CITY OF JEFFERSON
TRANSPORTATION SYSTEM PLAN

Prepared for
City of Jefferson
Oregon Department of Transportation

Prepared by

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Disclaimer

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CHAPTER 1
INTRODUCTION

The Jefferson Transportation System Plan (TSP) addresses the City's anticipated transportation needs through the year 2020. It has been prepared to meet state and federal regulations that require urban areas to conduct long-range planning. Specifically, the TSP was developed in compliance with requirements of the Transportation Equity Act for the 21st Century (TEA-21), Statewide Planning Goal 12, the Transportation Planning Rule (TPR – Oregon Administrative Rule (OAR) Chapter 660, Division12), and Oregon Highway Plan (1999). The long-range planning is intended to serve as a guide for the City of Jefferson in managing their existing transportation facilities and developing future transportation facilities.

REQUIREMENTS

The TEA-21, Statewide Planning Goal 12, the Transportation Planning Rule, and Oregon Highway Plan (OHP) requirements guiding the development of the Jefferson TSP are discussed below.

TEA-21

TEA-21 is a federal piece of legislation that was passed in 1998. It specifies requirements for statewide and metropolitan area planning. Although TEA-21 does not specify requirements for areas less than a population of 50,000, it is still relevant to Jefferson TSP planning since it defines how federal aid is dispersed for highway and transit projects. The planning requirements under TEA-21 parallel the requirements under the TPR.

Goal 12

Oregon adopted 19 Statewide Planning Goals in the mid-1970s. These goals were to be implemented in each local jurisdiction's comprehensive plan. Goal 12 of the statewide planning goals related to transportation. The intent of Goal 12 is to "provide and encourage a safe, convenient, and economic transportation system." It provides the following guidelines in creating a transportation element of a local jurisdiction's comprehensive plan:

> "A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrians; (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."

Transportation Planning Rule (TPR)

The Transportation Planning Rule (TPR) was developed by the Department of Land Conservation and Development (DLCD) and Oregon Department of Transportation (ODOT). It was adopted originally in April 1991 to implement Goal 12 of the Statewide Planning Goals.

The TPR requires that cities, counties, Metropolitan Planning Organizations (MPOs), and state agencies prepare and adopt transportation system plans. A transportation system plan is defined in the TPR as: "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 TPR encourages multi-modal transportation systems to reduce the dependence on auto traffic.

The TSP elements produced included the following:

- Street system plan for a network of arterials, collectors, and local streets
- Bicycle and pedestrian plan
- Public transportation plan
- Air, rail, water, and gas pipeline plan
- Policies and land use regulations for implementing the TSP
- Transportation system and demand management plan
- Transportation financing plan

Oregon Highway Plan (1999)

The 1999 Oregon Highway Plan (OHP) was adopted by the Oregon Transportation Commission on March 18, 1999. It applies the general directives specified in the 1992 Oregon Transportation Plan. The general directives of the 1992 Oregon Transportation Plan called for a transportation system marked by modal balance, efficiency, accessibility, environmental responsibility, connectivity among places, connectivity among modes and carriers, safety, and financial stability. The 1999 OHP applies the 1992 Oregon Transportation Plan general directives by emphasizing on:

- Efficient management of the system to increase safety, preserve the system and extend its capacity;
- Increased partnerships, particularly with regional and local governments;
- Links between land use and transportation;

- Access management;
- Links with other transportation modes; and
- Environmental and scenic resources

There are several policies within the 1999 OHP that local jurisdictions are required to be consistent with in their transportation system plans. Specifically, the OHP states:

> "Local and regional jurisdictions must be consistent with Policies 1A, State Highway Classification System; 1B, Land Use and Transportation; 1C, State Highway Freight System; 1D, Scenic Byways; 1F, Highway Mobility Standards; 1G, Major Investments; 2G, Rail and Highway Compatibility; 3A-E, Access Management; 4A, Efficiency of Freight Movement; 4D, Transportation and Demand Management; and the Investment Policy in their local and regional plans when planning for state highway facilities within their jurisdiction."

Other State Plans

In addition to those specific requirements described above, coordination with other specific state plans is also required. These plans include:

- Oregon Bicycle and Pedestrian Plan, ODOT, June14, 1995
- Oregon Rail Freight Plan, ODOT, August 17, 1994
- Oregon Rail Passenger Policy and Plan, ODOT, 1992
- Oregon's Mobility Needs, Final Report, June 1999
- 1997 Oregon Public Transportation Plan, ODOT
- Freight Moves the Oregon Economy, ODOT, July 1999
- Marion County Transportation System Plan

PLANNING AREA

Land Uses

The planning area for the City of Jefferson Transportation System Plan is the urban growth boundary (UGB). This area is defined by Figure 1-1. Figure 1-1 also shows the city limits in relation to the UGB.

The northern boundary of the UGB is north of Talbot Road. The east boundary of the UGB follows a step pattern as it continues eastward. The south end of the UGB is Jefferson-Scio Drive. The west end of the UGB generally follows the Santiam River although there is a section that is inland of the river between Church Street and north of North Avenue.

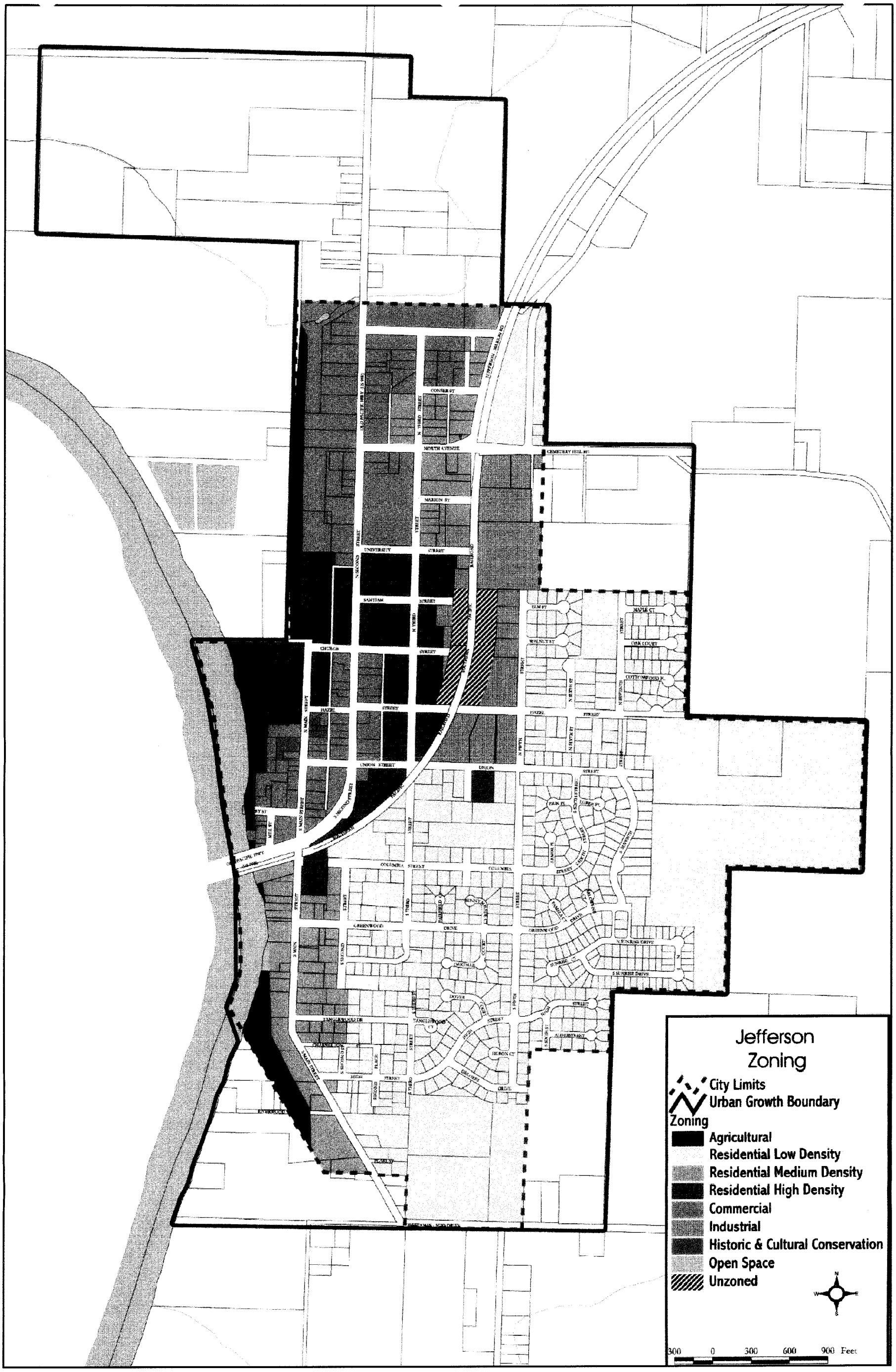


Figure 1-1.
Land Use Map

Based on the city's land inventory, there is 17.04 acres of agriculture land within the UGB. Of that 17.04 acres, 0.93 acres is being used by public/institutional uses, 1.40 acres by residential uses, and 14.71 acres is vacant.

The commercial area within the UGB is 65.73 acres. Most of the commercial area within Jefferson is either located along Main Street north of Jefferson Highway or along both sides of Jefferson Highway. Of the total commercial area, 14.55 is currently being used by commercial uses, 11.31 acres is being used by public uses, 15.60 acres is being used by residential uses, and 24.27 acres is vacant. There is enough vacant commercial property to more than double the current commercial use if necessary in the next 20 years so it appears that the 20-year commercial land demand can be met. Also, much of the residential uses within the commercial zone is likely to eventually transition to commercial uses as demand for commercial properties increase.

Industrial land within the urban growth is comprised of 29.74 acres. The industrial land is located on both sides of the railroad tracks between Union Street and Cemetery Hill Road. Of the 29.74 total acres of industrial land, 15.61 is being used by industrial uses, 2.55 is being used by residential uses, and 11.58 acres is vacant.

Public land within the UGB comprises 55.92 acres. This land is located south of Talbot Road and is comprised of the existing Jefferson High School and Middle School.

There is 1.13 acres of historic and cultural conservation land in Jefferson. This lot is located on the west side of Main Street across the street from City Hall. The Conser House is located on this lot and it is classified as a historic building.

There is 21.55 acres of open space land within the UGB. Of the total open space acreage, 1.17 acres is being used for public use, 1.74 acres for residential use, and 18.64 acres is vacant.

The remaining land within the urban growth area is residential. There are five residential classifications within Jefferson. They are R1 (low residential), R2 (medium residential), R3 (high residential), RL (low density residential), and RM (medium density residential). The majority of residential land is south and east of the Union Pacific railroad tracks and south of what would be the Santiam Street extension if you extend that roadway to the east. There is also a small pocket of medium and high residential lands along both sides of S. Main Street.

Based on the city's GIS data, almost the city is not within the 100-year floodplain of the Santiam River. Small sections of the western boundary of the city limits may fringe onto the 100-year floodplain boundary.

There are several wetland areas within the city limits of Jefferson. These areas were defined by the city's GIS data. There is a small wetland area northwest of Columbia Street and 3rd Street. This appears to be in a vacant lot. There is another small pocket of wetlands in the industrial zoned land area. The third and largest wetland area defined by

the GIS data is south of Greenwood Street and east of 5th Street. This area is already developed by manufactured homes and apparently has been filled.

There are two natural drainage ways in the Jefferson UGB. First, the Santiam River exists to the west of the city. Much of the city naturally drains to the west to the Santiam River. The second natural drainage ways is Morgan Creek which is located at the north city limits and within the UGB. Morgan Creek flows east-west and eventually into the Santiam River.

Street System

The roadways within the TSP planning area fall under the jurisdiction of the City of Jefferson, Marion County, and the Oregon Department of Transportation (ODOT). The roadways under Marion County's jurisdiction are Talbot Road, North Avenue, Jefferson-Marion Road, Salamander Road, Main Street south of Jefferson Highway, Jefferson-Scio Drive, and Cemetery Hill Road. Jefferson Highway, also locally known as 2nd Street and formerly known as Old Highway 99E, is a ODOT district highway.

The street system in Jefferson is bisected by the Union Pacific Railroad. To the north and west of the railroad, Jefferson's street system can be described as a narrow grid system.

South and east of the railroad, the street system becomes more suburban in nature with a few collector streets serving a system of short streets and cul-de-sacs.

PLANNING PROCESS

The transportation system plan (TSP) was developed through a series of technical exercises and input from the public, citizen advisory committee, and technical advisory committee. The key elements of the process to develop the TSP are listed below.

- Define goals and objectives
- Review of existing plans and policies
- Solicit public involvement and input
- Conduct an existing inventory and condition analysis
- Project future traffic volumes
- Define deficiencies and needs
- Develop transportation improvement projects for all modes
- Define transportation facility standards and requirements
- Develop recommended policies and ordinances
- Develop modal plans for each mode of transportation
- Develop a finance plan

Define Goals and Objectives

Goals and objectives were developed based on input from City of Jefferson staff, the technical advisory committee, community input, and requirements of the TPR. The goals and objectives were used later to guide the development of transportation system plan, to make decisions regarding various transportation improvement projects, and to provide direction in developing new transportation policies, standards, and requirements.

Review of Existing Plans and Policies

To begin the transportation planning process, all applicable City of Jefferson transportation and land use plans and policies were reviewed. The purpose of this review was to develop an understanding of how the City of Jefferson was managing its transportation infrastructure. Also, the plan and policy review also defined where the city is compliant and deficient in meeting the Transportation Planning Rule (TPR) requirements. Where deficiencies exist in meeting the TPR requirements, recommendations will be made that would comply with the TPR requirements. Appendix A includes the memorandum summarizing the existing plan and policy review.

Solicit Public Involvement and Input

Developing a plan that meets the values and needs of the community is an important component of the transportation system planning process. Several techniques were used to solicit public participation and input to the planning process. First, a public questionnaire was circulated throughout the City of Jefferson. In addition, transportation stakeholder comments were collected through phone interviews. Several public open houses were conducted to present findings and to solicit input on improvement projects.

Two committees were formed to provide technical guidance and public input throughout the project. The first committee formed was a technical advisory committee (TAC) which was comprised of City of Jefferson, Marion County, ODOT, and DLCD staff. The second committee formed was a citizen advisory committee (CAC) was which comprised of the Planning Commission, three City Councilors, and two citizens.

The supporting public involvement documentation is included in Appendix B. Appendix B includes the two TSP newsletters, stakeholder interview summary memorandum, public survey results memorandum, and summary of the public input received from the two public open houses.

Conduct an Existing Inventory and Condition Analysis

The purpose of the existing inventory and conditions analysis was to catalog all the existing transportation facilities and services to determine its operating condition. This information provides the baseline from which the plan can be developed.

Define Deficiencies and Needs

Based on the existing inventory and conditions analysis and public input, a transportation deficiencies list was developed. The inventory and existing conditions analysis forms the technical basis for the deficiencies list. The public input validates the technical work in defining the deficiencies and needs as well as adding local knowledge.

The future transportation deficiencies were identified from a future traffic forecasting analysis. Based on historical traffic growth trends on Jefferson Highway, a 20-year traffic forecast was developed. The traffic forecast was then used to conduct a volume-to -capacity (v/c) ratio and level of service analysis to determine the locations of future traffic deficiencies. The combination of existing and future deficiencies defines the need to develop improvement alternatives.

Develop Transportation Improvements

Based on the deficiencies and needs list, a transportation improvement plan was developed with alternatives. These improvements and alternatives were developed in conjunction with the TAC and CAC committees as well as attempting to meet the goals and objectives. Based on the input from the TAC and CAC and an evaluation process, the final transportation improvements were determined and prioritized into high, medium, and low priorities.

Define Transportation Facility Standards and Requirements

Transportation facility standards were developed to guide the City of Jefferson in managing its roadways as well as a guideline in developing new infrastructure. These standards include access management requirements, road standards for a variety of street classifications, sidewalk width standard, bicycle facility standards, bicycle parking requirements, accessway requirements, internal pedestrian connection requirements, and block and street spacing requirements. The various standards will be documented in the relevant modal plans.

Develop Recommended Policies and Ordinances

The development of the transportation system within the City of Jefferson requires that policies in the Comprehensive Plan support its implementation. Also requirements

adopted by ordinance(s) are necessary for transportation facilities to develop with new development. This section evaluates the existing policies, standards, and requirements and makes recommendations to enhance policies, standards, and requirements that would support the further development of the transportation system within Jefferson.

Develop a Modal Plan for Each Mode of Transportation

Modal plans for each mode of transportation within the City of Jefferson was developed. The modal plans were developed from all of the sections described above. The intent of each modal plan was to develop improvement projects that meet the 20 year need, establish and update standards and requirements complying with the Transportation Planning Rule, and creating and updating comprehensive plan policies that guide the development of the transportation system within the City of Jefferson.

Develop a Finance Plan

A finance plan was developed to identify a strategy to fund all of the transportation improvement projects developed. The finance plan starts with existing transportation funding levels. The existing revenues were then compared with the costs of the proposed improvements. Based on a revenue shortfall for funding future projects, a series of funding options was discussed and a strategy proposed.

OTHER PLANNING CONSIDERATIONS

Environmental conditions have a potentially significant impact to the development of new transportation infrastructure. TPR requirement OAR 660-012-0035 (3) (c) states that "the transportation system shall minimize adverse economic, social, environmental and energy consequences." In the development of transportation improvements, a cursory look at environmental impacts was conducted from existing sources and known environmental issues by the City of Jefferson staff. The goal in the cursory environmental analysis was to minimize environmental impacts by any proposed transportation improvement.

Another consideration in the development of transportation improvement projects was the development of goal and objectives to guide the development of the improvement proposals. The goals and objectives are analogous to a purpose and need statement. From the need, the development of improvements is justified. This approach also facilitates the development of these improvements into the State Transportation Improvement Program (STIP) later in the process.

CHAPTER 2
GOALS AND OBJECTIVES

Goals and objectives for the transportation system plan (TSP) were developed to guide the planning process. The following goals and objectives were developed from information contained in the city's Comprehensive Plan, input from the public involvement process, and to meet the requirements of the Transportation Planning Rule (TPR). An overall goal was drawn for the plan, along with more specific goals, objectives, and policies.

OVERALL TRANSPORTATION GOAL

Develop a balanced multi-modal transportation system that will accommodate future growth in a safe, convenient, and economically feasible manner. In developing the future transportation system of the City of Jefferson, the existing character of the city should be preserved.

Goal 1 – Preserve the function, capacity, level of service, and safety of Jefferson Highway.

Objectives

A. Develop access management standards that will meet the requirements of the TPR and also consider the needs of the community.

B. Preserve the capacity and function of the state highway by promoting alternative modes of transportation, transportation demand management programs (i.e. ridesharing and park and ride), and transportation system management (TSM) measures.

C. Maintain a volume/capacity ratio of 0.85 or better along Jefferson Highway.

D. Evaluate the need for traffic control devices along Jefferson Highway.

Goal 2 – Enhance the transportation mobility and safety on the local street system.

Objectives

A. Continue to develop the road system as the principal mode of transportation.

B. Maintain a level of service standard of LOS D or better.

C. Develop a local street plan to preserve future rights-of-way for future streets and to maintain adequate local circulation in a manner consistent with Jefferson's existing street grid system.

D. Require developments to construct their accesses consistent with the local street plan.

E. Develop an access management policy for the local arterial system and direct commercial development access to local streets wherever possible.

F. Encourage development to occur near existing community centers where services are presently available to minimize the need for expanding services and to more efficiently utilize existing resources.

G. Examine the need for speed reduction in specific areas such as adjacent to local schools.

H. Identify local traffic problems and recommend solutions.

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

J. Develop and adhere to a transportation improvement program implementing the improvement recommendations of the TSP as funding is identified.

Goal 3 – Increase the use of alternative modes of transportation (walking, bicycling, rideshare/carpooling, and transit) through improved access, safety, and service. Increasing the use of alternative transportation modes includes maximizing the level of access to all social, work, and welfare resources for the transportation disadvantaged. The City of Jefferson seeks for its transportation disadvantaged citizens the creation of a customer-oriented regionally coordinated public transit system that is efficient, effective, and founded on present and future needs.

Objectives

A. Develop a citywide pedestrian and bicycle plan providing for sidewalks, bikeways, and safe crossings.

B. Promote alternative modes and rideshare/carpool programs through community awareness and education.

C. Plan for future expanded transit service by coordinating with regional transit service efforts.

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

E. Seek further improvement of mass transit systems to the City of Jefferson by encouraging more frequent scheduling of commercial carriers and by continued support of those systems presently developed for mass transit in the region.

F. Transportation Disadvantaged

1. Continue to support programs for the transportation disadvantaged where such programs are needed and are economically feasible.

2. Increase all citizens' transportation choices.

3. Identify and retain community identity and autonomy.

4. Create a customer-oriented focus in the provision of transportation services.

5. Hold any regional system accountable for levels and quality of service.

6. Enhance public transportation sustainability.

7. Promote regional planning of transportation services.

8. Use innovative technology to maximize efficiency of operation, planning, and administration of public transportation.

9. Inter-community and intra-community transportation is equally necessary for the transportation disadvantaged.

Goal 4 – Improve coordination between the City of Jefferson, Marion County, and the Oregon Department of Transportation (ODOT).

Objectives

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

B. Encourage improvement of state highways, especially Jefferson Highway.

C. Work with Marion County and ODOT in establishing cooperative road improvement programs and schedules.

D. Work to establish the right-of-way needed for new roads identified in the TSP.

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

CHAPTER 3
TRANSPORTATION SYSTEM INVENTORY

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

STREET SYSTEM

The existing street system inventory was conducted for all highways, arterial roadways, collector roadways, and local roadways within Jefferson, as well as those in Marion 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, bikeways, and shoulder condition;
- Speed limit; and
- General pavement conditions and type
- Rail crossing information
- Access locations on major streets
- Crosswalk and wheelchair ramp locations
- Traffic control device locations at major intersections
- Drainage features such as curb and gutter location, drainage basins, and culverts.

Appendix C lists the complete inventory.

The street system in Jefferson is bisected by the Union Pacific Railroad. To the north and west of the railroad, Jefferson's street system can be described as a narrow grid system. South and east of the railroad, the street system becomes more suburban in nature with a few collector streets serving a system of short streets and cul de sacs.

The development of a complete system of local streets helps disperse traffic onto the arterial system. This dispersion of traffic reduces local traffic congestion. A complete grid system helps achieve this dispersal of traffic. If the local network is dependent on only a few local streets, then congestion points develop quickly. Also, the redundancy in the street network by a grid system can facilitate movements for emergency vehicles and improve upon local circulation by providing more alternate travel paths. The opposite of a grid system is the superblock concept in which all local streets funnel into large arterials spaced several thousand feet apart. This concept relies on fewer large streets and has significant traffic impacts. The grid system has less traffic impacts and a more livable street can result by developing a local street system rather than a superblock street system.

State Highways

Discussion of the Jefferson street system must include the state highway since it traverses the planning area. Although Jefferson has no direct control over the state highway, adjacent development and local traffic patterns are heavily influenced by it. Jefferson is served by one state highway, Jefferson Highway. Jefferson Highway is also known as N. Second Street and was formerly called Old Highway 99E. It serves as the major route through town with commercial development focused along it.

The 1999 *Oregon Highway Plan* (OHP) classifies the state highway system into five different categories. These categories are as follows: interstate highways (NHS), state highways (NHS), regional highways, district highways, and local interest roads.

Jefferson Highway is identified as a district highway within the urban growth boundary of Jefferson. According to the OHP, a district highway definition is:

> "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 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.."

Jefferson Highway is a district highway that provides access to I-5. The highway creates a north-south loop to I-5. Jefferson is served by four interchanges, three to the north and one to the south by Jefferson Highway. Jefferson Highway is not on the National Highway System and is not a Freight Route based on the 1999 OHP designation.

Jefferson Highway is generally a two-lane roadway with a 30-mph speed limit through most of Jefferson. From North Avenue to Talbot Road, the speed limit increases to 40-mph.

City Street Classification

Identification of the roadway functions is the basis for planning roadway improvements and the appropriate standards (right-of-way, roadway width, design speed) that would apply to each roadway facility. The following definitions serve as a general guide in determining street classifications:

Arterial – Intra- and inter-community roadways connecting community centers with major facilities. In general, arterials serve both through and local traffic. Access should be partially controlled with infrequent access to abutting properties. Residential property typically does not have direct access to arterials.

Major and Minor Collectors – Streets connecting residential neighborhoods with smaller community center facilities, as well as access to the arterial system. Property access is

generally a higher priority for collectors than for arterials. Through-traffic movements are served as lower priority. The City of Jefferson's Public Works Design Standards, Streets in Section 2.7 has two classifications for collectors- major and minor. A major collector services more area, is generally a longer street, and has higher traffic volumes. The minor collector is typically shorter, services fewer development, and has lower traffic volumes.

Local Street – Streets within residential neighborhoods connecting housing (also can be commercial, industrial, etc.) with the collector and arterial system. Property access is the main priority. Through traffic movement is not encouraged.

The arterial streets within Jefferson's planning area are as follows and are defined from the Public Works Design Standards – Streets – Section 2.7, 1996:

- Jefferson Highway (N. Second Street) – ODOT jurisdiction
- Talbot Road - Marion County jurisdiction
- North Avenue from Jefferson Highway to Jefferson-Marion Road – Marion County jurisdiction
- Jefferson-Marion Road – Marion County jurisdiction
- Main Street from Jefferson Highway to Jefferson-Scio Drive – Marion County jurisdiction
- Jefferson-Scio Drive – Marion County jurisdiction

As shown above, all of the arterial streets within the Jefferson planning area are either ODOT or Marion County roadways. No city owned roadways are classified as arterials.

The major collectors within Jefferson are as follows:

- 5th Street
- Hazel Street
- Cemetery Hill Road

The minor collectors within Jefferson are as follows:

- Greenwood Street
- High Street
- 3rd Street north of Hazel Street
- 7th Street

Commercial and industrial streets are listed below:

- Bates Street
- Ferry Street
- North Avenue
- Union Street
- University Street

- Main Street
- Mill Street

Figure 3-1 shows the City of Jefferson's existing roadway system and functional classification.

TRAFFIC CONTROL DEVICES

Currently, the City of Jefferson does not have any traffic signals. However, this summer (2001), a traffic signal in conjunction with a railroad signal will be constructed at the intersection of Jefferson Highway and Main Street.

All of the intersections in Jefferson are stop sign controlled at the minor side street. There are also several all-way stop intersections within the eastern residential area of town. The locations of these all-way stop intersections are shown in Figure 3-2.

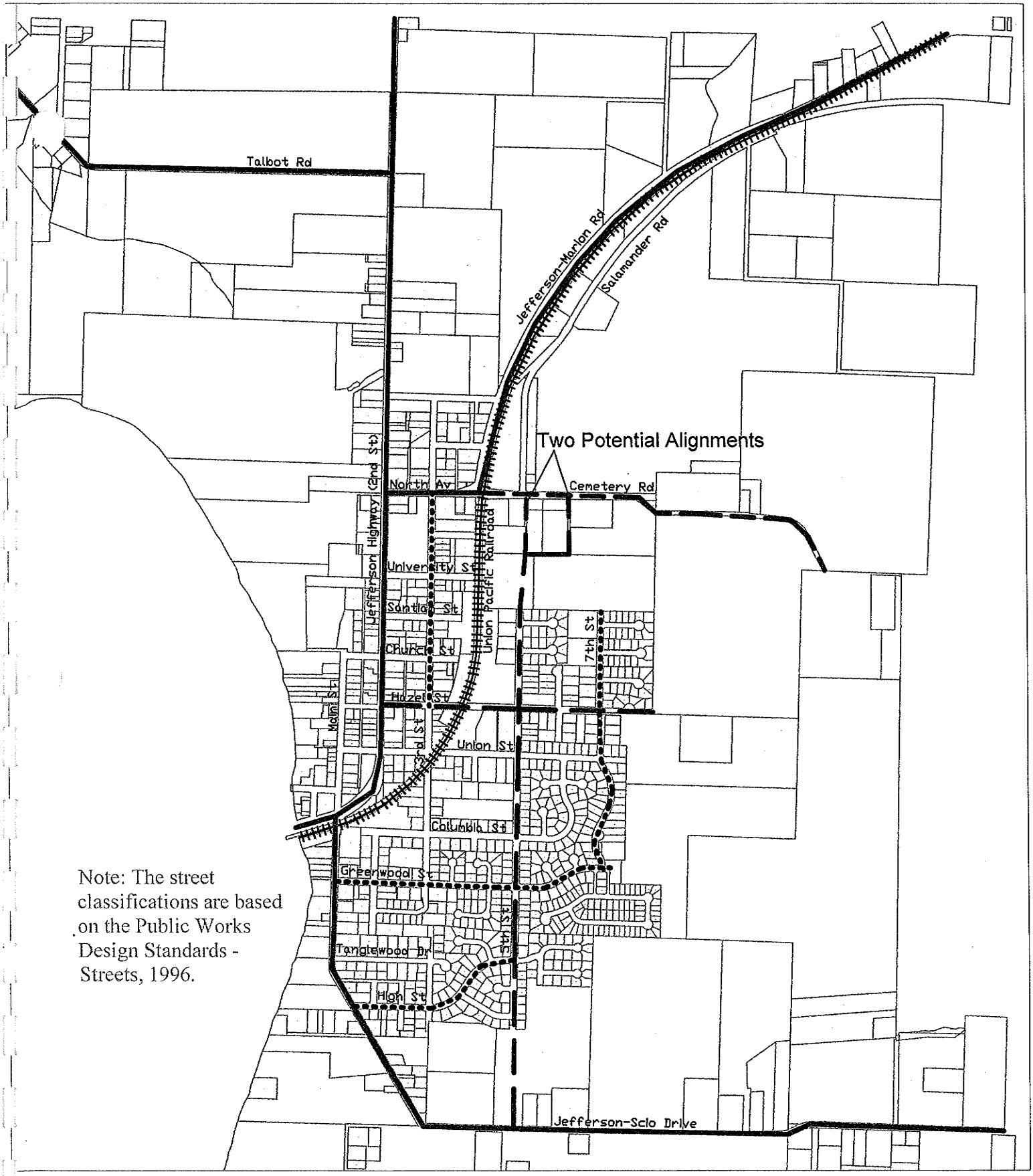
PARKING

Public on-street parking is generally available on most of Jefferson's public streets. The roadway inventory in Appendix B documents the on-street parking locations throughout the city. Based on this inventory, on-street parking stalls are not marked and parking is available along the curb in an informal fashion.

No surface public parking lots exist in Jefferson.

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. In more general terms, a rating under 55 may indicate that significant maintenance is needed or that replacement should be planned. The exception to this are bridges that were built to a much older standard that are in good condition but do not meet today's design standards. These type of bridges can rate fairly low and under 55. The

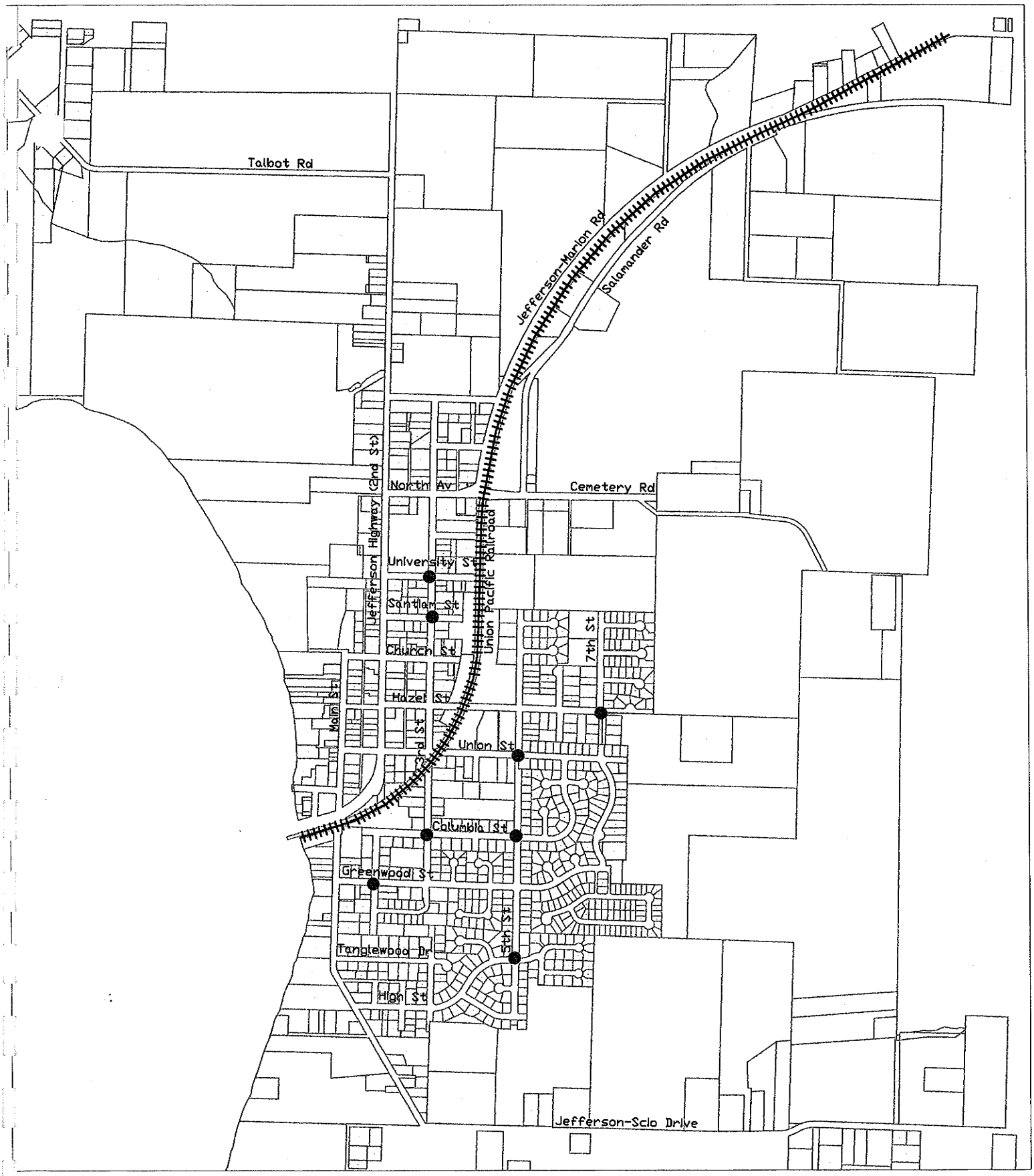


Note: The street classifications are based on the Public Works Design Standards - Streets, 1996.

LEGEND

- Arterial
- Major Collector
- Minor Collector
- Local

Figure 3-1.
Roadway Classification Map



LEGEND

All-Way Stop Location ●

Figure 3-2
All-Way Stop Location Map

important factor here is that there are no structural integrity issues and loading problems that limit the type of vehicle and weight can cross the structure.

