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To: Rick Highsmith

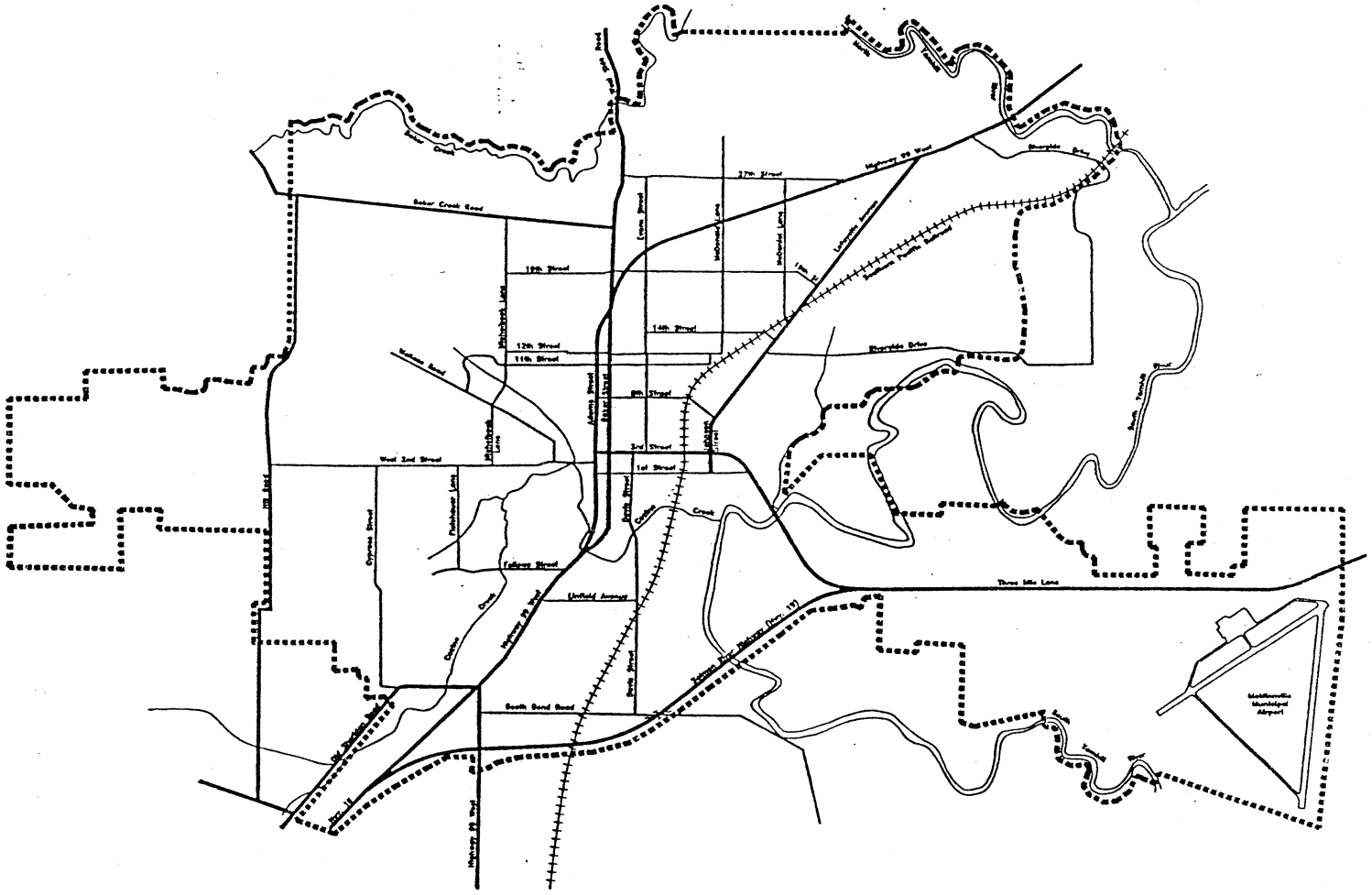
DRAFT

Transportation Master Plan

CITY OF MCMINNVILLE

McMinnville, Oregon

October, 1993



Submitted by

DAVID EVANS AND ASSOCIATES, INC. AND
PUBLIC FINANCIAL MANAGEMENT, INC.

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Adopted by the McMinnville City Council, December 22, 1992 (Resolution No. 1992-40) with the exceptions of Exhibit 20 and those portions that pertain to the McMinnville Downtown Couplet.

DRAFT

Transportation Master Plan

CITY OF McMINNVILLE

McMINNVILLE, OREGON

October, 1993

= Indicates where substantial changes have been made

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PREFACE

by:

Richard M. Highsmith, III
Project Manager

The McMinnville transportation master plan planning process began in the winter of 1990 with a request for proposals which was sent out to qualified transportation consultants. In March, 1991, a consultant, Carl Buttke, Inc., a David Evans and Associates, Inc. company, was selected by a City interview team. The next step was the appointment by the Mayor of a Transportation Advisory Committee (TAC). This committee was made up of local citizens with a variety of backgrounds representing a number of areas of interest, expertise, and concern. One of the first things the TAC did was to hold a community meeting. This was done in April after a mailer was sent to every McMinnville household soliciting participation and input. From the community meeting came an identification of issues and concerns which were then rated by our consultants.

While this was going on, a master plan planning process was being developed by our consultants. The TAC met monthly while going through that process. Early on, the committee evaluated the citizen input from the community meeting and developed goals and objectives. The committee then involved itself in the identification of needed short-term improvements; the development, evaluation, and selection of proposed new street systems and bikeways; evaluation of financial strategies; and actual design analysis, among other things.

From this came the initial draft of the master plan which was presented at a second community meeting on October 24, 1991. The meeting was attend by some 75 local citizens who provided some excellent input, which resulted in the consultants' "going back to the drawing board" in a few areas. A second draft plan was then produced by the consultants, reviewed by staff, and returned with comments. A third draft was then produced which was forwarded for action.

The TAC met on May 6, 1992, to act on the third draft. The TAC decided that they did not have enough expertise in the area of finance to forward a recommendation on that segment of the proposed plan and that they had not spent enough time on the proposed street design standards (cross sections) to act on that portion of the plan. They voted unanimously to forward a recommendation for approval on all other portions of the plan. The next step was for the Planning Commission to hold public hearings on the proposed plan.

After a staff meeting in the spring of 1992, it was decided to remove the proposed street design standards (cross sections) from the hearings process at that time. It was felt that the proposed changes in street standards warranted enough attention that they should be dealt with under a separate agenda.

The Planning Commission held their first public hearing on June 11, 1992. Subsequent hearings were held on July 9, September 10, and October 8, 1992. One of the focal areas on which the Commission spent considerable time was that of pedestrian and bicycle access to the schools. Meetings were held with the McMinnville School District in order that their concerns might be aired and addressed.

After their final public hearing, the Commission voted unanimously to forward a recommendation to the City Council for approval of the Transportation Master Plan (less the proposed street design standards) subject to several changes involving the proposed First and Second Street couplet improvement project, the required installation of sidewalks, and pedestrian and bicycle access.

On October 27, 1992, the City Council held its first workshop on the proposed master plan. Subsequent workshops were held on November 10 and November 17, 1992. The Council then held, on December 8, 1992, a formal public hearing on the proposed master plan. Adoption of the plan came on December 22, 1992, with the Council enactment of Resolution 1992-40. The Council specifically excepted from their approval Figure 20, entitled "Street Design Standards", and those portions of the master plan that pertain to the McMinnville downtown one-way couplet between Adams and Johnson Streets. Staff was directed to further research those issues and to schedule additional hearings on the topics so that further public input might be gained.

SUMMARY

It is estimated that nearly 19,000 people live within the McMinnville Urban Growth Boundary and that 6,600 people are employed here. The forecast growth for the area for the next twenty years is expected to result in nearly 33,000 people living here and 14,000 people working here.

The existing street system generally functions with acceptable levels of service throughout the city of McMinnville (*the City*) except in the vicinity of 19th and Baker Streets, and 3rd and Johnson Streets. However, there are locations where a relatively high number of accidents have been occurring which require immediate improvement. These improvements plus some traffic control modifications are as follows:

- Install traffic signal and left-turn lanes at Third and Johnson Streets;
- Realign cross walk and remove parking at Eighth Street and Lafayette Avenue;
- Install a traffic signal at Third and Evans Streets;
- Install a four-way stop at Fifth and Evans Streets and remove some curb parking;
- Remove some curb parking at Fourth and Baker Streets;
- Remove some parking at the hospital access at Baker Street; and,
- Install stop signs on all local street approaches to collector streets.

There currently exist public transportation service for the handicapped, elderly, and general public by the Yamhill County Transportation (*YAMCO*). Additional service is provided for the elderly and handicapped on the Links system connecting to Newberg, Sherwood, and Tri-Met and by a dial-a-ride service.

The development of the long range plan included a Transportation Advisory Committee representing the business community, citizens-at-large, and the City Council. Town Hall-type community meetings were also held at the beginning and near the completion of the planning effort.

The transportation plan consists of the following elements:

- Street Classification Standards;
- Access Management;
- Street Improvements;
- Bikeway Plan;
- Pedestrian System;
- Public Transportation;
- Rail Service;
- Air Service;
- Transportation Demand Management;
- Implementation Program;
- Construction Cost Estimates; and,
- Funding Strategy.

The following is a brief description of the Transportation Plan:

STREET CLASSIFICATION STANDARDS

The street standards would be modified to reduce the width of the local residential streets from 34 to 28 feet, to provide planting strips between the street and sidewalk in non-commercial areas, to provide bicycle lanes on major collector and arterial roads and to provide landscaped medians, as an option, on arterial streets.

ACCESS MANAGEMENT

Standards of access management, driveway spacing, and intersection spacing are recommended.

STREET IMPROVEMENTS

Major improvements to the existing street system to accommodate the City's growth over the next 20 years include the following:

- Development of a "Ring Road" around the city including a new north-south link on the eastside of the City, a new east-west link on the northside of the City, straightening the curves on Hill Road at the westside of the City, and an interchange with Highway 18 at the southwest portion of the City to connect to Hill Road;
- Development of a 1st and 2nd Street one-way couplet between the Highway 18 Spur and Cozine Creek;
- Connection of Baker Creek Road to Evans Street and improve the Adams, Baker, and 19th Street complex intersections;
- Widen Highway 99W from Edmunston Street to Highway 18 to a five-lane roadway; and,
- Widen Lafayette Avenue to a three-lane roadway.

In addition to the above major improvements, there are numerous smaller modifications and traffic signal installations within the improvement program.

BIKEWAY PLAN

The existing bikeway plan has been upgraded to include bike lanes on all major collector and arterial streets. The configuration of bike lanes on existing and new streets are presented as part of this plan.

PEDESTRIAN SYSTEM

It is recommended that all streets be provided with sidewalks on each side of the street and separated from the street with a landscaped planting strip except in commercial areas where the sidewalk would be adjacent to the curb. A recreation walking or trail system is recommended to be planned in the future for the City. It is further recommended that all buildings including shopping centers be provided with direct pedestrian connections to the adjacent streets and neighborhoods.

PUBLIC TRANSPORTATION

The existing YAMCO transit system serves the elderly and handicapped as well as the general public. A marketing program is recommended to increase the awareness and ridership on the transit system. An in-depth transit feasibility analysis is also recommended to be conducted within the next five years.

RAIL SERVICE

It is recommended that every effort be made to maintain the existing rail service or even expand it with the increased industrial development in the City. The right-of-way for any abandoned rail lines could be potentially converted to bicycle and pedestrian paths.

AIR SERVICE

The McMinnville Municipal Airport Master Plan contains forecasts of aviation activity, capacity and plans for the future together with a development program.

TRANSPORTATION DEMAND MANAGEMENT

Techniques of reducing the vehicular traffic demand and making greater use of existing facilities include carpooling and vanpooling, alternative work schedules, transit, and bicycle use. These programs are recommended to be initiated at firms with 50 or more employees and at Linfield College.

COMPREHENSIVE PLAN CHANGES

Changes in the Comprehensive Plan goals and policies are recommended to reinforce this plan and to reduce the need to drive a vehicle for all trips. Development of mixed-use developments, "Neo-Traditional neighborhoods" and the location of more employment sites on the westside of the City could make it possible to walk instead of drive for some trips and to encourage the use of bicycle and public transportation.

IMPLEMENTATION PROGRAM

An implementation program is provided with the following priorities:

- Immediate, within one to two years;
- Phase 1, Prior to 1995;
- Phase 2, 1995 to 2000

- Phase 3, After 2000; and,
- With adjacent development or when warranted by traffic.

The priorities are based on current need, and the relationship between transportation service needs and the expected growth of the City. However, some projects may not be needed until adjacent land develops, or for example, when traffic signal warrants are satisfied.

CONSTRUCTION COST ESTIMATES AND FUNDING

It is estimated that the transportation program for the next twenty years would cost approximately $37 million to implement.

Like other cities in the state and nation, McMinnville faces challenges in providing a local transportation system able to meet the needs of its citizens. Having identified approximately $37 million in needed transportation system improvements, the City now must develop a strategy for funding the need. The likely participation of the Oregon Department of Transportation in funding of $9 million in state highway improvements in the City is a significant step in meeting the overall need. Not including approximately $6 million in projects expected to be funded through private developers the unfunded City share of the total transportation funding need still totals in excess of $22 million.

We believe that a combined funding package including System Development Charges (SDC) and general obligation debt represents the preferred funding strategy. We have presented a proposed SDC structure that could potentially meet all of the current forecasted transportation need. Since the City currently has no street SDC, implementation of such a charge should be approached carefully. A key decision that must be made is the extent to which the City seeks to fund future transportation needs from an SDC as opposed to other funding options. In recognition of this, we believe the City should consider the use of general obligation debt financing to diversify its transportation funding base. Depending on the nature of individual transportation improvement projects, it may be possible to further diversify the funding base through access to other revenue sources such as local improvements districts, the State Special Public Works Fund, ODOT's Immediate Opportunity Grants, developer contributions or other alternative resources.

INTRODUCTION

The City of McMinnville (*the City*) has commenced the development of an updated Comprehensive Plan for the area within its Urban Growth Boundary. This Transportation Master Plan for the City constitutes the background report for the transportation element of the City's Comprehensive Plan. This Master Plan is based on the existing land use designations of the Comprehensive Plan. Carl Buttke, Inc., a David Evans and Associates, Inc. company, was retained by the City to complete this Transportation Master Plan. The firm of Public Financial Management, Inc. developed the funding strategies for this plan.

GOALS AND OBJECTIVES

The purpose of the transportation master plan is to provide a guide to the City to fulfill its goals and objectives for implementation of improved mobility into the 21st century. Goals and objectives were developed by the Transportation Advisory Committee and City staff, and based on public responses at a community meeting. These goals and objectives are as follows:

GOAL:

Develop a city-wide transportation system which enhances the liveability of the City, which is sensitive to environmental concerns and includes all transportation modes appropriate to the City's needs.

Objectives:

A. Develop a safe and efficient vehicular arterial and collector street system while protecting and enhancing city neighborhoods.

B. Implement city-wide bicycle and pedestrian system improvements.

C. Develop a long range plan for a public transit system, as appropriate.

GOAL:

Maintain the viability of the central business district.

Objectives:

A. Improve safety and visibility at intersections.

B. Maintain or improve downtown traffic circulation.

C. Assure adequate off-street parking.

GOAL:

Improve arterial roadways and key intersections.

Objectives:

A. Improve intersections and signalization along Highway 99W.

B. Improve the Lafayette Avenue corridor between 3rd Street and Highway 99W.

C. Improve and protect the integrity of arterials and collectors throughout the City.

GOAL:

Improve truck circulation through and around the City.

Objectives:

A. Improve truck access and circulation in the northeast industrial area.

B. Test the impacts of a new eastside and/or westside arterial for both truck and automobile traffic.

THE PLANNING PROCESS

The planning process for the development of the Transportation Master Plan consists of a systematic flow of technical analyses combined with input and review by the City's Transportation Advisory Committee (*TAC*) throughout the process. A graphic presentation of the planning process is shown on Figure 1. Key elements of the process include the following:

- A review and inventory of existing plans and transportation conditions
- Development of population, employment and traffic forecasts
- Development and evaluation of transportation system alternatives
- Detailing of a transportation plan based on a preferred system alternative
- A funding analysis and capital improvement program
- Community involvement with McMinnville residents and through the Transportation Advisory Committee

The Transportation Advisory Committee consisted of representatives of the City's business community, citizens at large, representatives of the City Council, and City staff. TAC

McMINNVILLE TRANSPORTATION MASTER PLAN

Planning Process

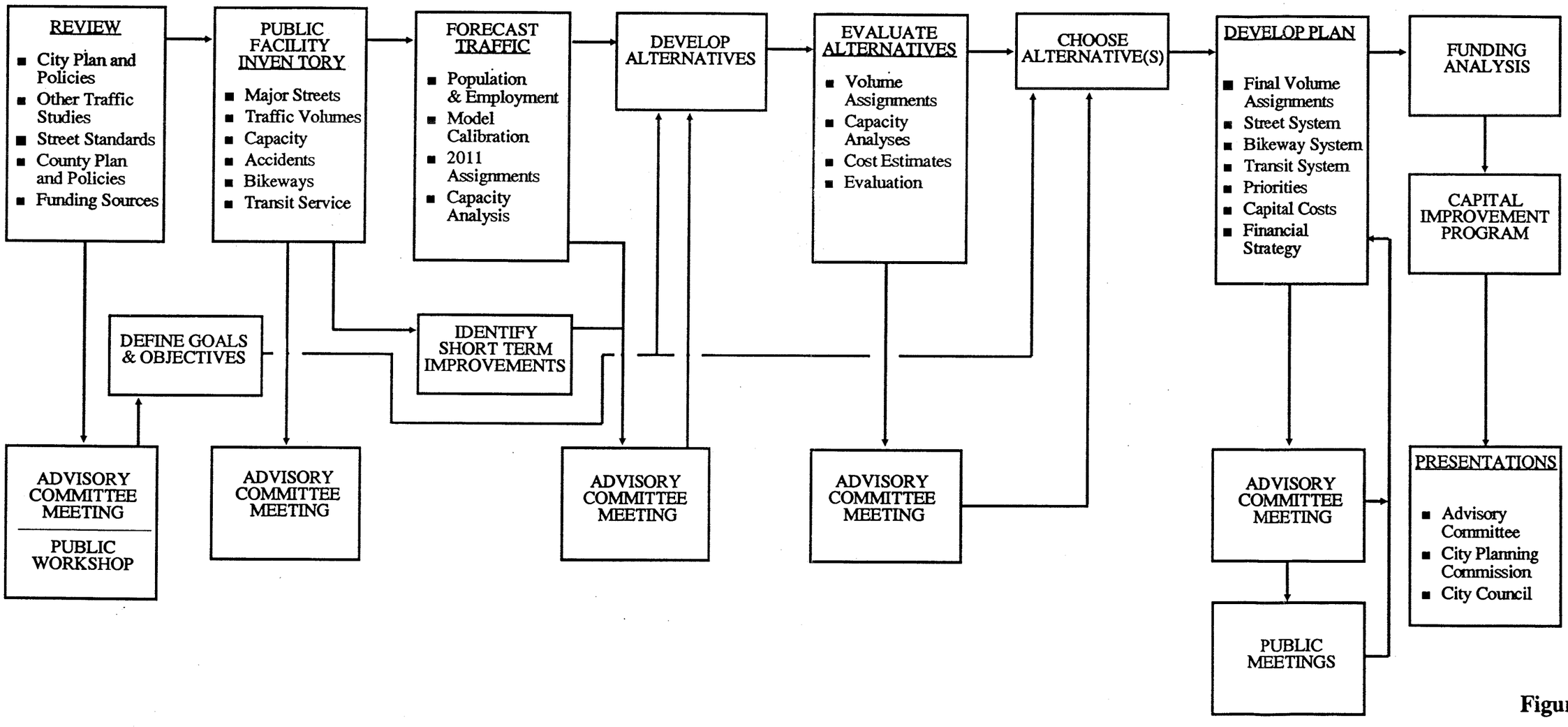


Figure 1

meetings were held monthly throughout the planning process to provide review and guidelines to the consultant and to make decisions regarding the plan. Community meetings were held at the beginning of the process to solicit public input on issues and problems to be addressed, and for review and comments upon completion of the draft transportation master plan. The results of the first community meeting formed the basis for the transportation goals and objectives.

THE PLANNING AREA AND EXISTING TRANSPORTATION PLAN

McMinnville is the largest city in Yamhill County and is located in the northwest area of Oregon's Willamette Valley. The City is located about 35 miles southwest of the Portland metropolitan area. The planning area, shown on Figure 2, generally follows the City's urban growth boundary. The roadway system in the existing Comprehensive Plan consists of two state highways and a system of arterial, collector and local roads. The existing comprehensive land use map calls for extending Fellows Street and Wallace Road west to Hill Road.

REGIONAL CONTEXT

McMinnville is affected by on-going transportation studies now taking place in northwestern Oregon, including the Western Bypass Study and the Access Oregon Highways Corridor Study. Also, a number of roads under the jurisdiction of the state and Yamhill County provide gateways to the City.

The Western Bypass Study is exploring solutions to major transportation problems in the southwest Portland metropolitan area. Possible solutions include a western bypass, improvements to existing highway and transit systems, management of the existing system to increase its capacity, changes in land use designation or densities, and combinations of the above strategies. This work will lead to the preparation of a *Corridor Environmental Impact Statement*. Decisions made regarding the Western Bypass Study would likely have an impact on McMinnville's accessibility to the Portland metropolitan area.

McMinnville is served by state highways (*Highway*) 18 and 99W, an important corridor that connects the Portland metropolitan area, Yamhill County communities and the Oregon coast. Highway 18 has been designated as an Access Oregon Highway because of its importance in linking major economic and geographic activity centers. The Highway 99W/Highway 18 Corridor Study is investigating the possibility of a new route around the south side of Newberg and Dundee.

The possibility of widening sections of Highway 18 from two to four travel lanes in the McMinnville vicinity is also being explored.

The Yamhill County Road Management Plan was written in May, 1990. The plan proposes a County functional classification plan that classifies portions of five roads under county

jurisdiction in the McMinnville vicinity as major collectors. The existing city classification for these roads is minor arterial. These roads include:

- Westside Road, entering McMinnville from the north;
- Baker Creek Road, entering McMinnville from the west;
- Hill Road, bordering the City's west side; and,
- Peavine Road and Old Sheridan Road, entering the City from the southwest.

It should be noted that Booth Bend Road east of Davis Street is an unclassified county road. West of Davis Street, it is a City major collector road.

CURRENT TRANSPORTATION CONDITIONS

This section describes results of the physical street inventory and traffic counts. Existing bikeways, public transportation, rail services and air services were reviewed and are also summarized below.

ROADWAYS

The current transportation conditions on the existing roadways were measured and examined during the Spring of 1991. This analysis included a physical inventory of the City's arterial and collector roads, a traffic count program that measured 45 locations, and a review of traffic accidents from 1988 through 1990. The results of the inventory were used to define short term improvements described in the following chapter. P. M. peak hour traffic counts were also used as a base for developing the traffic forecast model described later in this report.

Inventory

1991 roadway functional classification, jurisdiction, and location of traffic signals are shown in Figure 3. An inventory of all arterial and collector streets is listed in appendix table A-1. The inventory table includes the following:

- number of travel lanes and direction of travel
- street width and right-of-way width
- street classification and jurisdiction
- speed limit and pavement conditions
- designation of on-street parking, bike route or truck route

Highway 99W is a principal state arterial that bisects McMinnville from the northeast to the southwest. Highway 99W has four travel lanes through most of the City and becomes a north-to-south one-way couplet through the center of town. State Highway 18 serves the McMinnville Airport and surrounding planned industrial area, while providing a southerly bypass of the City.

Currently designated minor arterial roads include Baker Creek Road, Hill Road, West Side Road and Lafayette Avenue. The minor arterial roads provide access into the central city, but tend to be discontinuous. For example, the City lacks an east-to-west minor arterial through the central area. Major collector roads include 19th Street, West 2nd Street, 3rd Street/Highway 18 Spur, and Booth Bend Road, and are generally oriented east to west.

LEGEND:

- ARTERIALS
- COLLECTORS
- RIVERS
- STREAMS
- RAILROAD
- URBAN GROWTH BOUNDARY

MILES
0 0.5 1.0

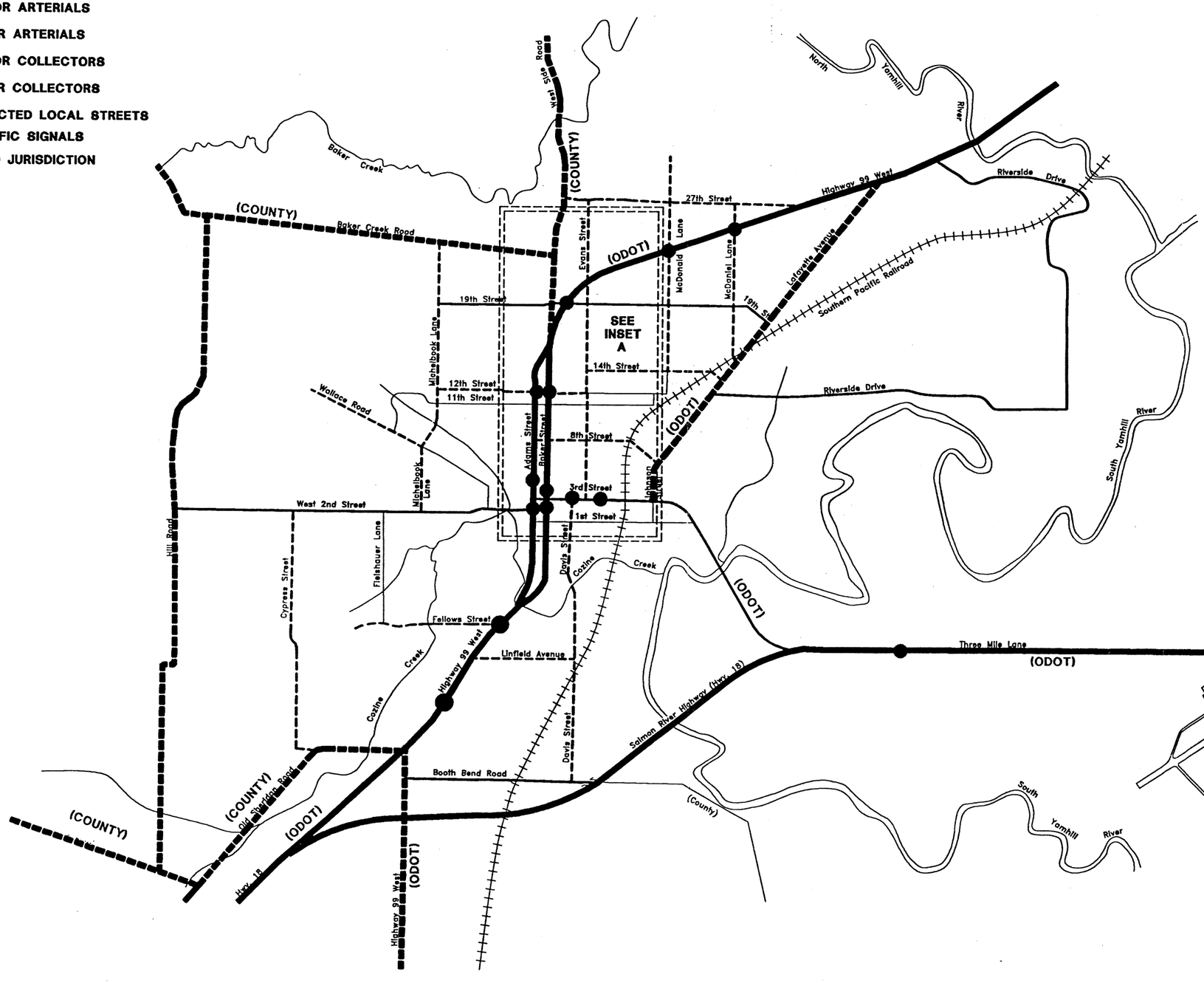
Baker Creek
West Side Road
North Yamhill River
Highway 99 West
Riverside Drive
27th Street
Baker Creek Road
Evans Street
McDonald Lane
McDaniel Lane
19th St
Lafayette Avenue
Southern Pacific Railroad
19th Street
Michelbook Lane
14th Street
12th Street
11th Street
Wallace Road
Riverside Drive
South Yamhill River
Adams Street
Baker Street
8th Street
Johnson Street
3rd Street
West 2nd Street
1st Street
Hill Road
Fleishauer Lane
Cypress Street
Davis Street
Cozine Creek
Fellows Street
Linfield Avenue
Three Mile Lane
Salmon River Highway (Hwy. 18)
Booth Bend Road
Old Sheridan Road
Hwy. 18
Highway 99 West
McMinnville Municipal Airport
South Yamhill River

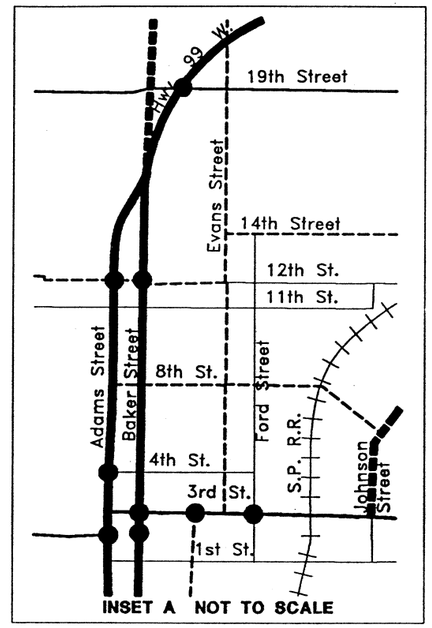
FIGURE 2
McMINNVILLE PLANNING AREA

LEGEND:

- MAJOR ARTERIALS
- MINOR ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS
- SELECTED LOCAL STREETS
- TRAFFIC SIGNALS
- (ODOT) ROAD JURISDICTION

MILES
0 0.5 1.0





INSET A NOT TO SCALE

FIGURE 3
1991 STREET CLASSIFICATION, SIGNALS AND JURISDICTION

MCVX0002 STG 02/28/1992 MCVSTCL

1991 Traffic

Traffic volumes on the major streets in McMinnville were measured during the spring of 1991. Twenty-four hour two-way volumes are shown on Figure 4. The widest bandwidths illustrate that the highest volumes occur on Highway 99W, with over 29,000 vehicles approaching the north terminus of the Adams and Baker Street couplet. Directional A. M. peak hour volumes are shown on Figure 5, and P. M. peak hour volumes on Figure 6.

A comparison of the morning and evening traffic indicates a build-up of traffic throughout the day. For example, volumes on Adams and Baker Streets are about twice as high in the P. M. peak hour than in the A. M. peak hour. The P. M. peak hour volumes represent the highest hourly volumes. Therefore future testing and evaluation of the street system was accomplished by forecasting the P. M. peak hour volumes. Existing roadway capacity is discussed on the following pages.

1991 Street Capacity

Transportation engineers have established various standards for measuring traffic capacity of roadways or intersections.[1] Each standard is associated with a particular level of service one wishes to provide. The level-of-service concept requires consideration of factors which include travel speed, delay, frequency of interruptions in traffic flow, relative freedom for traffic maneuvers, driving comfort and convenience and operating cost. Six standards have been established ranging from Level A where traffic flow is relatively free to Level F where the street system is totally saturated or jammed with traffic. Table 1 indicates the level of service criteria for arterial roadways.

The capacity of each of the major streets was calculated in a generalized way to compare with the P. M. peak hour traffic to determine locations of capacity deficiencies. With the exception of the Adams and Baker Street couplet, major road segments in McMinnville are operating at an acceptable level of service "D" or better. During the P. M. peak hour, traffic volumes on Adams and Baker Streets are at about ninety percent capacity, however, the level of service varies between "C" and "D" during peak hours. A more detailed capacity analysis is necessary when analyzing the operation of individual intersections. A description of problems at individual intersections is provided in the section on immediate traffic improvements.

---

[1]Transportation Research Board, *Highway Capacity Manual*, Special Report 209. National Research Council, 1985.

LEGEND:

TRAFFIC SCALE
(VEHICLES)

20000 1000
10000

MILES
0 0.5 1.0

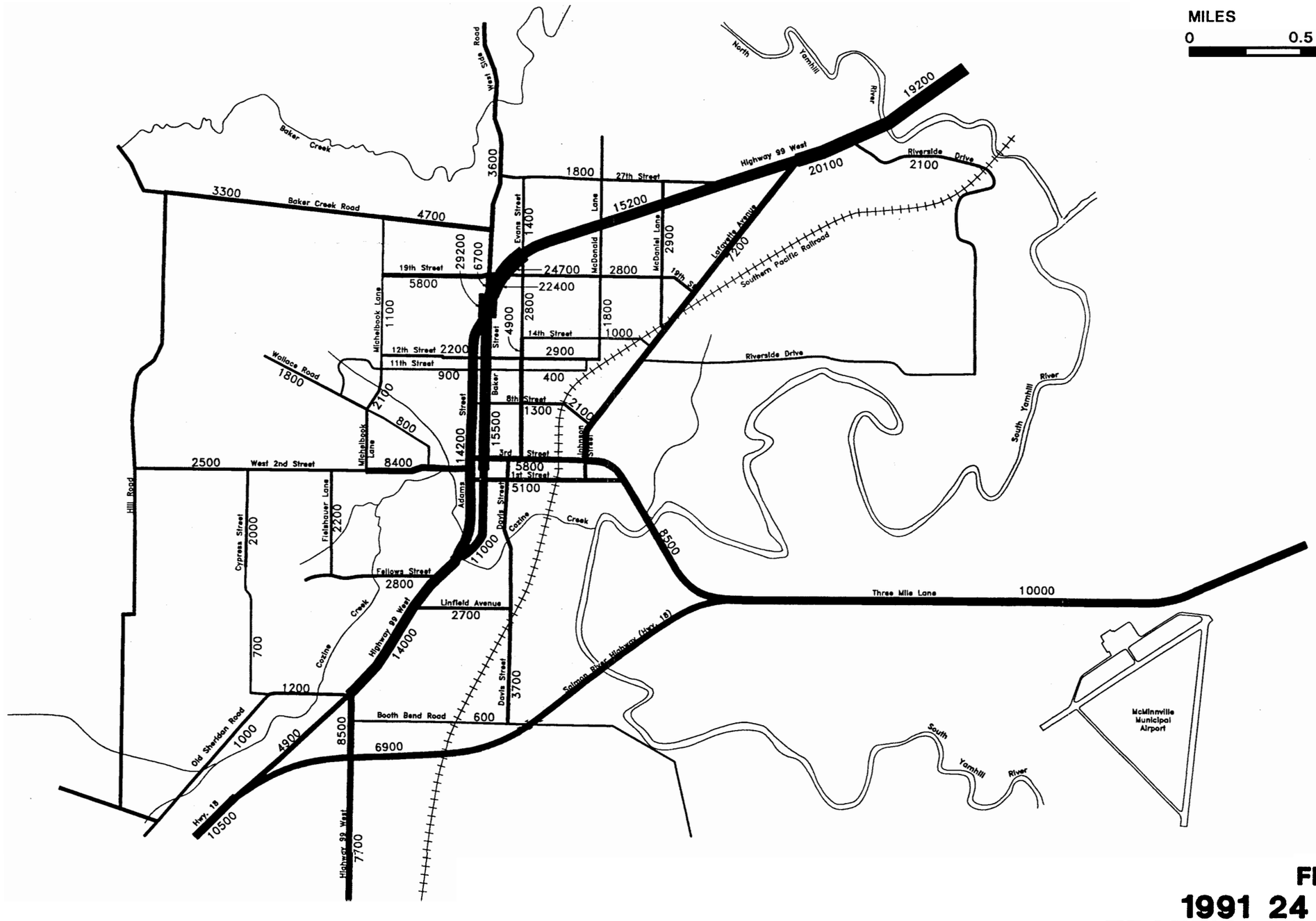


FIGURE 4
1991 24 HOUR TRAFFIC VOLUMES

LEGEND:

TRAFFIC SCALE
(VEHICLES)

