oregon Economic Development Department (OEDD). Some programs which may be appropriate for the Richland are described below.

Bike-Pedestrian Grants

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

Projects which cost more than $100,000, require ROW acquisition, or generate environmental impacts should be submitted to ODOT for inclusion in the STIP.

Enhancement Program

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

Highway Bridge Rehabilitation or Replacement Program

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

Transportation Safety Grant Program

Managed by ODOT's Transportation Safety Section (TSS), this program's objective is to reduce the number of transportation-related accidents and fatalities by coordinating a number of statewide programs. These funds are intended to be used as seed money, funding a program for three years. Eligible programs include those relating to impaired driving, occupant protection, youth, pedestrians, speed, enforcement, and bicycle and motorcycle safety. Every year, TSS produces a Highway Safety Plan that identifies the major safety programs, suggests countermeasures, and lists successful projects selected for funding, rather than granting funds through an application process.

Special Transportation Fund

The Special Transportation Fund (STF) awards funds to maintain, develop, and improve transportation services for people with disabilities and people over 60 years of age. Financed by a two-cent tax on each pack of cigarettes sold in the state, the annual distribution of funds is approximately $5 million. Three-quarters of these funds are distributed to mass transit districts, transportation districts, and, where no such districts exist, to counties, on a per-capita formula. The remaining funds are distributed on a discretionary basis.

The funds that come into Baker County are then allocated to the special transportation providers who make application to the STF Advisory Committee. The STF is the only dedicated revenue source in the State of Oregon for specialized transportation for the elderly and disabled. This funding source has been declining over the years due to the reduction in the amount of cigarette tax collected. There is awareness that new sources of revenue are needed.

Special Small City Allotment Program

The Special Small City Allotment Program (SCA) is restricted to cities with populations under 5,000 residents. Unlike some other grant programs, 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. Criteria for the $1 million in total annual grant funds include traffic volume, the five-year rate of population growth, surface wear of the road, and the time passed since the last SCA grant allocation to a particular jurisdiction.

Immediate Opportunity Grant Program

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

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

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

Oregon Special Public Works Fund

The Special Public Works Fund (SPWF) program was created by the 1995 State Legislature as one of several programs for the distribution of funds from the Oregon Lottery to economic development projects in communities throughout the State. The program provides grant and loan assistance to eligible municipalities primarily for the construction of public infrastructure which supports commercial and industrial development and 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 in the form of both loans and grants, the program emphasizes loans in order to assure that funds will return to the State over time for reinvestment in local economic development infrastructure projects. Jurisdictions that have received SPWF funding for projects that include some type of transportation-related improvement include the Cities of Baker City, Bend, Cornelius, Forest Grove, Madras, Portland, Redmond, Reedsport, Toledo, Wilsonville, Woodburn, and Douglas County.

Oregon Transportation Infrastructure Bank

The Oregon Transportation Infrastructure Bank (OTIB) program is a revolving loan fund administered by ODOT to provide loans to local jurisdictions, including cities, counties, special districts, transit districts, tribal governments, ports, and state agencies. Eligible projects include construction of federal-aid highways, bridges,

roads, streets, bikeways, pedestrian accesses, and right-of-way costs. Capital outlays such as buses, light-rail cars and lines, maintenance yards, and passenger facilities are also eligible.

Community Transportation Program (CTP)

The CTP provides money to fund public and special transportation needs in small cities and communities throughout the state. The program is financed by a combination of state, federal, and local matching funds. The program is a unified project application, review, and selection process for discretionary funds. These funds are made available under the Federal Transit Act, Elderly Persons with Disabilities Program, the Non-Urbanized Area Formula Program, and the Special Transportation Fund.

FTA Section 5311 Funds

These are Federal Transit Act funds specifically for non-urbanized areas of 50,000 population or less. The funds are allocated based on a formula of population, matching local funds, and amount of rides, then distributed to local government and quasi-government entities who apply. In Baker County, Community Connection has been, and continues to act as the public transit provider contractor who receives these funds for operation, through Baker County.

Job Access and Reverse Commute Grant Program

These are Federal Transit Act funds. These funds are provided to establish a regional approach to job access. There are two major goals of this program. The first is to provide transit in urban, suburban and rural areas. The second is to provide Welfare to Work clients and low income workers with access to employment opportunities.

ODOT Funding Options

The State of Oregon provides funding for all highway related transportation projects through the Statewide Transportation Improvement Program (STIP) administered by the Oregon Department of Transportation. The STIP outlines the schedule for ODOT projects throughout the state. The STIP, which identifies projects for a three-year funding cycle, is updated on an annual basis. In developing this funding program, ODOT must verify that the identified projects comply with the Oregon Transportation Plan (OTP), ODOT Modal Plans, Corridor Plans, local comprehensive plans, and TEA-21 Planning Requirements. The STIP must fulfill TEA-21 planning requirements for a staged, multi-year, statewide, intermodal program of transportation projects. Specific transportation projects are prioritized based on a review of the TEA-21 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 Richland's TSP will be considered for future inclusion on the STIP. The timing of including specific projects will be determined by ODOT based on an analysis of all the project needs within Region 5. The City of Richland, Baker 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 carrying out some highway improvements as part of its 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 conducted 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 Richland's TSP is the use of state and federal transportation dollars for off-system improvements. Until the passage and implementation of ISTEA, state and federal funds were limited to transportation improvements within highway corridors. ODOT now has the authority and ability to fund transportation projects that are located outside the boundaries of the highway corridors. The criteria for determining what off-system improvements can be funded has not yet been clearly established. It is expected that this new funding technique will be used to finance local system improvements that reduce traffic on state highways or reduce the number of access points for future development along state highways.

FINANCING TOOLS

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

There are a number of debt financing options available to the City of Richland. 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 spread the burden of the costs of these improvements to more of the people who are likely to benefit from the improvements and lower immediate payments.

General Obligation Bonds

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

State statutes require that the general obligation indebtedness of a city not exceed three percent of the real market value of all taxable property in the city. Since general obligation bonds would be issued subsequent to

voter approval, they would not be restricted to the limitations set forth in Ballot Measures 5, 47, and 50. Although each new bond must be voter approved, Measure 47 and 50 provisions are not applicable to outstanding bonds, unissued voter-approved bonds, or refunding bonds.