There are two bridges along Jefferson Highway within the Jefferson urban growth boundary. The first bridge is at milepost (M.P.) 6.24 at the south end of town and goes over the Santiam River. The second bridge is at the north end of town at M.P. 5.28. This bridge crosses Morgan Creek.

The Santiam River Bridge has a span of 802 feet over the Santiam River. It has a sufficiency rating of 54.40 and is considered as functionally obsolete. The bridge has three areas in which its appraisal description were poor. The bridge rail and transitions do not meet acceptable standards and the deck geometry is intolerable requiring a high priority for replacement. The load rating condition appears to be satisfactory. This bridge is inspected by ODOT every two years and was last inspected in 2000. During that inspection, routine maintenance recommendations were made and replacement was not recommended. The functional obsolete description is likely due to the fact that the bridge is old and was not constructed to near today's design standards. There appears to be no loading problems on the bridge or structural deficiencies that would compromise the safety of the bridge.

The Morgan Creek Bridge is a concrete culvert with a span of 16 feet across the creek and runs for a length of 44 feet under the Jefferson Highway. The sufficiency rating for this bridge is 75.00, which indicates that it is in relatively good condition. However, there are several elements in the appraisal that do not meet current standards. The bridge rail, transitions, approach rails, and rail ends do not meet standards and the deck geometry is basically intolerable requiring a high priority of replacement. This bridge is inspected every four years by ODOT and no maintenance recommendations were included in the last inspection in 1998.

PEDESTRIAN AND BICYCLE SYSTEM

A significant goal of the transportation system plan is to encourage non-auto modes as viable alternatives to short vehicle trips. To accomplish this, alternative facilities must be provided along the same major travel paths as the motorist to access the same locations and major activity centers. The pedestrian and bicycle facility inventory is intended to identify the major travel paths to activity centers and to access whether adequate pedestrian and bicyclist facilities exist along those travel paths. Where missing links or deficient facilities exist, the plan will identify new sidewalk and bicycle lane projects. The development of safe, continuous pedestrian and bicycle facilities linking activity centers together is critical in promoting walking and bicycling as viable travel modes to the automobile for short trips in Jefferson.

In developing the pedestrian and bicycle system, a shift in thinking needs to take place in recognizing that walking and bicycling are viable modes of transportation to reduce the reliance on the automobile. Proper planning and priority must be given to the creation of complete pedestrian and bicycle systems that are safe and reduces conflict points with auto traffic. Only when adequate facilities are created, can these modes be effectively promoted as legitimate travel

modes. The benefits of walking and bicycling replacing short vehicle trips are the reduction of negative aspects of urban growth such as noise, air pollution, and traffic congestion.

The relatively small size of Jefferson indicates that walking and bicycling could be employed regularly for short trips, weather permitting, to reach a variety of destinations. Typically, a short trip that would be taken by a pedestrian would be around one half mile. 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. As for bicycling, because of the small size of Jefferson, a cyclist can travel to any destination in town within a matter of minutes. A short trip for a cyclist is typically considered to be about two miles.

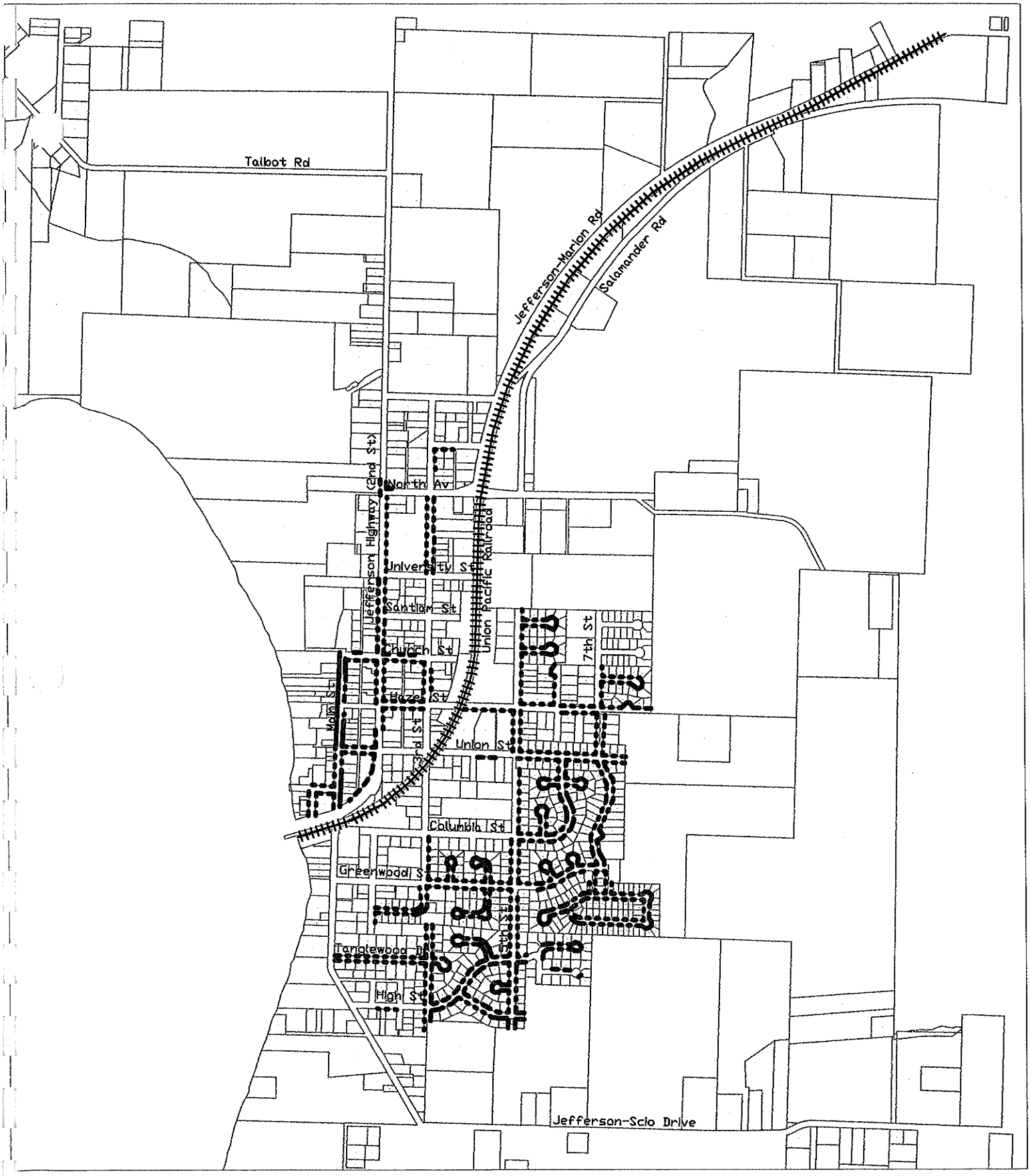
Sidewalks exist along at least on one side of Jefferson Highway from Main Street to North Avenue. The entire downtown Jefferson has sidewalks along its streets. However, there are several sections along Main Street and Hazel Street that are in poor condition. Most of the residential area south and east of the railroad tracks have sidewalks in fair to good condition. Typically, the only residential areas without sidewalks are along older areas. Figure 3-3 shows the sidewalk locations and conditions.

Figure 3-4 shows the existing wheelchair ramp locations and crosswalk locations. Although there are significant amount of wheelchair ramps at Jefferson's intersections, there are still ramps missing. As part of their maintenance program, the city should make a concerted effort in installing wheelchair ramps at all intersections with sidewalks. . Only two crosswalk locations exist. They are located south of the gated school access on Jefferson Highway and south of University Street on Jefferson Highway. Both crosswalks service the elementary school.

ODOT categorizes bicycle facilities into the following four major classifications:

- Shared roadway – Bicycles and vehicles share the same roadway area under this classification. The shared roadway facility is best used where there is minimal vehicle traffic to conflict with bicycle traffic.
- Shoulder bikeways – This bicycle facility consists of roadways with paved shoulders to accommodate bicycle traffic.
- Bike lanes – A separate lane adjacent to the vehicle travel lane for the exclusive use of cyclists is considered a bike lane.
- Bike paths – These bicycle facilities are exclusive bicycle lanes separated from the roadway.

The only bicycle lanes in Jefferson are along Jefferson Highway from Talbot Road to the Santiam River Bridge. Figure 3-5 shows the bicycle lane locations within the City of Jefferson urban growth boundary.

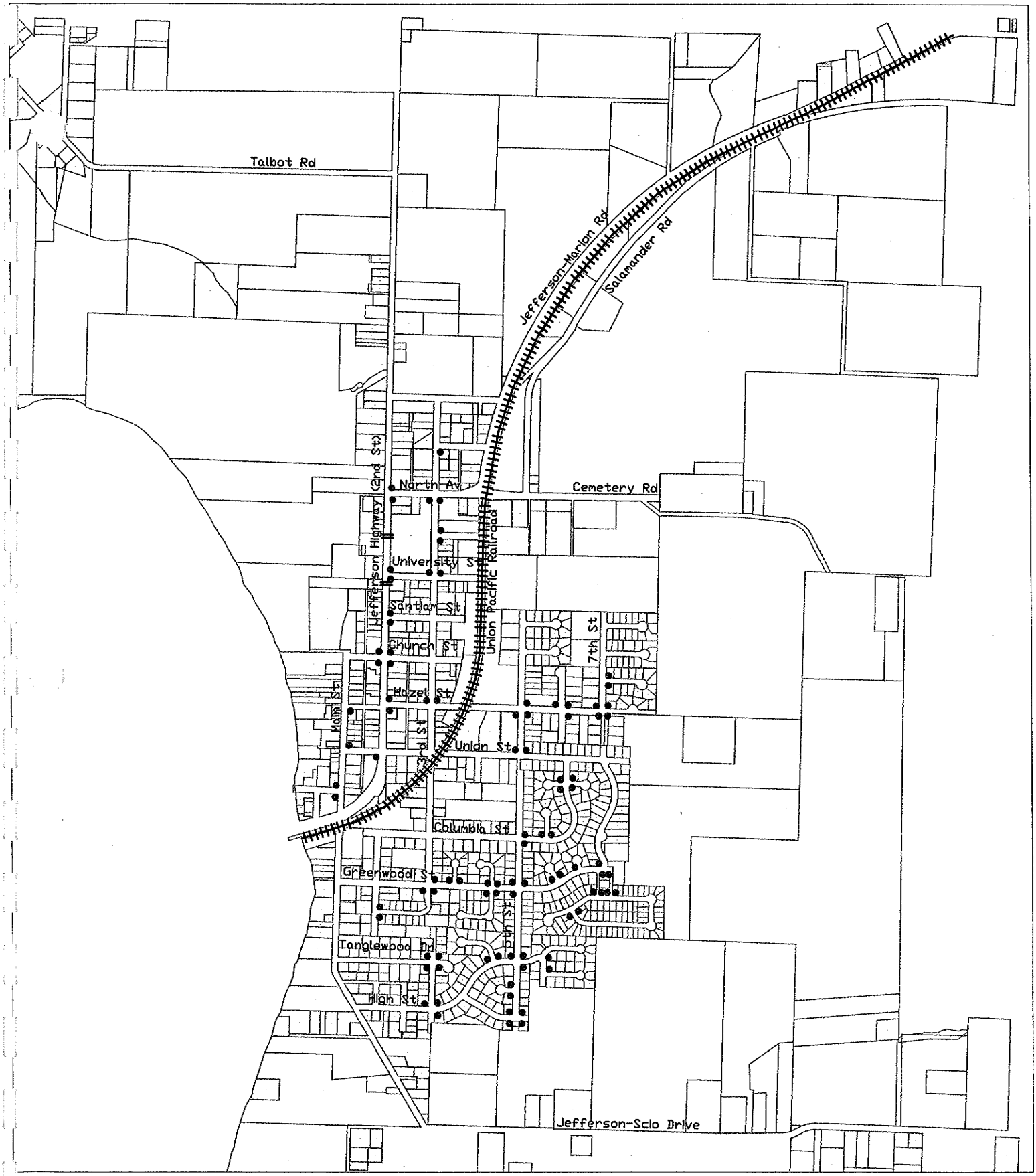


LEGEND

Good/Fair Sidewalk Condition

Poor Sidewalk Condition

Figure 3-3.
Sidewalk Location and
Condition Map

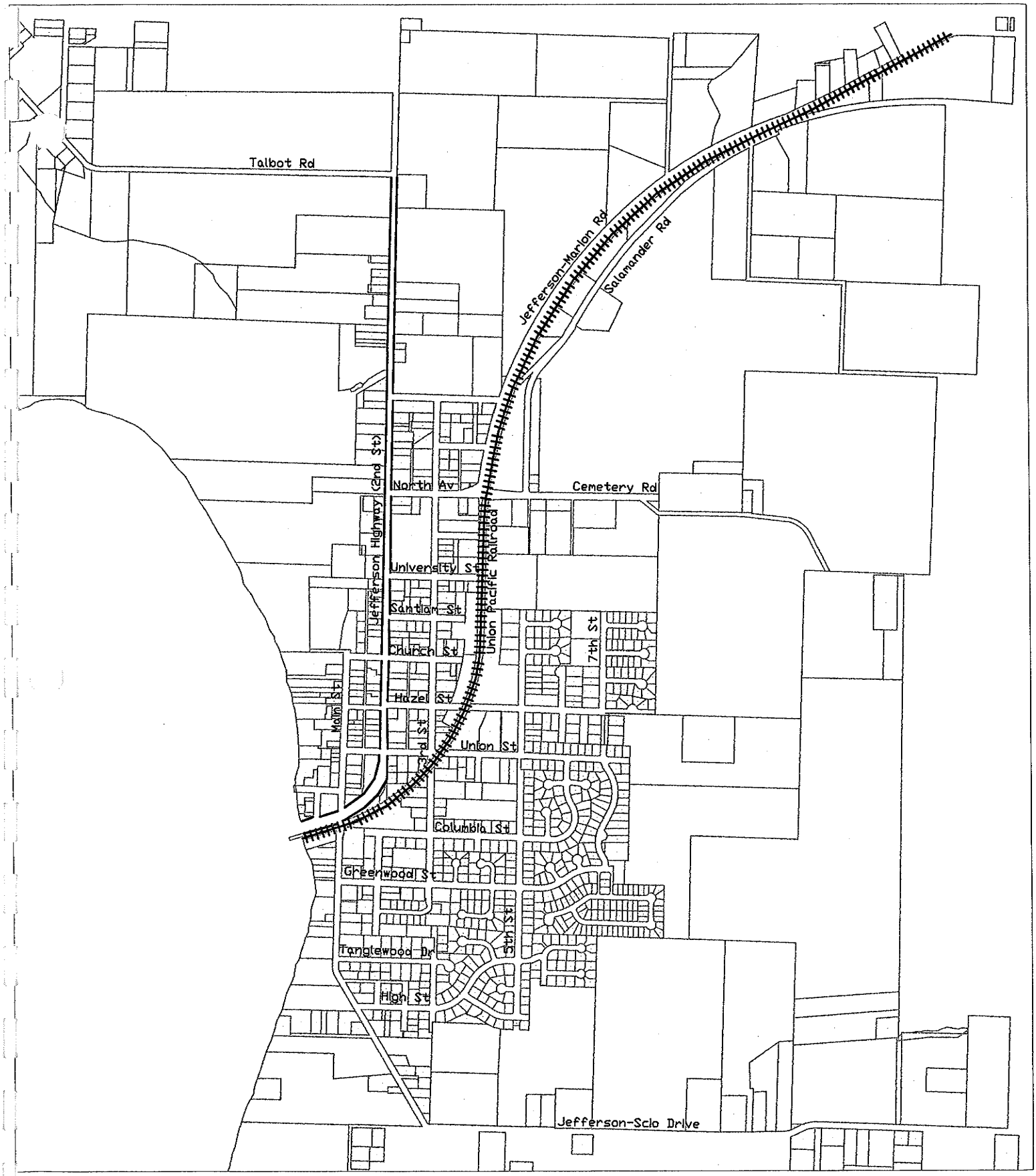


LEGEND

Crosswalk

Wheelchair Ramp •

Figure 3-4.
Wheelchair Ramp and
Crosswalk Location Map



LEGEND

Bike Lane

Figure 3-5.
Bike Lane Location Map

PUBLIC TRANSPORTATION

Services Inventory

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

The closest long distance bus service station is located in Albany and is serviced by Greyhound. Currently, Greyhound operates eight buses on a daily basis that stop in Albany. Four of these buses are destined to points north of Jefferson and four are destined to points south of Jefferson.

Wheels of Joy provides non-emergency medical related transportation services in the City of Jefferson. This service is provided on a "on demand" basis. Wheels of Joy provides transportation for medical patients requiring ambulatory services, transportation for patients in their wheelchair and patients on a stretcher. The fare structure is based on a service fee plus mileage charge. For patients requiring ambulatory service the charge is $9.00 plus $1.50 per mile, for those in a wheelchair it is $20 plus $1.50 per mile and for those requiring a stretcher it is $80 plus $2.50 per mile. Wheels of Joy currently has a 10 vehicle fleet (3 ambulatory vehicles and 7 wheelchair accessible vans) that is available for use in the City of Jefferson area. Based on discussion with Wheels of Joy staff, there is currently low demand for these services within the City of Jefferson.

Jefferson residents have access to a regional ride sharing program. The Regional Ridesharing Program originated in 1975 and continues to serve residents that are within a 60-mile radius of the Salem-Keizer urban area. One of the main resources of the ridesharing program is to help match individuals that are interested in carpools and/or vanpools. Regional ride sharing information and matching is provided by the Mid Valley Rideshare Program. Requests for carpooling to work in the Salem and Portland areas are kept in a database and matched to other interested commuters. Currently there is little demand for the carpool matching service in Jefferson, with an average of approximately 10 per year based on discussions with Mid Valley Rideshare Program staff. Additional ridesharing information and matching for commuters is provided by Cascade West Carpool (for commuters destined for Corvallis) and Commuter Solutions Transportation Management (for commuters destined for Eugene).

Due to the small size of Jefferson with limited medical and commercial uses, intercity travel is a public transportation service that would be desirable to the community. Service to Salem and Albany would meet the medical and shopping needs of those that are transportation disadvantaged.

FREIGHT AND PASSENGER RAIL SERVICE AND GRADE CROSSINGS

The Union Pacific Railroad has a north-south mainline through the City of Jefferson. Both passenger and freight service are provided by this rail line but there is no service provided by these trains to Jefferson. All of the traffic is through train traffic.

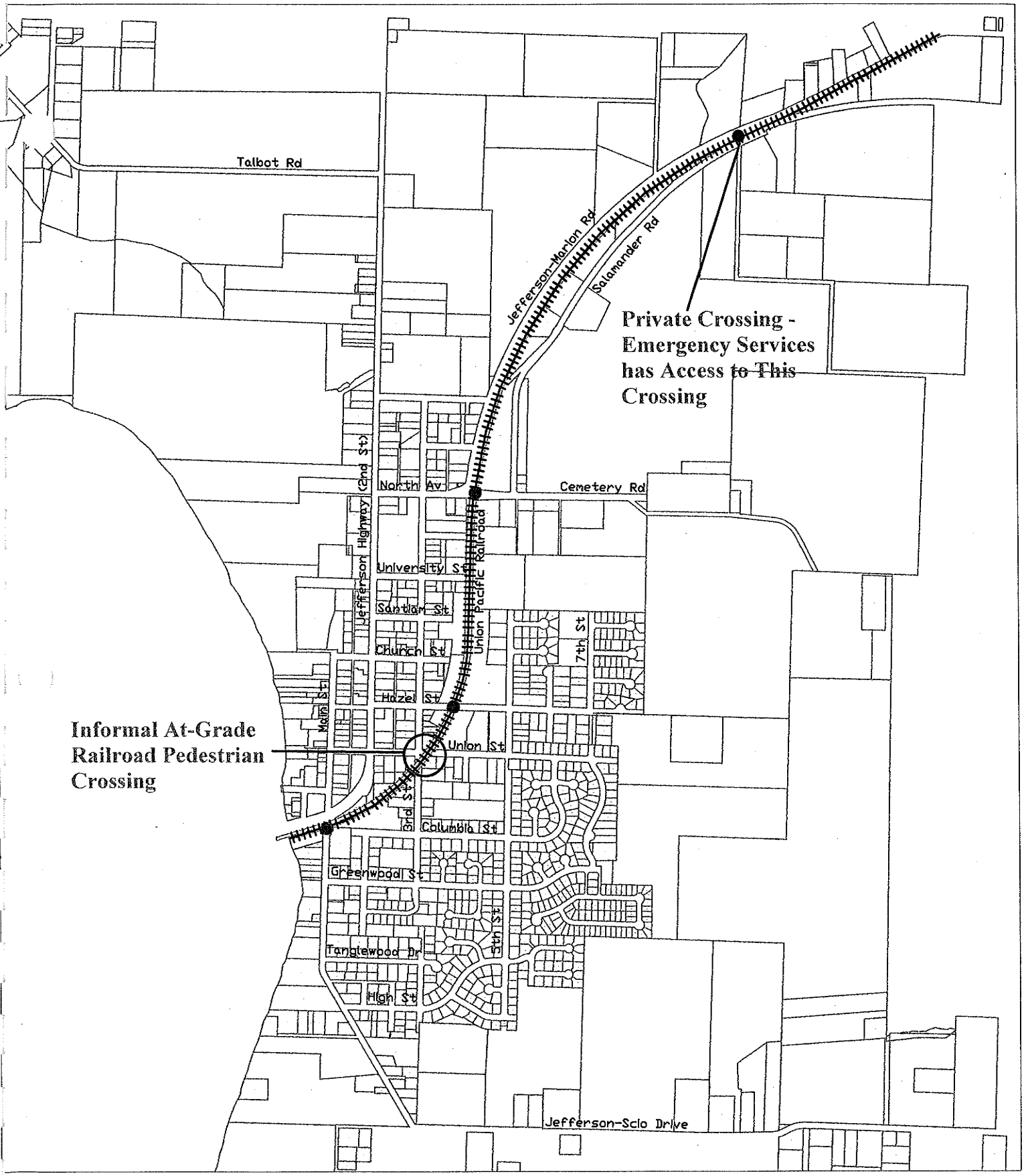
There are three northbound and three southbound Amtrak movements per day along the Union Pacific Railroad through Jefferson. In addition to the passenger train service, Amtrak also operates Thruway Motorcoach Connections, which provides bus service that connects to Amtrak train service in Portland. Currently, Amtrak operates four Thruway buses, two northbound and two southbound. The closest Amtrak train station is located in Albany.

According to ODOT, an average of 20 commercial freight trains use the Union Pacific Railroad through Jefferson on a daily basis. Most of these trains operate during the evening hours. The make up of trains include intermodal rail cars and freight cars. The maximum allowable length of any given train is 7,200 feet. The intermodal rail trains average around 4,000 feet, the freight trains average 7,000 feet, and passenger trains such as Amtrak average 350 to 400 feet. Based on the maximum length of a train, should an incident occur, there is a potential of blocking the entire length of Jefferson and isolating the east and west side of town. This situation is problematic for emergency services.

There are three at-grade rail line crossings within the City of Jefferson urban growth boundary. The three at-grade crossings are located at Main Street south of Jefferson Highway, Hazel Street between 3rd and 5th Streets, and Cemetery Hill Road east of Jefferson-Marion Road. All three at-grade crossings have signals with gates. The at-grade rail line crossing at Main Street south of Jefferson Highway has an improvement project scheduled by Marion County and ODOT in the summer of 2001. This project will improve the safety of the rail crossing by installing a traffic signal at the Jefferson Highway and Main Street intersection that will be coordinated with the existing train signal and gate. This project will reduce the safety problem caused by a "trap" created on Main Street between Jefferson Highway and the railroad track. Figure 3-6 shows the Union Pacific Railroad alignment through Jefferson and the three at-grade railroad crossings.

A private railroad crossing exists between Jefferson-Marion Road and Salamander Road at Wied Road. Emergency vehicles have an access agreement to use this crossing in cases of emergencies. The fire department has a key to the gate of this private crossing. This private crossing is also shown in Figure 3-6.

The Union Pacific rail line passing through Jefferson is called the Valley Main Line. It is the most heavily used rail line in the Willamette Valley according to the ODOT Rail Freight Plan, 1994. Over 20 million gross tons of freight moves over this line each year. The rail road track is maintained to FRA Class 4 standards which permits maximum speeds of 60 and 80 mph for freight and passenger trains respectively.



LEGEND

Union Pacific Railroad

At-Grade Railraod Crossing

Figure 3-6.
At-Grade Railroad Crossing
Location Map

AIR SERVICE

There are no public airports directly serving the City of Jefferson. The closest public airports to Jefferson are the Albany Municipal Airport and the Salem Municipal Airport (McNary Field). For major commercial air service, Jefferson residents must travel to Portland or Eugene.

There are four private airports/heliports within 6 miles of Jefferson. These private facilities are summarized in Table 3-1.

Table 3-1
Private Airports/Heliports in the Vicinity of Jefferson

Airport/Heliport	Location	Runway Dimension	Runway Surface	Number of Aircraft
Art Brandt Airport	2 mi north of Jefferson	2000' x 80'	Turf	0
Davidson Field Airport	6 mi northeast of Jefferson	2500' x 100'	Turf	4
Gilmour Agricultural Airport	5 mi northwest of Jefferson	1800'	turf	5
Weyerhauser-Jefferson Heliport	6 mi east of Jefferson	112' x 100'	Gravel	0

PIPELINE SERVICE

Although not often considered as transportation facilities, pipelines carry liquids and gases very efficiently. The use of pipelines can greatly reduce the number of trucks and rail cars carrying fluids such as natural gas, oil, and gasoline. There are currently no pipelines running through Jefferson.

WATER TRANSPORTATION

There are no commercially navigable waterways in the vicinity of Jefferson.

The only water transportation generated in the Jefferson area is recreational boat traffic on the Santiam River. There is a public boat ramp at the western terminus of Ferry Street. Boat trailer parking is very limited around the boat ramp.

CHAPTER 4
CURRENT TRANSPORTATION CONDITIONS

As part of the planning process, the current operating conditions for the transportation system were evaluated. This evaluation focused primarily on street system operating conditions since the automobile is by far the dominant mode of transportation in Jefferson.

TRAFFIC VOLUMES

Morning (AM) and evening (PM) peak hour turning movement traffic volumes were collected in early December 2000 at five major intersections. The AM peak hour counts occurred between 7:00 and 9:00 AM while the PM peak hour counts occurred between 4:00 and 6:00 PM. The traffic counts were seasonally adjusted based on factors obtained from ODOT's Traffic Planning Analysis Unit (TPAU). TPAU provided a 6.4% seasonal adjustment factor based on 1999 Automatic Traffic Recorder (ATR) counts at the Hubbard station (24-106), which is located on the Wilsonville-Hubbard Highway (No. 51) 0.1 miles south of the Aurora-Donald Road. This was the closest and most comparable information available to Jefferson Highway. The 6.4% was added to the existing traffic counts. The AM and PM peak hour traffic volumes are shown in Figures 4-1 and 4-2, respectively.

Since the traffic counts were taken on different days and different weeks, adjacent traffic counts likely vary and the adjacent link volumes may not be near each other. Also, the peak hour between days may vary for counts conducted on different days and this is another reason why the adjacent link volumes may not balance. The third reason for the unbalanced link volumes between traffic counts may be additional driveway and street volumes between analysis intersections. Regardless of the balancing issue, the analysis focused on the peak one hour and results in a conservative analysis.

The AM peak hour traffic counts indicate that the AM peak hour generally occurs from 7:15 to 8:15 AM The PM peak hour generally occurs between 4:15 to 5:15 PM and 4:30 to 5:30 PM.

Existing average daily traffic volumes were obtained from ODOT's *1999 Traffic Volume Tables.* These daily traffic volumes are also shown in Table 4-1. As shown in Table 4-1, the average daily traffic volumes range from 3,000 to 7,600 vehicles per day (vpd) along Jefferson Highway within the Jefferson urban growth boundary.

LEVEL OF SERVICE

The following section provides a summary of the level of service (LOS) analysis conducted for the Jefferson urban growth boundary intersections. The level of service definition, methodologies used in calculating levels of service and the results of the analysis are summarized below. The purpose of this information is to provide an overview of LOS and to identify its relationship to the transportation goals and policies of the city.

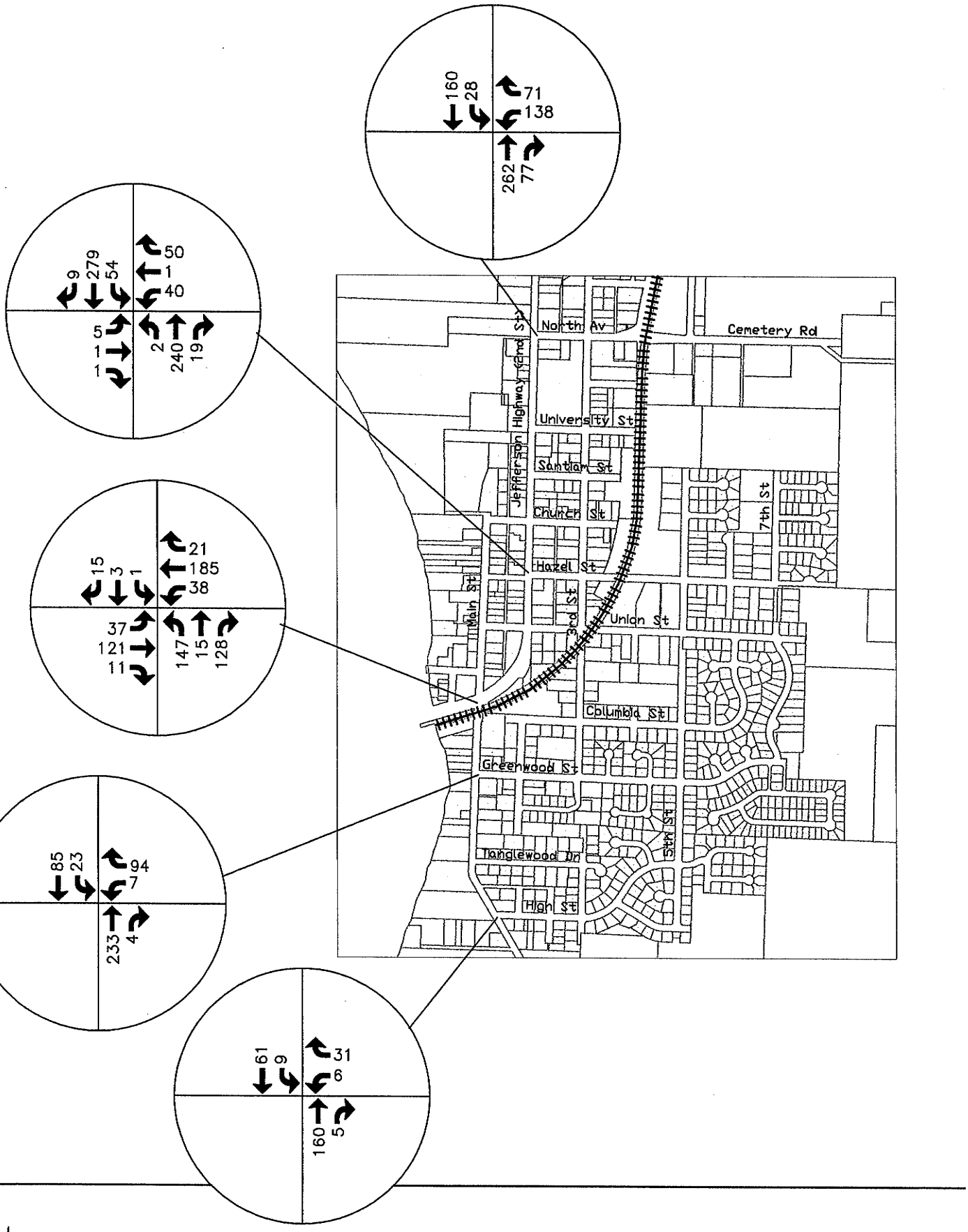


Figure 4-1.
AM Peak Hour Traffic Volumes

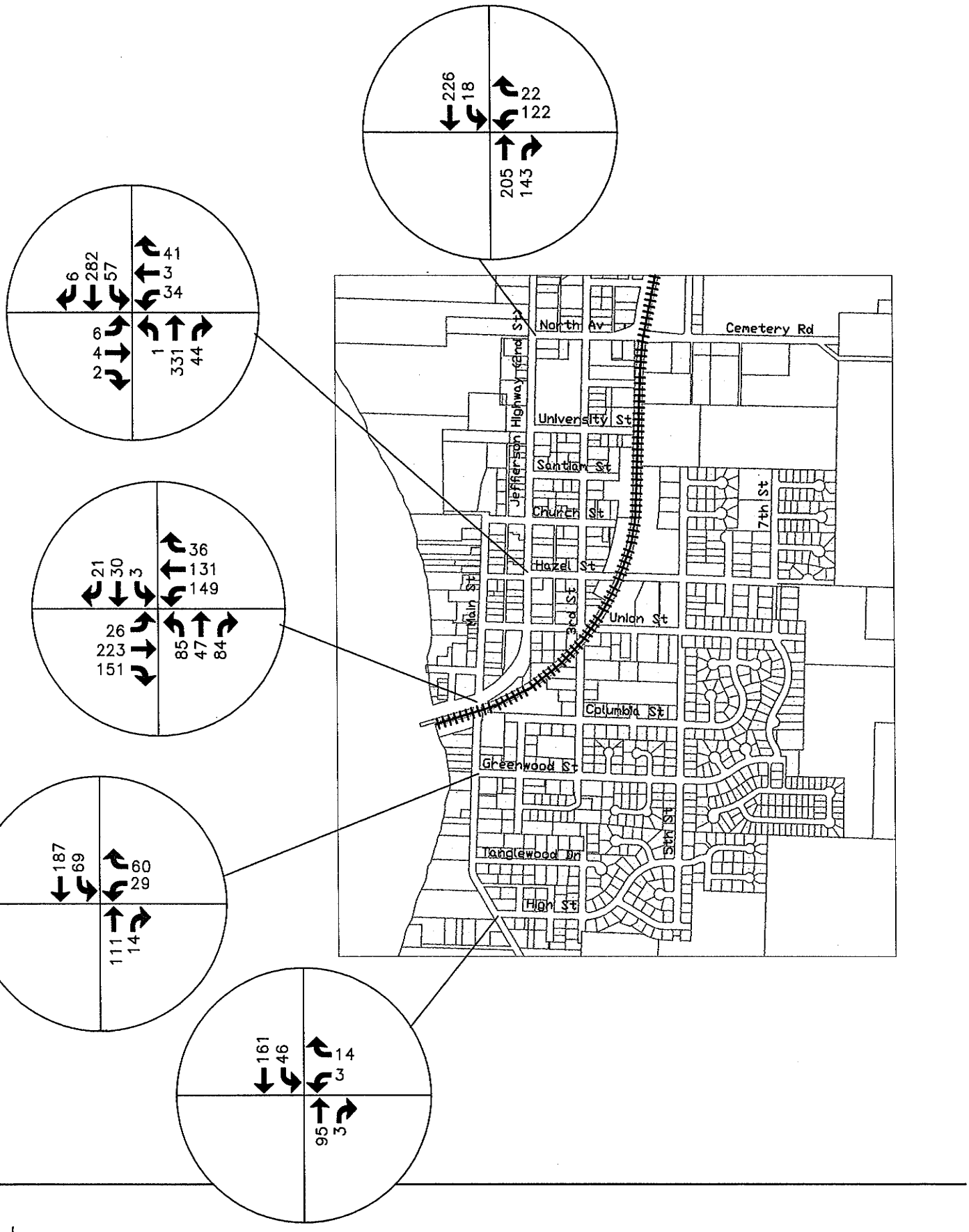


Figure 4-2.
PM Peak Hour Traffic Volumes

Table 4-1
1999 Average Daily Traffic Volumes

Location	Average Daily Traffic Volume
Jefferson Highway	
North of Talbot Road	3,000
South of Talbot Road	3,100
North City Limits	3,100
North of North Avenue	3,100
South of North Avenue	7,200
North of Santiam Street	7,400
South of Santiam Street	7,600
South of Union Street	6,900
West City Limits	5,800

Level of Service Definition

ODOT has defined a level of service (LOS) standard for the state highway system. In the *1991 Highway Plan*, levels of service were defined by a letter grade ranging from A to F, with each grade representing a range of volume-to-capacity ratios. Since each letter grade can actually represent a range of traffic conditions, it was difficult for the Oregon Department of Transportation (ODOT) to implement its level of service policy related to highway mobility standards. Therefore, with the adoption of the *1999 Oregon Highway Plan (OHP)*, ODOT has simplified its measurement for highway performance by adopting specific volume-to-capacity (v/c) ratios for different types of highway facilities. Table 4-2 summarizes the 1999 OHP v/c ratio standards by type of state facility.