1500 500
1000

MILES
0 0.5 1.0

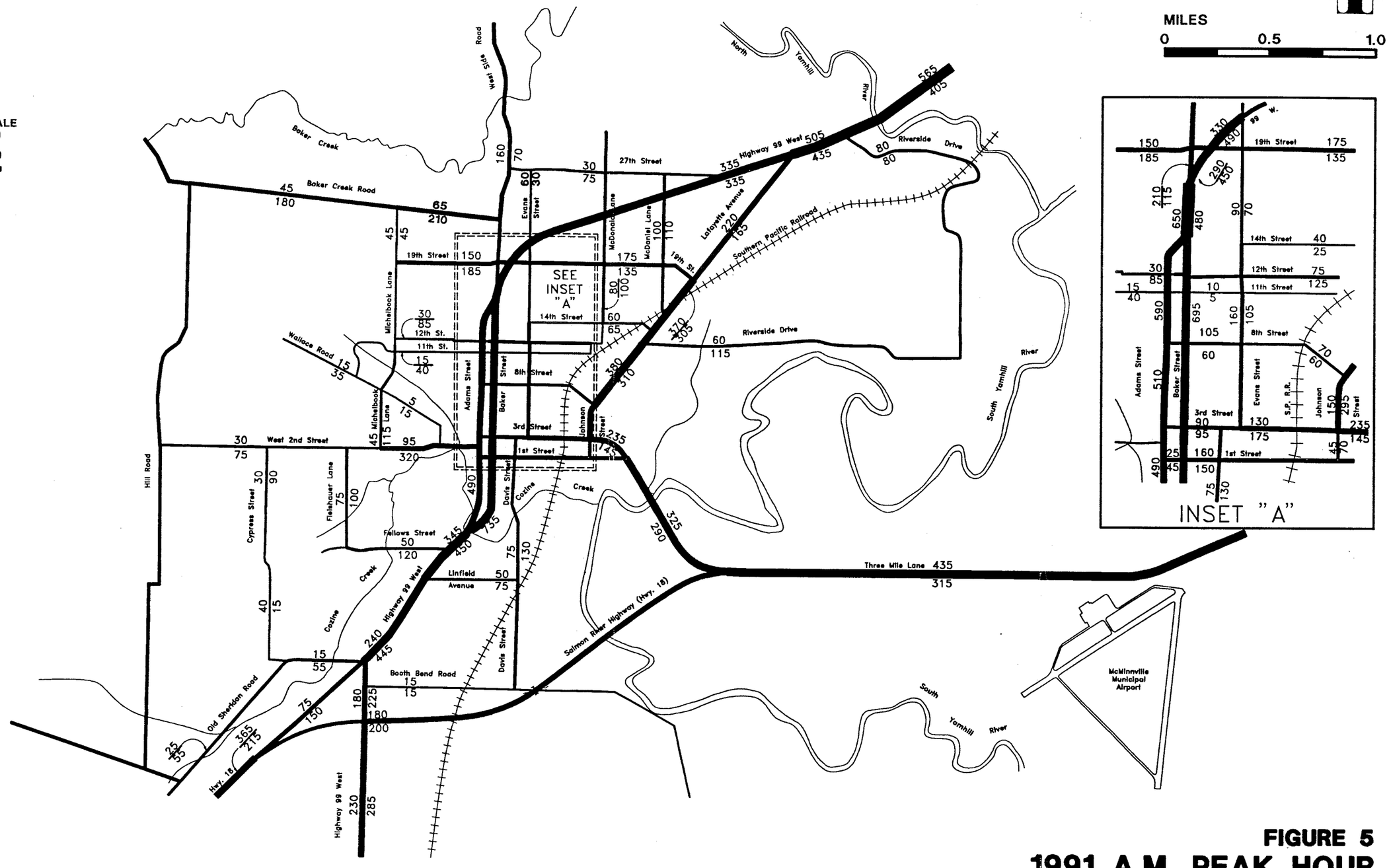


FIGURE 5
1991 A.M. PEAK HOUR TRAFFIC VOLUMES

LEGEND:

TRAFFIC SCALE
(VEHICLES)

1500 500
1000

MILES
0 0.5 1.0

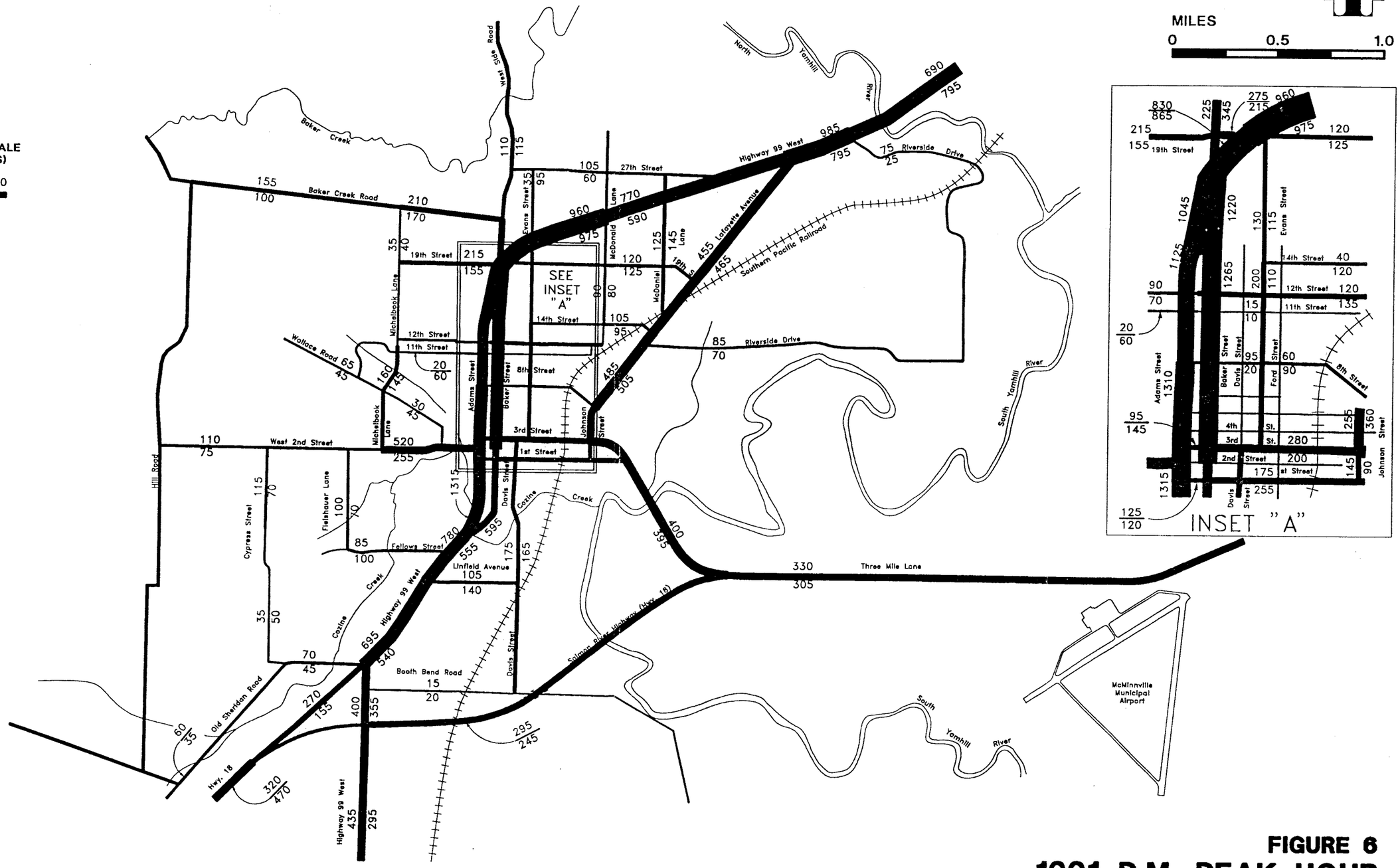


FIGURE 6
1991 P.M. PEAK HOUR TRAFFIC VOLUMES

KCVX-0002 STG 02/28/1992 KCV2PMPK

TABLE 1
LEVEL OF SERVICE CRITERIA
For Arterial Roadways

Service Level	Typical Traffic Flow Conditions
A	Relatively free flow of traffic with some stops at signalized or stop sign controlled intersections. Average speeds would be at least 30 miles per hour.
B	Stable traffic flow with slight delays at signalized or stop sign controlled intersections. Average speed would vary between 25 and 30 miles per hour.
C	Stable traffic flow but with delays at signalized or stop sign controlled intersections. Delays are greater than at level B but still acceptable to the motorist. The average speeds would vary between 20 and 25 miles per hour.
D	Traffic flow would approach unstable operating conditions. Delays at signalized or stop sign controlled intersections would be tolerable and could include waiting through several signal cycles for some motorists. The average speed would vary between 15 and 20 miles per hour.
E	Traffic flow would be unstable with congestion and intolerable delays to motorists. The average speed would be approximately 10 to 15 miles per hour.
F	Traffic flow would be forced and jammed with stop and go operating conditions and intolerable delays. The average speed would be less than 10 miles per hour.

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

Note: The average speeds are approximations observed at the various levels of service but could differ depending on actual conditions.

Accident History

An analysis of motor vehicle accidents throughout McMinnville was accomplished through a review of the reported accident history for the years 1988 through 1990. Reported accidents taken from files maintained by the City indicate a total of 954 accidents over the three-year period, including 306 injury accidents and two fatalities. Over the three year period, the accidents can be categorized as follows:

- *Accident Type* - angle 392 (41%), rear-end 170 (18%), hit-and-run 248 (26%), and all other 144 (15%);
- *Accident Location* - intersections 321 (33%), mid-block and other 505 (54%), and private property 124 (13%).

Analysis of the accident data concluded that nearly one-fourth of reported accidents were non-injury hit-and-run, often involving parked cars on streets or private property.

The number of accidents is lower in 1990 than in previous years. However, this appears to be due to a change in reporting and data collection rather than an improvement in traffic safety.

A review of annual accident totals from 1987 to 1990 revealed a 28 percent increase in accidents between 1987 and 1988, followed by two years of lower accident totals.

ACCIDENT HISTORY

	Total Accidents	*Percent Change/Yr.*	*Injury Accidents*	*Percent Change/Yr.*
1987	295	--	88	--
1988	377	+28%	122	+39%
1989	342	-9%	112	-8%
1990	235	-31%	72	-36%

The highest number of accidents occur along Highway 99W in the northeastern commercial strip area and in the central business district, as shown in Figure 7. Table 2 lists the three year accident history of intersections and mid-block locations with nine or more accidents.

TABLE 2
HIGH ACCIDENT LOCATIONS
1988 to 1990

Location	Number of Accidents	Accident Rate*
Intersections:		
Hwy. 99W and McDonald St.	18	0.70
2nd and Adams Streets	11	0.53
1st and Ford Streets	11	1.57
19th and Baker Streets	10	0.84
Hwy. 99W and Linfield Ave.	9	0.38
Hwy. 99W and Brockwood	9	0.38
Hwy. 99W and Old Sheridan Rd.	9	0.63
2nd and Baker Streets	9	0.42
4th and Evans Streets	9	0.91
Hwy. 99W Mid-Block Sections:		
Lafayette Ave. to McDaniel Ln.	29	2.21
McDonald Ln. to Evans St.	23	3.77
McDaniel Ln. to McDonald Ln.	22	4.55
Evans St. to 19th St.	9	4.43
Baker St. in vicinity of Hospital	9	3.44

* *Accidents per 1,000,000 vehicles*

LEGEND:

ACCIDENTS AT INTERSECTIONS

- 16-20
- 10-15
- 0-9

ACCIDENTS MID-BLOCK

- 20-30
- 10-19
- 0-9

MILES
0 0.5 1.0

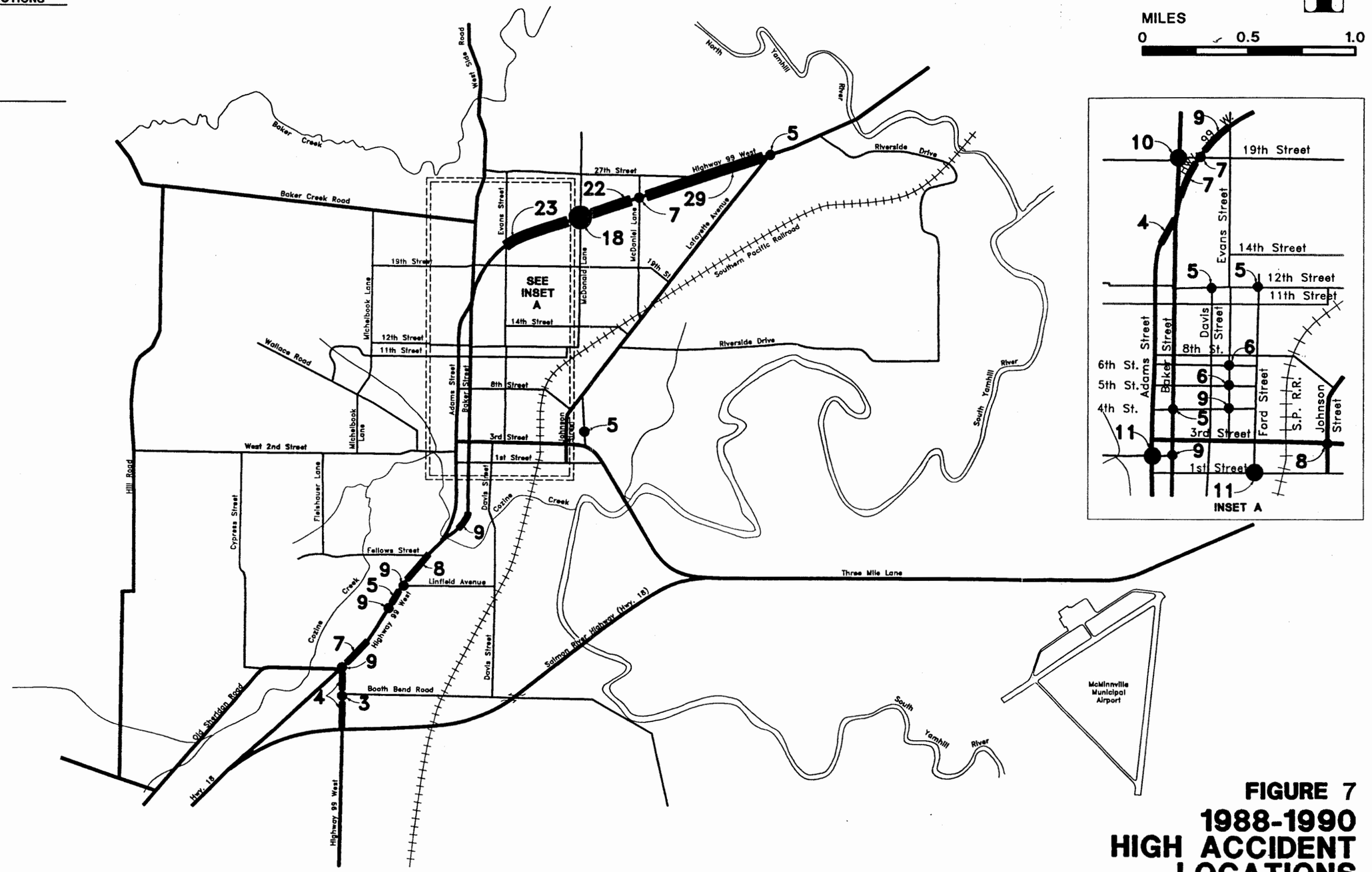


FIGURE 7
1988-1990 HIGH ACCIDENT LOCATIONS

BIKEWAYS

A city-wide bikeway plan was adopted by the McMinnville City Council in August, 1983 as an element of the City's comprehensive plan. Bikeways in the plan that have been implemented are shown on Figure 8. These include bike lanes on Baker Creek Road from Baker Street to Hill Road, and on a section of Riverside Drive east of Lafayette Avenue. Sections of Davis Street, West 2nd Street and Linfield Avenue are signed as bikeways. State highways 99W and 18 have been designated as part of the Oregon bike route system. Currently there are striped bike lanes on Highway 18, but no lane separation on Highway 99W.

PUBLIC TRANSPORTATION

Public transportation is provided within the city of McMinnville by Yamhill County Transportation (*YAMCO*), and is administered by Yamhill County Community Services Administration (*YCAP*). YCAP's goals are to help provide public transportation for handicapped, elderly, and the general public in Yamhill County. The Newberg and Dundee areas of Yamhill County are served by another agency, Chehalem Valley Senior Citizens Council (*CVSCC*).

In McMinnville a north-south fixed route system utilizing two 25-passenger vehicles is operated from 7:30 A. M. to 6:30 P. M. on weekdays and from 10:00 A. M. to 2:00 P. M. on Saturdays. The fixed route system is funded by the state, Yamhill County and the City, including $9,000 annually from the latter. The bus fare is 50 cents, one-way for adults. The current YAMCO route is shown on Figure 8.

Other services provided by YCAP include Links, Dial-A-Ride, senior/special transportation and a taxi-ticket subsidy coordinated with Shamrock Taxi. The Links program provides connector routes from McMinnville through Newberg, connecting with Tri-Met's Line 12 in Sherwood. Dial-A-Ride utilizes 11 to 15 passenger vehicles, operates on weekdays and provides transportation service to outlying areas of McMinnville and other Yamhill County cities. Senior and special transportation provides transportation to meal sites, medical appointments, shopping, business and recreation, and work transportation to the Mid-Valley Training Center. Ridership on YAMCO increased from 34,967 in 1986 to 41,354 riders in 1989.

RAIL SERVICE

The Southern Pacific Railroad bisects the City from north to south. It provides freight rail service to the City, connecting McMinnville with the Portland metropolitan area and with other cities of the Willamette Valley. There is no passenger rail service within the City. Amtrak service is available in downtown Portland, and provides rail connections to other parts of the country.

LEGEND:

YAMCO TRANSIT

EXISTING BIKEWAYS

MILES
0 0.5 1.0

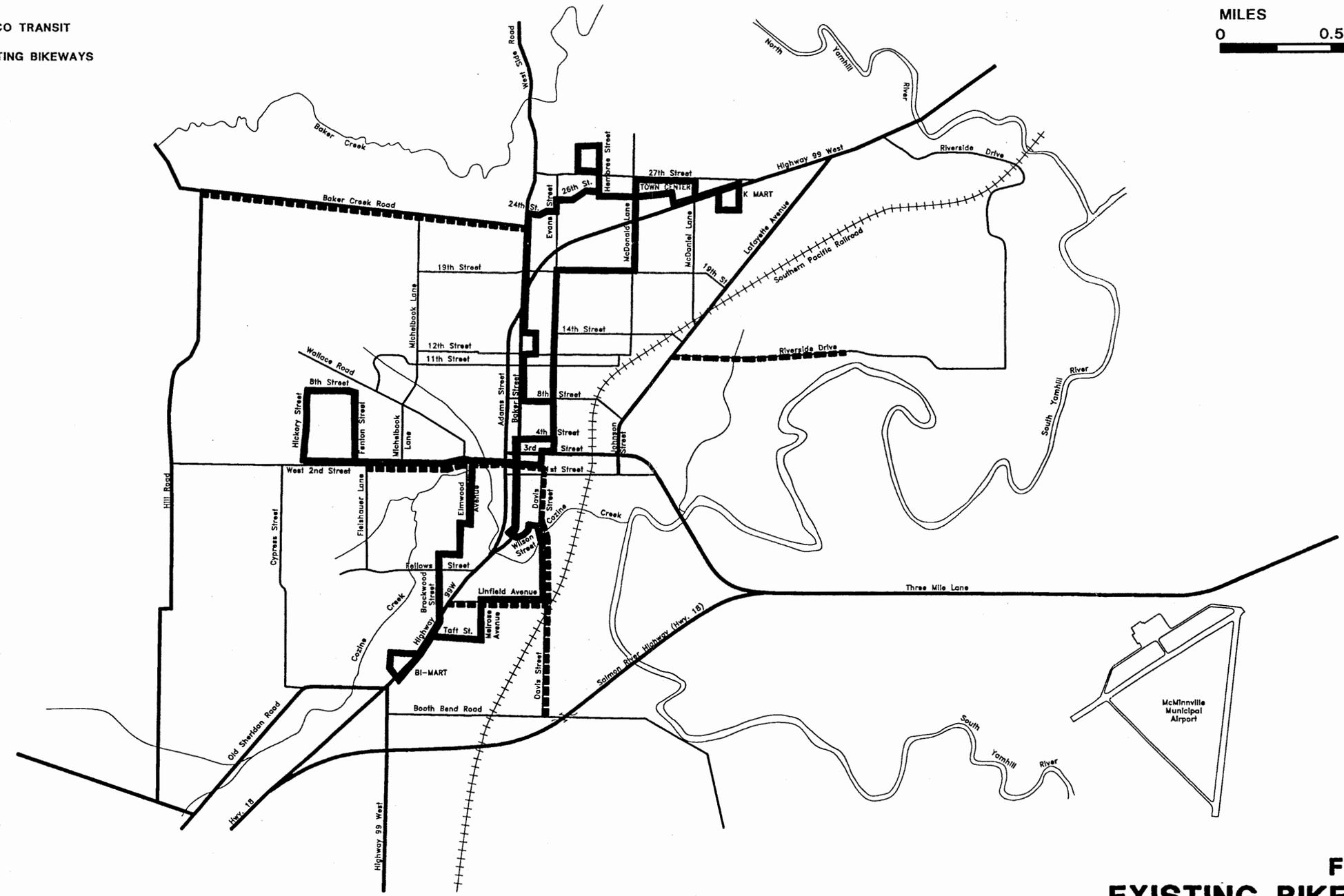


FIGURE 8
EXISTING BIKEWAYS AND BUSLINES

MCVX0002 STG 02/28/1998 MCVEFG8

A corridor crossing study of at-grade crossings near the McMinnville central business district was conducted by the Oregon Public Utilities Commission in 1988. Correspondence from the Commission to the City indicates agreement to proposed closures at the Washington and Vine Street grade crossings, but not at the East 4th Street crossing[2].

AIR SERVICE

The McMinnville Municipal Airport is located in the southeast area of the City on Highway 18. The airport serves as corporate headquarters for Evergreen Aviation, Inc., provides a pilot training facility and plays a supporting role to larger commercial service airports such as Portland International and Hillsboro. A master plan update through 2009 was prepared by Wilsey and Ham Pacific and TRA Airport Consulting. The closest major airport is the Portland International Airport, approximately 50 miles northeast of the City.

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[2]*Correspondence*: Public Utility Commission of Oregon to City of McMinnville, April 24, 1989.

SHORT-TERM IMPROVEMENTS

A field survey was conducted of the existing traffic conditions in the city of McMinnville to identify current capacity and circulation deficiencies and hazardous locations. A summary of the recommended immediate traffic improvements at these locations is shown in Figure 9. Immediate improvements would be implemented in a "short-term" timeframe of one to two years. The required short-term improvements were identified based on field observations, capacity analysis, and accident rates. A description of existing problem areas requiring short-term improvements along with a description of the improvements is summarized below. The estimated total cost for the short-term improvements is $ 288,100 (see Table 3). More detail including sketches of the improvements is included in a Technical Memorandum submitted previously to the City.

THIRD AND JOHNSON STREETS

The intersection of Third and Johnson Streets is stop-sign controlled at the Johnson Street approaches. Both Third Street and Johnson Street are two-lane streets 38 feet wide with on-street parking permitted on both sides of the street. At the intersection, the two streets have a single-lane approach without turn lanes. The high traffic volumes between Lafayette Avenue and Third Street result in high turning volumes at the intersection of Third Street and Johnson Street, which result in capacity and safety problems at this intersection during the A. M. and P. M. peak hours.

The southbound approach to the intersection was calculated to be operating at an unacceptable level of service (*LOS*) E in the P. M. peak hour. This was confirmed by a site visit when long queues (*eight to 10 vehicles*) and high delays were observed at the southbound Johnson Street approach to the intersection during the P. M. peak hour. Also, the intersection is the site of eight accidents during the three-year period from 1988 to 1990.

A traffic signal is warranted at this intersection based on the eight-hour traffic volume warrant in the Manual on Uniform Traffic Control Devices[3] (*MUTCD*). A traffic signal would help mitigate safety problems, and would improve traffic operations to LOS C during the A. M. and P. M. peak hours in 1991.

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[3]*Manual on Uniform Traffic Control Devices (MUTCD)*, (1988), U.S. Department of Transportation and Federal Highway Administration (FHWA).

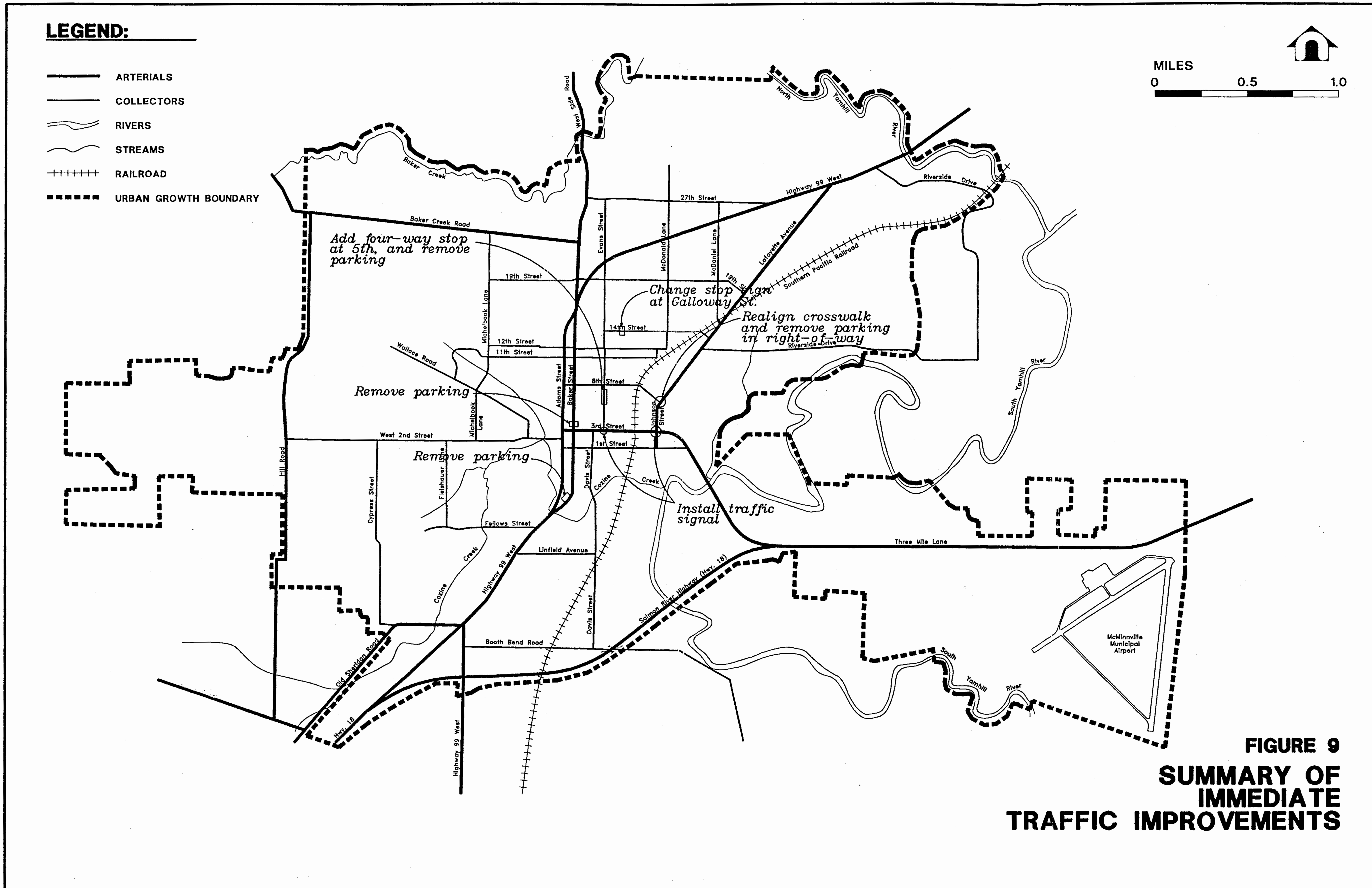

FIGURE 9
SUMMARY OF IMMEDIATE TRAFFIC IMPROVEMENTS

MCVX-0002 STG 02/28/1992MCV2FG9

TABLE 3
COST ESTIMATE OF SHORT-TERM IMPROVEMENTS

Improvement	*Cost estimate*
Intersection of Third Street and Johnson Street	$ 135,700
Intersection of Lafayette Avenue and Eighth Street	$ 5,400
Intersection of Third Street and Evans Street	$ 125,000
Intersection of Baker Street and Fourth Street	$ 900
Access from hospital to Baker Street	$ 1,100
Evans Street between Fourth Street and Sixth Street	$ 4,800
Stop Sign installation along arterials and collectors	$ 15,200
TOTAL	**$ 288,100**

The design changes shown on Figure A-2 in the Appendix include the addition of left-turn lanes at the eastbound and westbound Third Street approaches, and at the southbound Johnson Street approach to the intersection. Also, the northbound lane on Johnson Street at the north approach to the intersection would be widened to 22 feet to permit safe and easy right turns by large tractor-semitrailer type vehicles turning northbound onto Johnson Street from westbound Third Street. The on-street parking on both sides of the street at the east, west, and north approaches to the intersection would have to be removed for the entire block to accommodate the additional lane width required for turn lanes at these approaches. Also, the widening on Johnson Street to accommodate smoother right turns for trucks would be accomplished by the acquisition of undeveloped property in the northeast quadrant of the intersection. As shown in Table 3, the improvements at the intersection of Third Street and Johnson Street are estimated to cost approximately $ 135,700 (*excluding property acquisition in the northeast quadrant of the intersection*).

LAFAYETTE AVENUE AND EIGHTH STREET

The intersection of Lafayette Avenue and Eighth Street is recommended to be improved because of sight distance problems on the Eighth Street approach and because of the diagonal crosswalk through the intersection. The sight distance for eastbound motorists entering Lafayette Avenue is blocked by parked vehicles within the Lafayette Avenue right-of-way at Crawford's Corner Market immediately north of Eighth Street. Vehicles park between the edge of pavement of the sidewalk in southbound Lafayette Avenue, thereby blocking the sight distance to the north.

The main entrance to Cook School is located on the east side of Lafayette Avenue opposite the centerline of Eighth Street. The crosswalk across Lafayette Avenue is striped from the school main entrance opposite the middle of the intersection, diagonally to the northeast corner. This crosswalk striping does not follow the recommendations in the *Manual on Uniform Traffic Control Devices* and is not a location where motorists expect it. Therefore, it should be relocated.

We recommend the relocation of the school crosswalk to the north of the intersection, and the installation of a barrier between the sidewalk and Lafayette Avenue opposite the school entrance. The sight distance from Eighth Street at the intersection would be improved by removing the parking on State right-of-way on the west side of Lafayette Avenue north of Eighth Street. The intersection improvements are estimated to cost approximately $ 5,400.

THIRD STREET

In downtown McMinnville, the on-street parking on Third Street, along with the shorter offset distances of buildings from the edge of the street, result in limited sight distance from the cross-streets. The limited sight distance from the cross-street approaches results in delays at these intersections during the A. M. and P. M. peak hours. A field visit revealed that the sight distance was particularly limited at the Cowls and Evans Street approaches to Third Street.

Since Evans Street is a designated Collector, we recommend that a traffic signal be installed at its intersection with Third Street to mitigate the sight distance problems at that intersection. The traffic from Cowls Street is estimated to divert to other signalized intersections in downtown due to the limited sight distance from the Cowls Street approach to Third Street. The estimated cost for the installation of a signal at Third and Evans Street is $ 125,000.

It is recommended that the other two existing traffic signals on Third Street in the downtown remain in place for the following reasons:

- The signal at Davis Street should remain because Davis Street is a collector street to the south of Third Street and it is therefore logical to provide this traffic control at the intersection of two major streets downtown.

- The signal at Ford Street should remain only because Ford Street is a continuous north-south street, especially south of First Street. This signal should be monitored after the installation at Evans Street to determine if it is still needed.

BAKER STREET AND FOURTH STREET

The on-street parking on Baker Street near the intersection with Fourth Street results in limited sight distance from the eastbound Fourth Street approach to the intersection. We recommend that the sight distance at this intersection be improved by the removal of two parking spaces on the west side of Baker Street south of its intersection with Fourth Street. The estimated cost for this short-term improvement is $900.

HOSPITAL ACCESS TO BAKER STREET

The hospital is located between Adams Street and Baker Street at the south end of the Adams -Baker (*Highway 99W*) couplet. The sight distance from the hospital parking lot is limited due to the transitional curve on Highway 99W in its transition from a two-way system to a couplet (*Adams - Baker*) system. This sight distance is further restricted due to parking in the hospital parking lot at the driveway and along the west curb of Baker Street.

It is recommended that the City meet with the hospital to discuss the removal of five parking spaces in the hospital parking lot to improve the sight distance from the hospital access onto Adams Street. See Figure A-3 in the Appendix. It is also recommended that the no-parking zone on the west curb be extended an additional 25 feet to the south. The short-term improvement is estimated to cost $ 1,100.

EVANS STREET BETWEEN FOURTH STREET AND SIXTH STREET

All three intersections are stop sign controlled with stop signs on Fourth, Fifth, and Sixth Streets. Of a total of 21 accidents observed at these three intersections, during the three year period from 1988 to 1990, 19 were of the angle type. The angle collisions at the intersection are estimated to be the result of very poor sight distance, due to on-street parking on Evans Street.

We recommend the installation of a four-way stop sign at the intersection of Evans and Fifth Streets, and the removal of some parking on Evans Street to provide proper sight distance

for traffic crossing at Fourth and Sixth Streets. See Figure A-4 in the Appendix. The estimated cost for this improvement is $ 4,800.

STOP SIGNS ALONG ARTERIAL AND COLLECTOR STREETS

Stop signs are required at all minor street approaches to intersections with collector and arterial streets. Consequently, stop signs should be installed at the following minor street approaches (*that are currently uncontrolled*) at their intersections with the collector and arterial streets listed below:

1. Redmond Hill Road (*Gravel Road and Dead End*) at Hill Road (*County jurisdiction*).
2. Fox Ridge Road at Hill Road (*County jurisdiction*).
3. Singletary Lane (*Gravel Road serving farms*) at Booth Bend Road (*County jurisdiction*).
4. Davis Street at Twelfth Street.
5. Cowls Street at Twelfth Street.
6. Davis Court (*staggered intersection*) at 27th Street.
7. Fellows Court at Fellows Street.
8. Goucher Street at Fellows Street.
9. 21st Street at McDonald Lane.
10. Apperson Street at Cypress Street.
11. Wright Street at Cypress Street.
12. Fellows Street (*westbound approach*) at Cypress Street.
13. Walnut Avenue at Riverside Drive (*County jurisdiction*).
14. Newby Street at 14th Street.
15. Macy Street at 14th Street.
16. Logan Street at 14th Street.
17. Ford Street at 14th Street.

Stop signs are also recommended at following private accesses:

1. Mobile Home (*Park*) at Booth Bend Road.
2. Shopping center driveway near 27th Street at Highway 99W.
3. Private drive opposite Michelbook Road at Baker Creek Road.

It is recommended that the existing stop signs on 14th Street at Galloway Street be removed and placed on the Galloway Street approaches since 14th Street is a collector street and Galloway Street is a local street.

The installation of stop signs at all these intersections are estimated to cost $15,200.

FUTURE COMMITTED STREET IMPROVEMENTS

The Oregon Department of Transportation (*ODOT*) will widen Highway 99W between Old Sheridan Road and the Adams/Baker Streets couplet to four lanes plus left-turn lanes and bike lanes in 1994. ODOT will also widen Lafayette Avenue to provide one lane in each direction, left-turn lanes, bike lanes, curbs and sidewalks. Construction is scheduled to begin in the fall of 1997.

At the December 13, 1988, joint City Council/Planning Commission hearing, it was decided the City of McMinnville would agree to some changes in local railroad crossings. The City approved closure of Washington Street and Vine Street at the railroad crossings with the provision that the Oregon Public Utilities Commission and the railroad would provide the up-to-date safety standards at all other railroad grade crossings of the Southern Pacific Company tracks. The City also approved replacing the existing crossbucks at the East Fourth Street grade crossing with two automatic gate signals with flashing light signals near the main track and one flashing light signal near the spur.

TRAVEL FORECASTS

The future traffic pattern throughout the City was based upon the existing land use designations within the Comprehensive Plan and defined by estimating the future traffic which would be generated by the existing plus future land use within the planning area, by distributing these trips to destinations throughout the planning area and to points outside the area, and then assigning these trips to the street system. Traffic estimated to pass through the City was added to the assignment. This process was accomplished on a microcomputer using the software TMODEL2[4]. These analyses were made for the P. M. peak hour of a typical weekday to reflect the critical time period of traffic operations.

The above process was first made for 1991 conditions to calibrate the model for the forecasting procedure. The model was considered calibrated and usable for the forecasting process when it simulated 1991 P. M. peak hour traffic volumes on the roadway system to be within ten percent of the actual measured traffic.

The City and surrounding area was divided into 60 traffic analysis zones for the process of defining the existing and future land use, estimating trip generation, and distributing and assigning vehicle trips. Figure A-1 in the Appendix indicates a map of the traffic analysis zones.

EXISTING AND FUTURE LAND USE

Base information on population was provided by the city of McMinnville's Draft Sanitary Sewer Master Plan, August 1990, by CH2M Hill. Base information on employment was provided by a 1988 and updated 1989 Economic Base Study provided by the city of McMinnville's Planning Department. Land use information was provided by the city of McMinnville's Zoning Map and meetings and correspondence with City staff. A 1989 aerial photo of the City was also used to identify current land uses. Assumptions made in developing the population and employment forecasts are described on the following page.

Population information from the six drainage basin boundaries contained in the *Draft Sanitary Sewer Master Plan* were apportioned over the sixty traffic analysis zones identified within the study area boundary of the Transportation Master Plan for current and year 2011 projections. In addition, a build-out projection was reached by multiplying available acreage for single family housing by recommended development densities of four, five and/or six units per acre. The multi-family site density used throughout the forecasts varied from eight to fourteen units per acre, dependent on the multi-family zone classification (R-3, R-4, or multi-family overlay) present or expected.

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[4]*TMODEL2*, Micro-computer software by Professional Solutions, Inc./Metro, 1991

The calculated annual growth rate for the year 2011 (*2.89 percent*) is slightly less than what is expressed in the Draft Sanitary Sewer Master Plan (*3.14 percent*) for the next 20 years. This is due to the differences in the study area boundaries of the Draft Sanitary Sewer Plan and the Transportation Master Plan. The difference in the growth rates are insignificant for the purposes of this report. If growth was to continue at the 2.89 percent annual growth rate, the build-out figure expressed in the report would be reached in 35 years.

Dwelling unit densities used for estimating population were as follows;

- **Current** - Single Family (*2.55/DU*), Multi-Family (*1.71/DU*)
- **2011** - Single Family (*2.5/DU*), Multi Family (*1.71/DU*)
- **Build-out** - Single Family (*2.5/DU*), Multi-family (*1.71/DU*)

The population to employment ratio for the current year is 2.8, based on the 1988 and 1989 update of the McMinnville Economic Base Study. It is anticipated that this ratio will drop as McMinnville's large industrial land supply develops and more jobs are available. This is reflected in the 2011 and build-out employment forecasts. In the year 2011, the ratio drops to 2.3 people per job. At build-out the ratio drops to 2.2 people per job.