Limited Tax Bonds

Limited tax general obligation bonds (LTGOs) are similar to general obligation bonds in that they represent an obligation of the municipality. However, a municipality's obligation is limited to its current revenue sources and is not secured by the public entity's ability to raise taxes. As a result, LTGOs do not require voter approval. However, since the LTGOs are not secured by the full taxing power of the issuer, the limited tax bond represents a higher borrowing cost than general obligation bonds. The municipality mu

st pledge to levy the maximum amount under constitutional and statutory limits, but not the unlimited taxing authority pledged with GO bonds. Because LTGOs are not voter approved, they are subject to the limitations of Ballot Measures 5, 47, and 50.

Bancroft Bonds

Under Oregon Statute, municipalities are allowed to issue Bancroft bonds which pledge the city's full faith and credit to assessment bonds. The bonds become general obligations of the city but are paid with assessments. Historically, these bonds provided cities with the ability to pledge their full faith and credit in order to obtain a lower borrowing cost without requiring voter approval. However, since Bancroft bonds are not voter approved, taxes levied to pay debt service on them are subject to the limitations of Ballot Measures 5, 47, and 50. As a result, since 1991, Bancroft bonds have not been used by municipalities that were required to compress their tax rates.

FUNDING REQUIREMENTS

Richland's TSP identifies three transportation improvment projects recommended during the next 20 years to address safety and access problems and to expand the transportation system to support a growing population and economy. The projects are classified into the following implementation phases:

- High Priority: to be implemented within five years;
- Medium Priority: to be implemented between five and 10 years; and
- Low Priority: to be implemented between 10 and 20 years.

Table 7-4 in Chapter 7 presents an estimated cost for each of the three proposed projects. The overall estimated project cost associated with Richland's 20-year transportation project list is $1,962,000, plus $150 per year. The recommended rideshare program is a high-priority project, for implementation within five years, and is estimated to cost $150 per year. A high-priority paving project, to be implemented in 0 to 5 years, is estimated to cost $42,000. Modernization of Highway 86, a medium priority project is estimated to cost $1.2 million. A street extension project, to be implemented in 10 to 20 years, is estimated to cost $720,000 and be paid by developers. Because the identified needs do not have identified funding, they are not committed and are subject to the City's and ODOT's abilities to meet these needs financially. The City of Richland will need to continue to work with Baker County and ODOT in order to fully implement this TSP.

CHAPTER 9: IMPLEMENTATION OF TRANSPORTATION SYSTEM PLAN

Implementation of the Richland Transportation System Plan 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 Richland to address both existing and emerging transportation issues throughout the urban area in a timely and cost-effective manner. This implementation program is geared towards providing Richland with the tools to amend the comprehensive plan and land use and development ordinance to conform with the Oregon Transportation Planning Rule and to fund and schedule transportation system improvements. It is recommended that the City of Richland take the following actions to adopt and implement the TSP.

1. Amend findings and policies of the Richland Comprehensive Plan as detailed in this chapter.

2. Amend the Richland Land Use and Development Ordinance as detailed in this chapter. Very little is being proposed to be changed or amended in the Land Use and Development Ordinance because it has been updated concurrently with the Transportation System Plan.

3. Incorporate the prioritized capital improvement plan, detailed in Chapter 8, into the existing Richland Capital Improvement and Public Facilities Plans.

RECOMMENDED COMPREHENSIVE PLAN AMENDMENTS

Revise the Findings, Policies, and Conclusions of Chapter 12 (Transportation) with the following:

(Note: the following recommended revisions are generic and have not yet been edited to fit specifically into the Richland Comprehensive Plan.)

Finding: The Transportation Planning Rule (660-12-045(3)) requires that urban areas plan for bicycling and walking as part of the overall transportation system.

Policy: The City of Richland shall provide safe and convenient pedestrian and bicycle circulation through the following actions:

- Development of 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.

- Streets and accessways shall be provided to provide direct and convenient access to major activity centers, including downtown, schools, shopping areas, and community centers.

- Bikeways shall be included on all new arterials and major collectors within the Urban Growth Boundary.

- Retrofit existing arterials with bike lanes on a prioritized schedule as shown in the Transportation System Plan.

- Walkways shall be included on all new streets within the Urban Growth Boundary.

- Retrofit existing streets with walkways on a prioritized schedule as shown in the Transportation System Plan.

- Bikeways and walkways shall be designed and constructed following the guidelines of the Oregon Bicycle and Pedestrian Plan.

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

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

Policy: The City of Richland will provide a clear and objective process for the approval of transportation projects.

Policy: The Richland Transportation System Plan is an element of the City of Richland Comprehensive Plan. As such, it identifies the general location of transportation improvements and allows the following actions without land use review:

- Changes in the specific alignment of proposed public road and highway projects are 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, 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.

- Changes in the frequency of transit, rail and airport services that are consistent with the Transportation System Plan.

Policy: Draft Environmental Impact Statements (EIS) or Environmental Assessments (EA) will serve as the documentation for State projects that require local land use review, if local review is required in the following circumstances:

- Where the project is consistent with the Transportation System Plan, formal review of the draft EIS or EA and concurrent or subsequent compliance with applicable development standards or conditions;

- Where the project is not consistent with the Transportation System Plan, formal review of the draft EIS or EA and concurrent completion of necessary goal exceptions or plan amendments.

Finding: Section 60-12-045(2) of the Transportation Planning Rule requires that jurisdictions protect future operation of transportation corridors. In addition, the proposed function of a future roadway and other transportation facilities, such as airports, must be protected from incompatible land uses.

Policy: The City of Richland will protect the operation of existing and future transportation facilities as identified in the Transportation System Plan through the use of one or more of the following actions:

- Consider the impact of all land use decisions on existing or planned transportation facilities.
- Protect the function of existing or planned transportation corridors through appropriate land use regulations.
- Consider the potential to establish or maintain accessways, paths, or trails prior to the vacation of any public easement or right-of-way.
- Preserve right-of-way for planned transportation facilities through exactions, voluntary dedication, or setbacks.