The v/c ratio is a measure of the percentage of used capacity on the roadway. A value of 0.00 indicates no traffic on the roadway, and a value of 1.00 indicates that the entire capacity of the roadway is being utilized. The *Oregon Highway Plan* indicates that for district highways such as Jefferson Highway, the maximum acceptable v/c is 0.85 within the urban growth boundary for state highway facilities with a speed limit less than 45 mph.

For unsignalized intersections, the 1999 OHP sets the following standard:

> At unsignalized intersections and road approaches, the volume-to-capacity ratios in Table 4-2 shall not be exceeded for either of the state highway approaches that are not stopped. Approaches at which traffic must stop, or otherwise yield the right-of-way, shall be operated to maintain safe operation of the intersection and all of its approaches and shall not exceed the volume-to-capacity ratios for District/Local Interest Roads standard inside of urban growth boundaries.

For signalized intersections, the 1999 OHP sets the following standard:

> At signalized intersections other than crossroads of freeway ramps, the total volume-to-capacity ratio for the intersection considering all critical movements shall not exceed the volume-to-capacity ratios in Table 4-2. Where two state highways of different classifications intersect, the lower of the volume-to-capacity ratios in the table shall apply. Where a state highway intersects with a local road or street, the volume to capacity ratio for the state highway shall apply.

Table 4-2
Maximum Volume-to-Capacity Ratios for Peak Hour Operating Conditions Through a Planning Horizon for State Highway Sections Located Outside the Portland Metropolitan Area Urban Growth Boundary

	Land Use Type/Speed Limits					
	Inside Urban Growth Boundary				Outside Urban Growth Boundary	
Highway	STAs	MPO	Non-MPO outside of STAs where non-freeway speed limit <45 mph	Non-MPO where non-freeway speed limit >=45 mph	Unincorporated Communities	Rural Lands
Interstate Highways and Statewide (NHS) Expressways	N/A	0.80	0.70	0.70	0.70	0.70
Statewide (NHS) Freight Routes	0.85	0.80	0.75	0.70	0.70	0.70
Statewide (NHS) Non-Freight Routes and Regional or District Expressways	0.90	0.85	0.80	0.75	0.75	0.70
Regional Highways	0.95	0.85	0.80	0.75	0.75	0.70
District/Local Interest Roads	0.95	0.90	0.85	0.80	0.80	0.75

Source: 1999 Oregon Highway Plan (OHP)
Interstates and Expressways shall not be identified as Special Transportation Areas (STAs)
For the purpose of this mobility policy of volume-to-capacity ratio standards, the peak hour shall be the 30th highest annual hour. This approximates weekday peak hour traffic in larger urban areas.

The 1999 OHP specifies that the v/c ratio mobility standards shall be used for the following:

- Identifying state highway mobility performance expectations for planning and plan implementation.
- Evaluating the impacts on state highways of amendments to transportation plans, acknowledged comprehensive plans and land use regulations pursuant to the Transportation Planning Rule (OAR 660-12-060); and

- Guiding operations decisions such as managing access and traffic control systems to maintain acceptable highway performance.

A secondary measure of level service based on the 1997 Highway Capacity Manual (HCM) was also used to evaluate the performance of transportation facility operations because the HCM is a standard practice level of service methodology used in transportation planning. Levels of service are described by the HCM based on a letter scale from "A" to "F", where "A" represents the least congestion and delay, and "F" represents the highest A.M. count of congestion. The levels of service values are correlated to control delay in seconds. Control delay is defined as the delay associated with the traffic control device. It includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Table 4-3 summarizes the relationship between controlled delay and level of service for unsignalized intersections. Table 4-4 summarizes the relationship between controlled delay and level of service for signalized intersections.

Table 4-3
Secondary Level of Service criteria for Unsignalized Intersections

Level of Service	Delay Range (seconds)
A	≤ 10
B	10 > and ≤ 15
C	15 > and ≤ 25
D	25 > and ≤ 35
E	35 > and ≤ 50
F	> 50

Source: 1997 Highway Capacity Manual

Table 4-4
Secondary Level of Service criteria for Signalized Intersections

Level of Service	Delay Range (seconds)
A	≤ 10
B	10 > and ≤ 20
C	20 > and ≤ 35
D	35 > and ≤ 55
E	55 > and ≤ 80
F	> 80

Source: 1997 Highway Capacity Manual

The agencies in control of a transportation facility will determine what level of service is acceptable to the community. The acceptable level of service may vary by intersection type,

roadway classification, or zoning. This guideline is used in planning for future traffic growth and recommending improvements to the facility. Typically in small urban areas such as Jefferson, the level of service standard would be LOS D or better. The LOS D standard would apply to non-ODOT roadways and intersections such as the intersections of Main Street/High Street and Main Street/Greenwood Street. The local agency has the discretion in setting their own level of service standard for their streets.

ODOT's Traffic Planning Analysis Unit (TPAU) is allowing the use of multiple types of software to calculate the v/c ratio at unsignalized and signalized intersections as long as they are consistent with the nationally recognized standard set in the *1997 Highway Capacity Manual* or ODOT's SIGCAP/UNSIG10 programs and the results are reported in v/c ratios. The HCS 2000 program was used in calculating the levels of service for both signalized and unsignalized intersections. This program is consistent with the 1997 Highway Capacity Manual and reports levels of service in both v/c ratios and letter values between A and F.

Existing Level of Service

Based on current AM and PM peak hours, levels of service and v/c ratios were calculated for the study area intersections. The results of the intersection level of service analysis are summarized in Table 4-5.

As shown in Table 4-5, the three intersections on Jefferson Highway all operate under the allowable v/c ratio of 0.85. The highest v/c ratio is the northbound approach of the Jefferson Highway/Main Street intersection, which operates in the AM peak hour at 0.77. The two other, non-ODOT intersections also all operate with v/c ratios under 0.85 and at LOS D or better.

ALL-WAY STOP LOCATIONS

Based on the field inventory conducted, the residential areas to the south and east of the railroad tracks have a significant number of all-way stop controlled intersections. These intersections have been previously identified in Figure 3-2.

All-way stops are typically installed for safety reasons. They are ordinarily installed in locations where the volume of traffic on all approaches of the intersection is approximately equal. Where traffic volumes are not equal, all-way stops are not usually installed because as a general rule of thumb, the major approaches of an intersection are not stopped. Also, if the major approaches are stopped and the minor street approaches have very little traffic, motorists on the major approaches tend to violate the all-way stop signs since they cannot see the reason for the stop. This creates a hazardous situation because if there is a motorist on the side street that the major street motorist does not see, then the expectation of the side street motorist is that the major street motorist will stop. An all-way stop sign warrant analysis was conducted at the most busy all-way stop intersection locations to determine whether the existing all-way stop signs are necessary.

Table 4-5
2000 Existing Intersection Level of Service

Unsignalized Intersection	A.M. Peak Hour			P.M. Peak Hour		
	LOS	Average Delay (sec)	V/C Ratio	LOS	Average Delay (sec)	V/C Ratio
Jefferson Hwy/North Avenue						
Southbound Left	A	8.4	0.04	A	8.0	0.02
Westbound Approach	C	24.2	0.58	C	17.2	0.38
Jefferson Hwy/Hazel Street						
Northbound Left	A	7.9	0.01	A	7.9	0.01
Southbound Left	A	8.0	0.05	A	8.4	0.06
Eastbound Approach	C	19.0	0.04	C	19.1	0.07
Westbound Approach	C	15.8	0.27	C	17.1	0.22
Jefferson Hwy (EB/WB)/Main Street (NB/SB)						
Northbound Approach	D	32.6	0.77	C	23.8	0.58
Southbound Approach	B	10.9	0.04	C	16.0	0.18
Eastbound Left	A	7.7	0.02	A	7.7	0.02
Westbound Left	A	8.3	0.03	A	8.3	0.04
Main Street/Greenwood Street						
Southbound Left	A	7.9	0.03	A	7.8	0.07
Westbound Approach	B	11.1	0.21	B	12.0	0.19
Main Street/High Street						
Southbound Left	A	7.6	0.01	A	7.6	0.04
Westbound Approach	A	9.6	0.06	A	9.4	0.02

An all-way stop warrant analysis was undertaken to determine if the existing multi-way stops are warranted at the 5th Street/High Street, 5th Street/Greenwood Street and 2nd Street/Greenwood Street intersections. The intersections at 5th Street/High Street and 2nd Street/Greenwood Street are currently all-way stops. The intersection at 5th Street/Greenwood Street is not currently an all-way stop but was requested to be and is therefore being tested by warrants. The warrants for multi-way stop signs are taken from the Manual on Uniform Traffic Control Devices (MUTCD) and are as follows:

1) As an interim measure at intersections where a signal is warranted and planned for but not yet in operation.

2) At intersections that have five (5) or more accidents in a 12 month period that are of a type susceptible of correction by a multi-way stop sign installation. Such accidents include right- and left-turn collisions as well as right-angle collisions.

3) At intersections with a minimum traffic volume of:

   a) Total intersection approach volumes at least 500 vehicles per hour for any eight hours of an average day, and

   b) The combined vehicular and pedestrian volume from the minor street must average at least 200 units per hour for the same eight-hour period.

   c) The average delay to the minor street in the peak hour must average at least 30 seconds per vehicle.

   d) When the 85th percentile approach speed of the major street exceeds 40 miles per hour, the minimum vehicular volume warrant is 70 percent of the above requirements.

As shown in Table 4-6, none of the three intersections meets multi-way stop sign warrants under existing or later Year 2020 conditions. Condition 1 from above is not applicable since these stop signs are already in place and should be warranted based on accident or volume warrants alone. Neither the accident or volume warrant was even close to being met for any of the three intersections.

The all-way stop locations should be replaced by traffic calming measures listed later in Chapter 7 to mitigate speeding issues in the residential areas.

TRAFFIC CRASHES

Crash data was obtained from the Oregon Department of Transportation for the period between January 1, 1995 and December 31, 2000. The data includes total crashes and crashes by severity (i.e. fatal, injury or property damage only). Crash data for intersections in the City of Jefferson is summarized in Table 4-7. Crash data for roadway sections along Jefferson Highway (not including intersections) is summarized in Table 4-8. It should be noted that the crash data summarized are only reported crashes and that their may be other crashes that occurred that was not reported.

As shown in Table 4-7, all intersections have a crash rate below 1.00 accidents per million entering vehicles. Generally, a crash rate of less than 1.00 crashes per million entering vehicles is considered acceptable. The crash rates for the roadway sections are reported in crashes per million vehicle miles. As shown in Table 4-8, the crash rate for roadway segments range from 0.00 to 1.71 crashes per million vehicle miles. The 1999 statewide average crash rate for secondary, non-freeway urban highways such as Jefferson Highway was 2.98 crashes per million vehicle miles traveled. The highest crash rate shown in Table 4-8 is 1.71 crashes per million vehicle miles traveled for Jefferson Highway is between Hazel Street and Union Street, which is well below the state average.

Table 4-6
Existing (2001) Daily Traffic Volumes and All Way Stop Sign Warrant Analysis

	5th Street/High Street					5th Street/Greenwood Street					2nd Street/Greenwood Street				
	Traffic Volumes		Warrant Volumes		Warrant	Traffic Volumes		Warrant Volumes		Warrant	Traffic Volumes		Warrant Volumes		Warrant
Time of Day	Overall	Minor	Overall	Minor	Met	Overall	Minor	Overall	Minor	Met	Overall	Minor	Overall	Minor	Met
12:00 - 1:00 AM	1	0	500	200	No	9	3	500	200	No	11	1	500	200	No
1:00 - 2:00 AM	0	0	500	200	No	2	0	500	200	No	6	0	500	200	No
2:00 - 3:00 AM	0	0	500	200	No	3	0	500	200	No	2	0	500	200	No
3:00 - 4:00 AM	0	0	500	200	No	2	1	500	200	No	0	0	500	200	No
4:00 - 5:00 AM	2	1	500	200	No	11	2	500	200	No	11	4	500	200	No
5:00 - 6:00 AM	3	1	500	200	No	19	5	500	200	No	17	7	500	200	No
6:00 - 7:00 AM	19	7	500	200	No	65	23	500	200	No	43	17	500	200	No
7:00 - 8:00 AM	30	9	500	200	No	58	21	500	200	No	68	25	500	200	No
8:00 - 9:00 AM	22	10	500	200	No	46	19	500	200	No	59	12	500	200	No
9:00 - 10:00 AM	16	3	500	200	No	49	14	500	200	No	52	10	500	200	No
10:00 - 11:00 AM	13	6	500	200	No	30	10	500	200	No	47	6	500	200	No
11:00 - 12:00 AM	15	7	500	200	No	40	12	500	200	No	65	11	500	200	No
12:00 - 1:00 PM	18	8	500	200	No	55	14	500	200	No	97	17	500	200	No
1:00 - 2:00 PM	29	10	500	200	No	48	16	500	200	No	69	6	500	200	No
2:00 - 3:00 PM	27	12	500	200	No	46	20	500	200	No	75	10	500	200	No
3:00 - 4:00 PM	20	8	500	200	No	66	17	500	200	No	134	21	500	200	No
4:00 - 5:00 PM	35	16	500	200	No	103	32	500	200	No	186	14	500	200	No
5:00 - 6:00 PM	52	24	500	200	No	113	40	500	200	No	185	20	500	200	No
6:00 - 7:00 PM	27	9	500	200	No	89	19	500	200	No	159	16	500	200	No
7:00 - 8:00 PM	26	7	500	200	No	71	27	500	200	No	123	11	500	200	No
8:00 - 9:00 PM	24	9	500	200	No	61	14	500	200	No	108	5	500	200	No
9:00 - 10:00 PM	16	6	500	200	No	45	7	500	200	No	80	6	500	200	No
10:00 - 11:00 PM	6	2	500	200	No	25	7	500	200	No	37	2	500	200	No
11:00 - 12:00 PM	1	0	500	200	No	6	1	500	200	No	9	1	500	200	No

Table 4-7.
Summary of Traffic Crash History at Intersections in the City of Jefferson
(Data from January 1, 1995 to December 31, 2000)

Intersection	Average Annual Crashes				acc/mev[2]
	PDO[1]	Injury	Fatal	Total	
Main Street/Hazel Street	0.2	0.0	0.0	0.2	0.38
Main Street/Ferry Street	0.2	0.0	0.0	0.2	0.30
Main Street/Jefferson Highway	1.8	1.2	0.0	3.0	0.90
Main Street/Charnelton Street	0.0	0.2	0.0	0.2	0.16
Main Street/High Street	0.2	0.2	0.0	0.4	0.37
Jefferson Highway/North Street	0.4	0.4	0.0	0.8	0.32
Jefferson Scio Road/Harris Lane	0.0	0.2	0.0	0.2	0.35
Columbia Street/3rd Street	0.4	0.0	0.0	0.4	0.74
Union Street/5th Street	0.0	0.2	0.0	0.2	0.54

[1] PDO = property damage only
[2] acc/mev = accidents per million entering vehicles

Table 4-8.
Summary of Traffic Crash History along Jefferson Highway
(Data from January 1, 1995 to December 31, 2000)

Roadway Section	Average Annual Crashes				acc/mvm[2]
	PDO[1]	Injury	Fatal	Total	
Jefferson Highway					
Talbot Road to North Avenue	0.0	0.0	0.0	0.0	0.00
North Avenue to University Street	0.0	0.2	0.0	0.2	0.57
University Street to Santiam Street	0.0	0.0	0.0	0.0	0.00
Santiam Street to Church Street	0.2	0.0	0.0	0.2	1.02
Church Street to Hazel Street	0.0	0.2	0.0	0.2	1.02
Hazel Street to Union Street	0.2	0.0	0.0	0.2	1.71
Union Street to Main Street	0.2	0.2	0.0	0.4	1.00
Main Street to City Limit	0.2	0.0	0.0	0.2	0.78

[1] PDO = property damage only
[2] aac/mvm = accidents per million vehicle miles traveled on the roadway section

TRANSPORTATION DEMAND MANAGEMENT MEASURES

Over the years Oregonian's reliance on the private automobile as our primary mode of transportation has grown substantially. Our dependence on the automobile is evidenced by continual increases in automobile ownership, the number of drivers, the length and number of auto trips, and as a result, a large escalation in vehicle-miles of travel (VMT) per person. This trend in automobile use has led to mounting traffic congestion, greater transportation costs, worsening air quality, and increasing numbers of traffic accidents. By continuing to rely almost totally on the automobile for our daily transportation needs, we decrease our ability to get where we want to go (due to congestion) as well as the overall quality of life in our community.

Transportation Demand Management (TDM) measures consist of efforts taken to reduce the demand on an areas 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 Census for Jefferson show the spread of departure to work times over a 24-hour period (see Table 4-9). Approximately 39 percent of the total employees depart for work between 7:00 and 8:00 AM. Another 30 percent depart either the hour before or the hour after the peak.

Assuming an average nine-hour workday, the corresponding afternoon peak can be determined for work trips. Using this methodology, the peak work travel hour would occur between 4:00 and 5:00 PM which corresponds with the peak hour of activity measured for traffic volumes.

Travel Mode Distribution

Although the automobile is the primary mode of travel for most residents in Jefferson, some other modes are used as well. Modal split data is not available for all types of trips; however, the 1990 census data does include statistics for journey-to-work trips as shown in Table 4-10. The census data reflects the predominant use of the automobile.

Most Jefferson residents travel to work via private vehicle. In 1990, 82 percent of all trips to work were in an auto, van, or truck as a single occupant in the vehicle. Carpooling accounted for almost 12 percent of the commute trips. Only 6 percent of the remaining commute trips used alternative modes such as walking, motorcycle, telecommuting, or other means.

Table 4-9
Departure to Work Distribution, Jefferson (1990)

Departure Time	Trips	Percent
12:00 AM to 4:59 AM	13	1.84
5:00 AM to 5:59 AM	45	6.37
6:00 AM to 6:59 AM	158	22.38
7:00 AM to 7:59 AM	278	39.38
8:00 AM to 8:59 AM	54	7.65
9:00 AM to 9:59 AM	31	4.39
10:00 AM to 10:59 AM	7	0.99
11:00 AM to 11:59 AM	10	1.42
12:00 PM to 3:59 PM	64	9.07
4:00 PM to 11:59 PM	46	6.51
Total	706	100.00

Source: US Bureau of Census.

Table 4-10
Journey to Work Trips, Jefferson (1990)

	Trips	Percent
Car, Truck, or Van:		
Drove alone	590	81.8
Carpooled	84	11.7
Public Transportation	0	0.0
Motorcycle	2	0.3
Bicycle	0	0.0
Walked	17	2.3
Other Means	13	1.8
Worked at Home	15	2.1
Total	721	100.0

Source: US Bureau of Census.

CHAPTER 5
2020 TRAFFIC FORECAST AND DEFICIENCIES

TRAFFIC FORECAST METHODOLOGY OPTIONS

Traffic forecast methodologies for transportation system plans are defined in ODOT's Transportation System Planning Guidelines, 2001, May 2001. ODOT has defined four levels of traffic forecast methodologies in developing 20-year traffic forecasts for transportation system plans. These methodologies are defined below:

- Level 1 – Trending Forecast. A trending forecast projects future traffic volumes based on historical growth trends of vehicle traffic. This methodology requires 20 years of historical traffic data. Twenty years of historical traffic data is available from ODOT for most of the highways within the state.

- Level 2 – Cumulative Analysis. The basic premise for cumulative analyses is readily available inventory of vacant lands. The vacant land information needs to show the available residential, industrial, and commercial properties at a minimum. Future employment and population data then needs to be available and translated to units that can be correlated to needed land. For example, the future population growth needs to be converted to number of future housing units by the average household size. The future housing units then needs to be allocated to available residential land based on zoning and the most likely areas of future residential development. The same type of exercise would need to occur for commercial and industrial lands. Once this information is synthesized, then a trip generation factor is applied to each future parcel that is assumed to develop. The future trips generated by each parcel then needs to be assigned to the street network.

  Further consideration for the cumulative analysis is the effects of through trips. To compensate for through trips in the future analysis, it is desirable to have an origin destination study at the roadways that lead outside the study area.

  Since the cumulative analysis mimics the more complicated level 3, transportation model process, the study area in question should be fairly uncomplicated with simple traffic patterns.

- Level 3 – Transportation Model. The development of a transportation model is a complicated exercise. ODOT is in the practice of building models for cities and counties with populations generally above 15,000. Another criteria for using a level three travel forecast is a complicated system of streets with complex travel patterns. The standard software transportation modeling package used by ODOT is called EMME/2.

  Transportation modeling involves a four-step process. These four-steps are trip generation, trips distribution, trip assignment, and mode split.

- Level 4 – Regional Transportation Model. The Level 4 forecast methodology is similar to the Level 3 methodology except it involves the development of a regional model that encompasses several urban areas.

For the purpose of developing Jefferson's transportation system plan, the only two traffic forecast methodologies considered were Level 1 and Level 2. The Technical Advisory Committee discussed the relevance of each methodology before deciding on using the Level 1 approach. The main factors in deciding to use the Level 1 approach over the Level 2 approach was that the Level 2 approach was constrained by Marion County's population forecast for Jefferson and it seemed low based on the city's 10-year growth trend. With an assumption of a low population forecast, the traffic forecast would also be low. In investigating the historical traffic growth trends for Jefferson, it was obvious that the Level 1 traffic forecast would generate a higher and more conservative forecast than the Level 2 approach. The city did not want to underestimate the future traffic growth in the development of their TSP since a significant portion of their traffic is through traffic generated by uses in unincorporated Marion County.

DEMOGRAPHIC DATA

Since the Level 1 Trending Analysis was used to project 2020 traffic volumes, demographic data for the City of Jefferson was not needed. However, there is a strong link between land use and traffic, so basic demographic information is summarized in Appendix D.

2020 FUTURE TRAFFIC VOLUMES

The 2020 traffic forecast for the City of Jefferson was developed from an annual traffic growth rate derived from historical traffic counts on Jefferson Highway. Based on coordination with the Traffic Planning Analysis Unit (TPAU) of ODOT, TPAU staff directed the use of an annual traffic growth factor of 2.5 percent per year. This rate was derived from historical traffic count data on Jefferson Highway. The 2.5 percent per year factor was applied to the 2000 existing traffic counts for 20 years and compounded annually to calculate the 2020 traffic volumes in Jefferson.

The 2020 future traffic volumes are shown in Figures 5-1 and 5-2. Figure 5-1 shows the 2020 AM peak hour traffic volumes and Figure 5-2 shows the 2020 PM peak hour traffic volumes.

2020 LEVELS OF SERVICE

The volume to capacity (v/c) ratio and level of service analyses were conducted based on the 2020 traffic volumes shown in Figures 5-1 and 5-2. The assumptions of traffic control and lane geometry at all the study area intersections were assumed to be the same as those used in the existing conditions level of service analysis with the exception of the Jefferson Highway and Main Street intersection. An improvement project in the summer of 2001 will be constructed at the Jefferson Highway and Main Street intersection. The improvements include signalization,

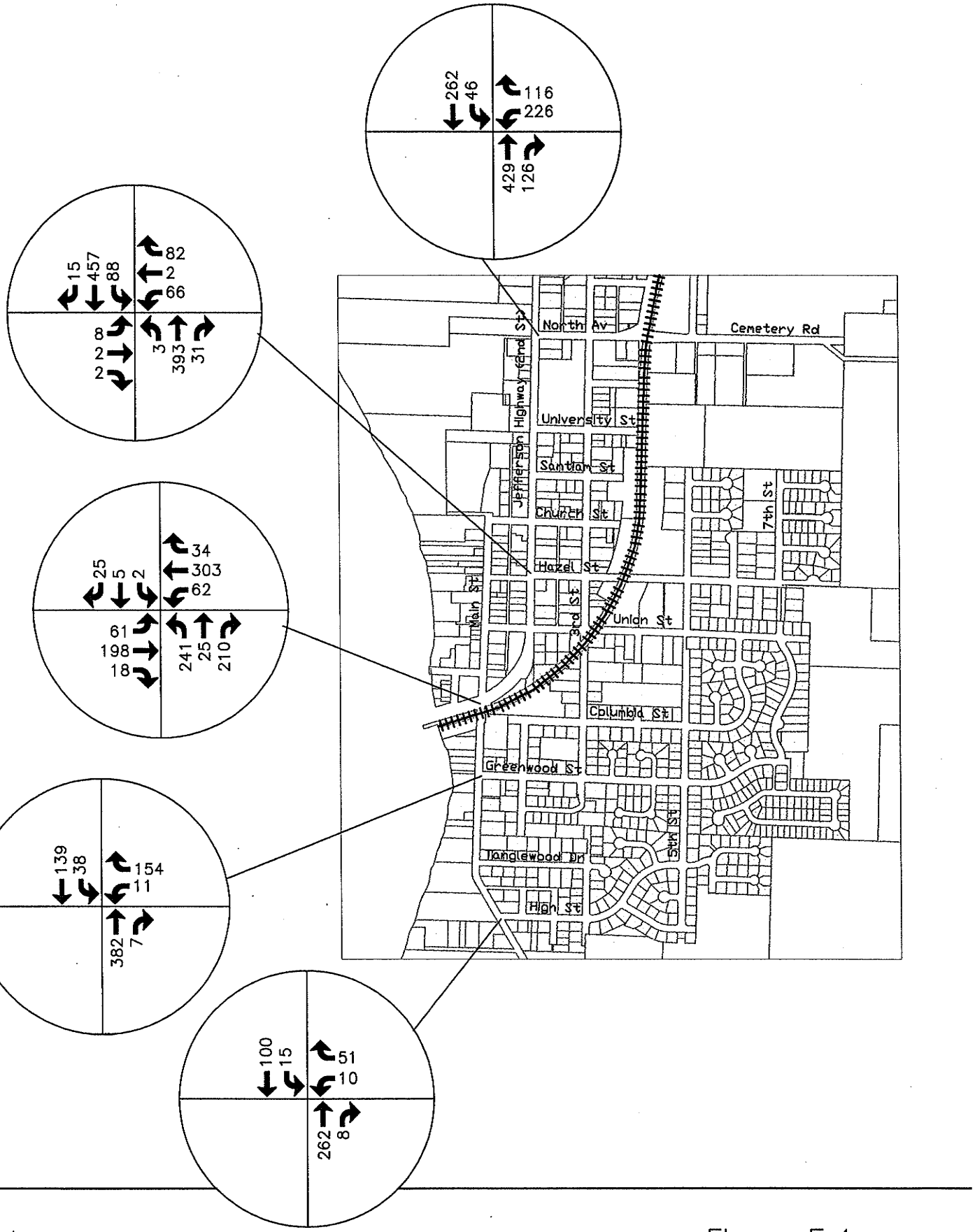


Figure 5-1.
2020 AM Peak Hour
Traffic Volumes

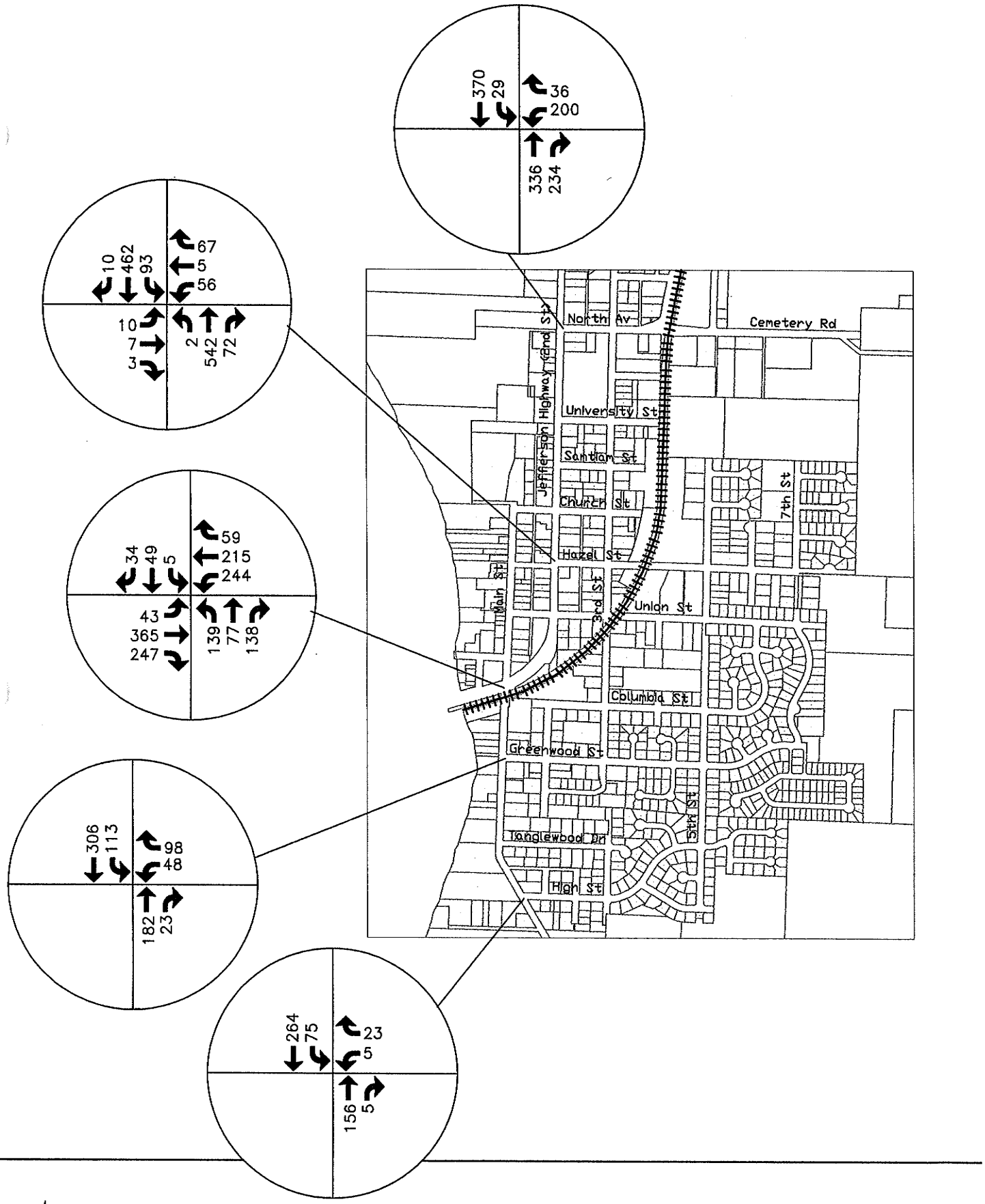


Figure 5-2.
2020 PM Peak Hour
Traffic Volumes

interconnection with the adjacent railroad crossing signal, and upgrade of the adjacent railroad crossing. The results of the signalized and unsignalized intersection v/c ratio and levels of service analyses are summarized in Table 5-1. It should be noted that the new signal at Jefferson Highway and Main Street will create a platooning effect and help create gaps for intersections further north. This added benefit is not factored in the level of service calculation and therefore the results are worst case condition.

Table 5-1
Year 2020 Future A.M. and P.M. Peak Hour Levels of Service

	A.M. Peak Hour			P.M. Peak Hour		
Unsignalized Intersection	**LOS**	**Average Delay (sec)**	**V/C Ratio**	**LOS**	**Average Delay (sec)**	**V/C Ratio**
Jefferson Highway/North Avenue						
Southbound Approach	A	9.6	0.08	A	8.8	0.04
Westbound Approach	F	>100	1.77	F	>100	1.06
Jefferson Highway/Hazel Street						
Northbound Approach	A	8.5	0.01	A	8.5	0.01
Southbound Approach	A	8.7	0.09	A	9.6	0.12
Eastbound Approach	E	43.2	0.17	F	57.1	0.31
Westbound Approach	F	71.3	0.85	F	86.7	0.83
Main Street/Greenwood St						
Southbound Approach	A	9.2	0.06	A	8.3	0.12
Westbound Approach	C	19.0	0.51	C	21.2	0.48
Main Street/High Street						
Southbound Approach	A	8.0	0.02	A	7.9	0.07
Westbound Approach	B	11.1	0.12	B	10.8	0.05
Signalize Intersection						
Jefferson Highway/Main Street						
Northbound Approach	C	28.6	0.83	C	24.0	0.63
Southbound Approach	B	10.7	0.06	B	15.3	0.15
Eastbound Left	C	20.3	0.23	B	14.1	0.12
Eastbound Through	C	20.2	0.31	B	18.7	0.50
Eastbound Right	B	17.1	0.03	B	17.3	0.40
Westbound Left	B	18.8	0.16	D	36.1	0.77
Westbound Through/Right	C	23.0	0.48	B	16.3	0.34
Overall Intersection	C	24.2	0.68	C	21.4	0.71

As shown in Table 5-1, one of the intersections on Jefferson Highway is projected to operate with a v/c ratio greater than the 0.85 ODOT standard. This intersection is located at Jefferson

Highway and North Avenue. The westbound approach in the year 2020 is expected to fail with a v/c ratio of greater than 1.00 in both the AM and PM peak hours. The v/c ratio over 1.00 correlates to a level of service value of LOS F. The high v/c ratio and LOS F condition at the westbound approach is primarily a function of heavy westbound left turn movement volumes conflicting with the through traffic on Jefferson Highway.

It should also be mentioned the Jefferson Highway/Hazel Street intersection is projected to operate at LOS F. However, the ODOT v/c ratio standard is not exceeded at this ODOT intersection and therefore not considered a future deficiency.