Future employment (*build-out*) for each land use category was estimated using Institute of Transportation Engineers (*ITE*) employee per acre statistics based on data reported by numerous studies nation-wide from 1965-1987. The employee per acre ratios include:

- Manufacturing (*medium*) - 20.1 employees per acre
- Industrial Park - 19.0 employees per acre
- Light Industrial - 17.4 employees per acre
- Warehouse - 14.0 employees per acre
- Heavy Industrial - 7.6 employees per acre

Employment not directly associated with future development of commercial or industrial property (*government, hospital, fire, etc.*) was estimated based on discussion with City staff over potential needs and available sites for such facilities. Gross acreage available for all development was reduced by 20 to 40 percent to allow for landscaping, circulation, parking and access.

In 1991 approximately 18,600 people live in the McMinnville planning area and about 6,600 people are employed there. McMinnville's population has grown moderately from the 1980 census count of 14,080, and the City houses about one-fourth of the total Yamhill County population. It is forecast that the population for the planning area will increase to about 33,000 people by the year 2011 and that employment will more than double, to over 14,000. If McMinnville is eventually built out based on the existing comprehensive plan, population is forecast at over 51,000 and about 23,500 employees.

Most of the population growth is concentrated in the western half of the City, with most of the growth expected to occur in the area between Baker Creek Road, Hill Road and Old Sheridan Road. The employment centers are concentrated in the central business district and on the east side of the City. Most of the employment growth over the next twenty years is expected to occur in the northeast industrial area east of Lafayette Avenue, and in the southeast industrial area along Hwy 18. Table 4 summarizes the growth in population and employment by major land use categories over the next 20 years. Table A-2 in the Appendix summarizes the forecast by traffic analysis zone.

TABLE 4
POPULATION AND EMPLOYMENT FORECASTS

Land Use	*1991*	*2011*	*Build-out*
Single Family Dwelling Units	6,341	10,905	15,807
Multiple Family Dwelling Units	1,435	3,297	6,853
Retail/Commercial Employment	2,181	4,970	7,147
Office Employment	513	1,354	2,853
Industrial Employment	1,576	4,341	8,338
Distribution/Warehouse Employment	0	795	1,520
Hospital Employment	215	400	665
Government Employment	667	875	948
School Employment	734	951	1,038
Other Employment	736	752	1,019
Total Population	**18,623**	**32,900**	**51,236**
Total Employment	**6,622**	**14,438**	**23,528**

UGB

Clear that this is not to grow out these

TRIP GENERATION

Vehicle trip generation estimates were made for each traffic analysis zone in the planning area on the basis of the type and quantity of residential dwellings and employees. Trip generation rates applied to these land uses were derived from the Institute of Transportation Engineers report, "*Trip Generation*", (*Fifth Edition, 1991*). These rates were modified to

reflect generalized land use categories for planning purposes on the basis of experience in other similar size cities in Oregon and through the travel model calibration process. These trip rates also reflect the existing level of transit service and use of alternative modes. An increase in transit ridership or use of other modes is not considered in this case to be large enough to have a significant effect on traffic demand and street requirements. These rates are summarized on Table 5.

These trip rates were refined into four trip origin purposes and four trip destination purposes for the P. M. peak hour. These four purposes are as follows:

- *Home-based work* - Trips between home and work.
- *Home-based shopping* - Trips between home and shopping.
- *Home-based other* - Trips between home and other uses.
- *Non-home based* - Trips between other land uses except the home.

The amount of traffic generated at each traffic analysis zone was estimated for the P. M. peak hour by multiplying the number of dwellings or employees by the appropriate origin and destination trip generation rate by trip purpose. An example calculation is shown in the Appendix after Figure A-8.

TABLE 5
VEHICLE TRIP GENERATION RATES
McMINNVILLE TRANSPORTATION PLANNING MODEL
Derived in 1991 for 2010 Forecasts
PM Peak Hour

	Land Use:	Single Family	Multi-Family	Retail/ Comm.	Industrial	Dist./ Ware-house	Hospital	Govt. Office	Office	School	Misc. Other
		Trips/ Dwelling Unit	Trips/ Dwelling Unit	Trips/ Employee	Trips/ Employee	Trips/ Employee	Trips/ Employee	Trips/ Employee	Trips/ Employee	Trips/ Employee	Trips/ Employee
Home-Based Work	Origin	0.03	0.02	0.10	0.40	0.35	0.10	0.68	0.49	0.68	0.49
	Destination	0.39	0.27	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Home-Based Shopping	Origin	0.10	0.07	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Destination	0.19	0.13	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Home-Based Other	Origin	0.16	0.11	0.00	0.00	0.00	0.09	0.00	0.00	0.21	0.00
	Destination	0.08	0.06	0.18	0.00	0.00	0.03	0.00	0.00	0.10	0.00
Non-Home-Based	Origin	0.07	0.05	0.58	0.05	0.05	0.02	0.16	0.09	0.16	0.11
	Destination	0.08	0.06	0.79	0.05	0.20	0.06	0.16	0.12	0.35	0.20
Total Rates	Origin	0.36	0.25	1.61	0.45	0.40	0.21	0.84	0.58	1.05	0.60
	Destination	0.74	0.52	1.55	0.10	0.20	0.09	0.16	0.12	0.45	0.20

TRIP DISTRIBUTION

The vehicle trips estimated to be generated at each zone were in terms of trip origins and trip destinations during the P. M. peak hour. The trip origins were then distributed to all of the trip destinations within the planning area and to the roads leading out of the study area. (*Trip origins were also calculated for the roads leading into the area.*) The trip distribution was based on a conventional gravity model which, utilizing a micro-computer, distributes trips from one zone to all other zones in direct relationship to the size of the attractions or destinations in each zone and inversely related to the travel time between zones. For example, if two destination zones of equal size were located 10 and 15 minutes from the origin zone, more of the trips from the origin zone would be distributed to the closer destination zone. Likewise, if two destination zones were located equal driving times from the origin zone, more trips would be distributed to the larger destination zone. This procedure was followed for trips originating in all 60 zones and the roads leading into the study area.

To aid in developing the trip distribution model, a telephone survey of 250 residents in the City was made to determine where people generally work and shop. The results of this survey were provided separately to the City and are partially contained in Table A-3 and A-4 in the Appendix and summarized below:

- 74 percent of the resident labor force work in McMinnville;
- 26 percent of the resident labor force work in other cities;
- 96 percent of all convenience shopping by residents is done in McMinnville; and,
- 61 percent of the comparison shopping by residents is done in McMinnville.

It is estimated that the sampling error of this survey is less than ten percent with a confidence level of 95 percent. In other words, we can be 95 percent certain that the survey results are within 90 percent of the results if every household in the City was surveyed.

These data were used to calibrate the trip distribution model for current conditions. However, in the future, as more shopping attractions and employment sites are developed in McMinnville, it is expected that even a higher percent of residents will work and shop in McMinnville.

Data on through traffic were also used to calibrate the model. Through traffic was measured in the spring of 1991 by matching the license numbers of all vehicles entering and leaving the City. These are summarized on Table A-5 in the Appendix. As indicated, there is very little through traffic in McMinnville except for Highway 18 which by-passes the City.

VEHICLE TRIP ASSIGNMENT

The assignments of traffic to the street and highway system were made on the basis of trip generation and distribution from all origin zones and streets leading into the planning area to all destination zones and streets leading out of the area. The assignment procedure utilized a capacity restraint microcomputer model which assigns traffic in increments to the street system and then compares each incremental assignment with the street capacity to determine the fastest route. Utilizing this procedure, the traffic could be assigned to several routes between the origin and destination zones, depending on the congestion on each route. As one route becomes congested, the travel time increases, thus possibly making a previously slower route faster. The result of this assignment procedure is to simulate "real world" motorists' choices on a travel route.

This entire process of estimating trip generation and distributing and assigning the vehicular trips was made for 1991 conditions and compared with actual measurements on the roadway system prior to assigning 2011 traffic. The modeling procedure was modified in iterations until the assigned volumes were within approximately ten percent of the actual counts. It is theorized that if the modeling process duplicates the current conditions reasonably well, the same process should then provide a reasonably good estimate of future conditions.

2011 traffic was first assigned to the existing major street system to determine which portions of the system would be deficient within the next twenty years. The following section on Alternative Street System Analysis compares the forecast traffic volumes on the existing system and three different alternatives.

ALTERNATIVE STREET SYSTEM ANALYSIS

A "*no-build*" alternative and three build-roadway alternatives were developed and examined to meet the City's goals and the growth in traffic. These were reviewed with the Transportation Advisory Committee throughout the planning process to come to a conclusion on which alternative to detail in the Master Plan.

The purpose of the alternative street system analysis is to compare 2011 travel patterns and critical roadway sections based on the following choices:

- *No-Build* - Assumes no changes to the existing street system except those programmed in ODOT's six year highway improvement plan;
- *Alternative One* - A package of street improvements that includes a new north-south arterial on the eastside of the City;
- *Alternative Two* - A package of street improvements that includes major road widening to the Highway 18 Spur and Lafayette Avenue; and,
- *Alternative Three* - A combination of street improvements recommended in Alternatives 1 and 2, including a new north-south arterial between Highway 99W and Three Mile Lane.

NO-BUILD ALTERNATIVE

This section describes traffic conditions under 2011 forecast year conditions for the city of McMinnville. Programmed ODOT improvements to Lafayette Avenue and Highway 99W are assumed in the forecast. P. M. peak hour traffic volumes assuming no improvements are made are shown on Figure 10. This figure shows increased traffic on most of the arterials and collectors in the City. Directional volumes over 900 vehicles may require widening a road from two to four travel lanes. Heavy volumes on Three Mile Lane may be reduced somewhat through frontage roads. However, the critical roadway sections map (Figure 11) shows congestion problems on Lafayette Avenue, the Highway 18 Spur, Baker Creek Road, the Adams Street/Baker Street couplet, and the vicinity of the Old Sheridan Road and Highway 99W intersection. Critical roadway sections are defined as having a volume to capacity ratio of ninety percent or higher. A roadway section with a volume to capacity ratio of over 100 percent is considered to be over capacity. With the exception of Highway 99W and Highway 18, most of the streets in McMinnville have two through lanes with a peak hour directional capacity of 700 to 900 vehicles per lane.

LEGEND:

P.M. PEAK HOUR DIRECTIONAL TRAFFIC VOLUMES

200/400 = ⟵ SOUTH / NORTH ⟶

200/400 = ⟵ WEST / EAST ⟶

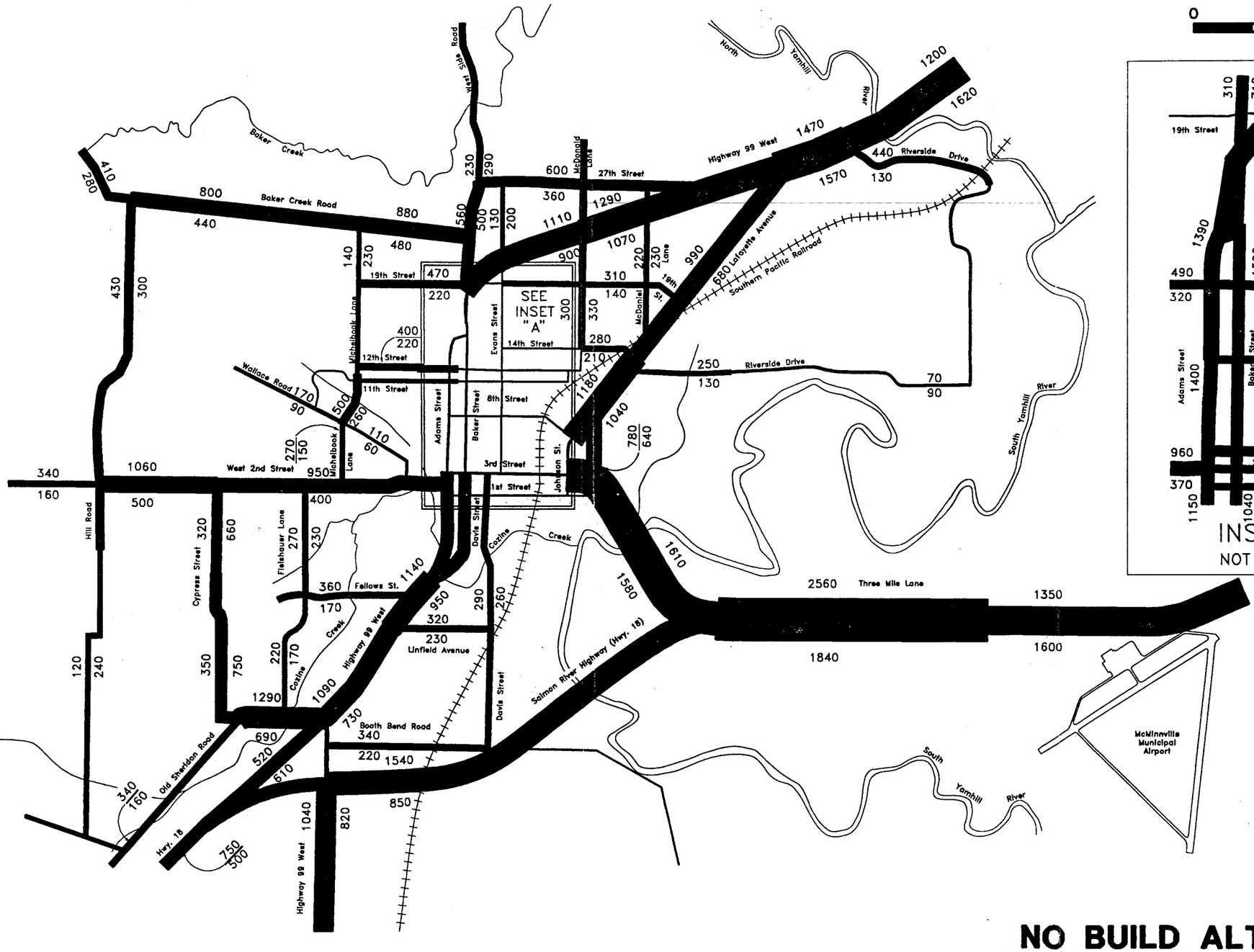
TRAFFIC SCALE (VEHICLES)

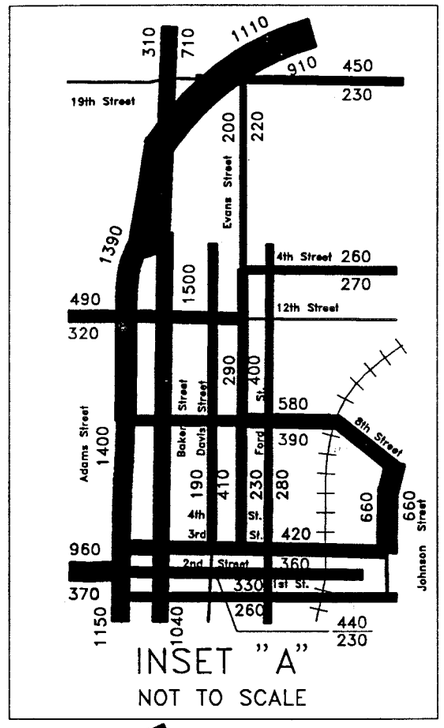
1500 — 500

1000

MILES

0 — 0.5 — 1.0





INSET "A"

NOT TO SCALE

FIGURE 10

NO BUILD ALTERNATIVE 2011 PM PEAK HOUR VOLUMES

LEGEND:

URBAN GROWTH BOUNDARY

VOLUME/CAPACITY

.9 - 1.0 V/C RATIO

1.0 OR GREATER V/C RATIO

MILES
0 0.5 1.0

North Yamhill River
West Side Road
Baker Creek
Baker Creek Road
Highway 99 West
27th Street
Riverside Drive
Evans Street
McDonald Lane
McDaniel Lane
Lafayette Avenue
Southern Pacific Railroad
19th Street
Michelbook Lane
14th Street
12th Street
11th Street
Wallace Road
Riverside Drive
Adams Street
Baker Street
8th Street
Johnson Street
South Yamhill River
West 2nd Street
3rd Street
1st Street
Hill Road
Cypress Street
Fleishauer Lane
Davis Street
Cozine Creek
Fellows Street
Linfield Avenue
Three Mile Lane
Salmon River Highway (Hwy. 18)
Booth Bend Road
Old Sheridan Road
Hwy. 18
Highway 99 West
McMinnville Municipal Airport
South Yamhill River

FIGURE 11
NO BUILD ALTERNATIVE
2011 PEAK HOUR
CRITICAL ROADWAY SECTIONS

IMPROVEMENTS COMMON TO EACH BUILD ALTERNATIVE

The no-build alternative indicates that the existing street system will not have the capacity to accommodate the forecast growth in population and employment over the next 20 years. Therefore, modifications and additions will be required to the street system, as well as implementing transportation demand management measures. Subsequent analyses tested new roads recommended at the Community Workshop and by the Transportation Advisory Committee. The proposed corridors are for comparative purposes, and do not represent specific alignments. Project development and preliminary engineering would be future steps once the transportation master plan is accepted by the community.

Through transportation demand management (TDM), the peak travel demands can be reduced or spread to different time periods to provide more efficiency in the transportation system, rather than building new or wider roadways.

A sensitivity analysis was made to determine if these measures, either individually or collectively, would reduce the need for any increases in roadway capacity. The major effect of these programs would be on the home to work and return trip. This sensitivity analysis, therefore focussed on those trips.

Table 6 compares the journey to work census data for 1980 and 1990 and the results of this sensitivity analysis on vehicle trip reduction.

TABLE 6
POSSIBLE AFFECT OF TRANSPORTATION DEMAND MANAGEMENT
Reduction to Peak Hour Vehicle Trips

	Percent of Work Force			*PM Peak Hour*
	1980	*1990*	*2011*	*Vehicle Trip Reductions*
Drive Alone	65.1%	71.3%	54.0%	**
Carpool	16.0	14.2	18.4	200 - 250
Transit	1.7	0.8	1.6	50 - 100
Walk	10.7	6.7	9.0	100 - 150
Other	4.8	2.5	5.0	100 - 150
Work at Home	1.7	4.4	12.0	400 - 500
Alt. Work Schedules				300 - 350
TOTAL				**1150 - 1500**

** Reduction included with effect of carpool

The effect could be a maximum reduction of 1,150 to 1,500 vehicle trips during the PM peak hour of some 18,500 vehicle trips by the year percent of 2011. This amounts to a reduction of 6.2 to 8.1 percent of the peak hour trips. This reduction is spread throughout the community and would not eliminate the need for any new roadways or widenings. However, a successful program could delay the need for a physical modification.

Therefore, the alternatives to the no-build were evaluated with the transportation demand model without the effect of TDM to determine the maximum new requirements. The effects of TDM should be monitored to determine if priorities in the future should be shifted.

Figure 12 describes road improvements that are included in both Build Alternatives One and Two. Table 7 lists the estimated costs, miles of new roadway, and constraints versus improvements to the road system. Common improvements include:

1. **Fellows Street** (*from existing plan*): extend westbound from Goucher Street to Hill Road as a minor collector. This extension would reduce capacity deficiencies on West 2nd Street and on Old Sheridan Road by providing more circulation routes.

2. **Wallace Road** (*from existing plan*): extend westbound to Hill Road as a minor collector to improve traffic circulation between Baker Creek Road and West 2nd Street. This roadway extension would also reduce traffic impacts on local residential streets.

3. **Cypress Street**: extend northbound from West Second Street to Wallace Road as a minor collector to improve local circulation.

4. **Old Sheridan Road**: widen to five lanes from Highway 99 West to Cypress Street to reduce traffic deficiencies and possibilities of impacting residential streets.

5. **New Minor Arterial Road**: north of 27th Street, from Highway 99W/Riverside Drive westbound to West Side Road. This road would relieve traffic infiltration on 27th Street and also route some through traffic away from Highway 99W.

6. **West 2nd Street**: extend westbound from Hill Road as a minor arterial as the residential area develops.

7. **Three Mile Lane Frontage Roads**: construct major collector circulation system as the industrial area develops to provide industrial access.

8. **Baker Creek Road**: extend easterly to Evans Street and install traffic signals at the intersection with Baker Street and at Evans Street and Highway 99W to reduce traffic congestion and minimize impacts on residential streets.

9. **Baker Street and 19th Street**: realign intersection of Baker Street with Highway 99W and widen 19th Street between Baker Street and Highway 99W to reduce localized congestion in the area.

LEGEND:

- ARTERIALS
- COLLECTORS
- RIVERS
- STREAMS
- RAILROAD
- URBAN GROWTH BOUNDARY
- ROAD IMPROVEMENTS COMMON TO EACH BUILD ALTERNATIVE

MILES
0 0.5 1.0

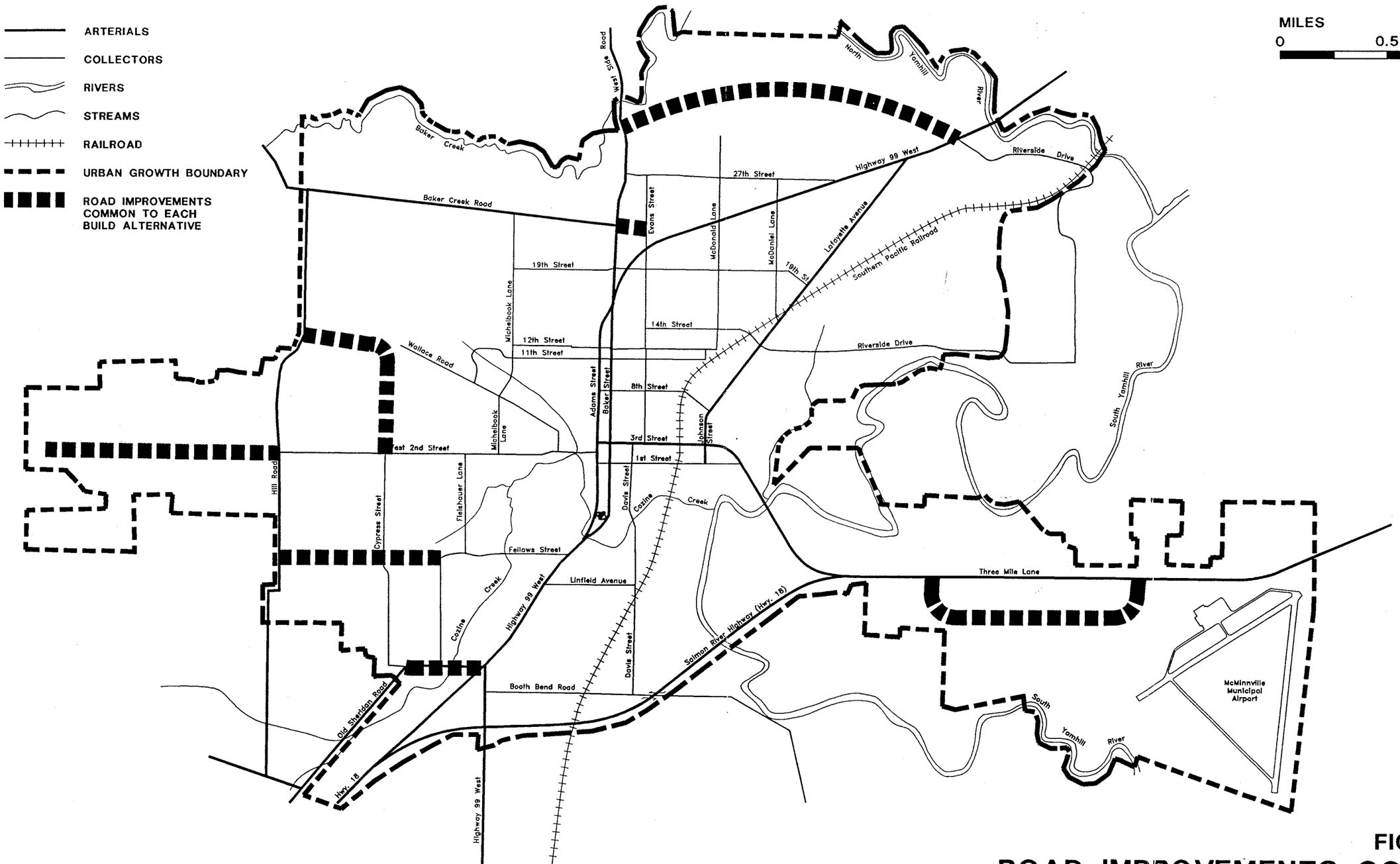


FIGURE 12
ROAD IMPROVEMENTS COMMON TO EACH BUILD ALTERNATIVE

MCVX-10002 LMS 09/14/93 D:\WORK\MCV2CDMM

10. **Riverside Drive and 14th Street Connection**: realign 14th Street and Riverside Drive at Lafayette Avenue to form one continuous roadway and one intersection with Lafayette Avenue.

Suggestions have been made to extend Highway 47 south from Highway 99W to Highway 18 to form a by-pass of the City, especially for trucks. However, the entire roadway would be outside of the Urban Growth Boundary, passing through extensive wetlands and deep gullies, and over the South Yamhill River. It could function as a by-pass but the demand for one at this locations is estimated to be relatively small because the through traffic from the area amounts to only about 85 vehicles during the PM peak hour or about 800 to 1,000 vehicles per day. This alternative was therefore dropped from further consideration because of the small demand and the environmental impacts.

Capacity deficiencies would still exist on Lafayette Avenue, the Highway 18 Spur, and the Adams/Baker Streets one-way couplet. Circulation modifications to relieve these deficiencies will be discussed with the following alternatives.

TABLE 7
ROAD IMPROVEMENTS COMMON TO EACH SYSTEM ALTERNATIVE

	Estimated Cost (*Millions*)	Miles of New Roadway	Constraints	Improvement to Road System
Fellows Street Extension	$0.9	0.8	None-in Existing Plan	East-West Residential Circulation
Wallace Road Extension	$0.5	0.4	None-in Existing Plan	East-West Residential Circulation
Cypress Street Extension	$0.7	0.6	Topography, New	East-West Residential Development Circulation
Old Sheridan Road:				
Widen to 5 Lanes	$0.6	--		Links Residential and Industrial Areas
West 2nd St. Extension	$1.3	0.9	Topography	Residential Access
3 Mile Ln. S. Circulation	$1.1	0.9		Industrial Circulation
Northeast Minor Arterial	$2.3	1.7	Residential	Relieves through traffic on Hwy. 99W and 27th St., Truck Circulation
Baker Creek Road Extension	$0.6	0.1	Under-utilized Commercial Property	Relieves traffic at 19th and Baker Street and at 19th and Hwy 99W
Baker Street and 19th Street	$0.1	0.1	Abutting Property	Improves capacity and safety
Riverside and 14th Connection	$0.5	---	Abutting Property	Eliminates off-set intersection; improves safety
TOTAL	$8.6	5.5		

ALTERNATIVE ONE - NORTON LANE EXTENSION

The package of improvements is shown on Figure 13, along with 2011 P. M. peak hour traffic volumes. The major feature of Alternative One is provision of a north-to-south route connecting the industrial areas which would provide an eastside truck route. Figure 14 shows that this new road would relieve congestion on the Highway 18 Spur and Lafayette Road, but that would remain near capacity. Alternative One includes the following:

1. *New Minor Arterial Road*: Extend Norton Lane from Salmon River Highway (Hwy 18) and Norton Lane intersection northbound, crossing the South Yamhill River to the Riverside Drive/Miller Street intersection. The road would continue north-ward and intersect with Lafayette Avenue between 19th Street and 27th Street. This roadway would reduce the need for some widening of Lafayette Avenue through the residential area and some widening of the Highway 18 Spur.

2. *Cypress Street*: Extend proposed minor collector northbound from Wallace Road to Baker Creek Road. While this road improves local circulation, Hill Road is nearby to the west and has excess capacity.

3. *Baker Creek Road*: Traffic volumes on Baker Creek Road are estimated to reach eighty to ninety percent capacity on some sections and would require widening to Michelbook Lane.

4. *West Second Street*: Widen to three lanes from Adams Street to Wallace Way. West Second would continue to be over 90 percent capacity between Michelbook and Fleishauer Lane, and may require additional widening to provide residential access.

5. *New Minor Arterial Road*: Connect Old Sheridan Road west of Cypress Street to Hill Road as a two-lane roadway with left-turn lanes.

ALTERNATIVE TWO - WIDEN HIGHWAY 18 SPUR AND LAFAYETTE AVENUE

The major systems change modeled in Alternative Two is to provide additional capacity by widening existing arterials rather than constructing a new north-to-south industrial road. Also, 1st and 2nd Streets would be re-designated as a one-way couplet between Adams and Johnson. Figure 15 illustrates 2011 P. M. peak hour volumes, and Figure 16 shows critical roadway sections. The latter indicates that traffic would fill, to approaching capacity, a widened Highway 18 Spur by the end of the twenty year planning period.

Projects related to Alternative Two are listed below:

1. *Highway 18 Spur/Lafayette Ave. Corridor*: Widen to five lanes from Three Mile Lane/Highway 18 interchange northward on Highway 18 Spur and Lafayette Avenue to Highway 99W. Without additional new road construction, the Highway 18 Spur would be over ninety percent capacity by the end of the 20-year-planning period.

LEGEND:

P.M. PEAK HOUR DIRECTIONAL TRAFFIC VOLUMES

200/400 = SOUTH/NORTH

200/400 = WEST/EAST

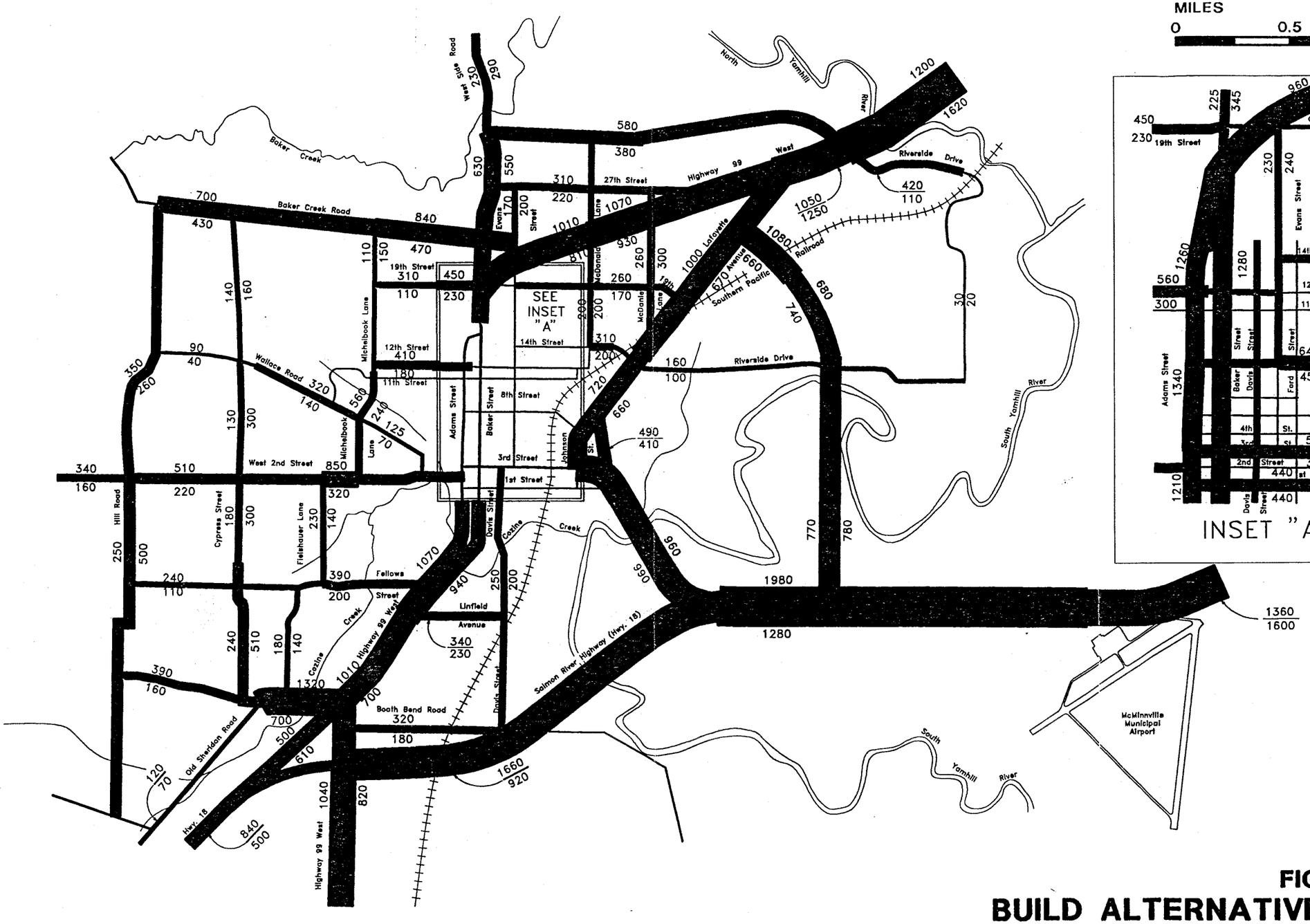
TRAFFIC SCALE (VEHICLES)

1500 500

1000

MILES

0 0.5 1.0



INSET "A"

FIGURE 13

BUILD ALTERNATIVE ONE
2011 PM PEAK HOUR VOLUMES

LEGEND:

URBAN GROWTH BOUNDARY

VOLUME/CAPACITY

.9 - 1.0 V/C RATIO

1.0 OR GREATER V/C RATIO

PROPOSED NEW ROADS

MILES
0 0.5 1.0

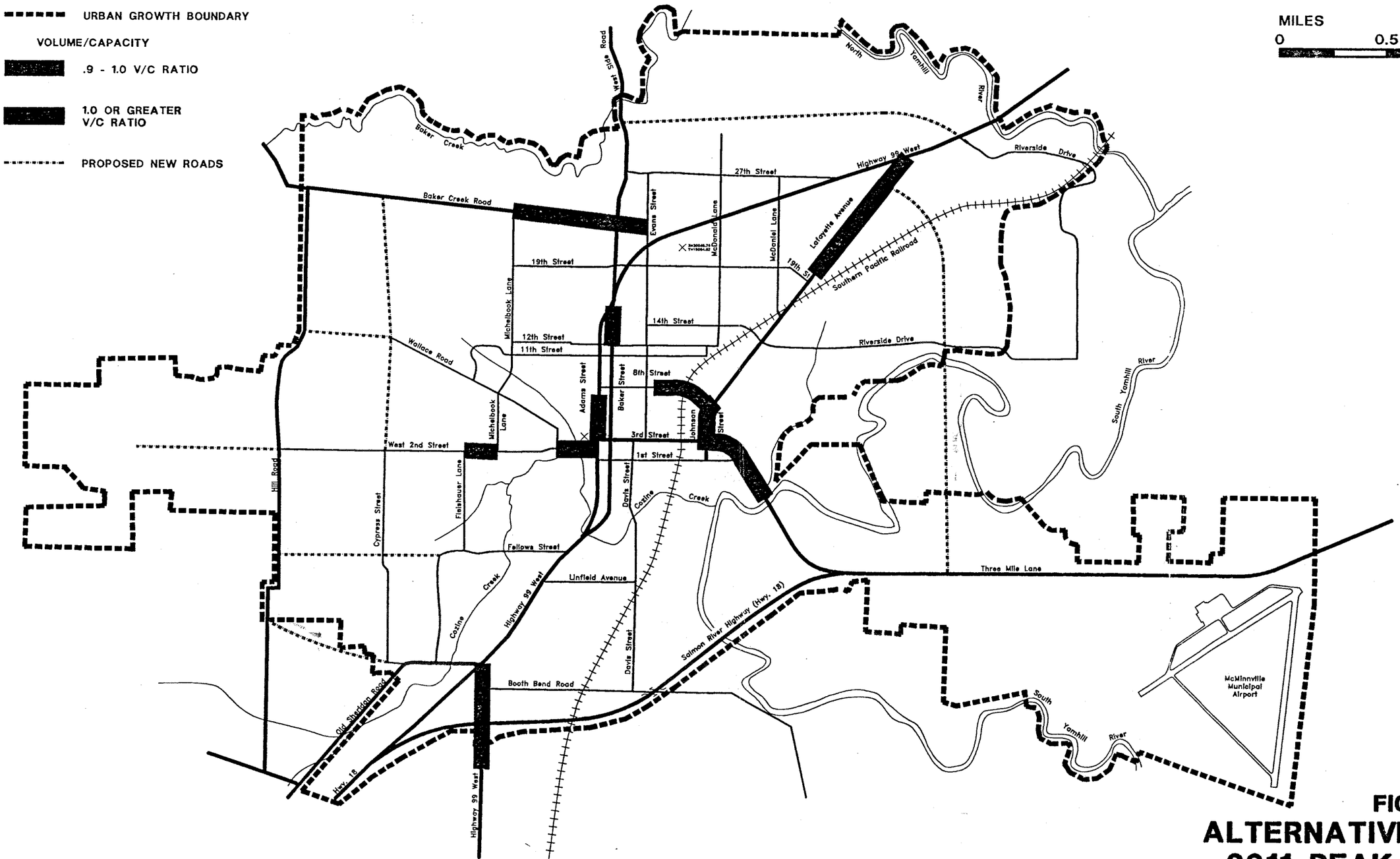


FIGURE 14
ALTERNATIVE ONE
2011 PEAK HOUR
CRITICAL ROADWAY
SECTIONS

LEGEND:

P.M. PEAK HOUR DIRECTIONAL TRAFFIC VOLUMES

200/400 = ⟵SOUTH / NORTH⟶

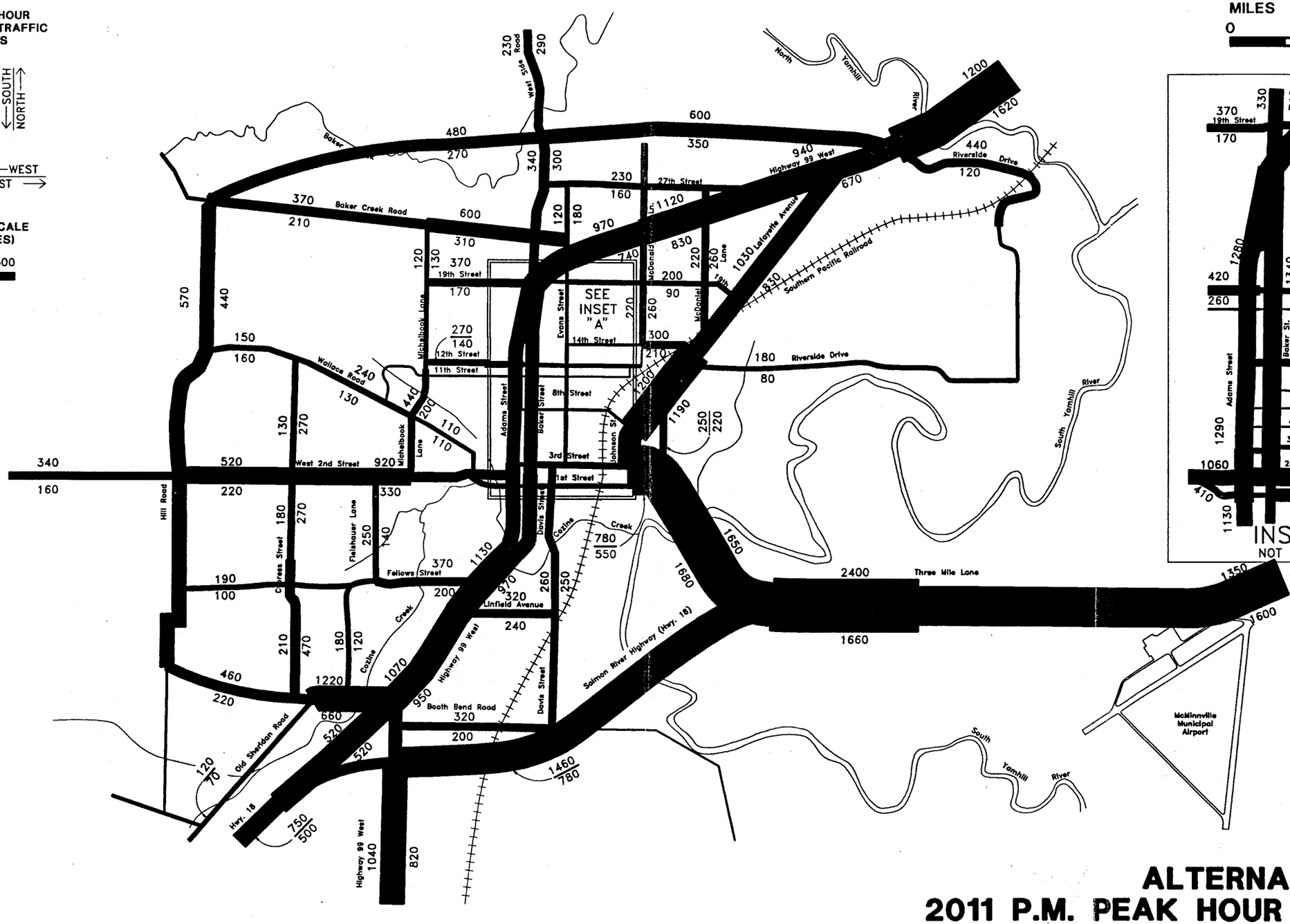
200/400 = ⟵WEST / EAST⟶

TRAFFIC SCALE (VEHICLES)

1500 — 500 — 1000

MILES

0 — 0.5 — 1.0



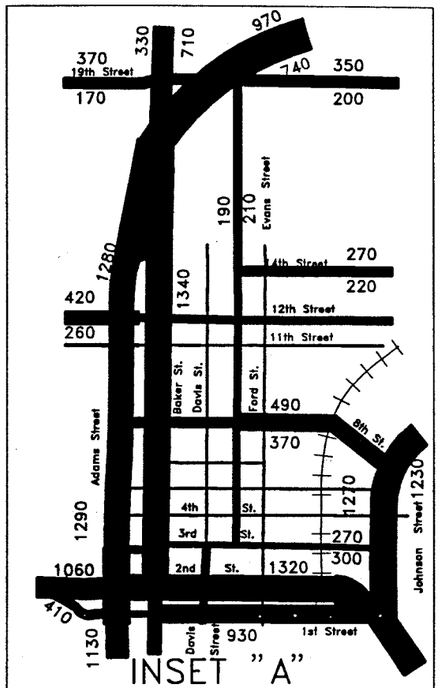


FIGURE 15

ALTERNATIVE TWO
2011 P.M. PEAK HOUR VOLUMES

LEGEND:

URBAN GROWTH BOUNDARY

VOLUME/CAPACITY

.9 - 1.0 V/C RATIO

1.0 OR GREATER V/C RATIO

PROPOSED NEW ROADS

MILES
0 0.5 1.0

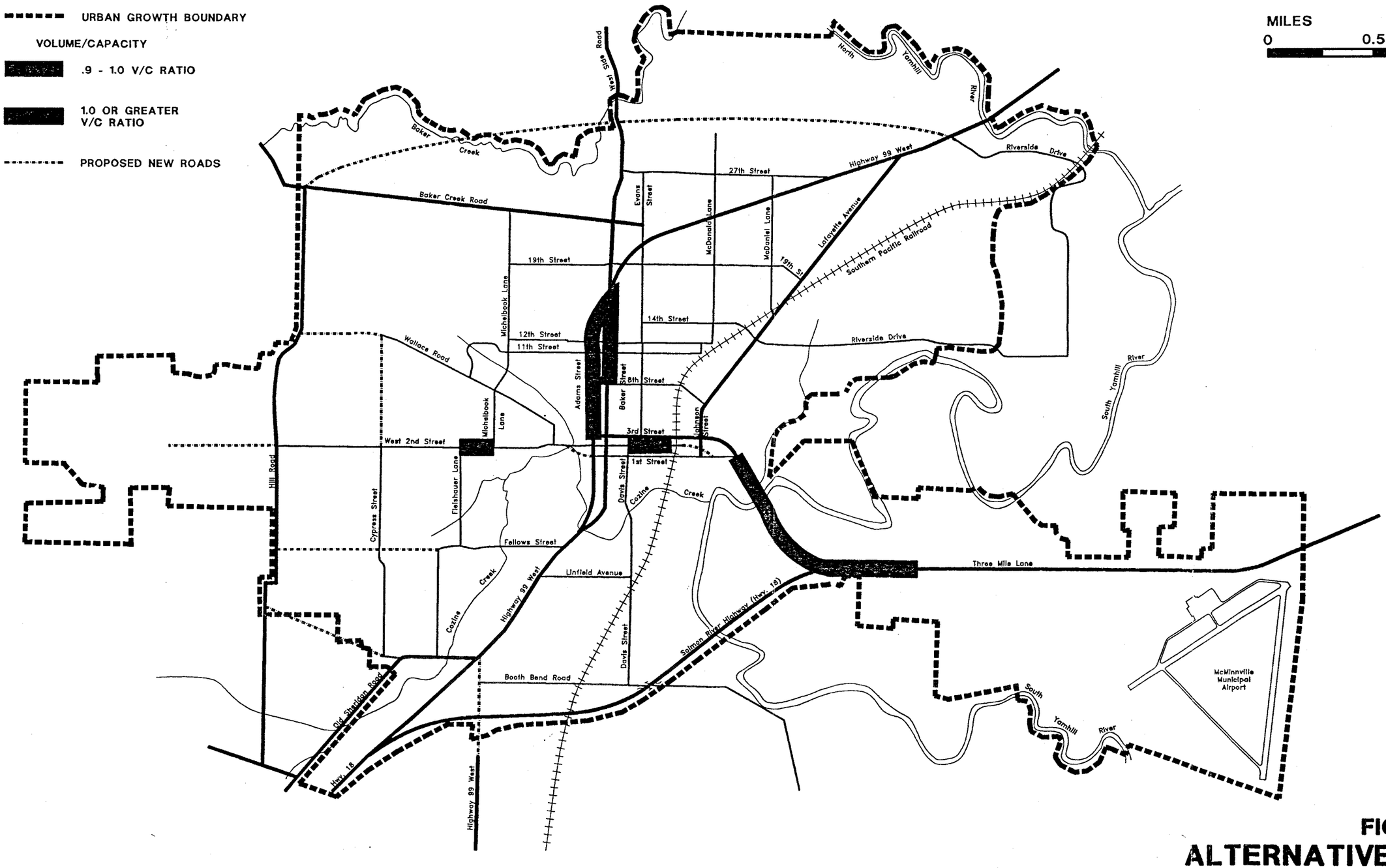


FIGURE 16

ALTERNATIVE TWO 2011 PEAK HOUR CRITICAL ROADWAY SECTIONS

2. *1st Street/2nd Street Couplet*: Convert to one-way, east-to-west couplet between Adams Street and Johnson Street. Widen 1st Street to four lanes plus left turn lanes (*two-way traffic*) from Johnson to the Highway 18 Spur. See Figure A-5 in the Appendix.

3. *West 2nd Street*: Widen to five lanes from Wallace Way to Cozine Creek; extend eastbound one-way couplet to Adams Street/1st Street intersection. As with other alternatives, if West 2nd Street is widened near the CBD, it becomes a more attractive route and would require additional widening to the west.

4. *New Minor Arterial Road north of Baker Creek Road*: From the West Side Road and Burnett Road intersection westbound to the Hill Road and Baker Creek Road intersection. This new road reduces traffic on Baker Creek Road by providing an additional east-west choice.

5. *New Minor Arterial Road*: Connect Old Sheridan Road west of Cypress Street to Hill Road as a two-lane roadway with left-turn lanes.

ALTERNATIVE THREE - COMPOSITE ALTERNATIVE

Figure 17 shows 2011 P. M. peak hour volumes for a combination of selected projects from Alternatives One and Two. Figure 18 indicates the critical roadway sections where the volume of traffic may approach or exceed capacity. As indicated, all forecast capacity deficiencies are estimated to be eliminated and there are only two locations where the traffic volumes may approach capacity. Additional variations include a change in the 1st Street and 2nd Street Couplet design, and a new interchange connecting Highway 18, Old Sheridan Road and Hill Road. Also, a new collector road was tested by extending Brooks Street to connect with Marsh Lane. With this alternative efforts are made to avoid widening Lafayette Avenue and the Highway 18 Spur to five lanes. Instead, the Norton Lane extension described in Alternative One would extend from Highway 18 north to the vicinity of the Highway 99W and Lafayette Avenue. The project package for the Composite Alternative includes:

1. The *Norton Lane extension from Highway 18* across the South Yamhill River to Riverside Drive. The road would then extend north on the Miller Street alignment, provide a connection to Orchard Avenue, and proceed further north around the Liquid Air plant to Highway 99W.

2. The *1st Street/2nd Street Couplet* is modified as follows at its east termini. 1st Street would continue eastbound one way and intersect with the Highway 18 Spur. The westbound couplet would be made by connecting 3rd Street to 2nd Street between Johnson Street and Irvine Street. See Figure A-6 in the Appendix.

3. A *new interchange at Highway 18 north of Durham Lane* was tested to connect with Hill Road and projected residential growth in the western portion of the City. This

LEGEND:

P.M. PEAK HOUR DIRECTIONAL TRAFFIC VOLUMES

200/400 = SOUTH / NORTH

200/400 = WEST / EAST

TRAFFIC SCALE (VEHICLES)

1500 500 1000

MILES 0 0.5 1.0

SEE INSET "A"

INSET "A"

FIGURE 17
ALTERNATIVE THREE
2011 PM PEAK HOUR VOLUMES

MCVX-0002 STG 02/28/1992MCVF17A3

LEGEND:

URBAN GROWTH BOUNDARY

PROPOSED NEW ROADS

VOLUME/CAPACITY

.9 - 1.0 V/C RATIO

1.0 OR GREATER V/C RATIO

MILES
0 0.5 1.0

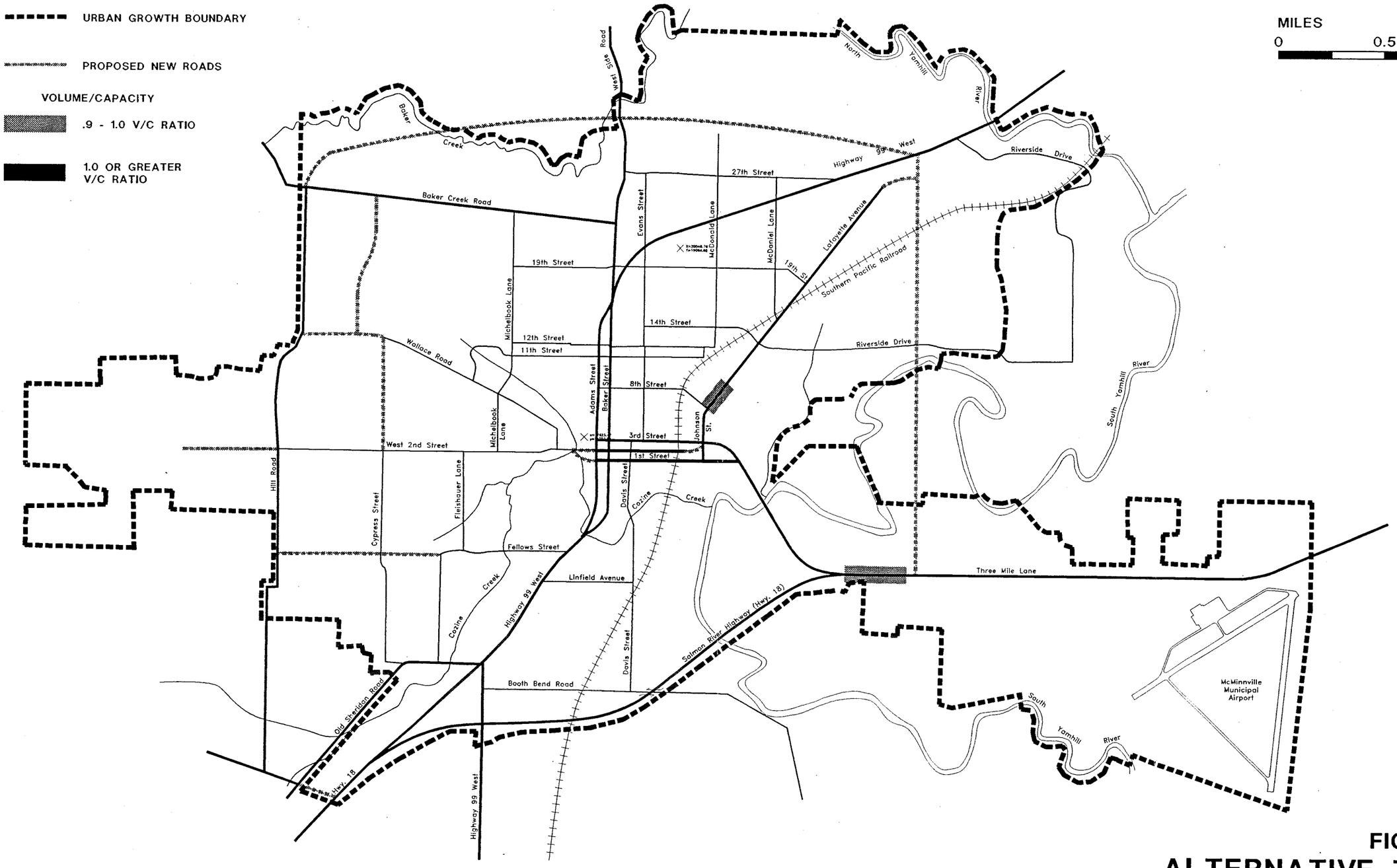


FIGURE 18

ALTERNATIVE THREE 2011 P.M. PEAK HOUR CRITICAL ROADWAY SECTIONS

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would provide an alternative to the widening and extension of Old Sheridan Road, as described as an improvement common to Alternatives One and Two.

COMPARISON OF ALTERNATIVES

If the City develops according to the current comprehensive plan map at the rate forecast for the twenty year planning period, the no-build alternative would result in congestion on the City's arterial and collector road system, which could in turn increase traffic infiltration through neighborhoods. Separated land uses, with the residential growth primarily in the north and west, and employment growth to the east will result in east to west trips for residents living and working in the City. Also, McMinnville will increasingly serve as an activity center for people living in the north Willamette Valley region.

The three build alternatives represent an incremental increase in new road projects. They are compared in Table 8 in terms of estimated cost, miles of new roadway, constraints upon and improvement to the City's transportation system. Alternative One is the least expensive at $19.3 million. It does not include a central arterial improvement or a new northwest arterial connection. Alternative Two would cost $21.6 million. It was determined that widening the Highway 18 Spur and Lafayette Avenue would result in neighborhood impacts and would require reconstruction of the South Yamhill River bridge. Alternative Three provides the most comprehensive package of new road projects, including the "ring road" around the City. Also, 1st Street and 2nd Street would be reconfigured to provide a central east-to-west arterial connecting the eastside industrial area, the central business district, and the western residential areas. Alternative Three would cost $22.9 million, with an additional $5 million if a new interchange is added on Highway 18 near Durham Lane.

The primary difference between Alternatives Two and Three is constructing a new road for access (Norton Lane Extension) with two additional lanes of capacity, versus adding two lanes of capacity by widening the Highway 18 Spur and Lafayette Avenue. This is a difficult choice that will not be completely resolved without further, more detailed analysis.

However, the construction of the Norton Lane extension with Alternative Three would eliminate the need to widen Lafayette Avenue and the Highway 18 Spur and thus would not impact existing residential housing on those roadways. It was concluded by the Transportation Advisory Commission that Alternative Three be detailed for the Master Plan, and carried forward to community meetings and citizen review. In this way residents would have an opportunity to comment on a full slate of road improvements that could be implemented during the planning period. In the following section, Alternative Three is used as the basis for development of the master transportation plan, and projects are prioritized for implementation over the next twenty years.

TABLE 8
COMPARISON OF SYSTEM ALTERNATIVES

Alternative	Est. Cost (*Millions*)	Miles of New Roadway	Constraints	Improvement to Road System
Alternative One				
Norton Extension to vic. fairgrounds	$7.8	1.9	UGB, River, Slope	N-S Industrial Circulation
Baker Creek Rd. widening	$0.7	--	Residential	Adds E-W Capacity
West 2nd St. widening	$0.5	--	Residential	Adds E-W Capacity
Cypress Extension	$0.8	0.6	Golf Course	N-S Residential Circulation
Hill Road Connection	$0.9	0.7	UGB, Floodplain	E-W Circulation
Subtotal	$10.7	3.2		
Plus "Common"	$8.6	5.5		
Total	$19.3	8.7		
Alternative Two				
Lafayette/3 Mile Lane to vic. fairgrounds	$6.3	--	Residential, River	Adds Capacity; Institutional
West 2nd St. Widening, 1st/2nd St. Couplet, and E. 1st St. widening	$1.8	0.2	Commercial, Creek, Residential	E-W Circulation; Relieves Residential Congestion in CBD
NW Minor Arterial	$4.0	1.7	UGB, River, Park	Relieves Baker Creek Rd., Residential Access
Hill Road Connection	$0.9	0.7	UGB, Floodplain	E-W Circulation
Subtotal	$13.0	2.6		
Plus "Common"	$8.6	5.5		
Total	$21.6	8.1		

TABLE 8
COMPARISON OF SYSTEM ALTERNATIVES
(continued)

Alternative	Est. Cost (*Millions*)	Miles of New Roadway	Constraints	Improvement to Road System
Alternative Three (Composite)				
Norton Extension to 99W	$9.1	2.0	UGB, River, Slope	N-S Industrial Circulation
NW Minor Arterial	$4.0	1.7	Same As Alt. 2	Same As Alt. 2
West 2nd St. widening 1st/2nd St. Couplet	$1.2	0.1	Same As Alt. 2	Same As Alt. 2
Subtotal	$14.3	3.8		
Plus "Common"	$8.6	5.5		
Total*	**$22.9**	9.3		

* *With new Interchange at Hwy. 18 and Durham Lane, add $5 million.*

THE MASTER PLAN

The Transportation Master Plan includes functional street classification and street width standards, street improvements, public transportation, bikeways, demand management, rail and air services elements. The 2011 P. M. peak hour forecast traffic for Alternative Three (see Figure 17) represents projected traffic for the Transportation Master Plan roadway system. Projected P. M. peak hour volumes through the next ten years with staged improvements are shown on Figure 19. Major projects assumed in Figure 19 include the Norton Lane Extension and the 1st and 2nd Street couplet.

STREET CLASSIFICATION STANDARDS

Street standards are a design form which relate to roadway function and operational characteristics such as traffic volume, operating speed, safety and capacity. Street standards are necessary to provide a community with roadways which have been determined through extensive research and experience to be relatively safe, aesthetic and easy to administer when new roadways are planned or constructed. Experience has indicated that the design of a residential street and the subdivision in which it is located will affect the traffic operation, safety and livability on such a street.

Generally, when the average weekday traffic volume exceeds approximately 1,000 to 1,200 vehicles per day on a local residential street, the residents on that street became aware of the traffic and complain to the public works department about increasing traffic, noise and potential accidents. The traffic volume on a local residential street generally averages approximately 400 to 500 vehicles per day. It has also been observed that when traffic volumes reach approximately 5,000 vehicles per day on residential streets, accidents oriented to driveways become identifiable by location.

Sidewalks located adjacent to the curb generally contain mailboxes, street light standards and sign poles, thus reducing the effective width of the walk. Sidewalks located away from the curb with a planting strip between the street and the walk generally eliminates obstructions in the walkway and provide a more pleasing design as well as a buffer from traffic. To maintain a safe and convenient walkway for at least two adults, it is recommended that a five-foot sidewalk be utilized in residential areas.

Therefore, these general observations and analyses have been utilized in the development of the street standards. The development of the street standards have also utilized policies and publications of the profession.[5]

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[5]*Recommended Guidelines for Subdivision Streets*, Institute of Transportation Engineers. *Residential Streets, Objectives, Principles, and Design Considerations*, the Urban Land Institute, American Society of Civil Engineers and the National Association of Home Builders.

LEGEND:

P.M. PEAK HOUR DIRECTIONAL TRAFFIC VOLUMES

200/400 = SOUTH ⟵ / NORTH ⟶

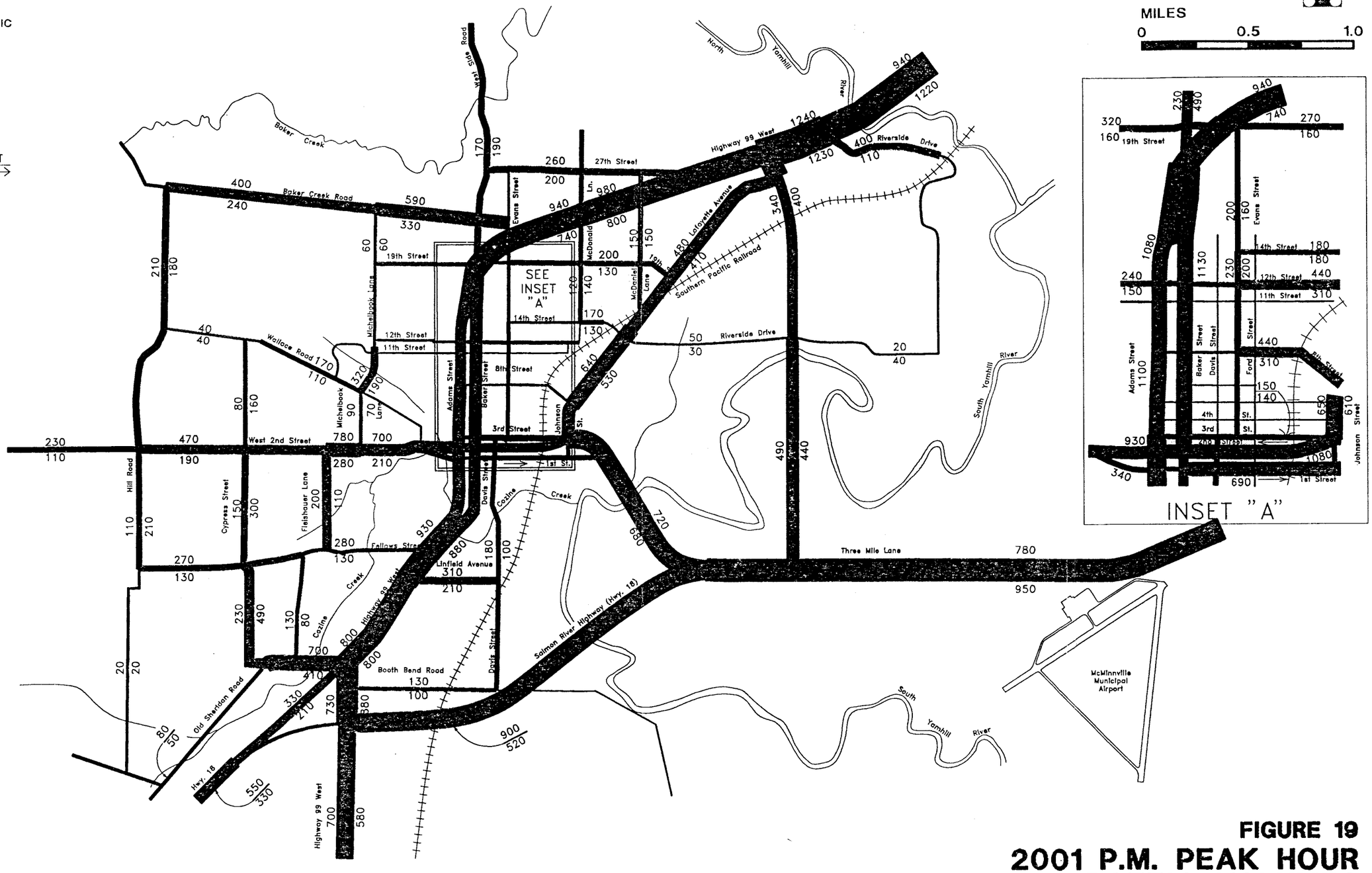
200/400 = ⟵ WEST / EAST ⟶

TRAFFIC SCALE (VEHICLES)

1500 500 1000

MILES

0 0.5 1.0



INSET "A"

FIGURE 19

2001 P.M. PEAK HOUR TRAFFIC VOLUMES WITH 10 YEAR IMPROVEMENTS

The City's Land Division Ordinance provides minimum right-of-way and roadway widths. Minimum right-of-way ranges from 50 feet right-of-way for discontinuous local streets, 60 feet for continuous local streets, collector streets and minor arterials, and 100 feet for major arterials. Minimum roadway widths are 34 feet for discontinuous local streets and 36 feet for collector streets. Minimum roadway for arterials vary by improvement specifications adopted by the City.

It is recommended that the City street design standards be made more specific to the functional street classification and modified somewhat. Figure 20 shows the recommended width standards by functional classification.

Residential Cul-de-Sac Streets

Cul-de-sac streets are intended to serve the abutting land in residential areas. These streets are to be short in length serving a maximum of 20 single family houses. Because the streets are short and the traffic volumes relatively low, the street width is narrow allowing for the passage of two lanes of traffic when no vehicles are parked at the curb or one lane of traffic when vehicles are parked at the curb. The street width is 28 feet, curb face-to-curb face within a 50-foot right-of-way, as shown in Section A on Figure 20 for the local residential street. On each side of the roadway, a five-foot-wide sidewalk should be located one foot from the right-of-way line, providing a five-foot planting strip. It is recommended that the City establish a policy of not permitting the use of cul-de-sacs where future connections to other streets are possible, to encourage local street circulation capability.

Local Residential Streets

Local residential streets are intended to serve the abutting land without carrying through traffic. These streets should be designed to carry less than 1,200 vehicles per day. If the forecast volume exceeds 1,200 vehicles per day, as determined in the design stage, the street system configuration should either be changed to reduce the forecast volume or the street should be designed as a collector.

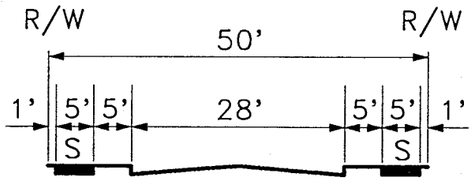
The local residential street generally would not extend for a long distance to maintain a volume of less than 1,200 vehicles per day and to minimize the potential of through traffic. The traffic volume can be estimated by utilizing the vehicular trip rates, the area tributary to each local residential street and the number and type of dwellings in that area.

It is recommended that the standard width of a local residential street be reduced from the existing 34 feet to 28 feet in an effort to reduce right-of-way needs, construction cost, stormwater runoff, and the clearing of many trees or vegetation and to improve the neighborhood aesthetics.

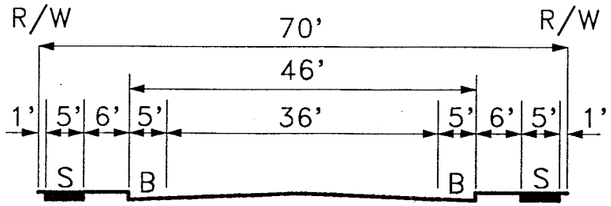
The standard for a local residential street is a 28-foot roadway, curb face to curb face within a 50-foot wide right-of-way, as shown on Figure 20, Section A. Five-foot wide sidewalks

LEGEND:

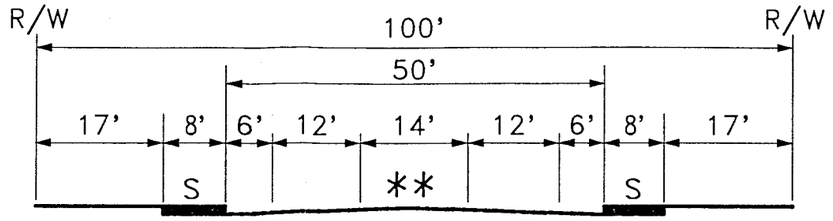
B = BIKE LANE
S = SIDEWALK
R/W = RIGHT OF WAY LINE



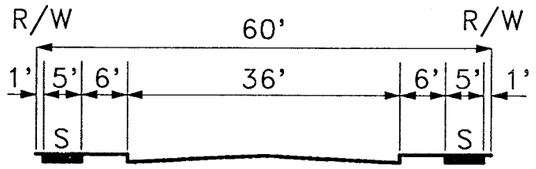
A - LOCAL RESIDENTIAL



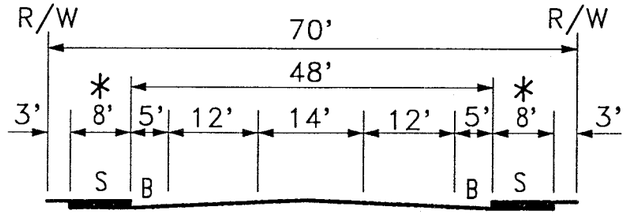
C - MINOR COLLECTOR WITH BIKEWAYS



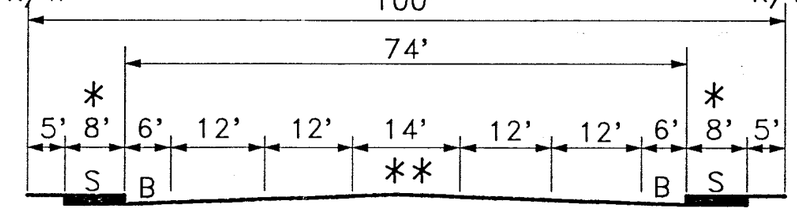
E - MINOR ARTERIAL WITH BIKEWAYS
(RESERVES R/W FOR 2 ADDITIONAL LANES)



B - MINOR COLLECTOR



D - MAJOR COLLECTOR WITH BIKEWAYS



F - MAJOR ARTERIAL WITH BIKEWAYS

NOT TO SCALE

* IN COMMERCIAL AREAS, SIDEWALK IS 8 FEET WIDE ADJACENT TO CURB. ALL OTHER LOCATIONS, SIDEWALK IS 5 FEET WIDE LOCATED FIVE FEET FROM THE CURB FACE.

** OPTIONAL RAISED MEDIAN, 10 FEET WIDE CURB FACE TO CURB FACE.

FIGURE 20
STREET DESIGN STANDARDS

MCVX-0002 STG 03/03/1992 MCV2FG20

are to be provided on each side of the roadway and be located one foot from the right-of-way line to provide a five-foot-wide planting strip.

The 28-foot cross section will accommodate passage of one lane of moving traffic in each direction with occasional curb parking. On low volume residential streets where curb parking might occur on both side of the street, one lane of traffic will move freely. This condition has been found acceptable in residential areas where curb parking does not extend for great distances. The level of residential inconvenience occasioned by the lack of two moving lanes is remarkably low.

The major disadvantage of a 28-foot wide street is that parking could occur opposite each other for long distances and that campers or recreation vehicle parking aggravates this situation. To reduce this possibility, local residential streets should be designed so they do not extend for more than several blocks or approximately 1,500 feet and cannot be extended in the future to function as residential collector streets, and that adequate driveway depth or garage setbacks be required for vehicle parking.

Minor Collector Streets

Minor collector streets are primarily intended to serve abutting lands and local access needs of neighborhoods, including limited through traffic. Minor collectors are intended to carry between 1,200 and 3,000 vehicles per day. Developments likely to generate a high volume of traffic should be discouraged from locating on minor collectors that also serve residential districts.

Figure 20, Section B shows a cross section of 60 feet of right-of-way and 36 feet of paved width for a minor collector street. The 36-foot curb-to-curb distance will allow for two travel lanes and parking on both sides of the street. A five-foot-wide sidewalk is to be located one foot from the right-of-way line to provide a six-foot-wide planting strip.

A minor collector street with bikeways would be 10 feet wider than Section C to provide two five-foot-wide bike lanes. Section D indicates the design standard. However, where curb parking occurs, the bike lanes would be located between the parking and travel lanes.

Major Collector Streets

Major collectors are intended to serve traffic from local streets or minor collectors to arterials and public thoroughfares with a lesser degree of present or future traffic than arterials. Major collector streets are intended to carry from 1,500 to 10,000 vehicle trips per day.

The cross section for major collector streets is shown in Figure 20, Section D. It is recommended that major collector streets include five-foot bike lanes on both sides of the

street. A major collector with bike lanes has a 70-foot right-of-way and 48-foot paved width and would be striped for one travel lane in each direction plus left-turn lanes.

Five-foot sidewalks should be provided on each side of the roadway, one foot from the right-of-way line to provide a five-foot-wide planting strip. In commercial or business areas, the sidewalks should be eight feet wide or extend to the property line and be located adjacent to the curb.

Minor Arterial Streets

Minor arterial streets are intended to provide for the movement of traffic between areas and across portions of a city or region. As shown on Figure 20, Section E, the minor arterial has 100 feet of right-of-way and 50 to 74 feet of pavement width. Because minor arterials can consist of three or five-lane cross sections, it is recommended that 100 feet of right-of-way be reserved. The 50-foot paved width allows for two 12-foot travel lanes, two six-foot bike lanes, and a 14-foot center turn lane. The 74-foot paved width with 100 feet of right-of-way allows for four travel lanes, two bike lanes, and a center turn lane.

As with major collector streets, the sidewalk would be at least eight feet wide in commercial areas and located adjacent to the curb. In all other areas, the sidewalk would be five feet wide and located five feet from the curb face to provide a planting strip. The bike lanes on arterial streets are recommended to be six feet wide to provide a greater buffer to the cyclist when on a high volume roadway.

The 14-foot-wide left-turn medium could also be developed with a raised median between left-turn lanes. The raised median would be ten feet wide curb face to curb face with a two-foot pavement widening on each side of the median.

Residential property should not face or be provided with access on arterial streets.

If the arterial street volume is forecast to be less than 800 vehicles per hour in the direction of the heaviest flow, the 50-foot roadway width curb face-to-curb face should be utilized. For areas where the arterial street volume is forecast to be in excess of 800 vehicles per hour in the direction of the heaviest flow, then a four-lane plus left-turn lane cross section should be utilized.

Major Arterial Streets

Major arterials are intended to serve as primary routes for travel between major urban activity centers. The cross section for a major arterial is shown in Figure 20, Section F. Major arterials on the McMinnville Transportation Master Plan map include Highway 99W and Highway 18. The functional classification is comparable to ODOT's classification of a principal arterial. The major arterial is a 74-foot wide roadway, curb face-to-curb face,

which provides for two travel lanes and bike lanes in each direction, plus left-turn lanes at intersections or throughout the roadway. Right-of-way width is 100 feet. The traffic carrying capacity of Section F is approximately 32,000 vehicles per day. In commercial areas the sidewalks should be eight feet wide and adjacent to the curb otherwise they should be five feet wide located five feet from the curb to provide a planting strip.

The 14-foot-wide left-turn median could also be developed with a raised median between left-turn lanes. The raised median would be ten feet wide and curb face to curb face with a two foot pavement widening on each side of the median.

Bike Lanes

In cases where a bikeway is proposed within the street right-of-way, it is recommended that the roadway pavement (*between curbs*) be widened to provide a five-foot bikeway on each side of the street as shown on the cross sections except on arterials it would be six feet wide. In some situations, curb parking may have to be removed to permit a bike lane. Bike lanes on one-way streets should be located on the right side of the roadway, be one-way, and flow in the same direction as vehicular traffic. In cases where curb parking would exist with a bike lane, the bike lane would be located between the parking and travel lanes.

Curb Parking Restrictions

It is recommended that curb parking on all streets be prohibited at least 25 feet from the end of the intersection curb return to provide some sight distance to cross street motorists.

A summary of the street standards is shown on Table 9. The Traffic Way Plan is shown on Figure 21. It describes the existing and recommended functional street classifications, and existing and proposed traffic signals.

TABLE 9
STREET STANDARDS

Section	Classification	Pavement Width in Feet	Number of Lanes	Right-of-way Width in Feet	Design Capacity Vehicles per Day
A	Local Residential	28	2	50	200*-1,200
B	Minor Collector	36	2	60	1,200-3,000
C	Minor Collector w/ Bike Lanes	46	2	70	1,200-3,000
D	Major Collector w/ Bike Lanes	48	3**	70	1,500-10,000
E	Minor Arterial (*3 to 5 lanes w/Bike Lanes*)	50-74	3-5**	100	10,000-32,000
F	Major Arterial (*5 lanes w/Bike lanes*)	74	5**	100	32,000 and greater

Note: Design capacity based on level of service "D", 5 percent commercial vehicles, 10 percent right turns, 10 percent left turns, peak hour factor 90 - 95 percent, peak hour directional distribution 55 to 60 percent, peak hour 9-12 percent of daily volume and average signal timing for collector and arterial streets.