Finding: Section 660-12-045(2)(d) of the Transportation Planning Rule requires that jurisdictions develop a process for the coordinated review of land use decisions affecting transportation facilities.

Policy: The City of Richland will provide coordinated review of land use decisions affecting transportation through the use of one or more of the following actions:.

- Coordinate with ODOT to implement the highway improvements listed in the STIP that are consistent with the Transportation System Plan and comprehensive plan.
- Consider the findings of ODOT's draft Environmental Impact Statements and Environmental Assessments as integral parts of the land use decision-making procedures.
- With the increased use in regional facilities such as Brownlee Reservoir, the City of Richland shall coordinate with all appropriate regional partners in assuring that increases in transportation impacts do not significantly impact the City of Richland without committed mitigation measures by those creating the impact.

RECOMMENDED ADDITIONS TO THE LAND USE AND DEVELOPMENT ORDINANCES

(Note: the following recommended revisions are generic and have not yet been edited to fit specifically into the Richland Land Use and Development Ordinance.)

Insert the following into Article 8, Amendments:

SECTION 8.2.5: Amendments Affecting Transportation Facilities.

1) Plan or land use regulation amendment significantly affects a transportation facility if it:

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

   b) Changes standards implementing a functional classification system;

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

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

2) 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:

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

4) 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,

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

APPENDIX A

Review of Existing Plans and Policies

Appendix A: Summary of Existing Plans

City of Richland Comprehensive Plan
1989

Transportation Goal:

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

A. Policies:
1. Oregon Highway 86 will be the major access route to the City.
2. Mass transit connections to the City of Baker will be encouraged as economic practicality dictates.
3. The City will work with the ODOT and will notify and solicit comments from them before approving any proposals that might have an adverse impact on the use of the Trans-America Bike Trail which passes through Richland.
4. The City will participate with the county and encourage the programs which provide transportation for the disadvantaged citizens and the senior citizens.
5. The City will protect the use of the highway maintenance station that is located within the City by providing the proper zoning.

B. Recommendations:
1. Local airport facilities should be protected from incompatible encroachment that may affect their future use.
2. Subdivision standards should be developed to require new road construction to meet such standards as to minimize future city expenditures for maintenance thereof.
3. Provisions should be made for an east-west street on the south boundary of the City prior to the development of connection points to the present street system.
4. Off-Highway 86 access to schools be provided in new development of lands North of such highway.

Baker County Comprehensive Land Use Plan
Adopted March 9, 1983, and acknowledged April 24, 1986.

The stated Transportation Goal is: to provide and encourage a safe, convenient, and economic transportation system. The findings state that mass transit, rail, bus, pipelines, and airplanes are economic alternative modes of transportation, but that the private automobile will be "the most practical mode of intracounty transportation, in the foreseeable future". The findings also state that bicycle and pedestrian modes are not practical year around outside boundaries of cities.

Baker County Bicycle and Pedestrian Master Plan
August 5, 1996

This plan identifies and directs opportunities for improving bicycle and pedestrian facilities to insure that new development considers the needs of non-vehicular modes of transportation, and provides safe, convenient, and direct bicycle and pedestrian access. Goals and objectives include the following:

1. Integrate bicycle and pedestrian facility planning and development into all transportation planning, design, construction, and maintenance activities of ODOT, Baker County, and the County's seven incorporated cities. This integration will be accomplished by developing a contiguous bikeway system connecting municipalities, neighborhoods, businesses, schools, parks, rural communities, rural areas, scenic routes, and recreation areas.
2. Install appropriate singe for direction and speed along bikeway corridors.
3. Promote bicycling and walking to make a noticeable reduction in motorized traffic.
4. Create a bikeway map identifying bikeway and destination opportunities.
5. Continue to educate non-motorized users and motorists about safety and use of the bikeway system.

The plan inventories the roadways within the county and its incorporated cities, summarizes the design and condition of existing bicycle and pedestrian facilities, and recommends options for protecting and improving bicycle and pedestrian access, safety, and connectivity. Baker County bikeway and walkway plan policies and design standards, and implementation strategies are also includes as part of this plan.

Specific projects for some of the incorporated cities were identified and prioritized by this plan. Projects suggested for the City of Richland and their priority are as follows:

Priority One Recommendations:

1. Widen State Highway 86 through the entire length of the City of Richland to accommodate 4-feet paved shoulder bikeways.

Baker County Special Transportation Plan
April 1994

The goals of the Baker County Special Transportation Plan are as follows:

Provide transportation services for the special needs population (elderly, disabled, and economically disadvantaged) of Baker County.

Obtain baseline information by surveying providers and the public.

Obtain greater transportation efficiency.
- Coordinating and integrating existing systems and resources.
- Seeking new resources where feasible.

TRANSPORTATION PLANNING RULE COMPLIANCE SUMMARY FOR THE CITY OF RICHLAND
June 2001

660-12-045 Subsection	Comprehensive Plan	Zoning Ordinance	Comments
(1) Each local government shall amend its land use regulations to implement the TSP.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(2) Ordinance provisions to protect transportation facilities, corridors, and sites.	N/A	No provision	See Chapter 9 for recommended additions to appropriate sections of Richland Zoning Code.
(a) Access control.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(b) Protect future road and transit operation.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(c) Airport protection.	N/A	N/A	There is no airport in Richland
(d) Coordinated land use decision and transportation review.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(e) Conditions for development to minimize transportation impacts.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(f) Agency notice regarding land use or land division, private access.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(g) Plan/zone amendments consistent with TSP.	N/A	No provision	See Chapter 9 for recommended additions to appropriate sections of Richland Zoning Code.
660-12-045 Subsection			
(3) Ordinance provisions to provide safe and convenient pedestrian, bicycle, and vehicular circulation.	No provision	Partial compliance	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(a) Bicycle parking.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(b) On-site facilities for pedestrian and bike access, sidewalks and bike lanes along streets, and minimize cul-de-sac use.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(c) Off-site improvements shall include pedestrian and bicycle facilities.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(d) Safe and convenient means minimal hazards, reasonably direct, and 1/4-1/2 mi. for pedestrian trips.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
(e) Internal pedestrian circulation within office parks and commercial developments.	No provision	No provision	See Chapter 9 for recommended additions to Chapter 12 of Richland Comprehensive Plan and appropriate sections of Richland Zoning Code.
660-12-045 Subsection			
(4) Ordinances to support transit.	N/A	N/A	Not required for Richland.
(a) Improvements to support transit use: bus	N/A	N/A	Not required for Richland.