The other two unsignalized intersections at Main Street/Greenwood Street and Main Street/High Street are projected to meet both the ODOT v/c ratio and local level of service standards. The ODOT v/c standard is 0.85 and the local level of service standard is LOS D.

The signalized intersection at Jefferson Highway/Main Street is projected to operate at LOS C for the overall intersection in both the 2020 AM and PM peak hours with a maximum v/c ratio of 0.83 for the worst turning movement. Both the v/c ratio and secondary level of service standards are met and no mitigation projected to be necessary.

ALL-WAY STOP LOCATIONS

An all-way stop location analysis was conducted based on 2020 traffic volumes to see if the existing all-way stop locations would meet the Manual on Uniform Traffic Control Devices (MUTCD) warrants in the 20-year planning period. The results of the 2020 all-way stop warrant analysis is summarized in Table 5-2.

As shown in Table 5-2, all of the all-way stop locations analyzed are not projected to meet MUTCD warrants in the year 2020. These all-way stop locations should be replaced with traffic calming measures to reduce speeds through the neighborhood streets.

TRANSPORTATION DEFICIENCIES

Intersection Deficiencies

Based on the 2020 v/c ratio and level of service analyses, the following intersections is projected to operate below an acceptable v/c ratio and level of service of LOS D or better standards:

- Jefferson Highway/North Avenue

The poor traffic operations conditions at this intersection suggests that some type of improvement is needed at the Jefferson Highway/North Avenue intersection to improve the projected congestion point.

Table 5-2
Future (2020) Daily Traffic Volumes and All Way Stop Sign Warrant Analysis

	5th Street/High Street					5th Street/Greenwood Street					2nd Street/Greenwood Street				
	Traffic Volumes		Warrant Volumes		Warrant	Traffic Volumes		Warrant Volumes		Warrant	Traffic Volumes		Warrant Volumes		Warrant
Time of Day	Overall	Minor	Overall	Minor	Met	Overall	Minor	Overall	Minor	Met	Overall	Minor	Overall	Minor	Met
12:00 - 1:00 AM	2	0	500	200	No	15	5	500	200	No	19	2	500	200	No
1:00 - 2:00 AM	0	0	500	200	No	3	0	500	200	No	10	0	500	200	No
2:00 - 3:00 AM	0	0	500	200	No	5	0	500	200	No	4	0	500	200	No
3:00 - 4:00 AM	0	0	500	200	No	4	2	500	200	No	0	0	500	200	No
4:00 - 5:00 AM	4	2	500	200	No	18	4	500	200	No	19	7	500	200	No
5:00 - 6:00 AM	5	2	500	200	No	31	8	500	200	No	29	12	500	200	No
6:00 - 7:00 AM	31	11	500	200	No	107	38	500	200	No	70	28	500	200	No
7:00 - 8:00 AM	50	15	500	200	No	95	34	500	200	No	112	41	500	200	No
8:00 - 9:00 AM	35	16	500	200	No	76	31	500	200	No	97	20	500	200	No
9:00 - 10:00 AM	26	5	500	200	No	80	23	500	200	No	85	17	500	200	No
10:00 - 11:00 AM	22	10	500	200	No	49	16	500	200	No	77	10	500	200	No
11:00 - 12:00 AM	24	11	500	200	No	66	20	500	200	No	107	18	500	200	No
12:00 - 1:00 PM	30	13	500	200	No	90	23	500	200	No	158	27	500	200	No
1:00 - 2:00 PM	47	16	500	200	No	79	27	500	200	No	114	10	500	200	No
2:00 - 3:00 PM	44	19	500	200	No	76	33	500	200	No	124	17	500	200	No
3:00 - 4:00 PM	33	13	500	200	No	108	28	500	200	No	220	35	500	200	No
4:00 - 5:00 PM	57	26	500	200	No	168	52	500	200	No	305	23	500	200	No
5:00 - 6:00 PM	86	40	500	200	No	186	66	500	200	No	303	33	500	200	No
6:00 - 7:00 PM	44	14	500	200	No	145	31	500	200	No	262	27	500	200	No
7:00 - 8:00 PM	42	11	500	200	No	116	44	500	200	No	202	18	500	200	No
8:00 - 9:00 PM	39	15	500	200	No	99	22	500	200	No	178	9	500	200	No
9:00 - 10:00 PM	26	10	500	200	No	74	11	500	200	No	132	10	500	200	No
10:00 - 11:00 PM	10	4	500	200	No	41	11	500	200	No	61	3	500	200	No
11:00 - 12:00 PM	2	0	500	200	No	10	2	500	200	No	16	2	500	200	No

All of the all-way stop controlled intersections shown previously in Figure 3-2 are not projected to be warranted in the 20-year planning period. The existing all-way stop controlled intersections are not justified based on nationally accepted engineering standards.

Roadway Connectivity Deficiencies

The City of Jefferson is bisected by the Union Pacific Railroad. There are very few connections across the railroad tracks. Only one north-south crossing exists on Main Street south of Jefferson Highway. Two east-west railroad crossings exist. These crossings are located on North Avenue east of Jefferson-Marion Road and on Hazel Street east of 3rd Street. The limited number of railroad crossings and their close spacing create the potential for a long train to block access between east and west Jefferson. As previously identified in Chapter 3, the average freight train is 7,000 feet with the maximum allowable at 7,200 feet. A 7,000 foot freight train can block one side of Jefferson from the other. An existing private railroad crossing exists between Jefferson-Marion Road and Salamander Road at Wied Road. Should a blocking issue with a train develop, emergency vehicles have an agreement in place to utilize this crossing to access the east side of town.

East and south of the Union Pacific railroad tracks, there are no continuous through streets that connect the north and south parts of Jefferson. For better local circulation, the development of a north-south through street should be considered. By creating a local north-south street, dependence of local traffic on Jefferson Highway can be reduced. This concept is already in the Comprehensive Plan.

The most logical location for this street is 5th Street. There are several missing sections of 5th Street necessary to be constructed for it to serve as a north-south through street. These missing sections exist between Elm Street and North Avenue and south of Delores Drive to Jefferson-Scio Drive. A short gap south of Union Street and narrow half street section of 5th Street exists from the short gap to Columbia Street. This section would have to be widened and extended to accommodate a continuous, north-south local street.

Sidewalk and Pedestrian Facility Deficiencies

The existing roadway inventory has identified that the following segments of roadway have sidewalks in poor condition:

- West side of Main Street from Union Street to Church Street
- East side of Main Street from Jefferson Highway north four parcels
- East side of Main Street from Union north 5 parcels
- East side of Main Street two parcels south of Church Street
- Both sides of Hazel Street from Main Street to Jefferson Highway

There are several sections of arterial streets without any sidewalks. These sections are necessary to create connected sidewalks along the arterial streets. The locations of the arterial street sections missing sidewalks are as follows:

- East side of Jefferson Highway from the Santiam River bridge to two parcels north of Union Street
- West side of Jefferson Highway from the Santiam River bridge to one parcel north of Main Street
- West side of Jefferson Highway from three parcels south of Hazel Street to Hazel Street
- West side of Jefferson Highway from University Street to the North Avenue

In addition to missing sidewalks along arterial streets, there are missing sidewalks along a significant collector street, Hazel Street. Hazel Street connects the east and west parts of town together and has one of only two east-west railroad crossings in Jefferson. It is a significant local street providing highway access to a large residential area. The sections of missing sidewalks on Hazel Street are significant since Hazel Street also functions as one of the only streets providing pedestrians and bicyclists access across the railroad tracks. The missing sidewalk sections on Hazel Street are identified below.

- North side of Hazel Street from Jefferson Highway to 5th Street
- South side of Hazel Street from alley east of Jefferson Highway to the railroad tracks
- South side of Hazel Street from 5th Street to 6th Street

Through the public involvement process of the project, several other local streets were identified with missing sidewalks that should be considered for new sidewalk installation. These street sections are listed below:

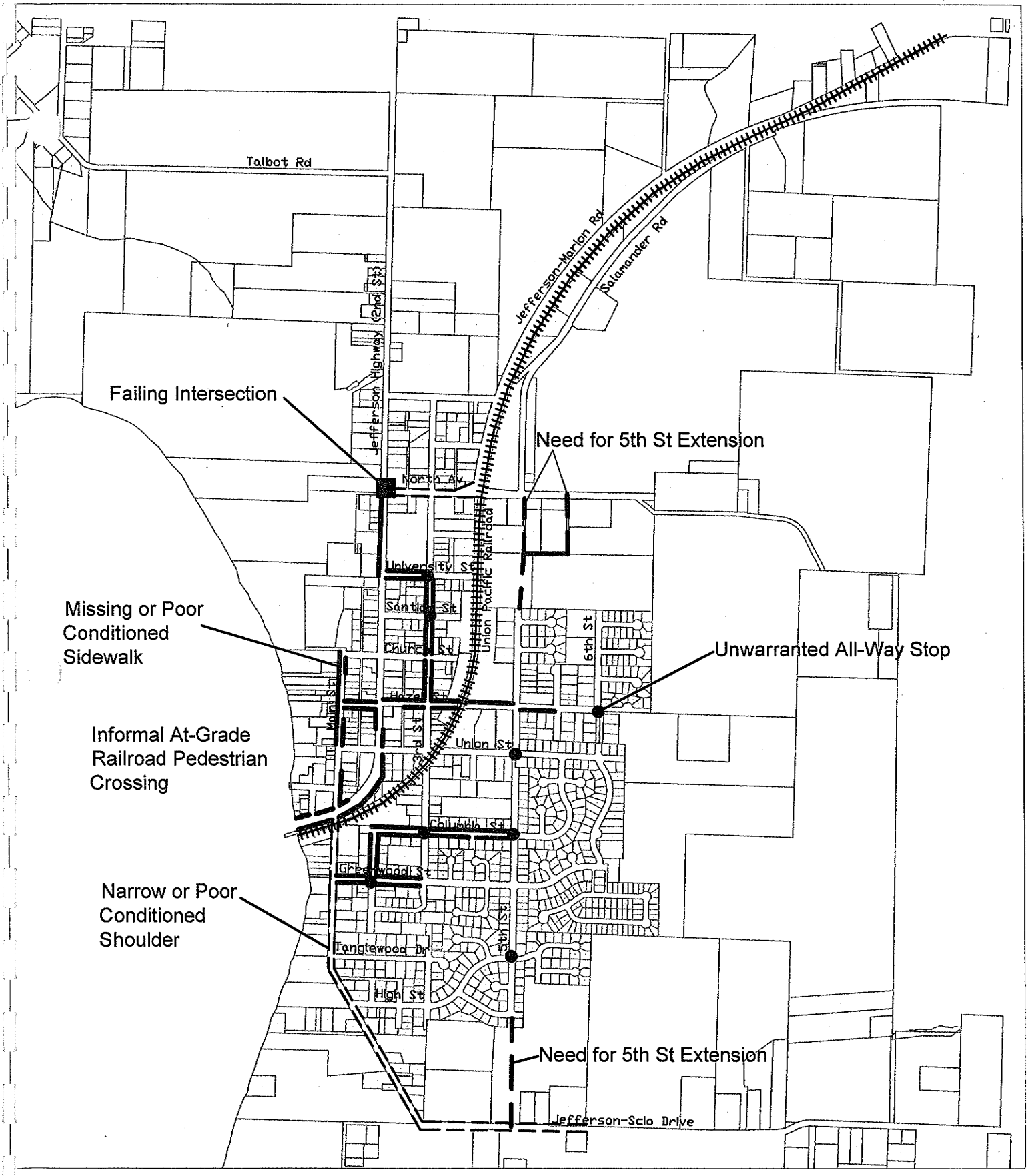
- University Street from Jefferson Highway to 3rd Street – both sides
- Columbia Street from 2nd Street to 5th Street – both sides
- Greenwood Street from Main Street to 3rd Street – both sides
- 2nd Street from Columbia Street to Greenwood Street – both sides
- 3rd Street from University Street to Hazel Street – both sides

Arterials with narrow shoulders or shoulders in poor conditions are identified below:

- Both sides of Main Street from Jefferson Highway to the east Urban Growth Boundary
- Both sides of North Avenue from Jefferson Highway to Jefferson-Marion Road

There is a popular pedestrian and bicycle crossing over the railroad tracks on Union Street. The problem with this informal pedestrian/bicycle crossing is that there are no adequate facilities. This situation is problematic in protecting pedestrians and bicyclists from the train traffic.

Figure 5-3 depicts all of the transportation deficiencies described in the text above.



LEGEND

Narrow or Poor Conditioned Shoulder

Missing or Poor Sidewalk Condition

Unwarranted All-Way Stop

Failing Intersection

Figure 5-3.
Transportation
Deficiencies Location Map

Bridge Deficiency

Based on the ODOT bridge inventory information, the Santiam River bridge along Jefferson Highway has a sufficiency rating below 55 and is considered functionally obsolete. This may indicate that the bridge may need to be replaced soon. However, based on maintenance reports, no structural safety or load problems exist. The rationale for the low sufficiency rating seems to be that the way the bridge was constructed does not meet today's standards. The bridge does not appear to be on ODOT's list of priorities for replacement. Clarification with ODOT's bridge division should be sought to see if Marion County and the City of Jefferson needs to be concerned with ODOT for a bridge replacement project in the 20-year planning period.

Data Regarding Transportation Disadvantaged and Identification of Deficiency in Serving the Transportation Disadvantaged by Public Transportation

Based on US Census data in the City of Jefferson's Comprehensive Plan (May 1992) and summarized in Table 1 below, the 65 and over population has remaining a constant percentage of Jefferson's overall population. In 1970, 96 people were 65 and older, which represented 10.3 percent of the population. In 1990, there were 163 people at the age 65 or older, which represented 9.0 percent of the population. By comparison, the State of Oregon's 65 and older population has increased from 10.8 percent of the state's population to 13.7 percent in 1990. In 2000, both Jefferson's and Oregon's senior population declined percentage-wise although the actual number of seniors increased. Jefferson's 65 and over population declined to 7.2 percent of its population. This decline of senior population in Jefferson as a percentage of overall population has been occurring since 1970.

Table 5-3.
Jefferson and State of Oregon Senior Populations

	Jefferson		Oregon	
Year	Population Over 65	% of Population	Population Over 65	% of Population
1970	96	10.3	225,885	10.8
1990	163	9.0	321,655	13.7
2000	179	7.2	438,177	12.8

Source: Jefferson Comprehensive Plan, May 1992, 2000 Census

Another good source of data to develop a perspective about likely segments of Jefferson's population that would be attracted to public transportation services is to look at the age distribution of the population. The age distribution of Jefferson's population is summarized in Table 5-4.

As shown in Table 5-4, 35.6 percent of Jefferson is 16 years old or under. Of this population segment, much of the 12 to 16 year old segment may be potentially transportation disadvantaged since they are not of driving age, or they are new drivers without access to car, or alternative transportation modes are limited. The 12 to 16 year old segment of the population accounts for 8.8 percent of the population. It is likely that fewer of the 17 to 18 year olds are transportation disadvantaged because they are of driving age with more accessibility to a car.

Table 5-4.
1990 Jefferson Population by Age

Age	Total Persons	% of Population
0-11	465	25.8
12-16	159	8.8
Sub-Total	**624**	**35.6**
17-24	166	9.2
25-44	574	31.8
45-64	281	15.5
65+	160	8.9
Sub-Total	**1,181**	**65.4**
Total	**1,805**	**100.0**

Source: 1990 US Census and Jefferson Comprehensive Plan, May 1992

When combining age groups (1990 Census numbers) that may have significant levels of individuals who are transportation disadvantaged, 17.8 percent of Jefferson are in this category. The age groups that could be considered in the potentially transportation disadvantaged category are the 12-16 and 65 plus categories.

The 1990 U.S. Census data reported mobility limitation status by employment status. This data is summarized in Table 5-5. Table 5-5 is a summary of the total numbers of the population that have mobility limitations by age and work status categories. As shown in Table 5-5, 73 people reported having mobility limitations. Almost two thirds of those reporting mobility limitations were women. The 73 people with mobility limitations translate to approximately 6 percent of Jefferson's population reported having mobility limitations.

The final demographic category analyzed to develop a perspective regarding the segment of population with mobility limitations was poverty level. This data is summarized in Table 3-4. As shown in Table 3-4, 7.1 percent of children 17 years old and under are considered living under poverty level. Adults 18 years and older reported a poverty level of 11.0 percent of the total population. The total percentage of people in Jefferson living below poverty level is

18.1 percent. The 18.1 percent translate to 318 people. Much of this segment of population may have some mobility limitations due to financial hardship and may be well served by public transportation services.

Table 5-5.
Mobility Limitation Status by Employment Status

	IN WORK FORCE		NOT IN WORK FORCE		TOTALS		
	NML1	ML2	NML1	ML2	NML1	ML2	TOTAL
MALE							
16 TO 64	400	4	91	10	491	14	505
65+	6	0	54	12	60	12	72
				SUBTOTAL	551	26	577
FEMALE							
16 TO 64	312	2	202	18	514	20	534
65+	0	3	61	24	61	27	88
				SUBTOTAL	575	47	622
TOTALS							
16 TO 64	712	6	293	28	1,005	34	1,039
65+	6	3	115	36	121	39	160
				TOTAL	1,126	73	1,199

Source: 1990 US Census
[1]NML = no mobility limitations
[2]ML – mobility limitations

Table 5-6.
Population by Poverty Level Status

	Above Poverty Level		Below Poverty Level		Total	
Age	Number	Percent	Number	Percent	Number	Percent
0-11	331	18.8%	99	5.6%	430	24.4%
12-17	151	8.5%	27	1.5%	178	10.0%
Sub-Total	482	27.3%	126	7.1%	608	34.4%
18-24	104	5.9%	36	2.1%	140	8.0%
25-44	474	26.9%	100	5.7%	574	32.6%
45-64	244	13.8%	37	2.1%	281	15.9%
65+	141	8.0%	19	1.1%	160	9.1%
Sub-Total	963	54.6%	192	11.0%	1,155	65.6%
Total	1,445	81.9%	318	18.1%	1,763	100.0%

Source: 1990 US Census

When comparing the reported incidences of mobility limitations at approximately 6 percent of Jefferson's population with the demographic groups likely to have mobility limitation issues, the reported incidences of mobility limitations seems low. This is demonstrated by the fact that the under 18 and 65 and over age categories account for almost 50 percent of Jefferson's population. These percentages imply that a larger number of the population may have mobility limitations due to age, financial challenges, or disabilities. The information above may imply that there is a latent demand for public transportation in Jefferson.

A study conducted by ODOT called *Oregon's Mobility Needs, Final Report, SPR 395, January 1999* summarized a statewide survey conducted in regarding the mobility impaired. This study defined a mobility impaired person as:

> "Someone who, because of a physical, cognitive or psychiatric impairment, is unable to transport themselves without the use of special equipment or outside assistance and is, therefore dependent on others to obtain access to health care, employment, education, shopping, social activities, or other life sustaining activities; OR
>
> Someone aged 60 years or older who is unable to purchase transportation and is, therefore, dependent on others to obtain access to health care, employment, education, shopping, social activities, or other life sustaining activities."

The results were summarized by regions of the state. Marion County was considered the Northwest Region and was included with Clatsop, Columbia, Tillamook, Yamhill, Polk, Marion, Lincoln, Benton, and Lane counties. The Northwest Region reported an incidence of mobility impairment of 8 percent.

The *Oregon's Mobility Needs, Final Report, SPR 395, January 1999* study summarized demographic profiles of the mobility impaired population in Oregon. Their findings are summarized below. The overall survey found the following regarding the mobility impaired:

- More likely to be female (63%) than male (37%)
- About as likely as not, to be able to transport themselves using a personal automobile. Slightly over half (53%) have a driver's license and/or access to an automobile. Just over half (56%) report having no difficulty obtaining transportation.
- The older members of the population. The median age of the mobility impaired is 64 years. Fifty-eight percent (58%) of mobility impaired individuals are 60 years of age or older.
- Currently not employed. Half (49%) are retired, and 28 percent are unemployed due to their disability. Only 16 percent are employed either full or part time.
- Less affluent than the average citizen. The median household income of the mobility impaired is $20,540. More than one out of five (22%) report an annual household income of less than $10,000. The median household income in Oregon has been estimated to be $32,698 in 1995 and $35,012 in 1997.
- More likely than not to use a mobility aid such as a wheelchair or a cane or crutches. Fifty-five percent (55%) use a mobility aid.

CHAPTER 6
TRANSPORTATION IMPROVEMENT OPTIONS EVALUATION AND RECOMMENDATION

INTERSECTION IMPROVEMENTS

Based on the 2020 volume to capacity (v/c) ratio and level of service analyses, the following intersection is projected to operate below an acceptable v/c ratio and a level of service worse than LOS D:

- Jefferson Highway/North Avenue

Before an intersection is signalized, several measures can be implemented to mitigate traffic operations deficiencies. Alternatives to signalization include additional turn lanes, all-way stop control of the intersection, side street turn prohibitions and traffic diversion.

In general the addition of turn lanes work best when there are capacity deficiencies on the mainline. Adding a turn lane on the side street does not usually mitigate traffic operations deficiencies since most side streets deficiencies are due to insufficient gaps on the main line for left turns from the side street. The addition of a turn lane on the side street will not increase gaps in traffic on the mainline. Since the deficiencies at the Jefferson Highway/North Avenue intersection is on the side street, the addition of a turn on the side street would not mitigate this deficiency.

All-way stop control is only recommended when volumes on both approach streets of an intersection are approximately equal. Since the traffic at the Jefferson Highway/North Avenue intersection is not approximately equally split between Jefferson Highway and the side street (North Avenue), all-way stop control is not recommended.

Side street turn prohibitions are another alternative to signalization. Left turns from the side street could be prohibited and would have to reroute to another street. While this may work in some cases, it usually moves the problem to another location, increases travel distance for motorists and is hard to enforce. Side street turn prohibitions work best when there is a nearby signalized intersection where motorists can make the left turn. Side street turn prohibitions are not recommended at the Jefferson Highway/North Avenue intersections for the reasons stated above. In addition, there is not a nearby signalized intersection where the side street left turns can be made. Prohibiting left turns at North Avenue may also create problems for traffic leaving Jefferson Elementary School.

Diverting traffic from the mainline to the local streets would create more gaps for side street traffic. The problem with this alternative measure is that it shifts regional through traffic including trucks to local streets. While the level of service may be increased along Jefferson Highway, it would severally degrade levels of service on the local streets and increase safety concerns as through traffic uses roadway designed for low speed traffic. This is especially a

concern in the vicinity of North Avenue, which provides access to the Jefferson Elementary School.

In order to mitigate the v/c ratio and level of service deficiency at the Jefferson Highway/North Avenue intersection, signalization is required. In addition, a northbound and westbound right turn lanes are required along Jefferson Highway at North Avenue to accommodate the heavy combined through and right traffic volumes in the AM peak hour in the Year 2020.

Signal warrant analysis was undertaken at the Jefferson Highway/North Avenue intersection using the Manual on Uniform Traffic Control Devices (MUTCD) Signal Warrant 1. The traffic volumes for the Year 2020 conditions were estimated based on the PM peak hour volume forecasts described earlier in this report. The eight highest hour traffic volumes were derived by using 70 percent of the highest hour of the day (the PM peak hour). The eight highest hour estimate was then compared with the Warrant 1 volumes for two lane roadways in an isolated community having a population of less than 10,000. If the eight highest hour is greater than the volume warrant, then signal warrants are met for the intersection. Based on these Year 2020 traffic volume estimates, the Jefferson Highway/North Avenue intersection meets Warrant 1.

V/C ratio and level of service analysis was conducted at the Jefferson Highway/North Avenue intersection based on improvements identified above. The improvements included signalization and the addition of a northbound right turn lane. As shown in Table 6-1, the Jefferson Highway/North Avenue intersection is projected to operate with a maximum v/c ratio of 0.83 for the overall intersection and an overall intersection level of service of LOS C with all movements operating at LOS D or better. The Oregon Highway Plan (OHP) v/c ratio standard of 0.85 is met for all movements with the proposed mitigation at the Jefferson Highway/North Avenue intersection.

Table 6-1
Year 2020 Future A.M. and P.M. Peak Hour Levels of Service with Proposed Mitigation

	A.M. Peak Hour			P.M. Peak Hour		
Signalized Intersection	**LOS**	**Average Delay (sec)**	**V/C Ratio**	**LOS**	**Average Delay (sec)**	**V/C Ratio**
Jefferson Highway/North Avenue						
Northbound Through	C	31.9	0.78	C	20.8	0.46
Northbound Right	A	5.6	0.16	A	5.3	0.23
Southbound Approach	B	15.8	0.71	B	14.1	0.69
Westbound Left	D	39.3	0.66	D	36.4	0.60
Westbound Right	B	13.9	0.18	A	9.8	0.05
Overall Intersection	C	23.9	0.83	B	18.9	0.70

Prior to any installation of a traffic signal on Jefferson Highway, the State Traffic Engineer must approve the proposal. At the time the City of Jefferson desires a traffic signal to be considered at the Jefferson Highway/North Avenue intersection, Region 2 of ODOT will need to conduct a field warrant analysis. Also, since North Avenue is a Marion County facility, Marion County's engineers will also need to be coordinated with prior to any approval of a traffic signal installation.

ALL-WAY STOP INTERSECTIONS

The all-way stop warrant analysis presented in Chapter 5 shows that the existing all-way stop controlled intersections are not warranted presently or in the 20-year planning horizon. Two simple options exist. The first option is to do nothing and allow the unwarranted all-way stop controlled intersections to remain in place. The second option is to remove the all-way stop controlled intersections and allow the minor street approaches to be stop controlled only.

Based on the safety narrative discussed in Chapter 4, it is the recommendation to remove all of the all way stop controlled intersections and replace them with stop control only on the minor street intersection approaches. The safety concerns with unwarranted all way stop controlled intersections are 1) motorists violating the stop signs due to very little conflicting traffic and 2) driver expectations not being met by having the major movement street stop.

RAILROAD RELATED IMPROVEMENTS

Improvements to Solve Railroad Blocking Problem

Consideration should be given to the development of a railroad crossing north of Jefferson to eliminate the potential train blocking problem. A long train can block access between the east and west areas of Jefferson. This situation is especially problematic for emergency services should there be a call in the east end of town. Since the potential crossing would be outside Jefferson's urban growth boundary, coordination with Marion County is necessary to pursue this improvement. Of course, the Union Pacific Railroad will also be necessary to coordinate with for any additional railroad crossings.

Another option to solving the potential train blocking problem is to construct a grade separated roadway across the railroad tracks. In this option, one of Jefferson's streets would have to be elevated to cross the railroad tracks since reconstruction of the railroad tracks to go over one of the roadways is not likely. For grade separation to occur over the railroad tracks, at minimum approximately 600 feet is needed assuming a 6% grade. This assumes 300 feet on both sides of the railroad tracks is needed. Impact to residential area would be significant. Several houses may need to be purchased due to grade issues home accesses. For the significant impact this option has to the Jefferson residential area, it was dropped from serious consideration. Also, the high cost of construction of this option was another consideration in dropping the improvement from consideration.

Any type of railroad work would require a permit from the ODOT Rail Division.

Pedestrian Crossing at 3rd and the Railroad

As previously identified in Chapter 3, there is an informal pedestrian crossing at 3rd Street and the Union Pacific Railroad. Based on comments from city staff, this crossing is used significantly by residents of Jefferson. The concern regarding this informal pedestrian and bicycle crossing is that it is not easy to negotiate and therefore may become a safety issue.

There are two obvious options in resolving the safety issue at the 3rd Street/Union Pacific Railroad informal pedestrian/bicyclist crossing. First, a barrier could be constructed to prevent pedestrians and bicyclists from using this informal crossing. The issue with this option is that it would create a significant amount of out of direction travel for the pedestrian and bicyclist. Also, pedestrian and bicyclists may attempt to circumvent the barrier and it may become ineffective.

The second option is to improve the informal crossing for pedestrian and bicyclists so it is safe to cross. Minor grading would have to occur on both sides of the railroad tracks to allow for a smooth transition over the railroad tracks. For maintenance purposes, the approaches of this crossing should be asphalt rather than gravel. At the railroad tracks, one of three treatments could be installed to allow for a smooth crossing for pedestrians and bicyclists across the railroad tracks. The three treatments are a concrete crossing, rubberized crossing, and asphalt crossing. The concrete crossing performs the best of the three crossings when wet, minimizes maintenance, and provides for a smooth crossing for pedestrian and especially bicyclists. The rubberized crossing is very durable and smooth but tends to become slippery when wet. Asphalt is the third option. The main issue with the asphalt is maintenance. It has a tendency to ridge up against the railroad tracks and would have to periodically be smoothed out.

Regardless of the crossing treatment chosen, the crossing should be as close to a right angle as possible. The reason for the right angle crossing is to provide for the safest crossing for the bicyclist. A right angle crossing minimizes the potential for a bicyclist to catch their wheels in the flange of the railroad tracks and lose their balance.

The preference is the concrete railroad crossing since it provides the best features and minimizes future maintenance needs.

ROADWAY CONNECTIVITY IMPROVEMENTS

To provide the City of Jefferson with a local alternative north-south road to Jefferson Highway east of the railroad tracks, several potential options were evaluated. A north-south road east of the railroad tracks that provides continuous access throughout the city is desired. Currently, there are three east-west accesses across the railroad tracks that connect the east side of the city to the west side. Should a railroad incident occur blocking the east and west sides of town from each other, it is critical to have a north-south alternative access. North of town in unincorporated Marion County, a private access could be utilized for emergency purposes with the property owner's consent. If there is not access into the eastside Jefferson neighborhood from the north, then the alternative emergency access is rendered ineffective in providing for access.

Two alternative alignments are available for an alternative north-south roadway to Jefferson Highway. Either 5th Street or 7th Street could be connected northward to North Avenue or Cemetery Hill Road.

5th Street has the potential to be connected from Cemetery Hill Road to Jefferson-Scio Drive. There are three missing sections between Cemetery Hill Road and Elm Street, Union Street to Columbia Street, and Delores Street to Jefferson-Scio Road. The missing sections of 5th represent approximately 2,000 feet of roadway to provide for a continuous connection between Cemetery Road and Jefferson-Scio Drive. The advantages of this improvement would be that local traffic could use 5th Street as an alternative to Jefferson Highway thereby reducing the future congestion on Jefferson Highway. Traffic calming may become an issue if speeds increase on 5th Street and more traffic is attracted to it. All of the potential alignment of the missing sections of 5th Street is within the city limits.

There are two potential alignments for 5th Street between Elm Street and North Avenue. The first alignment is a direct alignment, which would connect the future 5th Street alignment at the current intersection at Cemetery Hill Road and Salamander Road. This alignment would impact two existing single family residences in an industrial zone and it would be likely that the purchase of a home and right-of-way would be required. The second alignment takes advantage of an existing 20 foot right-of-way east of Salamander Road. The second alignment would require the 5th Street extension to curve almost 600 feet to the east before connecting with Cemetery Hill Road.

The other north-south roadway alignment is 7th Street from Maple Court to Cemetery Hill Road. This extension would occur outside the city limits in the existing urban growth boundary. 7th Street dead ends at Greenwood Street. The 7th Street extension would provide a north-south local street from Cemetery Hill Road to Greenwood Street and fall short of providing access all the way to Jefferson-Scio Drive.

The 5th Street extension was selected over the 7th Street extension because it provides greater north-south connectivity and mobility. Also, it does not impact local neighborhood streets such as Greenwood Street east of 5th Street. The 5th Street alignment is strictly on the collector system and does not directly impact short, local residential streets.

Prior to any final alignment being selected for design and construction, a refinement study should be conducted to determine which 5th Street alignment should be constructed.

SIDEWALK AND PEDESTRIAN FACILITY IMPROVEMENTS

For sidewalk improvements there is basically only one of two options. The first option is to do nothing. The second option is to prioritize the sidewalk improvements and construct or reconstruct those sidewalk locations listed below:

The following segments of sidewalks should be replaced since they are in poor condition.

- West side of Main Street from Union Street to Church Street
- East side of Main Street from Jefferson Highway north four parcels
- East side of Main Street from Union north 5 parcels
- East side of Main Street two parcels south of Church Street
- Both sides of Hazel Street from Main Street to Jefferson Highway

Sidewalks should be installed along the following roadway segments:

- East side of Jefferson Highway from the Santiam River bridge to two parcels north of Union St
- West side of Jefferson Hwy from the Santiam River bridge to one parcel north of Main St
- West side of Jefferson Highway from three parcels south of Hazel Street to Hazel Street
- West side of Jefferson Highway from University Street to the North Avenue
- North side of Hazel Street from Jefferson Highway to 5th Street
- South side of Hazel Street from alley east of Jefferson Highway to the railroad tracks
- South side of Hazel Street from 5th Street to 6th Street
- University Street from Jefferson Highway to 3rd Street – both sides
- Columbia Street from 2nd Street to 5th Street – both sides
- Greenwood Street from Main Street to 3rd Street – both sides
- 2nd Street from Columbia Street to Greenwood Street – both sides
- 3rd Street from University Street to Hazel Street – both sides

Arterials needing shoulder widening and improvements are as follows:

- Both sides of Main Street from Jefferson Highway to the east UGB
- Both sides of North Avenue from Jefferson Highway to Jefferson-Marion Road

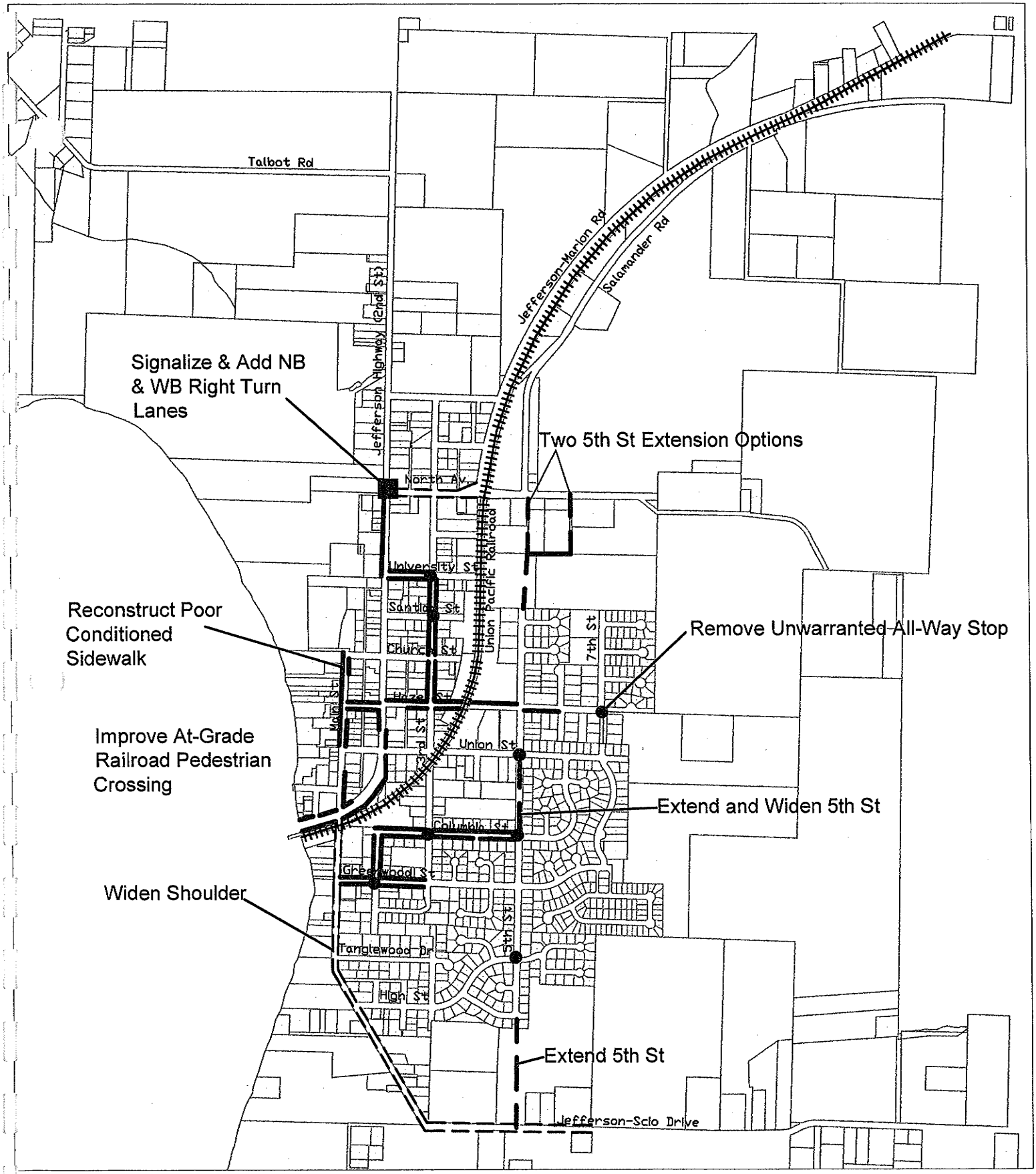
Six-foot shoulders should be provided for with the shoulder improvement projects. This width will adequately provide for pedestrian and bicyclist activity on the shoulder.