All new major collector and arterial roads shall include bike lanes.

* 200 for Cul-de-Sac Streets
** Includes left-turn lane

LEGEND:

EXISTING

- MAJOR ARTERIALS
- MINOR ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS
- SELECTED LOCAL STREETS
- TRAFFIC SIGNALS

PROPOSED

- MINOR ARTERIALS
- MAJOR COLLECTORS
- MINOR COLLECTORS
- PROPOSED SIGNAL
- CONEPTUAL MINOR ARTERIAL, LOCATION TO BE DETERMINED
- CONCEPTUAL INTERCHANGE

LOCATION OF NEW ROADS SHOW GENERAL ROUTING AND ARE NOT SITE SPECIFIC.

MILES
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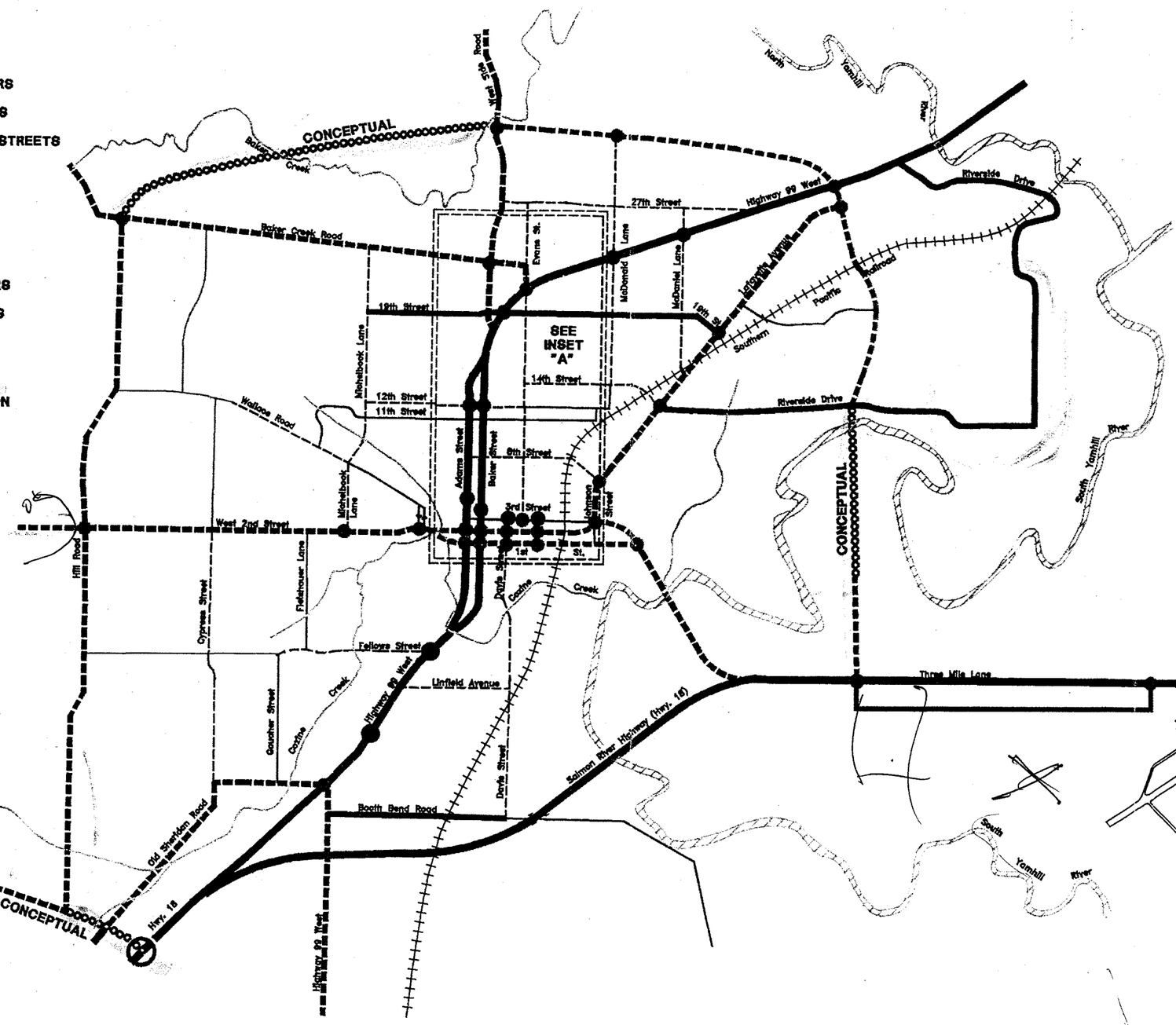

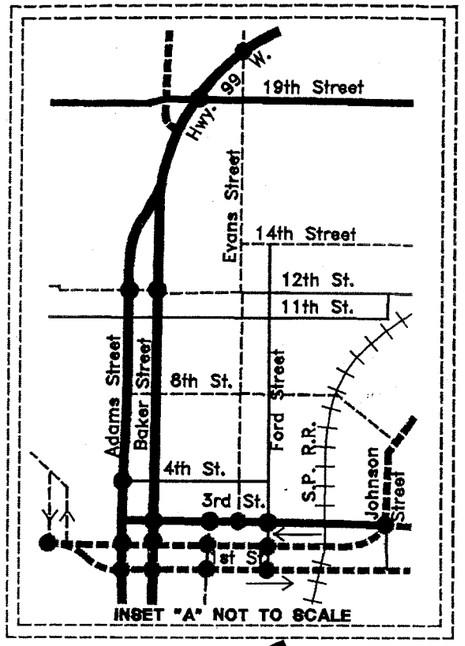

INSET "A" NOT TO SCALE

DRAFT-
Final in Color

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FIGURE 21
TRAFFIC WAY PLAN

ACCESS MANAGEMENT

Access management is an important key to balanced urban growth. As evidence, the lack of a prudent access management plan has led to miles of strip commercial development along the arterials of many urban areas. Business activities along arterials lead to increased traffic demands and the provision of roadway improvements to accommodate the increasing traffic demand. Roadway improvements stimulate more business activity and traffic demands. This often continues in a cyclical fashion and requires extensive capital investments for roadway improvements and relocation. However, with the tightening of budgets by federal, state, and local governments, the financial resources to pay for such solutions are becoming increasingly scarce.

Reducing capital expenditures is not the only argument for access management. Additional driveways along arterials lead to an increased number of potential conflict points among vehicles entering and exiting the driveway, and through vehicles on the arterials. This not only leads to increased vehicle delay and a deterioration in the level of service on the arterial, but also leads to a reduction in safety. Thus, it is essential that all levels of government try to maintain the efficiency of existing arterials through better access management.

Traffic operations improvements and access provision are both important transportation objectives. However, the two are inversely related, and one can be achieved only by compromising on the other. Past research has shown a direct correlation between the number of access points and the accident rate for a specific class of roadway. Hence, it is important to strike a balance between traffic operations and access control through a prudent access management plan.

Access management is hierarchical, ranging from complete access control on freeways to increasing use of streets for access purposes, parking and loading at the local and minor collector level. Table 10 describes recommended access management guidelines by roadway functional classification and appropriate adjacent land use type.

TABLE 10
ACCESS MANAGEMENT GUIDELINES

Functional Classification	Minimum Posted Speed	Minimum Spacing Between Driveways and/or Streets[1]	Spacing Between Intersections	Appropriate Adjacent Land Uses
Major Arterial	55	None	1-5 miles	• Rural
Major Arterial	35-50	800 ft.	1/4 mile	• Community/neighborhood commercial near major intersections • Industrial/offices/low volume retail and buffered medium or higher density residential between intersections
Minor Arterial	35-50	300 ft.	1/4 mile	• Light industry/offices and buffered medium or low density residential • Neighborhood commercial near some major intersections
Major Collector	25-40	100 ft.	500 feet	• Buffered low or medium density residential • Compatible neighborhood commercial at some intersections
Minor Collector	25-35	50 ft.	300 feet	• Primarily lower density residential
Local Residential Street	25	access to each lot permitted	250 ft.	• Primarily low density residential

[1] Desirable design spacing (*existing spacing will vary*)

Source: Washington County Department of Land Use and Transportation and Oregon Department of Transportation

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

- Restricting spacing between access points based on the type of development and the speed along the arterial;
- Sharing of access points between adjacent properties;
- Providing access via collector or local streets where possible;
- Construction of frontage roads to separate local traffic from through traffic;
- Providing service drives to prevent spill-over of vehicle queues onto the adjoining roadways.

Traffic and facility improvements for access management include:

- Provision of acceleration, deceleration, and right turn only lanes;
- Offsetting driveways to produce T-intersections to minimize the number of conflict points between traffic using the driveways and through traffic,
- Installing median barriers to control conflicts associated with left turn movements;
- Installing side barriers to the property along the arterial to restrict access width to a minimum.

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

Access should be controlled on the Ring Road and on Hill Road to eliminate the possibility of urbanization outside of these roads in what is now classified as Farm of Forest Lands. Access control can be provided on these roads by owning the access rights to the roadway or by owning a strip of the abutting land as with a park-way type road.

STREET IMPROVEMENTS

The Master Plan was determined by applying recommended street classification standards to year 2011 traffic forecast results. The Master Plan covers a twenty year planning horizon and does not assume expansion of the McMinnville urban growth boundary. The Master Plan map (Figure 21) describes functional street classifications and probable location of traffic signals. A recommended truck routing plan is shown on Figure 22. The plan shows both interim truck routes, which would continue to utilize Highway 99W through the central business district, and a master plan truck route with proposed road improvements in place by 2011.

The following is a description of the modifications to the existing street system necessary to fulfill the Master Plan. Arterial and collector street improvements are described in detail. The recommended staging of improvements to arterial and collector roads is described in the Implementation section.

Arterials

Highway 99W

Widen to five lanes from the Adams/Baker Couplet to Old Sheridan Road. This project is in ODOT's six year highway improvement program. Install new traffic signals when warranted at the intersections with Lafayette Avenue, Evans Street, and at 1st Street. Access management strategies and striped bike lanes should be implemented on the section between Lafayette Avenue and the Adams/Baker Street couplet.

Highway 18

Construct a new interchange near Durham Lane on Highway 18, and provide a direct connection to Hill Road as part of future City Ring Road. The interchange would be designed as part of the interchange to Highway 99W when Highway 18 needs to be widened to four lanes. The connection to Hill Road would be a minor arterial constructed to design standard E. Part of Durham Lane is conceptual as it is outside of the Urban Growth Boundary and would need a goal exception to implement. Highway 18 is classified as a major arterial, but would be constructed to a four to five lane standard of ODOT.

Highway 18 Spur

Reclassify as a minor arterial, following design standard E with three lanes and implement access control standards.

LEGEND:

- ARTERIALS
- COLLECTORS
- RIVERS
- STREAMS
- RAILROAD
- URBAN GROWTH BOUNDARY
- PROPOSED TRUCK ROUTE IN MASTER PLAN
- INTERIM TRUCK ROUTE PRIOR TO MASTER PLAN IMPLEMENTATION
- CONCEPTUAL

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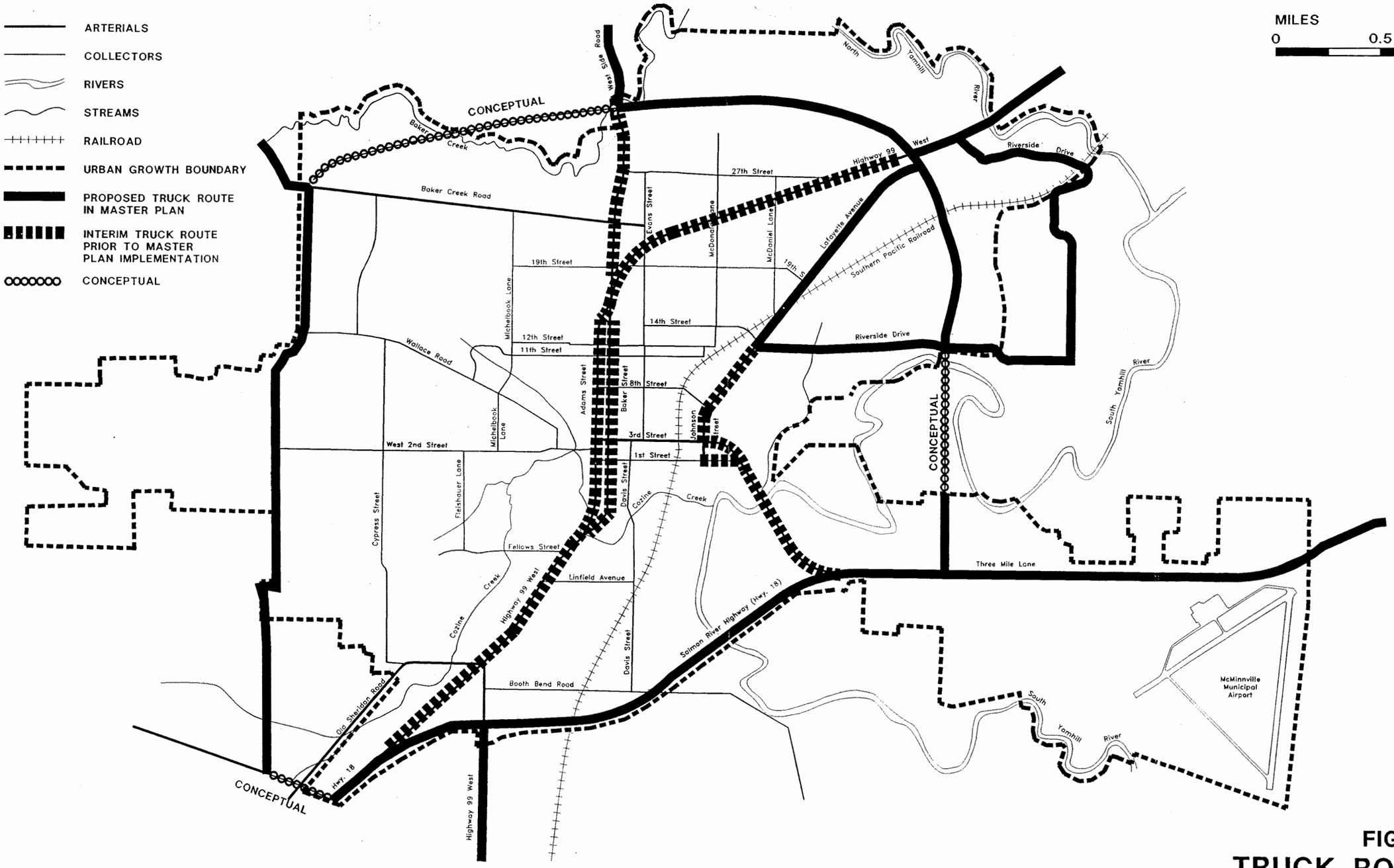

FIGURE 22
TRUCK ROUTING PLAN

1st and 2nd Street Couplet

Connect 1st and 2nd Streets onto a one-way couplet between Cozine Creek and the Highway 18 Spur and classify the roadways as minor arterials. 1st Street would function eastbound and 2nd would function as westbound. Construct a one-way westbound connecting road from the intersection of 3rd and Johnson Streets to the intersection of 2nd and Irvine Streets and restripe 3rd Street from that shown on Figure A-2 to that shown on Figure A-6 in the Appendix. Construct a one-way eastbound connecting road from West 2nd Street near Cozine Creek to the intersection of 1st and Adams Streets as shown on Figure A-7 in the Appendix. First Street between Adams and Baker Streets will need to be regraded to reduce the existing slope.

New traffic signals will be required at First Street at Baker and Adams Streets.

Traffic circulation at the existing fire station on Second Street between Baker and Adams Street will be affected by the one-way couplet. Fire trucks responding to calls to the north and east will have to exit onto westbound Second Street and drive around the block to eastbound First Street. Pre-emption of the traffic signals at First and Second, and Adams and Baker will be necessary for fire trucks to respond quickly.

West 2nd Street

Reclassify West 2nd Street as a minor arterial and widen to five lanes between the west terminus of the 1st/2nd Street Couplet and Wallace Way. Continuous left turn lanes should be provided throughout the length of West 2nd Street. Extend west of Hill Road as the residential area develops. Provide traffic signals when warranted at Wallace Way, Michelbook Lane and Hill Road.

Baker Street

Realign the Baker Street intersection with Highway 99W to provide more of a right-angle approach to Highway 99W. Figure A-8 in the Appendix indicates this modification. Baker Street is a minor arterial with two through lanes.

Baker Creek Road/Evans Street

Extend Baker Creek Road east from Baker Street (West Side Road) to Evans Street as a minor arterial, design standard E. Evans Street would be reclassified as a minor arterial between the Baker Creek Road extension and Highway 99W, and striped for two lanes with a left-turn lane. Curb parking would have to be removed. The intersections of Baker Creek Road and Baker Street, and Evans Street and Highway 99W would be signalized.

Hill Road

Reserve right-of-way to meet minor arterial, design standard E. Straighten curves to the north and south of the West 2nd Street intersection. Purchase access control on the west side to eliminate all access possibilities to lands outside the UGB and to reduce the possibility of future development.

Lafayette Avenue

Implement improvements listed in ODOT six year highway improvement program to bring Lafayette Ave. up to the minor arterial, design standard E. When Norton Lane extension is constructed, realign the Lafayette Avenue to Norton Lane and signalize the intersection as shown on Figure 21. Traffic signals will also be needed sometime in the future on Lafayette Avenue at 8th Street, Riverside Drive, and 19th Street as traffic volume warrants.

Northeast "Ring Road"

Construct a new minor arterial with two travel lanes and bike lanes (*design standard E*), from Highway 99W to West Side Road. The alignment shown on Figure 21 is not site specific and would be within the existing Urban Growth Boundary.

Northwest "Ring Road"

The Northwest "Ring Road" is conceptual only as it is located outside of the UGB. It would also pass through some wetlands. A goal exception and environmental analysis would be needed to set its alignment prior to construction. It would be a two-lane minor arterial with bike lanes *(design standard E)*. It would be constructed with access control so there are no driveways or access points leading to the areas outside the UGB.

Norton Lane Extension

Construct a new minor arterial road with two travel lanes and bike lanes (*design standard E*), from Highway 18 to Highway 99W. A portion of the roadway alignment is conceptual as it is outside of the UGB and crosses a farm, some wetlands and the South Yamhill River. A goal exception and wetlands mitigation will be needed when the alignment analyses are made. The alignment shown on Figure 21 is conceptual only, is not site specific, and will require an alternatives analysis in connection with an environmental analysis prior to setting an exact location. This roadway would eliminate the need to widen Lafayette Avenue and the Highway 18 Spur to five lanes in a residential area.

Old Sheridan Road

Improve to minor arterial (*design standard E*) with three lanes from Highway 99W to Cypress Street and realign Old Sheridan Road to the south to connect directly opposite Cypress Street.

Collectors

Cypress Street

Extend as a minor collector with bike lanes (*design standard C*), from West 2nd Street to Baker Creek Road. An off-set will be necessary at Wallace Road, as shown on Figure 21, because of the existing development pattern.

Evans Street

Improve sight distance between 4th and 6th Streets. Install a traffic signal at 3rd Street as recommended in the Short Term Improvement section and then monitor the signal at Ford Street to determine if it could be removed.

Fellows Street

Extend Fellows Street as a minor collector with bike lanes (*design standard C*), westbound to Hill Road.

Wallace Road

Extend Wallace Road as a minor collector with bike lanes (*design standard C*), west to Hill Road. The east terminus of Wallace Road is recommended to be modified by connecting Star Mill Way and Wallace Way into a one-way couplet as shown on Figure A-7 in the Appendix.

Star Mill Way would operate one-way northbound and be striped for one travel lane, a bike lane, and curb parking on one side.

Wallace Way would be striped for one southbound lane, a bike lane, and curb parking on one side. The intersections of Wallace Way and 2nd Street would be signalized because of the expected increase in traffic on Wallace Way and the sight distance problem at 2nd Street.

The intersection of Wallace Road and Wallace Way will need to be channelized to prohibit eastbound traffic east of Wallace Way. The park access on Wallace Road will also need to be realigned so exiting traffic can only turn right conveniently.

The 2nd Street five-lane section would be reduced west of Star Mill Way by dropping the westbound curb lane at Star Mill Way as shown on Figure A-7 in the Appendix.

Three Mile Lane Frontage Road

Construct a new major collector road (cross section to be determined) to provide access and circulation to the industrial area near the McMinnville Airport and immediately south of Highway 18.

12th Street

Realign the west approach of 12th Street at Baker Street to nearly align with the east approach. This could be accomplished by widening the west approach to the south.

Riverside Drive/14th Street

Realign Riverside Drive and 14th Street at Lafayette Avenue to form one continuous east-west street with one intersection at Lafayette Avenue.

19th Street

Widen 19th Street between Baker Street and Hwy 99W from 36 to 40 feet and remove curb parking. This widening will provide one westbound lane (*16 feet wide*), an eastbound left-turn lane, and an eastbound combination left, through, and right-turn lane. The traffic signal at the intersection with Hwy 99W and 19th Street will need to be modified to accommodate the left-turn phasing or separate phases for each approach of 19th Street. See Figure A-8 in the Appendix.

BIKEWAY PLAN

The bikeway master plan is shown on Figure 23. The master plan map shows the ODOT bicycle route system, including Highways 99W and 18, existing and proposed bikeways from the 1983 Plan, and proposed bikeways with new road improvements recommended on the transportation master plan map (Figure 21). The bikeway plan includes a bikeway designation on all arterial and collector streets. Where new bike lanes are installed, they would be one way and five or six feet wide, and would be located adjacent to the curb, except where there is curb parking or a right turn lane. Where these conditions occur, the bike lane would be located between the through travel lane and the parking or right-turn

LEGEND:

- ODOT BICYCLE ROUTE SYSTEM
- EXISTING CITY BIKEWAYS
- PROPOSED BIKEWAY WITH ROAD IMPROVEMENTS
- CITY BIKEWAY PLAN TRANSPORTATION PLAN ELEMENT
- CONCEPTUAL

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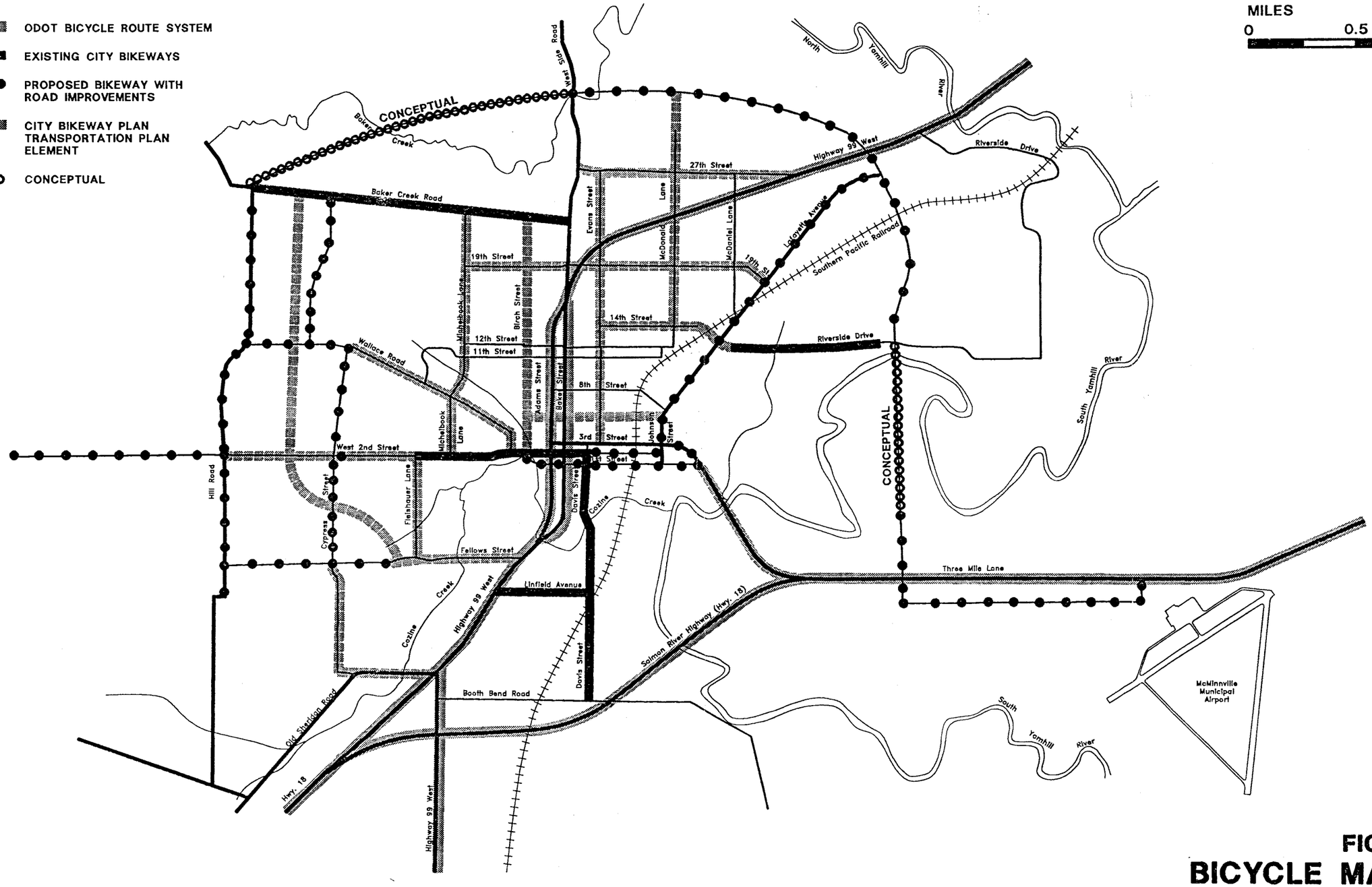

FIGURE 23
BICYCLE MASTER PLAN

lane. The bike lane would be marked in the same direction as the adjacent travel lane. The striping shall be done in conformance with the Manual on Uniform Traffic Control Devices.

To install bike lanes shown on existing collector streets, the City would have to remove parking on one side of the street. One bike lane would be striped adjacent to the curb in one direction, and between the parking and travel lane in the opposing lane unless otherwise indicated previously in the description of collector street improvements. These conditions occur primarily in residential neighborhoods. Coordination with the residents is recommended because of the need for some on-street parking. In cases where parking cannot be removed, then the bikeway may have to be signed only.

Retention of on-street parking and use of a shared roadway is acceptable along a portion of a bicycle route under the following conditions:

1. The designated speed on the roadway is 25 miles an hour or less. (Bicycles can move with the flow of traffic and face fewer conflicts at lower speeds.)

2. Traffic volumes on the roadway do not create serious safety hazard to cyclists. (High volumes increase the potential for conflicts by reducing opportunities for vehicles to move safely around cyclists.)

3. The shared roadway segment of the bike route is as short as possible.

4. Adequate on- or off-street parking is not available and cannot reasonably be made available in the area.

posted

Bikeways on local residential streets would not be signed as a route because the vehicular traffic volume is low on these streets, the speeds are 25 miles per hour or less, and exclusive bike lanes are not necessary.

?

PEDESTRIAN SYSTEM

A complete pedestrian system should be implemented in the City. Every paved street should have sidewalks on both sides of the roadway. Pedestrian access on walkways should be provided between all buildings including shopping centers and abutting streets and adjacent neighborhoods.

A recreation walking transit system is recommended to be planned for the City to maximize pedestrian trip-making.

PUBLIC TRANSPORTATION

Public transportation is an important part of the overall City transportation system. It is recommended that the existing YAMCO service in McMinnville be expanded during the 20 year planning period.

It is recommended that the existing YAMCO service to the general public be improved within the near future. Service on its two routes are provided at one-hour intervals between approximately 7:30 AP.M. and 6:30 P.M.

Initially, the service should be marketed to the general public more aggressively. The marketing effort could include the following:

- Advertize in the News-Register and local radio stations;
- Include system map and scheduled information in the telephone book;
- Install displays and schedule racks in lobbies of all public buildings, banks, and restaurants;
- Mail transit information with utility bills;
- Install bus stop signs; and,
- Install bus passenger shelters at key locations.

As ridership increases, the bus service frequency then could be increased, the hours of operation expanded, and new routes developed. It is recommended that a more detailed transit feasibility analysis which focuses on a five-year operating plan, ridership levels, marketing, and financing be conducted within the next five years.

Figure 24 shows existing and proposed possible future transit routes. The proposed routes would increase the east-to-west service area and provide an alternative transportation mode between the projected residential growth to the west and employment growth to the east.

Existing programs such as Links, Dial-A-Ride, Special/Senior Transportation and the Taxi-Ticket Subsidy should be retained and expanded.

RAIL SERVICE

Rail service is a vital transportation link to industry. Its need varies with the economy and the raw material needs and products produced in the industrial community. At present, the rail service is sufficient. However, every effort should be made to maintain this service or even expand it for the existing and future industrial growth in the north and west portions of the City.

LEGEND:

- YAMCO TRANSIT (1991)
- RECOMMENDED TRANSIT STREETS IN MASTER PLAN
- RECOMMENDED "LINKS" CONNECTOR ROUTES
- CONCEPTUAL

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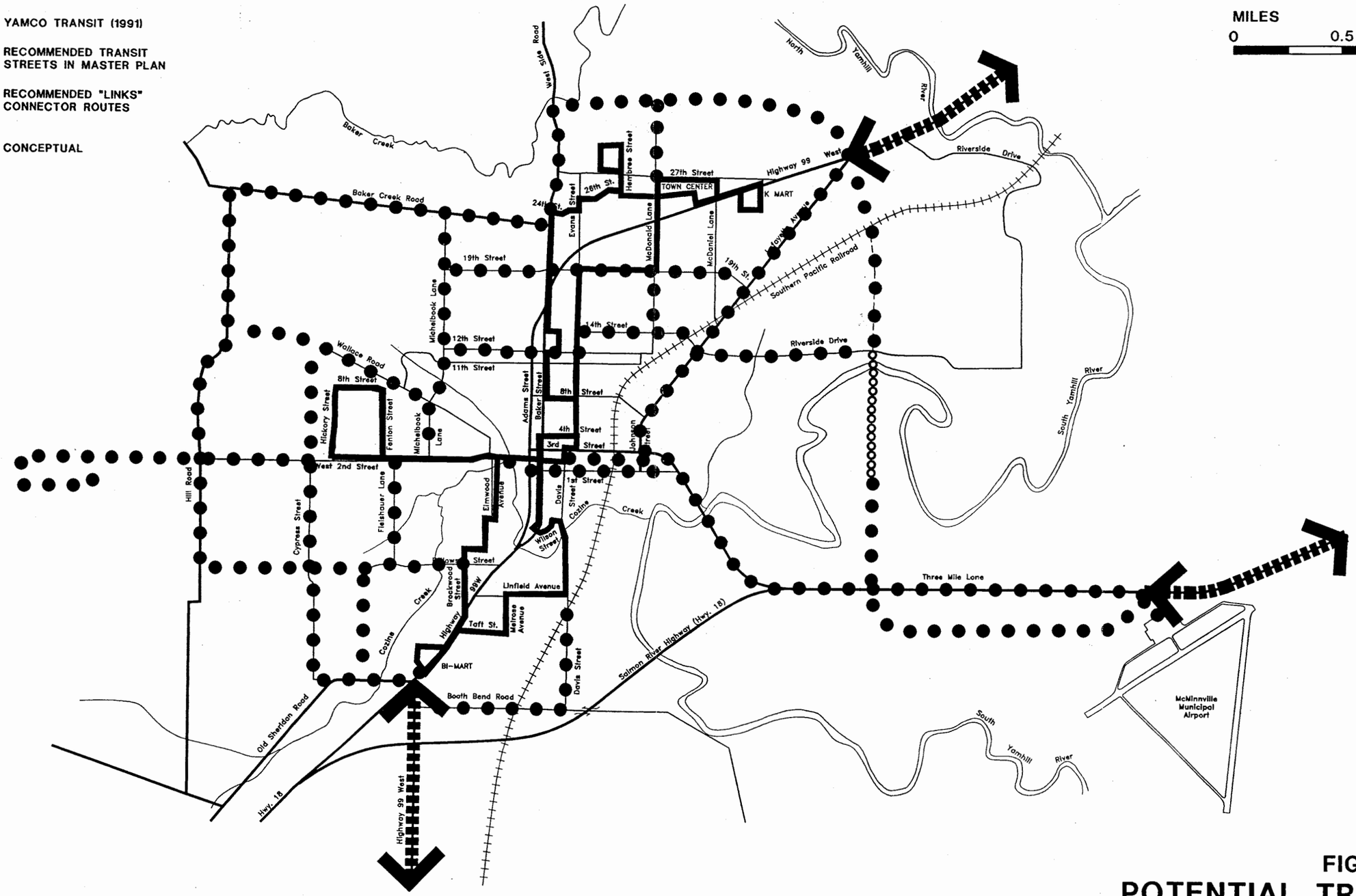


FIGURE 24
POTENTIAL TRANSIT ROUTES

If existing service is reduced, rail right-of-way could potentially be converted to bicycle and pedestrian use. Also, there is a long range potential, probably beyond this twenty year planning horizon, of passenger rail linkage to Portland's proposed regional rail system.

AIR SERVICE

The *McMinnville Municipal Airport Master Plan Update: 1989 - 2009* prepared by Wilsey and Ham Pacific and TRA Airport Consulting was prepared in 1988. The Airport Master Plan structure is similar to the Transportation Master Plan, as it includes an inventory of existing facilities and land use, aviation forecasts, a demand/capacity analysis, airport plans and development program, a detailed land use plan and a chapter on environmental issues.

TRANSPORTATION DEMAND MANAGEMENT

Through transportation system management, the peak travel demands can be reduced or spread to provide more efficiency in the transportation system, rather than building new or wider roadways. Techniques which have been successful and could be initiated to help alleviate some traffic congestion include carpooling and vanpooling, alternative work schedules, high density development along transit routes, bicycle and pedestrian facilities and programs focused on high density employment areas.

Carpooling and Vanpooling

The City should work with large employers, especially in the growing industrial area to establish a carpool and vanpool program. These programs, especially oriented to workers living in other neighboring cities, would help to reduce the travel and parking requirements and to reduce air pollution. Employers can encourage ridesharing by providing matching services subsidizing vanpools, establishing preferential car and vanpool parking and convenient drop-off sites, and through other promotional incentives. A very aggressive program could reduce peak hour vehicle trips by 200 to 250.

Alternative Work Schedules

Alternative work schedules (*such as flex-time or staggered work hours*), especially with large employers, can help spread the peak period traffic volumes over a longer time period, thus providing greater service out of a fixed capacity roadway. Many industrial employers already have work schedules which are earlier than the norm. These different schedules should be encouraged with new industries. It is estimated that this type of program could reduce peak hour vehicle trips by approximately 300.

Transit and Bicycle/Pedestrian Facilities

Transit and bicycle/pedestrian use can be encouraged by implementing strategies discussed earlier in this plan. In addition, transit can be encouraged with fare subsidies and by providing convenient access to transit stations. Provision of bicycle parking, showers and locker facilities helps to encourage bicycle commuting and walking to work. It is estimated that nearly 200 peak hour vehicle trips could be reduced by these measures.

Telecommuting

The ability for people to work at home with the telecommuting technology is likely to continue to grow during the next several decades. During the past ten years, the percent of people working at home using telecommuting technology (home computers, fax modems, etc.) has increased by 250 percent. If that trend continues, an additional 7.6 percent of the work force could stay home and work, thus reducing peak hour trips by 500 by the year 2000.

High Density Employment Areas

Transportation Demand Management programs work best in areas of high density employment and are most successful when applied to firms with more than 50 employees. Potential target areas for transportation demand management programs in the McMinnville area include the central business district, Linfield College, the northeast industrial area, and the airport industrial area.

The City can work toward implementation of transportation demand management strategies through coordination with major employers, Linfield College, the McMinnville Chamber of Commerce, employees and citizens. Successful implementation includes public support, industry involvement, quantifiable goals, and employer/employee incentives.

COMPREHENSIVE PLAN CHANGES

Goals and Policies

The existing transportation system goals are contained in the Appendix together with recommended changes to reflect this transportation plan.

Plan Changes

Changes in the existing Comprehensive Plan could encourage a switch in some trips from the private automobile to walk, bicycle, and public transportation. The provision of employment sites on the west side of town could make it possible for some workers to conveniently walk or use a bicycle to and from work.

The development of new neighborhoods following the concept of "Neo-Traditional" which contains a mix of land uses for living, shopping, and working, and with a street system designed to encourage transit accessibility and walking could put residents closer to work, to convenient shopping opportunities and to transit service.

IMPLEMENTATION

The implementation program is provided in the following priorities:

- Immediate, within one to two years;
- Phase 1, Prior to 1995;
- Phase 2, 1995 to 2000;
- Phase 3, After 2000; and,
- With Adjacent Development/When Warranted.

These priorities are based on current need, and the relationship between transportation service needs and the expected growth of the City. However, some projects may not be needed until adjacent land develops, or for example, when traffic signal warrants are satisfied. Assignments of 2011 P. M. peak hour traffic volumes were used to aid in setting priorities (see Figure 17), and 2001 P. M. peak hour traffic volumes (see Figure 19). The following schedule indicates priorities and may be modified to reflect the availability of finances or the actual growth in population and employment.

Immediate Priority: Short Term Improvements Within One to Two Years

- Install a traffic signal at 3rd Street and Johnson Street, see Figure A-2 in the Appendix;
- Intersection improvements at Lafayette Avenue and 8th Street, see page 14;
- Intersection improvements at Baker Street and 4th Street, see page 15;

- Access improvement from hospital to Baker Street, see Figure A-3 in the Appendix;
- Evans Street improvements between 4th Street and 6th Street, see figure A-4 in the Appendix;
- Stop sign installation along arterials and collectors, see page 16; and,
- Market YAMCO transit service to the general public, see page 50.