stops, pullouts, shelters, street design, parking restrictions, etc.			
(b) Retail, office, and institutional development near transit shall provide connecting walkways in all cases and transit amenities at "major" transit stops.	N/A	N/A	Not required for Richland.
(c) Optional pedestrian districts to implement (4)(b).	N/A	N/A	Not required for Richland.
(d) Carpool/vanpool employee parking.	N/A	N/A	Not required for Richland.
(e) Existing development shall be allowed to convert some parking into transit-oriented uses.	N/A	N/A	Not required for Richland.
(f) New streets shall accommodate transit service and pedestrian access.	N/A	N/A	Not required for Richland.
(g) Supporting land uses and densities shall be provided along existing/planned transit routes.	N/A	N/A	Not required for Richland.
660-12-045 Subsection			
(5) Ordinances to reduce automobile reliance.	N/A	N/A	Not required for Richland.
(a) Transit-oriented developments along transit routes.	N/A	N/A	Not required for Richland.
(b) Demand management program in TSP.	N/A	N/A	Not required for Richland.
(c) Parking plan to reduce per capita parking by 10%, implement the TSP, and maximum parking standards.	N/A	N/A	Not required for Richland.
(d) Alternative to (5)(c) the city may adopt a variety of techniques to reduce parking requirements.	N/A	N/A	Not required for Richland.
(e) Require major industrial, institutional, and commercial developments to provide a bus stop or connection.	N/A	N/A	Not required for Richland.
660-12-045 Subsection			
(6) Bicycle and pedestrian circulation plan shall identify necessary improvements such as walkways, connections between destinations, etc.	N/A	No provision	See Chapter 9 for recommended additions to appropriate sections of Richland Zoning Code.
(7) Street standards for local streets and accessways shall minimize right-of-way and pavement width consistent with operational needs.	N/A	No provision	See Chapter 9 for recommended additions to appropriate sections of Richland Zoning Code.

APPENDIX B

Existing Street Inventory

APPENDIX B

1998 Major Streets Inventory
City of Richland Transportation System Plan

Street	Jurisdiction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	No. of Travel Lanes	On-Street Parking	Bikeway	Pavement Condition	Sidewalks	Curbs
Baker-Copperfield Highway (OR Highway 86 and also Main Street)											
Western UGB to 3rd. St.	State	Arterial	25 mph	60 ft.	24 ft.	2	yes	none	fair	yes, both sides	yes
3rd St. to 2nd St.	State	Arterial	25 mph	60 ft.	40 ft.	2	yes	none	fair	yes, both sides	yes
2nd St. to 1st St.	State	Arterial	25 mph	60 ft.	40 ft.	2	yes	none	fair	yes, both sides	yes
1st St. to Alder St.	State	Arterial	25 mph	60 ft.	24 ft.	2	yes	none	fair	yes, both sides	yes
Alder St. east to UGB	State	Arterial	25 mph	60 ft.	24 ft.	2	yes	none	fair	yes, both sides	yes
3rd Street											
Main St. to Valley St.	City	Local	25 mph	60 ft.	24 ft.	2	none	none	fair	none	none
Main St. to Walnut St.	City	Local	25 mph	60 ft.	24 ft.	2	none	none	good	none	none
Walnut St. to Vine St.	City	Local	25 mph	60 ft.	24 ft.	2	none	none	fair	none	none
Vine St. to Alley	City	Local	25 mph	60 ft.	24 ft.	2	none	none	fair	none	none
2nd Street											
Main St. to Valley St.	City	Local	25 mph	60 ft.	24 ft.	2	none	none	fair	none	none
Main St. to Walnut St.	City	Local	25 mph	60 ft.	28 ft.	2	none	none	good	east, poor cond.	none
Walnut St. to Vine St.	City	Local	25 mph	60 ft.	28 ft.	2	none	none	fair	east, poor cond.	yes
Vine St. to Alley	City	Local	25 mph	60 ft.	24 ft.	2	none	none	fair	none	none
2nd Place St. (Loop)	City	Local	25 mph	60 ft.	24 ft.	2	none	none	good	none	none
1st Street (Co Road 994 and also Snake River Road)											
Main St. to Valley St.	County	Local	25 mph	60 ft.	24	2	none	none	good	none	none
Main St. to Walnut St.	County	Collector	25 mph	60 ft.	28	2	yes	none	good	none	none
Walnut St. to Vine St.	County	Collector	25 mph	60 ft.	24	2	none	none	good	west side, poor condition	west side, poor condition
Vine St. south to UGB	County	Collector	25 mph	60 ft.	24	2	none	none	good	west side, poor condition	west side, poor condition
Valley Street											
3rd St. to 2nd St.	City	Local	25 mph	60 ft.	24	2	none	none	good	none	none
2nd St. to 1st St.	City	Local	25 mph	60 ft.	24	2	none	none	good	none	none

APPENDIX B

1998 Major Streets Inventory
City of Richland Transportation System Plan

Street	Jurisdiction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	No. of Travel Lanes	On-Street Parking	Bikeway	Pavement Condition	Sidewalks	Curbs
Walnut Street											
3rd St. to 2nd St.	City	Local	25 mph	60 ft.	24	2	none	none	fair	cond.	none
2nd St. to 1st St.	City	Local	25 mph	60 ft.	24	2	none	none	new	cond.	none
Vine Street											
3rd St. to 2nd St.	City	Local	25 mph	60 ft.	24	2	none	none	poor	none	none
2nd St. to 1st St.	City	Local	25 mph	60 ft.	24	2	none	none	poor	none	none
Alder St.	City	Local	25 mph	60 ft.	24	2	none	none	poor	none	none
S. Alley	City	Local	25 mph	60 ft.	24	2	none	none	fair	none	none

APPENDIX C

Summary of State Highway Analyses

TECHNICAL MEMORANDUM
SUMMARY OF THE OR HIGHWAY 86 (BAKER-COPPERFIELD HIGHWAY) ANALYSIS
CITY OF RICHLAND TSP

The Richland Transportation System Plan (TSP) guides the management of existing transportation facilities and the design and implementation of future facilities for the next 20 years. OR Highway 86 (Baker-Copperfield Highway) is a part of that transportation system. This technical memorandum summarizes the elements of the TSP that pertain to OR Highway 86.