Figure 6-1 depicts all of the proposed transportation improvements described in the text above.

IMPROVEMENT EVALUATION

In order to evaluate the proposed roadway improvements the following criteria was used to assess the priority of these improvements:

- Separates regional from local trips, especially through trucks
- Improves existing/future capacity, pavement condition or safety deficiencies
- Improves connectivity and/or grid system
- Reduction in trips on parallel facilities, especially residential roadways
- Provides direct access to major trip generator(s)
- Provides access to future development areas
- Relative Cost



LEGEND

- Widen Shoulder
- Add New Sidewalk
- Remove Unwarranted All-Way Stop
- Signalize Intersection

Figure 6-1.
Transportation
Improvement Location Map

The following is a discussion of each proposed improvement relative to the above criteria. Table 6-2 contains a summary of each of the proposed improvements evaluated against the assessment criteria.

Jefferson Highway/North Avenue Signalization

This new signal with the addition of northbound and westbound right turn lanes will improve traffic flow and safety along Jefferson Highway. It should also improve safety for students crossing Jefferson Highway for the elementary school. Compared to the other proposed improvements, it has a moderate relative cost of approximately $275,000).

5th Street Extension

Three missing sections along 5th Street (Elm Street to Cemetery Hill Road, Union Street to Columbia Street, and south of Delores Street Drive to Jefferson-Scio Drive) would be constructed to provide a new north-south through street. Local traffic would be able to travel within Jefferson without having to use Jefferson Highway and emergency vehicles would have access to the east side of town during situations when the train blocks the two sides of town from each other. This should reduce traffic along Jefferson Highway and separate through traffic from local Jefferson traffic. Given the relatively long length of the facility, it has a high cost relative to the other improvement projects.

3rd Street/Union Street Pedestrian/Bicycle Railroad Crossing

The informal 3rd Street/Union Street pedestrian/bicycle railroad crossing would be improved to provide for safer movements across the railroad tracks. The estimated cost is $15,000. Compared to the other proposed improvements, it has a low relative cost.

Repair Various Sidewalk Segments

Existing sidewalk segments at various locations would be repaired. This would provide increased safety for pedestrians/bicycles and improve the sidewalk grid and connectivity. Compared to the other proposed improvements, it has a low relative cost.

Install Various Sidewalk Segments

New sidewalk segments at various locations would be installed. This would provide increased safety for pedestrians/bicycles and improve the sidewalk grid and connectivity. Compared to the other proposed improvements, it has a low relative cost.

Widen Roadway to Provide Adequate Shoulders along Various Roadways

Main Street/Jefferson-Scio Drive (Jefferson Highway to the east urban growth boundary) and North Avenue (Jefferson Highway to Jefferson-Marion Road) would be widened to accommodate a widened shoulder. This would provide increased safety for pedestrians/bicycles and improve the pedestrian/bicycle grid and connectivity. Compared to the other proposed improvements, it has a high (Main Street/Jefferson-Scio) and moderate (North Avenue) relative cost.

Table 6-2.
Improvement Evaluation

Roadway	Improvement	Separates Traffic	Improves Existing/Future Deficiencies	Improves Connectivity and/or Grid System	Reduction in Trips on Parallel Facilities	Provides Direct Access to Major Trip Generators	Provides Direct Access to Future	Relative Cost	Overall Assessment (Scale of 1-4, 1 is Highest)
Jefferson Hwy/North Avenue	Signalization	No	Eliminates future poor level of service. Improves safety for school crossings	No	No	No	No	Moderate	3
5th Street Extension	Complete missing sections between North Avenue and Jefferson-Scio Dr	Provides a local alternative to Hwy 99	Provides additional north-south capacity	Provides a new north-south connection	Some local trips may divert from Hwy 99	No	No	High	1
3rd St/Union St Bike/Ped Railroad crossing	Construct pedestrian and bicycle crossing	No, but provides for safer movement	Improves safety at this location	Yes, for peds and bikes	Yes	Yes	Yes	Low	1
Repair Sidewalk Segments	Various locations along Hwy 99 and Main St	Separates cars from peds/bikes	Repairs existing deficiencies. Improves ped/bike safety	Improves ped/bike connectivity	No	No	No	Low	2
Install Sidewalk Segments	Various locations along Hwy 99 and Hazel St.	Separates cars from peds/bikes	Improves safety for peds/bikes	Improves ped/bike connectivity	No	No	No	Low	2
Widen Roadway to provide adequate Shoulders	Main St from Hwy 99 to UGB, North Ave from Hwy 99 to Jefferson-Marion Rd	Provides a six foot shoulder for peds/bikes	Improves safety for peds/bikes	Improves ped/bike connectivity	No	No	No	Moderate to High	4

IMPROVEMENT COST

Table 6-3 summarizes the cost for each improvement proposal. The sidewalk improvements are itemized by section.

Table 6-3
Improvement Cost

Improvement Description	Cost
1. Jefferson Highway/North Street signalization and addition of northbound and westbound right turn lanes	$275,000
2. 5th Street Extension – 2000 feet of new collector roadway	$800,000
3. 3rd Street/Union Street Ped/Bike Railroad Crossing	$15,000
4. Remove 8 all-way stop intersection signs	$500
5. Sidewalk Reconstruction	
West side of Main Street from Union Street to Church Street	$22,500
East side of Main Street from Jefferson Highway north four parcels	$7,500
East side of Main Street from Union north 5 parcels	$6,500
East side of Main Street two parcels south of Church Street	$3,500
Both sides of Hazel Street from Main Street to Jefferson Highway	$16,500
Total	**$56,500**
6. New Sidewalk Construction	
East side of Jefferson Hwy from the Santiam River bridge to two parcels north of Union St	$36,000
West side of Jefferson Hwy from the Santiam River bridge to one parcel north of Main St	$11,400
West side of Jefferson Highway from three parcels south of Hazel Street to Hazel Street	$3,300
West side of Jefferson Highway from University Street to the North Avenue	$20,400
North side of Hazel Street from 3rd Street to 5th Street	$21,200
South side of Hazel Street from 3rd Street to the railroad tracks	$8,200
South side of Hazel Street from 5th Street to 6th Street	$8,200
University Street from Jefferson Highway to 3rd Street – both sides	$19,600
Columbia Street from 2nd Street to 5th Street – both sides	$65,300
Greenwood Street from Main Street to 3rd Street – both sides	$37,500
2nd Street from Columbia Street to Greenwood Street – both sides	$21,200
Total	**$252,300**
7. Construct adequate shoulders	
Both sides of Main St from Jefferson Highway to the east urban growth boundary	$20,000
Both sides of North Avenue from Jefferson Highway to Jefferson-Marion Road	$3,000
Grand Total	**$1,422,300**

CHAPTER 7
TRANSPORTATION MODAL PLANS

STREET PLAN

Transportation System Plan (TSP) Requirements

OAR 660-12-020 Elements of Transportation System Plans

(2) (b) A road plan for a system of arterials and collectors and standards for the layout of local streets and other important non-collector street connections. Functional classifications of roads in regional and local TSPs shall be consistent with functional adjacent jurisdictions. The standards for the layout of local streets shall provide for safe and convenient bike and pedestrian circulation necessary to carry out OAR 660-12-045(3)(b). New connections to arterials and state highways shall be consistent with designated access management categories. The intent of this requirement is to provide guidance on the spacing of future extensions and connections along existing and future streets, which are needed to provide reasonably direct routes for bicycle and pedestrian travel. The standards for the layout of local streets shall address:

(A) Extensions of existing streets;
(B) Connections to existing or planned streets, including arterials and collectors; and
(C) Connections to neighborhood destinations.

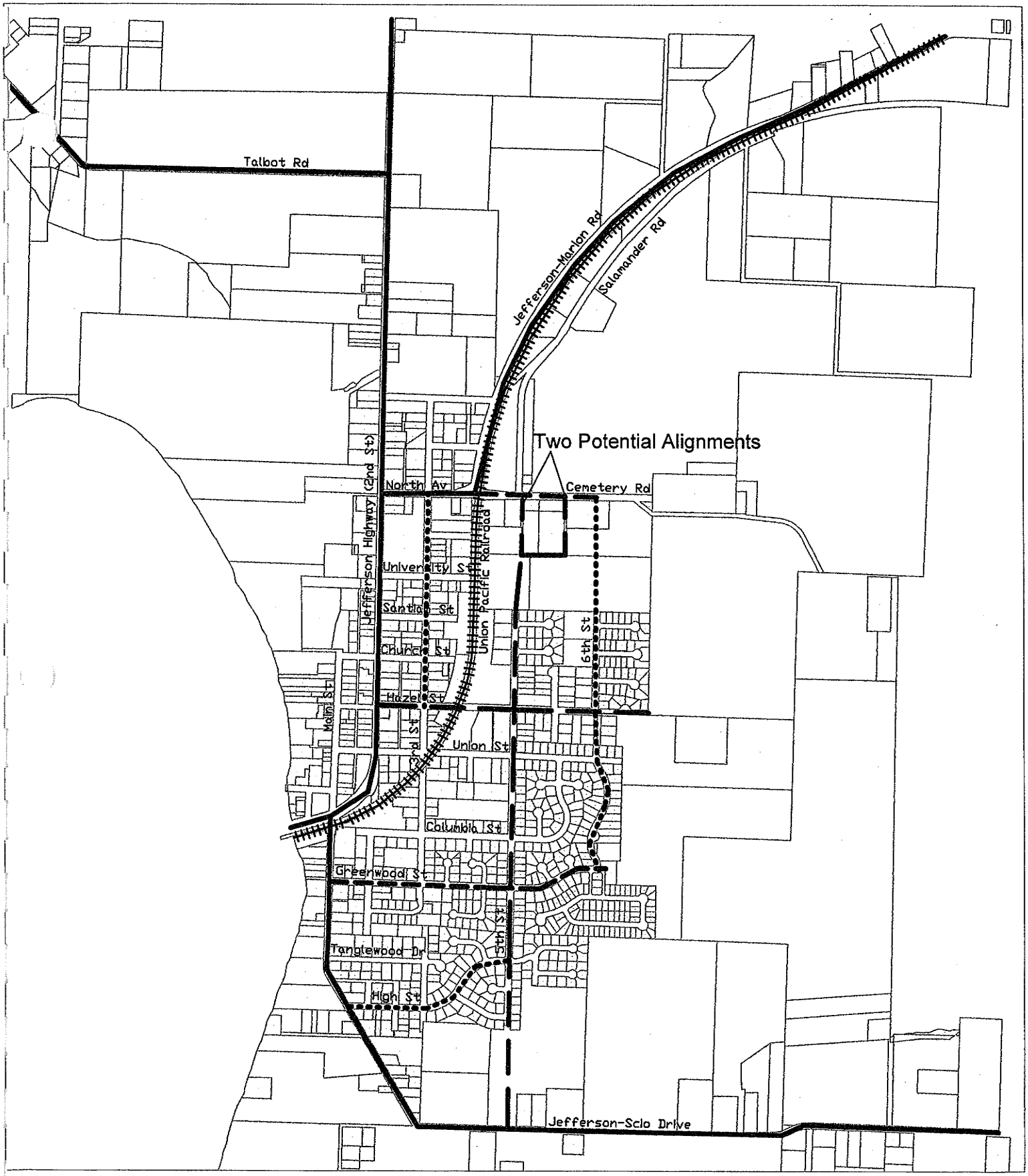
Functional Classification

The functional classification of the City of Jefferson roadways have been previously discussed in Chapter 3, Transportation System Inventory. Figure 7-1 shows the new functional classification.

Street Design Standards

The City of Jefferson already has a current set of roadway standards. The roadway standards are contained in the City of Jefferson's Public Works Design Standards, Streets in Section 2.7. They were adopted in 1996. In reviewing the document, the only recommended addition to these standards is an optional skinny street standard.

In November 2000, Neighborhood Street Design Guidelines was prepared by the Neighborhood Streets Project Stakeholders. The project was funded by the Transportation Growth Management (TGM) Program. The stakeholders involved included emergency service providers, developers, city and county representatives, Livable Oregon, and 1000 Friends of Oregon. The group developed a set of acceptable skinny street standards to all the stakeholders involved. The skinny street proposal is based on the skinny street cross-section recommendations developed this group.



LEGEND

- Arterial
- Major Collector
- Minor Collector
- Local

Figure 7-1.
TSP Roadway Classification Map

The following cross-sections should be considered for inclusion in the Jefferson road standards document. The cross-section is a 28 foot wide street with parking on both sides. The parking lanes are seven feet each with a 14 foot travel lane. Seven foot planting strips are adjacent to the curb with five foot sidewalks behind the planting strip. The right-of-way for this street is 55 feet. The skinny street cross-section is illustrated in Figure 7-2.

Local Street Network

The purpose of the Local Street Network Plan is to identify future right-of-way that the City of Jefferson will need in order to have and maintain, as much as possible, a balanced street network in accordance with the Oregon Transportation Rule. The plan designates:

1) where existing collector/arterials will be extended or new ones will be added;
2) where new local access streets and/or pedestrian ways will be located to provide better connection between existing streets (grid infill); and
3) where new local access streets will be located to provide adequate connection to significant local destinations for both automobiles and pedestrians.

Locations for the right-of-way and improvements are designated based on review of the existing street grid, existing parcel boundary locations, physical constraints (such as steep slopes and floodways that might preclude economical road construction) and access management guidelines for access onto major arterials.

The local street network plan is shown in Figure 7-3.

As shown in Figure 7-3, the only streets shown are a 5th Street extension, possible extension of Hazel Street to the east toward developable residential property, and possible extension of Greenwood Street to the east toward developable residential property.

Access Management

Access management is the process in which access to land development is balanced with preserving traffic flow on the transportation system. A hierarchy of standards should be developed depending on the functional classification of roadway. Along arterials, the standard should be more strict allowing less access to preserve the traffic flow capacity of the roadway. In contrast, the local streets would have less strict access spacing standards with a priority given to land development access. Collector streets would have a standard somewhere in- between the arterial and local street standards. All of the arterials are either ODOT or Marion County jurisdiction. For these arterials, the City of Jefferson will defer to ODOT and Marion County access spacing standards.

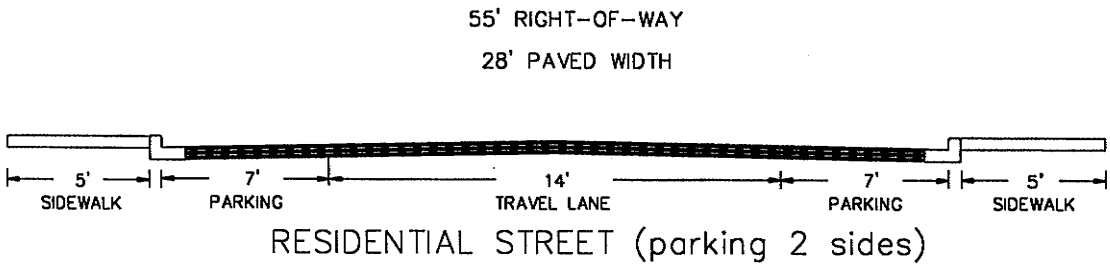
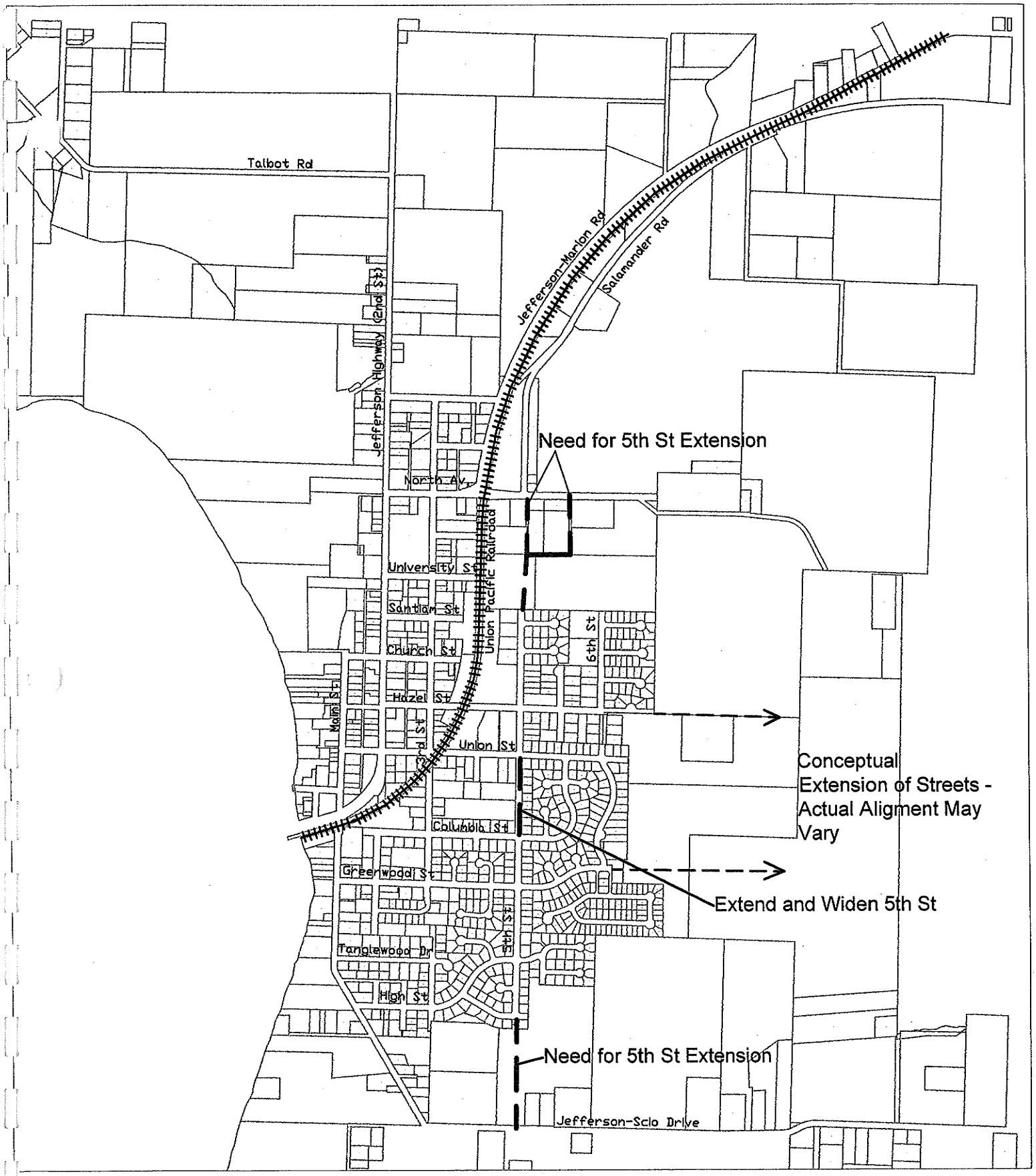


Figure 7-2.
Skinny Street Cross-Sections



LEGEND

Future Street Alignment - - - - -

Figure 7-3.
Local Street Plan Map

The remaining streets within Jefferson are either collectors or local streets. The collector streets primarily serve residential areas and serve as neighborhood collectors rather than full collectors. Therefore the collectors have only a slightly more restrictive standard than the local streets. The access spacing standard for collectors is 75 feet.

The access spacing standard for local streets is 50 feet between driveways. Table 7-1 summarizes all the access spacing standards for each roadway classification.

Table 7-1
Access Spacing Standard

Functional Classification/Roadway	Posted Speed Range	Minimum Spacing between Driveways and/or Streets
Collector	20-25 mph	75 feet
Local	20-25 mph	50 feet[1]

[1] An exception to this spacing standard will be in cases of shared access points.

Traffic Calming Measures

Background

Traffic calming is the use of various techniques and control devices to slow traffic and/or shift traffic to more appropriate routes. Traffic calming concepts were first employed in Germany, Holland and Australia several decades ago. Over the past twenty years, an increasing number of cities throughout the United States have used a variety of traffic control devices to improve street conditions in residential neighborhoods. Some of these devices are best employed in existing neighborhoods to address unsafe or undesirable conditions; others can be designed into streets when they are constructed to prevent or minimize the development of future problems.

Applicable Planning Principles

Installation of traffic calming devices must be evaluated on a case-by-case basis using engineering judgement, and based on the following principles:

- Local streets help determine the form and character of neighborhoods; street design should be considered a part of neighborhood design.

- Local streets should be designed to carry low traffic volumes at low speeds and to function efficiently and safely, yet minimize the need extensive traffic regulation, control devices and enforcement. A successful design will result in traffic calming and reduce the need of future installation of traffic calming measures.

- The function of the local street should be readily apparent to the user through its appearance and design in order to reduce non-local through traffic on local residential streets.

- Local streets should be interconnected to reduce travel distance, promote the use of alternative modes, provide for efficient provision of utilities and emergency services, and provide for more even dispersal of traffic.

- The local street circulation pattern should provide connections to and from activity centers such as schools, commercial areas, employment centers, and other major attractors.

- The pavement area of local streets should be minimized, consistent with efforts to reduce street construction and maintenance costs, storm water runoff, and environmental impacts of street construction. Narrower streets also distinguish local residential streets from collector and arterial streets and enhance neighborhood character.

- Planning and design should be coordinated with emergency and other service providers who will be affected by their use. Streets should be designed to efficiently and safely accommodate emergency fire and medical service vehicles.

- Traffic calming devices are intended for use only on non-arterial residential streets.

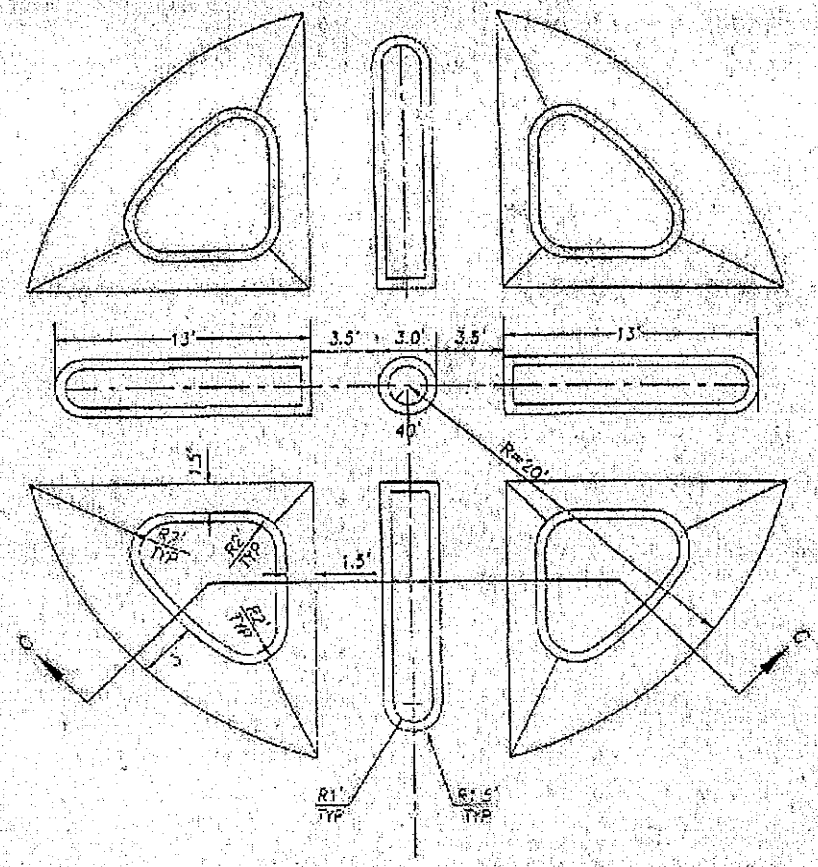
Traffic Claming Devices

The following is a discussion of the various traffic claming devices that are appropriate for implementation in Lebanon:

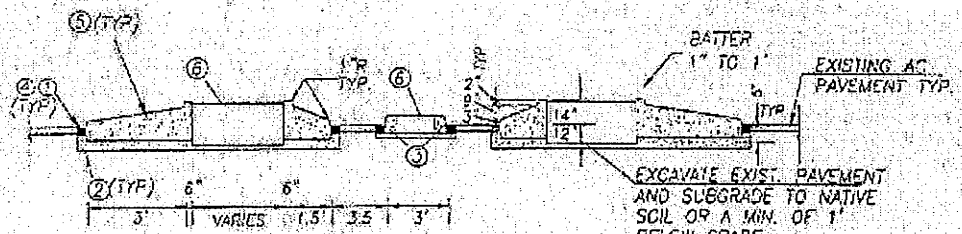
Traffic Circles

Traffic Circles are raised landscaped islands placed in the center of an intersection. Their primary purpose is to reduce speed and to separate intersection vehicle conflicts. Circles are especially effective in a series and may result in diversion of cut-through traffic to other areas. Traffic circles are typically used on relatively low volume residential streets.

The recommended design standard for construction of traffic circles is illustrated in Figure 7-4. This design was chosen because it allows for emergency access.



EMERGENCY VEHICLE TRAFFIC CIRCLE



SECTION C-C

CONSTRUCTION NOTES

① SAWCUT AND REMOVE EXISTING PAVING WITHIN LIMITS NECESSARY FOR CONSTRUCTION OF TRAFFIC CIRCLE.

② EXCAVATE TO SUBGRADE AND PLACE 3/4"-0" AGGREGATE BASE FOR CURB CONSTRUCTION.

③ CONSTRUCT CEMENT CONCRETE BARRIER CURB FOR PER WASHINGTON STATE DOT STANDARD PLAN F-1.

④ PATCH ASPHALT CONCRETE CLASS "A" TO MATCH EXISTING THICKNESS OR 4" MINIMUM, WHICH EVER IS GREATER. FINISH EDGES BY SAND SWEEPING, TACK COAT AND SEALANT.

⑤ CONSTRUCT CEMENT CONCRETE ISLAND CURB USING 3000 psi CONCRETE.

⑥ PLANTING STRIP-ALL PLANTING FILL MATERIAL AND LOW MAINTENANCE PLANTS WILL BE PROVIDED BY CLARK COUNTY.

Figure 7-4.
Traffic Circle Detail

Speed Humps

Speed humps reduce speeds on residential streets by compelling motorists to slow to residential speed limits when approaching the speed hump. Speed humps are 14 feet to 22 feet in length and are approximately 3 inches high (see Figures 7-5 and 7-6 for example designs). They are most effectively used in clusters of three to five, and are generally installed at intervals ranging from 200 feet to 500 feet apart. Speed humps are not to be confused with speed bumps. Speed bumps are much more abrupt, usually less than 3 feet in length, and are used in parking lots and private drives. Speed bumps should not be used on public streets.

The 14 foot speed bump design, when used in series, will reduce the average vehicle speed to approximately 25 mph. The 22 foot design will reduce the average speed to approximately 35 mph. While primarily used for speed reductions, speed bumps can reduce traffic volumes on street where they are employed by diverting traffic to other nearby streets as motorists choose alternate routes to avoid them.

Raised Crosswalks

The purpose of raised crosswalks is to slow vehicles entering a given area from an adjacent street. These features are also intended to identify a "threshold" or entry and exit point for a neighborhood and can be used to highlight the importance of a pedestrian or bicycle dominated intersection.

A raised crosswalk is designed to maintain the same grade as the approaching sidewalk. The width of the approaching sidewalk is also maintained (typically 5 feet). In retrofit situations the slope and grade will vary depending on existing conditions.

A landscaped median or curb extension may be used in combination with the raised crosswalk to further additional vehicle speed reductions. Raised crosswalks are generally only used with some form of intersection control such as a stop sign or traffic signal. The speed of vehicles leaving an intersection with a raised crosswalk is not affected due to the presence of the intersection control.

Not all pedestrians support the use of raised crosswalks. For visually impaired pedestrians, the grade transition between the sidewalk and the street pavement indicates a crossing. The absence of a grade change reduces their ability to recognize a street crossing and increases the potential for a pedestrian-vehicle accident. If a raised crosswalk is used, there must be a detectable grade change between the sidewalk and the raised crosswalk.

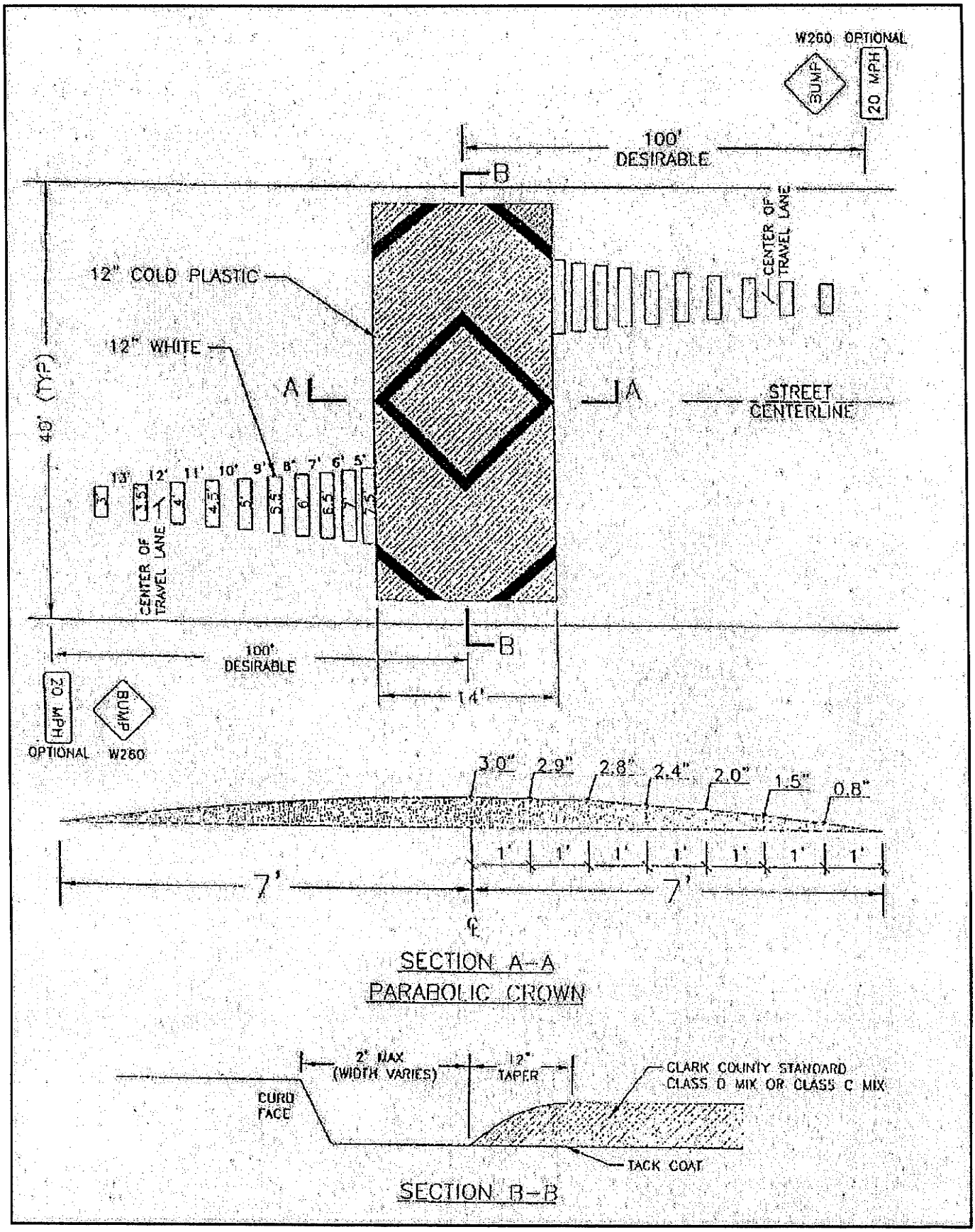


Figure 7-5.
Typical Speed Hump Detail #1

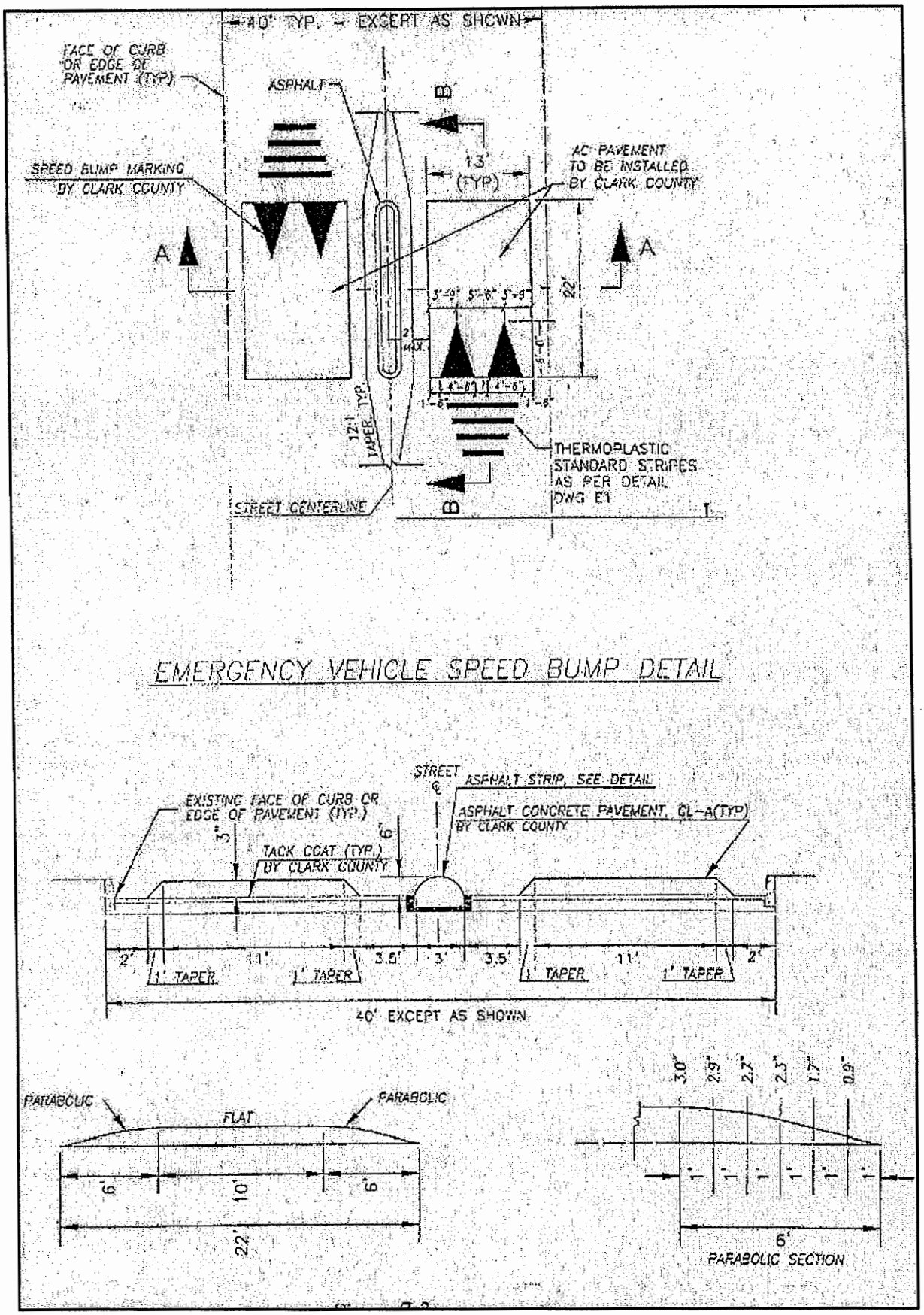


Figure 7-6.
Emergency Vehicle Speed Hump Detail #2

Curb Extensions

Curb extensions, also called chokers or bulb-outs, narrow the street by widening the sidewalks or landscaped parking strip. They are used to make pedestrian crossings shorter, and therefore easier and safer. They also narrow the area of pavement and travel lane widths providing a visual cue to the driver that caution is necessary. Where curb extensions are constructed by widening the landscaped parking strip, they can have a positive effect on visual appearance of a neighborhood.