Phase 1: Prior to 1995

- Lafayette Avenue from Highway 99W to 8th Street - construct curbs, storm drains and sidewalks, and overlay roadway;
- Highway 18 "Spur" from 8th Street to South Yamhill River Bridge - grading and paving;
- Realign Riverside Drive and 14th Street;
- Highway 99W from Edmunston Street to Highway 18 - widen and realign highway and add bike lanes;
- Straighten curves on Hill Road;
- Improve Highway 99W, Baker, and 19th Street intersection complex and extend Baker Creek Road to Evans Street. Signalize intersection of Evans Street and Highway 99W, see Figure A-8 in the Appendix;
- Install traffic signal at 3rd Street and Evans Street;
- Realign 12th Street at Baker Street and add right-turn lane on Baker Street;
- Purchase right-of-way for the 1st and 2nd Streets couplet; and,
- Monitor the TDM program to change priorities or needs.

Phase 2: 1995 to 2000

- Convert 1st and 2nd Streets to one-way couplet;
- Widen West 2nd Street from 1st/2nd Couplet to Wallace Way and implement the Star Mill Way and Wallace Way one-way couplet;

- Widen Old Sheridan Road from Cypress to Highway 99W;
- Widen Highway 99W from Old Sheridan Road to Highway 18W;
- Determine final location and construct Norton Lane Extension from Highway 18 to Highway 99W; and,
- Conduct a transit system feasibility analysis.
- Monitor the TDM program to change priorities or needs.

Phase 3: After 2000

- Construct Northeast "Ring Road" from Hwy 99W to Westside Road;
- Prepare a location and environmental analysis for the alignment of the Northwest Ring Road. Prepare a goal exception for the alignment outside of the Urban Growth Boundary. Complete the construction of Ring Road;
- Determine final location, design, and construct interchange between Highway 18, Highway 99W with McMinnville and Durham Roads; and,
- Update transportation plan.

With Adjacent Development/When Warranted

- Extend West 2nd Street west of Hill Road;
- Extend Fellows Street to Hill Road;
- Extend Wallace Road to Hill Road;
- Extend Cypress Street from West 2nd Street to Baker Creek Road;
- Construct new industrial circulation road south of Three Mile Lane; and,
- Install traffic signals (*when warranted*) at the following locations:

1) Hill Road and Baker Creek Road
2) West Side Road and northeast ring road
3) McDonald Lane and northeast ring road
4) Hwy. 99W and Lafayette Avenue
5) Baker Creek Road and Baker Street
6) West 2nd Street and Hill Road

7) West 2nd Street and Michelbook Lane
8) West 2nd Street and Wallace Way
9) 2nd Street and Davis Street
10) 2nd Street and Ford Street
11) 1st Street and Adams Street
12) 1st Street and Baker Street
13) 1st Street and Davis Street
14) 1st Street and Ford Street
15) 1st Street and Hwy. 18 Spur
16) Three Mile Lane and airport access
17) Lafayette and 8th Street
18) Lafayette and Riverside Drive
19) Lafayette and 19th Street

CONSTRUCTION COST ESTIMATES

The cost of each project listed in the implementation program was prepared on the basis of 1991 costs. These costs include design, construction, right-of-way acquisition, and contingencies. The cost estimates are preliminary by roadway segment and do not include storm drains, water or sewer facilities, or more detailed intersection design. Except where noted, cost estimates were generated by the consultant.

It is estimated that this program would cost approximately $37 million for the City to implement. Cost estimates are summarized in Table 11. A detailed analysis of funding options and a recommended financial plan is discussed in the following section.

TABLE 11
CONSTRUCTION COST ESTIMATES

Project	Estimated Cost	Notes/Other Potential Participants
Immediate Priority:		
Install a traffic signal at 3rd Street and Johnson Street	$ 136,000	
Intersection improvements at Lafayette Avenue and 8th Street	5,000	
Intersection improvements at Baker Street and 4th Street	1,000	
Access improvement from hospital to Baker Street	1,000	
Evans Street improvements between 4th Street and 6th Street	5,000	
Stop sign installation along arterials and collectors	15,000	
Subtotal	**$ 163,000**	
Prior to 1995:		
Hwy. 99W: Edmunston Street to Hwy. 18	$ 2,150,000	ODOT, FA
Hwy. 99W, Baker, and 19th Street intersection	100,000	
Extend Baker Creek Road	600,000	
Straighten curves on Hill Road	675,000	
Realign 12th Street	100,000	
Install a traffic signal at 3rd Street and Evans Street	125,000	
Subtotal	**$ 3,750,000**	
Phase 2: 1995 to 2000:		
Lafayette Avenue: Hwy. 99W to Yamhill River	$ 2,170,000	ODOT, FAU
Convert 1st and 2nd Streets to one-way couplet	660,000	
Widen Old Sheridan Road from Cypress to Hwy. 99W/Hwy. 18	1,540,000	
Construct Norton Lane Extension from Hwy. 18 to Riverside Dr.	6,545,000	
Construct Norton Lane Extension from Riverside Dr. to Hwy. 99W	2,600,000	
Widen West 2nd Street from 1st/2nd Couplet to Wallace Way	585,000	
Subtotal	**$14,100,000**	
Phase 3: After 2000:		
Construct Northeast "Ring Road" from Hwy 99W to Westside Road	$ 2,320,000	
Construct Northwest "Ring Road" to Baker Creek Road/Hill Road	3,913,000	
Hwy 18 Interchange	5,000,000	Potential ODOT
Subtotal	**$11,233,000**	

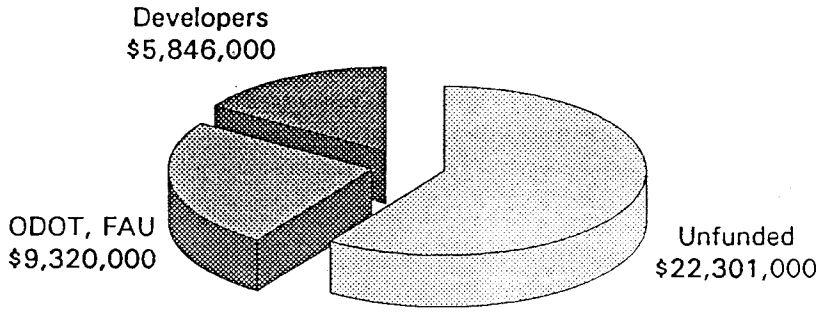
TABLE 11 (*continued*)
CONSTRUCTION COST ESTIMATES

Project	Estimated Cost	Other Potential Participants
With Adjacent Development/When Warranted		
Extend West 2nd Street west of Hill Road	$ 1,278,000	Potential
Extend Fellows Street to Hill Road	$ 920,000	
Extend Wallace Road to Hill Road	$ 500,000	by
Extend Cypress Street from West 2nd Street to Baker Creek Road	$ 700,000	
Construct new industrial circulation road south of Three Mile Lane	$ 1,100,000	Developer
Construct Brooks Street extension to Marsh Lane	$ 1,348,000	
Signals when warranted:		
Hill Road and Baker Creek Road	$ 125,000	
West Side Road and northeast ring road	$ 125,000	
McDonald Lane and northeast ring road	$ 125,000	
Hwy. 99W and Lafayette Avenue	$ 125,000	
Baker Creek Road and Baker Street	$ 125,000	
West 2nd Street and Hill Road	$ 125,000	
West 2nd Street and Michelbook Lane	$ 125,000	
West 2nd Street and Wallace Way	$ 125,000	
2nd Street and Davis Street	$ 125,000	
2nd Street and Ford Street	$ 125,000	
1st Street and Adams Street	$ 125,000	
1st Street and Baker Street	$ 125,000	
1st Street and Davis Street	$ 125,000	
1st Street and Ford Street	$ 125,000	
1st Street and Hwy. 18 Spur	$ 125,000	
Three Mile Lane and airport access	$ 125,000	
Lafayette and 8th Street	$ 125,000	
Lafayette and Riverside Drive	$ 125,000	
Lafayette and 19th Street	$ 125,000	
Subtotal	$ 8,221,000	
Total	***$ 37,467,000***	

FUNDING OPTIONS AND FINANCIAL PLAN

The City of McMinnville, like other cities in Oregon, is faced with the need to improve and expand its transportation system in order to alleviate existing safety and roadway capacity problems and to accommodate projected growth in the region. The Transportation Master Plan identifies approximately $37.5 (*1991 dollars*) in proposed transportation improvements over the next ten years and beyond. While funding for a portion of the proposed improvements is expected to come from intergovernmental (*federal and state*) sources and private developers, it is likely that residents of McMinnville will be faced with the need to provide funding for the remaining share. Table 10 presented earlier in this report indicates that state, federal and private sources may provide funding for approximately $15.2 million of the proposed transportation improvements, leaving the City with a local funding share of $22.3 million, or 60 percent of the total improvement costs.

Summary of Funding Sources: 1992-2004



This section of the Transportation Master Plan, prepared by Public Financial Management, Inc. (*PFM*), discusses the various funding and financing options that may be available to the City of McMinnville to meet it transportation funding need. The format of this chapter is as follows:

1. Review of historic street improvement funding sources.

2. Discussion of alternative revenue sources and financing tools for street system improvements.

3. Review of the City's current street funding requirements.

4. Recommendations for meeting the City's street system funding requirements.

HISTORIC STREET IMPROVEMENT FUNDING SOURCES

The City of McMinnville accounts for street and transportation-related revenues and expenditures in two separate funds: the Street Fund and the Roadway Fund. A summary of the revenues and expenditures associated with these two funds over the past five years is shown in Tables 12 and 13. The primary revenue source of the Street Fund is state gas tax revenues. In fiscal year (*FY*) 1990-91, state gas tax revenues totalled $659,085, accounting for 97 percent of annual Street Fund revenues. Details of the City's gas tax apportionments over the past five years is shown in Figure 25. The 1991 Oregon State Legislature approved a 2 cent per gallon increase in the state gas tax effective July 1, 1991, and an additional 2 cent per gallon increase that will be effective July 1, 1992. As a result, the City can expect that state gas tax revenues will continue to increase from current levels for the next several years. Other Street Fund revenue sources, including interest earnings, bicycle fees and other revenues totalled approximately $35,000 in FY 1991. The Street Fund ending balance as of June 30, 1991, was $393,891.

Figure 25
Gas Tax Revenues
1987-1991

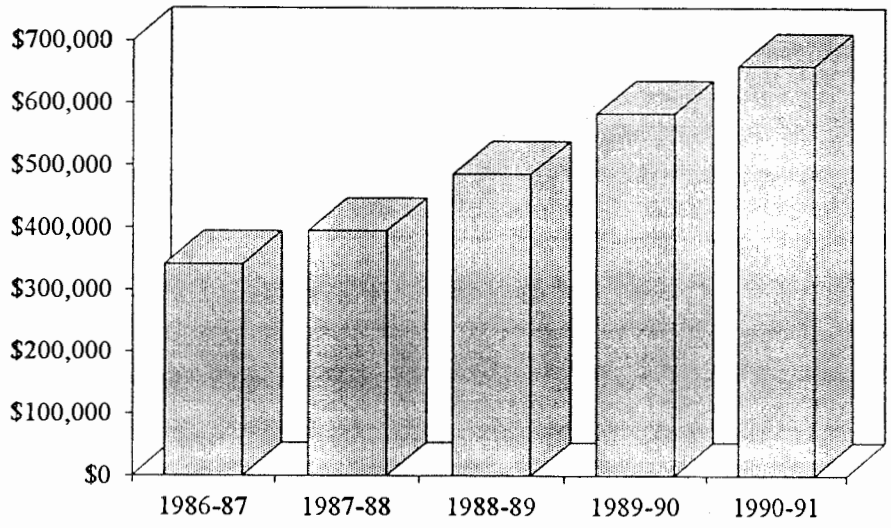


TABLE 13
CITY OF MCMINNVILLE ROADWAY FUND
STATE OF REVENUES AND EXPENDITURES

	1986-87	*1987-88*	*1988-89*	*1989-90*	*1990-91*
REVENUES:					
Property taxes	$ 113,936	$ 108,717	$ 107,830	$ 11,347	$ 2,933
Interest	23,391	26,964	26,433	24,492	13,616
Other	0	4,312	0	0	0
Total Revenues	137,327	139,993	134,263	35,839	16,549
EXPENDITURES:					
Personal services					
Materials and services	66,380	37,754	127,596	198,405	103,796
Capital outlay	44,065	99,609	48,072	17,444	78,396
Total Expenditures	110,445	137,363	175,668	215,849	182,192
Excess of revenues over (under)expenditures	26,882	1,630	(41,405)	(180,010)	(165,643)
OTHER FINANCING SOURCES (USES):					
Operating transfer from General Fund	0	0	0	105,000	111,300
Operating transfer to General Fund	0	(16,000)	(16,480)	(17,140)	(17,997)
Total Other Financing Sources (Uses)	0	(16,000)	(16,480)	87,860	93,303
Excess of revenues and other sources over (under) expenditures and other uses	26,882	(13,370)	(57,885)	(92,150)	(72,340)
FUND BALANCE, Beginning of Year	$ 344,046	$ 370,928	$ 357,558	$ 299,673	$ 207,523
FUND BALANCE, End of Year	$ 370,928	$ 357,558	$ 299,673	$ 207,523	$ 135,183

Source: Derived from annual financial statements

The City's Roadway Fund accounts for property tax revenues used to finance highway and street maintenance, repairs and traffic signals. Annual Roadway Fund revenues have averaged approximately $110,000 over the past five years. Since passage of the City's new tax base in November of 1988, the principal revenues of this Fund are transfers of property tax revenues from the City's General Fund. Prior to FY 1990, property tax revenues flowed directly to the Roadway Fund through a dedicated serial levy for roadway improvements. This dedicated levy was incorporated into the new tax base approved in 1988. As of June 30, 1991 the fund balance in the Roadway Fund was $135,183.

ALTERNATIVE REVENUE SOURCES

The first step in developing a financing plan for street improvements is to identify the potential sources of funding which could be used by the City to meet its transportation needs. Many of the revenue sources discussed below are currently being used by the City, either to fund street improvements or to fund other city services. Others are potential revenue sources not currently in place but which could provide additional revenues in the future. The purpose of this section is to identify the range of revenue sources available to the City.

System Development Charges

An increasingly common source of transportation funding is the collection of system development charges (*SDCs*) from new development. These charges are generally based on a measurement of the demand that a new development places on the street system and the capital cost of meeting that demand. These are one time fees collected as the development comes on line. McMinnville does not currently impose a street system development charge. A further discussion of system development charges and their revenue potential to the City is provided later in this report.

Gas Taxes

The State of Oregon collects gas taxes, vehicle registration fees, overweight/overheight fines and weight/mile taxes and returns a portion of the revenue to cities and counties through an allocation formula. As of January 1, 1990, cities receive approximately 15.57 percent of the net revenues of the state highway fund; counties receive 24.38 percent and the state keeps 60.05 percent. The revenue share allocated to cities is then divided among all incorporated cities based upon population. This revenue split varies from year to year as recent increases in the gas tax are allocated under a different formula than previous increases.

State gas tax revenues received by cities are dedicated to road construction and maintenance. As previously mentioned, the City currently uses these funds primarily for ongoing

maintenance and street support services. Some cities have chosen to issue revenue bonds secured by future gas tax receipts for specific capital projects.

In addition to the state gas tax, some local governments (*City of Woodburn and Washington and Multnomah counties*) currently levy additional local gas taxes with such revenues being used to fund street-related improvements throughout the jurisdiction. PFM has prepared a very preliminary analysis of the revenue that could be generated from a one cent gas tax levied throughout the City of McMinnville. Based on an approximation of gasoline sales in Yamhill County, our analysis indicates that a one cent per gallon local gas tax could produce revenues of about $92,000 per year (see Table 14), This revenue projection should be considered a very rough approximation only and should be explored in greater depth if the City views a local gas tax as an attractive option for funding its transportation need.

TABLE 14
ESTIMATE OF REVENUE GENERATED FROM HYPOTHETICAL YAMHILL COUNTY GAS TAX

	FY 1991
Registered Vehicles Statewide	2,941,008
Registered Vehicles Yamhill County	69,117
Yamhill County as % of State	2.35%
Total Apportionment to Counties	$ 108,101,496
Yamhill County Apportionment	$ 2,540,579
Yamhill as % of State	2.35%
Estimate of County Share of State Total	2.35%
Estimated Gallons Sold Statewide	1,447,400,000
Est. Gallons Sold Yamhill County	34,016,012
Est. County Revenue From 1 cent Gas Tax	$ 340,160
Yamhill County Population	65,600
McMinnville Population	17,830
McMinnville as % of County	27.2%
McMinnville Share of County Gas Tax	
1 cent	**$ 92,455**
2 cent	**$ 184,910**
3 cent	**$ 277,365**

Local Vehicle Registration Fees

Local vehicle registration fees have been proposed at various times to allow local governments to impose a local vehicle registration fee dedicated to transportation and mass transit. Currently, local governments do not have the authority to impose local registration fees. Ballot Measure 1, which was defeated in the May 1990 election, would have given local governments such authority. Despite the defeat of Measure 1 in 1990, we believe the concept of a local vehicle registration fee is likely to resurface in the future and could be viewed as a potential revenue source at some future date.

Assessments

Local improvement districts (*LID's*) may be formed under Oregon Statutes to construct public improvements such as streets, sidewalks and other improvements. Formation of an LID can be initiated by property owners or by the City, subject to remonstrance. Local improvement districts are appropriate for those kinds of improvements that provide primarily local benefits. When improvements are made within the district, the cost of the improvement is generally distributed according to benefit among the properties within the district. The cost becomes an assessment against the property which is a lien equivalent to a tax lien. The property owner may pay the assessment in cash or apply for assessment financing according to terms offered by the City.

Property Taxes

Property taxes are the most widely used revenue source in Oregon. These are levied through tax base levies (*such as the City or School District levy*) which are permanent and increase by 6% each year, serial levies which are for a set amount and set period of time, and bond levies (*usually voter approved general obligation bonds*). They are levied by distributing a set dollar amount over the entire assessed value of the taxing district. Each taxable property within the City pays according to total assessed value.

In FY 1990-91, the City levied approximately $3.53 million in property taxes through its tax base, millage levies and general obligation bond debt service levy. The combined tax rate levy for the City for the most recent tax year totalled $7.12 per $1,000 of assessed value. The City's tax rate for fiscal year 1991-92 is $6.98 per $1,000 of assessed valuation.

In November 1990, Oregon voters approved Ballot Measure 5 which limits the amount of property taxes that can be levied by local governments. A further discussion of the Ballot Measure is provided later in this report.

General Revenues of the City (*General Fund*)

The City has a variety of revenues such as license fees, business taxes, franchise fees and the like that go into the general fund of the City. These general funds are available for any purpose the City chooses.

Sale of Assets

To the extent that the City owns surplus properties, these properties could be sold to produce a one time revenue source.

Oregon Department of Transportation (*ODOT*)

The Oregon Department of Transportation (*ODOT*) has revenue available to it from gas taxes, registration fees and other funds of the State such as income taxes. Involvement of ODOT in transportation projects can result in the importing of these taxes from around the state. An example of how the application of ODOT revenues could benefit the City is in the funding of the improvements to Highway 18 and/or Highway 99W.

ODOT also has available an Immediate Opportunity Grant Program designed to assist local and regional economic development efforts. The program is funded to a level of approximately $5 million per year through state gas tax revenues. ODOT officials state eligibility criteria are somewhat flexible but that the following are primary factors used in determining eligible projects:

1. Must be used to improve public roads.

2. Must be for an economic development-related project of regional significance.

3. The underlying project must create primary employment, such as manufacturing.

4. ODOT prefers that the grantee provide an equal local match (*although lesser matches will be considered*).

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

Oregon Special Public Works Fund

The Special Works Fund (*SPWF*) Program was created by the 1985 Legislature as one of several programs for the distribution of funds from the Oregon Lottery to economic

development projects in communities throughout the state. The program provides grant and loan assistance to eligible municipalities primarily for the construction of public infrastructure which supports private projects that result in permanent job creation or job retention. To be awarded funds, each infrastructure project must support businesses wishing to locate, expand, or remain in Oregon.

While SPWF program assistance is provided in the form of both loans and grants, the program emphasizes loans in order to assure that funds will return to the state over time for reinvestment in local economic development infrastructure projects. The maximum loan amount per project is $11 million and the term of the loan cannot exceed the useful life of the project or 25 years, whichever is less. Interest rates for loans funded with State of Oregon Revenue Bonds are based on the rate that the state may borrow through the Oregon Economic Development Department Bond Bank. The Department may also make loans directly from the SPWF (*not from revenue bond proceeds*) and the term and rate on direct loans can be structured to meet project needs. The maximum grant per project is $500,000 but may not exceed 85% of the total project cost.

Private Contributions

Projects are sometimes paid for by private contributions. Some private contributions are the result of a development right swap of some sort. It is not uncommon to require a developer to build a road, to City standards, and then to deed the road to the City as a condition of development. This practice is used widely throughout the region and may have applicability to the City of McMinnville for specific projects.

FINANCING TOOLS

Having identified potential revenue sources available to the City, we can now look at ways at which these revenues can be used to finance transportation projects. A number of debt financing alternatives are available to the City. The use of debt to finance capital improvements must be balanced with the ability of the City to support the debt and the impacts that debt issuance may have on the City's overall credit quality and capacity to fund other needed public projects. Debt issuance should be viewed as one of several funding alternatives available to the City and should be incorporated into an overall financing plan which may include "pay-as-you-go" funding methods which utilize currently available revenues to meet a portion of the City's transportation needs.

Ballot Measure 5

The approval of Ballot Measure 5 by the voters in November 1990 impacts the range of funding and financing options available to the City to pay the costs of street system improvements. Components of the Measure that may impact the City's street funding

strategies include: tax rate limitation, financing of local improvement districts and the implementation of system development charges.

Tax Rate Limitation

Ballot Measure No. 5 limits the property tax rate for purposes other than for payment of certain voter-approved general obligation indebtedness to $15.00 per $1,000 of assessed value. The Measure further divides the $15.00 per $1,000 into two components: $5.00 being dedicated to the public school system and the remaining $10.00 dedicated to all other governmental units, including cities, counties, special districts and other non-school entities. The tax rate limitation is being implemented over a five-year period as shown as follows:

Fiscal Year	Public Schools	All Other	Total
1991-92	$15.00	$10.00	$25.00
1992-93	$12.50	$10.00	$22.50
1993-94	$10.00	$10.00	$20.00
1994-95	$ 7.50	$10.00	$17.50
1995-96	$ 5.00	$10.00	$15.00

Tax base, special levies and serial levies are subject to the tax rate limitation. Debt service levies used to retire voter-approved general obligation bonds are excluded from the limitation. In the event that the combined non-debt tax rate for a given area exceeds the maximum allowable rate, the Measure provides that the rates of all taxing districts be reduced proportionately.

Measure 5 Impact on General Obligation Bonds

Measure 5 exempts from the tax rate limitation those taxes levied to pay principal and interest on bonded indebtedness provided:

- the bonds are for purposes of *capital construction or improvements*; and
- the bonds are offered as general obligations of the issuer and provided further that the bonds are either issued prior to November 1990, or the question of the issuance of the specific bonds *has been approved by the voters of the issuing entity.*

The 1991 Oregon State Legislature adopted a statutory definition of capital construction that includes the range of costs elements that have traditionally been funded through general obligation bonds, including land acquisition, hard construction costs, existing building acquisition, equipment and machinery as well as planning, design and financing costs associated with capital construction.

The Measure does not exclude from the rate limitation taxes levied to pay indebtedness on non-voter approved general obligation bonds, including G.O. improvement (*Bancroft*) bonds or advance refunding bonds. As a result, the financing of local improvement district projects is likely to be done either through the issuance of "true" special assessment bonds or through limited tax general obligation bonds. Special assessment bonds are backed solely by assessment contracts and do not carry any additional pledge of City resources. Limited tax general obligation (*"LTGO"*) bonds carry a pledge of available resources of the city's general fund but do not authorize the City to levy an additional tax above the $10.00 per $1,000 tax limitation applicable to general governments. Since enactment of Measure 5, most local governments have chosen to finance local improvement districts through the issuance of LTGO bonds rather than special assessment bonds due to lower interest cost associated with LTGO bonds.

System Development Charges

The impact of Measure 5 on system development charges imposed by the City and other local governments in Oregon is unclear at present and will likely require legal interpretation before the impact is known. The court's interpretation could range from a ruling that determines that a local government's SDC's are a tax under the Measure because they are imposed on property and property owners at the time of development, to a ruling which says SDC's are a charge based on increased usage of the utility system and are, therefore, an incurred charge under the Measure. Depending on the court's rulings, the City may be prohibited from levying an SDC or may have to modify existing SDC ordinances to make the SDC a charge based on increased system usage and not on development of property. If the courts rule unequivocally that the SDC's are taxes under the Measure, the City may be forced to rely on sources other than SDC's to fund necessary street system improvements.

We believe that ultimately SDC's will **not** be construed as taxes under the Measure, but will instead be viewed as charges for the use of the utility. However, until such time as the courts rule on the issue, there will remain some uncertainty as to the status of SDC's under the Measure.

With the impacts of Ballot Measure 5 in mind, discussed below are the various tools available to the City to finance the costs of street system improvements.

General Obligation Bonds

General obligation bonds are usually voter-approved bond issues. They are the least expensive borrowing mechanism available to municipalities. G.O. bonds generally are supported by a separate property tax levy specifically approved for the purposes of retiring the debt. When the bond issue is paid off completely, the levy is finished. The property tax levy is distributed equally according to assessed value over the entire assessed value of

the voting district. They are generally used to make public improvements benefiting the entire populace.

Oregon Revised Statutes provide that the total outstanding general obligation indebtedness of a City not exceed three percent of the City's true cash value. Bonds issued for water, sewer and other utility purposes are excluded from this limitation. Thus, based on the City's FY 1991-92 true cash value of $560.5 million, the City's debt limitation is currently $16,814,868. As of June 30, 1991 the City had $6,473,459 in outstanding general obligation debt, leaving a debt margin of $10,341,409 available for transportation and other capital needs of the City.

As discussed above, taxes levied to pay indebtedness on voter-approved general obligation bonds issued for the capital construction or improvements, are not subject to the tax rate limitations of Ballot Measure 5.

Local Improvement District (*Bancroft*) Bonds

Local improvement districts may be formed to construct make such local improvements as street repairs, sidewalks, and various types of utility improvements. They are formed either through petition by the benefited property owners who seek a set of public improvements or through the legislative process of the council. Both processes involve notification and hearings regarding the formation of the district. After the district is formed, public improvements may be made and the costs of those improvements distributed among the properties within the local improvement district according to their benefit from the improvements. The benefit is set by formula by the City council. Once the benefit and cost have been set, an assessment is levied against the benefiting properties. They may pay in cash or apply for assessment financing. In Oregon this means the City will issue bonds and allow the property owners to pay their assessments over time. Oregon statutes allow the City to pledge its general obligation to the Bancroft bonds thus making the bonds general obligations of the City but paid by assessment payments. This lowers the borrowing cost of the benefited property owners. However, because general obligation improvement (*Bancroft*) bonds are not specifically voter-approved, taxes levied to pay debt service on such bonds are subject to the limitations of Ballot Measure 5. As a result, local governments may not issue unlimited tax general obligation bonds without a vote of the electorate. Limited tax general obligation (*LTGO*) bonds may be issued, but such bonds do not give the issuer additional levy authority. Such LTGO bonds are backed by available revenues, including property taxes, subject to the tax rate limitation of the Measure.

Given the remote likelihood of voter referral of local improvement bonds, some governments seeking to finance local improvements are likely to look toward pure special assessment financing. Special assessment bonds backed solely by the assessments are the norm throughout the country and may present a viable means of financing most projects that have historically been financed through Bancroft Bonds, albeit at a higher interest cost.

Because the security of special assessment bonds lies solely with the assessment payments, potential investors will apply much more rigorous credit evaluation criteria than they have historically applied to Bancroft issues. As a result, it may be very difficult or impossible to sell special assessment bonds at reasonable rates for projects that are of marginal credit quality. For example, improvements to undeveloped land, low income property, or other property where the assessment will create a relatively high assessment to value ratio, will be significantly more difficult under a special assessment financing program. Creation of a reserve fund, bond insurance, letters of credit or other forms of credit enhancement may be necessary in order to successfully market special assessment bonds for certain projects.

Urban Renewal Bonds/Tax Increment Financing

Urban Renewal Districts have the authority to issue tax increment bonds for the purpose of urban renewal and redevelopment. Tax increment financing uses property tax revenues generated from increases in assessed value within an urban renewal area to pay the cost of the public improvements which generated those increases. This special allocation (*the "Tax Increment"*) is used for the payment of debt service on urban renewal bonds. In order to determine the amount of the Tax Increment allocation, the total taxable assessed value in the Project Area is set at the time of adoption of the Plan and is referred to as the frozen base value (*the "Base Value"*). Each year the County Assessor segregates the assessed value within the Project Area into two parts: (a) the Base Value; and (b) the difference between the total taxable value and the Base Value (*the "Incremental Value"*). Revenues derived from the application of the tax rate to the amount of the Incremental Value are deposited in the Debt Service Fund. This revenue (*the "Tax Increment Collections"*), along with the interest earned are used to repay debt incurred to finance projects within the Project Area.

Ballot Measure 5 impacts the collection of tax increment revenues. The tax rate limitation contained in the Measure limits property tax collections when overlapping taxing jurisdiction's rates on a particular property exceed the maximum permitted rates. Based on the opinion of the Oregon Attorney General, the Oregon Legislature has enacted legislation which recognizes an exemption for Tax Increment Collections used for the debt service payments on Tax Increment bonds. However, Tax Increment Collections for non-Bonded indebtedness do not receive the same exemption. As a result, the City of Portland has filed suit with the Oregon Tax Court seeking a court ruling that the tax increment collected to pay bonded debt is exempt from the Tax Rate Limitation. A similar test of the constitutionality of the legislation will be made via litigation which has been filed against the City of Eugene's urban renewal agency.

Currently, the initial calculation of the amount of urban renewal tax increment is unchanged from before the Tax rate limitation: the tax rate for each taxing jurisdiction (*the "Original Tax Rate"*), calculated excluding the Incremental Value and Before any rate limitation is applied to the Incremental Value. The tax increment thus calculated (*the "Maximum Tax Increment"*) is divided into two components and certified to the County Assessor: collection for payment of Bonded Indebtedness, and collections for payment of Other Indebtedness.

The amount certified for Bonded Indebtedness is not subject to the tax limitation, and appears as a separate line item on property tax bills.

In summary, the revisions to the urban renewal statutes (*ORS 457*), enacted in response to the Tax rate limitation, have brought four basic changes to tax increment financing in the State of Oregon. First, jurisdictions with urban renewal agencies may now choose to collect only the amount of tax increment revenue required for Bonded Indebtedness, thereby avoiding competing between Tax Increment and other general tax collections as levies are reduced by the limits. Second, collections for urban renewal bonds are now itemized on property tax bills. Third, the new property value created in urban renewal areas by the urban renewal efforts will become immediately available for the benefit of taxing jurisdictions, creating additional revenue before the retirement of the urban renewal debt. Last, the law now requires that urban renewal plans contain a clause describing either a date after which no more indebtedness will be incurred, or a maximum amount of indebtedness to be incurred.

Special Tax Revenue Bonds

Cities may issue revenue bonds based on the expected receipt of special taxes. Examples of such revenues are gas taxes, hotel-motel taxes, or systems development charges. Generally speaking, the more predictable the revenue source, the more "bondable" it is. These types of bonds are more complicated to issue and usually restrict the other uses of the dedicated revenues so that the bond holders can be assured of timely payment.

The use of gas taxes or other special transportation revenues to secure a revenue bond issue is a relatively new form of financing in Oregon. Other than the State of Oregon, only a few municipalities have tried to issue gas tax supported revenue bonds. In many cases, local governments have become accustomed to using state gas tax revenues solely for maintenance needs. Using gas tax revenues to pay debt service on revenue bonds instead of funding maintenance, would require that the City either reduce the maintenance budget or provide some other source of funding for maintenance needs.

Certificates of Participation

Certificates of participation (*COP's*) are a form of lease financing that could conceivably be used for street improvements. In lease financing, the municipality enters into a long term capital lease agreement to use and/or construct a facility. At the end of the lease, anywhere from 1 to 20 years, the title to the facility is turned over to the municipality. In most instances these leases are subject to annual appropriation in the municipality's budget process and are therefore a less secure (*higher interest rate*) method of borrowing.

One possible structure of a transportation-related COP issue would have the City pledge gas tax, SDC or other specific revenues to the payment of the COP's and in addition, would

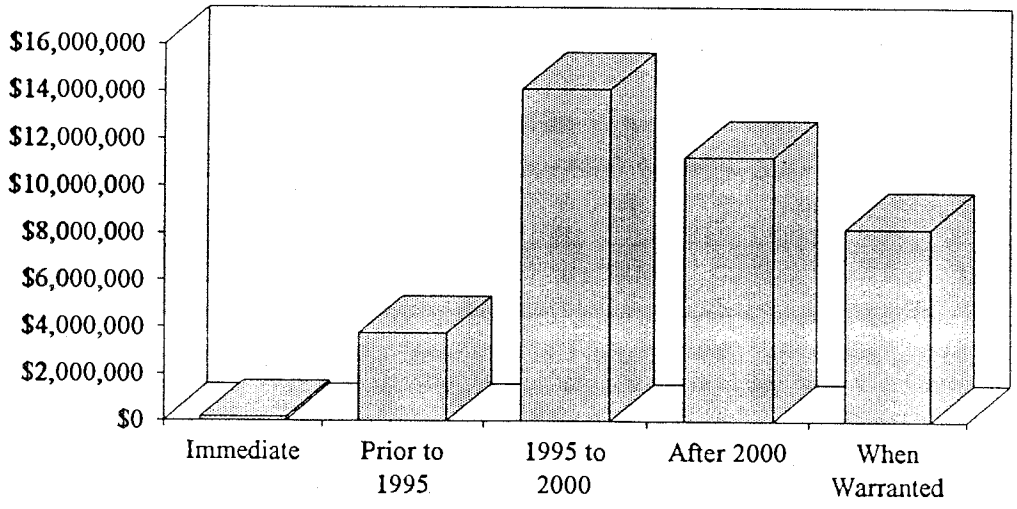
allow the appropriate General Fund revenues to cover any shortfall in revenues available to pay debt service. To the extent that General Fund revenues were required to pay debt service, these revenue would not be available for other City programs and services typically funded from the General Fund. To the extent that Measure 5 limits the ability of the City to levy property taxes through its tax base, the competition amongst City programs for available General Fund revenues will likely limit the attractiveness of pledging the General Fund for payment of debt service on a COP.

ESTIMATED STREET FUNDING NEEDS/FUNDING PLAN

Identified Street Improvement Projects

Based on cost estimates provided by project team members, approximately $37.5 million in road improvements will be required over the forecast period (See Table 11 for a breakdown of project costs). Of the total cost, approximately $9.3 million for state highway projects may be funded from the Oregon Department of Transportation. An additional $5.8 million has been identified as being appropriate for funding by private developers as new development occurs. A substantial portion of the total need, $22.3 million, remains unfunded. The following section of this report will address this funding need.

Figure 26
Construction Cost Estimates



Recommended Transportation Funding Strategy

We have reviewed the range of alternative transportation funding mechanisms available to the City in order to develop a list of those options which we believe present the most feasible methods available to meet the identified funding needs. We believe that a funding package combining system development charge revenues, state (and perhaps local) gas tax revenues as well as general obligation bond financing represents the most feasible funding strategy available to the City to meet expected capital and maintenance funding needs.

System Development Charges

As part of our analysis of funding options for the City of McMinnville, we have prepared a preliminary system development charge analysis intended to provide a basis for the collection of a transportation-related SDC from properties at the time they are developed. In preparing the analysis, we have assumed that SDC's will ultimately not be significantly impacted by the provisions of Ballot Measure 5. Should an adverse legal decision prohibit or limit the ability of the City to collect SDC's, the City will have to look elsewhere for revenues necessary to fund system improvements.

Revised System Development Charges

Beginning July 1, 1991, all local governments who impose SDCs will be required to meet new state statutory requirements governing the collection and use of SDCs for transportation-related activities. Key requirements of the new legislation (*ORS 223.297*) include:

1. Establishing by resolution or ordinance the methodology used to calculate the charge, and making the methodology available for public inspection.

2. Limit the expenditure of such fees and charges to capacity-increasing capital improvements related to current or projected development.

3. Completion of a master plan, facilities plan, or public facilities plan which lists the capital improvements that may be funded by the fees and the estimated cost and timing of each improvement.

4. Place the SDC monies in a separate account and provide an annual accounting showing revenues received and the projects that were funded.

With these legislative requirements in mind, we have prepared an SDC schedule based on the estimated unfunded capital requirements of the proposed transportation plan and growth and development over the forecast period in the form of afternoon (*P.M.*) peak-hour trips added to the City's transportation network. The methodology used in calculating the revised

SDC is designed as an improvement fee as defined in ORS 223.304, and considers the cost of projected capital improvements needed to increase the capacity of the City's transportation system in order to meet growth and development over the forecast period.

Cost Basis

The cost basis for the revised SDC is based on the capital projects list shown in Table 11. In preparing the SDC analysis, we have developed two alternatives. The first alternative assumes that non-ODOT/FAU funded project costs (*$28.147 million*) will be funded by the SDC. The second alternative assumes that $5 million of the unfunded requirement will be satisfied through a city-wide general obligation bond measure.

Estimated P.M. Peak-Hour Trips

The primary factor affecting future transportation capital needs is the capacity of the transportation system to meet P.M. peak-hour demands. For this reason, growth in the number of new P.M. peak-hour trips serves as a key variable in the calculation of the revised SDC.