INVENTORY

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

Richland is served by one state highway: OR Highway 86, also known as Baker-Copperfield Highway. OR Highway 86 is a District Highway and is also designated a scenic byway. Highway 86 extends east-west through the central portion of Baker County. Terrain along the highway generally varies between expansive pastures, rolling hills, and steep mountains. The highway serves Hell's Canyon National Recreation Area, and the Oregon Trail Interpretive Center is located on the highway near Baker City. In conjunction with Forest Service Loop Road #39, this highway forms a popular tourist route to the City of Joseph. The highway operates primarily as a two-lane roadway throughout rural sections of Baker County, expanding to five lanes within Baker City. The posted speed in rural areas is 55 mph decreasing to 25 mph through urban areas. The route is comprised of numerous curves and moderate grade changes resulting in localized rural speed reductions ranging from 35 to 45 mph. There is one passing lane for eastbound traffic located at MP 29. The highway is primarily striped for no passing, however there are intermittent shoulder vehicle pullouts in both directions. There are roadway shoulders on both sides of the highway that range from two to ten feet wide that are comprised of partial paving and gravel.

General Pavement Conditions

According to the 1999 ODOT Pavement Condition Report, the section of Highway 86 through Richland is in fair condition.

Bridges

There are no bridges in the City of Richland listed on the state inventory as being structurally deficient, functionally obsolete, or having a sufficiency rating below 55.

Identified Needs

The City of Richland has identified two areas for future residential growth. The first area is just south of 2nd Place (south of the City Limits and inside the Urban Growth Boundary). The second area is north of Valley Street, some of which lies outside the current Urban Growth Boundary. The City will require developers to construct the new streets which serve these properties. The City will also require that the streets be laid out as an extension of the existing grid system.

The planned street system expansion in the south will consist of an extension of 2nd Street, a parallel street in the 3rd Street alignment, and two new streets perpendicular to 2nd Street which connect to 1st Street. This development consists of approximately 2,400 linear feet of new roadway.

The planned street system expansion in the north will consist of two new streets parallel to Valley Street which are connected to the existing grid system by an extension of 3rd Street, 1st Street and a new street which connects to Main Street (Highway 86). This development consists of approximately 7,125 linear feet of new roadway.

CURRENT TRANSPORTATION CONDITIONS

As part of the planning process, the current operation conditions for Highway 86 were evaluated.

1997 Traffic Volumes

The 1997 Average Daily Traffic (ADT) volumes for the state highways within Richland were collected by ODOT and summarized in the *1997 ODOT Traffic Volume Tables*. ADT volumes are defined as the average amount of two-way traffic recorded on a roadway over a 24-hour period.

Average Daily Traffic

The 1997 ADT volumes on the state highways in Richland are average volumes for the year. Summertime is the season when volumes are highest. ODOT data from the permanent traffic recorder station along OR Highway 86 (Baker-Copperfield Highway) just west of Richland indicate summer volumes exceed ADT volumes by nearly 40 percent. The 1997 average daily and estimated peak summer time traffic volumes in Richland are 1,600 vpd and 2,240 vpd, respectively.

Roadway Capacity

Roadway capacity in Richland is primarily dictated by unsignalized intersection operations. Transportation engineers have established various standards for measuring traffic capacity of intersections. Each standard is associated with a particular level of service (LOS). The LOS concept requires consideration of factors that include travel speed, 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.

Table C-1 presents the level of service criteria for unsignalized intersections. Unsignalized intersection LOS is based on a concept of reserve capacity and was analyzed using the UNSIG10 software application developed by ODOT. Reserve capacity represents the difference between the number of stop-controlled vehicles that can be served within acceptable gaps in the main street traffic stream (potential capacity) and the actual demand for these maneuvers.

TABLE C-1
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Unsignalized Intersections
	Reserve Capacity (passenger cars/hour)
A	≥400
B	300-399
C	200-299
D	100-199
E	0-99
F	Demand exceeds capacity

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

Unsignalized Intersections

Analysis of the street system capacity in Richland is primarily focused on intersection operations along the state highway through town, where traffic volumes are the greatest. The Baker-Copperfield Highway (OR Highway 86) follows Main Street through Richland. Currently, all intersections along Main Street in Richland are unsignalized and STOP-controlled on the minor approaches, with continuous flow on the highway. The LOS was determined at one of the busiest intersections on Main Street to determine the worst case traffic operations in the city.

The intersection of Main Street (OR 86) and North Snake River Road was chosen as the busiest intersection in the city. Although specific peak hour turning movement counts were not available at the intersection, representative traffic volumes were assumed from average daily traffic (ADT) volumes along the highway.

As stated previously, the 1997 ADT along Main Street was reported at 1,600 vpd. To evaluate the expected worst case traffic operations at this intersection, the ADT along Main Street was increased by 40 percent to reflect an ADT during peak summer conditions reaching 2,240 vpd. Traffic operations were then analyzed using a peak hour traffic volume of roughly 10 percent of the average and summer ADT volumes, 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 the northbound approach on North Snake River Road, therefore an approach volume of 50 vph was assumed.

Under these conservative assumptions, the intersection of Main Street and North Snake River Road operates at LOS A for all movements at the intersection under average and summer peak hour traffic volumes. This indicates that all other lower-volume roads or driveways within Richland are operating at LOS A as well, representing no capacity issues.