Curb extensions can be used at intersections to create a street gateway or threshold effect, visually announcing an entrance to a residential neighborhood. At intersections, curb extensions are normally used in conjunction with a stop sign or traffic signal; in these locations when curb extensions are designed with a raised crosswalk and/or a landscaped median, the effect on street appearance and vehicle turning speeds can be pronounced. Dimensions of curb extensions depend on a variety of factors including the desired design speed of the street and the turning radius required for emergency and other service vehicles.

Chicanes

A chicane is a device used to slow traffic by forcing vehicles to follow a one-lane serpentine route. Typically, a chicane is comprised of a series of three or more curb extensions located on alternating sides of a street. Like curb extensions, chicanes narrow the street by widening the sidewalks or landscaped parking strip. They also narrow the pavement and travel lane width, extending from the curb to a point past the centerline of the street.

When landscaped, they create a series of screens that obscure the view of oncoming traffic. The combination of reduced vision, narrowed street width, and the curved path of travel slows traffic and elicits a cautious response from motorists. Often, these devices will yield lower traffic volumes by shifting traffic to other nearby streets.

Traffic Diverters

Traffic diversion devices are generally employed on existing streets to reduce traffic volumes within a limited area. Diverters discourage through trips on the street which they are installed and divert those trips to other routes. Several traffic diverter designs may be effectively used to calm traffic. Design options range from full closure of a street to diagonal or half-diverter designs. Wherever traffic diverters are employed, provisions should be made for continuation of pedestrian and bicycle routing around or through the diverter.

Street closure is a drastic option that involves the complete closure of a street at an intersection or in mid block, leaving the street open at one end but physically closing the other. Street closures may an extreme effect on accessibility but may be the most effective technique to control cut-through traffic where other traffic management devices have failed.

Diagonal diverts limit access to a street by placing a barrier diagonally across an intersection. The diverter allows for greater accessibility than full street closure but still limits undesirable through traffic movements.

Half-diverters limit access by blocking half the street. Like diagonal diveters, they are effective in reducing volume and allow more freedom of circulation within a neighborhood than street closures. Both diagonal and half diverters should be designed and installed to allow for emergency vehicle access.

Median Barriers

This device is used on arterial streets to prevent cut-through traffic on local streets or to control turning direction into or out of a neighborhood. Medians may also be used within a residential neighborhood to prevent non-local through traffic movements. Typically, median barriers are used to control specific traffic movements, rather than traffic speeds.

Forced Turn Channelization

This technique allows traffic entering or exiting a neighborhood street to move in one direction only. Its purpose is essentially the same as a diagonal diverter; it is used to discourage potential or existing through-traffic patterns and limits traffic movement choice but does not physically prevent it.

Parking Bays

Construction of parking bays can be used to slow traffic on the street. Curb extensions are used to narrow street width where parking is not needed or desired, while leaving space for parking where it is desired. Where curbs are extended, enhanced street tree planting or landscape are possible. This technique has the added benefit of markedly improving the appearance of the street. Parking bats reduce the amount of available on-street parking; the extent of their use should be balanced against the demand for on-street parking. Other parking changes can be utilized to either facilitate traffic (parking removal to facilitate turns or improve visibility) or to slow traffic. Parking bays may increase street construction and maintenance costs.

Pavement Surface Modifications

A motorist's awareness of pedestrian crossings or neighborhood gateways can be heightened by modifying pavement texture and materials. This change in pavement surface is a very effective visual cue for drivers when contrasting paving materials are used. While this is an effective technique to raise motorists awareness of pedestrians or to indicate neighborhood gateways, this device has not been shown to reduce traffic speeds or volumes.

Guidelines for Implementing Traffic Calming Measures

The following criteria should be used as a guide to determine the appropriateness of implementing traffic calming measures along a particular roadway section. The City Engineer shall make the final determination that traffic calming devices are warranted.

Existing Roadway Facilities

- Must be a residential roadway.
- 85th percentile speed greater than 15 miles over speed limit.
- Existing average daily traffic volumes greater than 600 and less than 2,000 vehicles. These volumes may be exceeded if engineering studies determine that there is a significant amount of cut through traffic on the particular roadway section.
- Sight distance in excess of 600 feet.
- A two-thirds (67%) majority of residents along the particular roadway section agree with to the implementation of the proposed traffic calming device(s).

New Roadway Facilities

- Must be a residential roadway.
- Projected average daily traffic volumes greater than 600 and less than 2,000 vehicles.
- Sight distance in excess of 600 feet.

Street Improvements

The street improvements identified in Chapter 6 are summarized in Table 7-2. There are four street improvement projects proposed in the transportation system plan. The projects are briefly discussed below:

- Jefferson Highway/North Avenue signalization and addition of northbound and westbound right turn lanes – This project appears to be warranted by the 2020 planning period. However, since this project is on an ODOT highway, the State Engineer must approve the signal installation. The approval will be based on a field signal warrant study. The project is given a medium priority because the traffic volumes are likely to warrant a signal after the five years. Projects in the 5 to 10 year range are considered a medium priority.

- 5th Street extension to both the north and south to create a continuous north-south roadway from North Avenue to Jefferson-Scio Drive. This project is given a high priority due to its importance to the city and additional emergency vehicle access it creates. With its high priority, it is anticipated that this project will be constructed within

the next five years. However, with its $800,000 estimated cost, the city will have to seek special funding to construct this project.

There is a potential that this project could be constructed in stages. The most critical sections are the north and middle sections. With those sections in place, the east end of town becomes accessible from the north via North Avenue.

- Removal of all-way stop signage at eight intersections – The rationale for removal of the all-way stop signs is that MUTCD warrants are not met and there is no engineering rationale to keep the all-way stop intersection signage. These intersections should be converted to stop control at only the minor street approaches. This project is a high priority since it is very inexpensive to accomplish. Existing city maintenance crews can easily accomplish the removal of the unwarranted signage.

- Construction of adequate shoulders on Main Street and North Avenue – These roadways do not currently have sufficient roadway widths. The shoulders of these roadways should be widened a minimum of 4 to 6 feet. If right-of-way is available and drainage is not an issue along the sections in question, the project costs are relatively inexpensive. The Main Street shoulder project is projected to cost $20,000 and the North Avenue shoulders are projected to cost $3,000. The shoulder widening projects have been given a low priority because they compete with the sidewalk projects for funding.

The total cost of the four roadway improvement projects total almost $1.1 million.

Table 7-2
Improvement Cost

Improvement Description	Cost
1. Jefferson Highway/North Street signalization and addition of northbound and westbound right turn lanes – Medium Priority[2]	$275,000
2. 5th Street Extension – 2000 feet of new collector roadway – High Priority[1]	$800,000
3. Remove 8 all-way stop intersection signs – High Priority[1]	$500
4. Construct adequate shoulders – Low Priority[3]	
Both sides of Main St from Jefferson Highway to the east urban growth boundary	$20,000
Both sides of North Avenue from Jefferson Highway to Jefferson-Marion Road	$3,000
Grand Total	**$1,098,500**

[1] High priority assumes construction in 0 to 5 years
[2] Medium priority assumes construction in 6 to 10 years.
[3] Low priority assumes construction in 11 to 20 years.

PEDESTRIAN AND BICYCLE SYSTEM PLAN

TPR Requirements

OAR 660-12-020 Elements of Transportation System Plans

(2) (d) A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area. The network and list of facility improvements shall be consistent with the requirements of ORS 366.514.

OAS 660-12-045 Implementation of the Transportation System Plan

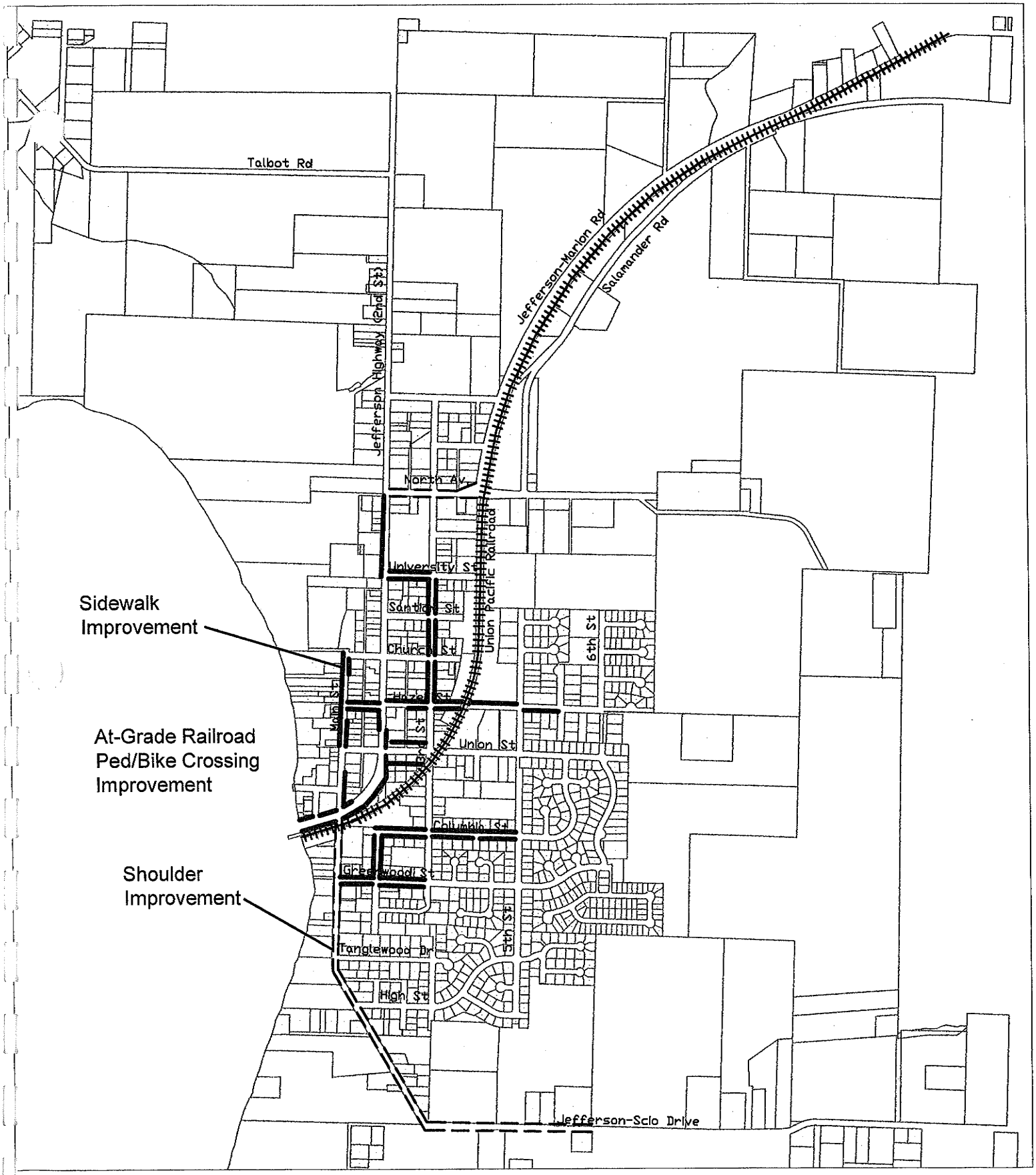
(6) In developing a bicycle and pedestrian circulation plan as required by 660-12-020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e. schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.

The City of Jefferson Pedestrian Plan was developed to enhance the pedestrian system to encourage more residents to walk when making short trips within the city and to improve school children safety for those children walking to school. For a functional pedestrian system, connectivity between activity centers such as the downtown, city hall, school, and residential areas is important. The pedestrian plan strives to connect these activity centers and provide safe facilities for its users.

Because of the limited size of Jefferson, it does not have the resources to retrofit every city street with sidewalks. Instead, local connectivity between activity centers and major north-south and east-west walking routes were used to develop the pedestrian plan. Figure 7-7 shows the pedestrian sidewalk plan.

It should be noted that no additional bike lanes have been proposed. The bike lanes on Jefferson Highway is sufficient in serving Jefferson. The collectors and local roadways are all low volume roadways that are conducive for sharing the roadway with bicyclists. As for the other arterials in the Jefferson planning area, North Avenue is a county road with rural standards. There are proposed shoulder improvements on North Avenue to accommodate bicyclists and pedestrians. Main Street/Jefferson-Scio Drive also has a proposed shoulder widening project that would accommodate bicyclists and pedestrians.

Table 7-3 summarizes the pedestrian improvement projects and their priorities.



LEGEND

Shoulder Improvement Location

Sidewalk Improvement Location

Figure 7-7.
Bike and Pedestrian Plan Map

Table 7-3
Improvement Cost

Improvement Description	Cost
1. Sidewalk Reconstruction	
West side of Main Street from Union Street to Church Street – High	$22,500
East side of Main Street from Jefferson Highway north four parcels – High	$7,500
East side of Main Street from Union north 5 parcels – High	$6,500
East side of Main Street two parcels south of Church Street – High	$3,500
Both sides of Hazel Street from Main Street to Jefferson Highway – High	$16,500
Total	**$56,500**
2. New Sidewalk Construction	
East side of Jefferson Hwy from the Santiam bridge to two parcels north of Union St – Medium	$36,000
West side of Jefferson Hwy from the Santiam bridge to one parcel north of Main St – Medium	$11,400
West side of Jefferson Highway from three parcels south of Hazel Street to Hazel Street – Medium	$3,300
	$20,400
West side of Jefferson Highway from University Street to the North Avenue – Medium	$21,200
North side of Hazel Street from 3rd Street to 5th Street – High	$8,200
South side of Hazel Street from 3rd Street to the railroad tracks – High	$8,200
South side of Hazel Street from 5th Street to 6th Street – High	$19,600
University Street from Jefferson Highway to 3rd Street – both sides – Low	$65,300
Columbia Street from 2nd Street to 5th Street – both sides – Low	$37,500
Greenwood Street from Main Street to 3rd Street – both sides – Low	$21,200
2nd Street from Columbia Street to Greenwood Street – both sides – Low	**$252,300**
Total	
3. 3rd Street/Union Street Ped/Bike Railroad Crossing - High	$15,000
Grand Total	**$323,800**

PUBLIC TRANSPORTATION PLAN

Transportation Planning Rule (TPR) Requirements

OAR 660-12-020 Elements of Transportation System Plans

(2) (c) A public transportation plan which:

(A) Describes public transportation services for the transportation disadvantaged and identifies service inadequacies.

(B) Describes intercity bus and passenger rail service and identifies the location of terminals.

(C) For areas within an urban growth boundary which have public transit service, identifies existing and planned transit trunk routes, exclusive transit ways,

terminals and major transfer stations, major transit stops, and park-and-ride stations. Designation of stop or station locations may allow for minor adjustments in the location of stops to provide for efficient transit or traffic operation or to provide convenient pedestrian access to adjacent or nearby uses.

(D) For areas within an urban area containing a population of greater than 25,000 persons, not currently served by transit, evaluates the feasibility of developing a public transit system at build out. Where a transit system is determined to be feasible, the plan shall meet the requirements of subsection 2(c)(C) of this section.

This section of the TSP references the requirement for public transportation plan in the *Transportation Planning Rule,* describes types of services and facilities, reviews recommended service and facilities (ODOT, 1997), identifies Jefferson public transportation users, and completes an inventory of these facilities in Jefferson.

Types of Public Transportation and Recommended Services

As used in this section, public transportation includes the following services and facilities:

- Intra- and inter-city fixed route systems: fixed-route scheduled bus, rail, light rail, and park-and-ride express services.
- Paratransit services which primarily serve the disabled, elderly, or other transportation disadvantaged individuals.
- Rideshare/ Demand Management program: carpool, vanpool, bus pool matching services; preferential parking programs; and reduced parking fees.
- Other: taxi services, privately owned inter-city bus lines or shuttle services.

The best mix of services in any community or planning area will depend on the needs of the service population, spatial distribution of the service population, economic factors, and the existing transportation system and policies.

The Oregon Public Transportation Plan (ODOT, 1997) described a preferred state of public transportation in 2015 to respond to state and federal goals, which established targets for service types and frequencies relevant to the City of Jefferson. The plan identifies minimum levels of public transportation services that provide a range of services intended to keep pace with Oregon's changing and increasing public transportation needs. Minimum level of service recommendations were given by types of services, size of community, and distance from other major intermodal centers (only Portland in Oregon) or urban central cities. For planning purposes, communities are divided into large urban areas, small communities of 25,000 or more, small communities of 2,500 to 25,000, communities of 2,500 or more within 20 miles of an urban central city, and rural (<2,500) communities (ODOT, 1997). The population of Jefferson is

currently under 2,500 and is considered a rural community. In 2020, Jefferson's population is projected to increase to beyond 2,500 and will then be considered a small community.

The goal for the following services will be established for rural communities under 2,500 population and over 20 miles from an urban central city:

- Public transportation to general public based on locally established service and funding priorities.
- Accessible ride to anyone requesting services.
- Coordinated, centralized scheduling system.
- Provide phone access to the scheduling system at least 40 hours weekly between Monday and Friday.
- Respond to service request within 24 hours, not necessarily provide a ride within 24 hours.

TRANSPORTATION SYSTEM AND DEMAND MANAGEMENT ELEMENT

TPR Requirements

OAR 660-12-020 Elements of Transportation System Plans

(2) (f) For areas within an urban area containing a population greater than 25,000 persons a plan for Transportation system management and demand management.

(g) A parking plan in MPO areas as provided in 660-12-045(5)(c).

The intent of the transportation demand management (TDM) element is to reduce the peak travel demand from the home-to-work and return trips. TDM measures help reduce the need for new or wider roadways. Techniques of TDM that could be implemented in Jefferson include alternative work schedules, ridesharing, pedestrian/bicycle facilities, and telecommuting. These TDM measures are described below and should be encouraged.

Alternative Work Schedules

Alternative work schedules that allow employees to commute during off-peak hours should be encouraged with larger employers. Since Jefferson is relatively small with no major employer, this may only be implemented in a limited manner. This measure could also be implemented with large employers outside of Jefferson employing Jefferson residents.

Ridesharing

Ridesharing programs work better with larger employers. These employers can establish carpool and vanpool programs with a ride-matching service. Larger employers can encourage ridesharing by subsidizing ridesharing, establishing preferential parking and drop-off sites, and through other promotional incentives. Unfortunately, Jefferson does not currently have large employers likely to implement such a program. However, at such a time a large employer does locate within Jefferson, ridesharing should be encouraged as a TDM measure.

Pedestrian Facilities

The pedestrian plan is expected to encourage more walking within the City of Jefferson.

Telecommuting

Telecommuting is an effective measure in reducing travel demand. Certain industries are more conducive to telecommuting than others. For example, fairly independent workers in industries with little coordination with others are better candidates for telecommuting than industries that rely on working together. Also, the success of telecommuting is highly dependent on each individual's work ethic.

AIR, RAIL, WATER AND PIPELINE PLAN

TPR Requirements

OAR 660-12-020 Elements of Transportation System Plans

(2) (e) An air, rail, water and pipeline transportation plan which identifies where public use airports, mainline and branchline railroads and railroad facilities, port facilities, and major regional pipelines and terminals are located or planned within the planning area. For airports, the planning are shall include all areas within airport imaginary surfaces and other areas covered by state or federal regulations.

Air Service

There are no public use airports within the planning area of the City of Jefferson.

Rail Service

The City of Jefferson has one railroad bisecting it. The Union Pacific Railroad owns and operates the railroad line through Jefferson. Both passenger and freight service are provided by this rail line.
Approximately 20 freight and 6 Amtrak trains use the Union Pacific Railroad through Jefferson. The freight trains have a maximum length of 7,200 feet with the average being approximately 7,000 feet. The Amtrak train averages between 350 and 500 feet. The maximum length trains pose a significant problem in Jefferson in that they can block and isolate the east and west parts of town.

The 5th Street extension project should create an acceptable access between the east and west parts of time during the situation of a freight train blocking the existing train crossings. During a blocking situation, emergency services located on the west side of town could utilize a private crossing north of town on Jefferson-Marion Road, backtrack south on Salamander Road, and access the east end of town from a newly proposed collector, the 5th Street extension.

There are three at-grade railroad crossing in Jefferson. They are located at Main Street south of Jefferson Highway, Hazel Street between 3rd and 5th Streets, and Cemetery Hill Road /North Avenue east of Jefferson-Marion Road. All three at-grade crossings have signals and gates. The Main Street crossing is currently being improved in a collaborative effort between ODOT and Marion County. There is a "trap" between the railroad tracks and Jefferson Highway that is being corrected. In the past, long trucks have crossed the Main Street railroad crossing and have been required to stop at the Jefferson Highway/Main Street intersection due to conflicting traffic. Some of these trucks are long enough that the back end is still over the tracks. Accidents between these long trucks and trains have taken place in the past. The current improvement project is being constructed this summer (2001) and should eliminate this "trap" and improve safety.

The Pedestrian and Bike Plan has another crossing improvement. Currently, there is an informal pedestrian/bicycle crossing at 3rd Street/Union Street that is used extensively by pedestrians and bicyclists. In the Pedestrian and Bike Plan a minor improvement project is described that develops a formal pedestrian/bike crossing and improves upon the safety condition.

Water Transportation Service

There are no water transportation services within the planning area of the City of Jefferson.

Pipeline Service

There are no major regional pipelines within the planning area of the City of Jefferson.

CHAPTER 8
FINANCING PLAN

TRANSPORTATION IMPROVEMENT REVENUE NEEDS

As part of the requirement of the Transportation Planning Rule (TPR) for TSPs, a financing plan for the recommended improvements was developed. The cost of transportation projects proposed under this TSP is shown in Table 8-1.

Table 8-1
Improvement Cost

Improvement Description	Cost
1. Jefferson Highway/North Street signalization and addition of northbound and westbound right turn lanes	$275,000
2. 5th Street Extension – 2000 feet of new collector roadway	$800,000
3. 3rd Street/Union Street Ped/Bike Railroad Crossing	$15,000
4. Remove 8 all-way stop intersection signs	$500
5. Sidewalk Reconstruction	
a) West side of Main Street from Union Street to Church Street	$22,500
b) East side of Main Street from Jefferson Highway north four parcels	$7,500
c) East side of Main Street from Union north 5 parcels	$6,500
d) East side of Main Street two parcels south of Church Street	$3,500
e) Both sides of Hazel Street from Main Street to Jefferson Highway	$16,500
Total	**$56,500**
6. New Sidewalk Construction	
a) East side of Jefferson Hwy from the Santiam River bridge to two parcels north of Union St	$36,000
b) West side of Jefferson Hwy from the Santiam River bridge to one parcel north of Main St	$11,400
c) West side of Jefferson Highway from three parcels south of Hazel Street to Hazel Street	$3,300
d) West side of Jefferson Highway from University Street to the North Avenue	$20,400
e) North side of Hazel Street from 3rd Street to 5th Street	$21,200
f) South side of Hazel Street from 3rd Street to the railroad tracks	$8,200
g) South side of Hazel Street from 5th Street to 6th Street	$8,200
h) University Street from Jefferson Highway to 3rd Street – both sides	$19,600
i) Columbia Street from 2nd Street to 5th Street – both sides	$65,300
j) Greenwood Street from Main Street to 3rd Street – both sides	$37,500
k) 2nd Street from Columbia Street to Greenwood Street – both sides	$21,200
Total	**$252,300**
7. Construct adequate shoulders	
Both sides of Main St from Jefferson Highway to the east urban growth boundary	$20,000
Both sides of North Avenue from Jefferson Highway to Jefferson-Marion Road	$3,000
Grand Total	**$1,422,300**

As shown in Table 8-1, the projects proposed in the transportation system plan have a total cost of $1,422,300. Table 8-2 summarizes the revenue need based on priorities previously established. The revenue needs are summarized by project in high, medium, and low priority categories. High priority means that funding will be sought for the improvement project in zero to five years. Medium priority means that funding will be sought for the improvement projects in six to ten years. Low priority means that funding will be sought for the improvement projects in 11 to 20 years.

The high priority improvement project revenue needs are $909,600. The medium priority improvement project revenue needs are $346,100. The low priority improvement project revenue needs are $166,600.

TRANSPORTATION REVENUE OUTLOOK

Based on discussions with the City of Jefferson and review of their budget information, Jefferson dedicates approximately $50,000 per year to their street fund. The street fund covers both maintenance and capital improvement projects. Assuming that this funding remains constant for the next 20 years, the summary below shows the revenues available for high, medium, and low projects.

- High Priority Projects – Year 1 to 5 – 5 years x $50,000/year = $250,000
- Medium Priority Projects – Year 6 to 10 – 5 years x $50,000/year = $250,000
- Low Priority Projects – Year 11 to 20 – 10 years x $50,000/yeasr = $500,000

The estimates listed above may be high because the street fund is both the capital improvement fund as well as the street maintenance fund.

Comparing the projected revenues with the high, medium, and low priority project revenue needs results in the following:

- High priority projects - $659,600 deficit in funding
- Medium priority projects - $96,100 deficit in funding
- Low priority projects - $333,400 surplus in funding

There is a substantial deficit in revenues for the high priority projects. This deficit is a result of the project cost for the 5th Street extension. If this project could receive special funding, then the remainder of the projects in all priorities would likely be fundable by Jefferson's existing funding sources.

Table 8-2
Transportation Funding Needs by Priority

Project Description	Cost
High Priority	
2. 5th Street Extension – 2000 feet of new collector roadway	$800,000
3. 3rd Street/Union Street Ped/Bike Railroad Crossing	$15,000
4. Remove 8 all-way stop intersection signs	$500
5. Sidewalk Reconstruction	
a) West side of Main Street from Union Street to Church Street	$22,500
b) East side of Main Street from Jefferson Highway north four parcels	$7,500
c) East side of Main Street from Union north 5 parcels	$6,500
d) East side of Main Street two parcels south of Church Street	$3,500
e) Both sides of Hazel Street from Main Street to Jefferson Highway	$16,500
Total	$56,500
6. New Sidewalk Construction	
e) North side of Hazel Street from 3rd Street to 5th Street	$21,200
f) South side of Hazel Street from 3rd Street to the railroad tracks	$8,200
g) South side of Hazel Street from 5th Street to 6th Street	$8,200
Total	$37,600
Sub-total – High Priority Project Costs	**$909,600**
Medium Priority	
1. Jefferson Highway/North Street signalization and addition of northbound and westbound right turn lanes	$275,000
6. New Sidewalk Construction	
a) East side of Jefferson Hwy from the Santiam River bridge to two parcels north of Union St	$36,000
b) West side of Jefferson Hwy from the Santiam River bridge to one parcel north of Main St	$11,400
c) West side of Jefferson Highway from three parcels south of Hazel Street to Hazel Street	$3,300
d) West side of Jefferson Highway from University Street to the North Avenue	$20,400
Total	$71,100
Sub-total – Medium Priority Project Costs	**$346,100**
Low Priority	
6. New Sidewalk Construction	
h) University Street from Jefferson Highway to 3rd Street – both sides	$19,600
i) Columbia Street from 2nd Street to 5th Street – both sides	$65,300
j) Greenwood Street from Main Street to 3rd Street – both sides	$37,500
k) 2nd Street from Columbia Street to Greenwood Street – both sides	$21,200
Total	$143,600
7. Construct adequate shoulders	
Both sides of Main St from Jefferson Highway to the east urban growth boundary	$20,000
Both sides of North Avenue from Jefferson Highway to Jefferson-Marion Road	$3,000
Sub-total – Low Priority Project Costs	**$166,600**
Grand Total - Project Costs	**$1,422,300**

REVENUE SOURCES AND FINANCING OPTIONS

Several possible funding sources exist to implement the recommended transportation improvements. The following pages describe the funding sources that may be available.

Local Sources

The following options are available on the local level to raise funds for transportation improvements:

Local Option Gasoline Tax

Revenues raised from a local option gasoline tax could be used by the City to fund recommended transportation improvements. However, with limited sales of gasoline within the city limits, this source is
not likely to generate any significant revenue for Jefferson. Also, with the potential discrepancy between gasoline sold in Jefferson and neighboring jurisdictions may encourage motorists to seek less expensive options outside of Jefferson.

Property Taxes

Local property taxes can be used to fund transportation system improvements. A specific allocation of property taxes to transportation improvements could be identified or set at a fixed and predictable level to provide a longer-term stable and predictable source of revenue. This would be important in implementing larger, longer-term projects with a high capital cost. Voter approval is necessary for the use of property taxes to fund roadway improvements and the uncertainty of this approval affects the attractiveness of this revenue choice. Another major disadvantage of using property taxes to support transportation improvements includes the inequity of this tax when compared with the users of the system (a user tax such as the tax on gasoline is more equitable in that persons who drive and use the street system pay for it rather than persons who own property). Additionally, the use of property taxes to fund transportation improvements would be restricted by the limitations of Measure 5.

Debt Funding

The City could issue municipal bonds to finance improvements. This approach would spread the cost of improvements over the life of the bonds and lower the annual expenses during construction years. If revenue bonds are issued, voter approval might not be necessary, but an identified revenue source (i.e., property taxes) would need to be identified to satisfy the bond underwriter. General obligation bonds would require voter approval. Both bonding approaches would be limited by the restrictions of Measure 5 and the bonding capacity of the local agencies.

System Development Charges

Oregon law enables communities to fund growth-related transportation improvements by imposing system development charges. These charges apply to newly developed property and can be used to recover the costs of past or future roadway improvement projects necessitated by growth. They may not be used to fund transportation improvements to serve existing residents. Therefore, while it is relatively easy to estimate the system development charges which would be needed to build improvements associated with growth, these charges will not be sufficient to meet all of the infrastructure needs identified in this plan.

System development charges (SDCs) are considered by many to be an equitable method of funding as they provide for many of the improvements needed because of growth in the community. On the other hand, growth in non-local traffic or traffic attributable to existing residents may also fuel the need for improvements which the system development charges are used to fund. Revenue from SDCs is generally not stable or predictable over time as it is received only when development occurs. During times of economic downturn, this revenue source may taper off entirely. This makes it difficult to rely on this source of funds for larger, multi-phased or multi-year projects.

It is required by state law for SDCs to finance those transportation improvements that are tied to local growth needs and, if the anticipated growth does not occur when expected or at all, both the improvement costs and the development charge revenue will not be needed.

The only project likely significantly fundable by SDCs is the 5th Street extension project. Existing traffic use would need to be subtracted from the trips subject to the SDC. Approximately 272 existing trips utilize 5th Street. Based on the 2020 population projection, 2000 population, and average household size of 2.51, 163 new residential units are projected for a 20-year build out. The 163 new housing units would generate 165 new trips of which conservatively 50 percent would likely utilize the 5th Street extension. So, 82 new future trips would utilize the 5th Street extension. Eighty-two is 35.4 percent of the total trips projected on the 5th Street extension. This portion of the 5th Street extension would be subject to the SDC fee. Of the total project cost of $800,000, $283,200 could be attributable to new development. Based on 163 new residences, the SDC per new home would amount to $1,737.42. This is substantially higher than the current $250 per home SDC. The city may want to contemplate setting the SDC between the current $250 and maximum justified SDC of $1,737.42.

Local Improvement Districts

Local improvement districts, known as LIDs, could be formed to finance public transportation improvements. LIDs may be formed by either the city or property owners. Their use and benefit are usually restricted to a specific area. The cost of a project with an LID in place is distributed to each property owner according to the benefit that property receives. With transportation improvements, that benefit may be measured by trips generated by each property. Or, in the example of a sidewalk improvement, the cost could be equitably divided by lineal feet of sidewalk

along property frontages. The cost distributed becomes an assessment or lien against the property. It can be paid in cash or through assessment financing.

Non-Local Funding Sources

State Gasoline Tax

Gas tax revenues received from the state are used by all counties and cities to fund road construction and maintenance. The revenue share to cities is divided through an allocation formula related to population. The state gas tax received by Jefferson will not sufficiently fund the improvements identified in the TSP and may not even cover maintenance needs.

Grants and Loans

Most grant and loan programs available through the state are related to economic development and not specifically for construction of new streets. Programs such as the Oregon Special Public Works Fund provides grant and load assistance for construction of public infrastructure that support commercial and industrial development that results in permanent job creation or retention. Another grant program is the Immediate Opportunity Fund (IOP). Again, this grant is tied to local and regional economic development efforts.