An estimate of P.M. peak-hour trips has been prepared that will be added to the City's transportation system over the forecast period. Estimation of P.M. peak-hour trips is based on various land use categories, growth within these various categories over the forecast period, and trip factors appropriate to each land use category for the P.M. peak hour.

A summary of the P.M. peak-hour trip forecast is shown in Table 15. Based on growth and development within the City over the forecast period, an estimated 18,456 P.M. peak-hour trips will be added to the system over the forecast period. A portion of this total represents linked trips, or trips that are already on the road network, and need to be subtracted from the forecast total to avoid double counting. Adjustment for linked trips is made entirely from the retail/commercial land use category, recognizing that workers commuting from work often stop at one or more retail/commercial establishments en route. For calculation purposes it was assumed that 65 percent of the retail/commercial P.M. peak-hour trips represented linked trips. Adjusting the forecast to account for linked trips results in a net P.M. peak-hour trip estimate of 12,727 over the forecast period.

Revised Schedule of System Development Charges

Calculation of the SDC unit cost under Alternative 1 is accomplished by dividing the SDC cost basis (*$28.147 million*) by the number of P.M. peak-hour trips (*12,727*). This calculation results in a unit cost of $2,212 per P.M. peak-hour trip. The unit per trip cost can then be multiplied by the number of P.M. peak-hour trips by land use category to arrive

at the estimated SDC cost basis by land use type. Calculation of the SDC rate schedule can then be made to reflect the appropriate characteristics of each land use class.

Calculation of the Alternative 1 SDC is shown in Table 16. The table shows the per trip cost, the number of P.M. peak-hour trips, and the total cost of service by land use type. This information has then been used to create a schedule of charges by land use type. Under this approach, new single-family developments will pay a transportation SDC of $2,433 per dwelling unit. The comparable charge for multi-family developments is $1,703 per dwelling unit. SDC's for all other land use categories is shown on a per employee basis ranging from $663 for hospital employees to $6,989 for each retail/commercial employee.

Under the second alternative, the same approach is used to calculate the SDC. However, because the cost basis is reduced by $5 million the resulting charge is substantially lower. Charges under this option are shown in Table 17. Under this alternative, the single family charge would total $2,001.

TABLE 15
CALCULATION OF FORECAST P.M. PEAK-HOUR TRIPS

Land Use Category	Trip Basis	Forecast Growth	PM Peak-Hour Trip Factors	Forecast PM Peak-Hour Trips	Adjustment for Existing trips	Total PM Peak-Hour Trips
Single-family	Dwelling Units	4,564	1.10/D.U.	5,020		5,020
Multi-family	Dwelling Units	1,862	.77/D.U.	1,434		1,434
Retail/Commercial	Employees	2,789	3.16/Emp.	8,813	-5,729	3,084
Industrial	Employees	2,765	0.55/Emp.	1,521		1,521
Distrib/Warehouse	Employees	795	.60/Emp.	477		477
Government	Employees	208	1.00/Emp.	208		208
School	Employees	217	1.50/Emp.	326		326
Hospital	Employees	185	0.30/Emp.	56		56
Office	Employees	841	0.70/Emp.	589		589
Misc.	Employees	16	0.80/Emp.	13		13
TOTALS				18,457	-5,729	12,728

TABLE 16
ALTERNATIVE 1: CALCULATION OF SYSTEM DEVELOPMENT CHARGES BY LAND USE TYPE
SDC SET TO RECOVER ALL NON-ODOT, NON-FAU, NON-BOND FUNDED PROJECT COSTS

Land Use Category	Total PM Peak-Hour Trips	Unit Cost per PM Peak-Hour Trip	Cost of Service by Land Use Classification	Unit Cost of Service	
				Amount	Unit
Single-family	5,020	2,212	$ 11,103,083	$ 2,433	Dwelling Unit
Multi-family	1,434	2,212	$ 3,170,850	$ 1,703	Dwelling Unit
Retail/Commercial	3,085	2,212	$ 6,821,956	$ 6,989	Employee
Industrial	1,521	2,212	$ 3,363,280	$ 1,216	Employee
Distrib/Warehouse	477	2,212	$ 1,054,930	$ 1,327	Employee
Government	208	2,212	$ 460,011	$ 2,212	Employee
School	326	2,212	$ 719,874	$ 3,317	Employee
Hospital	56	2,212	$ 122,743	$ 663	Employee
Office	589	2,212	$ 1,301,965	$ 1,548	Employee
Misc.	13	2,212	$ 28,308	$ 1,769	Employee
TOTALS	18,457		28,147,000		

TABLE 17
ALTERNATIVE 2: CALCULATION OF SYSTEM DEVELOPMENT CHARGES BY LAND USE TYPE
SDC SET TO RECOVER ALL NON-ODOT, NON-FAU, NON-BOND FUNDED PROJECT COSTS

Land Use Category	Total PM Peak-Hour Trips	Unit Cost per PM Peak-Hour Trip	Cost of Service by Land Use Classification	Unit Cost of Service	
				Amount	Unit
Single-family	5,020	1,819	$ 9,130,744	$ 2,001	Dwelling Unit
Multi-family	1,434	1,819	$ 2,607,584	$ 1,400	Dwelling Unit
Retail/Commercial	3,085	1,819	$ 5,610,111	$ 5,747	Employee
Industrial	1,521	1,819	$ 2,765,831	$ 1,000	Employee
Distrib/Warehouse	477	1,819	$ 867,533	$ 1,091	Employee
Government	208	1,819	$ 378,296	$ 1,819	Employee
School	326	1,819	$ 591,996	$ 2,728	Employee
Hospital	56	1,819	$ 100,939	$ 546	Employee
Office	589	1,819	$ 1,070,685	$ 1,273	Employee
Misc.	13	1,819	$ 23,280	$ 1,455	Employee
TOTALS	18,457		23,146,999		

It is our belief that the methodology used to prepare the proposed SDC complies with the intent and letter of ORS 223.397. Further funding commitment to the unfunded projects could reduce the SDC requirements, in which case the schedule of SDC's could and should be revised accordingly.

Debt Financing

As stated previously, general obligation bond financing is a common method of financing road improvements. Due to their strong security, general obligation bonds are the least costly debt financing tool available to local governments.

Oregon Revised Statutes provide that the total outstanding general obligation indebtedness of a City not exceed three percent of the City's true cash value. Bonds issued for water, sewer and other utility purposes are excluded from this limitation. Thus, based on the City current true cash value of $495.96 million, the City's debt limitation is approximately $14.8 million. The City currently has $6,473,459 in outstanding debt that is subject to the limitation, leaving an available debt capacity of $10,341,409 for transportation and other non-utility capital needs of the City.

Table 18 presents a summary of the tax rate impact on McMinnville property taxpayers resulting from the issuance of general obligation bonds for various amounts and terms. The table indicates the average annual tax, peak year tax rate and peak year annual property tax on a $70,000 property. For example, a $5 million general obligation bond issue, repaid over 20 years would result in an average tax rate of $0.84 per $1,000 of assessed valuation, or about $59 per year for an owner of a $70,000 property. These annual cost estimates are conservative in that they assume no growth in total assessed valuation above FY 1992 levels.

The role of general obligation bond financing in the City's overall funding program will depend on at least two factors: first, the willingness of the council to dedicate some portion of the City's debt capacity to street improvements, and second, on the willingness of City voters to approve higher property taxes to fund transportation improvements.

Summary

Like other cities in the state and nation, McMinnville faces challenges in providing a local transportation system able to meet the needs of its citizens. Having identified approximately $37.5 million in needed transportation system improvements, the City now must develop a strategy for funding the need. The likely participation of the Oregon Department of Transportation in funding of $9.3 million in state highway improvements in the City is a significant step in meeting the overall need. Not including approximately $5.8 million in projects expected to be funded through private developers the unfunded City share of the total transportation funding need still totals in excess of $22.3 million.

TABLE 18
ANNUAL DEBT SERVICE AND TAX RATE IMPACT
GENERAL OBLIGATION BONDS

Bond Issue Size	*TERM*		
	10 years	*15 years*	*20 years*
$3,000,000			
Annual Debt Service	$427,133	$329,384	$283,179
Tax Rate Per $1,000	$0.76	$0.59	$0.51
Annual tax on $70,000 property	$53	$41	$35
$5,000,000			
Annual Debt Service	$711,888	$548,973	$471,965
Tax Rate Per $1,000	$1.27	$0.98	$0.84
Annual tax on $70,000 property	$89	$69	$59
$8,000,000			
Annual Debt Service	$1,139,020	$878,357	$755,143
Tax Rate Per $1,000	$2.03	$1.57	$1.35
Annual tax on $70,000 property	$142	$110	$94
$10,000,000			
Annual Debt Service	$1,423,775	$1,097,946	$943,929
Tax Rate Per $1,000	$2.54	$1.96	$1.68
Annual tax on $70,000 property	$178	$137	$118

Note: assumes interest rate of 7.00 percent and total assessed valuation of $560,495,613

We believe that a combined funding package including system development charges and general obligation debt represents the preferred funding strategy. We have presented a proposed SDC structure that could potentially meet all of the current forecasted transportation need. Since the City currently has no street SDC, implementation of such a charge should be approached carefully. A key decision that must be made is the extent to which the City seeks to fund future transportation needs from an SDC as opposed to other funding options. In recognition of this, we believe the City should consider the use of general obligation debt financing to diversify its transportation funding base. Depending on the nature of individual transportation improvement projects, it may be possible to further diversify the funding base through access to the other revenue sources such as local improvements districts, the State Special Public Works Fund, ODOT's Immediate Opportunity Grants, developer contributions or other alternative resources.

TRANSPORTATION PLANNING RULE

DESCRIPTION OF THE TRANSPORTATION PLANNING RULE

The Oregon Land Conservation and Development Commission (*LCDC*) and ODOT developed the Transportation Planning Rule (*Rule*), which was adopted in April 1991. It is also referred to as Goal 12 which means that it is the twelfth goal adopted by LCDC (*e.g., Goal 3 refers to agricultural lands, Goal 4 to Forest Lands and Goal 14 to Urbanization*).

The Rule affects all jurisdictions, i.e., cities, metropolitan planning organizations (*MPOs*), and state agencies, within Oregon, and there are separate requirements for jurisdictions based on population size (*i.e., under 2,500 population, between 2,500 and 25,000 population, and over 25,000 population*) and geographic location (*within or outside of a metropolitan planning organization*). For smaller local governments (*those under 2,500 and those between 2,500 and under 25,000*), the Rule requires amendments to plans and ordinances which would require residential, commercial and industrial patterns that encourage pedestrian and bicycle travel. For larger jurisdictions, in addition to the above, the Rule requires development patterns that are designed for transit access with careful consideration given to alternatives to highway expansion, including transportation demand management measures (*carpooling, park-and-ride facilities, as well as parking space lids and congestion pricing, etc.*). For jurisdictions over 25,000 population that lie within one of the state's four MPOs (*i.e., the metropolitan areas of portland, Salem, Eugene, and Medford*), the Rule also mandates that within 30 years total vehicle miles travelled (*VMT*) on a per capita basis is reduced by 20 percent from present levels, and that a parking plan be produced that reduces the number of per capita parking spaces by 10 percent.

Cities under 2,500 population and counties under 25,000 population that are located outside of a MPO may apply for whole or partial exemptions to Rule requirements.

OBJECTIVES OF THE RULE

The ultimate aim of the Rule is to encourage a multi-modal transportation network throughout the state that will reduce our reliance on the automobile and assure that local, state, and regional transportation systems "support a pattern of travel and land use in urban areas which will avoid the air pollution, traffic and livability problems faced by other areas of the country." In order to achieve compliance in the MPO jurisdictions, more trips will need to be accomplished by foot or by bicycle. This means that origins and destinations must be located within a comfortable walking or bicycling distance from each other. Thus, the major instrument for establishing the change in mode split will come from land use planning and decisions about land use applications. In other words, the success of the Rule will be directly related to the ability of local planning commissions and City Councils to respect the integrity of the Rule, i.e., to turn down land use application requests that would

not achieve compliance with the Rule, and initiate efforts to help their communities comply with it on a land use basis.

PLANNING ISSUES

The principal planning requirement in the Rule is that cities, counties, MPO's and ODOT must prepare and adopt Transportation System Plans. MPO's must complete regional transportation system plans by May 1995. Cities and counties within MPOs must complete their local plans within a year of the MPO plan adoption, while jurisdictions outside of MPOs must complete plans by May 1996. These plans must provide for coordinated continuity of movements between modes and within geographic and jurisdictional areas, and shall:

- Consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian;
- Be based on an inventory of local, regional, and state transportation needs;
- Consider the social consequences resulting from utilizing differing combinations of transportation modes;
- Avoid principal reliance on any one mode of transportation;
- Minimize adverse social, economic and environmental impacts and costs;
- Conserve energy;
- Meet the needs of the transportation disadvantaged;
- Facilitate the flow of goods and services to strengthen local economy; and,
- Conform with local and regional comprehensive land use plans.

PLANNING RULE REQUIREMENT FOR McMINNVILLE

The City will be required to adopt a transportation system plan as part of its comprehensive plan. The required elements of the plan are as follows:

1. A coordinated network of transportation facilities adequate to serve state, regional, and local transportation needs.
2. A determination of transportation needs.
3. A road plan for a network of arterials and collectors.

4. A public transportation plan which describes public transportation services for the transportation disadvantaged and identifies services inadequacies, describes intercity bus and passenger rail service and identifies the locations of terminals, and identifies existing and planned transit trunck routes, exclusive transit ways, terminals and major transfer stations, and park-and-ride stations.
5. A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area.
6. 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 area shall include all areas within the airport imaginary surfaces and other areas covered by state or federal regulations.
8. A transportation financing program.
9. Each element identified in 1 through 7 above shall contain an inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity, and condition.

Element 7 above was beyond the scope of this planning effort and will need to be addressed by the City prior to adoption of its transportation system plan.

The portion of the proposed roadways shown outside of the Urban Growth Boundary will require a goal exception or an annexation into the Urban area.

PUBLIC FACILITIES PLAN REQUIREMENTS

A public facilities plan for transportation will also be required to fulfill the Oregon Revised Statutes, Chapter 197.712(2)e and conforms to the standards specified by Oregon Administrative Rules, Chapter 660, Division 11. These requirements were adopted prior to those of the Transportation Planning Rule and are similar but not all inclusive. This report addresses the requirements for the Public Facilities Plan.

APPENDICES

APPENDIX A

MCMINNVILLE COMMUNITY MEETING RESULTS

MCMINNVILLE COMMUNITY MEETING RESULTS

The first community workshop on the McMinnville Transportation Master Plan was held on April 22, 1991 and attended by about fifty residents. Participants were divided into six small groups to discuss and prioritize major transportation issues in the City. The top five transportation issues were prioritized by each group, and are listed below. Highway 99W access and signalization issues, improvements to Lafayette Avenue, truck routing, and the bikeway system were issues given a high priority in each group.

TOP FIVE CONCERNS DETERMINED THROUGH SMALL GROUP PROCESS

Group One:

Issue or Concerns

1. Highway 99W Signalization.
2. One-Way Grids (Improve East-West Movement).
3. Truck Traffic Through Town and Potential Eastside Bypass.
4. Sidewalks/Pedestrian Improvements and Bikelanes.
5. Beautification/Street Landscaping.

Group Two:

1. Traffic Flow and Control on Hwy. 99W.
2. Mass Transit.
3. Implement Bicycle Plan.
4. Preservation of the Environment.
5. Downtown Traffic Flow and Parking.

Group Three:

1. Improvements Related to Lafayette Avenue and Eastside Industrial Access:
   (a) Lafayette Avenue Improvements;
   (b) New Eastside Route/Industrial Access - Highway 99W to Highway 18; and,
   (c) Truck Traffic Out of Central Business District.
2. Baker Street - ODOT "Improvements."
3. South Davis Street Congestion.
4. Bikelanes/Bike Route System.

Group Four:

1. Traffic Control - Crossing/Entering onto Adams and Baker Streets from Side Streets.
2. Pedestrian and Traffic Control at Highway 99W and Evans Street.
3. Alternative North/South Route.

4. Intersection Problem at Baker Creek Road, Westside Road, 19th Street and Highway 99W.
5. (a) 12th Street Between Highway 99W and Evans Street - Need Stop Signs; and,
   (b) Move to Alternative Modes of Transportation - Walk, Bike, Bus, etc.

Group Five:

1. Lafayette
   - Highway 99W to 3rd Street
   - 8th Street Intersection
   - Riverside Drive Intersection
2. Problems Crossing Adams and Baker Streets.
3. 17th Street and Baker Street Intersection - Left Turns into Businesses.
4. Bikeways:
   - Lafayette Avenue
   - On Other Roads
5. (a) 12th Street/Adams Street/Baker Street Intersection;
   (b) 18-Wheelers on 14th, 15th and 16th Streets to Tire Store, and General Truck Traffic; and,
   (c) 19th Street - Too Narrow with Curb Parking.

Group Six:

1. Emphasis on Environmentally Sound Planning.
2. Integration of Bike Plans.
3. Westside Bypass.
4 (a) Cascade Steel Rolling Mill Access to Highway 99W; and,
   (b) Food For Less Access to Highway 99W.
5 (a) Clear Vision at Corners; and,
   (b) Signalization on Highway 99W - Conservative, Actuated, Effective.

SUMMARY OF CONCERNS FROM INDIVIDUAL RESPONSE FORMS

As part of the group prioritization process, workshop participants completed individual response forms in which they listed their five most important transportation issues. The issues of concern were quantified so that the highest priority received five points, the next highest priority four points, and so on.

The top concerns as scored on the individual response forms are listed below. For the top four concerns, the total points from the individual response forms were added together into broader categories. Truck traffic, the Lafayette Avenue corridor, Highway 99W signalization and intersection improvements, and concerns about the central business district emerged as the highest priority issues, followed closely by the need for city-wide bicycle system improvements.

Top Concerns as Scored on Individual Response Forms

1. Truck Traffic (*137 total points*).
   (a) Eastside bypass to get trucks out of town (*58 points*);
   (b) Reduce truck traffic through town (*42 points*); and,
   (c) Westside bypass to get trucks out of town (*37 points*).
2. Concerns about Lafayette Avenue Corridor (*79 total points*).
   (a) Low visibility at Lafayette Ave. and 8th Street intersection (*24 points*);
   (b) 3rd Street and Johnson intersection (*22 points*);
   (c) Highway 99W and Lafayette Ave. intersection (*12 points*); and,
   (d) Other speed and congestion issues (*21 points*).
3. Overall signalization and intersection improvements on Highway 99W, including pedestrian crossing issues (*75 total points*).
   (a) Signalization and intersection improvements (*44 points*);
   (b) Pedestrian crossings on Highway 99W (*23 points*); and,
   (c) Need traffic signal on Highway 99W near Food 4 Less (*8 points*).
4. Concerns about the central business district (*65 total points*).
   (a) Visibility at intersections in downtown core obscured by parked cars (*20 points*);
   (b) Downtown parking is inadequate and causes safety hazards (*16 points*);
   (c) Downtown traffic congestion (*14 points*); and,
   (d) One-way grid for downtown (*11 points*).
5. Bike path and bike lane improvements city wide (*64 points*).
6. Intersection of Baker/Adams/Highway 99W/17th (*48 points*).
7. Mass transit system (*35 points*).
8. Highway 99W/Evans Street intersection (*34 points*).
9. The Master Plan should be environmentally sound and explore alternative forms of transportation (*28 points*).
10. Improve traffic flow on arterials (*25 points*).
11. 12th Street/Baker/Adams intersection (*20 points*).
12. Pedestrian access throughout the City needs improvement; crosswalks, signals, etc. (*20 points*).
13. Aesthetics and street beautification is important (*19 points*).

TRANSPORTATION GOALS AND POLICIES

GOAL VI 1: TO ENCOURAGE DEVELOPMENT OF A TRANSPORTATION SYSTEM THAT PROVIDES FOR THE COORDINATED MOVEMENT OF PEOPLE AND FREIGHT IN A SAFE AND EFFICIENT MANNER.

Replace with transportation goals on page 1.

MASS TRANSPORTATION

Policies:

100.00 The City of McMinnville shall support efforts to provide facilities and services for mass transportation that serve the needs of City residents.

101.00 The City of McMinnville shall cooperate with local, regional, and state agencies and private firms in examining mass transit possibilities and implementing agreed upon services.

102.00 The City of McMinnville shall place major emphasis on the land use development implications of large-scale regional mass transit proposals. Systems which could adversely affect the goals and policies as set forth in the plan should be closely evaluated.

103.00 The City of McMinnville shall encourage development of mass transit systems in existing transportation corridors where possible.

104.00 The City of McMinnville shall encourage a centrally located bus terminal, for intercity and intracity bus services.

105.00 The City of McMinnville shall examine the impacts of transportation proposals involving bus and/or rail terminals on surrounding land uses.

105.05 That the design of future residential developments must take into account driving and walking distance to schools. Preferred designs would make those distances less than one mile where possible.

Changes in text shown in **bold**.

112.10 **The State of Oregon, the Public Utility Commission, and the Southern Pacific Transportation Company be strongly encouraged to retain railroad right-of-ways in those instances where the tracks are no longer used for rail transport. Such retention may provide for future light rail transport, park systems. hiking, and bicycle trails.**

AIR

Policies:

113.00 The City of McMinnville shall encourage the development of a basic transport airport facility as outlined in the **1988** Airport Master Plan.

114.00 The City of McMinnville shall support future planning efforts involving the airport to incorporate changes in federal, state, and city aviation and land use laws and policies.

115.00 The City of McMinnville shall encourage the development of compatible land uses in the vicinity of the airport as identified in current and future airport and comprehensive plans.

116.00 The City of McMinnville, acting jointly with Yamhill County, shall appoint an Airport Land Use Board which shall be responsible for the development of an airport zoning ordinance. The ordinance shall be in accordance with applicable federal, state, and local laws and shall particularly conform to the requirements of the McMinnville Municipal Airport Master Plan **1989/2000.** The airport zoning ordinance shall be adopted by the time of the first comprehensive plan update in 1985. (As amended by Ord. No. 4218, Nov. 23, 1982).

STREETS

Policies:

117.00 The City of McMinnville shall endeavor to insure that the roadway network provides safe and easy access to every parcel.

118.00 The City of McMinnville shall encourage development of roads that include the following design factors:

1. Minimal adverse effects on, and advantageous utilization of, natural features of the land.

Changes in text shown in **bold**.

2. Reduction in the amount of land necessary for streets with continuance of safety, maintenance, and convenience standards.

3. Emphasis placed on existing and future needs of the area to be serviced. The function of the street and expected traffic volumes are important factors.

4. Consideration given to incorporating other modes of transportation (public transit, bike and foot paths).

5. Provide planting strips between sidewalks and roadways except in commercial areas.

6. Installation of bike lanes on collector and arterial streets and bike parking areas.

7. Installation of sidewalks on both sides of all streets and direct pedestrian connections to all buildings and shopping centers.

8. Accommodation of buses operating on collector and arterial streets by providing adequate radius curb return and bus stop areas.

119.00 The City of McMinnville shall encourage utilization of existing transportation corridors, wherever possible, before committing new lands.

120.00 The City of McMinnville may require limited and/or shared access points along major and minor arterials, in order to facilitate safe access flows.

121.00 The City of McMinnville shall discourage the direct access of small-scale residential developments onto major or minor arterial streets and major collector streets.

122.00 The City of McMinnville shall encourage the following provisions for each of the three functional road classifications:

1. Major, minor arterials.

   - Access should be controlled, especially on heavy traffic-generating developments.

   - Designs should minimize impacts on existing neighborhoods.

Changes in text shown in **bold**.

- Sufficient street right-of-ways should be obtained prior to development of adjacent lands.

- On-street parking should be limited wherever necessary.

- Landscaping should be encouraged along public rights-of-way.

- **Bike lanes should be installed on all arterials.**

2. Major, minor collectors.

- Designs should minimize impacts on exiting neighborhoods.

- Sufficient street rights-of-way should be obtained prior to development of adjacent lands.

- On-street parking should be limited wherever necessary.

- Landscaping should be encouraged along public rights-of-way.

- **Bike lanes should be installed wherever possible.**

3. Local Streets

- Designs should minimize through-traffic and serve local areas only.

- Street widths should be appropriate for the existing and future needs of the area.

- Off-street parking should be encourage wherever possible.

- Landscaping should be encouraged along public rights-of-way.

- **Traffic volumes should be less than 1,000 to 1,200 vehicles per day.**

123.00 The City of McMinnville shall cooperate with other governmental agencies and private interest to insure the proper development and maintenance of the road network within the urban growth boundary.

124.00 The City of McMinnville shall develop an access plan to accommodate developments on Three Mile Lane (State Highway 18). The plan shall

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Changes in text shown in **bold**.

include specific details concerning the location of access points, the provision of left-turn refuges and acceleration-deceleration lanes, the connection of properties through an internal circulation system of roads, the responsibility for costs and the timing of require improvements.

125.00 The City of McMinnville shall examine measures to control access onto U.S. Highway 99W from heavy traffic-generating developments. Planned development overlays, **utilizing the access management guidelines,** on new large commercially or industrially designated areas adjacent to the highway would give the City needed access controls.

125.05 The City of McMinnville shall implement a ring road around the City to reduce through traffic and truck traffic within existing neighborhoods.

PARKING

Policies:

126.00 The City of McMinnville shall continue to require adequate off-street parking and loading facilities for future developments and land use changes.

127.00 The City of McMinnville shall encourage the provision of off-street parking where possible, to better utilize existing and future roadways and rights-of-ways as transportation routes.

128.00 The City of McMinnville shall continue to assist in the provision of parking spaces for the downtown area.

BIKE PATHS

Policies:

129.00 The City of McMinnville shall consider bikeways as a transportation alternative in future roadway planning. Bikeways on major and minor arterials and collector streets will be given highest priority for transportation related paths.

130.00 The City of McMinnville shall encourage development of bikeways that connect residential areas to activity areas such as the downtown core, areas of work, schools, community facilities, and recreation facilities.

Changes in text shown in **bold.**

130.05 In areas where bikeways are planned, the City may require that new developments provide bikeway improvements such as widened streets, bike paths, or the elimination of on-street parking. At a minimum, new development shall be required to make provisions for the future elimination of on-street parking along streets where bikeways are planned so that bike lanes can be striped in the future. Bike lanes and bike paths in new developments shall be constructed to standards recommended **herein for the bike lanes** and in the Bikeway Plan. (As amended by Ord. 4260, August 2, 1983).

131.00 The City of McMinnville shall encourage development of bicycle and footpaths in scenic and recreational areas as part of future parks and activities.

132.00 The City of McMinnville shall encourage development of subdivision designs that include bike and foot paths that interconnect neighborhoods and lead to schools, parks, and other activity areas.

132.05 The City of McMinnville shall require bicycle parking areas with all new developments where people work or shop.

PEDESTRIAN WAYS

The City of McMinnville shall require the development of sidewalks along both sides of all streets in the City. These sidewalks shall be separated from the street with a planting strip except in commercial areas where they would be adjacent to the curbs.

132.10 The City of McMinnville shall require direct pedestrian connections to all buildings including shopping centers.

132.15 The City of McMinnville shall require that all new residential developments such as subdivisions, planned unit developments, apartment and condominium complexes provide pedestrian connections with adjacent neighborhoods.

132.20 That pedestrian safety be enhanced wherever practicable by painting crosswalks at street intersections.

Changes in text shown in **bold**.

APPENDIX C

APPENDIX TABLES

TABLE A-1

1991 MAJOR STREETS INVENTORY

McMINNVILLE TRANSPORTATION PLAN

Street	Juris-diction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	No. of Travel Lanes	Direction of Travel	Parking	Bike Route	Truck Route	Pavement Condition
S. Highway 99W (Baker Street)											
Highway 18 to Old Sheridan Rd.	State*	Major Arterial	35	80	30	2	Two-way	No	Yes	Yes	Good
Old Sheridan Road to Gilson	State	Major Arterial	35	80	44	4	Two-way	No	Yes	Yes	Fair
Gilson Street to Edmunston Street	State	Major Arterial	35	67	59	4	Two-way	No	Yes	Yes	Poor
Adams Street (Southbound 99W)											
Edmunston Street to Lincoln Street	State*	Major Arterial	35	65	40	2	One-way	Both Sides	Yes	Yes	Good
Lincoln Street to Second Street	State	Major Arterial	35	105	40	2	One-way	Both Sides	Yes	Yes	Good
Second Street to Seventh Street	State	Major Arterial	30	60	40	2	One-way	Both Sides	Yes	Yes	Good
Seventh Street to Twelfth Street	State	Major Arterial	30	50	40	2	One-way	Both Sides	Yes	Yes	Good
Twelfth Street to Fifteenth Street	State	Major Arterial	30	60	40	2	One-way	Both Sides	Yes	Yes	Good
Baker Street (Northbound 99W)											
Edmunston Street to Second Street	State*	Major Arterial	30	60	38	2	One-way	Both Sides	Yes	Yes	Good
Second Street to Third Street	State	Major Arterial	30	60	40	2	One-way	Both Sides	Yes	Yes	Good
Third Street to Twelfth Street	State	Major Arterial	30	60	44	2	One-way	Both Sides	Yes	Yes	Good
12th Street to 15th Street (transition)	State	Major Arterial	30	70	61	3	One-way	Both Sides	Yes	Yes	Good
Highway 99W (Pacific Hwy)											
Fifteenth Street to McDonald Lane	State	Major Arterial	30	80	68	5	Two-way	No	Yes	Yes	Poor
McDonald Lane to McDaniel Lane	State	Major Arterial	35	90	68	5	Two-way	No	Yes	Yes	Poor
McDaniel Lane to 27th Street	State	Major Arterial	40	100	68	5	Two-way	No	Yes	Yes	Fair
27th Street to 27th Street	State	Major Arterial	40	175	80	5	Two-way	No	Yes	Yes	Fair
27th Street to Lafayette Avenue	State	Major Arterial	40	80	68	5	Two-way	No	Yes	Yes	Fair
Lafayette Avenue to Riverside Drive	State	Major Arterial	50	155	68	5	Two-way	No	Yes	Yes	Fair
Highway 18 / Three Mile Lane Bypass											
Highway 99 West to east City Limits	State*	Major Arterial	55	170	80	5	Two-way	No	Yes	Yes	Good
West Second Street											
Hill Road to Filbert Street	City	Major Collector	35	60	40	2	Two-way	Both Sides	No	Yes	Good
Filbert Street to Fleishauer Lane	City	Major Collector	25	60	40	2	Two-way	Both Sides	No	Yes	Good
Fleishauer Lane to Adams Street	City	Major Collector	25	60	40	2	Two-way	Both Sides	Yes	Yes	Good
Adams Street to Davis Street	City	Local Road	25	60	36	2	Two-way	Both Sides	Yes	Yes	Poor
Davis Street to Kirby Street	City	Local Road	25	60	36	2	Two-way	Both Sides	No	Yes	Poor
Third Street											
Adams Street to Irvine Street	State*	Major Collector	20	60	40	2	Two-way	Both Sides	No	Yes	Fair
Irvine Street to Kirby Street	State	Major Collector	20	60	38	2	Two-way	No	No	Yes	Fair
Kirby Street to Salmon River Highway	State	Major Collector	35	80	38	2	Two-way	No	No	Yes	Fair
Nineteenth Street											
St. Andrews Drive to Michelbook Lane	City	Local Street	25	60	36	2	Two-way	Both Sides	No	Yes	Good
Michelbook Lane to Birch Street	City	Major Collector	25	50	32	2	Two-way	Both Sides	No	Yes	Good
Birch Street to Highway 99W	City	Major Collector	25	50	36	2	Two-way	Both Sides	No	Yes	Good
Highway 99W to Evans Street	City	Major Collector	25	40	34	2	Two-way	Both Sides	No	Yes	Good
Evans Street to Galloway Street	City	Major Collector	25	50	30	2	Two-way	Both Sides	No	Yes	Good
Galloway Street to Hembree Street	City	Major collector	25	45	36	2	Two-way	Both Sides	No	Yes	Good
Hembree Street to Lafayette Avenue	City	Major Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Good
Riverside Drive											
Lafayette Avenue to Marsh Lane	City	Major Collector	25	50	34	2	Two-way	No	Yes	Yes	Good
Marsh Lane to Miller Street	City	Major Collector	25	40	34	2	Two-way	No	Yes	Yes	Good
Miller Street to Blossom Drive	County	Major Collector	25	40	20	2	Two-way	No	No	Yes	Poor
South of Railroad	County	Major Collector	25	50	20	2	Two-way	No	No	Yes	Poor
Railroad to Pacific Highway (99W)	County/ City	Major Collector	35	60	30	2	Two-way	Yes	No	Yes	Fair
Booth Bend Road											
Highway 99W to Lever Street	City	Major Collector	35	40-60	24	2	Two-way	No	No	Yes	Good
Lever Street to Salmon River Highway	City	Major Collector	35	60	24	2	Two-way	No	No	Yes	Good
Davis Street											
Booth Bend Road to Linfield Avenue	City	Minor Collector	25	60	36	2	Two-way	Both Sides	Yes	No	Good
Linfield Avenue to Wilson Street	City	Minor Collector	25	60	34	2	Two-way	Both Sides	Yes	No	Good
Wilson Street to First Street	City	Minor Collector	25	60	28	2	Two-way	Both Sides	Yes	No	Good
First Street to Second Street	City	Minor Collector	25	60	38	2	Two-way	Both Sides	Yes	Yes	Good
Second Street to Third Street	City	Minor Collector	25	60	38	2	Two-way	Both Sides	No	Yes	Good
Third Street to Fifth Street	City	Local Street	25	60	38	2	Two-way	Both Sides	No	Yes	Good
Fifth Street to Eleventh Street	City	Local Street	25	60	30	2	Two-way	Both Sides	No	Yes	Poor
Eleventh Street to Fifteenth Street	City	Local Street	25	60	24	2	Two-way	Both Sides	No	Yes	Poor
Baker Street											
Seventeenth Street to Baker Creek Road	City	Minor Arterial	30	60	44	2	Two-way	Both Sides	No	Yes	Fair
Baker Creek Road to Twenty-fifth Street	City	Minor Arterial	35	60	52	2	Two-way	No	No	Yes	Poor
West Side Road											
25th Street to Burnett Road	County	Minor Arterial	35	60	25	2	Two-way	No	No	Yes	Fair
Lafayette Avenue											
Fifth Street to Ninth Street	State	Minor Arterial	25	60	30	2	Two-way	No	No	Yes	Fair
9th St. to 0.9 miles north	State	Minor Arterial	35	60	44	2	Two-way	Yes	No	Yes	Poor
27th Street to 0.3 miles south	State	Minor Arterial	45	70	44	2	Two-way	Yes	No	Yes	Poor
Baker Creek Road											
Hill Street to Elm Street	County	Minor Arterial	35	60	36	2	Two-way	No	Yes	Yes	Good
Elm Street to Baker Street	City	Minor Arterial	35	60	44	2	Two-way	Both Sides	Yes	Yes	Good

* ODOT designation is "Principal Arterial"

TABLE A-1 (continued)