Historic Accident Summary

Table C-2 summarizes the three-year historic accident rates along OR 86 (Baker-Copperfield Highway) in Richland and along nearby rural highway sections, as well as the Oregon statewide average for all rural and urban non-freeway segments of similar highways from January 1, 1994 to December 31, 1996.

TABLE C-2
HISTORIC ACCIDENT RATES ALONG STATE HIGHWAYS IN RICHLAND
(Accidents per million vehicle-miles traveled)

PRIMARY HIGHWAYS	1996	1995	1994
OR Highway 86 *(Baker-Copperfield Highway)*			
Baker City (MP 2.15) to Richland City Limits (MP 41.36)	0.76	0.54	0.61
City of Richland (MP 41.36 to MP 42.27)	7.94	7.36	n/a
Richland City Limits (MP 42.27) to Idaho State Line (MP 70.80)	0.84	0.51	0.64
Statewide Average for all Urban/Rural Non-Freeway Sections	3.63/0.79	3.98/0.74	3.45/0.81

Source: 1996 Oregon Department of Transportation Accident Rate Table.

Table C-3 contains detailed accident information along OR 86 in Huntington and along rural highway sections abutting Richland during this three-year period. The table shows the number of fatalities and injuries, property damage only accidents, the total number of accidents, and the overall accident frequencies and rates for the highway sections reported.

TABLE C-3
ACCIDENT SUMMARIES FOR HIGHWAYS IN RICHLAND
(January 1, 1994 to December 31, 1996)

Location	Fatalities	Injuries	Property Damage Only	Total Accidents	Accident frequency (acc/mi/yr)	Accident Rate (acc/ mvm)
OR Highway 86 *(Baker-Copperfield Highway)*						
Baker City to Richland	0	26	10	27	0.23	0.61
City of Richland	0	3	0	2	0.73	0.63
Richland to Idaho border	0	6	10	15	0.18	0.64

ODOT Accident Summary Database (SPIS) 1994-1996.

Table C-2 indicates that the 1995 and 1996 accident rates within Richland were roughly double the statewide average for all rural non-freeway sections of secondary state highways. This may be misleading without understanding how accident rates are computed.

The accident rate computed by ODOT is based on the ratio of a variety of data. The numerator is calculated by multiplying the number of accidents during the year by 1,000,000. The denominator is calculated by multiplying the roadway section length, the roadway ADT, and the number of days in the year. The ratio of these quantities is the accident rate.

The equation is clearly susceptible to producing high accident rates along short roadway sections with low ADT volumes, as is the case in Richland. Due to roadway realignment through the years, the actual highway length within the Richland city limits is approximately 0.3 miles. This short roadway length coupled with an ADT of 1,228 vpd in 1996 resulted in a high accident rate. The underlying assumption is that low volume roadways are less prone to experiencing accidents. However, one accident along a low volume roadway does not necessarily indicate that a safety concern exists.

The results from Table C-2 do not suggest that the urban section of Highway 86 through Richland poses a safety concern.

There were two reported accidents along the urban section of OR 86 (Baker-Copperfield Highway) in Richland during the three-year period analyzed. The first accident occurred in 1995 between 1st and 2nd Streets and involved a rear-end collision during daylight hours. The cited driver was "following too closely". The two-car accident resulted in one minor injury and property damage only to the other vehicle. The second accident occurred in 1996 during hours of darkness and rainy conditions and involved a rear-end collision. The cited driver error was "driving too fast". This error does not necessarily imply speeding, but failure to adjust speed to prevailing roadway conditions.

TRAFFIC FORECASTS

Traffic volume projections are based on historic growth trends for highway volumes and land use and on the future land use projections.

Historic Traffic Volumes

Before projecting future traffic growth, it is important to examine past growth trends on the Richland roadway system. Historic data are only available for the state highway system in Richland; however, this roadway carries far more traffic than any other roads in the city. The Oregon Department of Transportation (ODOT) collects traffic count information on the state highways (rural and urban sections) every year at the same locations. These counts have been conducted along the OR Highway 86 (Baker-Copperfield Highway).

A historic growth trend along OR Highway 86 (Baker-Copperfield Highway) within Richland was established using the average annual daily traffic (AADT) volume information presented in the ODOT Traffic Volume Tables for the years 1977 through 1997. The AADT volumes were obtained for each of these years at one location, west of 2nd Street. Using a linear regression analysis of the AADT volumes between 1977 and 1997, an average annual growth rate was determined for this location. Table C-4 provides a summary of the historic average growth rates.

TABLE C-4
HISTORIC TRAFFIC GROWTH RATES ON STATE HIGHWAYS

Location	Average Annual Growth Rate (1977-1997)	Total Growth (1977-1997)
OR Highway 86 (Baker-Copperfield Highway)		
West of 2nd Street	0.65%	13.8%

Source: ODOT 1977-1997 Transportation Volume Tables; information compiled by DEA.

During the last 20 years, traffic growth averaged 0.65 percent per year, resulting in a total growth rate of 13.8 percent.

Future Traffic Volumes

Future traffic growth over the next 20 years along OR Highway 86 (Baker-Copperfield Highway) was assumed to be consistent with the 20-year historical growth trend described above. This assumption was made based on the small population size of Richland and the majority of highway traffic consisting of through trips. Using the historical traffic growth trend, this would result in overall growth of 12% percent by the year 2018 in Richland. The forecast future traffic volumes and total growth from 1997 to 2018 are shown in Table C-5.

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

Location	1997 ADT Volume (vehicles/day)	2018 ADT Volume (vehicles/day)	Total Growth
OR Highway 86 (Baker-Copperfield Highway)			
West of 2nd Street	1,600	1,790	12.0%

Future ADT volumes were also determined for peak summer conditions by increasing the average 2018 ADT by an additional 40 percent along OR Highway 86 (Baker-Copperfield Highway). This increase is consistent with the existing conditions analysis for peak summer conditions.