ODOT Funding Options

The State of Oregon provides funding for all highway-related transportation projects through the Statewide Transportation Improvement Program (STIP) administered by ODOT. The STIP outlines the schedule for ODOT projects throughout the state. Projects within the STIP are identified for a four-year funding cycle. In developing this funding program, ODOT must verify that the identified projects comply with the OHP, ODOT modal plans, corridor plans, local comprehensive plans, and TEA-21 planning requirements. The STIP must fulfill TEA-21 planning requirements. 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 Jefferson Highway 47 truck by-pass improvement project will be considered for insertion to the STIP.

ODOT has the option of making some highway improvements as part of their ongoing maintenance program. Projects such as new sidewalks along Highway 47 may be possible through ODOT's maintenance program.

APPENDIX A

Review of Existing Plans and Policies

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MEMORANDUM

To: Jefferson TAC and CAC

From: Hann Lee, H. Lee & Associates

Subject: Review of Existing Plans, Policies, and Standards – Tech Memo #1

CITY OF JEFFERSON COMPREHENSIVE PLAN (SEPTEMBER 27, 1977)

The City of Jefferson does not have an existing transportation system plan. Transportation findings, goals, policies, and standards are incorporated sporadically in the City's Comprehensive Plan. The original adoption took place on September 27, 1977.

Transportation related issues contained in this document are summarized below.

Pages 26 and 27 of the Comprehensive Plan establishes transportation goals, objectives, and policies. These goals, objectives, and policies are quoted below.

> LCDC Goal: "To provide and encourage a safe, convenient and economical transportation system."
>
> Objective 1: To increase the safety of the Jefferson transportation system.
>
> Policy 1: Rail crossings will be protected.
>
> Policy 2: Bike paths and sidewalks will be provided to schools and downtown along major travel ways.
>
> Policy 3: Adequate off-street parking will be provided for all new commercial developments.
>
> Policy 4: The city will cooperate with the Oregon Department of Transportation in the implementation of the ODOT Six-Year Highway Improvement Program.
>
> Objective 2: To provide for transportation needs for all residents.
>
> Policy 1: All new developments will be located on improved full streets.
>
> Policy 2: The following streets will be extended:

- Third Street from Tanglewood to Greenwood
- Fourth Street from Greenwood to Union
- Fifth Street from Scio road to Columbia and from Elm Street to Cemetery Road
- Greenwood from 3rd to 5th Streets
- Seventh Street from Cottonwood Place to Cemetery Road

Policy 3: The following new streets will be developed

- Talbot Road from 99E to Marion Road
- Bates Street from 99E to Marion Road

Several of the street extensions are either not possible or practically infeasible. These improbable street extensions are Third Street and Fourth Street. Both the Bates Road and Talbot Road extensions don't seem necessary. The Bates Road right-of-way exists and would be much simpler to construct. This road could provide a secondary access to Jefferson Highway from Jefferson-Marion Road (which is referred to as Marion Road in the Comprehensive Plan). The remaining street extensions defined in the Comprehensive Plan are still possible to construct today.

The Transportation Element of the Comprehensive Plan can be found on pages 41 through 43. It lists all of the policies previously described, discusses the existing transportation system and traffic circulation, defines arterials and collectors, reiterates the importance of the street extensions defined in the policy section, and references street standards for arterial and collector streets.

The Comprehensive Plan recommends that Mill Street be closed with its connection to Jefferson Highway.

A bikeway system that facilities access to the schools, the downtown and the east bank of the Santiam River north of the Jefferson Highway river crossing to Church Street is mentioned in the Comprehensive Plan.

CITY OF JEFFERSON MUNICIPAL CODE

Section 12.40 discusses design standards generally. This section defers to the city's Standard Specifications Manual. However, it does cover clear vision areas specifically in Section 12.40.080. It is consistent with the Public Works Design Standards with the exception of residential district driveways. The Municipal Code specifies a clear vision area measurement along each lot line or drive edge of 15 feet and the Public Works Design Standards specifies a distance of 20 feet for common use residential driveways and 10 feet for single residential driveways. This inconsistency should be corrected.

For clarification purposes, the reference to "Standard Specifications Manual" should be revised to specifically reference the Public Works Design Standards.

Section 12.44 of the Municipal Code establishes parking and loading requirements. The Public Works Design Standard supplements these requirements in Section 2.27 by establishing construction and pavement section standards.

Section 12.48 discusses street and sidewalk requirements. Consistency between this section and the Public Works Design Standards should be sought. There is considerable overlap between Section 12.48 and the Public Works Design Standards. To reduce the potential for conflicts and interpretation between the two documents, consideration should be given to deleting the details of Section 12.48 with specific reference to the relevant sections of the Public Works Design Standards.

Section 12.48.040 establishes street location, width and grade requirements. In general, the street classification, minimum right-of-way width, and minimum pavement width are consistent between the Municipal Code and Public Works Design Standard. However, the Municipal Code allows for ranges in most of the street types while the Public Works Design Standard is more specific. Also, there is a variation between the local street standard minimum roadway width. The Municipal Code has a 36 foot street width requirement while the Public Works Design Standard has a 34 foot width requirement. Also, the Public Works Design Standard has a separate cul-de-sac street width requirement as well as a different radius requirement for the turnaround.

Section 12.48.050 establishes requirements for future extensions of streets and reserve strips. It is consistent with Section 2.24 of the Public Works Design Standard with the exception that it does not establish temporary turnaround requirements.

Section 12.48.070, Intersections, is generally consistent with Section 2.21 Intersections of the Public Works Design Standards. The slight variation is in 2.21d. which allows for a less stringent standard for local streets as to the minimum centerline tangent adjacent to the intersection. The Public Works Design Standards allows 50 feet of tangent adjacent to the intersection for local streets and 100 feet for arterials and collectors. The Municipal Code calls for 100 feet of tangent adjacent to the intersection regardless of street classification.

Section 12.48.080 regarding cul-de-sacs is consistent with the requirements specified in Section 2.23 of the Public Works Design Standard.

Section 12.48.140 discusses private streets. The Municipal Code is specific on the type of uses that can utilize private streets and is general in the design requirements. It references the city engineer to define the private street standards. The Public Works Design standard is very specific as to the design requirements of private streets in Section 2.30. However, it is not as specific as to define the uses that would be allowed private streets.

Section 12.48.200 establishes general provisions for sidewalks. It establishes 10 foot sidewalks for the central business district, 5 foot sidewalks for sidewalks adjacent to collectors and arterials, and minimum of 4 foot sidewalks elsewhere. This is not consistent with the Public Works Design Standards. Section 2.20 of the Public Works Design Standard specifies 6 foot sidewalks for Jefferson Highway and five foot sidewalks for all other streets. Ten foot sidewalks are a good idea for the central business district but this area should be specifically defined. Six foot sidewalks on

Jefferson Highway and 5 foot sidewalks elsewhere should be sufficient. Sidewalks less than five feet are not recommended.

Public Works Design Standards, Division 2 – Streets

It appears that the City of Jefferson adopted street design standards in 1996. The document includes standard details (in Appendix A), existing street classification, material specification, improvement requirements by street classification, pavement section requirements, horizontal and vertical alignment standards, surveying standards, cross section and cross slope requirements, intersection design guidelines including minimum curb radius, sight distance/clear vision requirement, driveway spacing and approach standards, sidewalk and bikeway standards, parking lot design standards drainage requirements, cul-de-sac and turnaround requirements, stub street requirements, and street sign requirements. The document is comprehensive and covers all the basis areas needed in a street design standard document. The only areas the street design standards do not cover are skinny streets and traffic calming measures.

The streets classified in the Public Works Design Standards are consistent with the Comprehensive Plan with two exceptions. First, the Public Works Design Standards defines Cemetery Hill Road as a major collector and the Comprehensive Plan does not classify it. Second, the Public Works Design Standards specifies two collector classifications (major and minor) while the Comprehensive Plan only specifies a collector classification.

Marion County has a different classification of county roads than the City of Jefferson. On the Marion County street system the roads that service Jefferson performs a different function on the county system than the city system. The differences in classification are at Talbot Road, Cemetery Hill Road, and Jefferson-Scio Drive. Talbot Road under the city classification system is defined as an arterial. Under the county's classification system, Talbot Road is defined as a collector. The city defines Cemetery Hill Road as a major collector and the county defines it as a local street. Jefferson-Scio Drive is an arterial under the city's classification system and a collector under the county's classification system.

City of Jefferson Capital Improvement Program (CIP) for City Streets, July 10, 1996

The most recent CIP for City Streets is from July 10, 1996. This document documents specific streets in Jefferson that need street maintenance including slurry seals, overlays, and reconstruction. A summary of maintenance needed is described below in 1996 dollars:

- 2.62 miles of slurry seal - $65,432
- 1.48 miles of overlay - $414,163
- 1.30 miles of reconstruction - $1,427,000

City of Jefferson Ordinance Number 566 (Establishment of System Development Charges, November 13, 1986)

Ordinance 566 established system development charges in the City of Jefferson. The system development charges covered both streets and storm sewer facilities. The charges were established by use as follows:

- Single family residence - $250.00 per residence
- Mobile home - $250.00 per mobile home
- Multiple family units - $200.00 per dwelling unit
- Commercial
    - $250.00 for the first 2,000 square feet of building area, plus 20 cents per square feet of building area in excess of 2,000 square feet. The minimum charge shall be $250.00.
    - Area fee of 0.005 cents per square foot of land area.

Marion County Rural Transportation System Plan – Draft, July 1998

As previously stated, there are some discrepancies between the functional classifications between the city and Marion County. These discrepancies are because on the Marion County street system the roads that service Jefferson performs a different function on the county system than the city system. See the section above titled "Public Works Design Standards, Division 2 – Streets" for a list of specific differences.

The Marion County TSP lists several transportation improvements that would affect Jefferson. These improvements are both within the urban growth boundary planning area and slightly outside the planning area. The improvements are listed below:

- Drainage improvements on Jefferson-Marion Road at the curve at North Avenue in Jefferson and east of Skelton Road. Widespread high water results in water over the roadway. The improvements would correct the drainage problems.
- Pavement widening improvements to improve safety on Jefferson-Marion Road from the Jefferson urban growth boundary to the Marion community.
- Traffic signal and improved railroad crossing at Jefferson Highway and Main Street. This project is currently (2001) under construction.
- Widen pavement on Jefferson Highway from I-5 to Talbot Road to correct narrow pavement problem.

Transportation Planning Rule Compliance

The attached table summarizes each item of the Transportation Planning Rule (TPR) that the City of Jefferson needs to be in compliance with. The table summarizes whether the existing Comprehensive Plan and Municipal Code has provisions meeting each item of the TPR.

requirements. The table under the comments column also identifies where in the transportation plan the TPR requirement is met.

1999 Oregon Highway Plan (OHP)

The 1999 Oregon Highway Plan (OHP) was adopted by the Oregon Transportation Commission on March 18, 1999. It applies the general directives specified in the 1992 Oregon Transportation Plan. The general directives of the 1992 Oregon Transportation Plan called for a transportation system marked by modal balance, efficiency, accessibility, environmental responsibility, connectivity among places, connectivity among modes and carriers, safety, and financial stability. The 1999 OHP applies the 1992 Oregon Transportation Plan general directives by emphasizing on:

- Efficient management of the system to increase safety, preserve the system and extend its capacity;
- Increased partnerships, particularly with regional and local governments;
- Links between land use and transportation;
- Access management;
- Links with other transportation modes; and
- Environmental and scenic resources

There are several policies within the 1999 OHP that local jurisdictions are required to be consistent with in their transportation system plans. Specifically, the OHP states:

> "Local and regional jurisdictions must be consistent with Policies 1A, State Highway Classification System; 1B, Land Use and Transportation; 1C, State Highway Freight System; 1D, Scenic Byways; 1F, Highway Mobility Standards; 1G, Major Investments; 2G, Rail and Highway Compatibility; 3A-E, Access Management; 4A, Efficiency of Freight Movement; 4D, Transportation and Demand Management; and the Investment Policy in their local and regional plans when planning for state highway facilities within their jurisdiction."

The 1999 OHP set performance standards for state highways and access management standards that local jurisdictions need to apply on their state highway running through town.

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

660-12-045 Subsection	Comprehensive Plan	Municipal Code	Comments
(1) Each local government shall amend its land use regulations to implement the TSP.	No provision	No provision	The four ordinances developed and attached to the TSP implement the necessary changes to the Comprehensive Plan and Municipal Code.
(2) Ordinance provisions to protect transportation facilities, corridors, and sites.	Page 41-43	Section 12.48.050	The TSP reinforces future arterial and collector corridors identified for extension that have already been defined in the Comprehensive Plan. Several street extensions in the Comprehensive Plan are not proposed in the TSP.
(a) Access control.	No provision	Sections 12.48.040 and 12.48.060	Public Works Design Standards Section 2.14 adds additional requirements. Access management is also mentioned in Chapter 7 of the TSP.
(b) Protect future road and transit operation.	Page 41-43	Section 12.48.050	Public Works Design Standards Section 2.2 adds additional requirements. Protection of future road operation is mentioned in the ordinances developed to implement the TSP. These ordinances are attached to the TSP.
(c) Airport protection.	N/A	N/A	There is no airport in Jefferson
(d) Coordinated land use decision and transportation review.	No provision	No provision	See the attached implementing ordinances to the TSP.
(e) Conditions for development to minimize transportation impacts.	No provision	No provision	See the attached implementing ordinances to the TSP.
(f) Agency notice regarding land use or land division, private access.	No provision	No provision	See the attached implementing ordinances to the TSP.
(g) Plan/zone amendments consistent with TSP.	N/A	No provision	See the attached implementing ordinances to the TSP.
660-12-045 Subsection			
(3) Ordinance provisions to provide safe and convenient pedestrian, bicycle, and vehicular circulation.	No provision	Partial compliance	Public Works Design Standards Section 2.20 and 2.33 mention pedestrian and bicycle facility requirements. Also see the attached implementing ordinances to the TSP.
(a) Bicycle parking.	No provision	No provision	See the attached implementing ordinances to the TSP.
(b) On-site facilities for pedestrian and bike access, sidewalks and bike lanes along streets, and minimize cul-de-sac use.	No provision	Sections 12.48.080, 12.48.200	Public Works Design Standards Sections 2.20, 2.33, and 2.23 and mention pedestrian, bicycle, and cul-de-sac facility requirements. See the attached implementing ordinances to the TSP.
(c) Off-site improvements shall include pedestrian and bicycle facilities.	No provision	Sections 12.48.080, 12.48.200	Public Works Design Standards Sections 2.20 and 2.33 and mention pedestrian and bicycle facility requirements. See the attached implementing ordinances to the TSP.
(d) Safe and convenient means minimal hazards, reasonably direct, and 1/4-1/2 mi. for pedestrian trips.	See Transportation Policies	Sections 12.48.080, 12.48.200	Public Works Design Standards Section 2.20 and 2.33 mention pedestrian and bicycle facility requirements. Also see the attached implementing ordinances to the TSP.
(e) Internal pedestrian circulation within office	No provision	Sections	Public Works Design Standards Sections 2.20, 2.33, and 2.23 and mention

parks and commercial developments.		12.48.080, 12.48.200	pedestrian, bicycle, and cul-de-sac facility requirements. See the attached implementing ordinances to the TSP.
660-12-045 Subsection			
(4) Ordinances to support transit.	N/A	N/A	Not required for Jefferson.
(a) Improvements to support transit use: bus stops, pullouts, shelters, street design, parking restrictions, etc.	N/A	N/A	Not required for Jefferson.
(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 Jefferson.
(c) Optional pedestrian districts to implement (4)(b).	N/A	N/A	Not required for Jefferson.
(d) Carpool/vanpool employee parking.	N/A	N/A	Not required for Jefferson.
(e) Existing development shall be allowed to convert some parking into transit-oriented uses.	N/A	N/A	Not required for Jefferson.
(f) New streets shall accommodate transit service and pedestrian access.	N/A	N/A	Not required for Jefferson.
(g) Supporting land uses and densities shall be provided along existing/planned transit routes.	N/A	N/A	Not required for Jefferson.
660-12-045 Subsection			
(5) Ordinances to reduce automobile reliance.	N/A	N/A	Not required for Jefferson.
(a) Transit-oriented developments along transit routes.	N/A	N/A	Not required for Jefferson.
(b) Demand management program in TSP.	N/A	N/A	Not required for Jefferson.
(c) Parking plan to reduce per capita parking by 10%, implement the TSP, and maximum parking standards.	N/A	N/A	Not required for Jefferson.
(d) Alternative to (5)(c) the city may adopt a variety of techniques to reduce parking requirements.	N/A	N/A	Not required for Jefferson.
(e) Require major industrial, institutional, and commercial developments to provide a bus stop or connection.	N/A	N/A	Not required for Jefferson.
660-12-045 Subsection			
(6) Bicycle and pedestrian circulation plan shall identify necessary improvements such as walkways, connections between destinations, etc.	Pages 41 -43	No provision	See Chapter 7 of the TSP.
(7) Street standards for local streets and accessways shall minimize right-of-way and pavement width consistent with operational needs.	N/A	No provision	Public Works Design Standards Section 2.11 and Chapter 7 of the TSP.

APPENDIX B

Public Involvement Documentation

H. Lee & Associates
Traffic Engineering, Transportation Planning, Intelligent Transportation Systems

MEMORANDUM

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Phone: (360) 567-3002
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To: Jefferson TSP TAC and CAC

From: Hann Lee, H. Lee & Associates

Date: December 26, 2000

Subject: City of Jefferson TSP – Final Summary of Public Opinion Survey

The final City of Jefferson TSP Public Opinion Survey has been summarized with the additional surveys collected from the December 7, 2000 town hall meeting. A total of 37 surveys were collected from approximately 2,325 surveys that were distributed. A 1.6 percent response rate was realized from the survey distribution.

The questionnaire contained five (5) topics including:

1. Issues that are critical transportation concerns.
2. Other issues the transportation plan should address.
3. Specific locations of problems that should be addressed.
4. Optional inclusion on project mailing list.
5. Other comments.

Issues That Are Critical Transportation Concerns

Table 1 contains a summary of critical transportation concerns. Respondents rated the eleven (11) critical issues from one (least important) to five (most important). These issues were scored and ranked. The score was developed by multiplying the number of responses for each rating by the rating (1, 2, 3, 4 or 5), summed and then divided by the number of total responses (in this case, 37 responses). As seen in Table 1, scores ranged from a high of 3.59 to a low of 1.43. Upon request, a table showing the answers for the eleven critical issues from each respondent can be provided.

Improving existing street pavement conditions and creating a walkable community were of the two greatest concerns. In addition, there was also a significant concern regarding sidewalks along all streets. Providing additional downtown parking and better public transit and bus service was of the least concern to the respondents.

Other Issues the Transportation Plan Should Address

Table 2 lists other issues and comments that the respondents felt the transportation plan should address. The major transportation issues mentioned by the survey respondents are listed below.

- Truck parking
- Handicap accessibility for businesses
- Poor maintenance of many roadways, need repaving
- Better signing
- Additional Bicycle and Pedestrian facilities
- Additional North-South through streets

- Improve Safety
- Reduce through traffic in residential neighborhoods
- Poor visibility and width of roads in residential neighborhoods
- Financing of roadway improvements
- Affordability
- Crossing of Jefferson Highway by cars and pedestrians
- Parking at Boat Ramp
- By-pass for through traffic to Scio and Stayton
- Zoning to encourage develop on other roadways besides Jefferson Highway
- Access and parking at Post Office
- More crosswalks downtown
- Spending money on study, bicycle lanes and sidewalks
- Railroad crossings
- Eliminate cul-de-sacs
- Railroad connection to Albany and Salem
- Keep through trucks on I-5
- Congestion at Jefferson Highway/Main Street
- Traffic signals along Jefferson Highway
- Connect 5th Street so that it goes through
- Keep trash and debris off sidewalks
- Sidewalks along Jefferson Highway
- Park & Ride Lot
- Speeding on residential streets
- Reduce speed limit of Jefferson Highway, north of town
- Better street lighting at Main Street/Green Street
- Need simple transportation plan to accommodate small town, but allow for growth
- No additional landscaping or islands
- Stopped trains cause backups
- Rerouted I-5 traffic after accidents causes backups

Specific Locations of Problems That Should Be Addressed

The specific locations that were mentioned by questionnaire respondents are summarized below by specific intersection and roadway locations. The following intersections were mentioned as having traffic problems:

- 2nd Street/Post Office access
- Jefferson HighwayE/Main Street
- Jefferson Highway/Hazel Street
- Jefferson Highway/North Street
- Jefferson Highway/Union Street
- Jefferson Highway/University Street
- Jefferson Highway/Talbot Street
- Main Street/Rick's Market Access
- Main Street/Greenwood Street
- 5th Street/Greenwood Street

The following roadways were mentioned as having traffic or maintenance problems:

- 5th Street
- 3rd Street
- 7th Street
- Jefferson Highway
- Mill Street
- Ferry Street
- Union Street
- Main Street
- University Street

Table 1
Results of Jefferson Transportation System Plans Issues Questionnaire

Critical Transportation Concerns	least important 1	2	3	4	most important 5	Total Responses	Score	Rank
Bike lanes along major streets	8	2	7	7	7	31	2.59	4
Sidewalks along all streets	6	7	5	7	9	34	2.92	3
Understandable network of connected streets	8	3	4	10	4	29	2.32	5
Reducing traffic congestion	10	5	5	6	4	30	2.14	8
Improve existing street pavement conditions	1	1	7	11	13	33	3.59	1
Better public transit and bus service	7	3	5	4	6	25	2.00	10
Slowing/reducing traffic in networks	4	3	10	9	1	27	2.19	7
Providing more parking downtown	15	6	6	2	-	29	1.43	11
Creating a walkable community	4	3	5	8	11	31	3.03	2
the dependence on automobiles	10	3	8	3	6	30	2.22	6
Facilitating truck traffic through town	9	4	6	6	4	29	2.14	8

Table 2
Other Issues from the Jefferson TSP Questionnaire

Respondent	Other Issues	Specific Locations	Other Comments
1	Truck parking, handicap accessibility for businesses		
2	Poor maintenance - many roads need repaving	2nd St at Post Office needs signal, 5th St needs to paved	
3		Hwy 99 Loop congested due to I-5 reconstruction	
4		Hwy99/Jefferson-Scio Rd needs signal	
5		Main St/2nd St, 2nd St/Hazel St, 2nd St/Marion Rd signals	
6	Better signing, bike & ped facilities, North-South through streets	Cross walks along Hwy 99 - north of tracks, bike & peds along South Main - south of tracks, 5th St thru traffic from North Ave to Jeff-Scio Dr	
7	Safety should be top priority	Parking for boaters along Mill & Ferry Street, sidewalks along Hwy 99 for children walking home from school	
8	Reduce through traffic in residential areas, condition of roads	Hwy 99 north of town, Marion Rd	
9	Poor visibility and width of roads in residential areas, financing of short/long term improvements and repaving	Cul-de-sacs in south of town	
10	Public transportation, set back sidewalks on arterials	Hwy 99/Hazel St, Hwy 99/North St, Hwy 99/Main St, sidewalks on Columbia -west of 5th St	
11	Affordability		
12		2nd St/North Ave, Main Downtown	
13	Crossing Hwy 99 at Hazel St, North Ave & Main St by peds and cars	Hwy 99/Hazel St, Hwy 99/North Ave, Hwy 99/Main St	
14		Sidewalks and street improvement on 3rd St	
15	Parking	Inadequate parking at Boat Ramp	
16	By-pass for through traffic to Scio & Stayton, repaving		
17			
18	Zoning to encourage development elsewhere than along Hwy 99, congestion along Hwy 99	Hwy 99, emergency access across railroad tracks	
19	Access and parking at Post Office	Traffic signal at Rick's corner & Main St	
20	Repaving	Repave Hwy 99, Jefferson Hwy & Union St	

Table 2
Other Issues from the Jefferson TSP Questionnaire

Respondent	Other Issues	Specific Locations	Other Comments
21			
22	More crosswalks downtown	Crosswalks near Rick's Market & Post Office	
23	Why spend money on studies, bike lanes and sidewalks when money is needed to fix roads		
24			
25	Train crossings, crosswalks	Children walking along Hwy 99 to school and pool, overpass for peds along Hwy 99 at Main St	Trains should slow down while traveling through Jefferson to improve safety, Need to reduce speed along Greenwood St and 5th St with speed humps, need better lighting at Main St/Greenwood St for peds
26	Railroad crossing safety, railroad connection to Albany/Salem, eliminate cul-de-sac streets	S. Main St/Union Pacific RR crossing, 5th St disconnect @ Union & Elm, 3rd St pavement and disconnect, 7th St disconnect north of Maple St, connect 3rd Ave to Talbot Rd for off-highway route to schools	improve grid system and street connections, improved access to schools via side streets, widen sidewalks on Main St, more stop signs to slow speeds i.e. Greenwood St/5th St
27	Keep through trucks on I-5, not through town	Access to Post Office and Rick's Market	Need simple transportation plan to accommodate small town, but allow for some growth; don't need additional landscaping or islands everywhere
28		Sidewalks and bike lanes along S. Main St	Top priority should be sidewalks and a signal at Hwy 99/Main St intersection
29			Should investigate additional rail service, park & ride and shuttle to I-5
30	Congestion at Hwy 99/Main Street	Need sidewalks along Hwy 99 at Union St and University, Main St south of tracks, Connection 5th St through from Union St to Columbia St	Need sidewalks along 3rd St from School to Hazel St
31	Need to address the railroad crossing across from Rick's Market		Need to accommodate future growth through controlled expansion of road system
32	Real issues will not be addressed due to fighting among residents	Town's people	Transportation plan not needed

Table 2
Other Issues from the Jefferson TSP Questionnaire

Respondent	Other Issues	Specific Locations	Other Comments
33	Installation of traffic signals along Hwy 99 due to heavy traffic in morning and evening	Hwy 99 at Rick's Market, Post Office, Hazel St, road to Stayton, Talbot St	Need crosswalks at major intersections, "Children at Play" signs and control of speeds on some streets
34	Finish 5th St so that it goes through		City limits should be extended to include schools, speed limit should be reduced north of town on Hwy 99
35	Signalize Hwy 99 at Main Street and Hazel St, pave 5th St and Union St	Connecting/developing 5th St from Marion St to Hazel St	Trains stopped on tracks creates backups in town with few options, traffic rerouted on Hwy 99 due to accident makes crossing Hwy 99 impossible
36	Keep trash & debris off sidewalks	Signal at Hwy 99/Main St and Hwy 99/Hazel St, pave 5th St and Union St	Should investigate long distance bus service (Greyhound)
37			

H. Lee & Associates
Traffic Engineering, Transportation Planning, and Intelligent Transportation Systems

MEMORANDUM

P.O. Box 1849
Vancouver, WA 98668
Phone: (360) 567-3002
Fax: (360) 567-3005

To: Jefferson TSP Technical Advisory Committee and Citizen Advisory Committee

From: Hann Lee, H. Lee & Associates

Date: March 5, 2001

Subject: Summary of TSP Stakeholder Interviews

Introduction

As part of the Public Involvement Strategy for the Jefferson Transportation System Plan (TSP), interviews were conducted with representatives of several businesses and organizations operating in the City of Jefferson. These "stakeholders" include:

Businesses:

- AM Equipment, 402 Hazel St, Jefferson, OR 97352
  Contact: Ted Powell
- Rick's Food Market, 103 Old Pacific Highway, Jefferson, OR 97352
  Contact: Dave Badger
- Laidlaw Transit, 365 Conser St, Jefferson, OR 97352
  Contact: Darrell Jefferson

Organizations:

- Jefferson Together
  Contact: Susan Williamson

Public Services:

- Jefferson Fire Department
  Contact: Don Beunrose
- Jefferson School District
  Contact: Jim Moskal

In addition, one business and the Marion County Sheriffs Department were contacted; however a representative was not available to complete the survey, and therefore, responses could not be included in this summary.

Those who did complete an interview responded to the following questions:

1) What do you think are critical transportation issues for the City of Jefferson?

2) What issues do you think are critical related to the following transportation modes and locations within the city:
   a) Pedestrians?
   b) Bicycles?
   c) Residential streets?
   d) Highways?
   e) Truck routes?
   f) The downtown?

3) Of the critical issues you have identified, which three do you think have the highest priority for improvement?

4) What do you think are acceptable methods to pay for local transportation improvements:
   a) The City General Fund?
   b) Traffic Impact Fees?
   c) Local Improvement Districts?
   d) Urban Renewal Funds?
   e) Other (such as...)?

Responses to these questions are summarized in the following section. A detailed listing of all responses received, as well as notes on individual stakeholder interviews, is available on request.

Interview Responses

The interviewed stakeholders identified numerous critical transportation issues, which are listed below. Issues that are *italicized and underlined* were identified as having the highest priority for improvement.

With regard to acceptable methods to pay for local transportation improvements, responses were extremely variable. The City General Fund, traffic impact fees and urban renewal funds were all suggested as acceptable sources. There seemed to be little support for using local improvement districts. Other possible sources that were suggested include bonds, levies, and flood control grants to pay for curb and gutters in the residential areas.

Overall Issues

- *Road surfaces throughout the city are in poor repair and in need of repaving*
- *Safety issues at Railroad crossing at Main St and its proximity to Jefferson Highway*
- Extend 5th St to Jefferson-Scio Drive to improve traffic circulation at Greenwood St

Public Transportation Issues

- Public transportation is needed to Albany and Salem

Pedestrian Issues

- Missing sidewalks throughout Jefferson
- Sidewalks along Jefferson Highway in the vicinity of the Middle and Elementary schools
- *Flashing Speed Limit Signs along Jefferson Highway in front of Middle and Elementary schools*
- *Crosswalks at Jefferson Highway/North Ave near Elementary school*

Bicycle Issues

- *Safety issue for bicyclists near Elementary school*
- Additional bicycle lanes in Jefferson
- Many youth are not wearing helmets
- Sometimes it is difficult to cross Jefferson Highway without a traffic signal

Residential Street Issues

- Additional sidewalks in residential areas to accommodate pedestrians
- Better signing along 3rd St

Highway Issues

- Bridges on Jefferson Highway south of Jefferson need upgrading (too narrow)
- *Traffic signal at Jefferson Highway/Main St*
- Widen Main St from Jefferson Highway to Greenwood St
- *Potential safety issues at Railroad crossing*

Truck Route Issues

- *Trucks are exceeding speed limit on Jefferson Highway*
- Reduce Speed Limit further north may help
- Grades may be a problem at Railroad crossing
- Jefferson Highway is alternative route when there is an incident on I-5

Downtown Issues

- Missing sidewalks
- Pavement in poor condition
- *No off-street parking for Tobacco Shop at Jefferson Highway/Hazel St*

ATTACHMENT A:

STAKEHOLDER INTERVIEW QUESTIONS AND RESPONSES FOR JEFFERSON TRANSPORTATION SYSTEMS PLAN

1) **What do you think are critical transportation issues for the City of Jefferson?**

Ted Powell [AM Equipment]
Signal at Jefferson Highway/Main St near Railroad tracks
No off-street parking for retail (Tobacco Store) at Jefferson Highway/Hazel St
Missing and substandard sidewalks

Dave Badger [Rick's Food Market]
Need signal at Jefferson Highway/Main St
Unpaved Streets
Missing Sidewalks
No Crosswalks

Darrell Jefferson [Laidlaw Transit]
Poor visibility for turning at Jefferson Highway/Main St
Poor visibility for turning at Main St/Union St
Widen Main St from Jefferson Highway to Greenwood St
Overall pavement conditions

Susan Williamson [Jefferson Together]
Flashing Speed Limit Signs along Jefferson Highway in front of Elementary and Middle schools to enforce school zone speed limits
Jefferson Highway/Main St at Railroad crossing
Lots of potholes

Don Beunrose [Fire Department]
Safety at Railroad crossing on Main St
Extend 5th St to Jefferson-Scio Drive to reduce heavy traffic, access and safety issues along Greenwood St

Jim Moskal [School District]
Public transportation to Albany and Salem
Poor roadway pavement conditions around Jefferson
Sidewalks along Jefferson Highway for students of Middle and Elementary schools
Flashing Speed Limit Signs along Jefferson Highway in front of Elementary and Middle schools

2) **What issues do you think are critical related to the following transportation modes and locations within the city:**

   a) **Pedestrians?**

Ted Powell [AM Equipment]
Need sidewalks
Dave Badger [Rick's Food Market]
Need sidewalks
Need crosswalks

Darrell Jefferson [Laidlaw Transit]
Student walking to Middle School along Jefferson Highway

Susan Williamson [Jefferson Together]
Need sidewalks by Middle School

Don Beunrose [Fire Department]
Potential safety issue at Railroad crossing

Jim Moskal [School District]
Student walking to Middle School along Jefferson Highway
Cross walk at Jefferson Highway/North Ave for Elementary School

b) Bicycles?

Ted Powell [AM Equipment]
Difficult to cross Jefferson Highway without traffic signals

Dave Badger [Rick's Food Market]
No Issues

Darrell Jefferson [Laidlaw Transit]
More bicycle lanes would be good

Susan Williamson [Jefferson Together]
Kids need helmets, may be able to get them for free from Fire Department

Don Beunrose [Fire Department]
Potential safety issue at Railroad crossing

Jim Moskal [School District]
Students along Jefferson Highway in front of Middle and Elementary School. One student hit last year by Elementary school.

c) Residential streets?

Ted Powell [AM Equipment]
Need sidewalks – pedestrians in streets
Better signing along 3rd St

Dave Badger [Rick's Food Market]
Need sidewalks

Darrell Jefferson [Laidlaw Transit]
No Issues
Susan Williamson [Jefferson Together]
No Issues

Don Beunrose [Fire Department]
No Issues

Jim Moskal [School District]
No Issues

d) Highways?

Ted Powell [AM Equipment]
Bridges south on Jefferson Highway south of Jefferson need upgrading (too narrow)

Dave Badger [Rick's Food Market]
Traffic goes too fast

Darrell Jefferson [Laidlaw Transit]
No Issues

Susan Williamson [Jefferson Together]
No Issues

Don Beunrose [Fire Department]
No Issues

Jim Moskal [School District]
Jefferson Highway needs to be repaved north of the city

e) Truck routes?

Ted Powell [AM Equipment]
Grade problems at Railroad tracks

Dave Badger [Rick's Food Market]
Trucks go too fast entering Jefferson from North – need speed limit sign before coming into Jefferson

Darrell Jefferson [Laidlaw Transit]
No issues except when there is an accident on I-5 and trucks divert to Jefferson Highway

Susan Williamson [Jefferson Together]
No Issues

Don Beunrose [Fire Department]

Jim Moskal [School District]
No Issues

f) The downtown?

Ted Powell [AM Equipment]
Missing Sidewalks
Pavement condition along Main Street

Dave Badger [Rick's Food Market]
Speed of trucks through downtown

Darrell Jefferson [Laidlaw Transit]
No Issues

Susan Williamson [Jefferson Together]
No Issues

Don Beunrose [Fire Department]
Potential safety issue at Railroad crossing

Jim Moskal [School District]
No Issues

3) Of the critical issues you have identified, which three do you think have the highest priority for improvement?