1991 MAJOR STREETS INVENTORY

McMINNVILLE TRANSPORTATION PLAN

Street	Juris-diction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	No. of Travel Lanes	Direction of Travel	Parking	Bike Route	Truck Route	Pavement Condition
Hill Road											
South of West Second Street	County	Minor Arterial	35	60	20	2	Two-way	No	No	Yes	Good
North of West Second Street	County	Minor Arterial	35	80	20	2	Two-way	No	No	Yes	Good
Old Sheridan Road											
Redmond Lane to Cypress Lane	County	Major Collector	55	60	21	2	Two-way	No	No	Yes	Good
Cypress Lane to Highway 99W	County	Major Collector	55	60	19	2	Two-way	No	No	Yes	Fair
Cypress Street											
Old Sheridan Road to West Second St.	County/ City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Good
Michelbook Lane											
West Second Street to 12th Street	City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Good
12th Street to 15th Street	City	Minor Collector	25	50	36	2	Two-way	Both Sides	No	Yes	Good
15th Street to Baker Creek Road	City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Good
Wallace Road											
Arrowood Drive to Michelbook Lane	City	Minor Collector	25	60	36	2	Two-way	No	No	Yes	Good
Michelbook Lane to Wallace Way	City	Local Street	25	60	36	2	Two-way	No	No	Yes	Good
Fellows Street											
Goucher Street to Brockwood Street	City	Minor Collector	25	60	40	2	Two-way	Both Sides	No	Yes	Good
Brockwood Street to Highway 99W	City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Good
Twelfth Street											
Michelbook Lane to Baker Street	City	Minor Collector	25	50	30	2	Two-way	Both Sides	No	Yes	Good
Baker Street to Evans Street	City	Minor Collector	25	60	24	2	Two-way	Both Sides	No	Yes	Poor
Evans Street to Galloway Street	City	Local Street	25	60	24	2	Two-way	Both Sides	No	Yes	Fair
Galloway Street to Irvine Street	City	Local Street	25	60	36	2	Two-way	Both Sides	No	Yes	Fair
Irvine Street to Kirby Street	City	Local Street	25	60	24	2	Two-way	Both Sides	No	Yes	Fair
Linfield Avenue											
Highway 99W to Melrose Avenue	City	Minor Collector	25	50	36	2	Two-way	Both Sides	Yes	Yes	Fair
Melrose Avenue to Davis Street	City	Minor Collector	25	50	36	2	Two-way	Both Sides	Yes	Yes	Good
Eighth Street											
Yamhill Street to Adams Street	City	Local Street	25	60	20	2	Two-way	East-bound	No	Yes	Poor
Adams Street to Baker Street	City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Fair
Baker Street to Lafayette Avenue	City	Minor Collector	25	60	30	2	Two-way	West-bound	No	Yes	Good
Fourteenth Street											
Davis Street to Evans Street	City	Local Street	25	60	24	2	Two-way	East-bound	No	Yes	Fair
Evans Street to Irvine Street	City	Minor Collector	25	60	24	2	Two-way	East-bound	No	Yes	Fair
Irvine Street to Lafayette Avenue	City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Good
McDonald Lane											
12th Street to 14th Street (Kirby St.)	City	Local Street	25	60	24	2	Two-way	Both Sides	No	Yes	Fair
Fourteenth Street to Nineteenth Street	City	Minor Collector	25	50	36	2	Two-way	Both Sides	No	Yes	Good
19th Street to 27th Street	City	Minor Collector	25	55	36	2	Two-way	Both Sides	No	Yes	Good
27th Street to 30th Street	City	Minor Collector	25	50	36	2	Two-way	Both Sides	No	Yes	Fair
McDaniel Lane											
Lafayette Avenue to 17th Street	City	Minor Collector	25	45	36	2	Two-way	Both Sides	No	Yes	Fair
17th Street to 27th Street	City	Minor Collector	25	50	36	2	Two-way	Both Sides	No	Yes	Fair
Evans Street											
Holly Way to First Street	City	Local Street	25	60	30	2	Two-way	Both Sides	No	Yes	Poor
First Street to Fifth Street	City	Local Street	25	60	38	2	Two-way	Both Sides	No	Yes	Fair
Fifth Street to Sixth Street	City	Local Street	25	60	38	2	Two-way	Both Sides	No	Yes	Poor
Sixth Street to Eighth Street	City	Local Street	25	60	38	2	Two-way	Both Sides	No	Yes	Fair
Eighth Street to Ninth Street	City	Minor Collector	25	60	30	2	Two-way	North-bound	No	Yes	Poor
Ninth Street to Eleventh Street	City	Minor Collector	25	60	30	2	Two-way	North-bound	No	Yes	Fair
Eleventh Street to Fifteenth Street	City	Minor Collector	25	60	24	2	Two-way	No	No	Yes	Good
Fifteenth Street to Nineteenth Street	City	Minor Collector	25	60	38	2	Two-way	Both Sides	No	Yes	Good
Nineteenth Street to Highway 99W	City	Minor Collector	25	60	38	2	Two-way	Both Sides	No	Yes	Fair
Highway 99W to 24th Street	City	Minor Collector	25	70	36	2	Two-way	Both Sides	No	Yes	Fair
24th Street to 27th Street	City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Fair
27th Street to Burnett Road	City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Good
27th Street											
Baker Street to Hembree Street	City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Good
Hembree Street to McDonald Lane	City	Minor Collector	25	45	36	2	Two-way	Both Sides	No	Yes	Fair
McDonald Lane to Newby Street	City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Fair
Newby Street to Melody Street	City	Minor Collector	25	50	36	2	Two-way	Both Sides	No	Yes	Fair
Melody Street to Highway 99W	City	Minor Collector	25	60	36	2	Two-way	Both Sides	No	Yes	Fair
First Street											
Adams Street to Third Street	City	Local Street	25	60	38	2	Two-way	Both Sides	No	Yes	Good
Third Street to Ford Street	City	Local Street	25	60	30	2	Two-way	Both Sides	No	Yes	Good
Ford Street to Kirby Street	City	Local Street	25	60	30	2	Two-way	Both Sides	No	Yes	Poor
Kirby Street to Anne Street	City	Local Street	25	60	30	2	Two-way	Both Sides	No	Yes	Good
Fleishauer Lane											
Goucher Street to Fellows Street	City	Local Street	25	60	36	2	Two-way	Both Sides	No	Yes	Good
Fellows Street to Russ Lane	City	Local Street	25	60	36	2	Two-way	Both Sides	No	Yes	Good
Russ Lane to Dorothy Street	City	Local Street	25	55	27	2	Two-way	Both Sides	No	Yes	Good
Dorothy Street to Century Court	City	Local Street	25	55	21	2	Two-way	Both Sides	No	Yes	Good
Century Court to West Second Street	City	Local Street	25			2	Two-way	Both Sides	No	Yes	Good

TABLE A-1 (continued)

1991 MAJOR STREETS INVENTORY

McMINNVILLE TRANSPORTATION PLAN

Street	Juris-diction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	No. of Travel Lanes	Direction of Travel	Parking	Bike Route	Truck Route	Pavement Condition
Eleventh Street											
Wallace Road to Michelbook Lane	City	Local Street	25	60	30	2	Two-way	No	No	Yes	Good
Michelbook Lane to Elm Street	City	Local Street	25	60	30	2	Two-way	Both Sides	No	Yes	Good
Elm Street to Yamhill Street	City	Local Street	25	60	32	2	Two-way	Both Sides	No	Yes	Good
Yamhill Street to Irvine Street	City	Local Street	25	60	28	2	Two-way	Both Sides	No	Yes	Good
Irvine Street to Railroad	City	Local Street	25	60	28	2	Two-way	Both Sides	No	Yes	Poor

Table A-2
McMinnville Employment Estimates
Year 2011

Zone #	Comm.	Office	Indust.	Wrhse.	Hosp.	Spec.	Fire	Govt.	School	Total
1						5				5
2						4				4
3	7									7
4	100	100							50	250
5						21			10	31
6						5			41	46
7										0
8	38	20						22		80
9										0
10	20									20
11	36	11								47
12										0
13										0
14	130	20							45	195
15	225	30								255
16										0
17						10				10
18	262	30				40				332
19	375	20								395
20	225	20							95	340
21	140	12	80							232
22		11								11
23	43		650	25		12		60		790
24	104	34							55	193
25									75	75
26	38									38
27	50	20								70
28	50	10				10				70
29	400	50	25			5				480
30		100	1000	200						1300
31	191	252						25		468
32	150	100						240		490
33	85	10	16					90		201
34	130	50				7	16	300		503
35	233	15				5		70		323
36	85		100					22	40	247
37			80					30		110
38										0
39	96	45								141
40	50	16				4			10	80
41	50	25				4			10	89
42	45								420	465
43	350	60	800							1210
44										0
45	48		50							98
46	45	20	40	20						125
47	25					385				410

Table A-2
McMinnville Employment Estimates
Year 2011

Zone #	Comm.	Office	Indust.	Wrhse.	Hosp.	Spec.	Fire	Govt.	School	**Total**
48	100	40								140
49	40	100	1500	550	400	150		16		2756
50										0
51	35						10			45
52										0
53										0
54										0
55									100	100
56										0
57	300	40				9				349
58	600	60				50				710
59										0
60	69	33								102
Total	4970	1354	4341	795	400	726	26	875	951	14438
% of total emp.	0.33	0.08	0.24	0	0.03	0.11	0	0.1	0.11	1

Table A-2
McMinnville Employment Estimates - Current

Zone #	Comm.	Office	Indust.	Wrhse.	Hosp.	Spec.	Fire	Govt.	School	Total
1						5				5
2						4				4
3	7									7
4	59	60							46	165
5						21			7	28
6						5			41	46
7										0
8	26							11		37
9										0
10										0
11	25	11								36
12										0
13										0
14	25									25
15	132									132
16										0
17						10				10
18	156	15				40				211
19	310	9								319
20	162								82	244
21	103	7	80							190
22		11								11
23	43		554			12		48		657
24	84	20							41	145
25									88	88
26	14									14
27	30	20								50
28	14					10				24
29	18		79			5				102
30			314							314
31	141	222						13		376
32	94	25						301		420
33	42		16					77		135
34	80	40				7	10	135		272
35	143					5		42		190
36	53							12	29	94
37								18		18
38										0
39	46	20			215					281
40	14	8				4			5	31
41						4			7	11
42	25								388	413
43	15		521							536
44										0
45	26									26
46	3									3
47						385				385
48										0

Table A-2
McMinnville Employment Estimates - Current

Zone #	Comm.	Office	Indust.	Wrhse.	Hosp.	Spec.	Fire	Govt.	School	Total
49	12		12			150		10		184
50										0
51										0
52										0
53										0
54										0
55										0
56										0
57	220	25				9				254
58						50				50
59										0
60	59	20								79
Total	2181	513	1576	0	215	726	10	667	734	6622
% of total emp.	0.33	0.08	0.24	0	0.03	0.11	0	0.1	0.11	1

Table A-2
McMinnville Employment Estimates - Build-Out

Zone #	Comm.	Office	Indust.	Wrhse.	Hosp.	Spec.	Fire	Govt.	School	**Total**
1	135					5				140
2						4				4
3	7									7
4	118	120							50	288
5						21			12	33
6						5			48	53
7										0
8	52	26						25		103
9										0
10	30									30
11	25	11								36
12									55	55
13										0
14	300	100								400
15	380	120								500
16										0
17						10				10
18	312	30				40				382
19	460	30								490
20	262	20							95	377
21	153	12	80							245
22		11								11
23	43		754	100		12		68		977
24	104	40							60	204
25									88	88
26	44									44
27	50	30								80
28	50	30				10				90
29	530	150	0			5				685
30	50	340	2610	400						3400
31	191	292						25		508
32	174	120						250		544
33	102	40	16					100		258
34	150	78				7	16	320		571
35	233	50				5		75		363
36	153		240					30	45	468
37			140					35		175
38										0
39	100	50			215					365
40	114	68				4			15	201
41	100	60				4			10	174
42	80								450	530
43	700	260	1440							2400
44										0
45	100		362							462
46	93	40	70	20						223
47	25					500				525

Table A-2
McMinnville Employment Estimates - Build-Out

Zone #	Comm.	Office	Indust.	Wrhse.	Hosp.	Spec.	Fire	Govt.	School	**Total**
48	150	175								325
49	50	400	2626	1000	450	300		20		4846
50										0
51	40						12			52
52										0
53										0
54									110	110
55										0
56										0
57	578	50				9				637
58	830	70				50				950
59										0
60	79	30								109
Total	7147	2853	8338	1520	665	991	28	948	1038	23528
% of total emp.	0.3	0.12	0.35	0.06	0.03	0.04	0	0.04	0.04	1

Table A-2
McMinnville Population Forecasts

	1991			2011			Build-out		
Zone #	SFDU	MFDU	Populat.	SFDU	MFDU	Populat.	SFDU	MFDU	Populat.
1	1		3	83		208	430		1075
2	288		734	497		1243	840		2100
3	300	6	775	348	6	880	396	10	1007
4	361	13	943	400	27	1046	400	27	1046
5	12	150	287	466	280	1644	574	600	2461
6	312	92	953	450	120	1330	480	120	1405
7	122	40	380	163	140	647	200	170	791
8	381	68	1088	381	68	1069	381	68	1069
9	192	36	551	620	36	1612	750	36	1937
10	272	48	776	567	98	1585	622	300	2068
11	364	182	1239	364	222	1290	364	260	1355
12	7		18	7	250	445	250	460	1412
13	192		490	367		918	660		1650
14	34		87	70		175	150	250	803
15	200	80	647	200	100	671	180	150	707
16	110		281	328	100	991	520	420	2018
17	147		375	288	80	857	800	400	2684
18	257	69	773	270	90	829	270	90	829
19		90	154		90	154		90	154
20	25	64	173	20	80	187	20	180	358
21	1		3		50	86		80	137
22	40		102	80		200	120	50	386
23	6		15			0			0
24	32		82	30	40	143	28	40	138
25	164		418	164		410	164		410
26	200	12	531	210	12	546	210	12	546
27	90	32	284	75	50	273	70	100	346
28	304		775	300	40	818	250	120	830
29	15		38			0			0
30			0			0			0
31	55	20	174	40	40	168	30	80	212
32	35	15	115	25	60	165	20	80	187
33	10		26			0			0
34			0			0			0
35	22		56	15		38	5	40	81
36	350		892	350	100	1046	350	140	1114
37	22		56	22		55		120	205
38	80		204	80		200	80		200
39	6	24	56		24	41		24	41
40	200	40	578	180	80	587	180	130	672
41	63		161	55	25	180	50	80	262
42	150	278	858	150	428	1107	150	600	1401
43			0			0			0
44	25		64	169		423	290		725
45	60		153	130	40	393	250	160	899
46	200		510	200	50	586	200	320	1047

Table A-2
McMinnville Population Forecasts

	1991			2011			Build-out		
Zone #	SFDU	MFDU	Populat.	SFDU	MFDU	Populat.	SFDU	MFDU	Populat.
47			0			0			0
48	80		202	270	250	1103	400	600	2026
49	95		242	35	120	293	35	220	464
50			0	400		1000	880		2200
51	4		10	634		1585	952		2380
52	1		3	200		500	476		1190
53	300		765	330	25	868	330	150	1082
54			0	250		625	688		1720
55	4		10	200		500	336		840
56	140		357	308		770	480		1200
57		76	130		76	130		76	130
58			0			0			0
59			0	110		275	496		1240
60	10		26	4		10			0
Total	6341	34867	18623	10905	44034	32905	15807	6853	51240
% Total DU's	0.82	0.18		0.77	0.23		0.7	0.3	

TABLE A-3
LOCATION OF SHOPPING BY McMINNVILLE RESIDENTS
McMinnville Transportation Plan
1991

	Groceries and Convenience Items	*Clothing and Other Compairson Items*
Downtown McMinnville	21%	26%
Along Hwy 99W	71%	33%
Other McMinnville	4%	2%
Subtotal (McMinnville)	96%	61%
Salem	0%	15%
Portland	0%	8%
Tigard	0%	7%
Beaverton	0%	2%
Other	4%	7%
TOTAL	100%	100%

Source: Telephone Interview

TABLE A-4
LOCATION OF WORK BY McMINNVILLE RESIDENTS
McMinnville Transportation Plan
1991

Downtown McMinnville	28%
Along Hwy 99W	37%
Airport Area	5%
Other McMinnville	4%
Subtotal (McMinnville)	74%
Newberg	5%
Portland	4%
Beaverton	2%
Salem	2%
Other	13%
TOTAL	100%

Source: Telephone Interview

TABLE A-5
McMINNVILLE THROUGH TRAFFIC
1991 PM Peak Hour

Trips From:	*Trips to:* Hwy 99W South	Hwy 18 S.W.	Three Mile Lane	West 2nd Str.	Baker Creek Road	West Side Road	Hwy 99W East	Old Sher. Road	*Total*
Highway 99W, South	-	10	6	5	3	10	13	1	48
Highway 18, Southwest	8	-	5	1	2	8	9	0	33
Three Mile Lane	3	7	-	6	0	4	18	0	38
West 2nd Street	5	0	4	-	0	0	1	1	11
Baker Creek Road	0	1	0	0	-	1	2	0	4
West Side Road	14	11	2	0	2	-	3	0	32
Highway 99W, East	14	10	7	2	2	4	-	0	39
Old Sheridan Road	0	1	0	1	0	0	0	-	2
TOTAL	44	40	24	15	9	27	46	2	**207**

Source: License Plate Matching Survey

APPENDIX D

APPENDIX FIGURES

MILES
0 0.5 1.0

FIGURE A-1
TRANSPORTATION ANALYSIS ZONES

LEGEND:

(S) = TRAFFIC SIGNAL

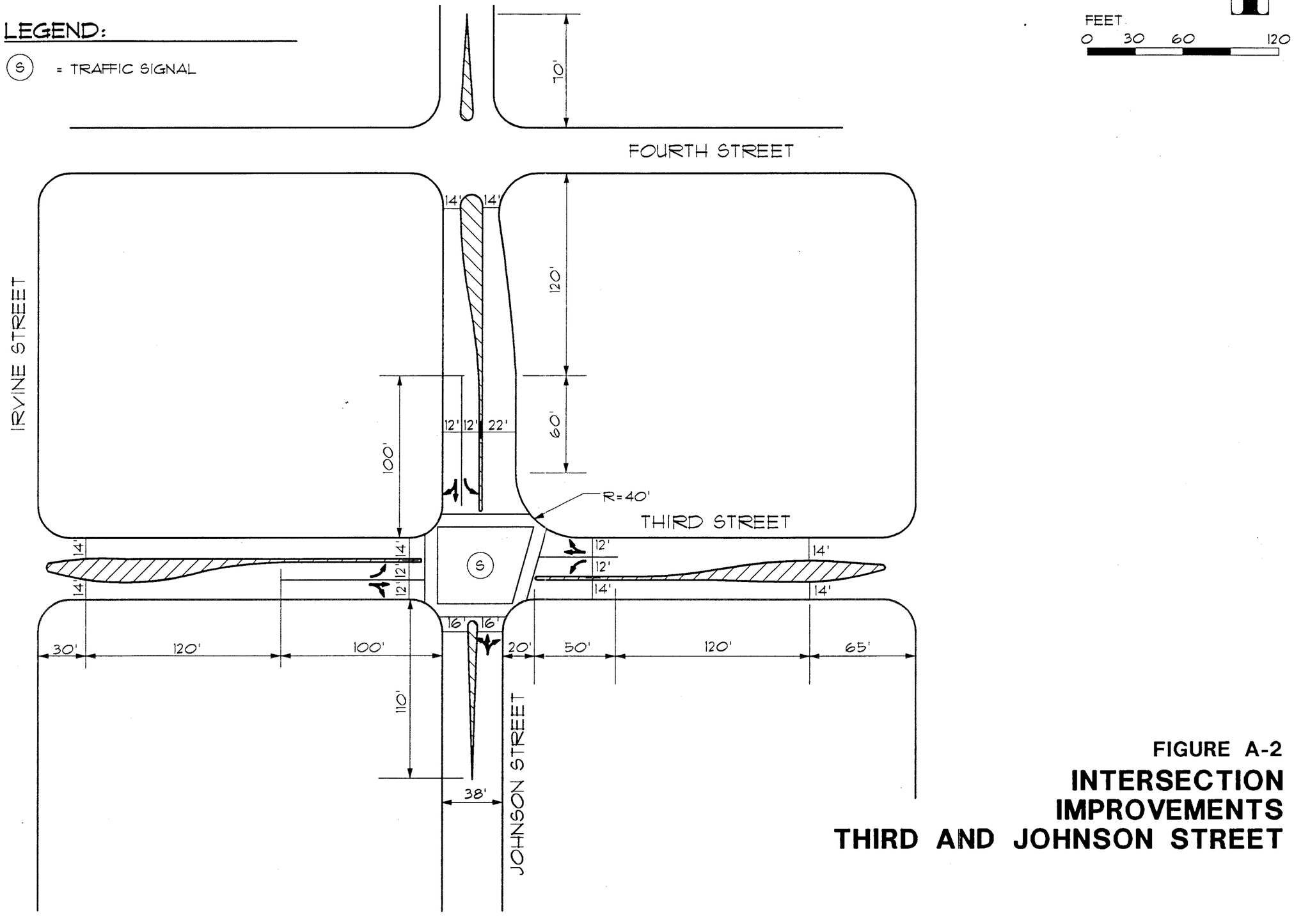

FIGURE A-2

INTERSECTION IMPROVEMENTS THIRD AND JOHNSON STREET

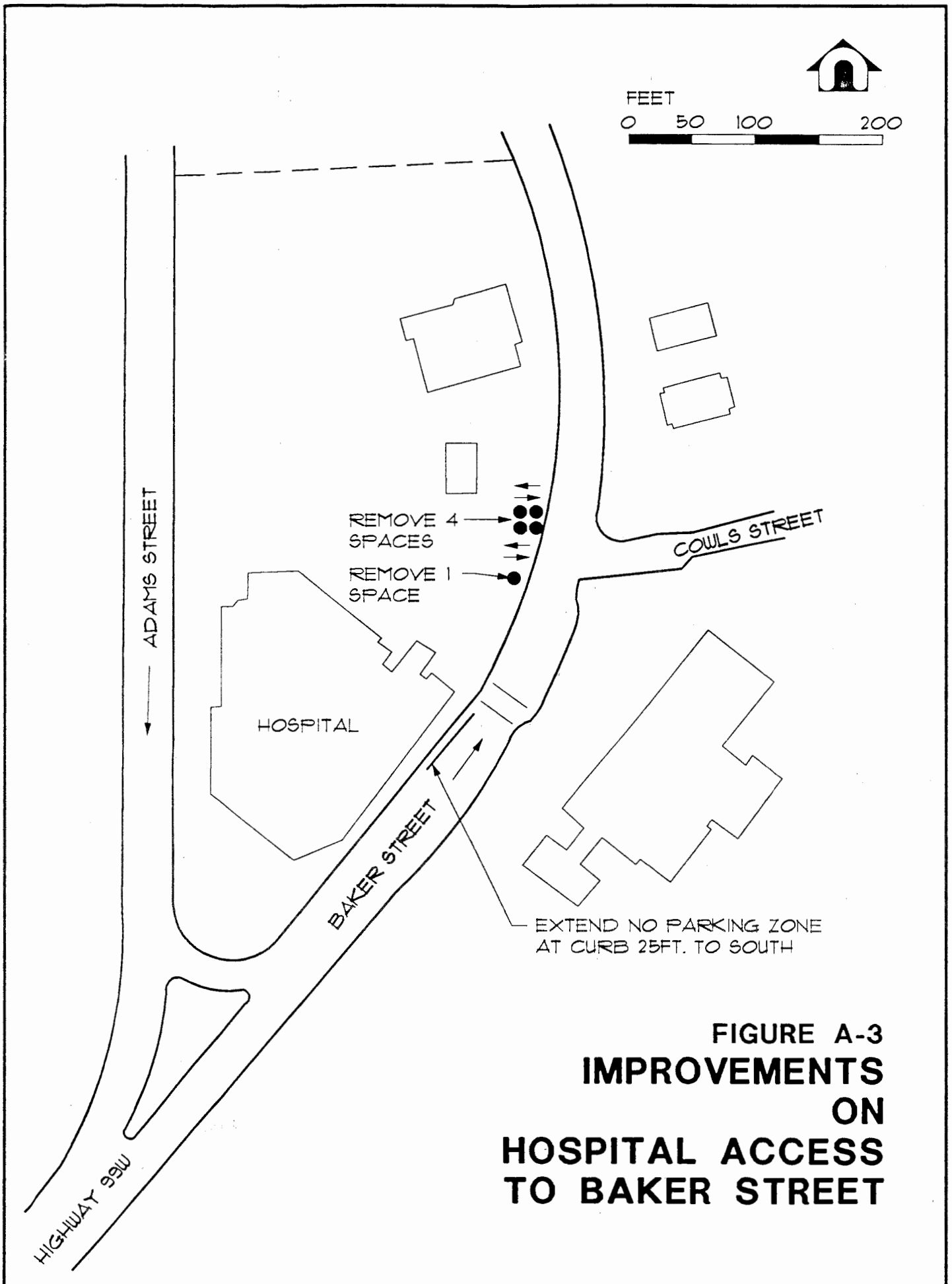

FIGURE A-3

IMPROVEMENTS ON HOSPITAL ACCESS TO BAKER STREET

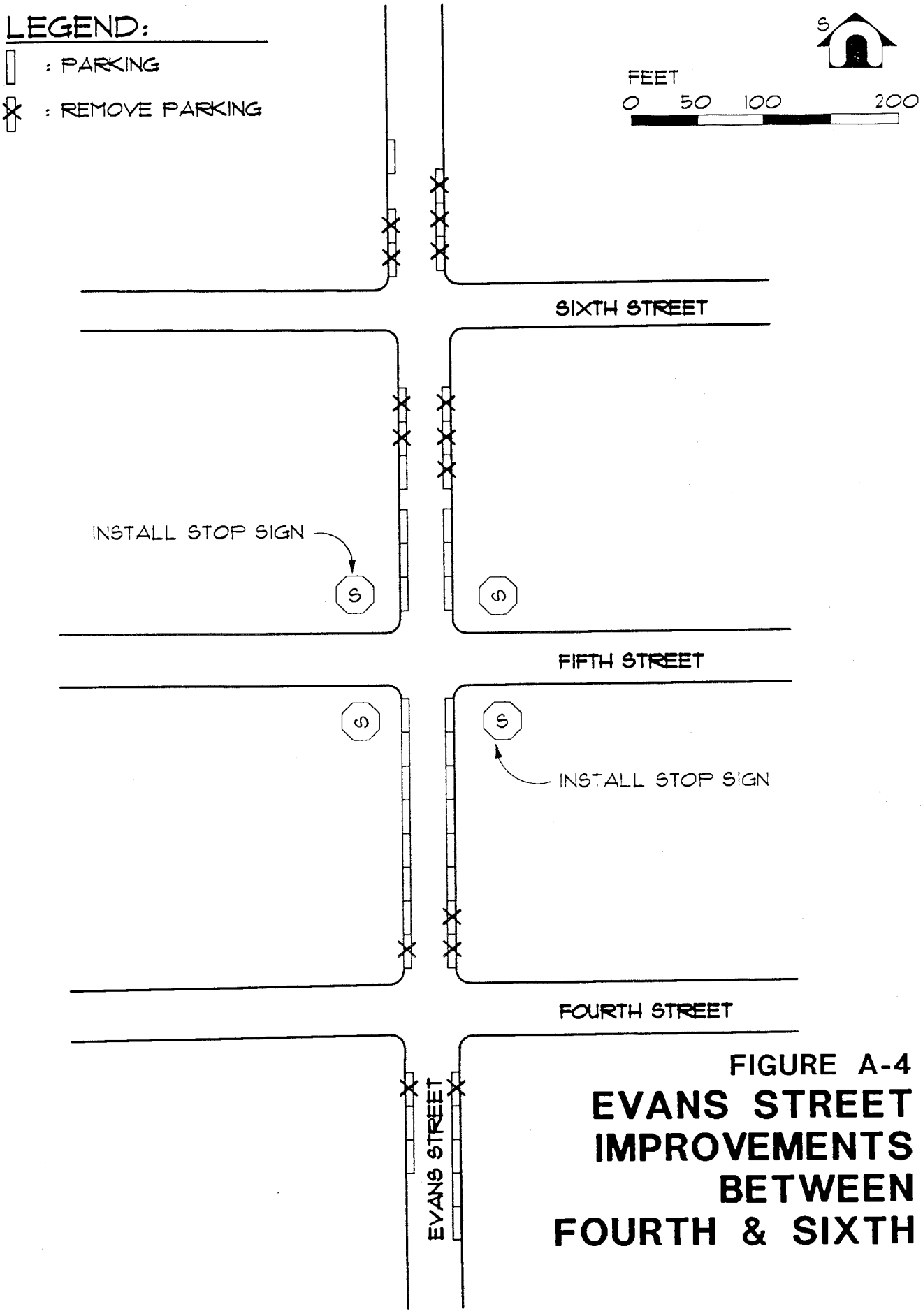

FIGURE A-4

EVANS STREET IMPROVEMENTS BETWEEN FOURTH & SIXTH

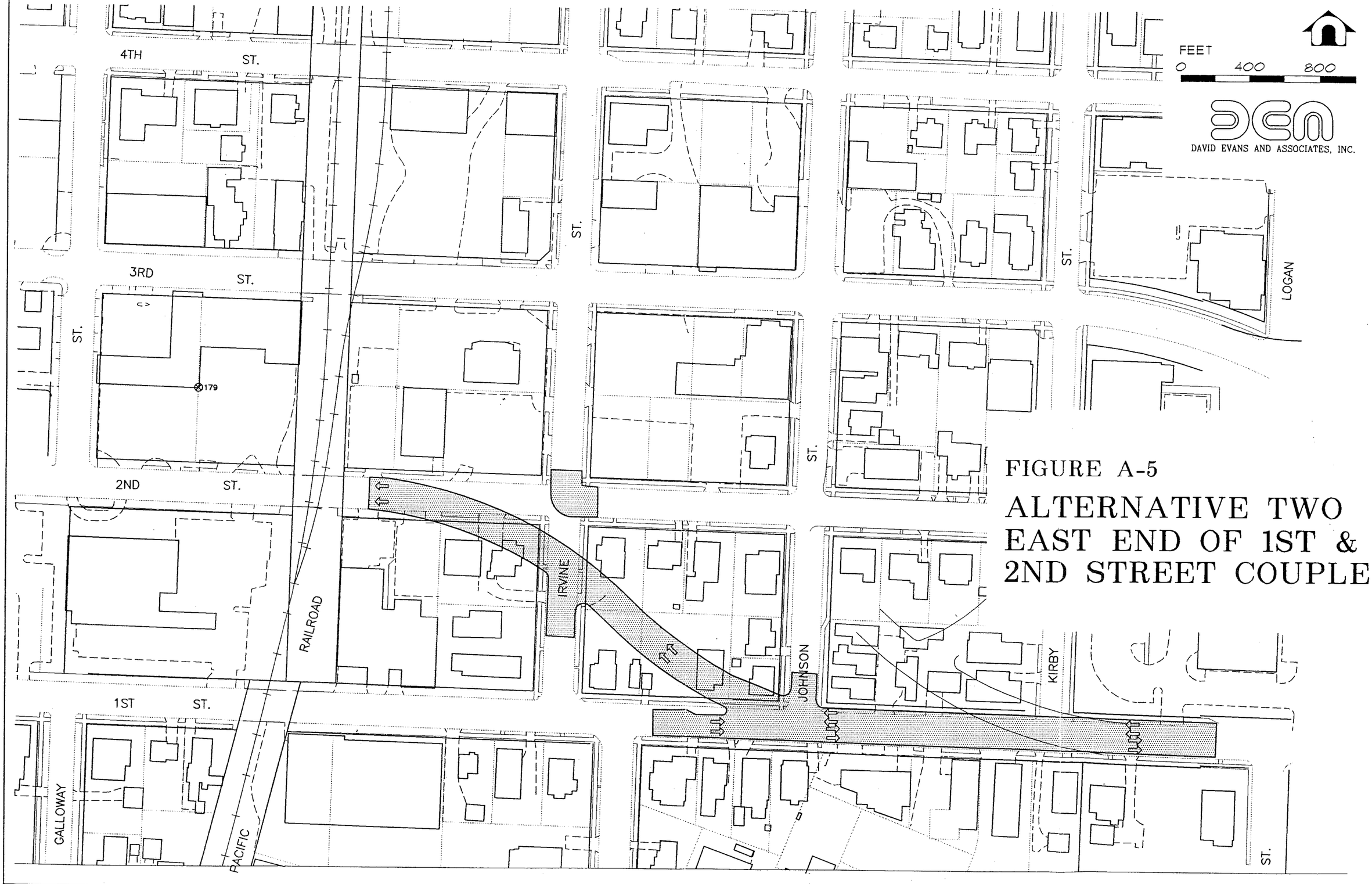

FIGURE A-5

ALTERNATIVE TWO EAST END OF 1ST & 2ND STREET COUPLET

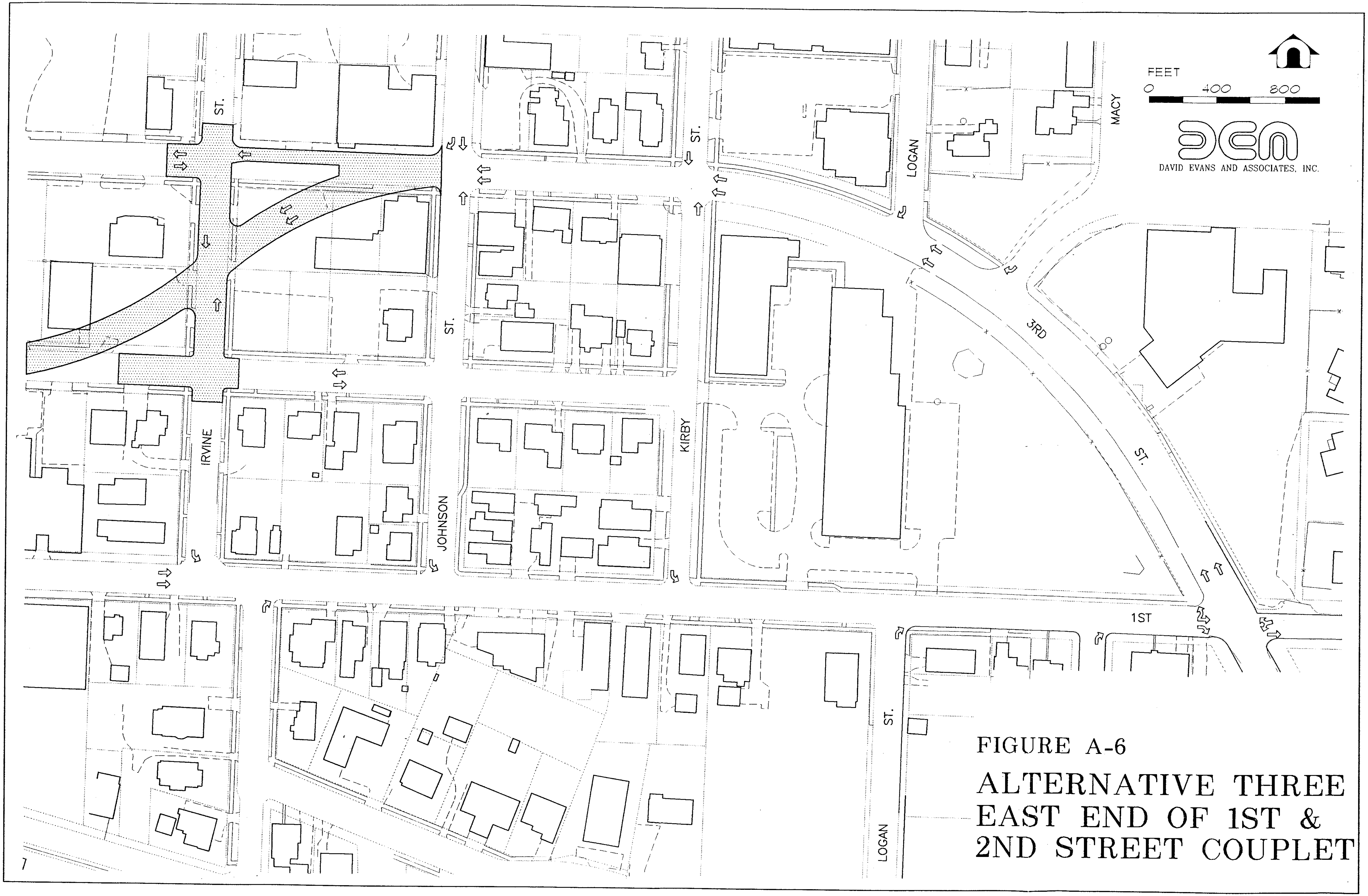

FIGURE A-6

ALTERNATIVE THREE EAST END OF 1ST & 2ND STREET COUPLET

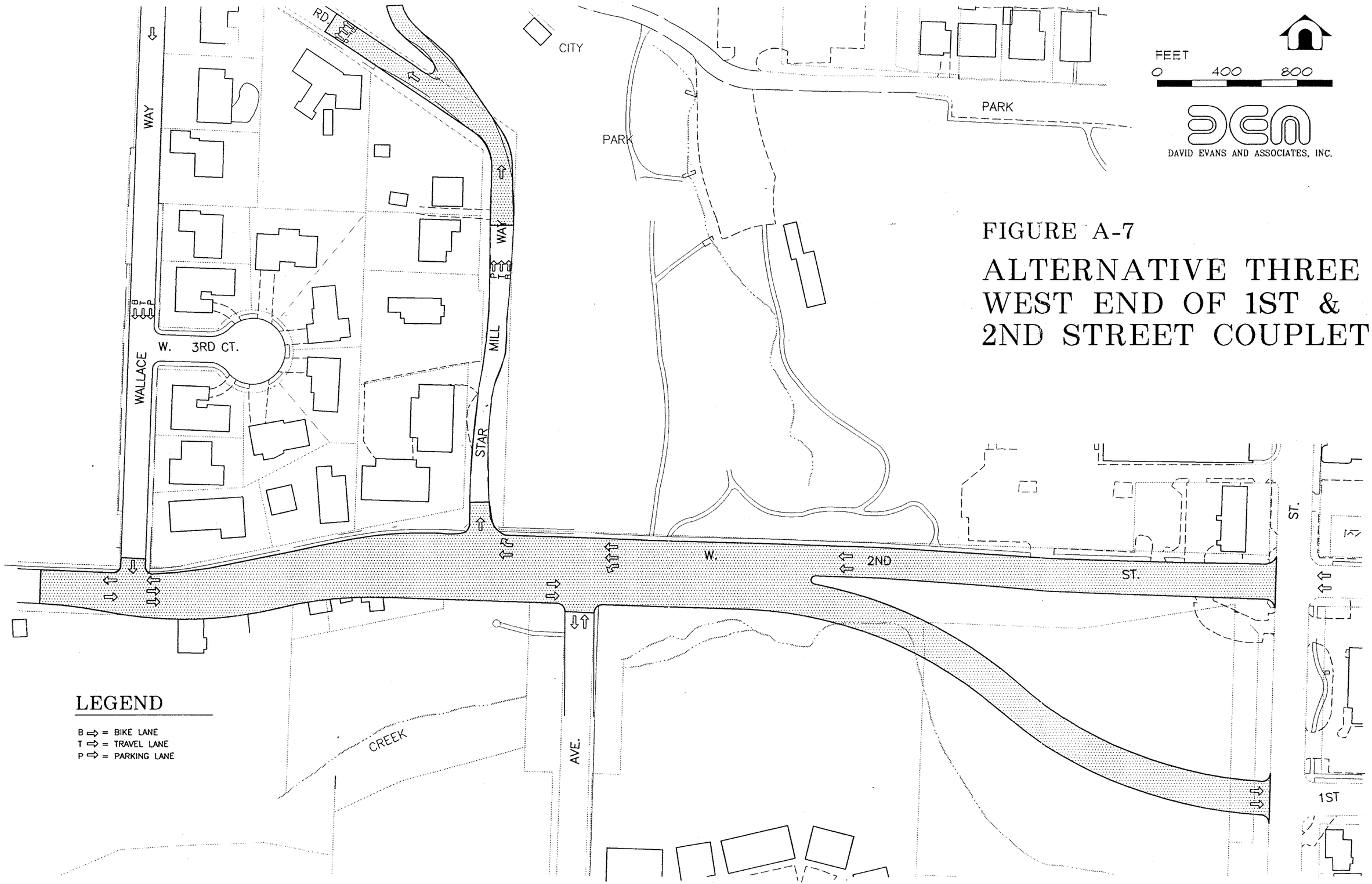

FIGURE A-7

ALTERNATIVE THREE WEST END OF 1ST & 2ND STREET COUPLET