HIGHWAY SYSTEM CAPACITY

For the year 2018, an unsignalized intersection analysis was performed using the overall growth expected on OR Highway 86 (Baker-Copperfield Highway), at the same intersection in Richland for which the existing conditions were analyzed. This analysis included the same assumptions used in the existing conditions analysis for estimating average and summer peak hour traffic volumes.

The results of the unsignalized intersection analyses are shown in Table C-6. Traffic operations were determined at the intersection using the UNSIG10 software application developed by ODOT for unsignalized intersections.

TABLE C-6
SUMMARY OF FUTURE OPERATIONS

Intersection Location	Direction	Movement	2018 LOS (Average)	2018 LOS (Peak Summer)
OR Highway 86 (Baker-Copperfield Highway)at North Snake River Road	Eastbound	Left	A	A
	Westbound	Left	A	A
	Northbound	Left, Thru, Right	A	A
	Southbound	Left, Thru, Right	A	A

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

Analysis Results

Traffic movement volumes at the intersection of OR Highway 86 (Baker-Copperfield Highway) and North Snake River Road are forecast to increase by nearly 12 percent over the 20-year forecast period. The analysis indicates that the intersection is expected to remain operating at an acceptable level of service (LOS A) over the forecast period for both the average and summer peak hour conditions.

ACCESS MANAGEMENT

Recommended Access Standards for State Highways

Access management is important to promoting safe and efficient travel for both local and long distance users along State Highways. The 1999 *Oregon Highway Plan (OHP)* specifies an access management classification system for state facilities. Future developments on state highways (zone changes, comprehensive plan amendments, redevelopment, and/or new development) will be required to meet the 1999 OHP State Classification System and Access Management policies and standards . Although the City of Richland may designate state highways as arterial roadways within its transportation system, the access management categories for these facilities should follow the guidelines of the Oregon Highway Plan.

OR Highway 86 is the only state highway in the City of Richland. It is classified as a District Highway in the Oregon Highway Plan. District Highways are facilities of county-wide significance and function largely as county and city arterials or collectors. They provide connections and links between small urbanized areas, rural centers and urban hubs, and also serve local access and traffic. The management objective is to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas reflecting the surrounding environment and moderate to low-speed operation in urban and urbanizing areas for traffic flow and for pedestrian and bicycle movements. Inside urban areas, local access is given more priority.

The access management guidelines for District Highways are shown in Table C-7.

TABLE C-7
1999 OREGON HIGHWAY PLAN ACCESS MANAGEMENT CLASSIFICATION SYSTEM

District Highways		
Posted Speed	Rural Spacing Standards	Urban Spacing Standards
≥ 55 mph	700 feet	700 feet
50 mph	550 feet	550 feet
40 & 45 mph	500 feet	500 feet
30 & 35 mph	400 feet	400 feet
≤ 25 mph	400 feet	400 feet

HIGHWAY PLAN

ODOT has identified one needed modernization project in the City of Richland. This project includes rebase, lane widening, paving, sidewalks, curbs, storm sewers, and utilities on Highway 86 in Richland (mileposts 41.36-42.50). The estimated cost of construction is $1.2 million. This project is not included in the list of funded projects in the STIP. This project is not a high priority project because the existing pavement is rated in fair condition (as opposed to poor condition) and because it is unlikely that the project can be funded in the next 5 years. It is included in the street system plan as a medium priority project (to be constructed in the next 5 to 10 years).

APPENDIX D

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) develops annual population estimates for cities and counties for the purpose of allocating certain state tax revenues to cities and counties. In January of 1997, the State of Oregon Office of Economic Analysis (OEA) developed 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 forecasts for each of the small jurisdictions included in the Baker County Transportation System Plans.[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 Harney, Union, Wallowa, Grant, Gilliam, and Baker counties. The population of Baker County actually declined during the 1960s and 1980s, reflecting the general slowdown in the state's economy during these periods. Estimated at 16,500 in 1997, the population of Baker County has grown an average of over 1 percent annually, recovering from the declining trend of earlier decades. The

[1] As part of the Baker City Transportation plan, prepared in 1996 by David Evans and Associates, Inc., Baker City's population was forecast to grow at an annual rate of 0.8 percent annually. This planning effort does not change the growth assumption applied to Baker City.

historical populations of Baker County, its incorporated cities, and the sum of the rural area are shown below in Table 1.

Table 1
Historic Population Growth, 1960 to 1997
Baker County and its incorporated Cities

						1970 to 1997 Change	
	1960	1970	1980	1990	1997	Number	Annual Average
Baker County*	17,295	14,919	16,134	15,317	16,500	1,581	0.37%
Baker City	9,986	9,354	9,471	9,140	9,960	606	0.23%
Haines	331	212	341	405	455	243	2.87%
Halfway	505	317	380	311	360	43	0.47%
Huntington	689	507	539	522	575	68	0.47%
Richland	228	133	181	161	185	52	1.23%
Sumpter	96	120	133	119	175	55	1.41%
Unity**	N/A	N/A	115	87	110	N/A	N/A
Unincorporated county	5,460	4,276	4,974	4,572	4,677	401	0.33%
State of Oregon	1,768,687	2,091,533	2,633,156	2,842,321	3,217,000	1,125,467	1.61%

* *County population includes the population of all the county's incorporated cities.*
** *Unity was incorporated in 1972.*

Source: U.S. Census Bureau (1960, 1970, 1980, and 1990 Censuses); and Portland State University Center for Population Research and Census (1997 estimates)

As shown in Table 1, the cities of Baker County grew at rates somewhat faster than the county's overall rate of growth. Baker City (the largest of the cities in Baker County, and a city not included in this transportation planning effort) grew at a rate slightly slower than the rate of growth for the county overall. Of all the cities included in the transportation planning effort, Haines grew the fastest, more than doubling its 1970 base-year population count of 212 to an estimated 455 in 1997. As a county, Baker County experienced an actual population loss between 1960 and 1970. Since 1970, the county has grown at an average rate of 0.37 percent. With a current estimate of 16,500 persons, the population of the county is still smaller than its 1960 population count of 17,295.