Ted Powell [AM Equipment]
Jefferson Highway/Main St
Jefferson Highway/Hazel St by the Tobacco Store
Main St upgrade including sidewalks and pavement

Dave Badger [Rick's Food Market]
Need sidewalks
Speed of trucks through Jefferson

Darrell Jefferson [Laidlaw Transit]
Jefferson Highway/Main St including Railroad crossing
Overall pavement conditions

Susan Williamson [Jefferson Together]
Flashing Speed Limit Signs along Jefferson Highway in front of Elementary and Middle schools

Don Beunrose [Fire Department]
Potential safety issue at Railroad crossing

Jim Moskal [School District]
Sidewalks along Jefferson Highway for students of Middle and Elementary schools
Flashing Speed Limit Signs along Jefferson Highway in front of Elementary and Middle schools

4) **What do you think are acceptable methods to pay for local transportation improvements:**
   a) **The City General Fund?**
   b) **Traffic Impact Fees?**
   c) **Local Improvement Districts?**
   d) **Urban Renewal Funds?**
   e) **Other (such as...)?**

Ted Powell [AM Equipment]
General Fund – No
Traffic Impact Fees – Yes, but only in immediate impact areas
Local Improvement Districts – No
Urban Renewal Funds – Yes
Other – Bond or Levy for Transportation Improvements, Look for available state funding/grants

Dave Badger [Rick's Food Market]
General Fund – No
Traffic Impact Fees – Yes
Local Improvement Districts – Maybe
Urban Renewal Funds – Yes
Other – Flood Control funds in residential areas to pay for sidewalks and curbs

Darrell Jefferson [Laidlaw Transit]
General Fund – Yes
Traffic Impact Fees – Yes
Local Improvement Districts – No
Urban Renewal Funds – Yes
Other – None

Susan Williamson [Jefferson Together]
General Fund – Yes
Traffic Impact Fees – No
Local Improvement Districts – No
Urban Renewal Funds – Yes
Other – None

Don Beunrose [Fire Department]
General Fund – Yes
Traffic Impact Fees – Yes
Local Improvement Districts – No
Urban Renewal Funds – No
Other – None

Jim Moskal [School District]
General Fund – Yes, if they have the funds
Traffic Impact Fees – Yes
Local Improvement Districts – No
Urban Renewal Funds – Yes
Other – Bond or Levy, but odds are slim that they would pass

H. Lee & Associates
Traffic Engineering, Transportation Planning, and Intelligent Transportation Systems

MEMORANDUM

P.O. Box 1849
Vancouver, WA 98668
Phone: (360) 567-3002
Fax: (360) 567-3005

To: Jefferson TAC and CAC

From: Hann Lee, H. Lee & Associates

Subject: Meeting Summary for December 7, 2000, Public Open House

The first public open house meeting for the transportation system plan was conducted on December 7, 2000. The first project newsletter, which was circulated to the entire population of Jefferson, was the primary way the public was notified of the public open house. Hann Lee of H. Lee & Associates and Matt Crall of the City of Jefferson were available to the public to answer any questions regarding the transportation system plan.

The public open house was poorly attended. Only five people signed the attendance sheet. It is attached to this meeting summary.

The following issues were brought up by the public:

- Main Street needs some of its sidewalks replaced.
- Diagonal parking should be considered for Main Street with a one-way couplet with Jefferson Highway.
- Utilities on Main Street should be considered to be relocated underground.
- There is a safety problem at Hazel Street and 2nd Street. This intersection is offset. Also, an emergency signal should be considered for this intersection.
- A question of the speed of trains traveling through town came up.
- Opportunities for public transit service should be sought.
- There needs to be truck parking somewhere in town. The city should coordinate with the county in developing some truck parking on either ends of town. The nearest facilities for trucks are on OR 34 and Brooks.
- More downtown parking is needed when the downtown gets more development.
- There is interest in a passenger rail stop in Jefferson.

CITY OF JEFFERSON
TRANSPORTATION SYSTEM PLAN

Town Hall – Open House
December 7, 2000

Attendance Sheet

	Name	To be added to the mailing list, please provide your address
1	Melissa Berman	
2	[illegible]	
3	Tim Murphy	
4	Virginia A. Lindsey	
5	[illegible]	
6		
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H. Lee & Associates
Traffic Engineering, Transportation Planning, and Intelligent Transportation Systems

MEMORANDUM

P.O. Box 1849
Vancouver, WA 98668
Phone: (360) 567-3002
Fax: (360) 567-3005

To: Jefferson TAC and CAC

From: Hann Lee, H. Lee & Associates

Subject: Meeting Summary for March 6, 2001 Public Open House

The second public open house meeting for the transportation system plan was conducted on March 5, 2001. The second project newsletter, which was circulated to the entire population of Jefferson, was the primary way the public was notified of the public open house. Hann Lee of H. Lee & Associates and Matt Crall of the City of Jefferson were available to the public to answer any questions regarding the transportation system plan.

The public open house was attended by eleven people as shown in the attached attendance sheet.

The main topic of discussion at the public open house was the list of transportation deficiencies defined and possible improvements. Displays showing the deficiencies, possible improvement projects, and future traffic volumes were brought by the consultant.

The following issues were brought up by the public at both the public house meeting and comment sheets from the second newsletter:

- Sidewalks are needed on Greenwood Street.
- A long train would prevent emergency vehicles from accessing the residents along Jefferson-Scio Drive. Another railroad crossing is needed to somehow access this neighborhood in the Cemetery Road area.
- A on-duty deputy sheriff is needed in Jefferson. Getting an answering machine during an emergency would be too late to make an adequate response.
- Sidewalks are needed along Jefferson Highway from Talbot Road to the elementary school and from Hazel Street to Ricks Market. Kids walking from the middle school to the elementary school is an especially difficult and dangerous situation. There is also a concern that a safety problem with pedestrians and bicyclists sharing the same space along Jefferson Highway in the areas described above.
- Crosswalks are needed at the intersection of Jefferson Highway and Jefferson-Marion Road.
- Flashing yellow lights should be installed at the school entrances to let motorists know to slow down and obey the school zone speed limit.
- There is an I-5 traffic diversion problem on Jefferson Highway, especially with an accident or construction on I-5.
- There is a vibration problem caused by traffic on Main Street at Greenwood Street, especially with truck traffic.

- The city should consider developing a one-way couplet with Main Street and Jefferson Highway.
- Extending 5th Street from Cemetery Road to Jefferson-Scio Drive should be a high priority.
- The speed limit on Jefferson Highway is too confusing. There are too many different speed limit signs posted. They should be changed to have one constant speed limit.
- The following new sidewalk locations were identified:
  - Jefferson Highway between Hazel Street and Union Street
  - University Street from Jefferson Highway to 3rd Street
  - Hazel Street from 2nd Street to 5th Street/north side only
  - Pedestrian crossing at railroad and Union Street alignment
  - Greenwood Street from Main Street to 3rd Street
  - 2nd Street from Greenwood Street to Columbia Street
  - Columbia Street from 2nd Street to 5th Street

City of Jefferson TSP
Town Hall Meeting

March 6, 2001

<u>In Attendance</u>

1. Judy DeSpain
2. Evelyn Bonney
3. Carl L Jellison
4. Beverly J. Jellison
5. Trudy Webb
6. Mike Basinger
7. Connie R Basinger
8. Tom Cordia
9. Shelley Cordia
10. Phyllis Pilcher
11. Melinda L. Chadbourne + Ariel.
12.
13.
14.
15.

APPENDIX C

Roadway Inventory

Driveway Inventory Table

Street Segment	Location
Jefferson Highway - Northbound	
Santiam River Bridge to Mill Street	No driveways
Mill Street to Main Street	No driveways
Main Street to Union Street	
single family driveway	379 to 402 feet south of Union Street
single family driveway	245 to 222 feet south of Union Street
single family driveway	167 to 153 feet south of Union Street
commercial offices	97 to 70 feet south of Union Street
Union Street to Hazel Street	
Burger Basket	188 to 220 feet north of Union Street
Burger Basket	274 to 301 feet north of Union Street
Chevron	316 to 334 feet north of Union Street
Chevron	376 to 397 feet north of Union Street
Hazel Street to Church Street	
Plantation Restaurant	118 to 228 feet north of Hazel Street
Westerm Ad Specialties	280 to 292 feet north of Hazel Street
Church Street to Santiam Street	
single family driveway	159 to 172 feet north of Church Street
single family driveway	180 to 191 feet north of Church Street
Santiam Street to University Street	
single family driveway	153 to 183 feet north of Santiam Street
University Street to North Avenue	
school access	273 to 294 feet north of University Street
school access	528 to 548 feet north of University Street
Jefferson Highway - Southbound	
Santiam River Bridge to Mill Street	No driveways
Mill Street to Main Street	No driveways
Main Street to Union Street	
Union Street to Hazel Street	
Laundromat	269 to 303 feet south of Hazel Street
Hazel Street to Church Street	
Jefferson Tool and Equipment	390 to 404 feet south of Church Street
Jefferson Tool and Equipment	364 to 378 feet south of Church Street
Jefferson Tool and Equipment	315 to 334 feet south of Church Street
city lot	179 to 197 feet south of Church Street
parking lot for retail building	96 to 137 feet south of Churhc Street
Church Street to Santiam Street	
single family driveway	176 to 187 feet south of Santiam Street
single family driveway	82 to 94 feet south of Santiam Street
Santiam Street to University Street	
single family driveway	345 to 358 feet south of University St
single family driveway	325 to 337 feet south of University St
single family driveway	221 to 236 feet south of University St
single family driveway	120 to 138 feet souht of University St
Star Car Wash and Mini Storage	41 to 66 feet south of Universidty St
University Street to North Avenue	
Freres Building Supply	611 to 798 feet south of North Avenue
Jefferson Evangelical Church	438 to 484 feet south of North Avenue
Jefferson Evangelical Church	355 to 410 feet south of North Avenue
single family driveway	345 to 355 feet south of North Avenue
single family driveway	272 to 284 feet south of North Avenue
Hamilton's Cleaning Service	214 to 241 feet south of North Avenue
686 N. 2nd Avenue - vacant building	21 to 157 feet south of North Avenue

APPENDIX C
2000 STREET INVENTORY
City of Jefferson Transportation System Plan

Street Segment	Jurisdiction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	# of Travel Lanes	Curbs	Shoulder	Shoulder Width	On-Street Parking	Sidewalk	Sidewalk Width	Sidewalk Condition	Bikeway	Pavement Condition
2nd Pl.															
Chamelton St. to High St.	City	local	25	65	12	2	no	-	-	no	no	-	-	no	gravel/poor
High St. to southern terminus	City	local	25	65	23	2	no	-	-	no	no	-	-	no	good
2nd St.															
Columbia St. to Greenwood St.	City	local	25	65	20	2	no	-	-	no	no	-	-	no	good
Greenwood St. to Faith St.	City	local	25	65	24-25	2	no	-	-	no	no	-	-	no	good
Faith St. to southern terminus	City	local	25	65	18-29	2	Int. east	-	-	no	Int. east	5	good	no	good
Chamelton St. to High St.	City	local	25	65	14	2	-	-	-	no	no	-	-	no	gravel/poor
3rd St.															
Northern terminus to Conser St.	City	local	25	65	17-20	2	no	-	-	no	no	-	-	no	gravel/poor
Conser St. to North Ave.	City	local	25	65	18-23	2	no	both	6-8	no	no	-	-	no	gravel/poor
North Ave. to Marion St.	City	minor collector	25	65	35	2	both	-	-	east	both	5	good	no	good
Marion St. to University St.	City	minor collector	25	65	35	2	both	-	-	east	both	5	good	no	good
University St. to Santiam St.	City	minor collector	25	65	17-20	2	no	-	-	both	no	-	-	no	poor
Santiam St. to Church St.	City	minor collector	25	65	19	2	no	-	-	both	no	-	-	no	fair/poor
Church St. to Hazel St.	City	minor collector	25	65	17-19	2	no	-	-	both	west, Int. east	4-5	fair	no	fair/poor
Hazel St. to Union St.	City	local	25	65	27-30	2	no	-	-	both	no	-	-	no	poor/gravel
Northern treminus to Columbia St.	City	local	25	65	17	2	no	-	-	no	no	-	-	no	good
Columbia St. to Greenwood St.	City	local	25	65	34	2	both	-	-	both	east	5	good	no	good
Northern terminus to Tanglewood Dr.	City	local	25	65	35	2	both	-	-	both	both	5	good	no	good
Tanglewood Dr. to High St.	City	local	25	65	35	2	both	-	-	both	both	5	good	no	good
High St. to southern terminus	City	local	25	65	30-19	2	both	-	-	both	both	5	good	no	good
5th St.															
Northern terminus to Elm St.	City	major collector	25	65	18	2	east	-	-	no	east	5	good	no	good
Elm St. to Walnut St.	City	major collector	25	65	18	2	east	-	-	no	east	5	good	no	good
Walnut St. to Hazel St.	City	major collector	25	65	20-25	2	Int.east	-	-	no	east	5	good	no	poor
Hazel St. to Union St.	City	major collector	25	65	32	2	both	-	-	both	both	5	good	no	good
Northern terminus to Columbia St.	City	major collector	25	65	18	2	east	-	-	no	east	5	good	no	good
Columbia St. to Greenwood St.	City	major collector	25	65	31	2	both	-	-	both	both	5	good	no	good
Greenwood St. to High St.	City	major collector	25	65	31	2	both	-	-	both	both	5	good	no	good
High St. to Huron Ct.	City	major collector	25	65	31	2	both	-	-	both	both	5	good	no	good
Huron Ct. to Delores Dr.	City	major collector	25	65	31	2	both	-	-	both	both	5	good	no	good
Delores Dr. to southern terminus	City	major collector	25	65	31	2	both	-	-	both	both	5	good	no	good/fair
6th St.															
Northern terminus to Hazel St.	City	local	25	65	18-34	2	west	-	-	east	west	5	good	no	poor/gravel
Hazel St. to southern terminus	City	local	25	65	20-34	2	no	-	-	no	no	-	-	no	poor/gravel
Union St. to Erik Pl.	City	local	25	65	35	2	both	-	-	both	both	5	good	no	good
Erik Pl. to Columbia St.	City	local	25	65	35	2	both	-	-	both	both	5	good	no	good
High St. to Alder Ct.	City	local	25	65	35	2	both	-	-	both	no	-	-	no	good
Alder Ct. to southern terminus	City	local	25	65	35	2	both	-	-	both	no	-	-	no	good
7th St.															
Northern terminus to Maple Ct.	City	minor collector	25	60	10	2	-	-	-	-	-	-	-	-	gravel/poor
Maple Ct. to Oak Ct.	City	minor collector	25	60	14	2	-	-	-	-	-	-	-	-	gravel/poor
Oak Ct. to Dead End sign	City	minor collector	25	60	14	2	no	-	-	yes	no	-	-	no	gravel/poor
Dead End sign to Cottonwood Pl.	City	minor collector	25	60	35	2	both	-	-	both	east	5	good	no	good
Cottonwood Pl. to Hazel St.	City	minor collector	25	60	35	2	both	-	-	both	east	5	good	no	good
Hazel St. to Union St.	City	minor collector	25	60	31-35	2	both	-	-	both	both	5	good	no	good
Union St. to Greenwood St.	City	minor collector	25	60	35	2	both	-	-	both	both	5	good	no	good
Alder Ct.															
6th St. to eastern terminus	City	local	25	45	36	2	both	-	-	both	Int. north	5	good	no	good

APPENDIX C
2000 STREET INVENTORY
City of Jefferson Transportation System Plan

Street Segment	Jurisdiction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	# of Travel Lanes	Curbs	Shoulder	Shoulder Width	On-Street Parking	Sidewalk	Sidewalk Width	Sidewalk Condition	Bikeway	Pavement Condition
Arlowene Ct.															
Northern terminus to Greenwood St.	City	local	25	50	33	2	both	-	-	both	both	5	good	no	good
Armor Pl.															
Northern terminus to Columbia St.	City	local	25	50	34	2	both	-	-	both	both	5	good	no	good
Cemetery Hill Rd.															
Salamander Rd. to east city limits	County	major collector	N.P.	40-65	18	2	no	-	-	no	no	-	-	no	gravel/poor
Charnelton St.															
Main St. to 2nd St.	City	local	25	30	16	2	no	-	-	north	no	no	-	no	gravel/poor
2nd St. to 2nd Pl.	City	local	25	30	16	2	no	-	-	north	no	no	-	no	gravel/poor
Church St.															
Main St. to Olson Dr.	City	local	25	65	38	2	south	-	-	both	Int. north, south	5-8	fair	no	fair/poor
Olson Dr. to Jefferson Highway (2nd St.)	City	local	25	65	38	2	south	-	-	both	south	4-5	fair	no	fair/poor
Jefferson Highway (2nd St.) to 3rd St.	City	local	25	65	44	2	both	-	-	both	Int. north, south	5	fair	no	fair
3rd St. to eastern terminus	City	local	25	65	18	2	no	-	-	no	no	-	-	no	poor
Columbia St.															
2nd St. to 3rd St.	City	local	25	75	18	2	no	-	-	no	no	-	-	no	good
3rd St. to 5th St.	City	local	25	65	19	2	no	-	-	no	no	-	-	no	good
5th St. to Armor Pl.	City	local	25	60	36	2	both	-	-	both	both	5	good	no	good
Armor Pl. to 6th St.	City	local	25	60	35	2	both	-	-	both	both	5	good	no	good
Conser St.															
3rd St. to Jefferson-Marion Rd.	City	local	25	65	22	2	Int. south	-	-	both	Int.south	5	good	no	gravel/poor
Cottonwood Pl.															
7th St. to eastern terminus	City	local	25	50	36'	2	both	-	-	both	both	5	good	no	fair/poor
Delores Dr.															
High St. to 5th St.	City	local	25	60	36	2	both	-	-	both	both	5	good	no	good
5th St. to eastern terminus	City	local	25	60	36	2	both	-	-	both	both	5	good	no	good
Dover Ct.															
Western terminus to High St.	City	local	25	50	36	2	both	-	-	both	both	5	good	no	good
Elm St.															
5th St. to eastern terminus	City	local	25	50	36	2	both	-	-	both	both	5	good	no	fair/poor
Erik Pl.															
Western terminus to 6th St.	City	local	25	50	36	2	both	-	-	both	both	5	good	no	good
Fairfield Ct.															
Northern terminus to Greenwood St.	City	local	25	45	31	2	both	-	-	both	both	5	good	no	good
Faith Dr.															
Greenwood St. to Faith St.	City	local	25	45-65	31	2	both	-	-	both	both	5	good	no	good
Faith St.															
2nd St. to Faith Dr.	City	local	25	45	31	2	both	-	-	both	both	5	good	no	good
Ferry St.															
Mill St. to Main St.	City	local	25	65	35	2	both	-	-	both	both	5	good	no	good
Greenwood St.															
Main St. to 2nd St.	City	minor collector	25	65	19	2	no	-	-	no	no	-	-	no	good
2nd St. to 3rd St.	City	minor collector	25	65	19-31	2	no	-	-	Int. both	no	-	-	no	good
3rd St. to Fairfield Ct.	City	minor collector	25	65	35	2	both	-	-	both	north	5	good	no	good
Fairfield Ct. to Sunnymeade Ct.	City	minor collector	25	65	35	2	both	-	-	both	both	5	good	no	good
Sunnymeade Ct. to 5th St.	City	minor collector	25	65	35	2	both	-	-	both	both	5	good	no	good
Greenwood St. Continued															
5th St. to Pamela Ct.	City	minor collector	25	60	35	2	both	-	-	both	Int. both	5	good	no	good
Pamela Ct. to Arlowene Ct.	City	minor collector	25	60	35	2	both	-	-	both	north, Int. south	5	good	no	good
Arlowene Ct. to 7th St.	City	minor collector	25	60	36	2	both	-	-	both	Int. both	5	good	no	good

APPENDIX C
2000 STREET INVENTORY
City of Jefferson Transportation System Plan

Street Segment	Jurisdiction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	# of Travel Lanes	Curbs	Shoulder	Shoulder Width	On-Street Parking	Sidewalk	Sidewalk Width	Sidewalk Condition	Bikeway	Pavement Condition
Hazel St.															
Main St. to Jefferson Highway (2nd St.)	City	major collector	25	50	36	2	both	-	-	both	both	5	fair/poor	no	fair/poor
Jefferson Highway (2nd St.) to 3rd St.	City	major collector	25	65	41	2	both	-	-	both	both	5	good	no	fair/poor
3rd St. to RR tracks	City	major collector	25	65	38	2	both	-	-	both	no	-	-	no	fair/poor
RR tracks to 5th St.	City	major collector	25	65	42	2	both	-	-	both	south	5	good	no	fair/poor
5th St. to 6th St.	City	major collector	25	65	38	2	both	-	-	both	north	5	good	no	fair/poor
6th St. to 7th St.	City	major collector	25	65	38	2	both	-	-	both	both	5	good	no	good
7th St. to eastern terminus	City	major collector	25	45	21	2	north	-	-	no	north	5	good	no	good
High Ct.															
6th St. to eastern terminus	City	local	25	50	36	2	both	-	-	both	both	5	good	no	good
High St.															
Main St. to 2nd St.	City	minor collector	25	60	34	2	both	-	-	both	no	-	-	no	good
2nd St. to 2nd Pl.	City	minor collector	25	60	34	2	both	-	-	both	south	5	good	no	good
2nd Pl. 3rd St.	City	minor collector	25	60	34	2	both	-	-	both	no	-	-	no	good
3rd St. to Delores Dr.	City	minor collector	25	60	36	2	both	-	-	both	both	5	good	no	good
Delores Dr. to Dover Ct.	City	minor collector	25	60	36	2	both	-	-	both	both	5	good	no	good
Dover Ct. to 5th St.	City	minor collector	25	60	36	2	both	-	-	both	both	5	good	no	good
5th St. to 6th St.	City	minor collector	25	50-60	36	2	both	-	-	both	Int. both	5	good	no	good
Huron Ct.															
Western terminus to 5th St.	City	local	25	50	36	2	both	-	-	both	both	5	good	no	good
Jeffeson Highway (2nd St.)															
Talbot Rd. to North Ave.	State	arterial	40	65	44	2	no	both	6-8	no	no	-	-	west	good
North Ave. to University St.	State	arterial	30	65	45	2	east	-		both	east	5	good	east	good
University St. to Santiam St.	State	arterial	30	65	43	2	west	-	-	west	west, Int.-east	4-5	good/fair	both	good
Santiam St. to Church St.	State	arterial	30	65	42	2	west	-	-	west	both	4-5	good/fair	both	good
Church St. to Hazel St.	State	arterial	30	65	48	2	both	-	-	both	both	east 3-5, west 5	E-poor, W-fair	both	good
Hazel St. to Union St.	State	arterial	30	65	43-45	2	Int. both	-	-	Int.-west	Int. east/west	5-11	good	east	good
Union St. to Main St.	State	arterial	30	65-140	54-55	2	no	-	-	no	no	-	-	no	good
Main St. to Mill St.	State	arterial	30	105	54-55	2	no	-	-	no	no	-	-	no	good
Mill St. to Bridge (Santiam River)	State	arterial	30	120	54-55	2	no	-	-	no	no	-	-	no	good
Jefferson-Marion Rd.															
North city limits to Conser St.	County	arterial	35	120	22	2	no	both	6-8	no	no	-	-	no	good
Conser St. to North Ave.	County	arterial	N.P.	120	22	2	no	both	6-8	no	no	-	-	no	good
Loree Pl.															
6th St. to eastern terminus	City	local	25	50	36	2	both	-	-	both	both	5	good	no	good
Main St.															
Church St. to Hazel St.	City	local	25	65	47	2	both	-	-	both	both	5	fair	no	poor
Hazel St. to Union St.	City	local	25	65	47	2	both	-	-	both	both	5-7	E-good, W-poor	no	poor
Union St. to Ferry St.	City	local	25	65	47	2	both	-	-	both	both	9-10	good	no	fair/pair
Ferry St. to Jefferson Highway	City	local	25	65	47	2	both	-	-	both	both	5-9	good	no	fair
Jefferson Highway to Greenwood St.	County	arterial	25	65-75	37	2	no	both	4-16	east	no	-	-	no	good
Greenwood St. to Tandlewood Dr.	County	arterial	25	60-65	24	2	no	both	4-16	no	no	-	-	no	good
Tanglewood Dr. to Charnelton St.	County	arterial	25	60	24	2	no	both	4-16	no	no	-	-	no	good
Main St. Continued															
Charnelton St. to High St.	County	arterial	25	60	24-25	2	no	both	4-16	no	no	-	-	no	good
High St. to Riverwood Dr.	County	arterial	25	60	24-26	2	no	both	4-16	no	no	-	-	no	good
Riverwood Dr. to Pearl St.	County	arterial	25	60	22-24	2	no	both	4-10	no	no	-	-	no	good
Pearl St. to southern city boundary	County	arterial	25	60	22	2	no	both	5-8	no	no	-	-	no	good
Maple Ct.															
7th St. to eastern terminus	City	local	25	50	10	2	no	-	-	no	no	-	-	no	gravel/poor

APPENDIX C
2000 STREET INVENTORY
City of Jefferson Transportation System Plan

Street Segment	Jurisdiction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	# of Travel Lanes	Curbs	Shoulder	Shoulder Width	On-Street Parking	Sidewalk	Sidewalk Width	Sidewalk Condition	Bikeway	Pavement Condition
Marion St.															
3rd St. to eastern terminus	City	local	N.P.	65	16	2	no	-	-	no	no	-	-	no	gravel/poor
Mill St.															
Ferry St. to Hwy. 99	City	local	25	65	35	2	both	-	-	both	both	5	good	no	good
North Ave.															
Western terminus to Jefferson Highway (2nd St.)	City	arterial	N.P.	-	-	2	no	-	-	no	no	-	-	no	gravel/poor
Jefferson Highway (2nd St.) to 3rd St.	County	arterial	35	-	40	2	both	-	-	both	no	-	-	no	fair
3rd St. to Jefferson-Marion Rd.	County	arterial	35	65	22	2	no	both	6-8	no	no	-	-	no	fair
Jefferson-Marion Rd. to Salamander Rd.	County	arterial	35	65	24	2	no	both	4-6	no	no	-	-	no	fair
Oak Ct.															
7th St. to eastern terminus	City	local	25	50	14	2	no	-	-	no	no	-	-	no	gravel/poor
Oakdale Ct.															
Southwest terminus to Greenwood St.	City	local	25	45	32	2	both	-	-	both	Int. both	5	good	no	good
Olsen Dr.															
Jefferson Highway to Church St.	City	local	N.P.	20	10-11	2	no	-	-	no	no	-	-	no	poor/gravel
Pamela Ct.															
Northern terminus to Greenwood St.	City	local	25	50	32	2	both	-	-	both	both	5	good	no	good
Pearl St.															
Main St. to eastern terminus	City	local	25	30	30	2	both	-	-	both	south	2-3	fair	no	fair
Riverwood Dr.															
Western terminus to Main St.	City/County	local	N.P.	30	11	2	no			no	no	-	-	no	gravel/poor
Salamander Rd.															
North city limits to North Ave.	County	local	N.P.	55-90	21-22	2	no	both	2-3	no	no	-	-	no	good
Santiam St.															
Jefferson Highway (2nd St.) to 3rd St.	City	local	25	65	20	2	no	-	-	no	no	-	-	no	poor
3rd St. to eastern terminus	City	local	25	65	18	2	no	-	-	no	no	-	-	no	poor
Sunnymeade Ct.															
Northwest terminus to Greenwood St.	City	local	25	45	31	2	both	-	-	both	both	5	good	no	good
Sunrise Dr. (loop)															
Green wood St. to Sunrise Dr. (loop)	City	local	25	25-50	35-36	2	both	-	-	both	Int. both	5	good	no	fair/good
Talbot Rd.															
West urban growth boundary to Jefferson Highway	County	arterial	N.P.	55	22	2	no	both	4	no	no	-	-	no	fair
Tanglewood Dr.															
Main St. to 3rd St.	City	local	25	50	36	2	both	-	-	both	both	5	good	no	good
3rd St. to eastern terminus	City	local	25	50	36	2	both	-	-	both	both	5	good	no	good
Union St.															
Main St. to Jefferson Highway (2nd St.)	City	local	25	65	47	2	both	-	-	both	both	5-8	good	no	fair
Jefferson Highway (2nd St.) to 3rd St.	City	local	25	65	18	2	no	-	-	no	no	-	-	no	poor
Western terminus to 5th St.	City	local	25	65	18	2	Int. south	-	-	no	Int. south	5	good	no	fair/poor
5th St. to 6th St.	City	local	25	60	34	2	both	-	-	both	both	5	fair	no	good
6th St. to 7th St.	City	local	25	60	33	2	both	-	-	both	both	5	fair	no	good
7th St. to eastern terminus	City	local	25	60	35	2	both	-	-	both	both	5	fair	no	good
University St.															
Hwy. 99 (2nd St.) to 3rd St.	City	local	25	65	20	2	no	-	-	no	no	-	-	no	poor
3rd St. to eastern terminus	City	local	25	65	16	2	no	-	-	no	no	-	-	no	poor
Walnut St.															
5th St. to eastern terminus	City	local	25	50	36	2	both	-	-	both	both	5	good	no	fair

APPENDIX D

Demographic Data

CITY OF JEFFERSON – DEMOGRAPHIC DATA

Population Growth and Distribution

Information used in this analysis was from the U.S. Census Bureau and Portland State University's Center for Population Research and Census. The U.S. Census data does not reflect demographic characteristics consistent with the Urban Growth Boundaries (UGB) of Oregon communities, but includes city limits, counties and various tracts or districts within Counties. The U.S. Census Bureau recognizes the incorporated City of Jefferson. The Census Bureau has kept track of growth for this area over the years to provide a historic base of information for the region.

Historic Population Growth

Population growth in the City of Jefferson has been erratic over the past two decades, growing dramatically in some years, while decreasing in others. A linear graph of historic growth would display a series of peaks and valleys exhibiting the erratic growth experienced by the area. This erratic growth pattern can be seen from the data shown in Table 1. From 1980 to 1990, the City of Jefferson actually declined in population. From 1990 to 2000, the population increased. A line drawn between the peaks and valleys would project average growth long term, and would illustrate how population in the area has increased at approximately 1.06 percent per annum over the last 20 years.

Table 1-1 summarizes population growth between 1980 and 1999 for the City of Jefferson and Marion County as a whole. From 1980 through 1990, the City of Jefferson's' population declined by approximately 10 percent. During that same time period Marion County experienced very modest growth with a 11.62 percent ten year change in population. From 1990 to 2000, this pattern of declining population changed for Jefferson. As shown in Table 1, the City of Jefferson increased in population from 1990 to 2000 from 1,805 to 2,487 at an annual growth rate of 3.25 percent. Marion County grew from 228,483 to 284,834 during that same period at a growth rate of 2.22 percent annually.

The 20-year annualized growth for the City of Jefferson and Marion County were 1.06 and 1.67 percent respectively. In the last 20 years, Marion County has been growing faster than the City of Jefferson. However, in the last ten years, the City of Jefferson has been growing faster than Marion County.

TABLE 1
JEFFERSON HISTORIC POPULATION GROWTH TRENDS

	1980	1990	1980-1990 % Change	2000	1990-2000 % Change	Annual Growth Rate 1980-2000
City of Jefferson	2,012	1,805	-10.29%	2,487	37.78%	1.06%
Marion County	204,692	228,483	11.62%	284,834	24.47%	1.67%

Source: *1980, 1990, 2000 US Census, 1998, 1999 Center for Population Research and Census, Portland State University*

There is very little information that can be interpreted from the population by age information summarized in Table 2 since the 1980 population data is incomplete. Several age groups were not reported in 1980. An interesting fact in Table 2 is the 1990 median age of 29. The median age in Jefferson is relatively young. In the next coming months, the 2000 Census should be releasing the population by age information. At that time, a comparison can be made discussing an age trending in Jefferson.

TABLE 2
POPULATION BY AGE, 1990

	1980		1990	
Age	**Number**	**Percent**	**Number**	**Percent**
Under 5	277	62.4	16	0.9
5-19	0	0.0	533	32.2
20-44	0	0.0	665	40.2
45-64	0	0.0	281	17.0
65+	167	37.6	160	9.7
Median Age	-		29	

Source: U.S. Census, 1980 and 1990

Population Projections

Table 3 presents the most recent forecasts of future population growth for the City of Jefferson and Marion County. The 2020 population for the City of Jefferson was based on Marion County's projection of 2,895. The projected annual growth from 2000 to 2020 is 0.76 percent. For comparative purposes, Marion County is projected to grow at an annual rate of 1.43 percent from 2000 to 2020. It should be mentioned that Marion County's growth projection for Jefferson is significantly lower than the 1990 to 2000 growth Jefferson has already experienced.

TABLE 5-3
POPULATION

Area	2000	2020	**Annual Growth Rate 2000-2020**
City of Jefferson	2,487	2,895	0.76%
Marion County	284,834	378,208	1.43%

Land Use Inventory

To supplement the demographic analysis and to determine more specific potential growth areas in the City of Jefferson, a Potential Development Impact Analysis (PDIA) was conducted based on Jefferson's Land Inventory. The PDIA provides estimates for potential residential, industrial, and commercial development based on available vacant lands.

The analysis is based on a number of simple assumptions, some of which may overstate potential development. Some of the key assumptions include the following:

- No adjustments were made for slopes, bodies of water, riparian areas, or other physical development constraints.
- Development estimates do not account for market factors.
- The potential residential development was based on one dwelling unit for every 7,500 square feet (sf) of R1 zoned land. For R2 zoned land, lots were converted to duplexes if they were over 8,000 sf and partitioned into two duplex lots if over 16,000 sf.
- The potential commercial development was based on an assumption that the commercial building space would equal 25% of the gross land available.
- The potential industrial development was calculated based on an assumption that the building space would equal 30% of the gross land available.

TABLE 4
POTENTIAL DEVELOPMENT IMPACT ANALYSIS SUMMARY

Designated Use	Acreage		Potential Future Units
	Net Area	Vacant	Potential
Residential – R1	236.53	101.18	577
Residential – R2	33.16	6.52	103
Residential – Low Density	97.08	61.59	320
Residential – Medium Density	6.57	5.47	51
Commercial	75.97	28.08	305,791[1]
Industrial	29.74	11.58	151,327[1]

[1] *Commercial and industrial potential shown as square feet of potential development.*

As shown in Table 4, the City of Jefferson has significant land reserves for residential, commercial, and industrial development. There are a potential of 1,051 additional residential units in the R1, R2, low density residential, and medium density residential zones. Compared to the 891 existing residential units, there is a potential for the existing urban growth boundary to accommodate more than a 100 percent increase in future housing units. As for the commercial and industrial lands, there appears to be sufficient vacant lands available to accommodate future employment needs. Approximately 37 percent of Jefferson's commercial lands are still available as is 39 percent of the industrial lands. In general, the potential development numbers can easily accommodate Jefferson's 20 year land need.