POPULATION AND EMPLOYMENT FORECASTS

Baker County is expected to experience small population gains for the next 20 years. Like much of Eastern Oregon, the economy of Baker County remains largely seasonally, 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. Population and employment as forecast by the State of Oregon Office of Economic Analysis are shown in Table 2.

Although the OEA forecasts suggest that Baker County is expected to grow more slowly than the State of Oregon average, the difference between the county growth rate and the state growth rate is expected to decline over time. The estimated average population growth rate for Baker County

between 1970 and 1997 was 0.37 percent; for the 1997 to year 2020 period, the estimated population growth rate for Baker County is expected to accelerate, averaging 0.82 percent annually. On the other hand, the State of Oregon's average annual population growth rate is expected to slow somewhat, from 1.61 percent (for years 1970 to 1997) to 1.30 percent (for years 1997 to year 2020). Because of the larger population base, this growth rate yields an increase of over 1.1 million between years 1997 and 2020, compared to an increase of roughly the same number between 1970 and 1997.

Table 2
Population and Employment Forecast, 1997 to Year 2020
Baker County and State of Oregon

							1997 to 2020 Change	
	1997	2000	2005	2010	2015	2020	Number	Annual Average
Baker County								
Population	16,500	17,349	18,001	18,635	19,267	19,893	3,393	0.82%
Non-Agr. Empl.	5,150	5,568	5,828	6,007	6,085	6,155	1,005	0.78%
State of Oregon								
Population	3,217,000	3,406,000	3,631,000	3,857,000	4,091,000	4,326,000	1,109,000	1.30%
Non-Agr. Empl.	1,524,900	1,601,718	1,718,659	1,814,276	1,882,653	1,947,702	422,802	1.07%

Source: Portland State University Center for Population Research and Census (1997 population estimates); State of Oregon Employment Department (1997 employment estimates); and State Of Oregon Office of Economic Analysis (forecasts).

Baker City's population was forecast to grow at an annual rate of 0.8 percent annually in its Transportation System Plan, prepared by DEA in 1996. This planning effort does not change the growth assumptions for Baker City. Based on the OEA projections, population forecasts for the jurisdictions of Haines, Halfway, Huntington, Richland, Sumpter, and Unity are shown in five-year increments in Table 3.

Table 3
Population Forecast, 1997 to Year 2020
Baker County and its Incorporated Cities

							Change 1997-2020	
	1997	2000	2005	2010	2015	2020	Number	CAARG
Baker County	16,500	17,349	18,001	18,635	19,267	19,893	3,393	0.8%
Baker City	9,960	10,200	10,610	11,040	11,490	11,960	2,000	0.8%
Haines	455	480	530	580	620	670	215	1.7%
Halfway	360	370	380	390	400	410	50	0.6%
Huntington	575	590	610	630	650	670	95	0.7%
Richland	185	190	200	210	220	230	45	1.0%
Sumpter	175	180	190	200	210	220	45	1.0%
Unity*	110	111	112	114	116	118	8	0.3%
Sum of Incorporated Cities	11,820	12,120	12,630	13,160	13,710	14,280	2,460	0.8%
Unincorporated Baker County	4,680	5,230	5,370	5,480	5,560	5,610	930	0.8%

Source: Portland State University Center for Population Research and Census (1997 population estimates); and State Of Oregon Office of Economic Analysis (county forecasts); and David Evans and Associates, Inc. (disaggregation of county forecast to cities).

Reflecting its stronger rate of growth historically, the City of Haines is likely to continue growing at a rate slightly faster than other jurisdictions in Baker County. However, this rate of growth is expected to slow somewhat, tempered by the population growth forecast for the county overall. Again, the population forecast for Baker City was not a part of this transportation planning effort but was instead taken from the 1996 Baker City Transportation System Plan.

POPULATIONS WITH SPECIFIC TRANSPORTATION NEEDS

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

As stated above, the Portland State University Center for Population Research and Census estimates the Baker County population at 16,500 in 1997. The Center further estimates that 4,124 of those people, or about one-quarter of the population, are under the age of 18. Because the purpose of this analysis is to determine the number of people with specific transportation needs, DEA used PSU's age disaggregation to estimate that 3,460, or about 22 percent of the population, are under the age of 16, the legal driving age in Baker County.

According to the 1990 Census, 14.3 percent of the 15,317 persons living in Baker County 16 and older were below the poverty level. Poverty statistics are based on a threshold of nutritionally-adequate food plans by the Department of Agriculture for the specific size of the family unit in question. The distribution of the population below poverty level shows that a larger proportion of younger persons than older persons are affected by this indicator, as shown in Table 4.

The Census Bureau reports that 4.7 percent of the population in Baker County had a mobility limitation in 1990. Persons were identified as having a mobility limitation if they had a health condition (physical and/or mental) that lasted for six or more months and which made it difficult to go outside the home alone. A temporary health problem, such as a broken bone that was expected to heal normally, was not considered a health condition.

Table 4
Poverty Status, Baker County, 1990 Census

	Number Below Poverty Level	Total Population	Percent of Total Population Below Poverty
11 and under	489	2,655	18.4%
12 to 17	225	1,333	16.9%
18 and older	1,475	11,329	13.0%
Total	2,189	15,317	14.3%

Source: U.S. Census Bureau.

Using the proportion of the population with a mobility limitation and below the poverty level[2] in 1990, DEA estimated the number of people with specific transportation needs in 1997. The following table shows that nearly 40 percent of the population may have specific transportation needs. (There is likely to be some overlap between the 4.7 percent of the population with mobility limitations and the 13.2 percent below the poverty level; therefore, the sum of the figures may overstate the proportion of the population with specific transportation needs.)

Table 5
Estimated Population with Specific Transportation Needs
1997, Baker County

	Percent of Total Population	Estimated Number
Persons between the ages of 5 and 15	21.7%	3,580
Persons 16 and older under the Poverty Level	13.2%	1,700
Persons 16 and older with Mobility Limitations	4.7%	600
Total Specific Transportation Needs Populations	39.5%	5,880

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

[2] DEA used the Census Bureau's age diaggregation to estimate that 13.2 percent of the population 16 and older was under the poverty level in 1990.